CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO
NMED FACILITY PERMIT NOS. SWM-030738 AND SWM-030738 (SP)

APPLICATION FOR PERMIT MODIFICATION AND RENEWAL

VOLUME II OF VI
LANDFILL MANAGEMENT PLANS

Prepared for

Camino Real Environmental Center, Inc.

September 2022

JONATHAN VINCENT QUEEN
25844

9/26/22

Prepared by

Weaver Consultants Group, LLC
6420 Southwest Boulevard, Suite 206
Fort Worth, Texas 76109
817-735-9770

IKG, LLC
24 Tejon Canon Rd.
Placitas, NM 87043
505-301-2026

WCG Project No. 0601-667-11-06

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Section

JONATHAN VINCENT QUEEN
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PROFESSIONAL ENGINEER

9/26/22

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO
NMED FACILITY PERMIT NOS. SWM-030738 AND SWM-030738(SP)

APPLICATION FOR PERMIT MODIFICATION AND RENEWAL

VOLUME II – LANDFILL MANAGEMENT PLANS
SECTION 1 – PERMIT DRAWINGS

JONATHAN VINCENT QUEEN
25844

9/26/22

Prepared for

Camino Real Environmental Center, Inc.

September 2022

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505-301-2026

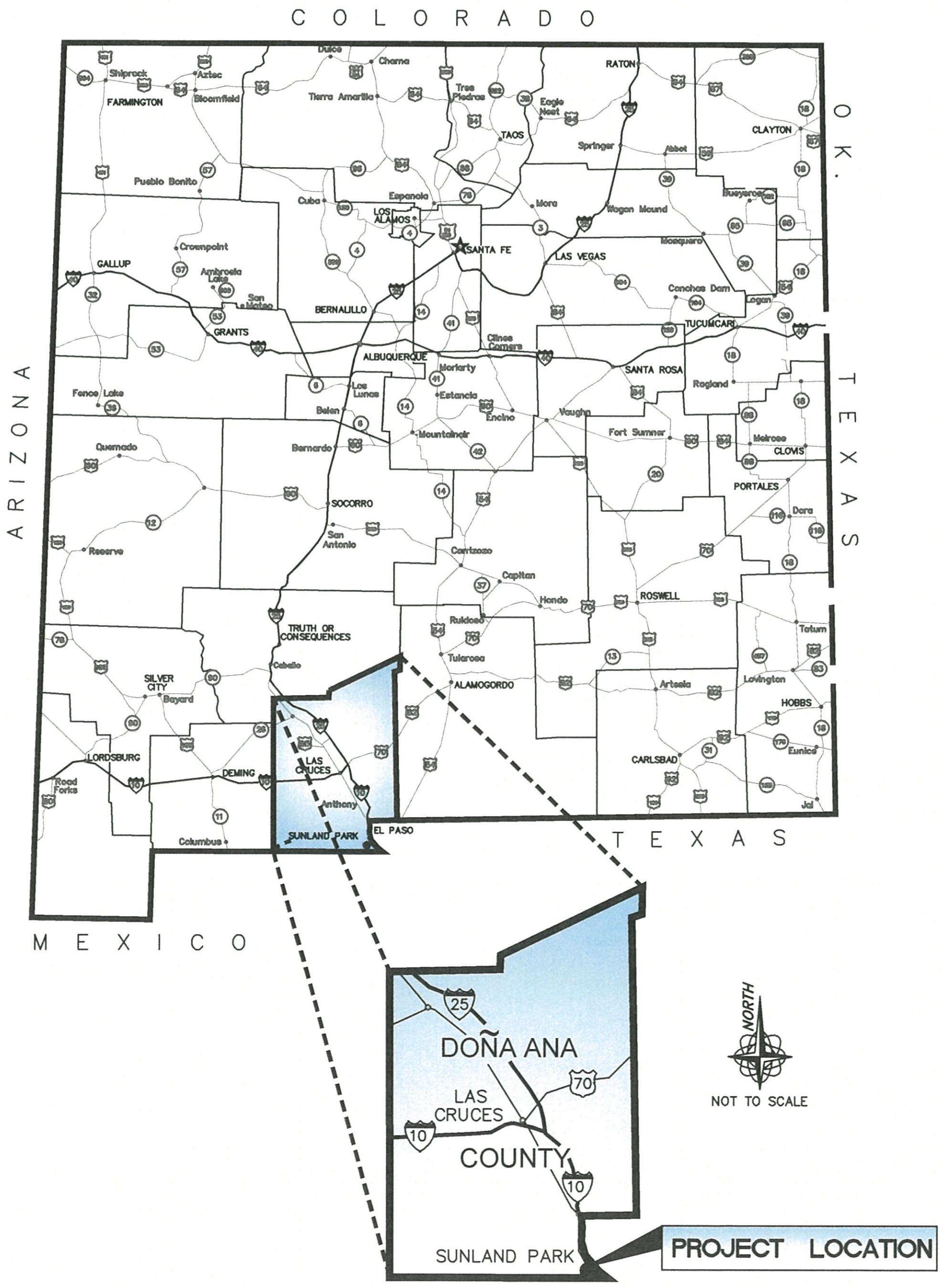
WCG Project No. 0601-667-11-06

LANDFILL CONFIGURATION PERMIT MODIFICATION RENEWAL PERMIT PLANS

CAMINO REAL LANDFILL

SUNLAND PARK, NM

SEPTEMBER 2022



PREPARED FOR

CAMINO REAL ENVIRONMENTAL CENTER, INC.

PREPARED BY

Weaver Consultants Group

6420 SOUTHWEST BLVD., SUITE 206
FORT WORTH, TEXAS 76109
(817) 735-9770
(817) 735-9775 (FAX)

INDEX TO DRAWINGS

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2	EXISTING SITE PLAN	0	09/2022
3	SITE DEVELOPMENT PLAN	0	09/2022
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12	LANDFILL CROSS SECTION C	0	09/2022
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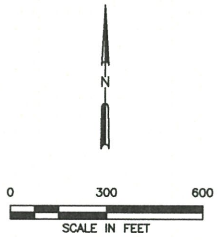

LEGEND

— · · —	PROPERTY BOUNDARY
— · — · —	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
— — — —	PERMITTED LIMITS OF WASTE FOR UNIT 2
— · — · —	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
——— – ———	CELL BOUNDARY
E 8,000	SITE GRID
4120	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
⊕ WELL B	EXISTING GROUNDWATER MONITOR WELL
⊕ WELL I	PERMITTED GROUNDWATER MONITOR WELL
⊕ WELL G	PERMITTED GROUNDWATER MONITOR WELL (TO BE ABANDONED)
⊙M-4	EXISTING LANDFILL GAS PROBE
⊙M-11	PERMITTED LANDFILL GAS PROBE
⊙M-17	PERMITTED LANDFILL GAS PROBE (TO BE REPLACED WITH PROPOSED LOCATIONS)
▨	EXISTING SPECIAL WASTE STORAGE AREA

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.

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☐ ISSUED FOR CONSTRUCTION

DATE: 09/2022
FILE: 0601-667-11
CAD: 2-SITE DEVELOPMENT PLAN.DWG

DRAWN BY: JDW
DESIGN BY: JAE
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

EXISTING SITE PLAN

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

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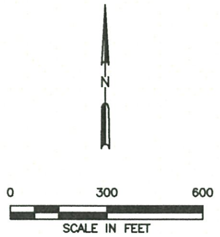
DRAWING 2



LEGEND

— · · —	PROPERTY BOUNDARY
— · —	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
— — —	PERMITTED LIMITS OF WASTE FOR UNIT 2
— · —	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
- - - -	ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4
—— – ——	CELL BOUNDARY
E 8,000	SITE GRID
4120	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
WELL B	EXISTING GROUNDWATER MONITOR WELL
WELL I	PERMITTED GROUNDWATER MONITOR WELL
WELL G	PERMITTED GROUNDWATER MONITOR WELL (TO BE ABANDONED)
WELL G2	PROPOSED GROUNDWATER MONITOR WELL
⊙M-4	EXISTING LANDFILL GAS PROBE
⊙M-11	PERMITTED LANDFILL GAS PROBE
⊙M-17	PERMITTED LANDFILL GAS PROBE (TO BE REPLACED WITH PROPOSED LOCATIONS)
⊙M-27	PROPOSED LANDFILL GAS PROBE

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.

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DATE: 09/2022
FILE: 0601-667-11
CAD: 3-SITE DEVELOPMENT PLAN.DWG

DRAWN BY: JDW
DESIGN BY: JAE
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

SITE DEVELOPMENT PLAN

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

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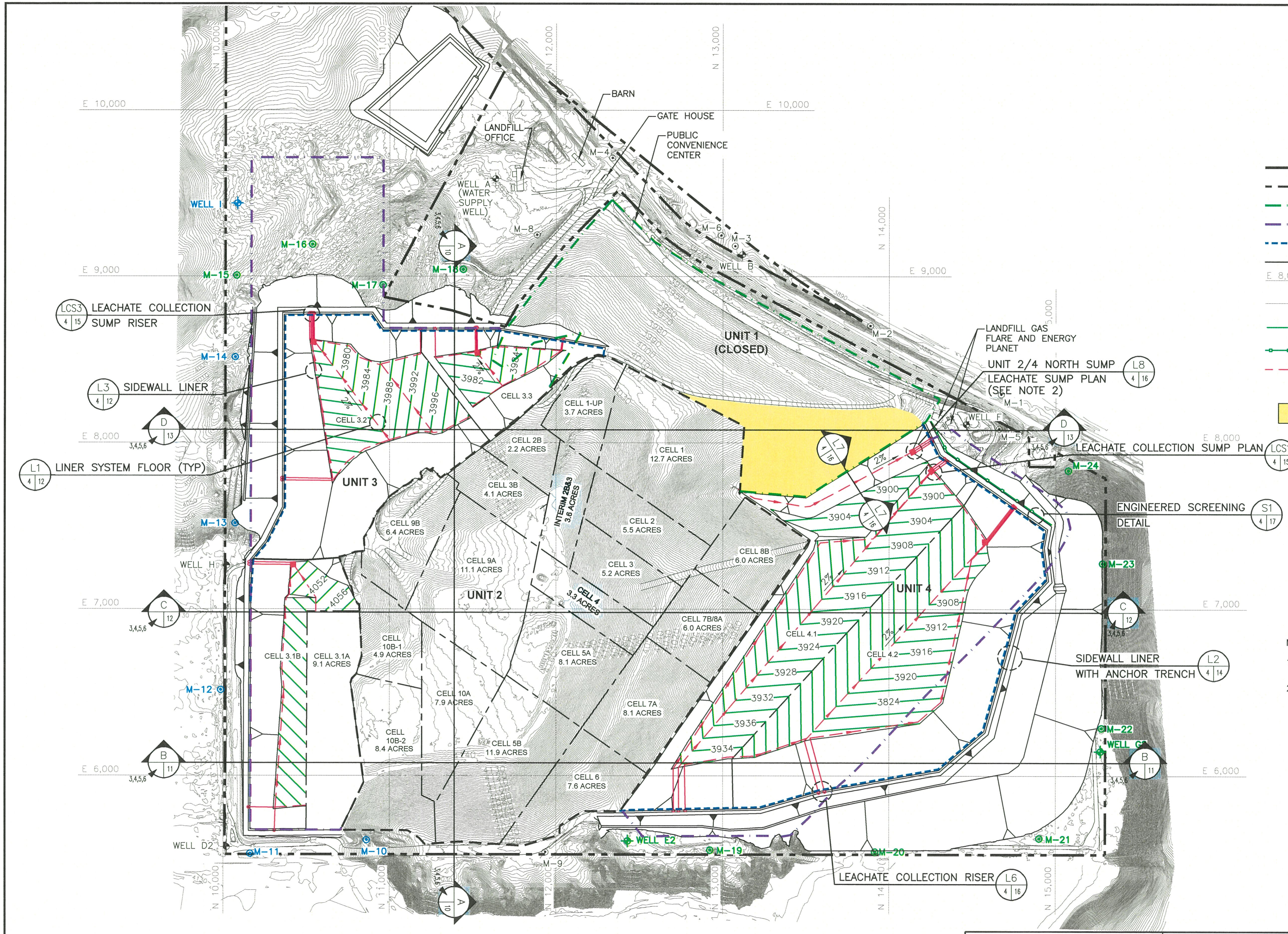
DRAWING 3

O:\0601\667\EXPANSION 2019\VOLUME 2\PERMIT DRAWINGS\3-PROP-SITE DEVELOPMENT PLAN.dwg, rarrington, 1:2



0 300 600
SCALE IN FEET

LEGEND

▬ ▪ ▬	PROPERTY BOUNDARY
▬ ▬ ▬	PERMITTED LIMITS OF WASTE FOR UNIT 2
▬ ▪ ▬	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
▬ ▪ ▬	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
▪▪▪▪	ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4
▬ ▬ ▬	CELL BOUNDARY
E 8,000	SITE GRID
4120	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
3980	PROPOSED SUBGRADE CONTOUR
○─○─○	10-FOOT TALL ENGINEERED FENCE TO PROVIDE SCREENING TO EAST
▬ ► ▬	LEACHATE COLLECTION PIPE
🟥	LEACHATE COLLECTION SUMP
🟨	UNIT 1 OVERLINER AREA
WELL B	EXISTING GROUNDWATER MONITOR WELL
WELL I	PERMITTED GROUNDWATER MONITOR WELL
WELL G2	PROPOSED GROUNDWATER MONITOR WELL
M-4	EXISTING LANDFILL GAS PROBE
M-11	PERMITTED LANDFILL GAS PROBE
M-27	PROPOSED LANDFILL GAS PROBE

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.
2. THE UNIT 2 SUMP IS LOCATED NORTHEAST OF UNIT 2. DURING THE DEVELOPMENT OF UNIT 4, THIS SUMP WILL BE REMOVED AND REPLACED WITH A NEW SUMP IN UNIT 4. UNIT 2 WILL BE CONNECTED TO THE SUMP BY LEACHATE COLLECTION PIPES THAT WILL SLOPE A MINIMUM OF 2% FROM UNIT 2 TO THE UNIT 4 SUMP.

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25844

J. Q
9/22/26

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DATE: 09/2022
FILE: 0601-667-11
CAD: 4-PROPOSED EXCAVATION PLAN.DWG

DRAWN BY: JDW
DESIGN BY: JAE
REVIEWED BY: JVQ

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REVISIONS

NO.	DATE	DESCRIPTION

EXCAVATION PLAN

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

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DRAWING 4

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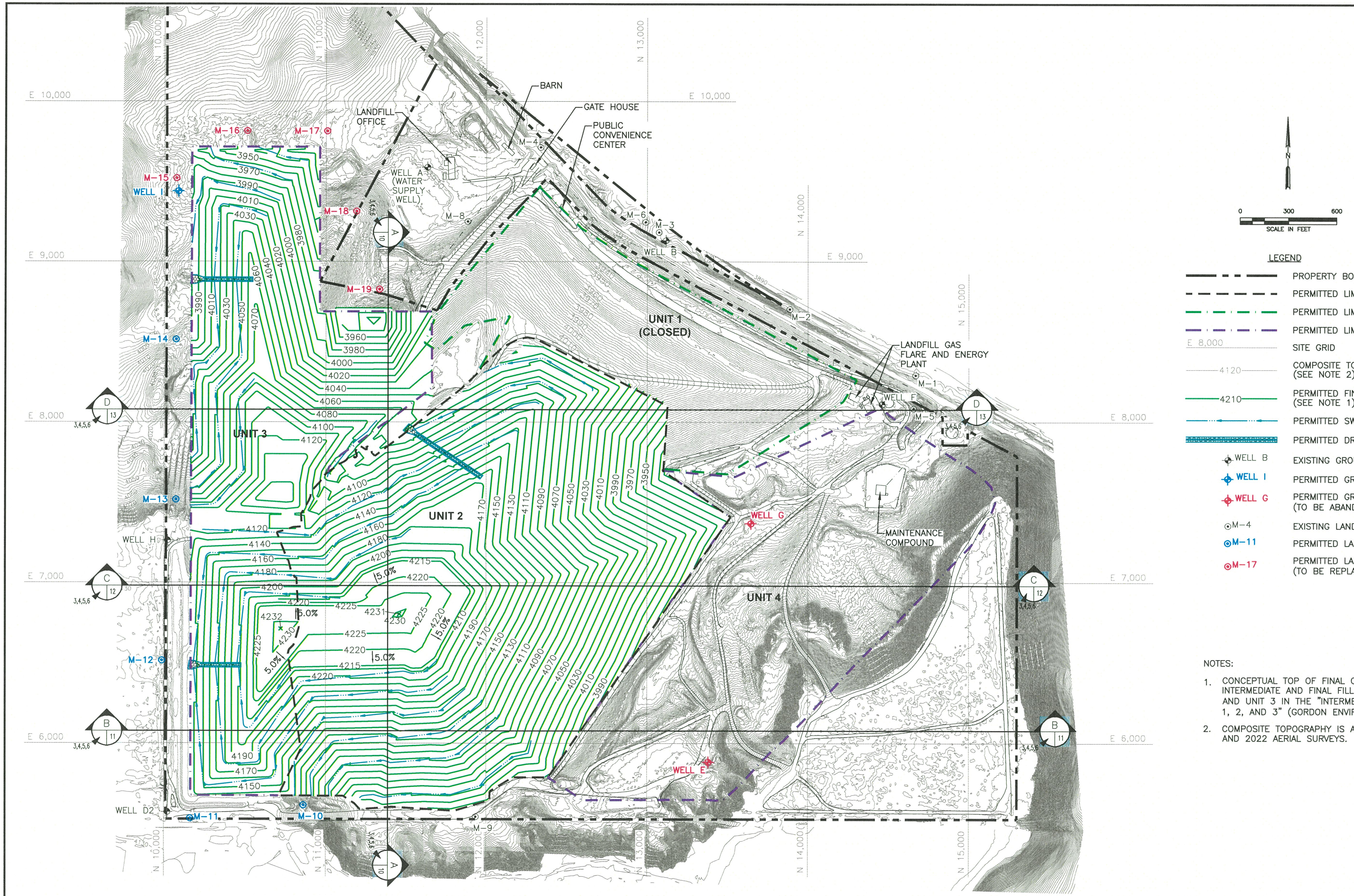

LEGEND

— · — · —	PROPERTY BOUNDARY
— — — —	PERMITTED LIMITS OF WASTE FOR UNIT 2
— · — · —	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
— · — · —	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
E 8,000	SITE GRID
4120	COMPOSITE TOPOGRAPHY (SEE NOTE 2)
4210	PERMITTED FINAL COVER GRADES (SEE NOTE 1)
←	PERMITTED SWALE
▨	PERMITTED DRAINAGE CHUTE
⌖ WELL B	EXISTING GROUNDWATER MONITOR WELL
⌖ WELL I	PERMITTED GROUNDWATER MONITOR WELL
⌖ WELL G	PERMITTED GROUNDWATER MONITOR WELL (TO BE ABANDONED)
⊙ M-4	EXISTING LANDFILL GAS PROBE
⊙ M-11	PERMITTED LANDFILL GAS PROBE
⊙ M-17	PERMITTED LANDFILL GAS PROBE (TO BE REPLACED WITH PROPOSED LOCATIONS)

NOTES:

1. CONCEPTUAL TOP OF FINAL COVER GRADES BASED ON INTERMEDIATE AND FINAL FILL GRADE CONTOURS FOR UNIT 2 AND UNIT 3 IN THE "INTERMEDIATE COMPLETION PLAN: UNITS 1, 2, AND 3" (GORDON ENVIRONMENTAL, INC. APRIL 2007).
2. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.

JONATHAN VINCENT QUEEN
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DATE: 09/2022
FILE: 0601-667-11
CAD: 5-PERMITTED FINAL CONTOURS.DWG

DRAWN BY: JDW
DESIGN BY: JAE
REVIEWED BY: JVQ

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CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

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PERMITTED COMPLETION PLAN

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

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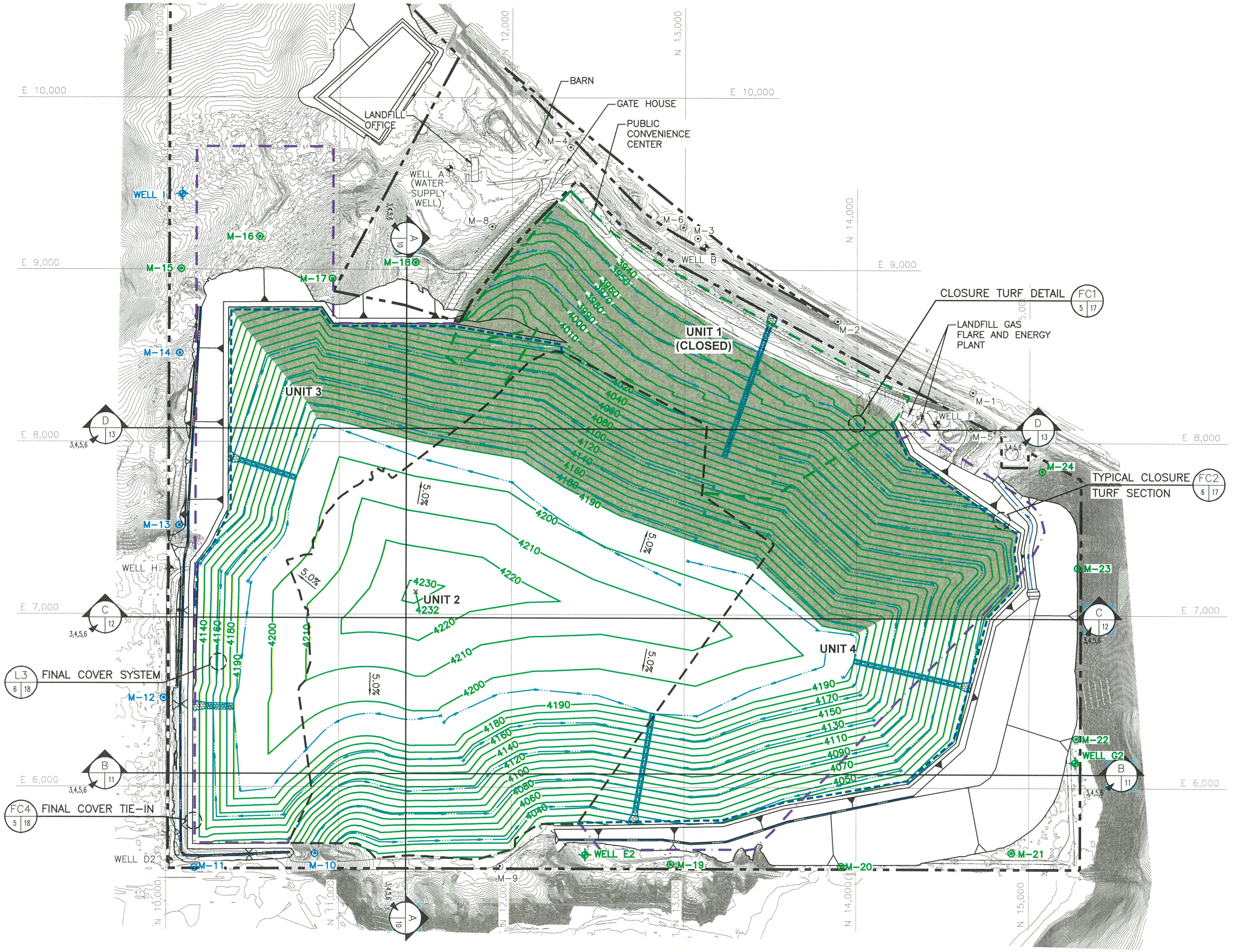
DRAWING 5

O:\0601\667\EXPANSION 2019\VOLUME 2\PERMIT DRAWINGS\5-PERMITTED FINAL CONTOURS.dwg, rarrington, 1:2



LEGEND

— — — —	PROPERTY BOUNDARY
- - - - - -	PERMITTED LIMITS OF WASTE FOR UNIT 2
— · — · —	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
— · — · —	PERMITTED LIMITS OF WASTE FOR UNIT 3 AND 4
- - - - - -	ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4
E 8,000	SITE GRID
4120	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
4170	PROPOSED FINAL CONTOUR
←···←	PROPOSED SWALE (SEE NOTE 2)
▨	PROPOSED DRAINAGE CHUTE (SEE NOTE 2)
WELL B	EXISTING GROUNDWATER MONITOR WELL
WELL I	PERMITTED GROUNDWATER MONITOR WELL
WELL G2	PROPOSED GROUNDWATER MONITOR WELL
⊙M-4	EXISTING LANDFILL GAS PROBE
⊙M-11	PERMITTED LANDFILL GAS PROBE
⊙M-27	PROPOSED LANDFILL GAS PROBE
▨	CLOSURE TURF AREA

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.
2. REFER TO VOLUME III, SECTION 8 FOR DRAINAGE DETAILS.

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DATE: 09/2022
FILE: 0601-667-11
CAD: 6-PROPOSED FINAL CONTOUR PLAN.DWG

DRAWN BY: JDW
DESIGN BY: JAE
REVIEWED BY: JVQ

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CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

PROPOSED COMPLETION PLAN

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

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DRAWING 6

O:\0601\667\EXPANSION 2019\VOLUME 2\PERMIT DRAWINGS\6-PROP FINAL CONTOUR PLAN.dwg, rarrington, 1:2

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N

0 300 600
SCALE IN FEET

LEGEND

— · · —	PROPERTY BOUNDARY
— · —	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
— — —	PERMITTED LIMITS OF WASTE FOR UNIT 2
— · —	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
—— — ——	CELL BOUNDARY
E 8,000	SITE GRID
4120	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
➡	STORMWATER DISCHARGE POINT
⌖ WELL B	EXISTING GROUNDWATER MONITOR WELL
⌖ WELL I	PERMITTED GROUNDWATER MONITOR WELL
⌖ WELL G	PERMITTED GROUNDWATER MONITOR WELL (TO BE ABANDONED)
⊙ M-4	EXISTING LANDFILL GAS PROBE
⊙ M-11	PERMITTED LANDFILL GAS PROBE
⊙ M-17	PERMITTED LANDFILL GAS PROBE (TO BE REPLACED WITH PROPOSED LOCATIONS)

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.

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DATE: 09/2022
FILE: 0601-667-11
CAD: 7-EX DRAINAGE PLAN.DWG

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DESIGN BY: JAE
REVIEWED BY: JVQ

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REVISIONS

NO.	DATE	DESCRIPTION

EXISTING DRAINAGE CONDITIONS

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

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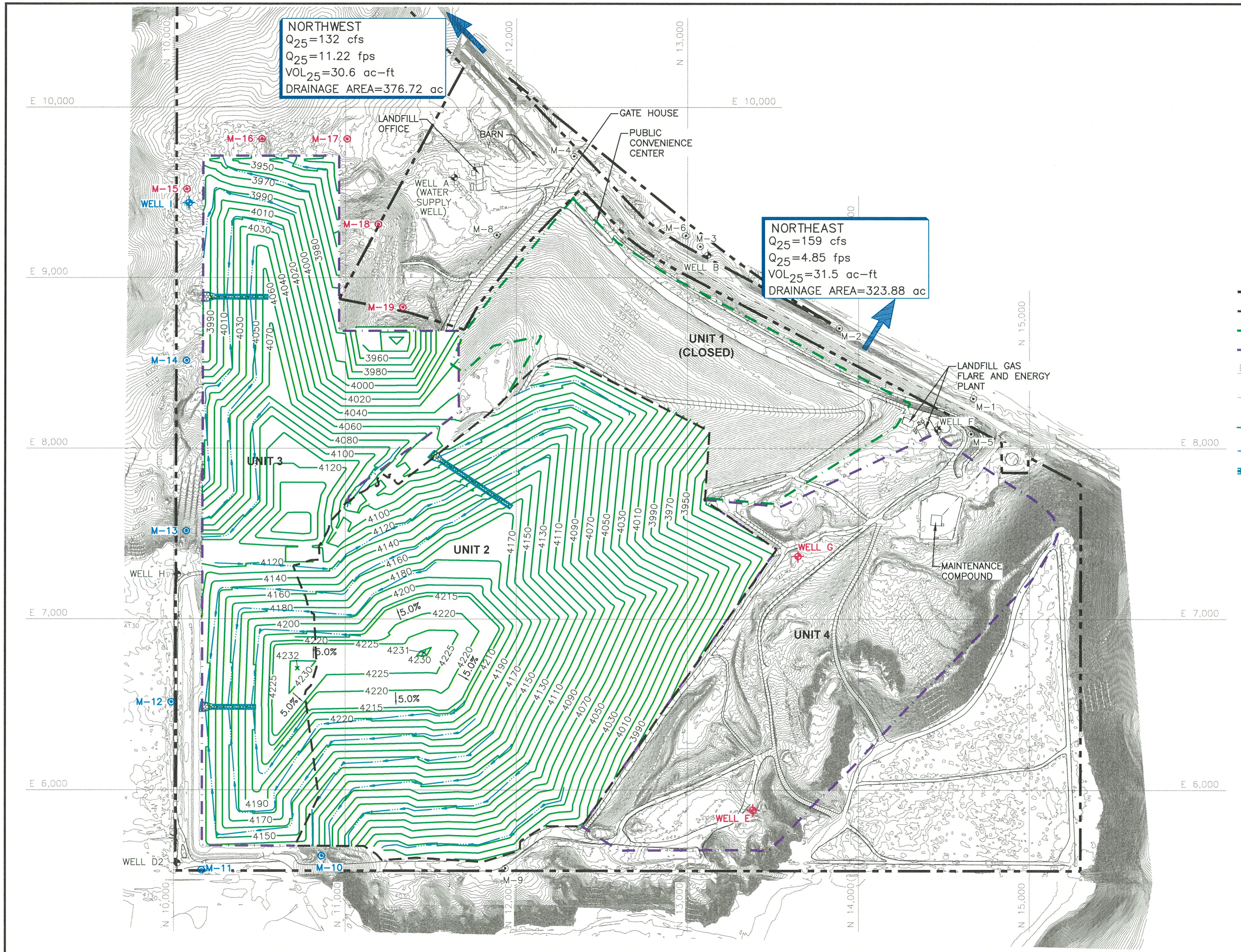
DRAWING 7



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0 300 600
SCALE IN FEET

JONATHAN VINCENT QUEEN
NEW MEXICO
25844
PROFESSIONAL ENGINEER

9/26/22

LEGEND

	PROPERTY BOUNDARY
	PERMITTED LIMITS OF WASTE FOR UNIT 2
	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
E 8,000	SITE GRID
4120	COMPOSITE TOPOGRAPHY (SEE NOTE 2)
4210	PERMITTED FINAL COVER GRADES (SEE NOTE 1)
	PERMITTED SWALE
	PERMITTED DRAINAGE CHUTE
	STORMWATER DISCHARGE POINT
WELL B	EXISTING GROUNDWATER MONITOR WELL
WELL I	PERMITTED GROUNDWATER MONITOR WELL
WELL G	PERMITTED GROUNDWATER MONITOR WELL (TO BE ABANDONED)
M–4	EXISTING LANDFILL GAS PROBE
M–11	PERMITTED LANDFILL GAS PROBE
M–17	PERMITTED LANDFILL GAS PROBE (TO BE REPLACED WITH PROPOSED LOCATIONS)

NOTES:

1. CONCEPTUAL TOP OF FINAL COVER GRADES BASED ON INTERMEDIATE AND FINAL FILL GRADE CONTOURS FOR UNIT 2 AND UNIT 3 IN THE "INTERMEDIATE COMPLETION PLAN: UNITS 1, 2, AND 3" (GORDON ENVIRONMENTAL, INC. APRIL 2007).
2. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.

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DATE: 09/2022
FILE: 0601–667–11
CAD: 8–PERMITTED DRAINAGE.DWG

DRAWN BY: JDW
DESIGN BY: JAE
REVIEWED BY: JVQ

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NO.	DATE	DESCRIPTION

PERMITTED DRAINAGE CONDITIONS

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

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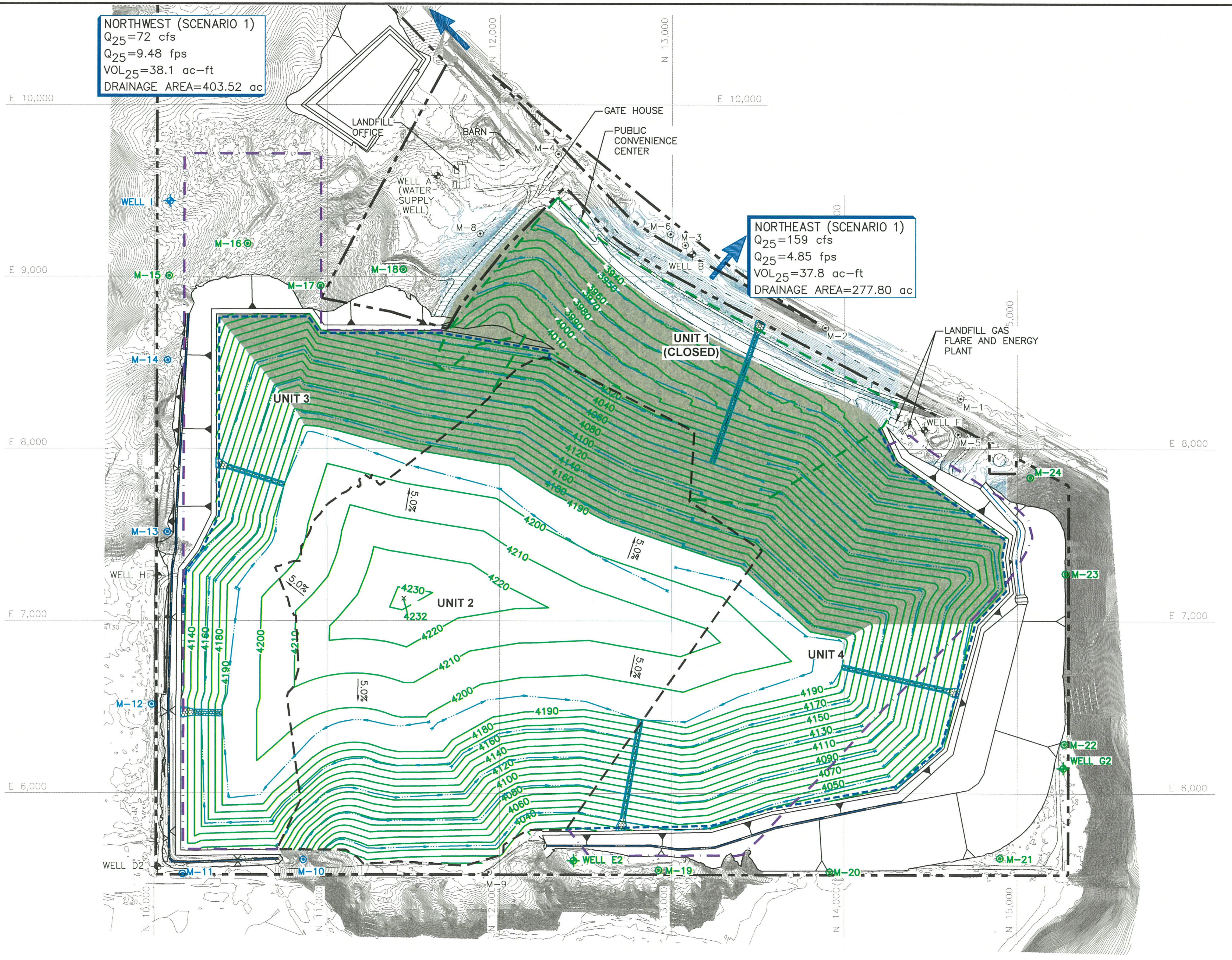
DRAWING 8

O:\0601\667\EXPANSION 2019\VOLUME 2\PERMIT DRAWINGS\8–PERMITTED DRAINAGE.dwg, rarrington, 1:2



N

0 300 600
SCALE IN FEET

JONATHAN VINCENT QUEEN
25844

9/26/22

LEGEND

— · · — · · —	PROPERTY BOUNDARY
— — — —	PERMITTED LIMITS OF WASTE FOR UNIT 2
— · — · —	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
— · — · —	PERMITTED LIMITS OF WASTE FOR UNIT 3 AND 4
- - - - - -	ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4
E 8,000 ———	SITE GRID
——4120——	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
——4170——	PROPOSED FINAL CONTOUR
—·—·→—	PROPOSED SWALE
▨	PROPOSED DRAINAGE CHUTE
➡	STORMWATER DISCHARGE POINT
⌖ WELL B	EXISTING GROUNDWATER MONITOR WELL
⌖ WELL I	PERMITTED GROUNDWATER MONITOR WELL
⌖ WELL G2	PROPOSED GROUNDWATER MONITOR WELL
⊙M–4	EXISTING LANDFILL GAS PROBE
⊙M–11	PERMITTED LANDFILL GAS PROBE
⊙M–27	PROPOSED LANDFILL GAS PROBE
🟩	CLOSURE TURF AREA

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.

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DATE: 09/2022
FILE: 0601–667–11
CAD: 9–PROPOSED DRAINAGE PLAN.DWG

DRAWN BY: JDW
DESIGN BY: JAE
REVIEWED BY: JVQ

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CAMINO REAL ENVIRONMENTAL CENTER, INC.

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NO.	DATE	DESCRIPTION

PROPOSED DRAINAGE CONDITIONS

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

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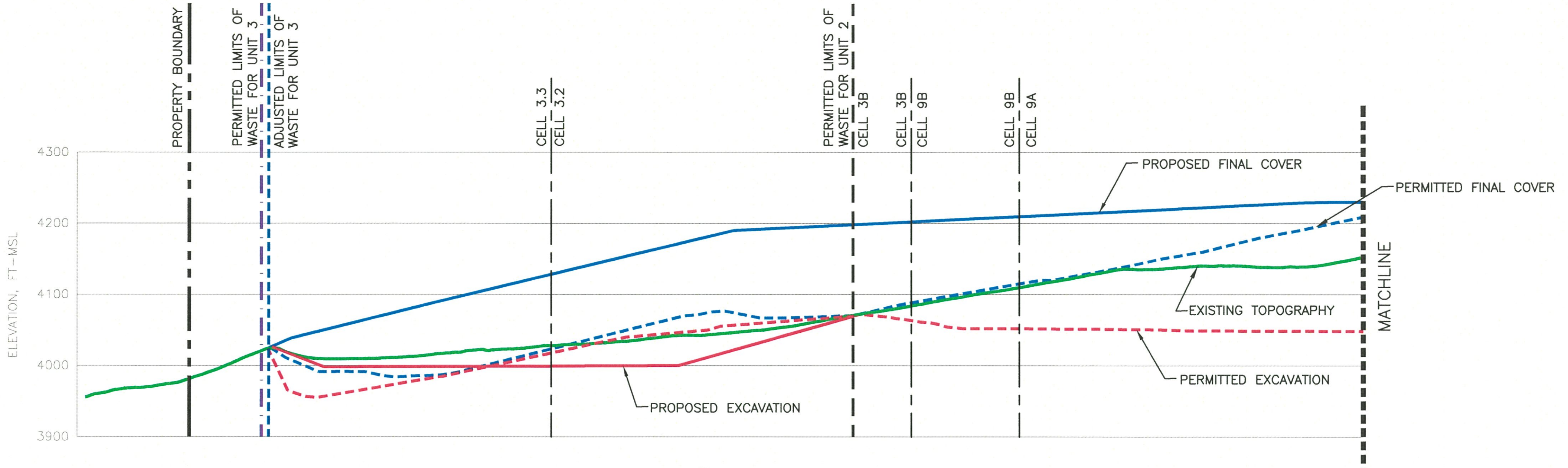
DRAWING 9

O:\0601\667\EXPANSION 2019\VOLUME 2\PERMIT DRAWINGS\9-PROP DRAINAGE PLAN.dwg, rarrington, 1:2



CROSS SECTION A (A / 10, 3,4,5,6)

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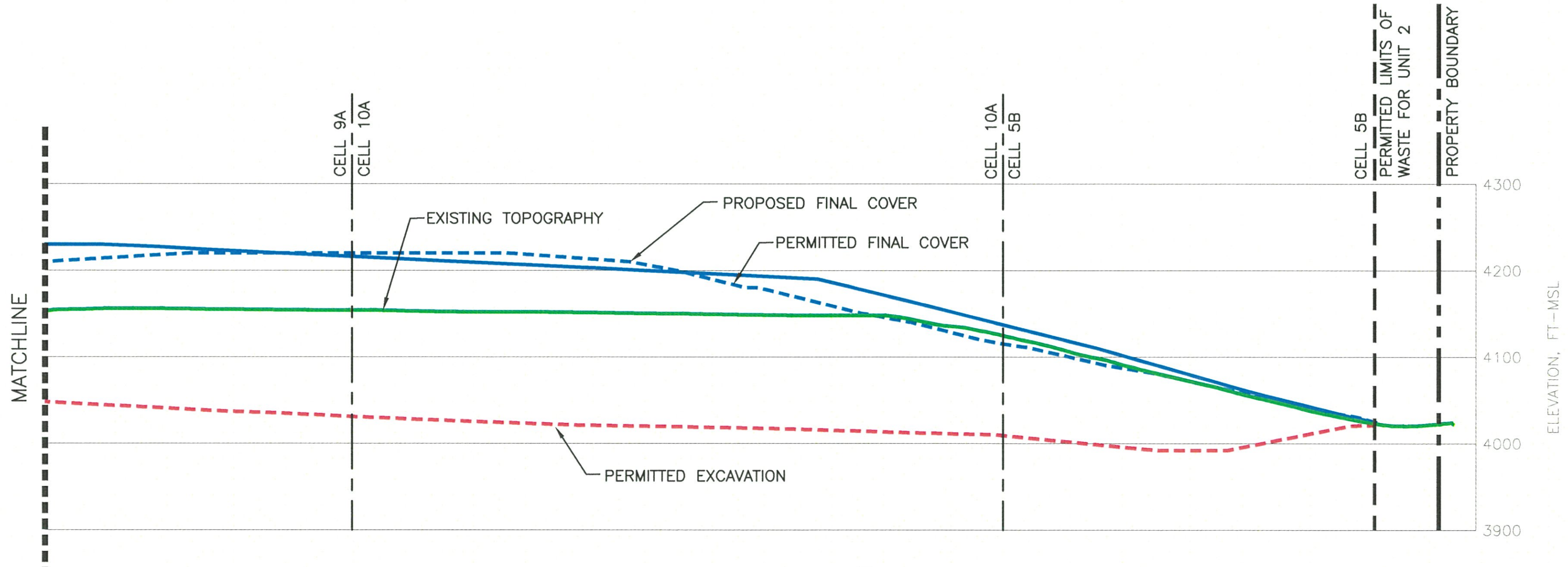

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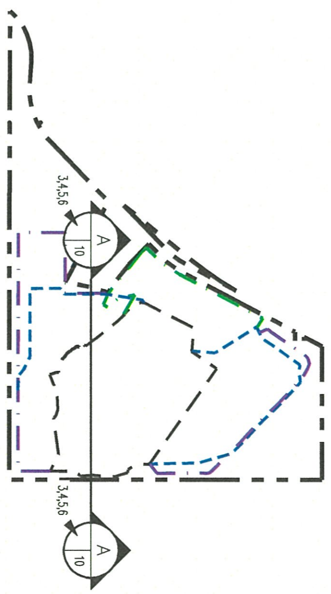

KEY MAP

LEGEND

— · —	PROPERTY BOUNDARY
— — —	CELL BOUNDARY
―	PROPOSED FINAL COVER
- - -	PERMITTED FINAL COVER
―	PROPOSED EXCAVATION
- - -	PERMITTED EXCAVATION
―	EXISTING TOPOGRAPHY

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25844

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DATE: 09/2022
FILE: 0601-667-11
CAD: 10-LANDFILL SECTION.DWG

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DESIGN BY: JAE
REVIEWED BY: JVQ

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REVISIONS

NO.	DATE	DESCRIPTION

LANDFILL CROSS SECTION A

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

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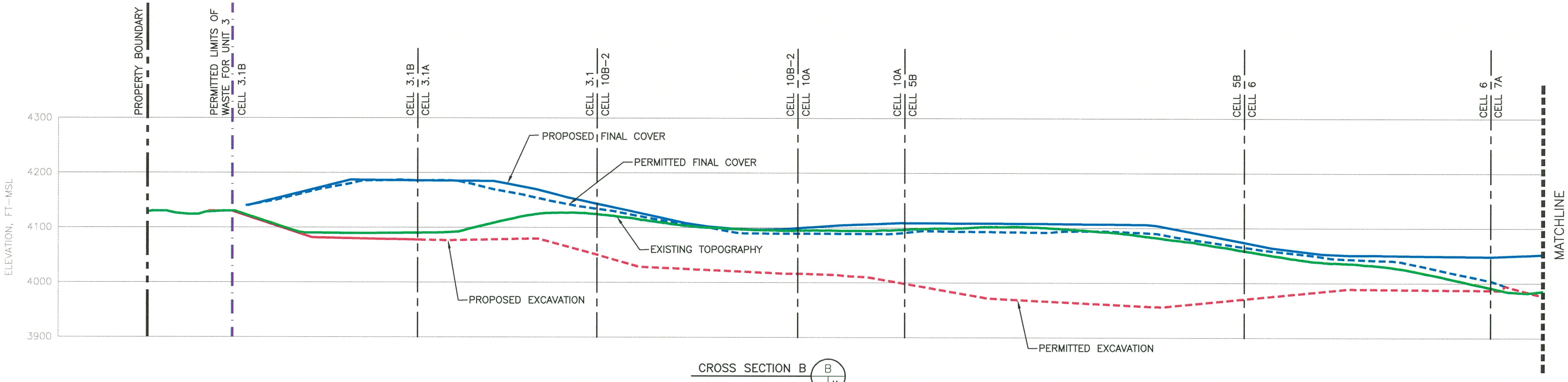
DRAWING 10



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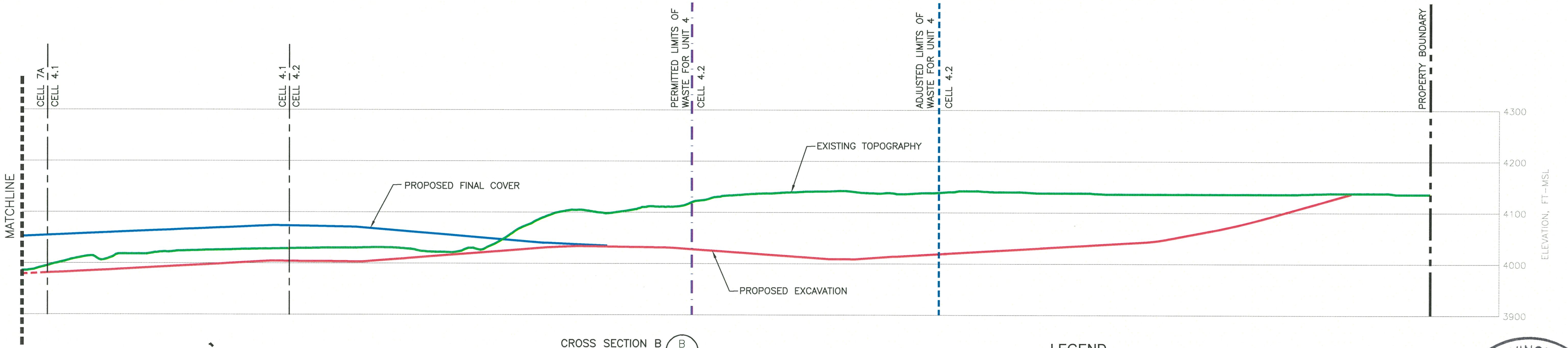
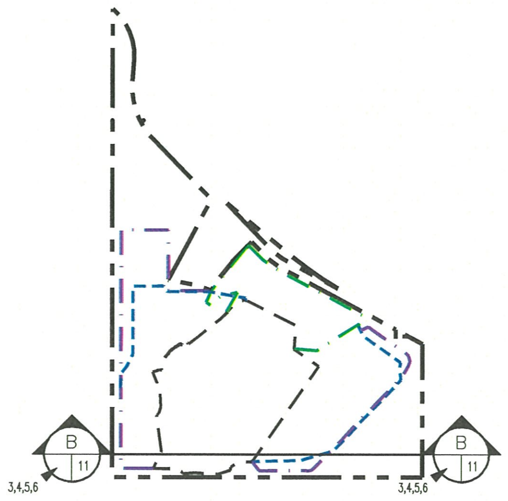


CROSS SECTION B



KEY MAP

LEGEND

—·—·—	PROPERTY BOUNDARY
— — —	CELL BOUNDARY
━━━	PROPOSED FINAL COVER
- - - -	PERMITTED FINAL COVER
━━━	PROPOSED EXCAVATION
- - - -	PERMITTED EXCAVATION
━━━	EXISTING TOPOGRAPHY

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9/26/22

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DATE: 09/2022
FILE: 0601-667-11
CAD: 11-LANDFILL SECTIONS.DWG

DRAWN BY: JDW
DESIGN BY: JAE
REVIEWED BY: JVQ

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REVISIONS

NO.	DATE	DESCRIPTION

LANDFILL CROSS SECTION B

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DRAWING 11

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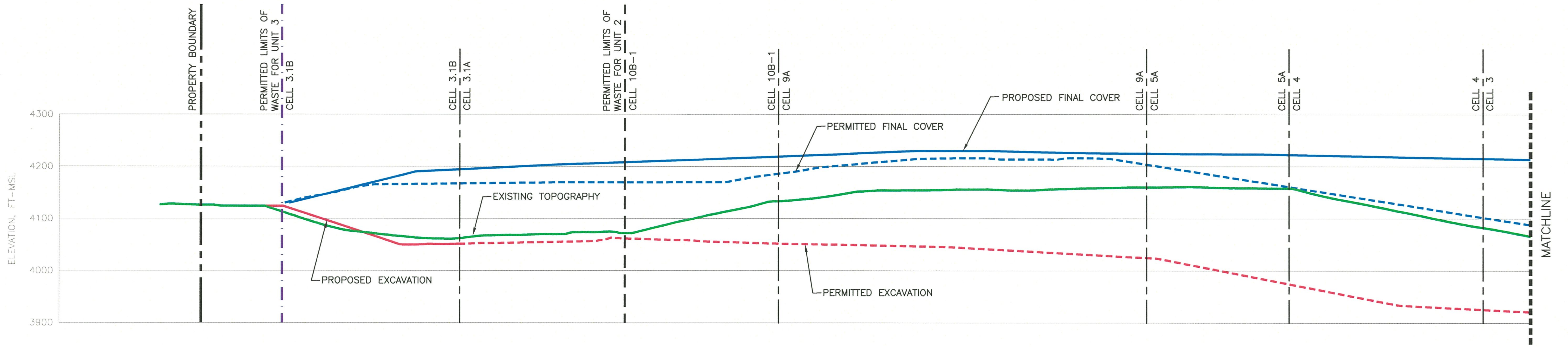

CROSS SECTION C (C / 12, 3,4,5,6)

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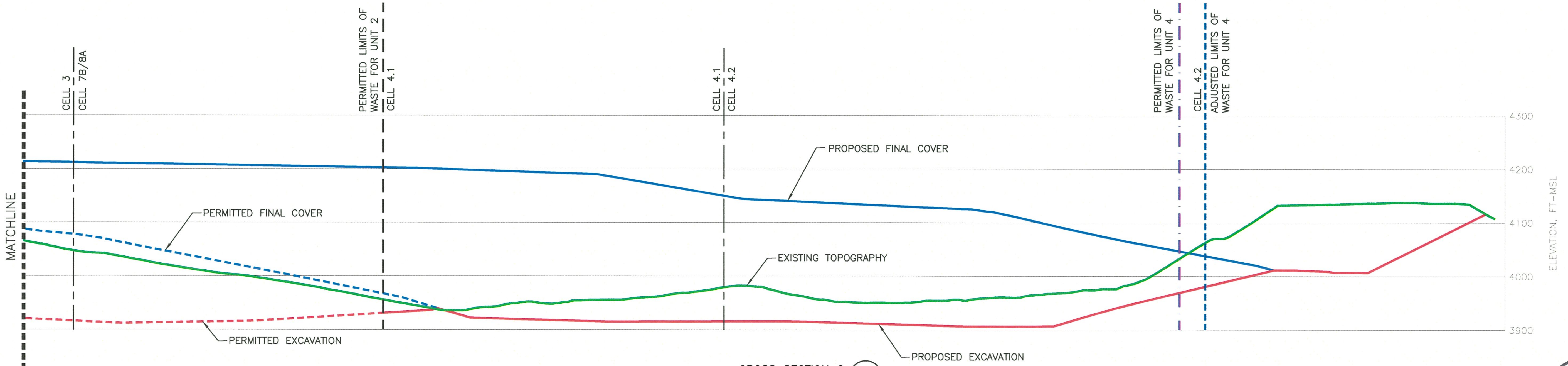

CROSS SECTION C (C / 12, 3,4,5,6)

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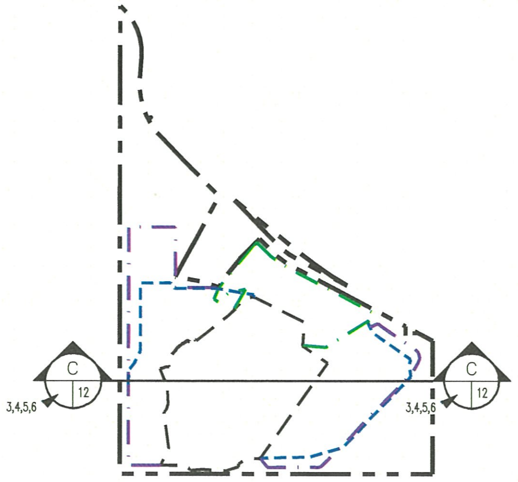

KEY MAP

LEGEND

— - · - —	PROPERTY BOUNDARY
— – — –	CELL BOUNDARY
━━━	PROPOSED FINAL COVER
- - - -	PERMITTED FINAL COVER
━━━	PROPOSED EXCAVATION
- - - -	PERMITTED EXCAVATION
━━━	EXISTING TOPOGRAPHY

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25844
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CAD: 12-LANDFILL SECTION C.DWG

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LANDFILL CROSS SECTION C

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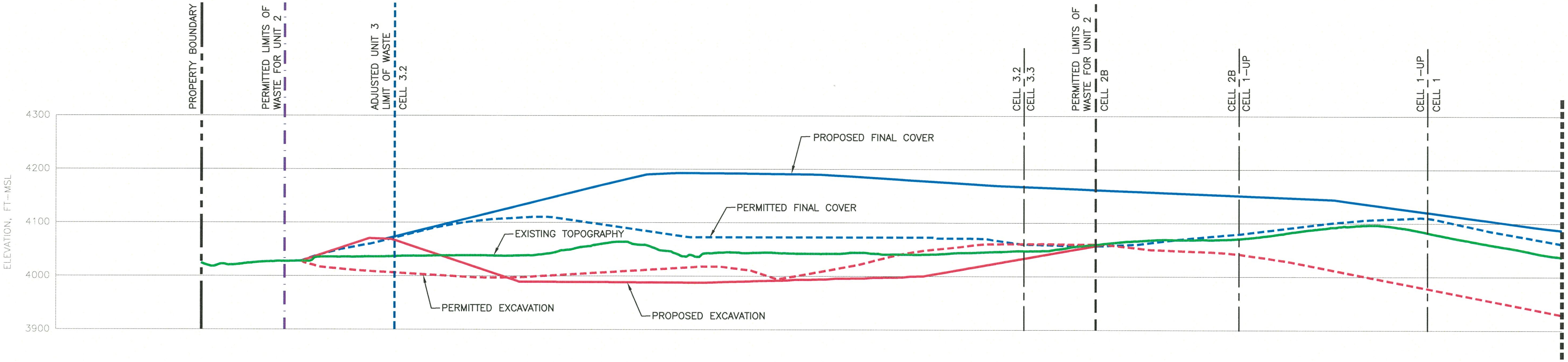
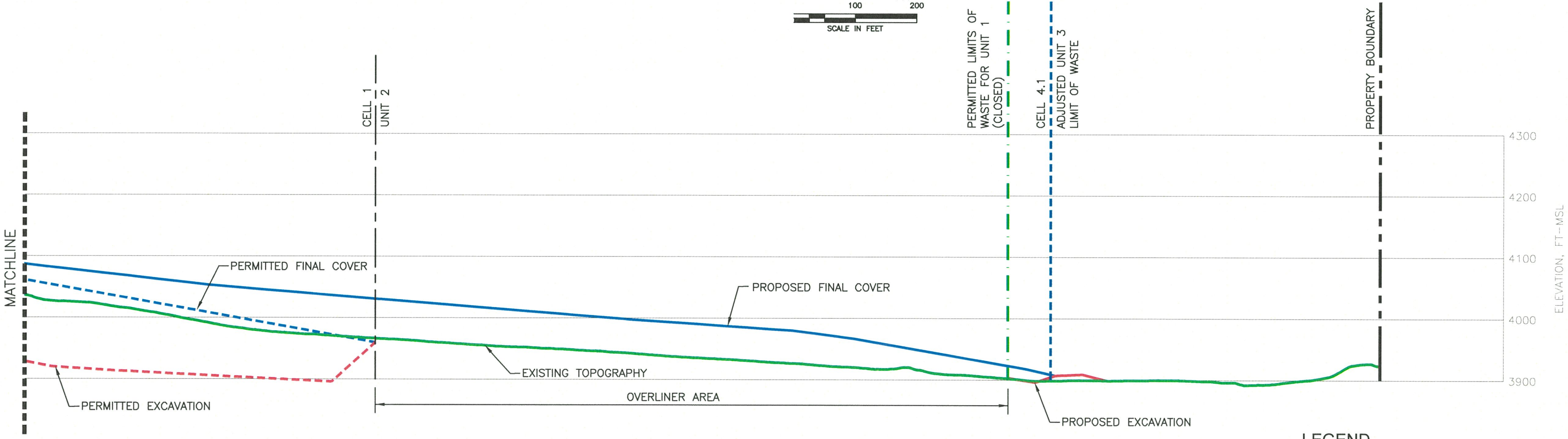
DRAWING 12

O:\0601\667\EXPANSION 2019\VOLUME 2\PERMIT DRAWINGS\12-CROSS SECTION C.dwg, rarrington, 1:2



CROSS SECTION D
D
13
3,4,5,6
100
200
SCALE IN FEET



CROSS SECTION D
D
13
3,4,5,6
0
100
200
SCALE IN FEET

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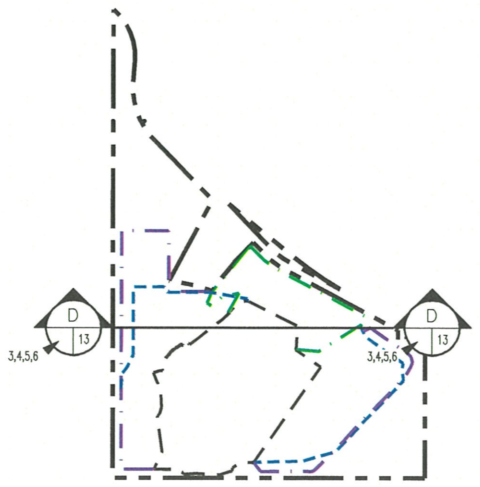
25844

9/24/22

LEGEND

▬ ▬ · ▬	PROPERTY BOUNDARY
— - —	CELL BOUNDARY
━	PROPOSED FINAL COVER
- - -	PERMITTED FINAL COVER
━	PROPOSED EXCAVATION
- - -	PERMITTED EXCAVATION
━	EXISTING TOPOGRAPHY



KEY MAP

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DATE: 09/2022
FILE: 0601-667-11
CAD: 13-LANDFILL SECTION D.DWG

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LANDFILL CROSS SECTION D

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DRAWING 13

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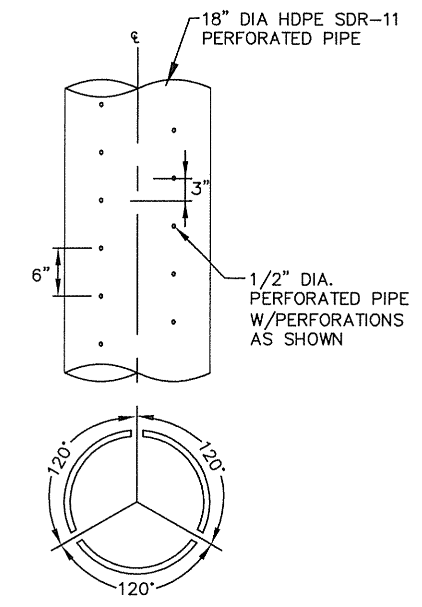
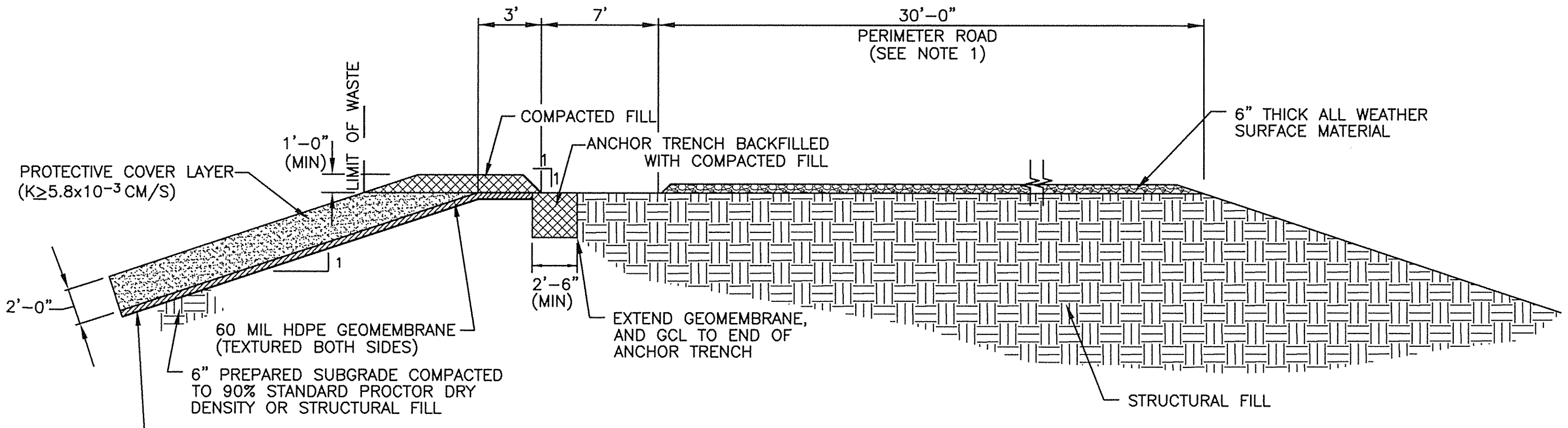


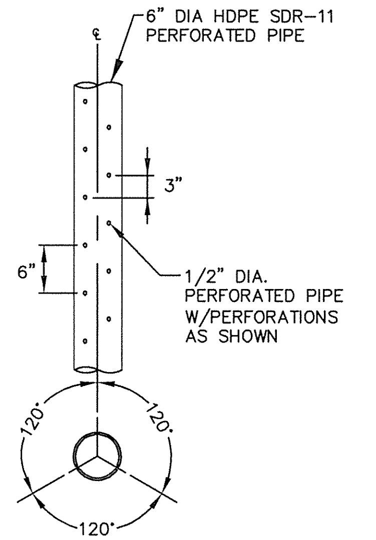
PERFORATED TYPICAL LEACHATE RISER PIPE (L5 15|14)

0 1 2
SCALE IN SCALE



SIDEWALL LINER WITH ANCHOR TRENCH (L2 4|14)

0 5 10
SCALE IN FEET



PERFORATED TYPICAL LEACHATE COLLECTION PIPE (L4 14|14)

0 1 2
SCALE IN SCALE

NOTES:

1. THE ROAD WIDTH ON THE SOUTHERN AND EASTERN SIDE OF UNIT 4 IS 20 FEET WIDE.

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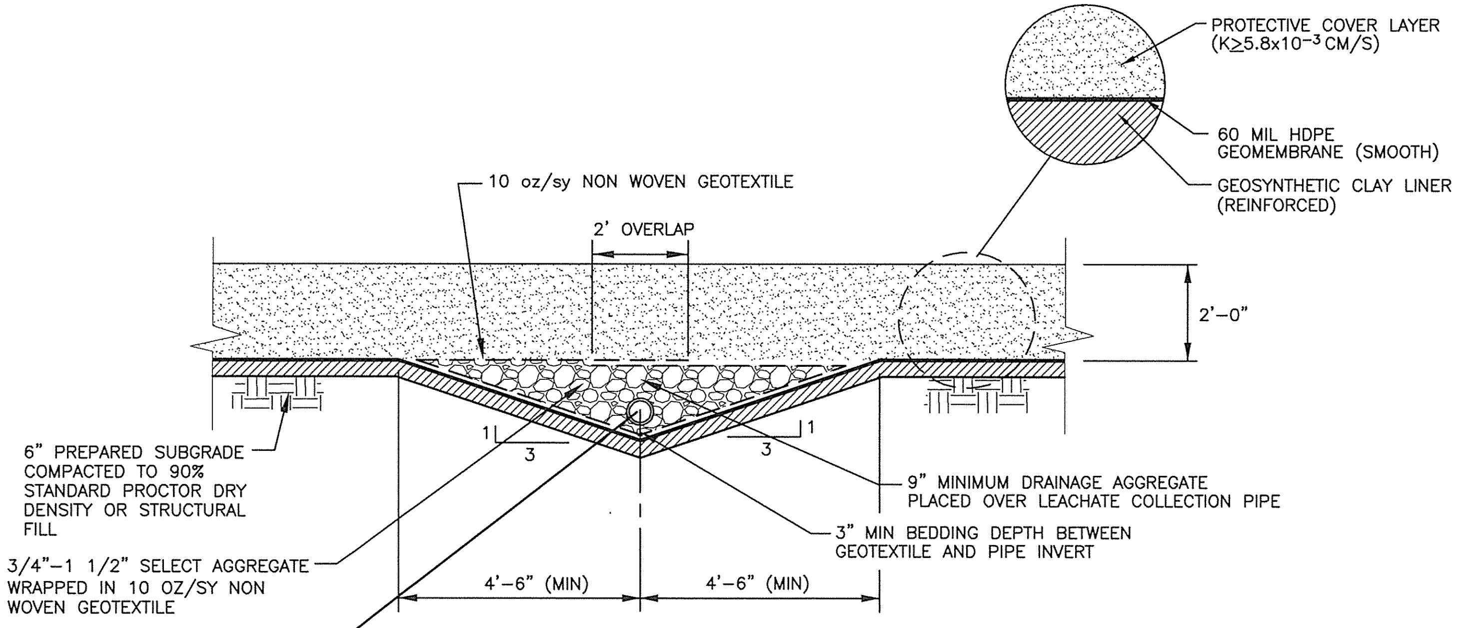

LINER SYSTEM (L1 4|14)

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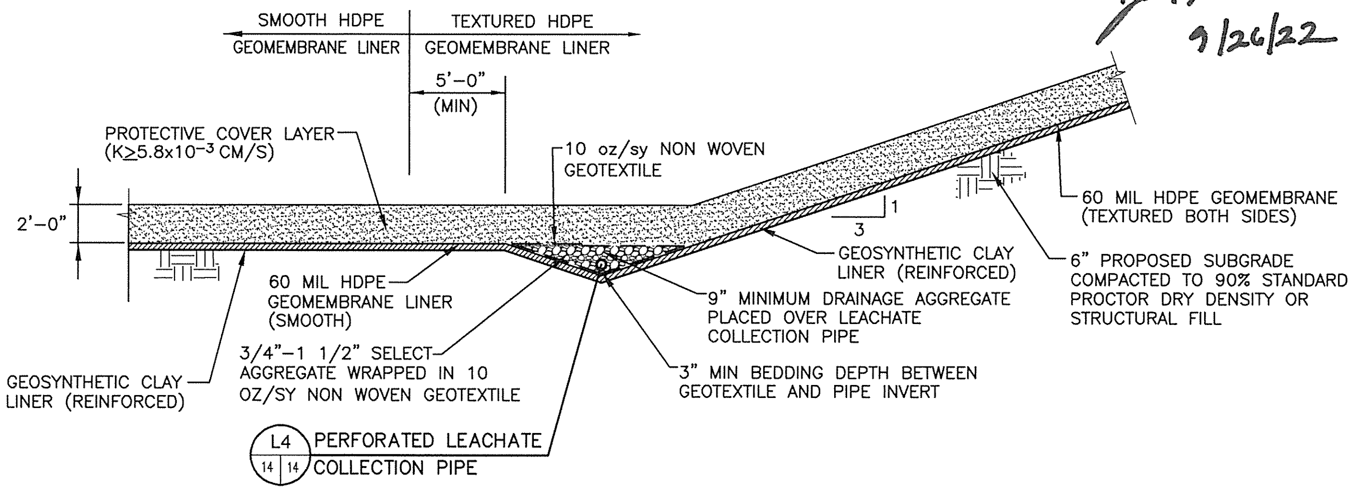

SIDEWALL LINER (L3 4|14)

0 5 10
SCALE IN FEET

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DATE: 09/2022
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CAD: 14-LINER SYSTEM DETAILS.DWG

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NO.	DATE	DESCRIPTION

LINER SYSTEM DETAILS

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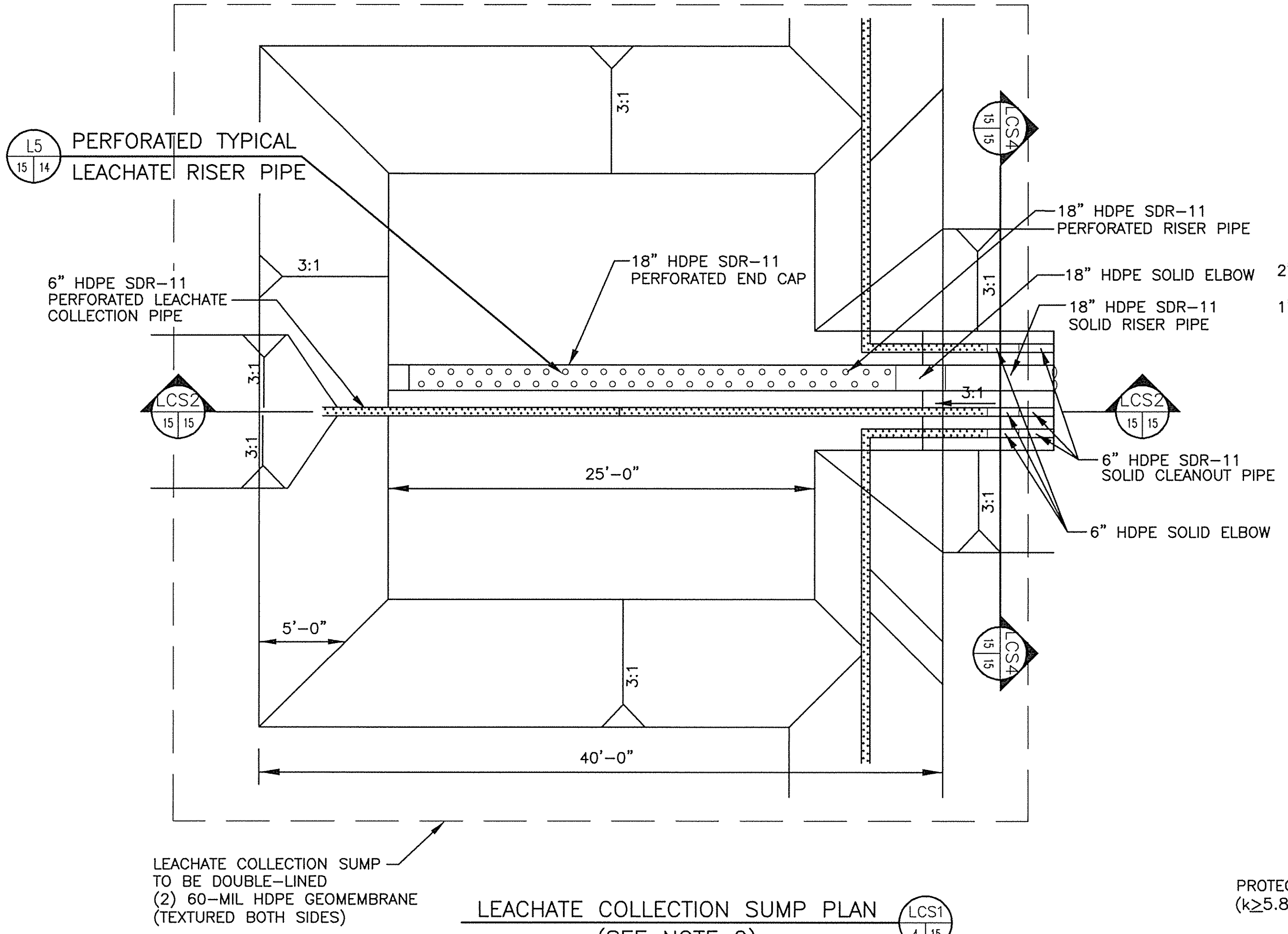
DRAWING 14

O:\0601\667\EXPANSION 2019\VOLUME 2\PERMIT DRAWINGS\14-LINER DETAILS.dwg, rarrington, 1:2



LEACHATE COLLECTION SUMP PLAN LCS1 4 15
(SEE NOTE 2)

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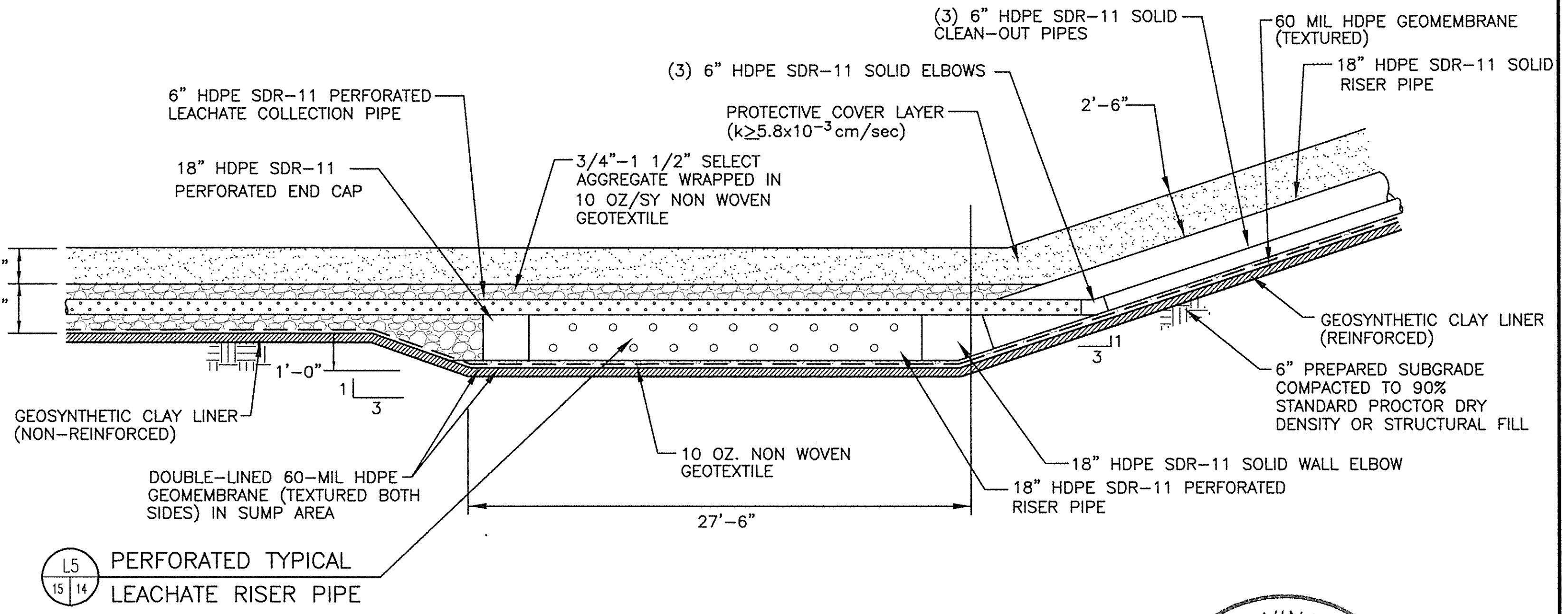
SCALE IN FEET



LEACHATE COLLECTION SUMP SECTION LCS2 15 15
(SEE NOTE 2)

0 5 10
SCALE IN FEET

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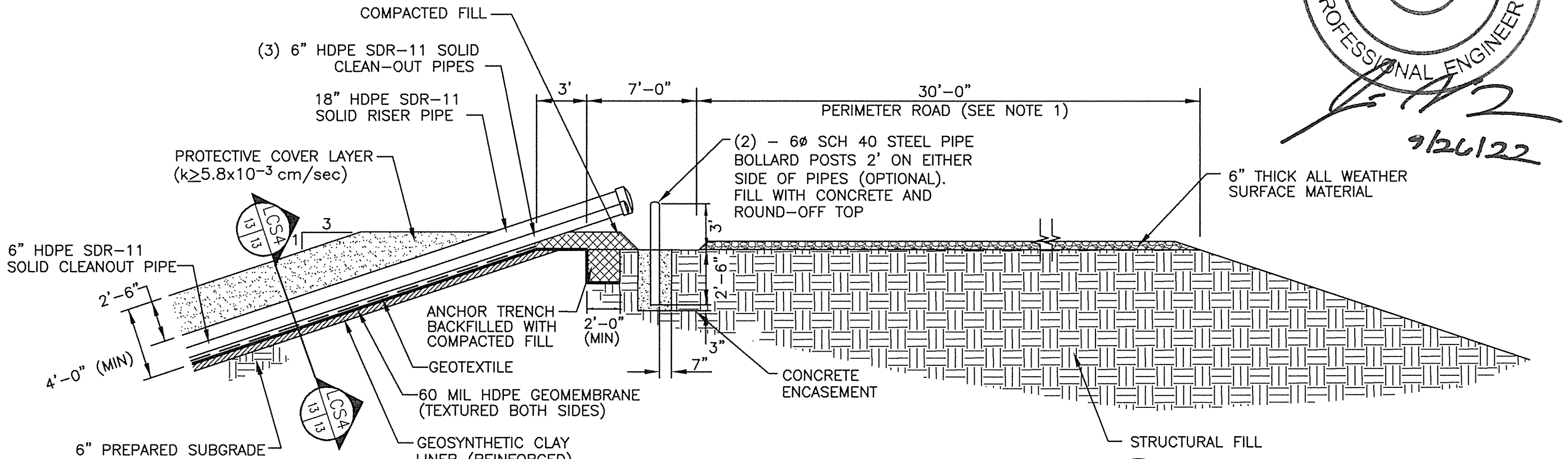

LEACHATE COLLECTION SUMP RISER LCS3 4 15

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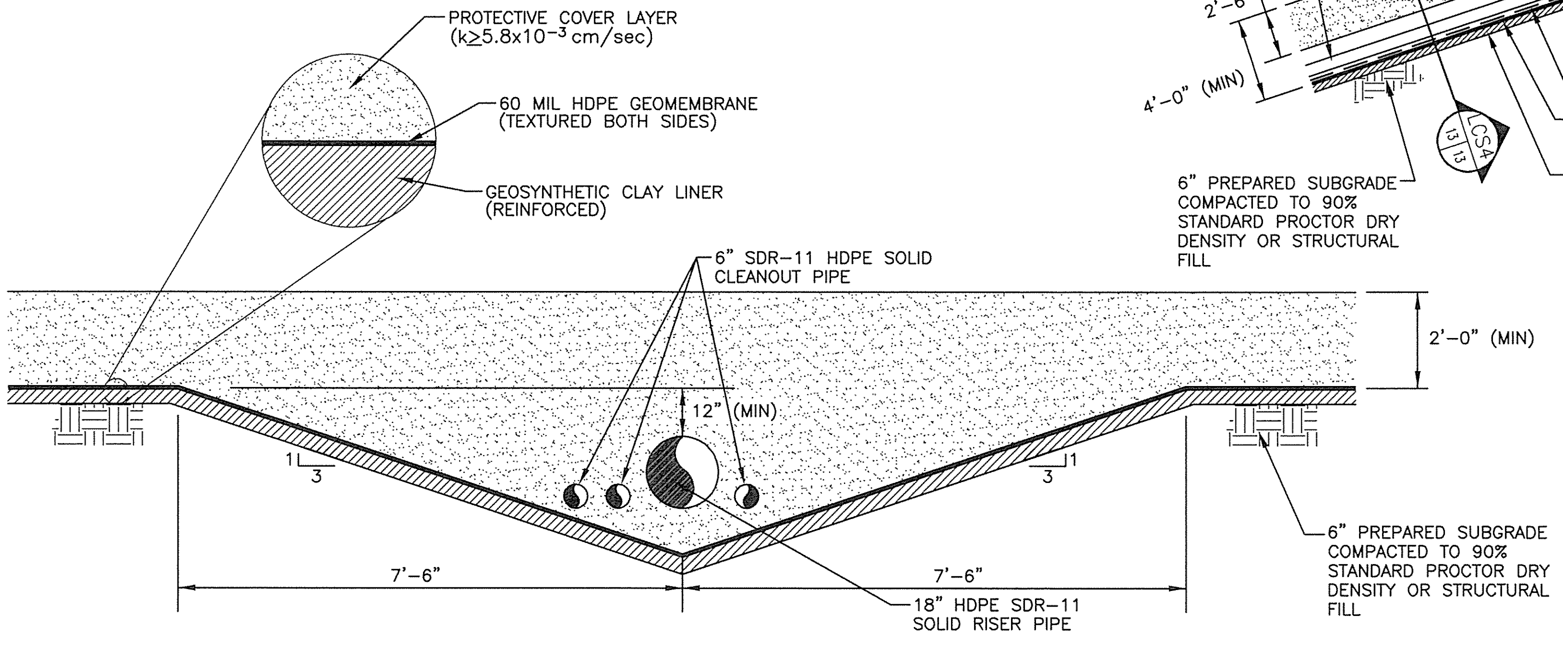

LEACHATE RISER PIPES LCS4 15 15
(SEE NOTE 2)

0 2 4
SCALE IN FEET

NOTES:

1. THE ROAD WIDTH ON THE SOUTHERN AND EASTERN SIDE OF UNIT 4 IS 20 FEET WIDE.
2. MOST SUMPS WILL INCLUDE TOE DRAINS ON EACH SIDE AND 3 CLEANOUTS. HOWEVER MAY NOT BE APPLICABLE TO ALL SUMPS

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DATE: 09/2022
FILE: 0601-667-11
CAD: 15-LEACHATE DETAILS.DWG

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LEACHATE COLLECTION SYSTEM DETAILS

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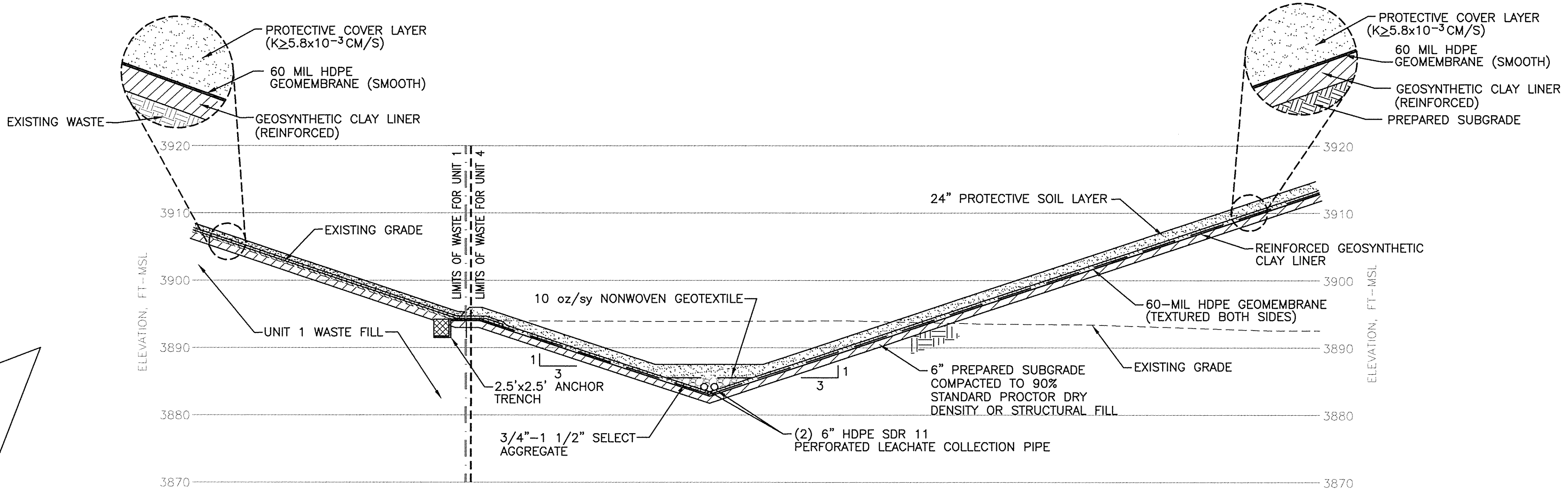
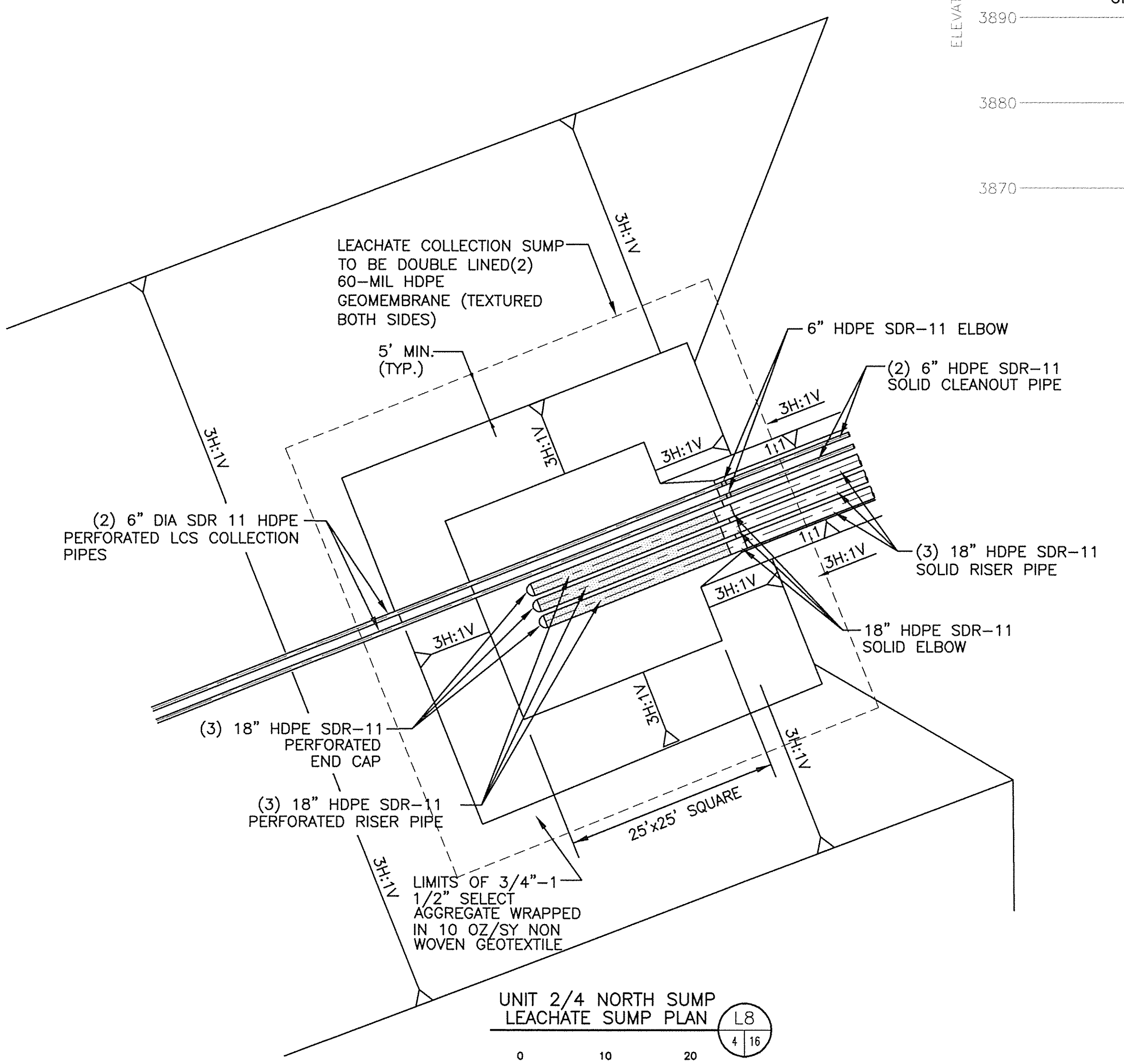
DRAWING 15

O:\0601\667\EXPANSION 2019\VOLUME 2\PERMIT DRAWINGS\15-LEACHATE DETAILS.dwg, rarrington, 1:2



UNIT 2/4 CROSS SECTION L7 4 | 16

0 10 20
SCALE IN FEET



UNIT 2/4 NORTH SUMP
LEACHATE SUMP PLAN L8 4 | 16

0 10 20
SCALE IN FEET

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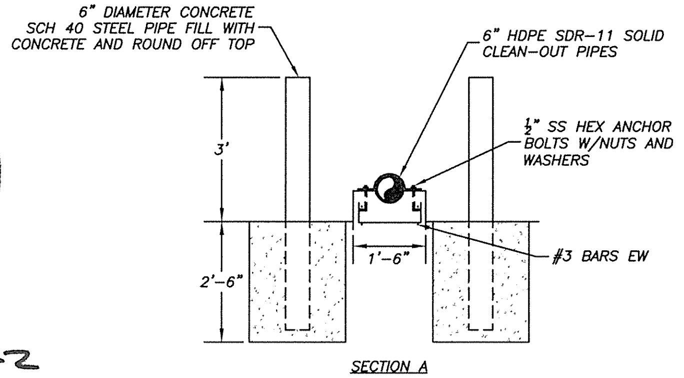
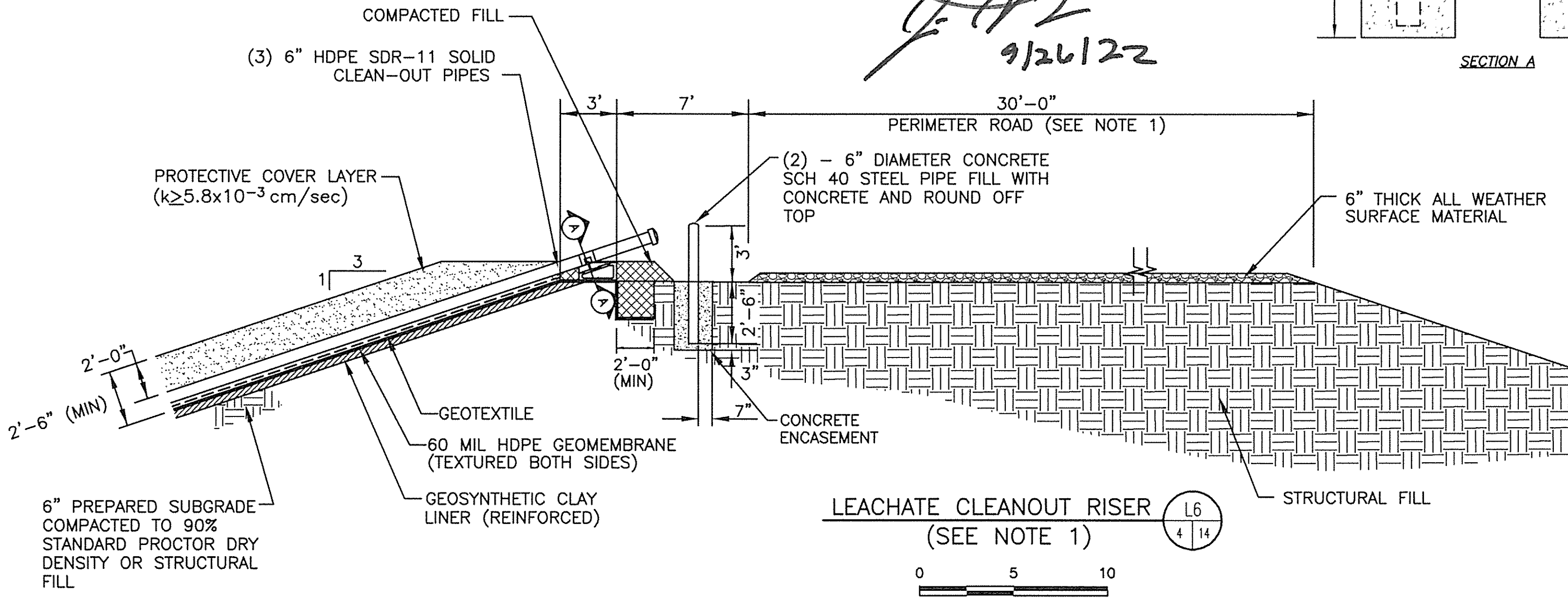


SECTION A



LEACHATE CLEANOUT RISER L6 4 | 14
(SEE NOTE 1)

0 5 10
SCALE IN FEET

NOTES:

1. THE ROAD WIDTH ON THE SOUTHERN AND EASTERN SIDE OF UNIT 4 IS 20 FEET WIDE.
2. MOST SUMPS WILL INCLUDE TOE DRAINS ON EACH SIDE AND 3 CLEANOUTS. HOWEVER MAY NOT BE APPLICABLE TO ALL SUMPS

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DATE: 09/2022
FILE: 0601-667-11
CAD: 16-LINER AND FC DETAILS.DWG

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DESIGN BY: JAE
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NO.	DATE	DESCRIPTION

UNIT 2/4 LINER SYSTEM DETAILS

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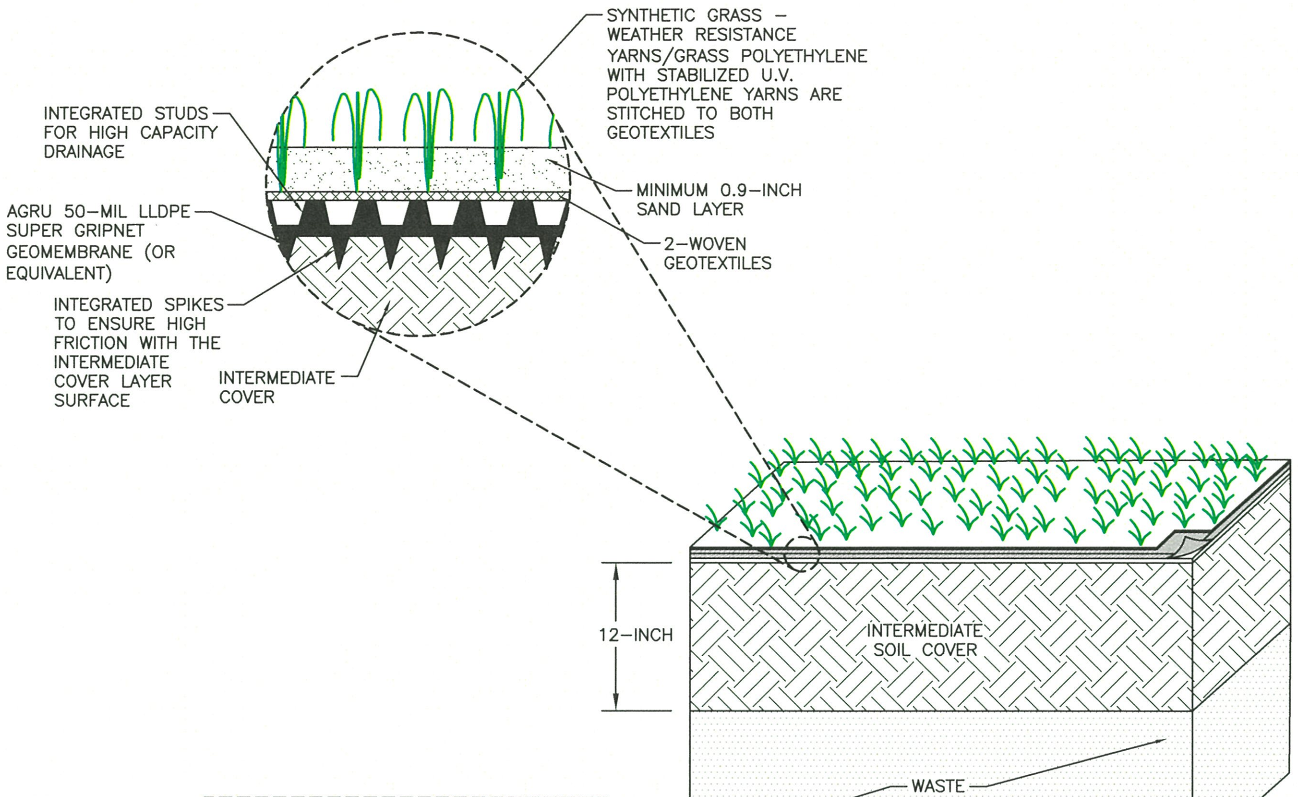
DRAWING 16

O:\0601\667\EXPANSION 2019\VOLUME 2\PERMIT DRAWINGS\16-LINER DETAILS.dwg, rarrington, 1:2



CLOSURE TURF DETAIL (TYP) FC1 5 | 17
NTS

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25844

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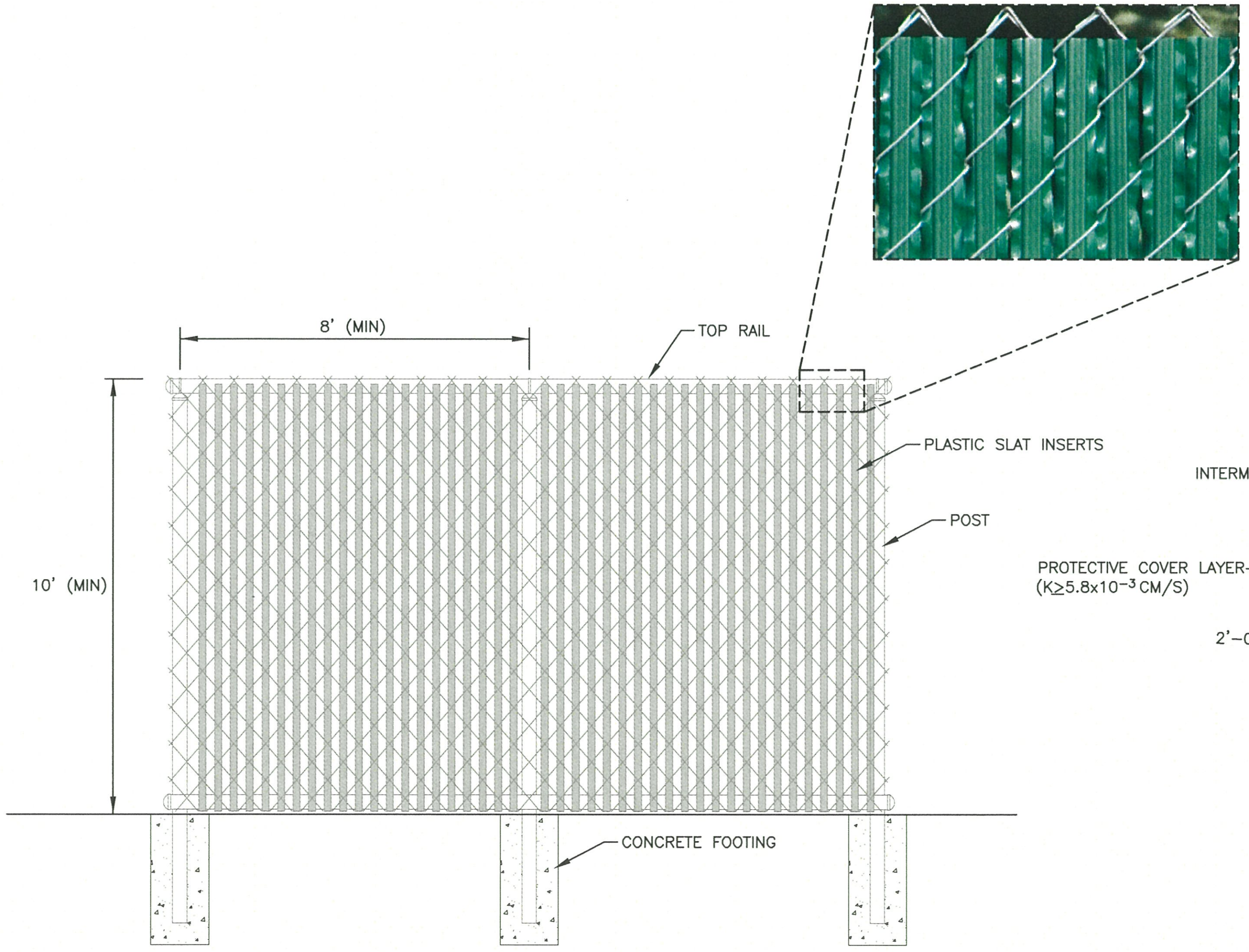
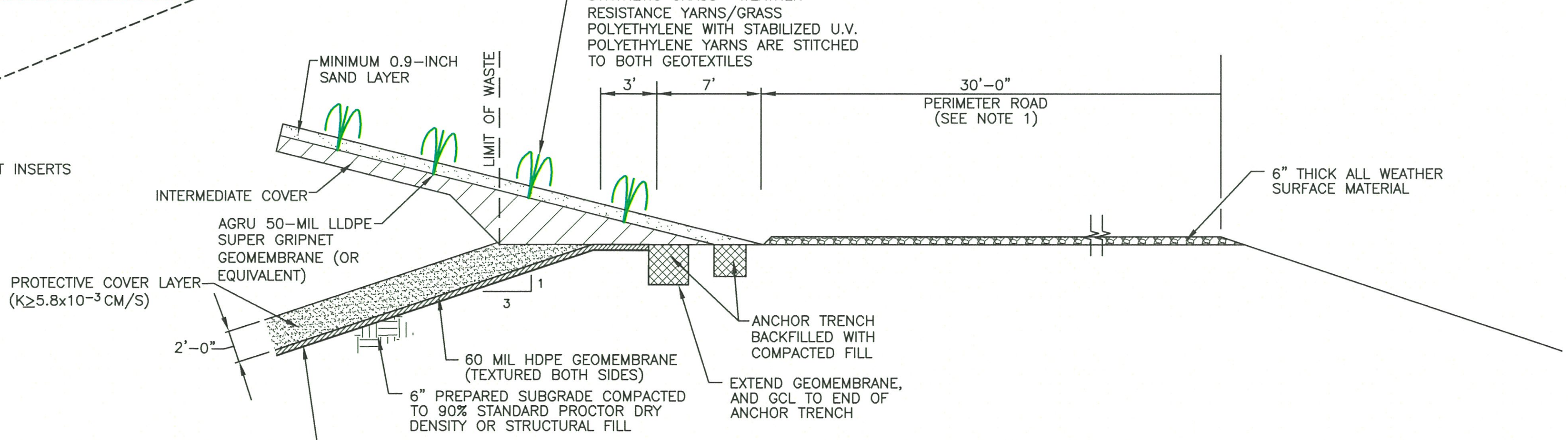
NOTES:

1. THE ROAD WIDTH ON THE SOUTHERN AND EASTERN SIDE OF UNIT 4 IS 20 FEET WIDE.



ENGINEERED SCREENING DETAIL S1 4 | 17

0 2 4
SCALE IN FEET



TYPICAL CLOSURE TURF SECTION FC2 4 | 17

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SCALE IN FEET

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DATE: 09/2022
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CAD: 17-TURF DETAILS.DWG

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NO.	DATE	DESCRIPTION

CLOSURE TURF FINAL COVER DETAILS

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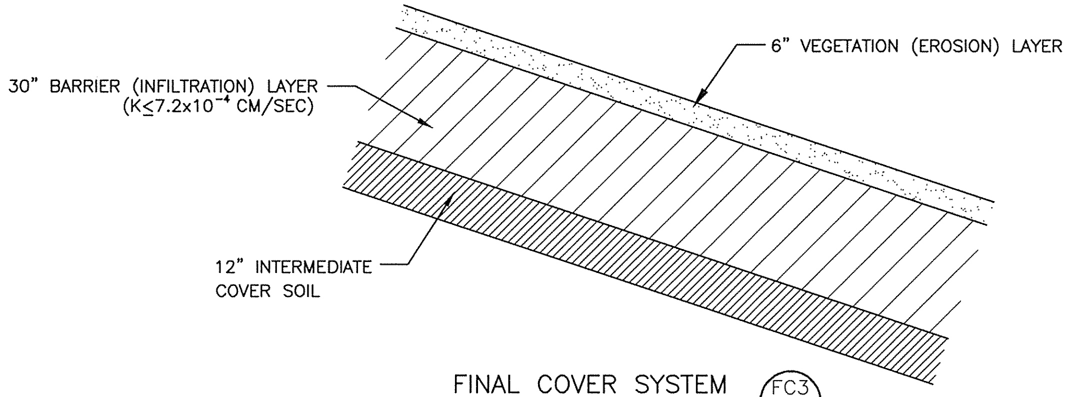
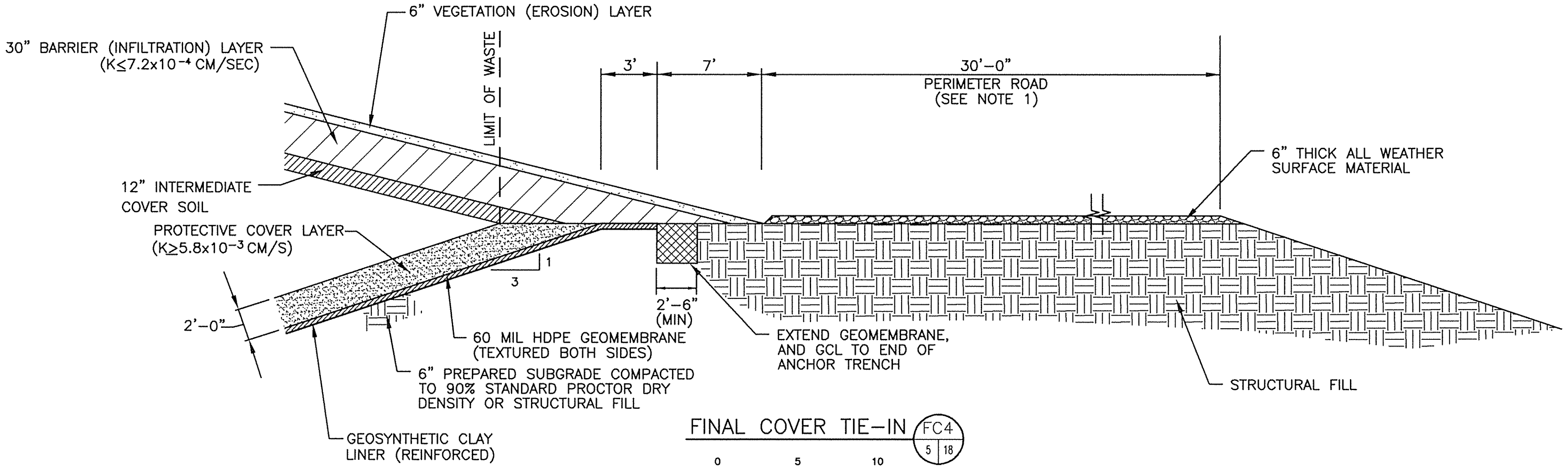
DRAWING 17

O:\0601\667\EXPANSION 2019\VOLUME 2\PERMIT DRAWINGS\17-TURF DETAILS.dwg, rarrington, 1:2



FINAL COVER SYSTEM FC3 6 | 18

0 2 4
SCALE IN FEET



FINAL COVER TIE-IN FC4 5 | 18

0 5 10
SCALE IN FEET

NOTES:

1. THE ROAD WIDTH ON THE SOUTHERN AND EASTERN SIDE OF UNIT 4 IS 20 FEET WIDE.

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CAD: 18-UNIT 4 DETAILS.DWG

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ET AFC DETAILS

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DRAWING 18

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CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO
NMED FACILITY PERMIT NOS. SWM-030738 AND SWM-030738(SP)

APPLICATION FOR PERMIT MODIFICATION AND RENEWAL

VOLUME II – LANDFILL MANAGEMENT PLANS
SECTION 2 – PLAN OF OPERATIONS

Prepared for

Camino Real Environmental Center, Inc.

September 2022

JONATHAN VINCENT QUEEN
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9/26/22

Prepared by

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Fort Worth, Texas 76109
817-735-9770

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24 Tejon Canon Rd.
Placitas, NM 87043
505-301-2026

WCG Project No. 0601-667-11-06

CONTENTS

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25844

9/26/22

CONTENTS (Continued)

FIGURES

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CONTENTS (Continued)

TABLES

ATTACHMENTS

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1 INTRODUCTION

The Camino Real Landfill (CRLF) is an existing solid waste facility operating in compliance with its current Permits, SWM-030738 and SWM-030738(SP), and the New Mexico Environment Department (NMED) Solid Waste Rules (the Rules; 20.9.2-20.9.10 NMAC). The owner and operator of the Camino Real Landfill is Camino Real Environmental Center, Inc. (CREC).

CREC is seeking a Permit Modification (20.9.3.22 NMAC) and Permit Renewal (20.9.3.25 NMAC) for the CRLF to modify the existing permitted landfill configuration and to renew the current permit.

1.1 Site Location

The CRLF is an existing solid waste disposal facility that encompasses approximately 480 acres of land located at 1000 Camino Real Blvd. on the New Mexico (NM)/Mexico (MX) border in Sunland Park, New Mexico. The approximate geographic coordinates for the center of the CRLF site are: Latitude 31° 47' 24.7272" N and Longitude 106° 35' 32.6508" W. A topographic map showing the CRLF site location is provided as Figure II.2.1.

The legal description of the site is summarized as follows:

> *A certain parcel of land situated within Section 12 and 13, Township 29 South, Range 3 East, New Mexico Principal Meridian, City of Sunland Park, Doña Ana County, New Mexico.*

CRLF is constructed, operated, monitored, and inspected in compliance with the Solid Waste Facility Permits granted by the NMED Solid Waste Bureau (SWB) pursuant to the Rules (20.9.2-20.9.10 NMAC).

1.2 Existing Permitted Landfill Unit Overview

As shown on Figure II.2.2, MSW disposal and development at CRLF is defined by four "area fill" Units, i.e., 1 through 4, which are further divided into cells. Unit 1 (50 acres) is designated as closed. Unit 2 (124.2 acres) is an active landfill area. Unit 3 (60.5 acres) is permitted for waste disposal, and recently (2019) the first cell in this unit was developed. Portions of Unit 3 have been excavated to provide soils for ongoing operations. Unit 4 (73.0 acres) is located east of the current operations and is permitted but undeveloped. Soils from the Unit 4 area have been excavated to support the ongoing operation and the area has also been used to stockpile construction soils. Cell phasing within each unit is determined by operational conditions. This Application for Permit Modification and renewal addresses subgrade configurations in Units 3 and 4 and final contour design over all units.

1.3 Purpose

Defined as a "solid waste facility," and more specifically an "existing municipal landfill" and "special waste landfill," CRLF is subject to regulation under 20.9.2 – 20.9.10 NMAC. This Plan of Operations (the "Plan") is provided to achieve two primary objectives:

- To identify and address the applicable regulatory requirements; and to prescribe proven operating techniques to achieve compliance objectives.
- To provide a functional working Plan that details safe, efficient and orderly operating practices.

This Plan addresses a range of issues from daily routines to long-term site development sequencing; and ultimately to closure and post-closure care. Applicable sections of 20.9.220.9.10 NMAC that are addressed by this Plan include:

20.9.3.8	PERMIT APPLICATION REQUIREMENTS
20.9.3.9	ADDITIONAL PERMIT APPLICATION REQUIREMENTS FOR MUNICIPAL, MONOFILL OR SPECIAL WASTE LANDFILL FACILITIES
20.9.5.8	GENERAL OPERATING REQUIREMENTS FOR SOLID WASTE FACILITIES AND COMMERCIAL HAULERS
20.9.5.9	ADDITIONAL MUNICIPAL, SPECIAL WASTE, AND MONOFILL LANDFILL OPERATING REQUIREMENTS
20.9.5.16	RECORD KEEPING AND ANNUAL REPORTS

This document is a compilation of the responses to operating requirements listed in these requirements; and cross-referenced in other components of the Application for Permit (e.g., Closure/Post-Closure Plan, Construction Quality Assurance Plan). The Plan of Operations is an "operating plan" as defined by 20.9.3.8.C(6) NMAC, and is related to each of the other Landfill Management Plans in Volume II described in Table II.2-1.

Table II.2-1
Landfill Management Plans

II.1 **Permit Plans** – The 18-sheet package is provided as a 24-inch x 36-inch drawing set accompanying the Permit Application and as a reduced set in Volume II Section 1. The drawings are the key reference for short-term and long-term construction of the site and installation of the environmental control systems. An index of the drawings is provided below:

Sheet No.	**Title**
1.	Cover Sheet
2.	Existing Site Plan
3.	Site Development Plan
4.	Excavation Plan
5.	Permitted Completion Plan
6.	Proposed Completion Plan
7.	Existing Drainage Conditions
8.	Permitted Drainage Conditions
9.	Proposed Drainage Conditions
10.	Landfill Cross Section A
11.	Landfill Cross Section B
12.	Landfill Cross Section C
13.	Landfill Cross Section D
14.	Liner System Details
15.	Leachate Collection System Details
16.	Unit 2/4 Liner System Details
17.	Closure Turf Final Cover Details
18.	ET AFC Details

II.3 **Contingency Plan** – This Plan enumerates specific emergency coordinators and contacts, response measures, etc. for potential contingency situations and unplanned events.

II.4 **Construction Quality Assurance (CQA) Plan** – This Plan provides the technical specifications for the materials, installation, testing, and certification of the environmental control systems.

II.5 **Closure/Post-Closure Plan** – This Plan is significant to the Plan of Operations as site closure is an ongoing process conducted concurrently with routine operations. It also presents the procedures for post-closure care and monitoring, and Financial Assurance cost estimates for C/PC activities.

II.6 **Landfill Gas (LFG) Management Plan** – This Plan addresses the monitoring, and control strategies for LFG, include potential future beneficial use.

II.7 **Leachate Management Plan –** Leachate management includes stormwater segregation and leachate collection as well as monitoring, testing, and beneficial use of any leachate generated (e.g., dust control).

II.8 **Special Waste Disposal Management Plans –** "Disposal Management Plans" (DMPs) are required pursuant to 20.9.8 NMAC for each "special waste" stream permitted for disposal at CRLF. These plans prescribe handling and disposal techniques specific to each of the special waste streams.

II.9 **Transportation Plan –** Traffic flow to and within CRLF is addressed in this Plan, which also addresses adequacy of access routes to the Landfill.

II.10 **Waste Screening and Inspection Plan** – This Plan addresses identification of unauthorized (prohibited) wastes, and describes both the routine and focused screening and inspection process; as well as protocol to segregate, characterize, and manage unacceptable materials.

The set of Landfill Management Plans that comprises Volume II is maintained on-site as part of the Facility Operating Record. These Plans and the corresponding regulations (20.9.2 – 20.9.10 NMAC) are required reading for CRLF management personnel, and all staff are required to read the Plan of Operations. Supervisory staff are also encouraged to obtain NMED Operator Certification.

Revisions to this Plan may be necessary in response to revisions of NMED Rules, changes in waste volumes or types, or new technologies. Updates to this Plan will be submitted for NMED review prior to implementation, and updated copies will be maintained in the Facility Operating Record and disseminated as necessary (i.e., Contingency Plan).

2 PROJECT DESCRIPTION

CRLF is comprised of the following components, as shown on the Site Plan provided as Figure II.2.2; and depicted in detail on the Permit Plans (Volume II, Section 1):

1. The CRLF solid waste facility footprint comprises 480 acres, with a 307.7-acre solid waste disposal footprint.
2. The solid waste disposal footprint includes for Units 1, 2, 3, and 4; each designed to include a composite liner and leachate collection and extraction system. Table II.2-2 identifies each Unit and associated acreages.
3. Unit 2 is currently active. Unit 1 was designated closed in 1991/1992. This Permit Modification and Renewal addresses Cells 1-10B-2 for Unit 2, Cells 3.1-3.3 for Unit 3 and Cells 4.1-4.2 for Unit 4.
4. Intermediate cover on 93 acres.
5. Perimeter stormwater controls for run-on and run-off management; and stormwater detention ponds.
6. The Landfill Gate House and/or Landfill Office, which provides accommodations for waste receiving, vehicle scaling, equipment maintenance, etc.
7. Existing environmental monitoring networks, including landfill gas monitoring and groundwater monitoring as well as a GCCS.
8. Permanent and temporary roads, culverts, fences, etc. designed for routine operating efficiency and securing.
9. Visual screening berms and other vegetative screening improvements as outlined in an August 22, 2008 submittal to NMED (approved on August 14, 2009) that addressed vegetative screening improvements; security fencing and gates; and wind fencing (litter control).
10. Overliner for south side slope of Unit 1, which is needed to provide for a uniform, contiguous landfill.
11. Public convenience center located at the north side of the facility.

Table II.2-2
Solid Waste Disposal Area

Unit/Cell	Total Acreage
Unit 1 (CLOSED)	50
Unit 2	124.2
Unit 3	60.5
Unit 4	73
Solid Waste Disposal Acreage	307.7
Solid Waste Facility Acreage	480

CRLF is designed to accept:

- residential (household) waste
- sludge
- industrial solid waste
- petroleum contaminated soils

This Permit Modification and Renewal provides site characterization confirmation and layout for the entire 480-acre facility. The CRLF application includes the following:

- Permit Modification
- Continued Special Waste Authorization
- Permit Renewal

Detailed design data are provided in the Permit Plans (based on an updated 2018 topography) that establish the technical criteria and performance standards for cell construction, as well as specifications for general site development:

- Landfill cell and facilities layout
- Liners and leachate collection systems
- Landfill gas collection and control system components, including flare and generator.
- Stormwater management, including drainageways, culverts, and basins
- Facility entrance, roadways, and waste receiving facilities
- Fencing, gates, and berms
- Daily, intermediate, and final cover

Operating criteria for CRLF are presented in the same order as the requirements listed in 20.9.3.8.C(6) NMAC, along with the appropriate regulatory citations.

3 PERMIT APPLICATION REQUIREMENTS

3.1 Odor Control and Mitigation

Modern landfill technology employed at CRLF is designed to reduce the generation of odors. Mitigation measures include encapsulation of waste to the smallest practical volume and routine application of cover soils. Six primary factors that reduce the potential for odors include:

1. Waste characteristics
2. Operating procedures
3. Site location and arid climate
4. Mode of delivery
5. Low precipitation
6. Active landfill gas (LFG) collection system

Waste materials accepted for disposal at CRLF are exceptionally dry for a municipal solid waste (MSW) stream due to the arid climate, and the types of wastes received. One of the objectives of the Waste Screening and Inspection program (Volume II, Section 10) is to identify and exclude materials that might cause an odor problem; or to implement special operating practices (e.g., isolate the load and apply cover immediately). Specific "special wastes," such as sludge, and petroleum contaminated soils (PCS), are managed in a fashion prescribed to reduce odor potential. Specific management practices for special wastes are described in the corresponding Special Waste Disposal Management Plans (DMPs) (Volume II Section 8):

- General Special Waste Disposal Management Plan (Section 2.0)
- Sludge Disposal Management Plan (Section 3.0)
- Petroleum Contaminated Soils Disposal Management Plan (Section 4.0)
- Industrial Solid Waste Disposal Management Plan (Section 5.0)

Routine landfill operating practices that mitigate potential odor generation and migration at CRLF include:

- Direct incorporation of wastes into the fill face immediately after unloading to minimize short-term odors.
- Confinement of the waste to the smallest practical volume, including application of daily cover throughout the working day.
- Routine application of daily, intermediate, and final cover.
- Good housekeeping in managing fill face activities, litter, stormwater, etc.

Installation of the landfill gas collection and control system (GCCS) began in 1999 and monitoring of the GCCS has been performed since May 2001. This monitoring program includes monthly well field calibration, continuous flare flame temperature output and real-time LFG flow readings. Quarterly LFG monitoring procedures are implemented to detect potential gas migration, which is not likely to permeate the composite liner system. The Landfill Gas Management Plan (Volume II Section 6) details LFG monitoring procedures, precautions, and response protocol.

The site's remote location further reduces the potential for any odors generated by the landfill to impact the public. On-site berms site topography and design of disposal operations help isolate the disposal operation and aid in air dispersion at the perimeter. Volume IV Section 2 describes facility setbacks, wind direction, and mitigative measures that minimize odor impact potential.

Most of the waste delivered to the CRLF is contained in enclosed, leak-proof vehicles designed for hauling MSW. Waste is generally received at the CRLF on the same day as collected, and thus has little opportunity for decomposition prior to disposal. Enforcement of the load-tarping requirement discourages uncovered vehicles from delivering waste to the landfill.

3.2 Landfill Equipment

Attachment II.2-A identifies the equipment used for routine landfill operations. This inventory is effective at managing ongoing construction and daily operations. Pieces of equipment may be added or subtracted from the list corresponding to the rate of waste flow, projected earthmoving activities, changes in technology, etc. Some operating and construction functions, such as significant earthmoving projects and geosynthetic liner installation, are subcontracted to qualified firms.

The equipment inventory demonstrates both the redundancy and back-up capabilities of the on-site landfill equipment. Following is a summary of functions and capabilities of the listed units:

- The compactors are high ground-pressure pieces of equipment specially designed for waste receiving (i.e., compaction, daily cover application, and related fill face activities).
- The scrapers are used primarily for earthmoving activities, such as excavation of new cells, and hauling cover material from designated stockpiles. Scrapers will often deliver soil directly from the excavation of a new cell to an area near the active fill face. The scrapers can apply daily, intermediate, and final cover at a high rate of delivery.
- Dozers are tracked pieces of equipment that are used to move soil and waste, usually for short distances. The dozers assist the scrapers in preparation of new cells, and can apply cover at the fill face. Dozers are versatile pieces of equipment that are also valuable in cover maintenance, road grading, and waste compaction as back-ups to the compactors.
- Front end loaders are used for earthmoving activities and cell construction support. They can be used for excavation of soil or movement of waste, and for delivery and application of cover material. End loaders can provide back-up to scrapers and dozers, and can be used for road maintenance, if necessary.
- The water wagon is used on a daily basis to control dust that could originate from on-site roads, excavation areas, etc. The water source for wagons is 250,000± gallons of on-site storage, which is continually refilled as necessary from the water supply line.

3.3 Waste Characteristics

Table II.2-3 lists typical waste sources sorted by type and approximate proportion. The Special Waste Disposal Management Plans (Volume II Section 8) provide waste characterization and management procedures for specific special wastes.

Solid waste delivered to CRLF originates primarily from sources within Doña Ana County, the City of El Paso and Chihuahua, Mexico. Waste is typically delivered to CRLF via rear-loaders and front-loaders, roll-off/tilt-frames, dump trucks, pick-ups, and other vehicles. CRLF receives commercially-delivered residential, construction and demolition, and industrial commercial wastes from commercial haulers, and typical self-haul waste is delivered in private vehicles (i.e., pick-up trucks, SUVs, cars, etc.). CRLF has installed a Public Convenience Station on-site to separate public vs. commercial traffic for safety objectives.

Table II.2-3
Waste Characterization Summary

Waste Type	2021 Annual Waste Receipts[1]	Approximate Proportion	Daily Average[3] (Tons)	Weekly Average[2] (Tons)
Municipal Solid Waste	403,480	83.2%	1,411	7,761
Construction & Demolition	59,550	12.3%	209	1,150
Brush/Green Waste	9,708	2.0%	34	187
Industrial Solid Waste	8,741	1.8%	31	171
Sludge	2,738	0.6%	10	55
PCS[4]	582	0.1%	2	11
Other or Co-mingled Waste	0	0%	0	0
Scrap Tires	240	0.05%	1	5.5
Totals:	**485,039**	**100%**	**1,698**	**9,341**

[1] Data are based on the CRLF Annual Report for 2021 and are subject to change.
[2] CRLF is open 5.5 days per week and closed 8 holidays per year.
[3] CRLF operates approximately 286 days per year.
[4] Waste recipients for PCS were pulled from the 2018 Interim Review Report, prepared by SCS Engineers in May 2018, and projected for 2021.

3.4 Sequence of Operations

The general sequence of site development using the "area fill" method is shown on the Permit Plans and described in Table II.2-4. Table II.2-4 describes the sequence of development for the site; and provides general guidelines for subsequent site development. There are three units of development for CRLF planned from west (Unit I) to east (Unit 4).

Cells are generally developed in numerical order as shown on the Permit Plans. Cells may be developed in segments, and more than one cell may be in operation at any one time in response to waste volume and the progress of site development. The size of each subsequent constructed area will depend on the anticipated volume of waste and the rate of capacity being exhausted. The objective is to provide a sufficient area for disposal while keeping the total disturbed area to a minimum. When cells reach interim or final grade, additional cover will be applied as needed to achieve the required cover thickness, and the area will be graded and vegetated within twenty-four months. Solid waste temporarily stored above interim or final grade (e.g., collected wind-blown litter) is stored in an enclosed, leak-proof container, and soil cover stockpiles may be temporarily placed above interim or final grade within five years of waste disposal in any cell, GCCS will be extended to collect and control landfill gas in compliance with 20.9.4.16 NMAC.

Table II.2-4
Site Development Sequence

1. Planning
    a. Confirm that the cell area has been cleared for excavation (e.g., utilities, GCCS, etc.).
    b. Review Engineering Drawings, Construction Plans, and any pertinent Permit Documents and Permit Conditions.
    c. Establish survey line/grade controls, construction benchmarks, etc.
    d. Develop cell-specific sequence of development, contractor coordination, equipment, and staffing requirements.
2. Earthwork
    a. Clear vegetation and dispose of or process green waste.
    b. Stockpile select surface soils for later use as topsoil.
    c. Excavate cell to design grades.
    d. Install stormwater management systems (e.g., drainageways and drainage basins).
    e. Extend on-site roads to provide cell access and prepare roadways to applicable environmental monitoring locations.
3. Environmental Control Systems
    a. Compact and test subgrade, prepare for liner installation (CQA Plan, Volume II Section 4).
    b. Install GCL/FML composite liner on cell floor.
    c. Construct leachate collection systems for cells, including risers and sumps as shown on the Permit Plans.
    d. Install protective soil layer from designated stockpiles (and stormwater segregation systems if applicable).
    e. Submit Engineering Certification of completed construction.
4. Operations
    a. Use excavated soil from next cell for daily, intermediate, and final cover for current or previously filled cells.
    b. Use stockpiles as necessary to supplement cover supplies.
    c. Install subsequent cells consistent with 1, 2, and 3 above.
    d. Extend roadways, drainage systems, etc., in advance of need.

3.5 Daily Operating Procedures

3.5.1 Gate House

Vehicles arriving at the CRLF facility approach the site from the north on Camino Real Boulevard, which is paved from McNutt into the landfill property. This entrance provides direct access to the Gate House. Signs posted at the Gate House identify prohibited materials and summarize the rules of conduct for customers while on-site, as well as public (self-haul) customers to the Public Convenience Station (Figure II.2.4). Each incoming waste delivery vehicle is required to stop on the scale and be processed at the Gate House. The majority of the commercial hauling trucks have tare weights pre-established in electronic storage and will not have to be weighed out upon exit. The driver receives a load ticket at the Gate

House, and the truck is reviewed for compliance with site rules (e.g., tarps, suspicious materials, hot loads, special waste manifests).

3.5.2 Active Disposal Area

Once cleared at the Gate House, a vehicle proceeds on interior roads in accordance with signs and direction by Landfill personnel to the active fill face for unloading. The width of the daily cell and active fill face are kept as small as incoming waste volumes will allow. At the average rate of waste receipts, 1,608 tons per day (tpd) as shown in Table II.2-3, the active fill face is generally maintained at a width of 150-300 feet. Sufficient width will continue to be maintained to accommodate peak hourly traffic flow. Daily cover (see Section 5.14) is placed on incoming waste throughout each working day in order to confine the exposed waste surface to the minimum practical dimensions.

The Permit Plans illustrate that CRLF utilizes the "area fill" method in vertical lifts. The first lift of refuse placed over a newly constructed liner segment is a minimum of 5 feet in thickness ("fluff lift"), which is carefully worked out over the leachate collection system protective soil layer (PSL) from the edge of the cell (i.e., uncompacted). The first lift of waste over the leachate pipe may be pushed off from prior fill areas to avoid landfill equipment traffic over the pipe. If necessary, temporary "ramps" of refuse and/or clean fill are constructed over the leachate pipes and protective soil layer in order to facilitate traffic flow. The waste in the first lift will be carefully inspected to ensure that waste types that could impact the liner system (e.g., construction debris, logs, rebar, etc.) are excluded from the initial lift. This layer will be placed in a manner that protects the liner and leachate collection system.

Waste placement generally moves from the lower (downgradient) portions of the cell to the higher (upgradient) elevations. With the exception of the first lift of MSW being spread on a newly constructed cell, waste is compacted in shallow lifts by specialized waste compaction equipment. Repeated passes by the waste compactor and/or dozer consolidates the material to the smallest practical volume. This practice confines the dimensions of the active fill face, maximizes the use of available capacity, reduces the potential for future settlement, and limits the amount of daily cover required.

3.6 Waste Capacity and Longevity

Current landfill waste characterization data (Table II.2-3) was used to project future waste volumes and material types. Current average waste acceptance rates are approximately 1,746 tpd from March 2021 to January 2022 (see Table II.2-3).

CRLF volumetrics data (Volume III Section 1), which are reproduced here as Table II.2-5, summarize capacity and longevity calculations for the engineering design. In order to provide conservative projections, capacity and longevity calculations are based on an equivalent waste acceptance rate for the 5-1/2 operating days each week.

The next Permit term (20 years) includes completion of Unit 2 and a portion of Unit 3 and Unit 4. Units 2 and 3 have an estimated longevity of 15.6 years, assuming 1,746 tpd incoming waste volume.

There are many factors that can have an impact on the duration of operations for Phases and Cells at CRLF. Population growth, new industrial development, closure of other facilities, the introduction of new waste streams, and waste diversion initiatives all have the potential to increase or decrease the rate at which airspace (capacity) is depleted.

Volume III Section 1 provides the volumetric calculations based on the Permit Plans provided with this Application. The volume of excavation (cut) is designed to match the requirements over the life of each of the landfill units, as well as to provide a surplus for daily, intermediate, and final cover. As demonstrated by Table III.1-2 (Soil Requirements), the planned excavation will produce more than the required volume of soil to meet the cover requirements.

Table II.2-5
Capacity Analysis

Description	Total Fill Area (acres)	Constructed Fill Area (acres)	Approximate In-Place Waste and Soil Fill (yd^3)[1]	Remaining Total Cover (yd^3)[2]	Remaining Gross Airspace (yd^3)	Remaining Gross Airspace (tons)[4]	Remaining Longevity Estimate (years)[5,6] @ 1,746 tons/day
Landfill							
Unit 1	50.0	50.0	22,408,401	11,656,610	46,626,440	35,529,347	56
Unit 2	124.2	124.2					
Unit 3	60.5	9.1					
Unit 4	73.0	0					
Landfill Total	**307.7**	**183.3**					

Landfill Total[6] (m^3)	35,650,576
Landfill Total[6] (Mg)	32,225,118

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[1] Approximate in-place waste and soil reported for Units 1-4 as of the January 2022 aerial topography.

[2] Includes daily cover and intermediate cover. Total cover volumes are summarized in Table III.1-2.

[3] Gross airspace value includes waste, daily cover, and intermediate cover.

[4] Waste density assumed to be 1,524 lbs/cy.

[5] 1,746 tons/day = 501,102 tons/yr based on 287 operating days/year and most recent waste receipts.

[6] 1 yd^3 = 0.7646m^3
1 ton = 0.907 Mg.

3.7 Waste Disposal Alternatives

CRLF is designed to be an all-weather facility under foreseeable conditions. The site's layout, paved roadways, and operating practices provide flexibility with regard to fill face location and access. In the event of a temporary disruption to service, the following alternatives are available:

- A designated contingency disposal fill face that is accessible to established roadways would be selected.
- The extensive equipment available for daily operations (see Attachment II.2-A) includes significant back-up for any unplanned downtime.
- Additional waste compacting and earthmoving equipment can be mobilized from other regional facilities or can be leased under routine arrangements with suppliers.
- Temporary storage of waste at the fill face could be implemented to address short-term equipment shortages. In the unlikely event that solid waste is temporarily stored, it will be covered (e.g., with a tarp) or containerized to prevent blowing litter and vector harborage. Temporary storage is not anticipated to exceed two weeks. Solid waste stored longer than two weeks within the landfill footprint will be covered with a minimum of 12-inches of soil or approved alternative daily cover.
- Waste compaction and covering tasks could be extended beyond normal hours to complete the day's activities.

Preventive Maintenance Policies employed by WCI have proven effective at ensuring equipment availability. In the unlikely event of a complete disruption of access, the waste flow can be diverted to other local permitted facilities (e.g., Corralitos Landfill, Otero/Lincoln Landfill or City of El Paso Waste Management Facilities).

3.8 Operating Hours

CRLF conducts waste acceptance operations from 7:30 a.m. to 4:00 p.m. (5:00 p.m. for residential waste), Monday through Friday and 7:30 a.m. to 1:00 p.m. (2:00 p.m. for residential waste) on Saturday; and is closed on Sundays and six regular holidays. These hours are posted at the site entrance and are subject to routine review and adjustment (Figure II.2.4). CRLF may truncate operating hours due to reduced winter daylight hours, inclement weather conditions (e.g., high winds), etc. Site maintenance and construction activities, including application of cover, may extend beyond the hours that the facility is open for receiving waste.

4 GENERAL OPERATION REQUIREMENTS

This Plan of Operations provides a narrative and tabular presentation of current and planned operating practices in compliance with the standards of 20.9.2 - 20.9.10 NMAC, and current SWB policies. The Permit Plans provide graphic detail regarding CRLF design and operations.

4.1 Protection of Public Health, Welfare, and the Environment

The primary objective of this Plan is to ensure the protection of the public health, welfare, and the environment. Modern landfill technology, as conducted specific to CRLF, is designed to reduce or eliminate potentially negative impacts resulting from operations.

CRLF is located in a manner that does not cause a public nuisance or create a potential hazard to public health, welfare, or the environment, as demonstrated by its site characterization analysis, including siting and land use (Volume IV), as well as its successful historic operations. The following engineered measures employed in the design provide mitigation, such as:

- Setbacks and buffer zones
- Engineered liners and leachate collection systems
- Stormwater management systems with detention and sedimentation prior to discharge
- Monitoring programs for groundwater and landfill gas (LFG)
- Landfill gas collection and destruction
- Visual and noise screening created by berms and selective operational sequencing
- Daily, intermediate, and final cover

Compliance with the siting criteria of 20.9.4.9 NMAC and compatibility with local land use and zoning is documented in Volume IV, including the mandatory Vulnerable Area Assessment.

4.2 Posting of Signs

A large sign posted at the entrance gate to the facility identifies the hours of operation, facility location, and emergency contact phone numbers. Figure II.2.4 provides photographs of the site entrance sign and the sign listing prohibited wastes and activities. Figure II.2.5 shows the locations of the safety signs. Additional site rules are posted along the access and haul roads to advise customers to limitations concerning speed limits, prohibited activities, disposal instructions, and other health and safety precautions.

Table II.2-6
Site Signs[1]

Camino Real Landfill Entrance (includes site location, hours of operation, phone number, etc.)
Unauthorized waste – information
Site rules
Stop signs
Speed Limit

Note: [1]Examples only; signs and locations subject to change; list is not all-inclusive.

4.3 Operator Certification

Full-time supervisory personnel employed at CRLF are certified as required by 20.9.7 NMAC and may have also completed applicable supplemental training (Table II.2-7). These individuals are knowledgeable in site construction and operations, and are required to demonstrate familiarity with:

- Rules applicable to the CRLF, and specifically 20.9.2 – 20.9.10 NMAC (and any successors).
- This Application, most particularly the Permit Plans and the Landfill Management Plans provided in Volume II.
- The NMED Solid Waste Facility Permit (Attachment I.1-A) and any related Permit Conditions (Attachment I.1-B).

Each supervisor and operations employee at CRLF is encouraged to participate in pertinent Solid Waste Facility training and become a Certified Operator. Following completion of Certified Operator training by any landfill employee, documentation of this training is placed in the Facility Operating Record. Employees of CRLF are trained upon hire and annually thereafter and training is documented on a form equivalent to the one provided as Attachment II.2-B. Training topics include the Plan of Operations, Special Waste Disposal Management Plans, Edge of Liner Inspections, Waste Screening and Inspection Plan, etc. Table II.2-7 provides a list of current Certified Operators, with Certificates provided in Attachment II.2-C.

Table II.2-7
Certified Operators

Certified Operator	Expiration Date
Juan C. Tomás	9/11/2022

Note: Certified Operators list is subject to change.

4.4 Waste Screening and Inspection

The Waste Screening and Inspection Plan for the CRLF is provided as Volume II Section 10. The Waste Screening and Inspection Plan has been developed in accordance with 20.9.5.8.B(2-7) NMAC including load inspection details (i.e., method, frequency, personnel) and a training program for the identification of unauthorized waste. In accordance with that Plan, CRLF personnel will visually inspect waste during placement on the working face and operators are trained to identify and segregate suspect materials.

As described in Volume II.10, if unauthorized materials are discovered, the Landfill Manager will be notified, and the NMED, Hauler, and Generator will be notified in writing within 48 hours per 20.9.5.8.B(5)(a) NMAC. In addition, the area will be restricted from public access and from facility personnel, per 20.9.5.8(B)(5)(b)NMAC, and the CREC will affirm that proper cleanup, transport and disposal of waste will be assured, per 20.9.5.8(B)(5)(c) NMAC. Random load inspections are conducted on a daily basis to determine the presence of unauthorized materials. A minimum of one load per day, is selected for inspection and recorded on a Load Inspection Form (Figure II.2.6) and maintained as part of the Facility Operating Record.

At least one of the daily random load inspections will be conducted on a load of special waste, if received. Special waste inspections include review of the Special Waste Manifest and the Special Waste Permit Application (Attachment II.8-A). Documentation of special waste inspections will be recorded on the Load Inspection Form and maintained as part of the Facility Operating Record. Waste screening and inspection is detailed in Volume II Section 10.

5 MUNICIPAL WASTE LANDFILL OPERATION REQUIREMENTS

5.1 Fill Face Compaction

This Plan of Operations addresses daily fill face activities in detail. The prescribed procedures to confine the working face to the smallest practical area, and achieve complete compaction of the waste, include:

- Establish fill face width adequate for peak daily traffic flow (safe truck unloading width = 20 ft ±).
- Install lifts in thin layers with slopes no steeper than 3:1, with the exception of the "fluff" lift over the liner.
- Consolidate waste with repeated passes of specialized waste compaction equipment.
- Apply cover throughout the working day to reduce exposed waste surface.
- Take precautions to protect installed liner systems, piping, monitoring points, etc.
- If accepted, sludge will be deposited directly onto the working face on top of at least 10 ft of MSW; commingled with other MSW; and topped with 6 inches of daily cover (see Volume II Section 8).
- Treated PCS may be deposited at the working face or beneficially used as daily or intermediate cover (see Volume II Section 8).

5.2 Landfill Gas Management

The Landfill Gas Management Plan, Volume II Section 6, describes the LFG monitoring system and protocol that is used at CRLF to ensure continued compliance with 20.9.5.9.B NMAC. The methane monitoring program meets or exceeds the requirements of 20.9.5.9.C NMAC, and includes quarterly monitoring along the solid waste boundary, as well as within on-site structures.

5.3 Security and Access Control

In order to prevent unauthorized access, the CRLF perimeter is secured by both chain link fencing and minimum 5-strand barbed wire fence. The entrance to the landfill has 24-hour security, and the US Border Patrol maintains active surveillance of the perimeter 24 hours per day, 365 days per year. Site ingress/egress is controlled by both vertical and horizontal automatic swing arm gates operated by the 24-hour attendant at the Gate House.

5.4 Stormwater Management

Annual precipitation in the vicinity of the site averages 9.75 inches per year. Both the run-on and run-off control systems that service CRLF have been designed to manage flow in excess of that generated by the 25-year, 24-hour design storm. The engineering design for the stormwater management systems are reflected on the Permit Plans and meet the regulatory criteria in Volume III Section 8 (Drainage Calculations) and Volume III Section 6 (Erosion Calculations). Operational considerations include:

- Incrementally installing drainage devices in accordance with the Permit Plans
- Cleaning, clearing, and maintaining culverts and drainageways
- Installing temporary sedimentation control devices during construction
- Routine cleaning of silt and debris from basins and drainageways

5.5 Scavenging

Scavenging is strictly prohibited at CRLF, as posted on the site entrance sign (Figure II.2.4) and additional signage at or near the workface. Constant monitoring by site personnel serves to prevent scavenging, and access is controlled after hours by the perimeter fencing and locking gates.

5.6 Fire Prevention and Control

The Contingency Plan (Volume II Section 3) provides detailed procedures regarding fire prevention and control. Steps to prevent and control fires are listed on Table II.2-8.

Table II.2-8
Fire Prevention and Control

1. Fire Prevention Measures
   - Routine cleaning of debris from equipment radiators.
   - Random inspections of incoming loads at the Gate House to prevent unauthorized waste acceptance, including "hot loads".
   - Training of equipment operators to identify suspect "hot" loads and measures for mitigation (e.g., cover smoldering waste with stockpiled soil).
   - Training of site personnel in waste screening, flammables identification, etc.
   - Routine communications with emergency response support personnel (Contingency Plan; Volume II Section 3).
2. Fire Control Procedures
   - The placement and maintenance of ABC type fire extinguishers in all mobile equipment and on-site structures.
   - Availability of water from the water tank, water wagon or detention basin.
   - Locating cover material stockpiles near the working face that can be used to smother fires.
   - Implementation of a site-wide communication network to optimize mobilization of appropriate response personnel and equipment.
   - Employee training on fire response techniques, notification procedures, fire response equipment, etc.
   - Well established emergency response procedures.

5.7 Hot Loads

"Hot" loads contain materials that show evidence of smoke, smoldering, smoky odor, cinders, etc., upon arrival at the landfill. Immediately upon arrival and/or identification of a hot load, it is directed to a designated area separate from the daily fill face and near one of the on-site access roads. The location of the hot load management area may be changed from time to time as the landfill operation progresses.

The material will be unloaded and inspected pursuant to the Waste Screening and Inspection Plan (Volume II Section 10), and any unusual characteristics will be observed and noted. The material will either be smothered with earth, or doused with water, to extinguish any remaining fire. Prior to disposal at the fill face, the material will be uncovered and inspected. If there are no health and safety threats, no evidence of smoke or fire, and the heat has diminished sufficiently; the load will be incorporated into the daily fill face. If there are any concerns associated with the load or the cause of the fire, the load will be covered by soil or tarping for testing and evaluation. All load inspections will be recorded on the Vehicle Inspection Form (Figure II.2.6) and Daily Operations Record (Figure II.2.7), both of which are part of the Facility Operating Record. An incident report will be also be recorded in the Facility Operating Record. CREC will notify the SWB both orally and in writing within 24 hours of an occurrence of a spill, fire, flood, explosion, mass movement of waste, or similar event.

5.8 Access Roads

Section 3.5 of this Plan describes the Site Entrance Road, and further details are provided in the Transportation Plan, Volume II Section 9. Permanent roadways are constructed of asphalt pavement over a select aggregate base course. The cell access roads and other temporary on-site access roads are constructed of caliche, crushed aggregate, and/or select construction and demolition (C&D) debris. Roads are watered regularly for dust control, and graded on a regular basis, and unpaved roads are treated regularly with a surfactant to better control dust. These actions ensure that truck traffic is safe and is not interrupted by inclement weather. Both temporary and permanent roadways will be extended to access new areas. These roads will be constructed and maintained in the same proven manner as existing roads. The site will take steps to minimize particulate matter from the fleet of on-site heavy equipment in accordance with the Particulate Emissions Reduction Plan approved by NMED on April 10, 2009.

Routine inspection and maintenance of access roads is conducted on a frequent basis in order to provide for free flow of traffic during any foreseeable weather conditions. In addition, stockpiles of road materials are maintained on-site, including, but not limited to, native caliche and appropriate C&D debris. The roads are crowned to drain runoff into road-side drainage channels and then into the site's stormwater control systems.

Traffic may be routed to a designated wet-weather disposal area during periods of inclement weather or when operations in the area of the active fill face become hindered. The haul roads and ramps will be relocated as phasing progresses. Areas adjacent to the haul roads may be used as designated wet-weather waste disposal areas, as determined on an ongoing basis by the Landfill Manager. Only areas that have certified liner segments and leachate collection systems will be used for disposal. The haul roads, access roads, and ramps may be relocated as filling progresses.

Figure II.2.6
Vehicle Inspection Form
Camino Real Landfill

Date of Inspection:		Driver Name:	
Time of Inspection:		Company:	
Inspector Name and Title:		Phone:	

Inspection Type:	☐ Visual ☐ Sample Collected (Sample Disposition) ____________________ ☐ Weight/Volume

Truck License No.:		Truck Description:	

Source of Load:			

Description of Load:			

Observations/Comments:			

Action Taken:			

Inspector Signature

Driver Signature

FIGURE II.2.7

DAILY OPERATIONS RECORD
CAMINO REAL LANDFILL

Camino Real Landfill
#SWM-030738
1000 Camino Real Blvd.
Sunland Park, NM 88063
Phone 575-589-9440 Fax 575-589-2427

Date: ______________ **Time:** ______ **Open:** ______AM **Close:** __________PM

Temperature: **Low:** ________ **High:** ________

Sky Conditions: Clear Partly Cloudy Overcast Raining

Precipitation in last 24 hours: _____________ Inches

Wind Direction and Speed: ____________________

Today W/Face Coordinates:

1. _____________X_____________ Elev. ________
2. _____________X_____________ Elev. ________
3. _____________X_____________ Elev. ________
4. _____________X_____________ Elev. ________

Site Condition:

Camino Real Blvd.	Good Shape____	Attention Needed_____	Comments ____________________
Gate Condition:	Good Shape____	Attention Needed_____	Comments ____________________
Paved Entry Road:	Good Shape____	Attention Needed_____	Comments ____________________
Gravel Haul Road:	Good Shape____	Attention Needed_____	Comments ____________________
Drainage Channels:	Good Shape____	Attention Needed_____	Comments ____________________
Blown Litter:	Good Shape____	Attention Needed_____	Comments ____________________
Erosion:	Good Shape____	Attention Needed_____	Comments ____________________

Leachate Head Levels:

Sump 1: Leachate Head Level: ______________"

Sump 2: Leachate Head Level: ______________"

Any Signs of LF Gas Migration?: No ___ Yes ___ Description? ______________________________

Random Load Inspections Performed?: No ___ Yes ___ How Many?: _____

Accidents /Injuries: No ___ Yes ___ (attach report)

Certified Operator: ______________________________

Signature: ____________________________________

5.9 Unloading Areas

The width of the daily fill face is the key constraint in minimizing the turnaround time at CRLF. A fill face width of 150 to 300 ft is adequate to meet peak short-term demand. At times, more than one fill face may be operational in order to maintain a safe and efficient traffic flow. Site personnel and signs will direct vehicles to the appropriate unloading locations.

5.10 Leachate Management

Leachate is collected and managed in accordance with the Leachate Management Plan, Volume II Section 7. The Permit Plans provide details on the collection system design, and calculations in Volume III Section 8 confirm the efficacy of the proposed installations. Leachate management during the operational phase includes pumping and surface application over lined areas.

Following closure, the most effective treatment and disposal technology for leachate (if produced) will be determined and implemented with the approval of the Secretary. This supplemental disposal technology may include hauling off-site for treatment at a publicly owned treatment works (POTW) or other permitted disposal facility. Recordkeeping forms for leachate management are included with Volume II Section 7, and leachate depth measurements are recorded from active sumps at least quarterly.

5.11 Litter Control

Blowing litter is controlled by a number of both preventive and maintenance techniques. When the fill operation is conducted below the adjacent ground or fill level, the sidewalls function as windbreaks dependent upon prevailing wind and weather conditions. The east-west orientation of cell progression is deliberately designed to be at right angles to the prevailing southerly winds. The perimeter wind fencing surrounding the property, and particularly the north wind fence and the chain-link positioned on the north screening berm, serve to control litter downwind of the active area, as fill operations progress to a higher elevation. In addition, the site deploys portable litter fences at strategic locations as necessary.

Litter collected on the fences and other areas is disposed of in the daily fill face. It is the Landfill Manager's responsibility to supervise landfill personnel to ensure that litter has been contained by the end of the working day. In case of adverse weather conditions (e.g., high wind, sub-zero temperatures), the priority for litter collection is off-site collection first.

Litter and debris are collected and disposed of on a daily basis. There may, however, be times when such a practice is impractical. Such an instance may occur at the end of the working day when the active face is closed. In such an instance, the debris will be temporarily placed in containers or covered (e.g., tarps, soil, etc.) and disposed of at the fill face at the beginning of the next working day. All vehicles entering the site to dispose of refuse must be enclosed, covered, tarped, or be delivering waste materials not susceptible to the wind. In the event that vehicles arrive at the site with uncovered loads, the vehicles will be provided with a temporary tarp and subject to fees or denied access to the site.

5.12 Vector and Odor Control

A number of "vectors" or pests have the potential to transmit diseases that have historically been associated with a poorly operated open "dump". Examples of these include insects, rodents, and birds. The modern landfilling process is specifically designed to preclude such vectors. The routine application of daily cover materials and general movement of heavy equipment eliminates adequate harborage or feeding areas. A professional exterminator is on-call to provide for additional assistance, if necessary.

Odor control is addressed in Section 3.1. Landfill odors generally result from the trace-level gases produced during decomposition of the landfilled waste. Methane and carbon dioxide, which together comprise over 99% of landfill gas, are odorless. With the dry waste stream and arid climate, the rate of organic decomposition and gas generation is very slow. Occasionally an incoming load of waste may exhibit a unique odor based on its content. The immediate application of daily cover is generally adequate to control these occasional odorous loads. Materials that have a known tendency to generate odors are restricted from CRLF.

Several other features incorporated into the CRLF design assist in the mitigation and control of odors. These include:

- Leachate collection that prevents liquid accumulation within the waste
- Routine methane monitoring along the perimeter of the facility
- Setbacks of the active area from downwind land uses
- Landfill sequencing of the working face with consideration for wind direction and odor dispersion
- Active operating measures that address potential short-term odors from MSW or special waste (e.g., sludge, PCS)
- Thermal destructions of landfill gasses at the collection system flare.

5.13 Excavation of Closed Cells

It is not anticipated that cells that have been closed will be excavated. If this becomes necessary, and the excavated waste volumes exceeds 50 yd^3, areas that have received final cover and have been certified as closed will not be excavated without Department approval. Some limited cap disruption may be necessary for erosion control, and to install landfill gas collection devices or drainage structures. Differential settlement of completed areas will be corrected with the addition of soil fill or additional waste, as appropriate.

5.14 Daily Cover

A minimum thickness of 6 inches of on-site soil is applied to each daily fill face. This soil is applied throughout the working day in order to minimize the area of exposed refuse. Daily cover is sloped to promote run-off and to prevent ponding. CREC previously amended the Plan of Operations and Special Waste Disposal Management Plan to include additional details regarding use of Category I alternative daily covers (ADCs). CREC also submitted a "Pilot Field Program for Auto Shredder Residue," which was approved by NMED on November 28, 2011. ADCs will be utilized only on areas requiring 6 inches of daily cover and will not be used on areas requiring 12 inches of intermediate cover. The NMED Guidelines are summarized on Table II.2-9; and the Solid Waste Bureau Guidance Document is provided as Attachment II.2-D. CREC will update this Plan of Operations in accordance with SWB's Guidance Document should they elect to test or utilize other ADCs at CRLF.

Table II.2-9
NMED ADC Guidelines

1. The long-term stockpiling of ADC materials should be avoided in order to prevent the appearance of materials not being properly disposed or causing a potential health and safety problem. The maximum acceptable storage time depends upon the type of ADC materials to be stored;
2. Areas designated for the short-term stockpiling of ADC shall be clearly identified in the landfill's operations plans. This will allow obvious discernment between ADC materials, recyclable storage area(s) and solid wastes;
3. ADC materials that will be mixed prior to application shall be mixed in a manner that minimizes dust generation and windblown litter. The Landfills' operating plans shall be revised to specify the proportions of each ADC component when utilizing mixed ADC materials; and
4. ADC materials that are special wastes or otherwise require analytical testing shall be sampled, analyzed and fully documented in each of the landfill's operating records prior to use as ADC. The landfills' operating plans shall identify which ADC materials require analysis and indicate the required parameters and test methods.

5.15 Intermediate Cover

In accordance with 20.9.5.9.O NMAC, municipal and special waste landfills are required to provide 12 inches of intermediate cover over areas of the landfill that have not received waste for 60 days or longer, and have not reached final elevations. Additionally, intermediate cover must be constructed and maintained to prevent erosion and infiltration, and is required to be stabilized with vegetation or another approved method if inactive for 2 or more years.

At CRLF, intermediate cover consists of additional compacted soil application over the daily cover to create a minimum total thickness of 12 inches. Intermediate cover is graded to promote positive drainage and limit erosion and infiltration. The intermediate cover will be inspected and maintained until additional waste placement has been conducted or final cover is constructed. If additional waste placement is to occur, the intermediate cover may be removed to facilitate the flow of leachate and landfill gas prior to additional waste placement. Inactive areas with intermediate cover will be stabilized via the routine inspection and maintenance program described below:

5.15.1 Intermediate Cover Inspection Program

Currently, approximately 93 acres of CRLF has intermediate cover installed. Areas of CRLF that have intermediate cover installed are inspected routinely, at a minimum of once per month and also after significant (≥ 0.5 inches) rain events. Inspections are recorded on a form similar to that provided as Figure II.2.8 (Intermediate Cover Inspection Form). The form is used to record intermediate cover observations, and photo-documentation supplements the record as necessary. The Intermediate Cover Inspection Forms will be maintained as part of the Facility Operating Record, and will elaborate on the following items, as applicable:

- Evidence of leachate
- Landfill gas odor
- Exposed waste
- Cracks greater than 1 inch in width and 6 inches in depth
- Surface water ponding
- Eroded or scoured soils
- Dead or stressed vegetation (if applicable)
- Vegetation growing taproots in areas not designated to accommodate them
- Vectors, such as flies and rodents
- Recordkeeping and reporting

FIGURE II.2.8
Intermediate Cover Inspection Form

Date: ____________________ Page ____ of ____

Inspector(s): **Weather**: Temperature: __________°F

____________________________ Skies: ____________________________

____________________________ Precipitation: _______ inches (last 24 hours)

Intermediate Cover										
Location	LFG Odor	Leachate Seep	Exposed Waste	Cracks	Ponding	Erosion	Vegetation		Vectors	Sample
							Stress	Taproots		

"X" indicates that a Deficiency has been noted. "P" indicates that a Photograph has been taken. "S" indicates that a Sample has been collected. Complete descriptions of Deficiencies, Photographs, and Samples are provided on attached pages. Items are referenced by Location.

Field Notes: ____________________________

Corrective Action Required: ____________________________

Corrective Action Completed: ____________________________ ____________________

Signature Date

Use additional sheets as necessary.

Deficiencies identified during site inspections will be corrected within 90 days. Upon completion of the corrective action, appropriate documentation will be made on the Intermediate Cover Inspection Form and placed in the Facility Operating Record.

5.15.2 Intermediate Cover Maintenance Program

It is expected that routine site maintenance will be necessary to maintain intermediate cover. Intermediate cover is expected to require periodic maintenance such as soil enhancement/repair, and attention to naturally established vegetative cover:

- Soil Repair – Intermediate cover repairs may be necessary due to ponding, surface water erosion or wind erosion. Ponding can result from differential settlement of the landfill contents, and erosion can be caused by runoff in areas without established vegetation or by repeated wind gusts. Areas where impacts are evident will be promptly repaired to maintain the integrity of the cover. Recently filled and covered areas will require the most maintenance since differential settlement decreases rapidly with time, and erosion is minimized as vegetation is established. Soil for repairs will be obtained from on-site sources. Repairs will be made on an as-needed basis.
- Vegetation – Intermediate cover will not be seeded for vegetative growth; however, CRLF will routinely attempt to maintain any naturally-established vegetative cover. Routine care includes, but is not limited to, the removal of undesirable plant species (e.g., taproots) and maintenance of native plant species as appropriate.
- For areas of intermediate cover at CRLF which have been inactive for greater than two years and have not been adequately stabilized with vegetation, CREC proposes the use of alternative methods for stabilization per 20.9.5.9.O(3) NMAC. Alternative materials and methods for cover stabilization are described in Attachment II.2-E.

5.16 Edge of Liner and Sideslope Maintenance

CREC will perform minimum quarterly inspections of the edge of liner and sideslope conditions at CRLF. Inspections will be required to (1) confirm the edge of liner; and (2) maintain sideslope compliance with 20.9.6.9.A(1)(e) NMAC. Inspections will be documented on the form included as Figure II.2.9 and a copy will be maintained the Facility Operation Record.

Figure II.2.9
Routine Inspection Form, including Edge of Liner and Sideslope Conditions

Date: ____________________

Inspector(s): ____
____
____

Weather: Temperature: ________°F
Skies: ______________
Precipitation: ________ inches (last 24 hours)

Sideslope Inspection											Edge of Liner Inspection	
Location*	LFG Odor	Leachate Seep	Exposed Waste	Cracks	Ponding	Erosion	Vegetation		Vectors	Sample (Y/N)	Describe:	
							Stress	Taproots			Toe of Slope	Condition of Marker

*"X" indicates that a Deficiency has been noted. "P" indicates that a Photograph has been taken. "S" indicates that a Sample has been collected. Complete descriptions of Deficiencies, Photographs, and Samples are provided on attached pages. *Items are referenced by Location; as marked on the attached Site Plan.*

Field Notes: ____

Corrective Action Required: ____

Corrective Action Completed: ______________________ ______________
Signature Date

Note: NMED requires quarterly inspections and submittal of this inspection form to NMED no later than 30 days after inspection. A copy of the inspection record shall also be maintained in the Facility Operating Record.

As described in the CQA Plan (Section 9.13 of Volume II Section 4), edge of liner markers will be installed at corners of newly installed liner and as necessary along the top of the side slope to prevent waste disposal beyond the edge of liner. The landfill disposal area will be typically surveyed on an annual basis, or as determined necessary by CREC in consultation with the Engineer of Record. Regular survey of the disposal area which will also aid in sideslope management and maintenance, and waste/soil management.

Training regarding performance of edge of liner and sideslope inspection will be provided to CRLF staff on a minimum annual basis and immediately following liner installation, prior to protective soil layer (PSL) installation. Training will be documented on the Training Record form, provided in Attachment II.2-B. Training Records will be maintained in the Facility Operating Record.

6 LANDFILL CLOSURE

As individual areas reach final grade, they will be capped with the design described on the Permit Plans in the supporting calculations (Volume III). The cap will be installed according to:

- The plans and details shown on the Permit Plans
- The procedures identified in the C/PC Plan (Volume II Section 5)
- The materials and installation specifications in the Final Cover Construction and CQA Plan (Attachment II.5-E)

Areas that have been incrementally closed will be subject to regular inspections with routine maintenance as necessary to correct:

- Differential settlement
- Erosion
- Evidence of landfill gas or waste exposure
- Cracks
- Condition of vegetation

The C/PC Plan (Volume II Section 5) describes closure and post-closure maintenance/ monitoring in detail.

7 RECORDKEEPING AND ANNUAL REPORTS

The CREC will continue to maintain a Facility Operating Record for each day that operations, monitoring, closure, or post-closure activities are conducted per 20.9.5.16 NMAC. Older records may be archived electronically. CRLF utilizes a permanent automated weather station located onsite at the Landfill Office. On a daily basis, CRLF records daily temperature, precipitation, and wind measurements from this weather station. The Facility Operating Record is maintained on-site (for the current month and the previous twelve months, minimum) at the CRLF Gate House and/or Landfill Office during the active mode of operations. After closure, the Facility Operating Record may continue to be maintained on-site, may be retained electronically or off-site at a location identified to NMED in advance. The Facility Operating Record will be made available for NMED review upon request.

7.1 Daily Operations

The waste receiving data required by 20.9.5.16.A(1)-(4) NMAC, including the type and weight/volume of each load received; country, state, municipality of origin; business name of commercial hauler; and type and weight/volume of non-solid waste materials, is recorded using a state-of-the-art computer software program. An example of the program output is provided as Attachment II.2-F. Records of load inspections are also retained as part of the Facility Operating Record. Inspection records include the date/time of inspection, business name of the commercial hauler, driver name, vehicle description and license, source of waste, and other observations made during the inspection per 20.9.6.15.A(5)(a)-(e) NMAC.

Other components of the CRLF Facility Operating Record (per 20.9.6.15.A NMAC) will include, as appropriate:

- Descriptions of solid waste or special waste handling problems or emergency disposal activities.
- A record of deviations from the approved design or operational plans.
- Groundwater and LFG monitoring and testing results.
- Landfill Management Plans: Plan of Operations; Contingency Plan; Construction Quality Assurance Plan; Closure/Post-Closure Plan; Landfill Gas Management Plan; Leachate Management Plan; and Special Waste Disposal Management Plans.

- Documentation of the implementation of required plans.
- Copies of special waste manifests required under 20.9.8.19 NMAC.
- Copies of certificates of processing, transformation, or disposal of special wastes required under 20.9.8.13 NMAC.
- Financial assurance information, current estimates for closure/post-closure care, and a copy of the financial assurance mechanism being utilized.
- A complete and current copy of the NMED-approved Facility Permit, Final Order issuing the Permit, and any approvals or Permit Conditions granted by the Secretary under 20.9.2 through 20.9.10 NMAC.
- A Daily Log of construction activities, if any.
- Demonstrations made to the Secretary under 20.9.4.9.A(12) and (13) NMAC regarding seismic impact areas and unstable areas (included in Volume IV Section 1 of this Application).

CRLF records will be tracked and filed via the following methods:

- CRLF maintains a Daily Operating Log. The Gate House operator enters the date and operator name at the beginning of the day. As loads are received, the operator documents the time, hauler name, truck number, weight (tons), type, and origin of the waste. A unique ticket number is assigned to each load to provide a cross-reference to the scale documentation. The operator also records current weather conditions; the location of the daily working face; whether construction activities are taking place; general load inspection information (details on a separate form); emergencies and other significant events occurring that day. A copy of the Daily Operating Record is provided as Figure II.2.7.
- One copy of the Daily Operating Record is printed out at the end of each business day to be maintained on file in the Gate House and/or Landfill Office. The Daily Operating Log will also be maintained electronically.
- Truck scale records are generated and maintained electronically on the Gate House computer.
- Random load inspections are documented on paper forms, which are maintained at the Gate House and/or Landfill Office, and may later be scanned for electronic retrieval.
- Landfill gas monitoring, groundwater monitoring, and leachate monitoring results are documented on paper forms and bound in loose-leaf binders and maintained at the Gate House and/or Landfill Office, and may later be scanned for electronic retrieval. Landfill gas and groundwater monitoring results are submitted to SWB on a quarterly basis; and leachate monitoring results are submitted with the facility's Annual Report.

- Other components of the CRLF Facility Operating Record (as required per 20.9.5.16.A NMAC) are maintained on file at the Gate House and/or Landfill Office.

7.2 Post-Closure Care

During the post-closure care period for CRLF, an operating record will be maintained for each day that monitoring, corrective action, or other post-closure activities are conducted (per 20.9.5.16.C NMAC), including:

- A record of any deviations from the approved post-closure care plan (if any).
- Groundwater and LFG monitoring and testing results.
- Documentation of the implementation of required plans and any exceptions to those plans.
- Financial assurance information, including current estimates for closure/post-closure care, and a copy of the financial assurance mechanism being utilized.
- A complete and current copy of the Facility Permit, Landfill Management Plans (as updated), Final Order issuing the Permit, and any approvals or Permit Conditions granted by the Secretary under 20.9.2 – 20.9.10 NMAC.
- Other applicable information specifically required by the Secretary.

Records following closure (i.e., post-closure care and monitoring) may be retained electronically or off-site at a location identified to NMED in advance.

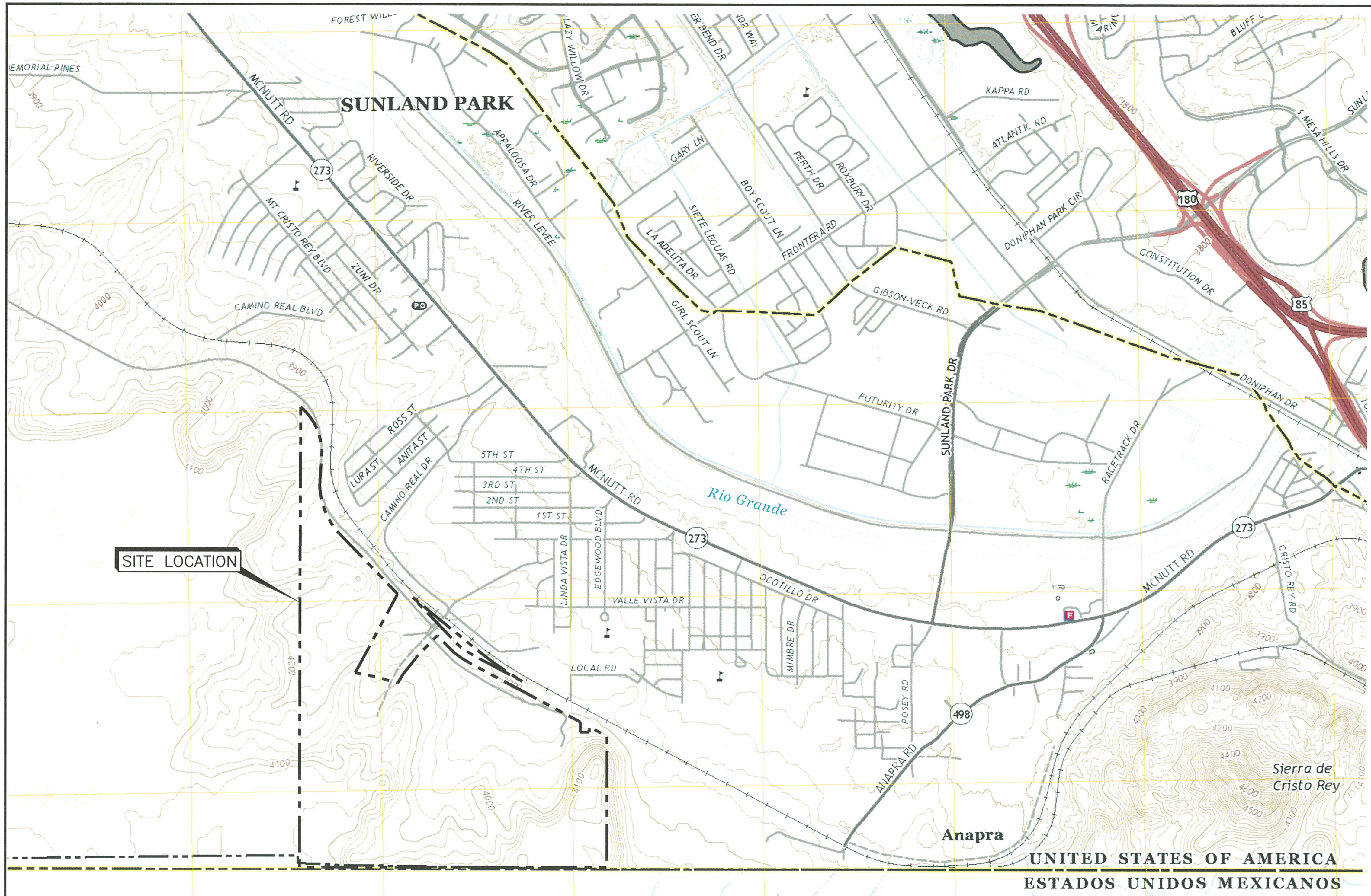
7.3 Annual Reporting

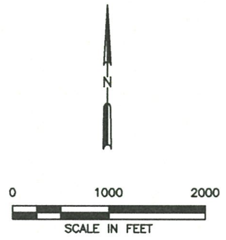
CREC will continue to submit an Annual Report for the CRLF to NMED within 45 days from the end of each calendar year, or as otherwise prescribed by SWB, which describes the operations of the past year. The Annual Reports will be certified as true and accurate and will include documentation of the following, per 20.9.5.16.D NMAC (on forms provided by the Department):

- The type and weight or volume of waste materials received each month and the country (if other than the U.S.), state, county, and municipality in which the waste originated.
- The type and weight or volume of solid waste received from each commercial hauler that delivered waste to the facility.
- A description of the capacity used in the previous year and the remaining capacity.

- A description of the acreage used for disposal, the acreage seeded, the acreage where vegetation is permanently established and a description of the progress in implementing the closure plan.
- The weight or volume of each type of special waste received at the facility in the previous year.
- A summary of environmental monitoring results.
- Written notice to the Secretary if any change in operation has occurred that will reduce the active life of the facility by 25% or more.
- Type and weight or volume of materials recycled during the year.
- Final disposition of materials not stored or recycled.
- Amount of leachate generated and treated or beneficially used.
- An annual Financial Assurance certification on forms supplied by NMED.
- The latitude and longitude of the geographical center of the Facility (as approved by the NMED) in NAD83 or equivalent.
- Other applicable information requested by the Secretary.

Copies of the CRLF 2018 and 2019 Annual Reports are included as Attachment II.2-G. Copies of the CRLF Annual Reports will be retained through the post-closure period as part of the Facility Operating Record. Records and plans required by 20.9.2 – 20.9.10 NMAC will be furnished upon request and made available at all reasonable times for inspection by the Secretary. Records following closure (i.e., post-closure care and monitoring) may be retained electronically or off-site at a location identified to NMED in advance.





LEGEND

— · — PROPERTY BOUNDARY

NOTES:

1. BASED ON SMELTERTOWN, 2019 USGS QUADRANGLE 7.5' MAP.
2. GEOGRAPHIC COORDINATES FOR THE CENTER OF THE SITE: 31° 47' 22.67" N. 106° 35' 34.41" W.

JONATHAN VINCENT QUEEN
25844

J. Q.
9/26/22

☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: II.2.1-SITE LOCATION.DWG

DRAWN BY: JDW
DESIGN BY: KRB
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

SITE LOCATION MAP

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

FIGURE II.2.1

O:\0601\667\EXPANSION 2019\VOLUME 2\PART 2\II-2-1-SITE LOCATION.dwg, rarrington, 1:2

LEGEND

— · —	PROPERTY BOUNDARY
— · —	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
— —	PERMITTED LIMITS OF WASTE FOR UNIT 2
— · —	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
- - -	ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4
—— – ——	CELL BOUNDARY
E 8,000	SITE GRID
4120	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
⊕ WELL B	EXISTING GROUNDWATER MONITOR WELL
⊕ WELL I	PERMITTED GROUNDWATER MONITOR WELL
⊕ WELL G	PERMITTED GROUNDWATER MONITOR WELL (TO BE ABANDONED)
⊕ WELL G2	PROPOSED GROUNDWATER MONITOR WELL
⊙M-4	EXISTING LANDFILL GAS PROBE
⊙M-11	PERMITTED LANDFILL GAS PROBE
⊙M-17	PERMITTED LANDFILL GAS PROBE (TO BE REPLACED WITH PROPOSED LOCATIONS)
⊙M-27	PROPOSED LANDFILL GAS PROBE

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.

JONATHAN VINCENT QUEEN
25844

J. Q
7/24/22

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☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: II-2-2-SITE PLAN.DWG

DRAWN BY: JDW
DESIGN BY: KRB
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

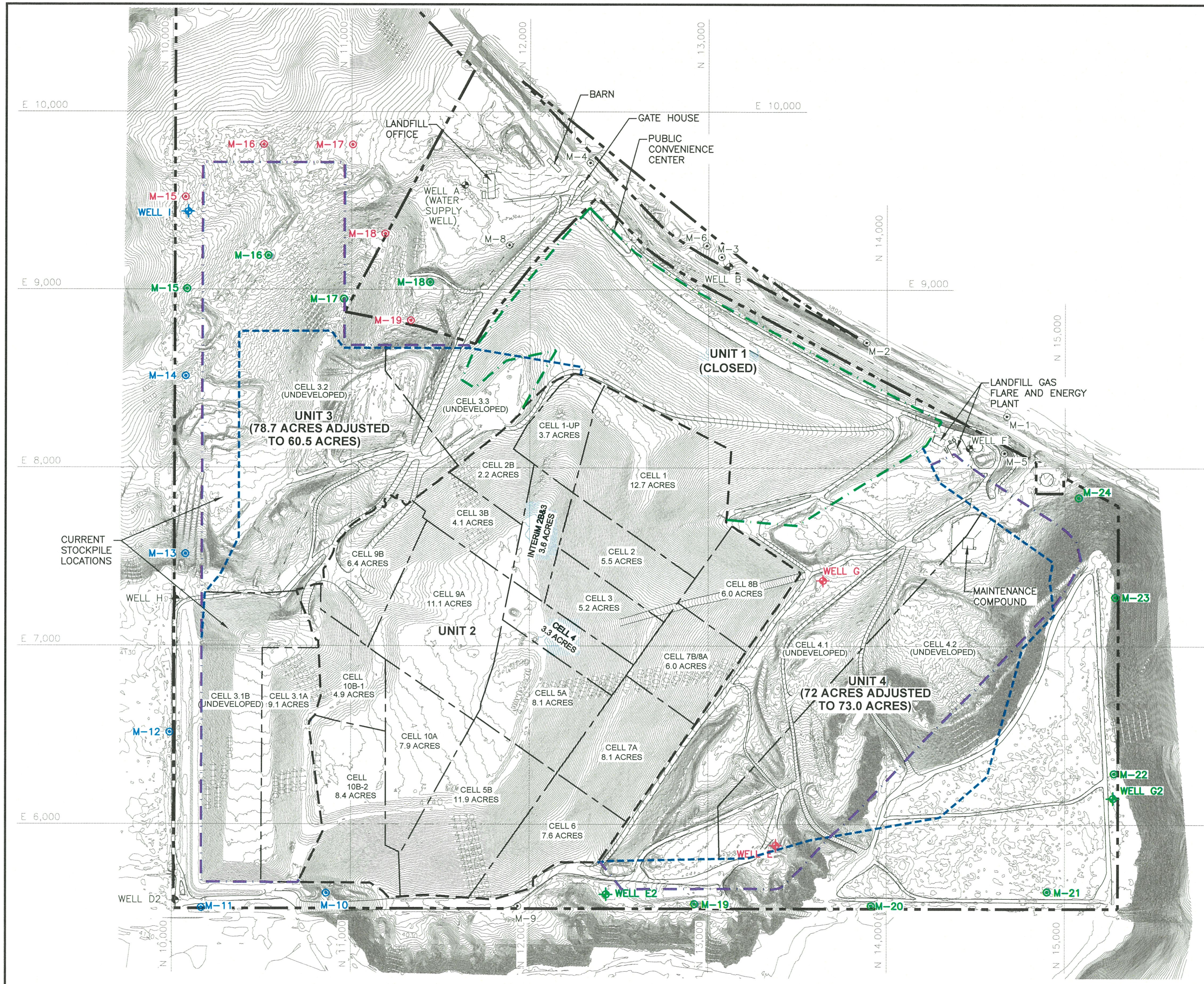
SITE PLAN

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

FIGURE II.2.2

O:\0601\667\EXPANSION 2019\VOLUME 2\PART 2\II-2-2-SITE PLAN.dwg, farrington, 1:2



0 300 600
SCALE IN FEET

LEGEND

▬ ▬ ▬	PROPERTY BOUNDARY
▬ · ▬ · ▬	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
‒ ‒ ‒ ‒	PERMITTED LIMITS OF WASTE FOR UNIT 2
▬ · ▬ · ▬	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
- - - - -	ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4
——— – ———	CELL BOUNDARY
E 8,000	SITE GRID
——4120——	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
⌖ WELL B	EXISTING GROUNDWATER MONITOR WELL
⌖ WELL I	PERMITTED GROUNDWATER MONITOR WELL
⌖ WELL G	PERMITTED GROUNDWATER MONITOR WELL (TO BE ABANDONED)
⌖ WELL G2	PROPOSED GROUNDWATER MONITOR WELL
⊙ M-4	EXISTING LANDFILL GAS PROBE
◎ M-11	PERMITTED LANDFILL GAS PROBE
◎ M-17	PERMITTED LANDFILL GAS PROBE (TO BE REPLACED WITH PROPOSED LOCATIONS)
◎ M-27	PROPOSED LANDFILL GAS PROBE

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.

JONATHAN VINCENT QUEEN
25844

9/26/22

☐ DRAFT
☒ FOR INFORMATION PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: II-2-3-ENV MON PLAN.DWG

DRAWN BY: JDW
DESIGN BY: RMB
REVIEWED BY: JAE

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

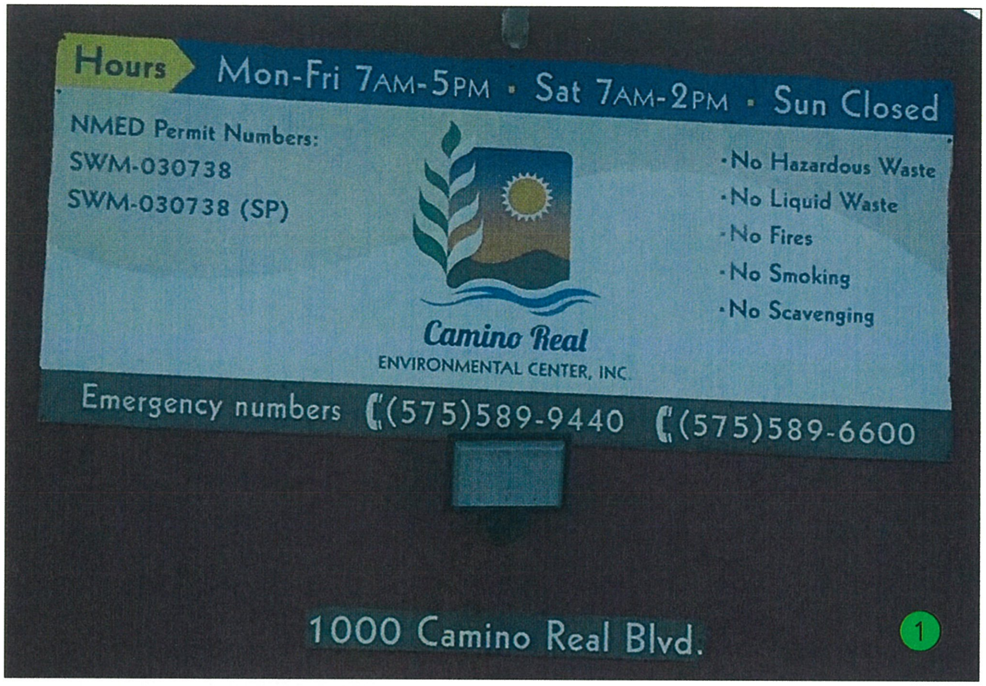
ENVIRONMENTAL MONITORING NETWORK

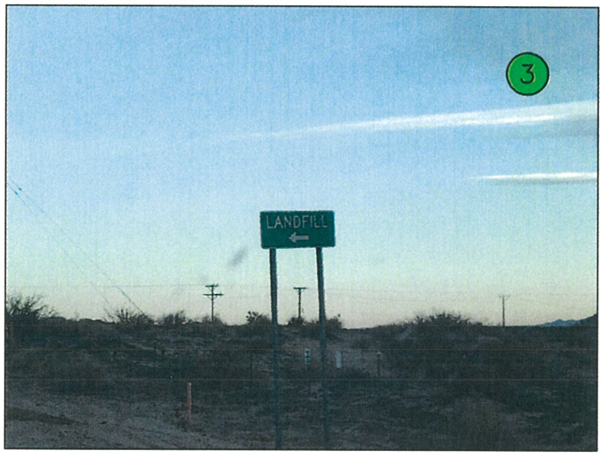
CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

FIGURE II.2.3

O:\0601\667\EXPANSION 2019\VOLUME 2\PART 2\II-2-3 MONITORING NETWORK.dwg, rarrington, 1:2





JONATHAN VINCENT QUEEN
25844

J. VQ
7/26/22

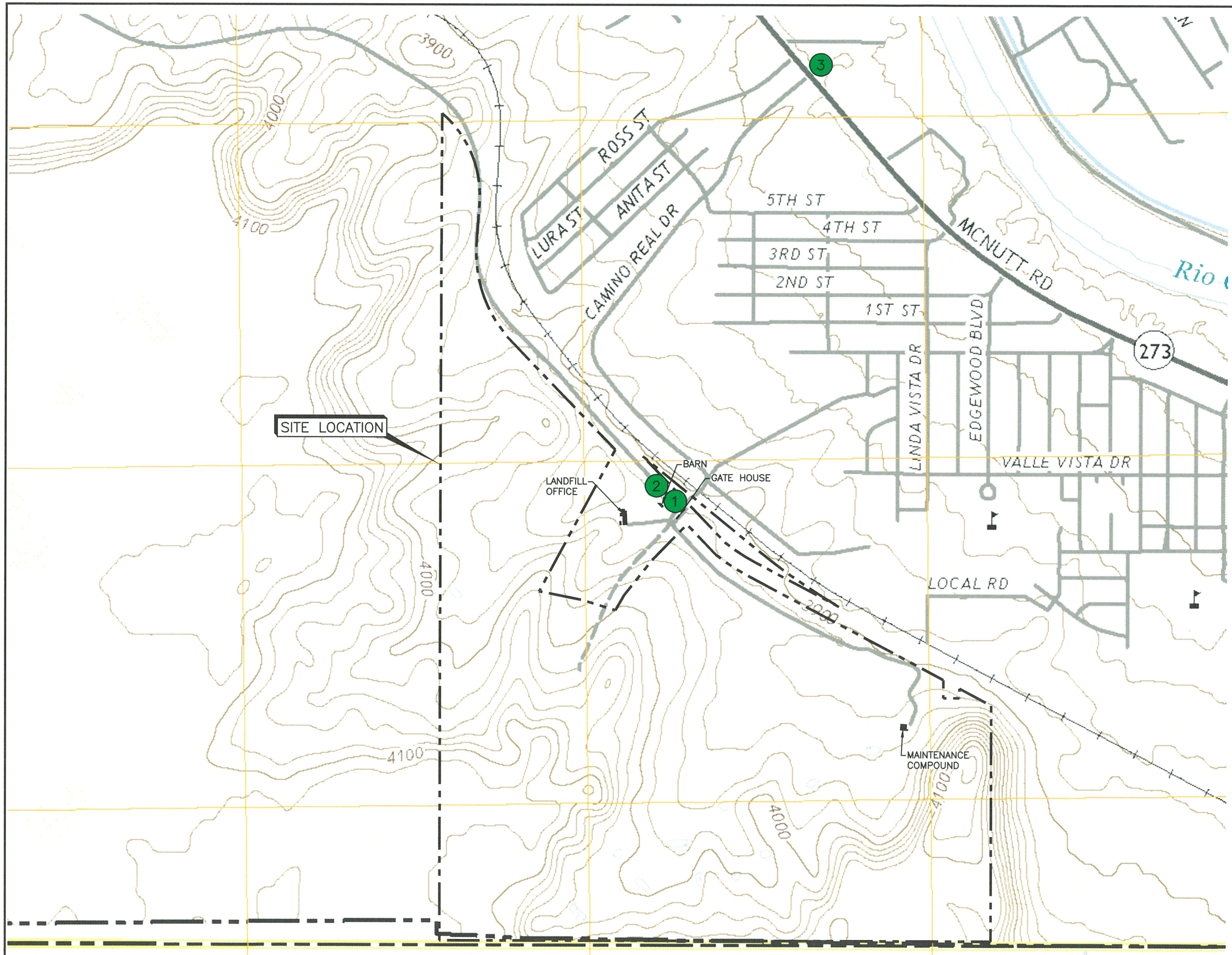
SITE ENTRANCE SIGNS

CAMINO REAL LANDFILL
DOÑA ANA COUNTY, NEW MEXICO

Weaver Consultants Group
CA 3804 PE – 06/30/2021

DRAWN BY: VRS	DATE: 12/2020	FILE: 0601-667-11
REVIEWED BY: JVQ	CAD: II-2-4.dwg	FIGURE II.2.4

O:\0601\667\EXPANSION 2019\VOLUME 2\PART 2\II-2-4 SITE ENTRANCE SIGNS.dwg, rbaker, 1:2



N

0 500 1000
SCALE IN FEET

LEGEND

— - — PROPERTY BOUNDARY

NOTES:

1. BASED ON SMELTERTOWN, 2019 USGS QUADRANGLE 7.5' MAP.
2. GEOGRAPHIC COORDINATES FOR THE CENTER OF THE SITE: 31° 47' 22.67" N. 106° 35' 34.41" W.

①	PROHIBITED WASTE, FACILITY PHONE NUMBERS
②	GATEHOUSE STOP SIGN
③	DIRECTION TO LANDFILL

JONATHAN VINCENT QUEEN
25844

7/26/22

☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: II.2.5-SAFETY SIGN.DWG

DRAWN BY: JDW
DESIGN BY: KRB
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

SAFETY SIGN LOCATION MAP

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

FIGURE II.2.5

O:\0601\667\EXPANSION 2019\VOLUME 2\PART 2\II-2-5-SAFETY SIGN.dwg, rarrington, 1:2

ATTACHMENT II.2-A

LIST OF EQUIPMENT

JONATHAN VINCENT QUEEN
NEW MEXICO
25844
PROFESSIONAL ENGINEER

7/26/22

LIST OF EQUIPMENT

Make/Model[1]	Type[1]	No.	Purpose
CAT D8	Dozer	2	Waste spreading/compaction
CAT 836	Compactor	2	Waste compaction
CAT 966	Loader	1	Earthmoving
CAT 950	Loader	1	Earthmoving
CAT 627	Scraper	2	Earthmoving/daily cover
CAT 621	Water Wagon	1	Dust control
CAT MG140	Motor Grader	1	Road maintenance/earthmoving
CAT 730	Articulated Dump Truck	1	Earthmoving/water truck

Notes:

- Equivalent models may be substituted.
- Equipment is subject to routine replacement.
- Arrangements will be made with local equipment vendors for maintenance and leasing of back-up units.

ATTACHMENT II.2-B

TRAINING RECORD

TRAINING AND SAFETY MEETINGS

District: ______________________ **Date:** ______________ **Time:** ________

Meeting Conducted By: ______________________ **Title:** ________________

Please have employees sign in at the beginning of each meeting.

	Employee Name (Print or Type)	Employee Signature		Employee Name (Print or Type)	Employee Signature
1			21		
2			22		
3			23		
4			24		
5			25		
6			26		
7			27		
8			28		
9			29		
10			30		
11			31		
12			32		
13			33		
14			34		
15			35		
16			36		
17			37		
18			38		
19			39		
20			40		

Topics of Discussion

1 . ____________________

2 . ____________________

3 . ____________________

4 . ____________________

Minutes

____

____

____

____

Handouts

1 . ____________________

2 . ____________________

Signature: ____________________

ATTACHMENT II.2-C

CURRENT CERTIFIED OPERATOR CERTIFICATES

Solid Waste Facility Operator

Juan C. Tomas

Operator ID # 180

has met the standards and criteria adopted by the Environmental Improvement Board
for Certification as a **Landfill Operator**

Presented by

State of New Mexico Environment Department

William Schueler

William Schueler, Certification Officer, Resource Protection Division

September 11, 2022

Expiration Date

ATTACHMENT II.2-D

NMED GUIDANCE FOR APPROVAL OF ALTERNATE DAILY COVER AT LANDFILLS

NEW MEXICO
ENVIRONMENT DEPARTMENT
Environmental Protection Division
Solid Waste Bureau

Harold Runnels Building – Room 2050S
1190 St Francis Dr.
PO Box 5469, Santa Fe, NM 87502-5469
Phone (505) 827-0197 Fax (505) 827-2902
www.nmenv.state.nm.us

GUIDANCE DOCUMENT

Re: Guidance For Approval of Alternate Daily Cover At Landfills

The Solid Waste Bureau (Bureau) has reviewed the information submitted on __________, describing the different types of alternate daily cover (ADC) that _______________ is proposing to use at the __________________Landfill. Before addressing the use of these materials, the following general guidelines shall be implemented and written into each of the landfills' operating plans:

1. The long-term stockpiling of ADC materials should be avoided in order to prevent the appearance of materials not being properly disposed or causing a potential health and safety problem. The maximum acceptable storage time depends upon the type of ADC materials to be stored;
2. Areas designated for the short term stockpiling of ADC shall be clearly identified in the landfills' operating plans. This will allow obvious discernment between ADC materials, recyclable storage area(s) and solid wastes;
3. ADC materials that will be mixed prior to application shall be mixed in a manner that minimizes dust generation and windblown litter. The landfills' operating plans shall be revised to specify the proportions of each ADC component when utilizing mixed ADC materials; and
4. ADC materials that are special wastes or otherwise require analytical testing shall be sampled, analyzed and fully documented in each of the landfills' operating records prior to use as ADC. The landfills' operating plans shall identify which ADC materials require analysis and indicate the required parameters and test methods.

The Bureau has placed the requested ADC materials into three categories:
Category I. The Bureau is willing to approve these materials with no specific conditions other than what has been indicated above regarding documentation of the site-specific storage and use practices. Prior to the use of any ADC, the landfill's revised operations plans (or applicable portions thereof) shall be sent to the Bureau for review and approval. This requirement is not applicable for the use of ADC materials that are already being utilized and have already been approved by the Bureau in writing.
Category II. The Bureau is willing to consider approval of these ADC materials after a pilot beneficial use plan has been submitted and the field pilot evaluation has been completed. A plan for each proposed ADC material shall be submitted and the plan shall include a pilot period of one (1) to three (3) months during which the ADC will be evaluated for effectiveness. Weekly

reports shall be submitted to the Bureau. The weekly reports should include assessments of the effectiveness of the ADC's durability, infiltration prevention, vector control, litter control, odor control, fire control, ability for use during inclement weather, cost-effectiveness and any other demonstration information, to include photographs. Any operational difficulties or advantages should also be noted. After the pilot period, the reports will be reviewed and a final decision will be made by the Bureau.

Category III. The Bureau is denying the use of these proposed ADC materials based on potential risk to the public, the facility's employees, or the environment; public perception of the stockpiles or the use of such material as ADC; or other concerns with the type of material(s) proposed, such as, but not limited to, odors or fugitive emissions.

****

<u>The following materials have been placed into *Category I*:</u>

1. Tarps
2. Treated Petroleum Contaminated Soils [May be used only after testing in accordance with the landfills' permit requirements and the SWMR confirm that the soil has been properly remediated.]
3. Foam [If foam other than what has already been approved is considered, this ADC material becomes a Category II ADC.]
4. Chipped tires [Must be between two (2) and twelve (12) inches in size.]
5. Tire shreds ["Alligators" acceptable, but must not exceed twelve (12) inches in length.]
6. Shredded green waste [Chipped brush and vegetation must be processed to 80% less than or equal to eight (8) inches, with no large items such as tree stumps.]
7. Clean fill [Broken concrete, reclaimed asphalt, brick, glass, etc., but must not contain any solid waste, such as land clearing debris and construction and demolition debris, and shall be processed to 80% less than or equal to eight (8) inches.]
8. Compost or mulch [Fully composted material acceptable, except that offal/mortality compost shall not be utilized.]
9. Woody trimming waste [Clean material that has been processed to less than or equal to eight (8) inches is acceptable. This ADC material must be woody waste other than land clearing debris (yard waste). (Only untreated, unpainted, source-separated wood trimmings with no attached shingles, mastics, laminates or other similarly affixed materials are allowable.)

<u>The following materials have been placed into *Category II*:</u>

1. Foams [Other than foams that have already been approved by the Bureau.]
2. Metal [The source and composition of the metals must be submitted to the Bureau for review and approval. Additionally, the method and location of processing the material, if required, must be demonstrated.]
3. Paper pulp slurries [All such proposed ADCs shall pass the USEPA Paint Filter Liquids Test and a demonstration regarding how the ADC will be utilized, stored and mixed with approved ADC or soil shall be submitted to the Bureau for review and approval. Please note that this type of proposed ADC is typically a special waste.]
4. Auto Fluff/Automotive Shredder Residue (ASR) [This proposed ADC is a special waste. In accordance with the Bureau's current policy regarding the management of ASR, the ASR must be tested for PCBs using USEPA Test Method 8082 and may require TCLP metals analysis. A disposal management plan must be approved by the Bureau. If the proposed ADC contains equal to or greater than 50 PPM of PCBs, it may not be utilized as ADC. In addition, this proposed ADC shall be covered with at least three (3) inches of soil, as it has potential to be wind blown. During the pilot period, the proposed ADC may be applied in 4-

6 inch lifts and shall be covered with three (3) inches of soil. Finally, this proposed ADC shall not be stored at the landfills unless it is containerized, covered and used in a timely manner.]
5. Water Treatment Sludge [As opposed to waste water treatment plant (POTW) sludge, this waste may be considered for use as ADC if the material is addressed under a disposal management plan, passes the USEPA Paint Filter Liquids Test, pH is verified, and it is tested by TCLP for all necessary constituents. The specific test parameters and testing frequency shall depend upon the processes through which the material was generated. If utilized, this material shall be mixed with cover soil (as a soil extender) prior to application as ADC. It shall not be mixed with any other ADC materials.]
6. New Technologies [The Bureau requires any new technology to be presented to the Bureau for consideration. Unless the proposed ADC is determined to fall into Category I or Category III, as per this correspondence, a pilot plan shall be accomplished to demonstrate its effectiveness.]

The following materials have been placed into *Category III*:
1. Construction and demolition debris (C&D) [Because of the difficulty in distinguishing between solid waste requiring disposal and the proposed ADC, the potential for C&D to contain unauthorized wastes (such as asbestos), the potential for public concerns about the handling and storage of the C&D, and due to issues concerning its application as a cover material, this material is not approved for use as ADC.]
2. Waste water treatment plant sludge [Because of pathogens, odors and potential for runoff, this material is not approved for use as ADC.]
3. Street sweepings [As a waste with a lack of consistency in its generation that may be contaminated by fluids or other contaminants washed from the roadways, this material is not approved for use as ADC.]
4. Sand trap residues [As a waste with a lack of consistency in its generation that may be contaminated by fluids or other contaminants, this material is not approved for use as ADC.]
5. Asphalt roofing materials [Because of the potential for such materials to contain asbestos and the resulting necessity to determine the condition and asbestos content (if any) of the material, and because of the certainty that heavy equipment will overrun and impact the material, this material is not approved for use as ADC.]
6. Gypsum board [As a waste that is a type of C&D, and because of the relative certainty that its use as ADC would generate fugitive emissions consisting of dusts, and because of pH and Sulfide concerns, this material is not approved for use as ADC.]
7. Plastics such as Visqueen [As a waste with a lack of consistency in its generation and characteristics, and due to issues related to its application and anchoring, and since the material will typically be thinner than standard cover tarps with questionable or varying durability and brittleness, this material(s) is not approved for use as ADC.]

Last revision 7/27/09

ATTACHMENT II.2-E

ALTERNATIVE STABILIZATION FOR INTERMEDIATE AND FINAL COVER

JONATHAN VINCENT QUEEN
NEW MEXICO
25844
PROFESSIONAL ENGINEER

1/24/22

As recommended by the New Mexico Environment Department (NMED) Solid Waste Bureau (SWB), the Camino Real Environmental Center (CREC) proposes the use of sustainable alternative stabilization materials and methods as may be needed where vegetation cannot be adequately established as required for both intermediate and final cover at the Camino Real Landfill (CRLF).

Intermediate Cover Stabilization

The CREC plans to implement the use of alternative methods of cover stabilization for areas of intermediate cover which have been inactive for greater than two years and have not been adequately stabilized with vegetation. The use of alternative stabilization methods for intermediate cover is allowed in accordance with 20.9.5.9.O(3) NMAC.

Final Cover Stabilization

In addition, for areas that will receive final cover, the CREC plans to implement these methods for the vegetative (erosion) layer where vegetation has not been adequately established. Final cover is required to include a layer for minimizing erosion which is a minimum of six inches thick and capable of sustaining native plant growth (20.9.6.9.A(1)(c) NMAC). An alternative erosion layer is allowed in accordance with 20.9.6.9.A(2)(b) NMAC, but it must provide equivalent protection from both wind and water erosion.

Alternative Stabilization Materials and Methods

For those areas that have not been successfully stabilized with vegetation as required for intermediate or final cover, CRLF will implement the use of one or more alternative stabilization options. CRLF may submit an evaluation plan to the SWB to create test plot areas to evaluate alternative stabilization materials and methods such as:

- Compost
- Ongoing evaluation of organics
- Wood chips
- Shredded green waste
- Mixtures (e.g., compost, wood chips, soil)
- Gravel/rock (to simulate desert pavement)
- Inert fill
- Bermed materials
- Vertical tracking of slopes

Materials such as compost, wood chips, shredded green waste, mixtures of organic materials, gravel, etc. may be applied at depths determined to be effective based on pilot study evaluations and experience. Berms comprised of organic or crushed inert materials may be constructed perpendicular to the intermediate or final cover slopes to aid in the mitigation of wind and water erosion. In addition, vertical tracking of slopes with a dozer to allow the dozer's track segment grouser pattern to imprint the soil and slow the progress of water and wind erosion may also be implemented.

Inspection, Repair, and Maintenance

Areas that have intermediate cover will be inspected at least once per month and after significant rain events as described in the Plan of Operations (Volume II Section 2, Section 5.15). Final cover inspection will be conducted at least semi-annually during the post-closure phase as detailed in the Closure/Post-Closure Plan, Volume II Section 3, Section 3.1. Quarterly sideslope inspections will also be conducted and documented as detailed in the Plan of Operations (Volume II Section 2, Section 5.16).

Approval for Alternative Stabilization Methods

Alternative stabilization methods may be implemented upon approval from the NMED SWB and by "specific approval" from the Secretary.

ATTACHMENT II.2-F

TYPICAL WASTE RECEIVING INFORMATION

JONATHAN VINCENT QUEEN
NEW MEXICO
25844
PROFESSIONAL ENGINEER

9/24/22

Date 11/16/20
Time 18:12:40

Camino Real Environmental Center, NM

Material Analysis Report by Material

Inbound and outbound materials for the period 11/16/2020 - 11/16/2020
Summary Report for Sites: 1, 2
Accounts 0 - 999999 Customer Types - Z Materials - ZZZZZZZZZZ Material Types - ZZ

Date	Material	Type	Customer	Type	Tickets	Count	Est. vol.	Act. Vol.	Est. Wt.	Actual Wt.	Charge
	City Roll			Total	3	3	80	80	11.86	11.86	141.22
				Average		1	27	27	3.95	3.95	47.07
	DonaAna Wa			Total	4	0	0	0	32.87	32.87	1,174.82
				Average		0	0	0	8.22	8.22	293.71
	EPD COMPAC			Total	27	27	850	850	101.69	101.69	2,580.87
				Average		1	31	31	3.77	3.77	95.59
	EPD FRONT			Total	57	57	1710	1710	576.88	576.88	5,192.13
				Average		1	30	30	10.12	10.12	91.09
	ROLLOFF			Total	30	30	850	850	78.88	78.88	2,580.89
				Average		1	28	28	2.63	2.63	86.03
	EPD SIDELO			Total	11	11	330	330	91.01	91.01	1,001.99
				Average		1	30	30	8.27	8.27	91.09
	YARD/LEAVE			Total	41	41	93	93	20.59	20.59	931.22
				Average		1	2	2	0.50	0.50	22.71
	COMMERCIAL			Total	58	58	219	219	89.66	89.66	3,303.88
				Average		1	4	4	1.55	1.55	56.96
	COMMERCIAL			Total	1	0	0	0	5.43	5.43	214.66
				Average		0	0	0	5.43	5.43	214.66
	CONSTRUCTI			Total	35	35	199	199	80.17	80.17	4,489.46
				Average		1	6	6	2.29	2.29	128.27
	MAQUILA NO			Total	1	1	30	30	3.78	3.78	607.04
				Average		1	30	30	3.78	3.78	607.04
	Sludge/ton			Total	1	0	0	0	8.42	8.42	388.34
				Average		0	0	0	8.42	8.42	388.34
	PULL OUT P			Total	7	7	0	0	0.00	0.00	60.76
				Average		1	0	0	0.00	0.00	8.68
	DISPOSAL F			Total	8	8	240	240	64.90	64.90	728.72
				Average		1	30	30	8.11	8.11	91.09

Material Analysis Report by Material

Inbound and outbound materials for the period 11/16/2020 - 11/16/2020
Summary Report for Sites: 1, 2
Accounts 0 - 999999 Customer Types - Z Materials - ZZZZZZZZZZ Material Types - ZZ

Date	Material	Type	Customer	Type	Tickets	Count	Est. vol.	Act. Vol.	Est. Wt.	Actual Wt.	Charge
	WEIGHT			Total	76	0	540	0	39.55	39.55	0.00
				Average		0	7	0	0.52	0.52	0.00
				Report Total	360	278	5141	4601	1205.69	1205.69	23,396.00
				Report Average		1	14	13	3.35	3.35	64.99

ATTACHMENT II.2-G

CRLF 2021 ANNUAL REPORT

JONATHAN VINCENT QUEEN
NEW MEXICO
25844
PROFESSIONAL ENGINEER

9/26/22

New Mexico Environment Department Solid Waste Bureau Facility Annual Report

FACILITY

ID	Facility Name	Facility Type	County	Address	City	State	Zip	Contact	Phone	Ext.	Email	Phys. Location	Status
LFP-0036	Camino Real Landfill	Landfill - permitted	Dona Ana	PO Box 580	Sunland Park	NM	88063	Juan Carlos Tomas	575-589-9440		JuanT@wcnx.org	1000 Camino Real BLVD Sunland Park, NM 88063	Open

FACILITY OPERATOR

Name	Address	City	State	Zip
Camino Real Environmental Center Inc	PO Box 580	Sunland Park	NM	88063

FACILITY OWNER

Name	Address	City	State	Zip
Camino Real Environmental Center, Inc.	P.O. Box 580	Sunland Park	NM	88063

LAND OWNER

Name	Address	City	State	Zip
Camino Real Environmental Center Inc	1000 Camino Real BLVD PO Box 580	Sunland Park	NM	88063

LANDFILL CAPACITY/MONITORING

Capacity Used (cu yd)	Capacity Remaining (cu yd)	Remaining Life (yrs)	Unpermitted acres available for future disposal	Chages in operation reducing life 25% or more	Total acres used for disposal	Intermediate cover acres	Area seeded acres	Total acres with final cover
1676815	45253173	47	0	0	193	100	50	50

MATERIAL AND SOLID WASTE

Material Type	Method	In-State Material Received	Out-of-State Material Received	Landfilled or Treated	Composted or Mulched	Beneficially Used	Treated, Disposed, Incinerated	Recycled, Mulched, Composted	Beneficially Used	Sent to Facility
Bio-Solids	Weighed	2627.60	109.91	2737.51	0.00	0.00	0.00	0.00	0.00	
Brush/Green Waste	Weighed	114.70	9592.68	9707.38	0.00	0.00	0.00	0.00	0.00	
C and D	Weighed	.00	59549.31	59549.31	0.00	0.00	0.00	0.00	0.00	
Industrial Waste	Weighed	.00	8740.79	8740.79	0.00	0.00	0.00	0.00	0.00	
MSW	Weighed	26947.87	376531.82	403479.69	0.00	0.00	0.00	0.00	0.00	
Other Special Waste	Weighed	726.42	67.64	0.00	0.00	794.06	0.00	0.00	0.00	
Scrap Tires	Weighed	.00	239.58	239.58	0.00	0.00	0.00	0.00	0.00	
		30416.59	454831.73	484454.26	0	794.06	0	0	0	

II.2-G-2

RECYCLABLE MATERIALS

Material Type	Method	In-State Material Received	Out-of-State Material Received	Beneficially Used	Recycled, Mulched, Composted	Beneficially Used	Sent to Facility
Aluminum		.00	.00	.00	.00	.00	
Cardboard (OCC)		.00	.00	.00	.00	.00	
Plastics	Weighed	.00	.00	.00	.00	.00	
		0	0	0	0	0	

CERTIFIED OPERATORS

Camino Real Environmental Center Inc

DOCUMENTS

Environmental Monitoring Summary
Environmental Monitoring Summary
Environmental Monitoring Summary
Financial Assurance
Environmental Monitoring Summary
Environmental Monitoring Summary
Landfill Capacity Worksheet
Environmental Monitoring Summary
Environmental Monitoring Summary
Environmental Monitoring Summary
Financial Assurance
Environmental Monitoring Summary
Financial Assurance
Environmental Monitoring Summary
Annual Reporting Information
Landfill Capacity Worksheet
Annual Reporting Information
Environmental Monitoring Summary
Financial Assurance
Environmental Monitoring Summary
Landfill Capacity Worksheet
Environmental Monitoring Summary
Environmental Monitoring Summary
Environmental Monitoring Summary

New Mexico Environment Department Solid Waste Bureau Facility Annual Report

FACILITY

ID	Facility Name	Facility Type	County	Address	City	State	Zip	Contact	Phone	Ext.	Email	Phys. Location	Status
RFR-0566	Camino Real Recycling Center	Recycling Facility - registered	Dona Ana	PO Box 580	Sunland Park	NM	88063	Juan Carlos Tomas	575-589-9440		juant@wcnx.org	Lat:310 47' 00" Long: 106 35'10"; 1000 Camino Real Blvd., Sunland Park, NM	Open

FACILITY OPERATOR

Name	Address	City	State	Zip
Camino Real Environmental Center Inc	PO Box 580	Sunland Park	NM	88063

FACILITY OWNER

Name	Address	City	State	Zip
Camino Real Environmental Center, Inc.	P.O. Box 580	Sunland Park	NM	88063

LAND OWNER

Name	Address	City	State	Zip
Camino Real Environmental Center Inc	1000 Camino Real BLVD PO Box 580	Sunland Park	NM	88063

LANDFILL CAPACITY/MONITORING

Capacity Used (cu yd)	Capacity Remaining (cu yd)	Remaining Life (yrs)	Unpermitted acres available for future disposal	Chages in operation reducing life 25% or more	Total acres used for disposal	Intermediate cover acres	Area seeded acres	Total acres with final cover

MATERIAL AND SOLID WASTE

Material Type	Method	In-State Material Received	Out-of-State Material Received	Landfilled or Treated	Composted or Mulched	Beneficially Used	Treated, Disposed, Incinerated	Recycled, Mulched, Composted	Beneficially Used	Sent to Facility
		0	0	0	0	0	0	0	0	

CERTIFIED OPERATORS

Camino Real Environmental Center Inc

DOCUMENTS

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO
NMED FACILITY PERMIT NOS. SWM-030738 AND SWM-030738(SP)

APPLICATION FOR PERMIT MODIFICATION AND RENEWAL

VOLUME II – LANDFILL MANAGEMENT PLANS
SECTION 3 – CONTINGENCY PLAN

Prepared for

Camino Real Environmental Center, Inc.

September 2022

JONATHAN VINCENT QUEEN
25844

9/26/22

Prepared by

Weaver Consultants Group, LLC
6420 Southwest Boulevard, Suite 206
Fort Worth, Texas 76109
817-735-9770

IKG, LLC
24 Tejon Canon Rd.
Placitas, NM 87043
505-301-2026

WCG Project No. 0601-667-11-06

JONATHAN VINCENT QUEEN
NEW MEXICO
25844
PROFESSIONAL ENGINEER

9/26/22

CONTENTS

CONTENTS (Continued)

FIGURES

TABLES

ATTACHMENTS

JONATHAN VINCENT QUEEN
NEW MEXICO
25844
PROFESSIONAL ENGINEER

9/26/22

1 INTRODUCTION

The Camino Real Landfill (CRLF) is an existing solid waste facility operating in compliance with its current Permits, SWM-030738 and SWM-030738(SP), and the New Mexico Environment Department (NMED) Solid Waste Rules (the Rules; 20.9.2-20.9.10 NMAC). The owner and operator of the Camino Real Landfill is Camino Real Environmental Center, Inc. (CREC).

CREC is seeking a Permit Modification (20.9.3.22 NMAC) and Permit Renewal (20.9.3.25 NMAC) for the CRLF to modify the existing permitted landfill configuration and to renew the current permit.

1.1 Site Location

The CRLF is an existing solid waste disposal facility that encompasses approximately 480 acres of land located at 1000 Camino Real Blvd. on the New Mexico (NM)/Mexico (MX) border in Sunland Park, New Mexico. The approximate geographic coordinates for the center of the CRLF site are: Latitude 31° 47' 24.7272" N and Longitude 106° 35' 32.6508" W. A topographic map showing the CRLF site location is provided as Figure II.3.1.

The legal description of the site is summarized as follows:

> *A certain parcel of land situated within Section 12 and 13, Township 29 South, Range 3 East, New Mexico Principal Meridian, City of Sunland Park, Doña Ana County, New Mexico.*

CRLF is constructed, operated, monitored, and inspected in compliance with the Solid Waste Facility Permits granted by the NMED Solid Waste Bureau (SWB) pursuant to the Rules (20.9.2-20.9.10 NMAC).

1.2 Existing Permitted Landfill Unit Overview

As shown on Figure I.1.2, MSW disposal and development at CRLF is defined by four "area fill" Units, i.e., 1 through 4, which are further divided into cells. Unit 1 (50 acres) is designated as closed. Unit 2 (124.2 acres) is an active landfill area. Unit 3 (60.5 acres) is permitted for waste disposal, and recently (2019) the first cell in this ongoing operations. Unit 4 (73.0 acres) is located east of the current operations and is permitted but undeveloped. Soils from the Unit 4 area have been excavated to support the ongoing operation, and the area has also been used to stockpile construction soils. Cell phasing within each unit is determined by operational conditions. This Application for Permit Modification and renewal addresses subgrade configurations in Units 3 and 4 and final contour design over all units.

1.3 Purpose

This document has been prepared to address the requirements of 20.9.5.15 NMAC, which specifies that each owner/operator of a solid waste facility must prepare and have available a site-specific Contingency Plan (the Plan). This document is organized for easy reference by site personnel, each of whom is required to read it. The Plan is designed to minimize and address potential hazards to public health, welfare, and the environment. These hazards may include fires, explosions, or any unplanned sudden or non-sudden release of contaminants and/or hazardous waste constituents to air, soil, surface water or groundwater. Applicable provisions of this Plan will be implemented immediately in the event that any hazard to public health and welfare, or the environment, occurs at the site.

Copies of this Plan will continue to be maintained in a readily accessible location at the Maintenance Compound/Landfill Office (Figure II.3.2) as part of the CRLF Facility Operating Record. In addition, current copies of the Plan will be made available to the emergency agencies identified in Table II.3-1. Local emergency response agencies listed on Table II.3-1 are invited to the site to inspect the facility and review the Plan's contents with CRLF staff. The CRLF has a close working relationship with the local emergency response agencies. In addition, copies of the updated Plan will be mailed (via certified mail) to interested emergency response agencies listed in Table II.3-1. As detailed in Section 10.0 of this Plan, whenever significant changes to the Plan are made, revised copies of the Plan will replace existing copies, and the specified response agencies will be provided with the most recent Plan update. CRLF will continue to operate in accordance with modifications to the Contingency Plan submitted to NMED in August 2008 and July 2012.

Table II.3-1
Emergency Response Agencies and Contacts

Name and Address	Phone
Fire	
Sunland Park Fire Department 1030 McNutt Rd, Sunland Park, NM 88063	911 or (575) 589-2302
El Paso Fire Department 416 N Stanton St #200, El Paso, TX 79901	911 or (915) 212-5600
Police	
Sunland Park Police Department 1000 McNutt Rd, Suite C, Sunland Park, NM 88063	911 or (575) 589-2225
Doña Ana County Sheriff's Department 845 N Motel Blvd., Las Cruces, NM 88007	911 or (575) 525-1911
New Mexico State Police 4055 Sonoma Ranch Blvd., Las Cruces, NM 88011	911 or (575) 382-2500
El Paso Police Department 911 N. Raynor St., El Paso, TX 79903	911 or (915) 832-4400
Medical/Ambulance	
Sunland Park Fire Department 1030 McNutt Rd., Sunland Park, NM 88063	911 or (575) 589-2302
Elite Medical Transport 1000 Texas Ave., El Paso, TX 79901	911 or (915) 542-1144
State Emergency Response Contacts	
New Mexico Environment Department	
Solid Waste Bureau, Santa Fe	(505) 827-0197
Hazardous Waste Bureau, Santa Fe	(505) 476-6000
Radiation Control Bureau, Santa Fe	(505) 476-8600
Spill Emergencies 24-hour Hotline (NMED)	(505) 827-9329
Hazardous Materials Firms and Information	
Advanced Chemical Transport (ACT)	
Hazardous waste containment and cleanup	(505) 349-5220
CHEMTREK (MSDS Chemical Information)	(800) 262-8200
Federal Emergency Response Contacts	
National Emergency Response Center (U.S. Coast Guard)	(800) 424-8802
Region 6 Emergency Response Center (USEPA)	(866) 372-7745
Local Emergency Planning Committee for Doña Ana County	
Local Emergency Planning Committee	(575) 647-7900

1.4 General Information

Facility Name and Address
Camino Real Landfill
1000 Camino Real Blvd.
Sunland Park, NM 88063
(575) 589-9440

Facility Owner, Operator, and Permittee
Camino Real Environmental Center, Inc.
1000 Camino Real Blvd.
Sunland Park, NM 88063
(575) 589-9440

Directions: To access the CRLF, travel south from the NM 273/Country Club Rd. intersection in Sunland Park, NM for approximately 3.5 miles; turn right on Camino Real Drive and continue straight until reaching the Site Entrance and enter the facility. A site location map depicting the facility boundaries in relation to the surrounding area is provided as Figure II.3.1.

2 EMERGENCY COORDINATORS

CRLF designates specific individuals with the responsibility and authority to implement response measures in the event of an emergency which may threaten public health, welfare, or the environment. The Primary and Alternate Emergency Coordinators (ECs) are thoroughly familiar with all aspects of this Plan; operations and activities at the facility; location and characteristics of wastes to be managed; the location of records within the facility; and the facility layout. The ECs were selected based upon each individual's general knowledge of CRLF operations; the ability to initiate a chain-of-command response within the CRLF organization; specific knowledge of the CRLF Permit Application and Contingency Plan; Corporate Health and Safety Policies and Procedures; and the completion of specific training. Specific training includes waste screening procedures, NMED-approved Landfill Operator Certification, and hazardous materials management. Refresher training is completed and documented at least annually in files maintained in the CRLF Facility Operating Record and NMED Operator training records.

The ECs are responsible for coordinating emergency response measures and have the authority to commit the resources required for implementation of this Plan in addressing any contingencies. Duties of the ECs are described below, and are addressed within the Plan in detail. Table II.3-2 lists the names, titles, and office and mobile phone numbers of the Primary EC and designated Alternate EC. Emergency response agency contact information is posted in prominent locations at the facility for ready reference (e.g., Maintenance Compound/Landfill Office, Gate House). The Primary EC or the Alternate EC will be available to respond to an emergency 7 days a week, 24 hours a day. Upon arrival at the scene of an emergency, the Primary EC will assume responsibility for response measures initiated by the designated Alternate EC as applicable.

Table II.3-2

List of Emergency Coordinators Emergency Coordinators

Name	Title	Office Phone	Mobile Phone
Primary Emergency Coordinator			
Dr. Juan Carlos Tomás	Landfill Manager/Special Waste	(575) 589-9440	(915) 549-1534
Alternate Emergency Coordinator			
Lorenzo Chavira	Operator	(575) 589-9440	(575) 305-0271

3 IMPLEMENTATION AND NOTIFICATION

The Plan will be implemented when an imminent or actual emergency situation develops that represents a potential impact to public health, welfare, or the environment. Situations that could require implementation of the Plan include:

- accidents/fires/explosions
- detection of dangerous concentrations of landfill gas in on-site structures
- spills or releases of hazardous materials

The following discussion presents a series of procedures for implementation and notification of appropriate authorities in the event that a specific emergency develops. CREC will notify the Department both orally and in writing within 24 hours of the explosion, mass movement of waste, or similar event. Upon discovery of the receipt of unauthorized waste, CRLF will notify the Department, the hauler, and the generator in writing within 48 hours.

3.1 Fires/Explosions

A fire could occur at the facility via a number of mechanisms. The most likely scenario involves the delivery of materials to the facility which are smoldering or incompatible with other materials contained in the load (i.e., reactive materials). However, other fires could occur including ignition of mobile equipment while operating or during servicing; or ignition of landfill gas. The following procedures will be implemented in the event of a fire or explosion:

Table II.3-3
Procedures for Fires/Explosions

1. The employee who first becomes aware of the fire or explosion will immediately notify the Primary EC. If the Primary EC is on-site he/she will be contacted first. In the event the Primary EC cannot be readily contacted, the Alternate EC will be contacted. The EC can be notified in person, via telephone, or by radio.
2. The EC will then dispatch the appropriate response equipment and personnel to the scene of the fire or explosion. Appropriate equipment may include fire extinguishers earthmoving equipment and/or the on-site water wagon.
3. If the Alternate EC is the first to respond to an emergency situation, he/she will attempt to contact the Primary EC. If the Primary EC cannot be readily contacted, the Alternate EC will assume full responsibility for implementing emergency response measures.
4. The EC will assess the source, amount, and extent of any released material resulting from a fire or explosion and determine possible hazards to human health welfare or the environment.
5. The EC's assessment of the emergency situation will be the basis for involving additional landfill employees for assistance, as well as for notifying the appropriate state and local authorities if their assistance is needed.
6. If the EC's assessment indicates a need to notify appropriate state and local agencies, he/she (or his/her designee) will initiate notification immediately. A list of state and local response agencies with phone numbers is provided as Table II.3-1.
7. Landfill personnel not actively involved in fire control operations will be restricted from the area of the fire until it is extinguished, and the area is determined to be safe by the EC and, if appropriate, the on-scene senior fire official. If the fire occurs along on-site haul routes or near the active fill face, vehicular traffic will be diverted away from the fire response activities until the situation is abated.

3.2 Detection of Landfill Gas in On-site Structures

As part of the Landfill Gas Management Plan (Volume II Section 6) developed for CRLF, methane concentration measurements will be recorded from perimeter monitoring points and within and around on-site structures to determine the potential for combustible gas migration or accumulation. Specific methane control and monitoring procedures are detailed in the Landfill Gas Management Plan. In the event methane is detected in or in close proximity to on-site structures at concentrations greater than 25% of the lower explosive limit (LEL), the following procedures will be implemented:

Table II.3-4
Procedures for Detection of Landfill Gas

1. Do not turn on or off, unplug, or operate any electrical items (i.e., lights, fans, overhead doors, appliances, etc.). If methane is detected in an on-site structure at a concentration greater than 25% of the LEL, the structure is to be evacuated immediately. The structure should not be re-entered until an assessment has been made by trained personnel to assess the source of the methane, and safe conditions have been restored (e.g., concentrations confirmed to be <25% of the LEL).
2. If concentrations of methane are detected in an on-site structure at less than 25% of the LEL, all available doors and windows should be opened to ventilate the structure.
3. The employee who first becomes aware of measurable methane concentrations within an on-site structure will immediately notify the EC. If the Primary EC is on-site, he/she will be contacted first. In the event the Primary EC cannot be readily contacted, the Alternate EC will be contacted. The EC can be notified in person, via telephone, or by radio.
4. If the Alternate EC is the first to respond to an emergency situation, he/she will attempt to contact the Primary EC. If the Primary EC cannot be readily contacted, the on-scene Alternate EC will assume full responsibility for implementing emergency response measures.
5. The EC will dispatch qualified personnel to the source of explosive gas (i.e., floor drains, foundation cracks, underground utility connections, etc.). The personnel will use gas monitoring equipment, to determine the source of explosive gas, according to the appropriate safety protocol.
6. After the area(s) of concern has been identified, the EC will assure the source of migration is sealed to prevent recurrence. Additional specific control measures may be required in accordance with the Landfill Gas Management Plan (Volume II Section 6).
7. The EC will allow re-occupation of the structure only after implementation of appropriate corrective measures, and subsequent testing has verified that methane concentrations have been reduced to safe levels.

3.3 Spills/Releases

CRLF is permitted to accept non-hazardous MSW and select NMED-defined "special wastes". The CRLF's Waste Inspection and Screening (Volume II Section 10) program is currently in operation at both the Gate House and active fill face, and precludes acceptance of unauthorized wastes. Unauthorized wastes include regulated hazardous waste, liquid waste, medical waste, polychlorinated biphenyls (PCBs), ash, asbestos, and materials deemed incompatible with the Landfill's operation (e.g., odorous waste).

The materials most likely to present a concern as a result of normal operations include fuel, motor/hydraulic oil, antifreeze, etc. Spills involving these types of materials could occur during fueling or routine maintenance operations. In addition, it is possible that hazardous materials could become a concern if they arrive co-mingled with other waste materials. The following implementation and notification procedures will be followed in the event of an emergency involving a spill or release of hazardous materials:

Table II.3-5
Procedures for Spills/Releases

1. The employee who first becomes aware of the spill/release will immediately notify the EC. If the Primary EC is on-site, he/she will be contacted first. In the event the Primary EC cannot be readily contacted, the Alternate EC will be contacted. The EC can be notified in person, via telephone, or by radio.
2. The employee(s) at the scene of the spill or release will immediately initiate actions within the scope of their training to contain the release and prevent the spread and/or windblown dispersion of the spilled materials (e.g., deployment of sorbents).
3. If the Alternate EC is the first to respond to an emergency situation, he/she will attempt to contact the Primary EC. If the Primary EC cannot be readily contacted, the on-scene alternate will assume full responsibility for implementing emergency response measures.
4. The EC will assess the source, amount, and extent of the released materials and determine possible hazards to human health or the environment.
5. The EC's assessment of the emergency situation will be the basis for deciding if additional resources are required (e.g., personnel, equipment), as well as to notify the appropriate state and local authorities if their assistance is warranted.
6. If the EC's assessment indicates a need to notify appropriate state and local agencies, he/she will do so immediately by telephone.

When the waste components of the spilled/released material are not readily identifiable, it is advisable to assume that a substance is potentially hazardous and should be treated with due care until more information becomes available from reliable and professional sources. Table II.3-6 lists the several possible sources of potential contaminants.

Table II.3-6
Constituents of Concern

1. Combustible Waste. Waste of highly combustible nature, such as material saturated with solvents or fuel.
2. Flammable Liquids and Solvents. These liquids have variable flash points, hence varying levels of hazard, all depending on their composition. Most of the industrially or commercially generated flammable liquid and solvents are collected in 1- or 5-gallon containers or 55-gallon drums. Many of these liquids may contain solids, tar, waxes, and other materials that will impede flow, disguising the physical properties of the liquid.
3. Polychlorinated Biphenyls (PCBs). PCBs were manufactured in the 1920's until 1977 when their use was prohibited, and contained in a wide variety of lubrication and insulation applications. PCBs have been known to cause chloro-acne and are suspected carcinogens. The mode of entry into the facility could be in old electrical light ballasts or various transformers or capacitors.
4. Combustible or Reactive Metals. The metals under this category that may be encountered at the landfill are lithium, potassium, sodium, and magnesium; and may be found as chips, scraps, or clippings. These metals are water reactive, some more so than others. Sodium will react violently with water and will produce sodium hydroxide as a product of the reaction.
5. Oxidizing Materials. Oxidizers simply supply oxygen that can become volatile under increased temperatures or pressures. Ammonium nitrate, which is found in various fertilizers and herbicide, is an oxidizer. Under confinement or temperatures exceeding 105 degrees Fahrenheit, it can become explosive.
6. Corrosive Materials. By definition, a corrosive material is capable of corroding one quarter inch of steel per year, or has a pH equal to or less than 2.0, or equal to or greater than 12.5. There are many chemicals and combinations of chemicals (solutions) that fit into this category. Most of the corrosive materials that could be delivered to the facility will be in a liquid physical state such as muriatic acid or hydrochloric acid.
7. Pesticides, Poisons, Infectious Materials. These are materials or viable organisms and their toxins that can affect human health; and containers may identify the contents (i.e., pesticides and poisons) or arrive in red bags (i.e., infectious waste).
8. Radioactive Material. Any material or combination of materials that spontaneously emit ionizing radiation at levels of concern.

4 ASSESSMENT

In the event of an emergency, the first EC on the scene is responsible for assessing possible hazards to human health, welfare and the environment and notifying appropriate authorities of the incident. The EC is a trained environmental professional and a Certified Operator who, upon review of the specific emergency, will direct response actions. At CRLF, the EC will assess the circumstances of the emergency and determine the responses required to:

- Protect human health and welfare
- Protect the environment
- Provide notifications to appropriate agencies
- Implement appropriate recordkeeping procedures

4.1 Evacuation Plan for Facility Personnel

Based upon the type of waste materials to be received at CRLF, the likelihood of a general evacuation being required is remote. However, various circumstances could arise warranting a facility evacuation. In an emergency situation, the EC is the individual responsible for determining when evacuation of the facility is required. Imminent or actual dangers that constitute a situation that could require evacuation include:

- A generalized fire or threat of fire that cannot be avoided.
- An explosion or the threat of explosion that cannot be averted.
- A major spill or leak that cannot be contained and constitutes a potential threat to human health.

When time and conditions warrant immediate evacuation, facility personnel will proceed immediately to the main entrance which is the facility's primary evacuation route (Figure II.3.3). An alternate evacuation route is through an auxiliary access gate at the site's northeast corner. Personnel will exercise judgment and common sense in using the primary evacuation route to exit the facility, or selecting the most appropriate alternative evacuation route if necessary. If appropriate, cellular phones will be used to initiate contact with local authorities and other site personnel.

Table II.3-7 lists the evacuation procedures to be followed in the event of an emergency. A map with driving directions to the nearest hospital, Las Palmas Rehabilitation Hospital in El Paso, TX, is included as Figure II.3.4.

When evacuation is required, the procedures listed in Table II.3-7 will be followed.

Table II.3-7
Evacuation Procedures

1. Facility personnel will be alerted using the facility telephone and/or company cellular phones.
2. Vehicles delivering waste will be diverted away from the emergency location and routed towards the appropriate landfill exit, if necessary.
3. Landfill operating equipment will be shut down if appropriate.
4. Personnel will be directed to proceed to the Gate House/Landfill Administration Center, which is the designated emergency response Primary Meeting Point. Identification of any missing persons will be implemented at that time.
5. If the emergency involves the Gate House/Landfill Administration Center or its immediate environs, the Site Entrance is the designated Secondary Meeting Point for facility personnel.
6. If the emergency precludes access to both the Maintenance Facility/Administration Center and the Site Entrance, personnel will evacuate the site via the Alternate Evacuation Route. The Alternate Evacuation Route leads to an auxiliary access gate at the northeast corner of the site, which is the designated Alternate Meeting Point.
7. Once assembled, personnel will stand by to afford assistance, if and as needed, or evacuate the facility via the most appropriate route.

4.2 Need for Notification of Authorities

If the EC determines that the incident could threaten human health and welfare, and/or the environment beyond the limits of the facility, he/she will notify the National Response Center and NMED at the following phone numbers:

- National Response Center – 24 Hr. Hotline: (800) 424-8802
- NMED Spill Emergencies – 24 Hr. Hotline: (505) 827-9329

The EC's report must include all of the following information, as listed on the Incident Report Form (Attachment II.3-A):

- name and telephone number of person reporting the incident
- name and address of facility
- time and type of incident (e.g., hazardous material release, fire)
- name and quantity of material(s) involved, to the extent known
- extent of injuries, if any
- possible hazards to human health or the environment

5 CONTROL PROCEDURES

5.1 Fires/Explosions

Emergency equipment available for response to a fire includes the following (also see Attachment II.3-C):

- Portable fire extinguishers located in all on-site structures and on mobile equipment.
- One on-site water wagon with a capacity of 8,000 gallons. A secondary supply of water will be provided by the on-site 250,000-gallon water storage tank.
- Heavy equipment which can be used to control hot loads and other fires by smothering these materials with soil.
- Use of on-site soil stockpiles for smothering fires

The following general guidelines will be followed in the event of a fire or explosion at CRLF:

Table II.3-8
Fire/Explosion: Control Guidelines

1. The employee who first becomes aware of the fire will immediately notify the EC. If the Primary EC is on-site he/she will be readily contacted first. In the event the Primary EC cannot be contacted, the Alternate EC will be contacted. The EC can be notified in person, via telephone, or by radio.
2. If the Alternate EC is the first to respond to an emergency situation, he/she will attempt to contact the Primary EC. If the Primary EC cannot be readily contacted, the on-scene Alternate EC will assume full responsibility for implementing emergency response measures.
3. The employee who first becomes aware of the fire will immediately initiate response actions within the scope of their training to control the spread of the fire.
4. Once present at the scene, the EC will direct efforts at extinguishing the fire. If the scope of the fire is beyond the capabilities of the on-site personnel to contain and/or extinguish it, the EC will contact the Sunland Park Fire Department (Table II.3-1) for assistance.
5. Once the fire has been extinguished, the EC will ensure proper decontamination of any equipment used to fight the fire before returning it to its proper location.
6. Once the firefighting equipment has been cleaned and returned to its original location, the EC will perform an inspection of the equipment and verify that all emergency equipment is cleaned and fit for future use.

After responding to the incident, the EC will meet with involved personnel to assess the cause of the fire. The identified causative agent will be removed from the vicinity of the landfill if the possibility of re-ignition exists. Appropriate actions (e.g., exclusion from the landfill of the causative agent, more frequent equipment maintenance) to prevent its recurrence will be developed and implemented. Personnel involved with the handling, transport, and placement of materials at the landfill will be informed of the resultant actions. Significant changes in operating protocol or procedures resulting from this meeting will be documented and added as an amendment to the Contingency Plan (see Section 10).

5.2 Spills/Releases

The spill or release of a hazardous material at CRLF is most likely to involve fuel or various vehicle maintenance materials (i.e., engine oil, hydraulic oil, antifreeze, etc.). In addition, although remote, the possibility exists for a spill of hazardous material that may be inadvertently transported to the landfill. Emergency equipment for response to such releases includes the following (also see Attachment II.3-C):

- On-site spill response kit
- Tyvek suits, gloves and safety glasses
- Shovels, heavy equipment, sand, caliche, absorbent pads, and related equipment designed for emergency spill response

All removed materials and contaminated disposable equipment will be managed in accordance with the material type. For non-hazardous wastes, disposal may be accomplished via deposition in the active landfill cell. For hazardous and liquid wastes, disposal will be managed at a properly permitted treatment, storage, and disposal (TSDF) facility in accordance with applicable local, state and federal requirements. Outside contractors that specialize in spill response may be retained to coordinate these activities. The EC will verify that response equipment has been cleaned and returned to its original location and is fit for future use.

The following general guidelines will be followed if a hazardous material is spilled/released:

Table II.3-9
Spills/Releases: Control Guidelines

1. The employee who first becomes aware of the spill/release will immediately notify the EC. If the Primary EC is on-site, he/she will be contacted first. In the event the Primary EC cannot be readily contacted, the Alternate EC will be contacted. The EC can be notified in person, via telephone, or by radio.
2. Landfill personnel present will attempt to contain the spill/release to the smallest area possible. Examples of equipment available for spill containment are non-reactive sorbent materials, sand, shovels and heavy equipment.
3. After the spill/release has been contained, cleanup will be initiated by removing the spilled materials, sorbent materials, soils used for containment, etc.
4. Dependent on the type of material spilled/released, the EC will assess requirements for cleanup verification including the collection of samples for appropriate analytical testing.
5. The EC will ensure that waste which may be incompatible with the spilled/released material is not treated, stored, or disposed of until cleanup procedures are complete.
6. Landfill management will clean, restore or replace, and return all spill response equipment to its original location. Equipment will be decontaminated, which will consist of the removal (by brushing or scraping) of all visible waste, washing with detergent and water, and rinsing with clean water.

Although operating procedures, roadways, unloading areas, and general areas surrounding CRLF will be maintained in an effort to minimize the release or spill of hazardous materials, provisions have been developed to improve procedures if an event warrants review and modification. After responding to the incident, the EC will meet with involved personnel to determine the cause of the spill. Appropriate actions to prevent its recurrence will be developed and implemented. All personnel involved with the handling and transport of hazardous materials will be informed of the procedures/protocol that are developed in response to knowledge gained from past response procedures. Significant changes in operating protocol or procedures resulting from this meeting will be documented and added as an amendment to the Contingency Plan (see Section 10.0).

6 STORAGE AND TREATMENT OF RELEASED MATERIALS

Spilled or otherwise non-hazardous contaminated material approved for disposal at CRLF will be placed directly into the active cell in accordance with standard operating practices. Hazardous spilled materials will be containerized, stored and disposed of in accordance with applicable local, state and federal regulatory requirements; involving specialized contractors as appropriate.

7 EMERGENCY EQUIPMENT

The following sections describe emergency equipment at CRLF that is available for responding to emergency situations.

7.1 Internal Communications

Communications at CRLF are accomplished via cellular telephones. Cellular phones provide facility personnel with immediate emergency notification capabilities, and the opportunity to receive instructions in the event of an emergency incident. The telephones are used daily, and any mechanical difficulties to the communications equipment will be promptly repaired.

Cellular telephones are also carried by site personnel to provide voice contact with all other telephones in the CRLF system. The cellular phone network is also used daily, and any mechanical difficulties will be promptly repaired.

7.2 External Communications

The telephones located at CRLF have outside access in the event that notification of the local response authorities is required (i.e., fire department, ambulance, etc.). The cellular telephones also provide a backup means for contacting these authorities in the event they cannot be reached by conventional (land-based) telephone lines.

7.3 Fire Prevention

Portable ABC type fire extinguishers are located at strategic locations at the landfill, including readily accessible areas of the on-site buildings (Attachment II.3-C). Fire extinguishers are also located within landfill vehicles and heavy equipment. Fire extinguishers are maintained in accordance with state and local fire codes and regulations.

The on-site 250,000-gallon cumulative capacity water tanks are available 24 hours per day for emergency response actions. The water wagon and associated ancillary equipment are inspected on a daily basis. On-site earthmoving equipment is available to move and apply cover material for control of smoldering loads. As part of standard operating procedures, cover material is stockpiled near the active fill face for fire or hot-load control purposes.

7.4 Personnel Protection/First Aid/Safety Equipment

Personal protective equipment (PPE) necessary for general on-site safety, as well as for emergency response, is stored in the landfill office. Available PPE includes:

- Tyvek suits
- Gloves
- Vests
- Safety glasses
- Ear protection, etc.

First aid kits are maintained in the landfill office, gate house, maintenance compound, and select site vehicles. Additional safety equipment located in the landfill office includes an eye wash station and an emergency shower. Prominent signs identify the location of health and safety equipment, and emergency response items (e.g., fire extinguishers). A list of CRLF emergency equipment is provided in Attachment II.3-C.

7.5 Spill Response Equipment

A spill kit is maintained in the landfill office, gate house, maintenance compound. Spill response equipment including shovels, tarps, absorbent materials and containers, is also available to supplement the spill kit. Other spill response equipment includes heavy machinery, stockpiled soil, sand, etc.

8 RECORDKEEPING

The Primary EC is responsible for ensuring that emerging response actions are fully documented. The Primary EC may designate that the Alternate EC complete documentation requirements.

Attachment II.3-A, Incident Report Form, illustrates the information that will be recorded as a result of any emergency incident and related response action. This Form will be signed by both the employee involved and the Landfill Manager/EC. Copies of the Form will be kept on-site and maintained as part of the Facility Operating Record.

9 COORDINATION AGREEMENTS

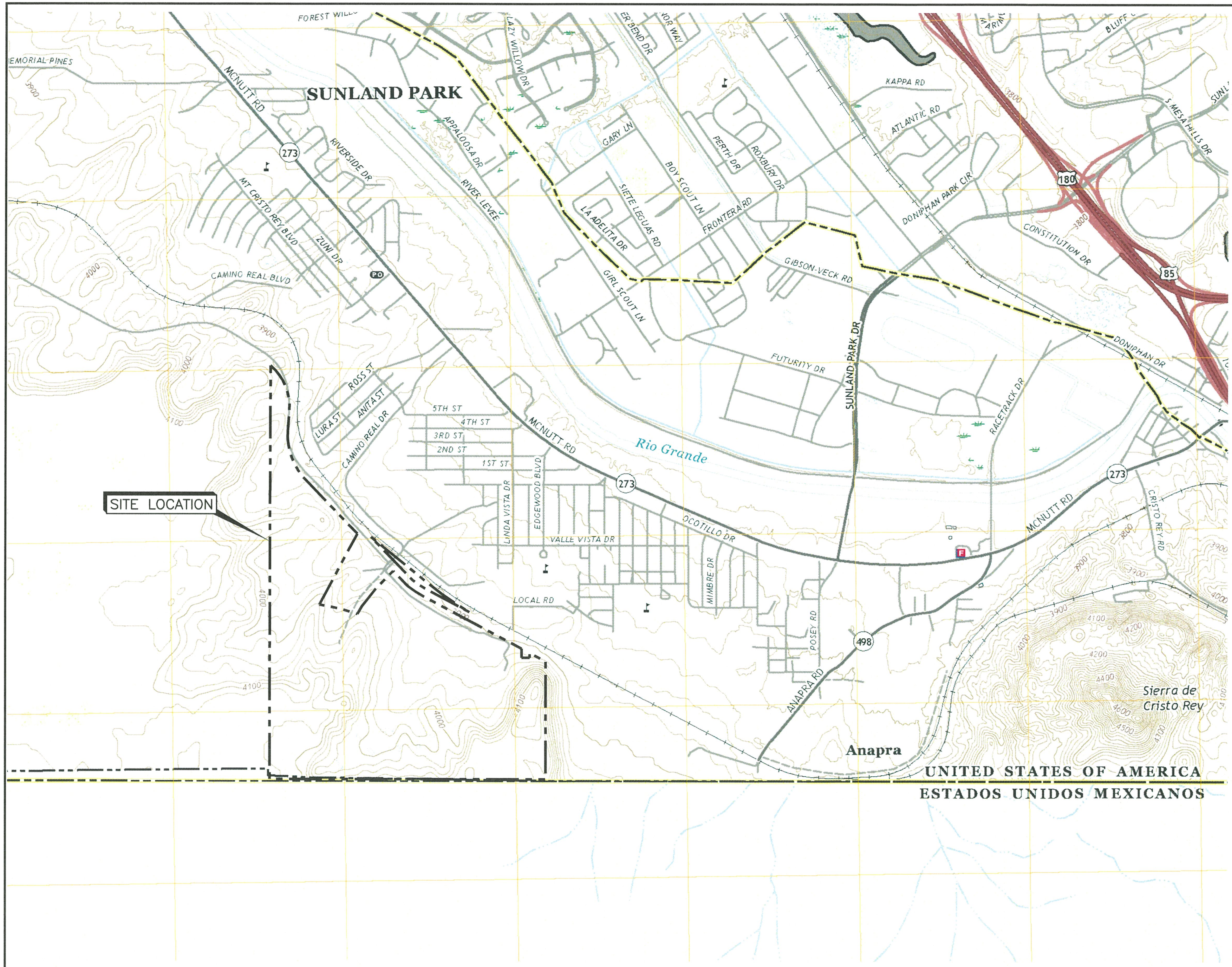
A copy of this updated Plan will be sent to the organizations identified in Table II.3-1. The Contingency Plan serves to familiarize each of the identified organizations with the operations of the facility and types of emergencies and responses that may be required. Each agency will be encouraged to visit the facility for purposes of assessing site operations and providing input regarding emergency response procedures. A form for documenting contacts with emergency response agencies is provided as Attachment II.3-B.

10 PLAN AMENDMENT

The EC will be responsible for assuring update or amendment of the Contingency Plan in the event of any of the following:

1. The facility Permit is revised or modified.
2. The Plan fails in an emergency.
3. Modification to the facility design, construction, operation, maintenance or other circumstances that increase the potential for fires, explosion, or releases of hazardous waste constituents; or related changes in the appropriate emergency response.
4. The list of ECs changes.
5. Change in regulations that impact the Plan.
6. Change in technology or emergency response equipment.

The revised Contingency Plan will be distributed to the NMED Solid Waste Bureau and each of the interested organizations identified in Table II.3-1 with a cover letter highlighting any substantive changes. Any proposed changes will be in compliance with NMED's 20.9.2 – 20.9.10 NMAC (Solid Waste Rules).



LEGEND

▬ ▪ ▬ PROPERTY BOUNDARY

NOTES:

1. BASED ON SMELTERTOWN, 2019 USGS QUADRANGLE 7.5' MAP.
2. GEOGRAPHIC COORDINATES FOR THE CENTER OF THE SITE: 31° 47' 22.67" N. 106° 35' 34.41" W.

JONATHAN VINCENT QUEEN
25844

1/24/22

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☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: II.3.1-SITE LOCATION.DWG

DRAWN BY: JDW
DESIGN BY: KRB
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

SITE LOCATION MAP

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

FIGURE II.3.1

N

0 300 600
SCALE IN FEET

LEGEND

— · —	PROPERTY BOUNDARY
— — —	PERMITTED LIMITS OF WASTE FOR UNIT 2
— · —	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
— · —	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
- - - -	ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4
—— — ——	CELL BOUNDARY
E 8,000	SITE GRID
4120	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
✦ WELL B	EXISTING GROUNDWATER MONITOR WELL
✦ WELL I	PERMITTED GROUNDWATER MONITOR WELL
✦ WELL G	PERMITTED GROUNDWATER MONITOR WELL (TO BE ABANDONED)
✦ WELL G2	PROPOSED GROUNDWATER MONITOR WELL
⊙ M-4	EXISTING LANDFILL GAS PROBE
⊙ M-11	PERMITTED LANDFILL GAS PROBE
⊙ M-17	PERMITTED LANDFILL GAS PROBE (TO BE REPLACED WITH PROPOSED LOCATIONS)
⊙ M-27	PROPOSED LANDFILL GAS PROBE

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.

JONATHAN VINCENT QUEEN
25844

7/26/22

☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: II-3-2-SITE PLAN.DWG

DRAWN BY: JDW
DESIGN BY: KRB
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

SITE PLAN

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

FIGURE II.3.2

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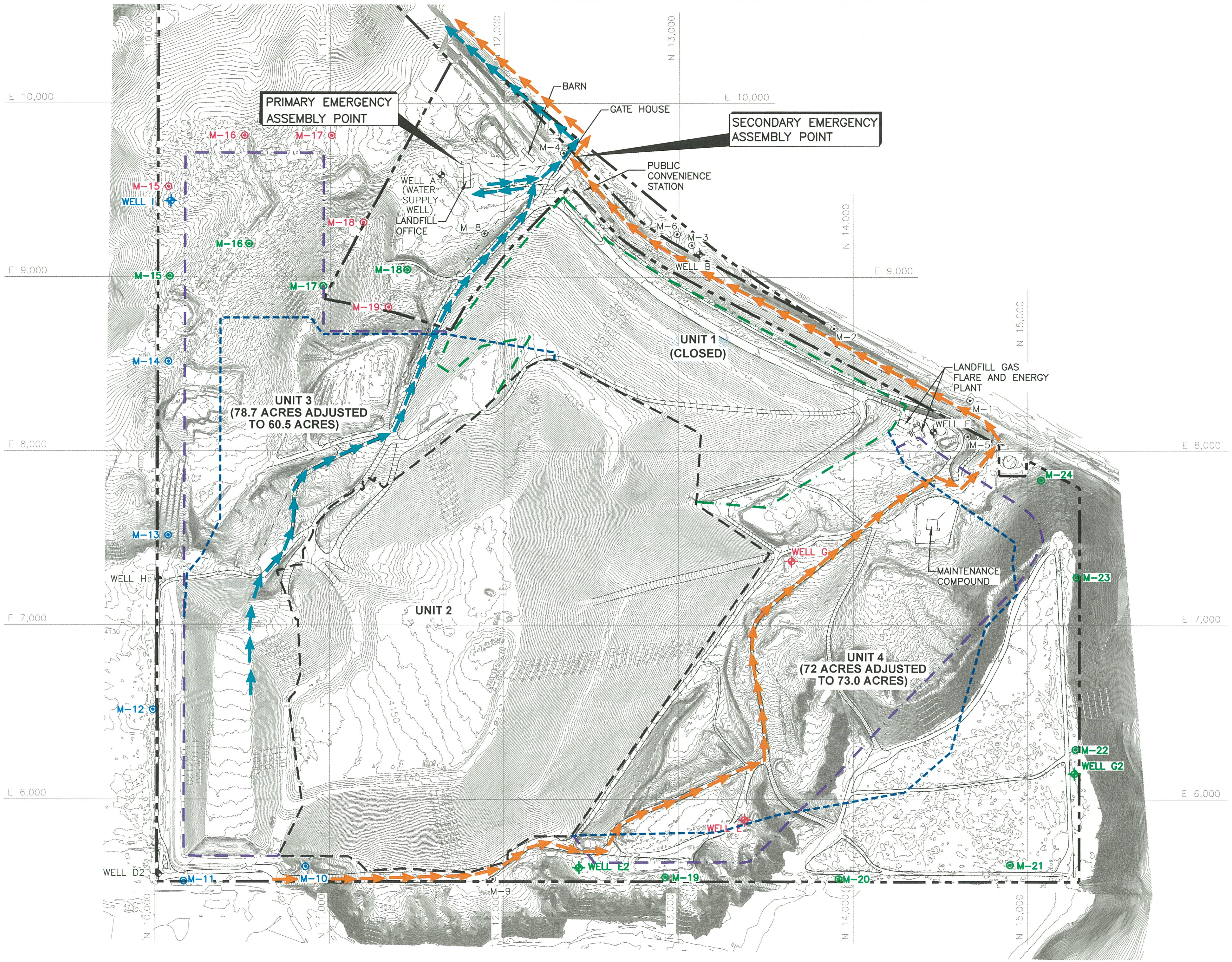


LEGEND

— · — · —	PROPERTY BOUNDARY
— — — —	PERMITTED LIMITS OF WASTE FOR UNIT 2
— · — · —	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
— · — · —	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
- - - - - -	ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4
E 8,000	SITE GRID
4120	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
⌖ WELL B	EXISTING GROUNDWATER MONITOR WELL
⌖ WELL I	PERMITTED GROUNDWATER MONITOR WELL
⌖ WELL G	PERMITTED GROUNDWATER MONITOR WELL (TO BE ABANDONED)
⌖ WELL G2	PROPOSED GROUNDWATER MONITOR WELL
⊙M-4	EXISTING LANDFILL GAS PROBE
⊙M-11	PERMITTED LANDFILL GAS PROBE
⊙M-17	PERMITTED LANDFILL GAS PROBE (TO BE REPLACED WITH PROPOSED LOCATIONS)
⊙M-27	PROPOSED LANDFILL GAS PROBE
→	PRIMARY EVACUATION ROUTE
→	ALTERNATE EVACUATION ROUTE

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.

JONATHAN VINCENT QUEEN
25844

1/26/22

☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: II-3-3-SITE EVAC PLAN.DWG

DRAWN BY: JDW
DESIGN BY: KRB
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

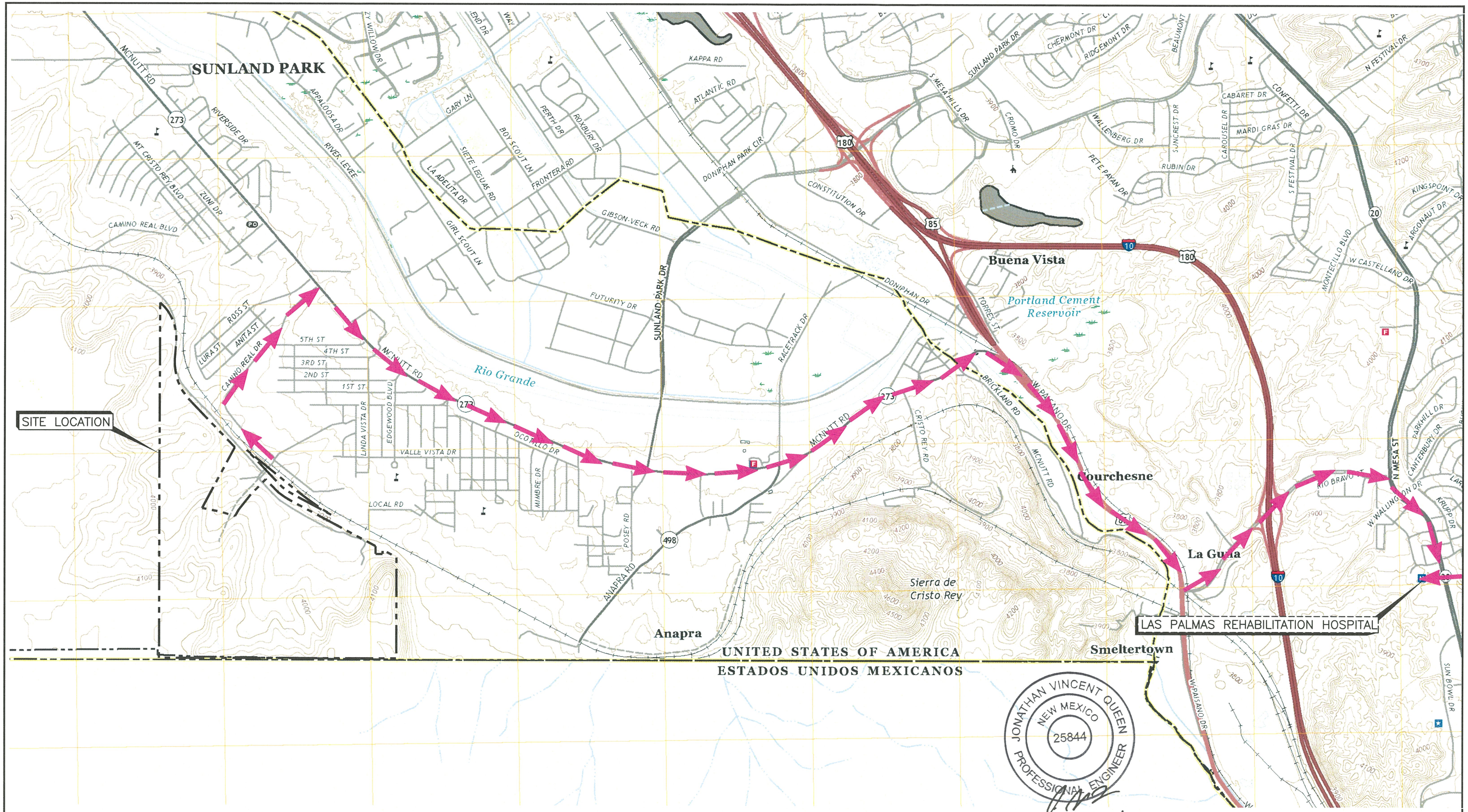
SITE EVACUATION PLAN

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

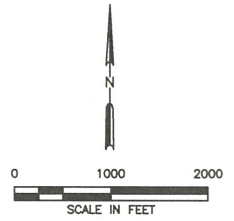
FIGURE II.3.3

O:\0601\667\EXPANSION 2019\VOLUME 2\PART 3\II-3-3 SITE EVACUATION PLAN.dwg, rarrington, 1:2



JONATHAN VINCENT QUEEN
25844

7/24/22



LEGEND

—·— PROPERTY BOUNDARY

➔ HOSPITAL ROUTE

NOTES:

1. BASED ON SMELTERTOWN, 2019 USGS QUADRANGLE 7.5' MAP.
2. GEOGRAPHIC COORDINATES FOR THE CENTER OF THE SITE: 31° 47' 22.67" N. 106° 35' 34.41" W.

☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: II.3.4-SITE LOCATION.DWG

DRAWN BY: JDW
DESIGN BY: KRB
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

MEDICAL CENTER LOCATION MAP

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

FIGURE II.3.4

O:\0601\667\EXPANSION 2019\VOLUME 2\PART 3\II-3-4 MEDICAL CENTER LOCATION MAP.dwg, rarrington, 1:2

ATTACHMENT II.3-A

INCIDENT REPORT FORM

Fax completed report within 24 hours to HR / Safety at 915-771-0242

INCIDENT REPORT FORM

Type of Incident and General Information

☐ Work related Injury / Illness
☐ Property Damage
☐ Vehicular Accident
☐ Unsafe Act / Near Miss
☐ Vandalism / Criminal Activity
☐ Other _______________

Employee Name: ______________________________ Job Title: __________________

Date of Incident: ________________ Time of Incident: __________ AM/PM

Location of Incident: ____

Unit# _______ Start of Shift:____________________Weather:___________________

Date and Time Reported to Management : Date:_____________ Time:_______ AM/PM

Reported to: _______________ Title:______________ Reported by:________________

What was the injury category of incident at the time it was first reported to management ?

[ ] N/A. WCI employee does not claim an injury associated with this incident
[ ] Notice Only of Injury, Declined Medical Treatment at this time
[ ] First Aid done on site, Declined Medical Treatment at this time
[ ] Medical Treatment. Transported by _________________ to __________________
[ ] Fatality, WCI employee

Employee's Description of Incident / Declaración del empleado de los hechos

THIS SECTION FILLED OUT BY **EMPLOYEE**

Were you injured ? *(Ud. se lastimó ?)* **Yes [ ]** **No [ ]**

Type of Injury: *(Tipo de lesión)* ___________________________

Part of Body:___________________________ Left______ Right______
(Parte del cuerpo) *(Izq)* *(Der)*

Explain in your own words what happened. *(Explique en sus propias palabras lo que sucedió)*

____

____

____

____

____

____

____

Employee Signature: (*Firma del empleado*) :________________________________

Date: (*Fecha*) _____________________

TO BE FILLED OUT BY WASTE CONNECTIONS ACCIDENT INVESTIGATOR

Describe in order of occurrence the events leading to the accident and/or injury. Reconstruct the sequence of events that led to the accident.

____
____
____
____
____
____
____
____

Witnesses / Bystanders / Co-workers **Yes [ ]** **N/A (No Witnesses) [ ]**

Name: ____________ Address: ____________
Phone: ____________ Workplace: ____________
Was a Written Statement Obtained ? Yes [ ] No [ ]

Name: ____________ Address: ____________
Phone: ____________ Workplace: ____________
Was a Written Statement Obtained ? Yes [ ] No [ ]

Drug and Alcohol Post Accident Test

Is the WCI employee a D.O.T. regulated employee ?	Yes [ ]	No [ ]	
Did the WCI employee receive a moving traffic violation ?	Yes [ ]	No [ ]	
Were any of the vehicles involved towed away ?	Yes [ ]	No [ ]	
Was "immediate medical treatment" required for anyone ?	Yes [ ]	No [ ]	
Was a post accident drug/alcohol test performed ?	Yes [ ]	No [ ]	
If so, was the D/A test conducted within 2 hours ?	Yes [ ]	No [ ]	N/A [ ]

Investigated by: ____________ (Waste Connections Employee)

Title: ____________ Date: ____________ Department: ____________

CORRECTIVE ACTIONS. (Equipment, Practices, Environment, Retraining) Steps that have been, or will be taken to prevent recurrence:

____
____
____
____
____

Corrective Action Completed ? ☐ YES Date Completed:____________

- I have been briefed on the corrective actions outlined above
- *Estoy consciente de las acciones correctivas mencionadas anteriormente en esta hoja*

____
Employee's Signature / Date

REPORT REVIEWED AND CONCLUDED BY:

____
Immediate Supervisor's Signature / Date

____
Employee's Manager's Signature / Date

DISCIPLINARY ACTION ? ☐ YES ☐ NO
(Timely forward appropriate paperwork to HR)

ATTACHMENT II.3-B

EMERGENCY RESPONSE AGENCY COORDINATION FORM

CAMINO REAL LANDFILL
EMERGENCY RESPONSE AGENCY COORDINATION FORM

AGENCY

Name: ____________________

Address: ____________________

____

Participatory ____________ *Not Participatory*

Contact Person (1): ____________________

Title: ____________________

Phone: ____________________ Fax: ____________________

Contact Person (2): ____________________

Title: ____________________

Phone: ____________________ Fax: ____________________

COORDINATION MEETING

Date: ____________ Location: ____________________

Estimated response time to the Camino Real Landfill: ____________________

____

Allowance of unaccompanied after-hours access (if applicable): Yes___ No___

Description: ____________________

____

____

____

AGENCY CAPABILITIES

In the event of an emergency, this agency will be able to provide the Camino Real Landfill with the following equipment, expertise, assistance, etc. (provide description):

____

____

____

____

____

CAMINO REAL LANDFILL
EMERGENCY RESPONSE AGENCY COORDINATION FORM

DOCUMENTS PROVIDED TO AGENCY

ADDITIONAL MEETING NOTES

Please acknowledge participation in this meeting with the Camino Real Landfill by signing below:

Agency Representative

Signature *Date*

Printed Name

Camino Real Landfill Representative

Signature *Date*

Printed Name

ATTACHMENT II.3-C

EMERGENCY EQUIPMENT

JONATHAN VINCENT QUEEN
NEW MEXICO
25844
PROFESSIONAL ENGINEER

7/24/22

EMERGENCY EQUIPMENT

No.	Item	Description	Location
1	Cellular Telephones with "Touch-to-Talk" Function	Standard	Personnel
2	Land-Line Telephones	Standard	Scalehouse, Maintenance Facility/ Administration Center
3	Fire Extinguishers	Portable, ABC-Type	Heavy Equipment/Vehicles; Scalehouse, Maintenance Facility/Administration Center
4	Earthmoving Equipment	Loaders (1), Scrapers (2), Dozer (1); (earthmoving for fire or spill response)	Landfill/General
5	Water Wagons	Two 8,000-gallons each (dust control, fire response)	Landfill/General
6	Water Tank	100,000 gallons (dust control, fire response)	Southwest of Scalehouse, North of Leachate Basin
7	Personal Protective Equipment (PPE):	Safety glasses/goggles	Maintenance Facility/Administration Center
		Puncture-resistant footwear	Maintenance Facility/Administration Center
		Gloves (leather, disposables)	Maintenance Facility/Administration Center
		High-visibility Vests	Maintenance Facility/Administration Center
		Hard Hats	Maintenance Facility/Administration Center
		Ear Plugs	Maintenance Facility/Administration Center
		Dust masks	Maintenance Facility/Administration Center
		Tyvek suits	Maintenance Facility/Administration Center
8	Spill Response Kits	Face shield, Tyvek suit, surgical gloves, bio bags, caution tape, safety glasses, heavy duty rubber gloves, dust mask	Maintenance Facility
9		Other Spill Response Equipment Maintenance Shovels, tarps, absorbent materials; containers; heavy equipment (see #4 above), stockpiled soil and sand, PPE (see #7 above), etc.	Facility
10	First Aid	Basic First Aid Kits	Heavy Equipment/Vehicles; Scalehouse, Maintenance Facility/Administration Center
11	Eye Wash Station	Eye Wash Equipment	Administration Center
12	Emergency Shower	Decontamination	Administration Center
13	Stockpiled Soils	Fire Control	Landfill/General

Note:

[1] Equipment types and storage locations are subject to change.

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

NMED FACILITY PERMIT NOS. SWM-030738 AND SWM-030738(SP)

APPLICATION FOR PERMIT MODIFICATION AND RENEWAL

VOLUME II – LANDFILL MANAGEMENT PLANS
SECTION 4 – LINER CONSTRUCTION QUALITY ASSURANCE PLAN

Prepared for

Camino Real Environmental Center, Inc.

September 2022

JONATHAN VINCENT QUEEN
25844

9/26/22

Prepared by

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6420 Southwest Boulevard, Suite 206
Fort Worth, Texas 76109
817-735-9770

IKG, LLC
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Placitas, NM 87043
505-301-2026

WCG Project No. 0601-667-11-06

JONATHAN VINCENT QUEEN
25844

9/26/22

CONTENTS

JONATHAN VINCENT QUEEN
25844
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CONTENTS (Continued)

CONTENTS

TABLES

JONATHAN VINCENT QUEEN
25844

1/26/22

1 PROJECT OBJECTIVES

The purpose of the Liner Construction Quality Assurance (CQA) program, as set forth in this CQA Plan, is to provide independent confirmation of compliance with the Construction Plans and Technical Specifications during construction of the landfill liner system, leachate collection system, and associated landfill components. The CQA Plan is also required by New Mexico Environmental Department (NMED) as a means of demonstrating compliance with design and performance standards, Permit conditions, and the applicable Rules. This CQA Plan has been prepared to document the measures that will be taken to ensure that the environmental control systems will be constructed properly, and in compliance with:

- The New Mexico Solid Waste Rules, 20.9.II.4-13 NMAC; Design Criteria for Municipal Landfills, Special Waste Landfills, and Monofills;
- The New Mexico Solid Waste Rules, 20.9.II.4-14 NMAC; Testing and Quality Control for Liners and Final Covers;
- The New Mexico Solid Waste Rules, 20.9.6.9 NMAC; Closure and Post-Closure Requirements for Municipal Solid Waste Landfills, and Monofills;
- The approved Engineering Design and Construction Plans;
- The Permit and Permit Conditions;
- Industry standards and other applicable technical criteria; and
- This CQA Plan.

This CQA Plan establishes the quantitative criteria that will be used in the field and laboratory to measure the quality of the installed infrastructure. Specific construction elements that are addressed in this Plan include:

A. Compaction and observation of the subgrade and liner foundation (Section 4);
B. Supply and installation of geosynthetic clay liners (GCLs) (Section 5.0);
C. Supply and installation of flexible membrane liners (FMLs) (Section 6.0);
D. Supply and installation of non-woven geotextiles (Section 7.0);
E. Supply and installation of select aggregates (Section 8.0);
F. Installation of the protective soil layer (Section 9.0); and

G. Supply and installation of leachate collection system components, including leachate collection pipes and sump (Sections 10.0).

This CQA Plan is a "quality control plan" meeting the specifications of 20.9.II.4-14 NMAC. No revisions to the Technical Specifications are allowed without the express written approval of the Engineer. The Engineer will be a registered Professional Engineer in New Mexico with applicable experience in solid waste landfill design and construction. This CQA Plan may be updated to address changes in materials, technologies, test methods, etc., in consultation with the NMED. For instance, updates will be made to the applicable geosynthetics testing standards as appropriate (see Table II.4-1).

Table II.4-1 summarizes the applicable manufacturer's quality control and third-party conformance testing required for each construction element. Table II.4-1 identifies:

- Key property being evaluated;
- The appropriate type of test procedure and method; and
- The sampling strategy and frequency.

The construction quality assurance requirements for final cover systems installed at the Camino Real Landfill are presented in Volume II, Section 5, Attachment II.5-E – Final Cover Construction and Quality Assurance Plan.

Table II.4-1
Summary of Required CQA Standards (Sheet 1 of 2)

Element	Key Property	CQA/CQC Test	Test Method	Sampling Frequency (Minimum)
Excavation Required: Subgrade Layer Material Evaluation	Maximum Density	Standard Proctor Test	ASTM D698	1 per soil type
Fill Required: Subgrade Layer Material Evaluation	Maximum Density	Standard Proctor Test	ASTM D698	1 per 5,000 cy or soil material change
Subgrade Layer & Structural Fill Construction Quality Evaluation	In-Place Density	Nuclear Density Field Compaction Test	ASTM D6938	4 per acre per 6-inch-thick lift 1 per 100 feet anchor trench
	Particle Size (Final Lift)	Visual Inspection	NA	100%
	Record (As-Built) Drawing	Surveying	NA	5 per acre
Geosynthetic Clay Liner Material	Manufacturer's Quality Control	Mass per unit area (GCL/Geotextile)	ASTM D5261/D5993	Consistent with Manufacturer's QC Program
		Free Swell (Bentonite)	D5890	
		Fluid Loss (Bentonite)	D5891	
		Bentonite Moisture Content	D5993	
		Grab Tensile	D6768	
		Permeability	D5887	
	Conformance	Mass per unit area	ASTM D5993	1 per 100,000 sf
		Permeability	D5887	
	Surface Defects	Visual	NA	100%
Liner Geomembrane Material	Manufacturer's Quality Control		ASTM	Per GRI GM13
		Thickness	D5199/D5994	
		Density	D1505/0792	
		Tensile Properties	D6693	
		Tear Resistance	D1004	
		Puncture Resistance	D4833	
		Carbon Black Content	D4218	
		Carbon Black Dispersion	D5996	
	Conformance		ASTM	1 per 100,000 sf and resin lot
		Thickness	D5199/D5994	
		Density	D1505/0792	
		Tensile Properties	D6693	
		Carbon Black Content	D4218	
		Carbon Black Dispersion	D5996	
	Surface Defects	Visual	NA	100%

Table II.4-1
Summary of Required CQA Standards (Sheet 2 of 2)

Element	Key Property	CQA/CQC Test	Test Method	Sampling Frequency Method
Liner Geomembrane Seams	Trial Welds	Tensiometer	NA	Section 6.6.1
	Field Hot Wedge Seams	Non-Destructive Tests (Pressure Dual Seam)	NA	100%
		Destructive Tests (peel & shear strength)	ASTM D6392	1 per 500 linear feet
	Field Extrusion Fillet Seams	Non-Destructive Tests (Vacuum Box Testing)	ASTM D4437	100%
		Destructive Tests (peel & shear strength)	ASTM D6392	1 per 500 linear feet
Geotextile	Manufacturer's Quality Control	Mass per unit area Trapezoidal tear Grab tensile strength Apparent opening size Permeability	ASTM D5261 D4533 D4632 D4751 D4491	Consistent with Manufacturer's QC Program
	Conformance	As-needed per Engineer's Recommendation	Varies, as needed	Varies, as needed
	Overlap	Measurement	NA	100%
	Seams	Visual Observation	NA	100%
Protective Soil Layer	Particle Size	Gradation of Soil	ASTM D422	1 per 1,500 cy
	Thickness	Surveying	NA	5 per acre
	Hydraulic Conductivity	Flexible Wall Permeameter	ASTM D5084	1 per 2 acres
Select Aggregate	Particle Size	Gradation of Soil	ASTM C136	1 per 5,000 cy
	Placement and workmanship	Visual Observation	NA	100%
Leachate Collection System	Pipe Grade	Surveying	NA	1 per 100 linear feet
	Sump Elevation	Surveying	NA	Corners of Sump and Top of Berm
	Leachate Compliance Level Sign	NA	NA	1 per sump
	Product Specs, Workmanship	Visual Observation	NA	100%

Note: Where reference is made to one of the above standards, the revision in effect at the time of construction shall apply. Specific laboratory testing should be conducted on representative samples of the proposed geosynthetics to be used in the liner system and representative soil materials at interface with the geosynthetics to confirm the validity of the parameters used in the stability modeling; see Table III.3-6 in Volume III, Section 3 and Appendix III.7-A in Volume III, Section 7.

2 PROJECT ORGANIZATION

2.1 Project Organization

The Project Team shall be identified in advance of construction, and each Team Member will be assigned specific authorities and responsibilities as discussed in this section.

2.2 Authority and Responsibility

2.2.1 Owner

The Owner has the responsibility for scheduling and administration, which may include, but not be limited to:

- Contractor procurement.
- Some or all of the construction tasks.
- Assignments of duties of Project Team and orientation of the Project Staff to the needs and requirements of the project.
- Approval of project-specific procedures and internally prepared plans, drawings, and reports.
- Serving as the "collection point" for Project Staff reporting project documents and activities.
- Per 20.9.3.21.A NMAC, providing NMED with a major milestone schedule at least 14 days prior to the start of solid waste facility construction (i.e., liner/geosynthetics installation – typically furnished by Engineer).

2.2.2 Site CQA Engineer (Engineer-Of-Record)

The Site CQA Engineer shares responsibilities with the Owner for addressing technical and administrative issues, and has overall responsibility for CQA and confirming that the facility has been constructed in general accordance with the Permit and Permit Conditions, CQA Plan, and Construction Plans and Technical Specifications. The Site CQA Engineer will be present onsite at the outset of major project milestones and at other critical times during the construction. The Site CQA Engineer's staff (e.g., Lead CQA Technician and other CQA Technicians) shall be on-site continually for significant construction activities under the direction of the Site

CQA Engineer. The Lead CQA Technician shall report directly to the Site CQA Engineer.

The Site CQA Engineer will perform the following tasks:

- Review of submittals from the Contractor/Installer.
- Approval of CQA Plan revisions.
- Approval of design revisions.
- Administrative functions as necessary to allocate staff and resources for the CQA activities.
- Periodic review and assessment of the CQA Plan as implemented to determine completeness and compliance.
- Review of field and laboratory methods and results for accuracy.
- Acceptance and approval of materials and workmanship. Compilation and submission to NMED of Engineering Certification Reports and other project deliverables.
- Scheduling, at regular intervals, CQA meetings with Owner and Contractor.
- Communications and liaison with the Owner, Contractor, NMED, Landfill Staff, Inspector, etc.

Design and certification responsibilities mandate that the Site CQA Engineer must be a Professional Engineer registered in the State of New Mexico and have demonstrated competence and experience in landfill engineering and construction (20.9.II.4-14 and 15 NMAC).

2.2.3 Lead CQA Technician

The Lead CQA Technician shall report directly to the Site CQA Engineer.

Responsibilities of the Lead CQA Technician will include:

- Review of documentation from Subcontractors as enumerated in this CQA Plan.
- Review and documentation of CQA activities.
- Notification to appropriate personnel of nonconformance or changes in CQA procedures.
- Performance and documentation of CQA activities.
- Reporting, on a regular basis, to the Site CQA Engineer the results of CQA activities.

- Identifying to the Site CQA Engineer project issues which require the Site CQA Engineer's direct involvement.
- Preparation of Daily Field Observation Reports.
- Maintenance of calibration records of the instruments used on-site in the implementation of this CQA Plan.
- Other duties as directed by the Site CQA Engineer.

2.2.4 CQA Technicians

At a minimum one (1) CQA Technician (Lead CQA Technician) will be onsite continually for significant construction activities under the direction of the Site CQA Engineer. At the discretion of the Site CQA Engineer/Owner additional CQA Technicians will be onsite to assist with CQA activities. The qualifications required for each CQA Technician shall include previous experience in the construction of Subtitle D landfills; and certification and training on radiation safety in the use of nuclear density meters (as appropriate). The CQA Technicians will report directly to the Lead CQA Technician with the results CQA field activities. The CQA Technicians will, under direct supervision of the Lead CQA Technician, perform the following:

- Review moisture-density curves for the borrow source or in-situ subgrade.
- Review field particle size of materials to confirm suitability with CQA Plan (e.g., protective soil layer, select aggregate, etc.).
- Nuclear density testing as necessary for in-place compaction confirmation.
- Verification testing for thickness and placement of materials.
- Inspection and documentation of geosynthetic materials supply, offloading and storage, and installation.
- Confirm Contractor adherence to the CQA Plan.
- Additional field testing, surveying, recordkeeping, etc. as required by the Technical Specifications and the CQA Plan.
- Assistance of preparation of Daily Field Observation Reports.

When only one CQA technician is onsite, the Lead CQA Technician will assume the above responsibilities.

The CQA Technicians will refer to the Lead CQA Technician for questions regarding implementation of the CQA Plan. The CQA Technicians may not approve exceptions to the specifications of this CQA Plan without prior approval by the Site CQA Engineer and/or Lead CQA Technician.

2.2.5 Contractor/Installer

Responsibilities of the Contractor/Installer may include:

- Facilitating access to and assisting in collection of samples required by CQA personnel for inspection or testing to confirm project components meet the CQA Plan and Technical Specifications.
- Management of daily field operations (labor and equipment allocation).
- Implementation of tasks identified in this CQA Plan specific to Contractor's assigned construction operations.
- Submittal of required shop drawings and certificates to the Lead CQA Technician and Site CQA Engineer.
- Submittal of required Work Plans to the Site CQA Engineer.
- Adherence to the CQA Plan, Construction Plans and Technical Specifications.
- Correction of deficiencies identified by the Site CQA Engineer and/or Lead CQA Technician.

2.3 Engineering Certification and Documentation

At the completion of construction an Engineering Certification Report, incorporating the laboratory and field data, shall be prepared and submitted by the Site CQA Engineer (i.e., P.E., Engineer-of-Record) to the NMED. This Engineering Certification Report will include the documentation described in this CQA Plan for confirmation and certification that the subgrade, liner, and leachate collection system were installed in compliance with the Permit and Permit Conditions, Construction Plans, Technical Specifications, and this CQA Plan. The Engineering Certification Report shall be sealed by a Professional Engineer registered in the state of New Mexico; and who has demonstrated applicable geosynthetics and cell construction expertise in landfill engineering in compliance with 20.9.II.4-14 and 15 NMAC.

In addition, each Engineering Certification Report must include all or parts of the following items as appropriate and depending on the constructed elements of the liner:

1. Field and laboratory test documentation for soils borrow source test results and installation test and sample locations plotted on a location plan.
2. Documentation related to installation of the GCL, HDPE FML, and geotextiles including, as applicable the following:
    - Manufacturer's quality control certifications;
    - Conformance testing;

- Inventory logs; and
- Seaming, seam tests, and repair logs

3. GCL and HDPE FML panel layout drawings, including location of seams, destructive tests, repairs, as applicable.
4. Test documentation for select aggregate and protective soil layer materials.
5. Record (as-built) surveys or drawings for the following:
    - Cell liner subgrade;
    - Top of protective soil layer;
    - Survey documentation of the liner subgrade, top of protective soil layer and confirmation of thickness of the protective soil layer;
    - Edge of HDPE FML liner, including location of edge of liner markers;
    - Details depicting the liner tie-ins to existing cells (including updated liner tie-in cross section figures) and liner termination for current cell;
    - Survey and slope calculations for leachate collection piping;
    - Survey of bottom of sump and top of sump riser for validation of point of compliance for confirming leachate head on the liner is being maintained below 12 inches. A detail depicting the bottom of sump, sump riser, and point of compliance will be provided in the Engineering Certification Report. This detail will also provide the depth and distances from the top of sump riser to the point of compliance; and
    - Survey coordinates (northing and easting) of the corners/points of inflection along the cell boundary and/or bearings and distances along the edges of liner. Additionally, two corners of the cell must be tied by bearings and distances to a known permanent benchmark on the landfill property.

The Engineering Certification Report will include the necessary documentation for demonstrating compliance with this CQA Plan, as described herein. The Lead CQA Technician shall be responsible for maintaining current records, on appropriate CQA forms, of field CQA activities. Documentation will be recorded on forms typically used for liner CQA, as identified in Table II.4-2.

Table II.4-2
Typical CQA Forms

Form No.	Title
1.	Daily Field Observation Report
2.	Field Compaction Testing Results
3.	GCL Inventory Control Log
4.	FML Inventory Control Log
5.	Non-Woven Geotextile Inventory Control Log
6.	Leachate Collection Pipe Inventory Control Log
7.	GCL Deployment Log
8.	FML Deployment Log
9.	FML Trial Seaming Test Log
10.	FML Seaming Log
11.	FML Seam Non-Destructive Pressure/Vacuum Test Log
12.	FML Destructive Field Test Record
13.	FML Seam Repair Log

Photographic documentation shall also be used to confirm the progress and acceptability of the Work and will be incorporated into the Daily Field Observation Report. When photographic-documentation is used, photos shall be identified with the following information:

- Date
- Photograph Location and Orientation
- Subject

Electronic originals of the photographs will be retained by the Site CQA Engineer, and select photocopies will be submitted with the Engineering Certification Report as applicable. An electronic copy and hard copy of the Engineering Certification Report will be submitted to NMED.

3 SITE PREPARATION

3.1 General

The following is a list of the work to be included in site preparation:

1. Field check utility locations, as appropriate.
2. Establish site grid and mark pertinent survey hub markers, permanent benchmarks, monitoring wells, etc.
3. Install stormwater management systems necessary to protect the project area.
4. Strip topsoil and other material deemed unsuitable by the Site CQA Engineer and/or Lead CQA Technician or his/her representative, and stockpile at Owner-designated location.
5. Strip or remove brush and vegetation, surface debris, and similar materials from existing surface and relocate to an Owner-designated area on the site. Stumps, logs, roots, etc. shall be completely stripped or excavated and removed from the project work area.
6. Excavate to design grade, as shown on the Construction Plans.
7. Place structural fill, as necessary, to achieve design grades as shown on the Construction Plans.
8. Separate and stockpile excavated materials as directed by Site CQA Engineer and/or Lead CQA Technician to an Owner-designated area (e.g., structural fill, protective soil layer, etc.).
9. Proof roll subgrade to check stability conditions of existing or constructed surfaces and to provide a trafficable, smooth, working surface for construction equipment and subsequent liner installation as approved by the Site CQA Engineer and/or Lead CQA Technician.

3.2 Survey Coordinate System

Construction surveying will be performed using the State Plane Coordinate System or will be integrated into a pre-established site grid system. The survey system for the project will be used to verify the locations of sample and testing points made during construction.

If a site grid system is used, it shall consist of equidistant spaced parallel lines, typically 50 to 75–foot on center, projecting north to south and east to west within the construction limits. This grid system shall be tied to the established State Plane Coordinate System for future reference. The construction limits shall be staked out by the Contractor based on Record Drawings for existing disposal areas and the Construction Plans and confirmed by the Site CQA Engineer or third-party Professional Land Surveyor registered in New Mexico. The Owner and Site CQA Engineer shall confirm the appropriate location for permanent benchmarks, typically set back from the daily operations and construction activities. These benchmarks shall be clearly identified, and will allow determination of key features (i.e., cell boundaries, edge of liner, etc.) in conjunction with the Construction Plans.

4 SUBGRADE PREPARATION AND STRUCTURAL FILL

Subgrade preparation will be required during landfill cell construction. The cell will be excavated or filled to subgrade elevations shown on the Construction Plans, or as otherwise identified by the Site CQA Engineer and/or Lead CQA Technician. Where fill is required to achieve subgrade elevations, structural fill will be placed and compacted. The subgrade preparation and structural fill placement will performed and protected in accordance with the procedures outlined below.

4.1 Subgrade Preparation

Following completion of excavation to subgrade elevations, the following procedures will be performed for preparation of the subgrade:

1. The upper six (6) inches shall be wetted (if necessary) scarified and compacted to a minimum 90 percent of the maximum dry density, as determined by the standard Proctor Test (ASTM D698), or as otherwise specified.
2. The surface of the final lift of subgrade shall be free of surficial or protruding angular material or stones greater than one-half (1/2)-inch in diameter.
3. The final lift shall be wetted and rolled smooth. Abrupt changes of grade shall be corrected.
4. The completed subgrade shall be protected from traffic, erosion, standing water and damage.
5. Completed subgrade shall be kept free of trash and debris.
6. Prior to placement of the liner system, areas of the subgrade impacted by traffic, erosion, settlement, or another cause, shall be repaired and the grades shown on the Construction Plans shall be re-established. Moisture conditioning of the completed subgrade shall be maintained until the liner system is placed. Exposed subgrade, which has dried or exhibits desiccation cracking, shall be wetted and re-compacted prior to liner system placement. Disturbed areas shall be reshaped, scarified, re-compacted and rolled prior to further work.
7. The condition of the subgrade shall be approved by the Site CQA Engineer and/or Lead CQA Technician and Liner Installer prior to placement of liner system materials.

8. Following completion of subgrade preparation, including structural fill, the subgrade surface will be surveyed at a minimum at 5 locations per acre uniformly distributed on a grid. These survey points will also be used to verify the protective soil layer thickness in accordance with Section 9.5.

Pre-construction and construction test requirements for subgrade preparation are included in Table II.4-3.

4.2 Structural Fill Placement (if applicable)

Structural fill will be placed where existing topographic grades are below design subgrade elevations. Structural fill will be placed using the following procedures:

1. Structural fill material shall be free of debris, ice, snow, organics, angular or sharp rocks, and other deleterious materials. The top surface of structural fill where liner materials will be placed will be free stones greater than one-half (1/2)-inch in diameter.
2. Structural fill shall be used for berm construction integral to the containment system (i.e., perimeter landfill berm, liner termination berms, etc.), or as required by the Site CQA Engineer.
3. Place structural fill material to the elevations shown on the Construction Plans, if required.
4. Place structural fill material in maximum nine (9)-inch loose lifts over the prepared surface. Compact to not less than 90 percent of the maximum dry density, as determined by the Standard Proctor Test (ASTM D 698), or as otherwise specified.
5. The surface of each lift shall be scarified prior to placing subsequent lifts.
6. The final surface of the structural fill shall be rolled smooth transverse to slopes and shall be free of deleterious material or protrusions. For surfaces/slopes upon which the liner system will be installed against, the surface shall meet the requirements described in Section II.4-1 of this CQA Plan.
7. No soft, yielding, or uncompacted areas will be acceptable. Soft or yielding material will be uncut and removed and replaced with structural fill meeting the requirements of this section.
8. The surfaces of structural filled areas shall be graded to smooth true lines, conforming to grades indicated in the construction plans.

Pre-construction and construction test requirements for structural fill soils are included in Table II.4-3.

4.3 Anchor Trench Construction

The following procedures will be used for construction of permanent liner anchor trenches:

1. The anchor trench shall be constructed to the lines and dimensions shown on the Construction Plans and Technical Specifications.
2. The anchor trench shall be backfilled and compacted using structural fill soils with no angular material or stones greater than one-half (1/2)-inch in diameter. Trench backfill shall be placed and compacted by rolling with mechanical tampers or equivalent methods as approved by the Site CQA Engineer. Approval of compaction equipment shall be obtained by the Contractor before compaction begins.
3. Care shall be taken when backfilling the trenches to prevent damage to the liner system components. At no time shall construction equipment make direct contact with geosynthetic materials.
4. Since backfilling the anchor trench can affect material bridging at the toe of slope, consideration should be given to backfilling the anchor trench at its most contracted state; preferably during the cool of the morning or extended period of overcast skies.
5. Anchor trench subgrade and backfill shall be compacted to 90 percent standard Proctor dry density.
6. Field density tests (ASTM D6938) shall be performed on the anchor trench subgrade and upper 12-inch lift of trench backfill in accordance with Table II.4-3. Additional moisture may be added to achieve the density requirements.

Table II.4-3
Subgrade/Structural Fill Testing Schedule

Test Category	Type of Test	Test Method	Frequency
Quality Control Testing: Subgrade Layer	Standard Proctor	ASTM D698	1 per soil type
Quality Control Testing: Structural Fill Source	Standard Proctor	ASTM D698	One per 5,000 cy or soil material change
In-Place Density: Subgrade Layer	Field Density	ASTM D6938	4 tests per acre
In-Place Density: Structural Fill	Field Density	ASTM D6938	4 tests per acre per 6-inch lift
In-Place Density: Anchor Trench	Field Density	ASTM D6938	1 per 100 feet, subgrade and final lift

Note: Specific laboratory testing should be conducted on representative samples of the proposed geosynthetics to be used in the liner system and representative soil materials at interface with the geosynthetics to confirm the validity of the parameters used in the stability modeling, see Table III.3-6 in Volume III, Section 3 and Appendix III.7-A in Volume III, Section 7.

5 GEOSYNTHETIC CLAY LINER (GCL)

5.1 GCL Properties

1. The GCL will include a layer of bentonite that will be encapsulated between either two non-woven geotextiles or non-woven/woven geotextiles which will be reinforced by needle punching the two geotextiles together. The primary component in the GCL is high quality sodium montmorillonite (referred to as bentonite or sodium bentonite) The bentonite and geotextiles used in the manufacture of the GCL, as well as the GCL product, must be demonstrated to meet the testing and acceptance criteria listed in Table II.4-4.
2. Bentonite Sealing Compound (BSC) or Granular Bentonite (GB) shall be applied at GCL seams. The BSC or GB shall be supplied by the manufacturer, and shall be comprised of the same bentonite used in the manufacturing of the GCL. The BSC shall be a mixture of a non-aqueous liquid suspension agent which creates a paste-like texture. The suspension agents used in the manufacture of the BSC shall be non-toxic, water-soluble and shall not restrict the bentonite's ability to swell and absorb water upon hydration.
3. Longitudinal seams may also be sealed using the Winning Edge®, or similar but equivalent technology approved by the CQA Site Engineer, which eliminates the need for free bentonite.

5.2 Manufacturer Quality Control (MQC) Documentation

Prior to installation commencement of GCL material, the Contractor shall provide the following information for each GCL roll delivered to the project, as certified by the Manufacturer:

- Manufacturer's name
- Product identification
- Roll number
- Roll dimensions

Additionally, the Manufacturer shall provide Manufacturer's Quality Control (MQC) Certificates for each roll of GCL provided to the project, signed by the Manufacturer's Quality Assurance Manager. Each certificate shall include roll identification number, sampling procedures, and MQC testing frequency and test results. At a minimum, test results shall be provided in accordance with requirements specified in Table II.4-4.

5.3 Conformance Testing

Conformance testing will be performed by a third-party Quality Assurance Laboratory (QAL) subcontracted by the Site CQA Engineer or Owner.

1. Sample collection will be performed at either the Manufacturer's production plant by a representative of the QAL, or from materials delivered to the project site and sampled by the a CQA Technician. If sample collection is performed on materials delivered to the site, sample collection will be performed in accordance with ASTM D4354; the Lead CQA Technician will confirm the number of sampling units are, at a minimum, one (1) test per 100,000 square feet (ft^2) of material. Representative samples will be taken across the entire roll width and shall not include the first three (3) feet of the roll end. Conformance testing shall be performed by the QAL at a minimum frequency of one (1) test per 100,000 ft^2. The sampling frequency may be increased as deemed necessary by the Site CQA Engineer.
2. The following conformance tests shall be conducted at the QAL:
   - Mass per Unit Area (ASTM D5993)
   - Hydraulic Conductivity (ASTM D5887)
3. These conformance tests shall be performed in accordance with test requirements specified in Table II.4-4.
4. Conformance tests shall be reviewed by the Site CQA Engineer and accepted or rejected, prior to the deployment of the GCL. Test results shall meet, or exceed, the property values listed in Table II.4-4. In case of failing test results, the material shall be resampled and retested. This retesting shall be at the expense of the Installer or Manufacturer until test values from the resamples pass the acceptable certified values listed in Table II.4-4.

5.4 Delivery, Storage and Handling

1. The GCL rolls shall be packaged and shipped by appropriate means to prevent damage of the GCL rolls. Off-loading and storage of the GCL is the responsibility of the Contractor. The Contractor shall be responsible for replacing damaged or unacceptable material discovered upon arrival at no cost to the Owner.
2. The GCL storage area will be designated by the Owner/Lead CQA Technician. No off-loading shall be performed without the observation and approval of

the Lead CQA Technician. Damage during off-loading shall be documented by the Lead CQA Technician. Damaged rolls must be separated from the undamaged rolls and stored in accordance with these standards until the proper disposition of that material has been determined by the Lead CQA Technician.

3. The rolls of GCL shall be stored in their original, unopened, wrapped covers in a clean, dry area, stacked no higher than three rolls high. The material shall be stored on a flat prepared surface with proper drainage controls, and shall be covered with a heavy, protective tarpaulin or enclosed within a storage facility. Care shall be used to keep the bentonite clean and free from debris and excess moisture prior to installation.
4. The Contractor/Installer shall be responsible for the transportation of each roll of GCL from the storage area to its proposed panel location. The Contractor/Installer shall not drive upon exposed GCL panels unless using approved low-ground pressure (LGP) rubber-tired equipment that will not damage the GCL, and shall be responsible for replacing material damaged during installation (at no cost to the Owner) until the GCL is accepted by the Owner.

   To transport the GCL, a steel support pipe or equivalent shall be inserted through the roll core. Slings or lifting chains shall be attached at the ends of the support pipe to the bucket of a front- end loader or lifting device. A spreader bar, which is used to support the pipe, must be long enough to prevent damage to the edges of the GCL during hoisting and placement.

5.5 GCL Placement

1. Prior to placement of each GCL roll, the roll label shall be removed by the Installer and submitted to the Lead CQA Technician. The rolls of GCL shall be brought to the area to be lined with a front-end loader (or similar piece of equipment) and support pipes set up such that the GCL roll is fully supported across its entire length. A spreader bar or similar device shall be used to prevent lifting chains or slings from damaging the edges.
2. Dragging of the GCL panels over the surface of the ground shall be minimized. Travel on the GCL is permissible if low-ground pressure (LGP) rubber-tired equipment that will not damage the GCL is used.
3. The flexible membrane liner (HDPE FML, see Section 6.0) shall be placed over the GCL during the same day as the placement of the GCL. Only those GCL panels which can be anchored and covered by the HDPE FML the same day shall be deployed.
4. The GCL shall not be installed in standing water or during rain. The GCL must be dry when installed and must be dry when covered by HDPE FML.

5. In areas where wind is prevalent, GCL installation should be started at the upwind side of the project and proceed downwind. The leading edge of the GCL shall be secured at all times with sandbags or other sufficient means.
6. The GCL shall be installed in a relaxed condition and shall be free of tension or stress upon completion of the installation. Stretching of the GCL to fit will not be allowed. The GCL shall be straightened to smooth out creases, wrinkles or irregularities in the panels or overlaps.

5.6 Field Seams

1. Once the first panel has been laid, adjoining panels shall be laid with six (6)-inch minimum overlap, or use of the Winning Edge®, or equivalent technology approved by the CQA Site Engineer, on the longitudinal seams; and 12 inches on end seams.
2. Soil, gravel, or other debris shall be removed from the overlap area.
3. Seam overlaps shall be shingled in the direction of slope; the number of field seams in corners and irregular shaped areas shall be minimized; and there shall be no horizontal seam within five feet of the toe of the slope.
4. On slopes, panels shall be installed from crest to toe with the GCL machine direction running perpendicular to the base. On slopes greater than or equal to 20 percent, the number of seams will be minimized, and the end seam overlap will be increased to a minimum of 36 inches.
5. If the temperatures are higher than 85°F and humidity is low, contraction may occur soon after placement when no confining stress or soil cover is placed. In order to account for the possibility of contraction under these conditions, the seam overlap shall be increased to a minimum of 36 inches on end seams, or four (4) percent of the distance to the next parallel seam, whichever is greater. Free bentonite shall be used to seal the seam. Free bentonite is not necessary on longitudinal seams if the Winning Edge® or equivalent technology is used.

5.7 Field Quality Assurance

1. The Lead CQA Technician shall prepare Daily Reports augmented by photographic documentation addressing the following:
    - Subgrade approval for areas anticipated to be covered by GCL.
    - The total number and location of panels placed.
    - Total number and location of seams completed.
    - Location of repairs.

- Weather conditions.

2. The Installer's Superintendent and the Lead CQA Technician shall provide 100 percent inspection of the installation to ensure compliance with this CQA Plan and manufacturer recommended installation procedures. The following will be confirmed and/or performed by the Installer's Field Superintendent and Lead CQA Technician:
   a. The surface of the GCL shall be clean and free of debris at the time of inspection.
   b. Record each roll number, and general location as panels are deployed.
   c. Inspect the overlap for each panel, and anchoring and sealing of each panel seam.
   d. Inspect the geotextile quality, bentonite uniformity, and degree of hydration of the GCL.
   e. Areas requiring repair shall be marked and subsequently repaired in accordance with the Repair Procedures listed in this CQA Plan (see Section 5.8).
   f. Re-inspect areas following repair.

5.8 Repair Procedures

1. Seam and non-seam areas of the GCL shall be inspected for identification of defects, holes, and sign of contamination by foreign matter.
2. Defects shall be repaired by the Installer, by placing a GCL patch with a minimum 12-inch overlap in all directions.
3. Horizontal patch seams shall be secured with adhesive glue as approved by the Site CQA Engineer and Manufacturer's recommendations.
4. Patches and repairs shall not be allowed on slopes greater than five (5) Horizontal: one (1) Vertical (5H:1V), unless they are securely anchored with an adhesive or other approved method. Alternatively, the patches can be placed under the defective liner in order to prevent slippage of the patch.
5. For each repair method, surfaces shall be clean and dry at the time of the repair.
6. Completed repairs shall be inspected in accordance with the Field Quality Control procedures.

5.9 GCL Acceptance

1. The GCL shall be accepted by the Lead CQA Technician when the installation is finished, documentation of installation is completed, and verification that the adequacy of field seams and repairs is complete.
2. Approval of subsequent post-liner construction, as well as payment requests for the same, will not be granted until all required documentation is:
   a. In the possession of the Lead CQA Technician
   b. Approved by the Site CQA Engineer/Owner
3. Certification by the Site CQA Engineer demonstrating that the GCL was installed in accordance with the Construction Plans and Technical Specifications, the CQA Plan, and Manufacturer's recommendations.

Table II.4-4
GCL Testing Schedule[D]

Tester	Material	Type of Test	Test Method	Value	Frequency
GCL Manufacturer	Bentonite [A]	Free Swell	ASTM D5890	24ml (min)	Per Manufacturer's CQA Program
		Fluid Loss	ASTM D5891	18 ml (max)	
	Geotextile [C]	Mass/Unit Area	ASTM D5261	6.0 oz/sy (nonwoven) 3.0 oz/sy (woven)	
	GCL Product	Clay Mass/Unit Area [B]	ASTM D5993	0.75 lbs/sf (min)	
		Bentonite Moisture Content	ASTM D5993	35% (max)	
		Grab Tensile Strength	ASTM D6768	23 lbs/in (min)	
		Permeability	ASTM D5887	5x10^{-9} cm/sec (max)	
Conformance Testing	GCL Product	Clay Mass/Unit Area [B]	ASTM D5993	0.75 lbs/sf (min)	1 per 100,000 ft^2
		Permeability	ASTM D5887	5x10^{-9} cm/sec (max)	

Notes:

A. Tests to be performed on bentonite before incorporation into GCL.
B. Mass of bentonite at 0% moisture
C. GCL will be reinforced by needle punching the two geotextiles together, but may be manufactured with either two non-woven geotextiles or non-woven/woven geotextiles at the direction of the Design Engineer.
D. Specific laboratory testing should be conducted on representative samples of the proposed geosynthetics to be used in the liner system and representative soil materials at interface with the geosynthetics to confirm the validity of the parameters used in the stability modeling, see Table III.3-6 in Volume III, Section 3 and Appendix III.7-A in Volume III, Section 7.

6 HIGH DENSITY POLYETHYLENE (HDPE) FLEXIBLE MEMBRANE LINER (FML)

6.1 Materials

1. The HDPE FML used for liner installation shall be textured (both sides) 60-mil HDPE for the sideslopes and smooth 60-mil HDPE for the floor of the Landfill.
2. The FML on slopes less than or equal to 10% may be smooth HDPE; however, on slopes greater than 10% with a vertical rise of 10 feet or greater the FML must be textured HDPE.
3. The FML shall be manufactured of new, prime first-quality products designed and manufactured specifically for the purpose of liquid containment in hydraulic structures and chemically resistant to leachate.
4. The FML material shall be produced to be free of holes, blisters, undispersed raw materials, or signs of contamination by foreign matter.
5. The sheets shall have the National Sanitation Foundation (NSF) label of approval and shall be manufactured in a minimum 22-foot seamless roll width unless otherwise approved by the Site CQA Engineer.
6. The FML rolls shall meet the minimum properties listed in Table II.4-5.
7. Extrudate welding rods shall be of the same compound as the geomembrane and supplied by the Manufacturer and shall be delivered in the original sealed containers. Each extrudate container shall have a label bearing the brand name, manufacturer's lot number and directions regarding proper storage.

6.2 Manufacturer Quality Control (MQC) Documentation

Prior to beginning installation of HDPE FML, the Manufacturer shall provide the following information, certified by the Manufacturer, for the delivered HDPE FML:

1. Origin, identification and production of the resin (supplier's name, brand name and production plant).
2. Copies of quality control certificates issued by the resin supplier.

3. Manufacturer's certification verifying that the quality of the resin used to manufacture the FML meets the minimum resin specifications fingerprint properties specified in Geosynthetic Research Institute (GRI) Standard GM13.
4. Each FML roll delivered to the project site shall have the following identification information:
    - Manufacturer's name
    - Product identification
    - Thickness
    - Lot number
    - Roll number
    - Roll dimensions
5. MQC certificates for each roll of HDPE FML delivered to the project, signed by the Manufacturer's Quality Assurance Manager. Each certificate shall include the roll identification number, sampling procedures, and MQC testing frequency and test results. At a minimum, the following tests shall be performed in accordance with the last version of GRI-GM13:
    - Thickness (ASTM D5994)
    - Density (ASTM D1505/0792)
    - Tensile properties (ASTM D6693)
    - Carbon black content (ASTM D4218)
    - Carbon black dispersion (ASTM D5596)
    - Puncture resistance (ASTM D4833)
    - Tear resistance (ASTM D1004)

6.3 Conformance Testing

Conformance testing will be performed by a third-party Quality Assurance Laboratory (QAL) subcontracted by the Site CQA Engineer or Owner.

1. Sample collection will be performed at either the Manufacturer's production plant by a representative of the QAL, or from materials delivered to the project site and sampled by the a CQA Technician. If sample collection is performed on materials delivered to the site, sample collection will be performed in accordance with ASTM D4354; the Lead CQA Technician will confirm the number of sampling units within each lot, or at a minimum, one (1) test per 100,000 square feet (ft^2) of material and resin lot. Representative samples will be taken across the entire roll width and shall not include the first three (3) feet from the end of the roll. Conformance

testing shall be performed by the QAL at a minimum frequency of one (1) test per 100,000 ft^2 and resin lot. The sampling frequency may be increased as deemed necessary by the Site CQA Engineer. The following conformance tests shall be conducted at the QAL:

- Thickness (ASTM D5994)
- Density (ASTM D1505/0792)
- Tensile properties (ASTM D6693)
- Carbon black content (ASTM D4218)
- Carbon black dispersion (ASTM D5596)

2. These conformance tests shall be performed in accordance with test requirements specified in Table II.4-5.
3. Conformance tests shall be reviewed by the Site CQA Engineer and accepted or rejected, prior to the deployment of the FML. Test results shall meet, or exceed, the property values listed in Table II.4-5. In the case of failing test results for an individual lot sample, the lot shall be resampled and retested. This retesting shall be at the expense of the Installer or Manufacturer, and shall continue until test values from the resamples pass the required certification values listed in Table II.4-5.

Table II.4-5 – HDPE FML Testing Schedule[3]

Test Category	Type of Test	Values		Test Method[2]	Frequency
		Smooth	Textured		
FML Manufacturer	Thickness (MARV) Lowest individual Lowest individual for 8 of 10	60 mil 54 mil NA	57 mil 51 mil 54 mil	ASTM D5199 (smooth) ASTM D5994 (textured)	Per GRI GM13 and
	Density (Min)	0.940 g/cc	0.940 g/cc	ASTM D1505 or D792	
	Tensile Properties (MARV) Break Strength Yield Strength Elongation at Break Elongation at Yield	228 lb/in 126 lb/in 700% 12%	90 lb/in 126 lb/in 100% 12%	ASTM D6693, Type II Gauge Length 2.0 in Gauge Length 1.3 in	
	Tear Resistance	42 lbs	42 lbs	ASTM D1004	
	Puncture Resistance	108 lbs	90 lbs	ASTM D4833	
	Carbon Black Content (Min Range)	2.0-3.0%	2.0-3.0%	ASTM D4218	
	Carbon Black Dispersion [1]	Note 1	Note 1	ASTM D5596	
Conformance Testing	Thickness	See Values Above	See Values Above	See Method Above	1 per 100,000 ft^2 and every resin lot
	Tensile Properties				
	Carbon Black Content				
	Carbon Black Dispersion				

Notes:

MARV = Minimum average roll value

1. Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
2. Or most current industry standard.
3. Specific laboratory testing should be conducted on representative samples of the proposed geosynthetics to be used in the liner system and representative soil materials at interface with the geosynthetics to confirm the validity of the parameters used in the stability modeling, see Table III.3-6 in Volume III, Section 3 and Appendix III.7-A in Volume III, Section 7.

6.4 Delivery, Storage and Handling

1. The HDPE FML rolls shall be packaged and shipped by appropriate means to prevent damage of the HDPE FML rolls. Off-loading and storage of the HDPE FML is the responsibility of the Contractor. The Contractor shall be

responsible for replacing damaged or unacceptable material at no cost to the Owner.

2. No off-loading shall be performed unless a CQA Technician is present. Damage during off-loading shall be documented by the Lead CQA Technician. Damaged rolls must be separated from the undamaged rolls until the proper disposition of that material has been determined collectively by the Installer, Lead CQA Technician, and Site CQA Engineer.
3. The HDPE FML rolls shall be stored so as to be protected from puncture, soil, grease, water, moisture, mud, mechanical abrasions and excessive heat that may cause damage. The rolls shall be stored on a prepared surface (not wooden pallets) and shall not be stacked more than five (5) rolls high.

6.5 HDPE FML Placement

6.5.1 Weather Conditions:

HDPE FML, when unrolled, should not adhere together to the extent where tearing, or visually observed straining of the membrane occurs. A sheet temperature of 122°F (50°C) is the upper limit that HDPE FML should be unrolled unless approved in writing by the Site CQA Engineer. FML that has been torn or has been excessively deformed will be rejected, or will be repaired per the CQA Plan. HDPE FML when unrolled in cold weather should not crack, haze or distort in texture. A sheet temperature of 32°F (0°C) is the lower limit that HDPE FML should be unrolled unless approved in writing by the Site CQA Engineer. HDPE FML placement shall not be performed during precipitation, excessive moisture, in an area of ponded water, excessive winds, extremely low temperatures, etc. Observation of temperature, humidity, precipitation, and wind shall be noted on CQA forms to ensure that weather conditions are acceptable prior to HDPE FML panel placement.

6.5.2 Method of Placement

1. No more HDPE FML material than can be seamed on that same day shall be deployed.
2. Each panel of the HDPE FML shall be rolled out and installed in accordance with the approved Construction Plans, this CQA Plan, Technical Specifications and Manufacturer's recommendations. The layout shall be designed to keep field seaming of the HDPE FML to a minimum and consistent with proper methods of HDPE FML layout and installation.
3. HDPE FML rolls shall be placed using proper spreader and rolling bars with cloth slings.
4. The Lead CQA Technician shall inspect each panel, after placement and prior to seaming, for damage and defects. Defective or damaged panels shall be

replaced or repaired as stated in this CQA Plan and Technical Specifications and the Lead CQA Technician shall log and approve repairs.

5. The Installer shall avoid dragging the HDPE FML panels on rough soil subgrades.
6. HDPE FML shall be anchored as shown on the Construction Plans and consistent with Manufacturer's recommendations.
7. Personnel working on the HDPE FML shall not smoke, wear damaging shoes or involve themselves in activity that may damage the HDPE FML.
8. Vehicular traffic across the HDPE FML shall not be allowed without the approval of the Site CQA Engineer and/or Lead CQA Technician.
9. Damage, and subsequent repairs, shall be recorded and located on the as-built drawings by the Installer and Lead CQA Technician.
10. When tying into existing HDPE FML, final excavation in the immediate vicinity of previously installed liner segments shall be performed by hand to prevent damage. Damaged sections of previously installed liner shall be removed and replaced or repaired as discussed in this CQA Plan. New liner segments shall be seamed only to competent segments of previously installed liner as approved by the Lead CQA Technician.
11. The HDPE FML shall be kept free of debris, unnecessary tools and materials. In general, the HDPE FML work area shall remain neat and clean in appearance.
12. Installed HDPE FML will not be left exposed for more than 14 days to sunlight and/or adverse weather conditions without the written approval of the Site CQA Engineer.
13. The method used to unroll the panels shall neither score, scratch or crimp the HDPE FML, nor damage the underlying GCL and subgrade.
14. Adequate loading (e.g., sand bags or similar items that will not damage the HDPE FML) shall be placed to prevent uplift by wind. In cases of high wind, continuous loading is recommended along edges of panels to minimize wind flow under the panels.
15. Direct contact by landfill or construction equipment with the HDPE FML shall not be allowed. For HDPE FML located under traffic areas, it shall be protected by geotextile, extra HDPE FML, at least 3 ft. of soils, or other suitable materials, as approved by the Site CQA Engineer.
16. Sufficient slack shall be placed in the HDPE FML to compensate for the coldest temperatures envisioned so that no tensile stresses are generated in the HDPE FML or in its seams either during installation or subsequently after the HDPE FML is covered.
17. The HDPE FML shall have adequate slack such that it does not lift up off of the underlying GCL at any location within the facility, (i.e., "trampolining").

Trampolining or bridging of the HDPE FML shall not be allowed to occur at any time.

18. The HDPE FML shall not have slack to the point where creases fold over upon themselves either during placement and seaming, or when the protective soil or drainage materials are placed on the HDPE FML.
19. Wrinkles will be walked-out or removed as much as possible prior to field seaming. Any wrinkles which can fold over must be repaired either by cutting out excess material or, if possible, by allowing the liner to contract by temperature reduction. The onsite CQA monitor will visually observe the geomembrane for wrinkles and folds and notify the contractor if wrinkles are being generated during liner installation. The onsite CQA monitor will document any corrective action to remove the wrinkles and folds during construction, which will be included in the Engineering Certification Report.
20. Permanent (folded over type) creases in the HDPE FML shall not be permitted. Creases shall be repaired in accordance with this CQA Plan, Technical Specifications and Manufacturer's recommendations.
21. The amount of slack to be added to the deployed and seamed HDPE FML should be carefully considered and calculated, taking into account the type of FML and the HDPE FML's temperature during installation versus the FMLs ambient final temperature in the installed condition.

6.5.3 Field Seams

HDPE FML seams will be bonded by either fusion or extrusion welding. The objective of fusion welding (performed using a dual-track hot wedge) is to heat two facing HDPE FML surfaces to their melting point before pressing the two surfaces together and creating a permanent bond. The wedge is situated between the overlap of the two HDPE FML panels. The double-tracked fusion welder creates an air channel bounded by two fusion welds. Fusion welding is typically used for seaming longitudinal and end seams of adjoining panels.

The extrusion welding process is typically used for welding tie-in seams (if fusion welding is not possible), patches and repairs. This method extrudes a bead of molten HDPE rod onto the clean and ground edge of the liner and the underlying panel. Grinding shall be completed no more than one (1) hour prior to welding.

The following procedures will be implemented during preparation and performance of field seams of HDPE FML:

1. Individual panels of HDPE FML shall be laid out and overlapped by a minimum of four (4) inches (or three (3) inches for extrusion welding) but no more than six (6) inches prior to welding. The area to be welded shall be cleaned and prepared in accordance with the quality control welding procedures.

2. If the overlap is too wide to contain the hot wedge welding machine, "float" the HDPE FML into better position by lifting it high enough to draw air beneath it, guiding it upon the air to an improved position. Avoid dragging the liner, particularly across rough soil subgrades.
3. If overlap between the placed HDPE FMLs is excessive, the panels should be adjusted to reduce the overlap. If the panels cannot be sufficiently adjusted, the excess must be trimmed away. This should be done by trimming the lower sheet. If this is not possible and the upper sheet must be trimmed, use a knife with a shielded or hook blade.
4. Cutting and preparation of odd-shaped sections or small fitted pieces should be completed at least 50 ft. ahead of the seaming operation, so that seaming may be conducted with the fewest interruptions.
5. HDPE FML panel overlaps shall be shingled so the upper panel is hydraulically upgradient of lower panels.
6. HDPE FML panels which are overlapped and ready for seaming must be clean. If soiled, they must be wiped clean with dry rags.
7. The seam area must be completely free of moisture before the overlapping HDPE FML panels can be properly seamed. Dry rags should be used to wipe excess moisture up from the seam surface. Air blowers may also be used.
8. Seaming is not to be performed when the soil surface beneath the liners is saturated, because the hot seaming apparatus will draw moisture into the ongoing seam. Seaming activity on frozen soil is unacceptable for the same reason.
9. A double-track hot wedge fusion welder shall be used for straight welds.
10. An extrusion welder shall be used for patches, repairs, penetration boots, etc. per the Construction Plans.
11. The welding equipment used shall be capable of continuously monitoring and controlling the temperatures in the zone of contact where the machine is actually fusing the HDPE FML material so as to ensure that changes in environmental conditions will not affect the integrity of the weld.
12. No "fish mouths" will be allowed in the seam area. Where "fish mouths" occur, the HDPE FML shall be cut, overlapped and a patch extrusion weld shall be applied. Upon completion of the work welds shall be tightly bonded. HDPE FML area showing damage due to excessive scuffing, puncture, or distress from any cause shall be replaced or repaired with an additional piece of HDPE FML.
13. Seams shall have a seam number that corresponds with the panel layout numbers. The numbering system shall be used in the development of the as-built drawings. Seam numbers shall be derived from the combination of the two panel numbers that are to be welded together.

14. Fusion welded "T" seams (i.e., the result of the HDPE FML panels placed perpendicular to each other) shall be patched and tested for leaks.
15. Extrudate shall be free of soil, dry and protected from damage.
16. If an extrusion welder is stopped for longer than one minute, it shall be purged to remove heat-degraded extrudate. Purged extrudate shall be placed on a sacrificial sheet and disposed of.
17. No horizontal seams shall be constructed on slopes greater than or equal to 5H:1V. If seams are constructed on such slopes, their number must be minimized and approved by the Site CQA Engineer prior to installation.
18. Vertical panels placed on sloped surfaces shall extend 10 ft. inward from the toe of slope and three (3) ft. from the edge of the trench as shown on the Construction Plans.
19. In the anchor trench, seams shall extend laterally across the anchor trench.
20. Factory seams, field seams and repair welds shall meet seam strength requirements specified in Table II.4-6.
21. For HDPE FML installation in geometrically unique areas and in general, the number of field seams shall be minimized.
22. No solvent or adhesive may be used on the HDPE FML unless the product and use is approved by the Site CQA Engineer.
23. Extrusion welding flaps is not acceptable.

Table II.4-6
HDPE FML Seam Properties

Property	Qualifier	Unit	Value	Test Method
Bonded Seam Strength (1) [Shear Strength]:	Minimum	lb/in	120	ASTM D6392
Tensile Properties (1)(2) [Peel Strength]:				
Fusion Weld:	Minimum	lb/in	91	ASTM D6392
Extrusion Weld:	Minimum	lb/in	78	ASTM D6392

Notes:

(1) Value listed for shear and peel strengths are for four (4) out of five (5) test specimens; the 5th specimen can be as low as 80% of the listed values.
(2) The break, when peel testing, occurs in the liner material itself, not through peel separation (film tearing bond; FTB).
(3) See Field Quality Control for requirements and testing of extrusion and fusion welds.
(4) Where reference is made to one of the above standards, the revision in effect at the time of construction shall apply.

6.6 Field Quality Assurance

The Lead CQA Technician shall document the HDPE FML installation using typical CQA forms (see Table II.4-2). At a minimum documentation shall include the FML deployment log, trial seam testing log, seaming log, nondestructive and destructive test logs, and repair log. Data and results that shall be documented are described in respective FML sections and subsections of this CQA Plan.

Additionally, photographic documentation will also be included in the daily field observation reports. Select photographs shall include date, location, and shall be included in the Engineering Certification Report submitted to NMED.

6.6.1 Start-up Testing

A trial weld, 10 ft. long for hot wedge welding and three (3) ft. long for extrusion welding, from each welder/welding machine shall be run upon the beginning of each shift, every five (5) hours

thereafter; and for changes in weather, change in operator, and at the discretion of the Lead CQA Technician. The trial welds shall be completed under the same conditions that exist for the HDPE FML welding. The trial weld shall be marked with date, ambient temperature, welder's name, and welding machine number. A tensiometer provided by the Installer shall be required to be on-site before and during FML installation for the purpose of testing samples. Specimens of weld one (l) inch wide shall be cut from the trial weld and tested on-site for shear and peel strength in accordance with Table II.4-6. No welder may start work until the trial weld has been approved by the Lead CQA Technician. The wedge-welder shall be used in the field at the speed and temperature used to create the trial weld. If the speed and/or temperature of the welder requires significant adjustment, as determined by the Lead CQA Technician, a new trial weld shall be run at the new speed and/or temperature and tested as described in this CQA Plan.

6.6.2 Nondestructive Seam Testing

The installer shall perform nondestructive tests on field seams over their full length. The purpose of this test is to assure continuity and integrity of the seams. Vacuum and air pressure tests shall be used for nondestructive testing. The vacuum test shall be used for extrusion welds and single-track hot wedge welds. The air pressure test shall be used for double track hot wedge fusion welds.

1. Vacuum box testing will be performed on single wedge fusion seams and extrusion seams. Equipment used for vacuum box testing shall be comprised of the following:
    - A vacuum box assembly consisting of a rigid housing, a transparent viewing window, a soft rubber gasket attached to the bottom, porthole or valve assembly and a vacuum gauge.
    - A vacuum tank and pump assembly equipped with a pressure controller and pipe connections.
    - A rubber pressure/vacuum hose with fittings and connections.

  - A plastic bucket and wide paintbrush.
  - A soapy solution.

2. The following procedures shall be followed by the Installer:
   - Clean the vacuum box window and gasket surfaces and check for leaks.
   - Energize the vacuum pump and reduce the tank pressure to approximately five (5)-pounds per square inch (psi).
   - Wet a strip of HDPE FML approximately 12-inch by 48-inch (length of box) with the soapy solution.
   - Place the vacuum box over the wetted area and compress.
   - Close the bleed valve and open the vacuum valve.
   - Ensure that a leak-tight seal is created.
   - For a minimum period of 10 seconds, examine the HDPE FML through the viewing window for the presence of soap bubbles.
   - If no bubbles appear after 10 seconds, close the vacuum valve and open the bleed valve, move the box over the next adjoining area with a minimum three (3)-inch overlap and repeat the process.
   - Areas where soap bubbles appear shall be marked and repaired in accordance with the Repair Procedures provided in this CQA Plan.

Air pressure testing will be performed on double-track hot wedge-weld fusion seams only, which produce a double seam with an enclosed space for pneumatic testing.

1. Equipment for testing double-track hot wedge-weld fusion seams shall be comprised of the following:
   - An air pump equipped with pressure gauge capable of generating and sustaining a pressure of 35 psi and mounted on a cushion to protect the HDPE FML.
   - A manometer equipped with a sharp hollow needle, or other approved pressure feed device.

2. The following procedures shall be followed by the Installer:
   - Seal both ends of the seam to be tested.
   - Insert needle or other approved pressure feed device through the sealed end of the channel created by the double-track hot wedge-weld fusion seam.

- Energize the air pump to an approximate pressure of 35 psi, close valve, and sustain pressure for a minimum of five (5) minutes.
- If loss of pressure exceeds two (2) psi, or pressure does not stabilize, locate deficient area, repair and retest.
- Cut the far end of the test seam at conclusion of the test to verify connectivity of the air channel.
- Remove needle or other approved pressure feed device and seal penetration(s).
- A patch shall be extrusion welded over the test areas in accordance with the Repair Procedures contained in this CQA Plan.

6.7 Destructive Seam Testing

The purpose of the destructive seam testing is to confirm the seam strength properties. A minimum of one (1) test sample shall be randomly obtained per 500 linear ft. of performed seam length (on average across the cell). The location of samples shall be determined by the Lead CQA Technician. Selection of such locations may be prompted by suspicion of overheating, contamination, or other potential cause that may adversely impact the welds. Sampling shall be performed by the Installer. Testing of field samples shall be performed by the Installer in the presence of the Lead CQA Technician as described herein.

6.7.1 Sampling Procedures

1. Samples shall be cut by the Installer at locations chosen by the Lead CQA Technician as the seaming progresses.
2. The seams shall not be covered by another material before they have been tested and accepted by Lead CQA Technician.
3. A sequential number shall be assigned to the sample so that it can be marked accordingly.
4. CQA technician shall record sample location on panel layout drawing.
5. CQA technician shall record location, seam number, seamer ID, and welding apparatus.
6. Penetrations in the HDPE FML resulting from destructive seam testing shall be repaired in accordance with the Repair Procedures contained in this CQA Plan and the Construction Plans and Technical Specifications.

6.7.2 Dimensions and Disposition of Samples

The samples shall be 12 inches wide by 36 inches long with the seam centered lengthwise. The sample shall be cut into three (3) pieces of equal length and distributed as follows:

1. One (1) sample piece to the Installer for field testing; 12-inch by 12-inch.
2. One (1) sample piece for the independent Quality Assurance Laboratory (QAL) testing; 12-inch by 12-inch. Laboratory should be approved by the Engineer.
3. One (1) sample piece to the Landfill Manager for archive storage in the Facility Operating Record; 12-inch by 12-inch. Archived samples may be discarded after five years unless otherwise specified.

The seam samples for QAL testing will be packed by a CQA Technician and shipped to the laboratory as soon as practical for testing.

6.7.3 Field Testing

The following shall be performed by the Installer in the presence of the Lead CQA Technician for samples designated for field sampling:

1. The Installer shall cut ten (10) one (1)-inch-wide replicate specimens from the sample to be tested for shear and peel strength, in accordance with the criteria set forth in Table II.4-6.
2. Any specimen that fails through the weld or by fusion at the weld sheet interface is a non- Film Tearing Bond (FTB) break and shall be considered a failure.
3. The Installer shall test five (5) specimens for shear seam strength and five (5) for peel strength. Four (4) out of the five (5) replicate test specimens shall pass for the seam to be acceptable. A specimen must pass both Sections 1 and 2 above to be acceptable.

6.7.4 Independent Quality Assurance Laboratory Tests

1. The Site CQA Engineer/Manager shall package and ship destructive test samples designated for laboratory testing to the independent QAL. The laboratory must be approved by the Site CQA Engineer prior to use.
2. Laboratory tests shall include shear and peel strength tests. The minimum acceptable values obtained in these tests shall be in accordance with Table II.4-6.
3. At least five (5) specimens shall be tested each for shear and peel strength. A passing test shall meet the minimum required values in at least four (4) of the five (5) specimens tested for each method.

4. Specimens that fails through the weld or by fusion at the weld sheet interface is a non-FTB break and shall be considered a failure.
5. The Laboratory shall provide verbal test results to the Installer and Lead CQA Technician no later than 24 hours after they receive the samples. The Lead CQA Technician shall review the laboratory results as soon as they become available.

6.7.5 Procedures for Destructive Test Failure

1. The following procedures shall apply whenever a sample fails a destructive test, whether that test is conducted in the field or by the laboratory. The Installer has two options:
    - The Installer can repair the seam between two passing test locations.
    - The Installer can retrace the welding path to an intermediate location 10 ft. (on both sides) from the location of the failed test and take a sample for an additional field and laboratory testing. If these tests pass, then the seam shall be repaired. If the test fails, then the process is repeated to establish the length of the zone for which the seam shall be repaired.
2. Acceptable repaired seams shall be bound by two locations from which samples passing destructive tests have been taken. In cases where the repaired seam exceeds 150 feet, a sample taken from the zone in which the seam has been repaired must pass destructive testing.
3. Repairs shall be made in accordance with this CQA Plan.
4. The Installer and Lead CQA Technician shall document actions taken in conjunction with destructive test failures and repairs.

6.8 Repair Procedures

1. Any portion of the HDPE FML exhibiting signs of defect, or failing a destructive or a non-destructive test, shall be repaired. Several procedures are available for the repair of these areas. The final decision as to the appropriate repair procedure shall be made by the Lead CQA Technician.
2. Defective seams shall be repaired as described in this CQA Plan. The repair procedures available include:
    - Small holes shall be repaired by extrusion cap welding. If the hole is larger than one quarter (1/4) inch in dimension, it shall be patched with a piece of HDPE material extending six inches radially out from the damaged area.
    - Tears shall be repaired by patching. The sharp end of a tear on a slope, or in an area of particular stress, must be rounded prior to patching.

- Blisters, large holes, undispersed raw materials, and contamination by foreign matter shall be repaired by patches.
- HDPE FML surfaces to be patched shall be abraded and cleaned no more than one hour prior to the repair. No more than ten (10) percent of the thickness shall be removed by abrading.
- Patches shall be rounded or oval in shape and extend to a minimum of six (6) inches beyond the edge of defects. Patches shall be of the same thickness and material composition as the HDPE FML specified. Patches shall have their top edge beveled prior to placement on the HDPE FML in accordance with this CQA Plan. Patches shall be applied and the repair made using methods discussed in the CQA Plan.

3. Restart/Reseaming Procedures - Fillet Extrusion Welds: The Fillet Extrusion Welds process shall restart by grinding the existing seam and rewelding a new seam. Welding shall commence where the grinding started and must overlap the previous seam by at least two (2) inches. Reseaming over an existing seam without regrinding shall not be permitted.
4. Restart/Reseaming Procedures - Hot Wedge Welds: Over the length of the seam failure, the Installer shall either cut out the old seam, reposition the panel and reseam, or add a cap strip, as approved by the Lead CQA Technician.
5. For any repair method, the following provisions shall be satisfied:
    - Surfaces of the FML which are to be repaired using extrusion methods shall be abraded no more than one (1) hour prior to the repair.
    - Surfaces shall be clean and dry at the time of the repair.
6. Repair Verification
    - Each repair shall be sequentially numbered and logged by the Installer and Lead CQA Technician.
    - Each repair shall be nondestructively tested using the methods described in Section 6.6.2 "Non-destructive Seam Testing" as appropriate. Repairs which pass the nondestructive test shall be taken as an indication of an adequate repair.
    - Repairs more than 150 feet in length are of sufficient length to require destructive test sampling, at the discretion of the Site CQA Engineer and/or Lead CQA Technician.
    - A failed test indicates that the repair shall be redone and retested until passing test results are achieved. The Lead CQA Technician shall observe non-destructive testing of repairs.
    - The Installer and Lead CQA Technician shall record the number of each repair, date and test outcome.

7. Disposal of Waste Material: Upon completion of installation, the Installer shall dispose of trash, waste material, etc., as directed by Owner, and shall leave the premises in a neat and acceptable condition. HDPE FML scraps, pieces, rub sheets, trimmings or packaging shall not be left on the HDPE FML and covered with soil.

6.9 Edge of Liner Survey and Markers

An edge of liner survey shall be performed on newly installed HDPE FML and shall, at minimum, include the following information:

1. Northing, Easting and Elevation at cell corners and points of inflection along the cell boundary.
2. Northing, Easting and Elevation at the top of slope where the HDPE FML enters the anchor trench at the cell corners and points of inflection along the anchor trench.
3. The edge of HDPE FML survey shall be provided to the Site CQA Engineer for approval prior to placement of protective soil. The edge of HDPE FML survey shall be included on the record (as-built) drawings in the Engineering Certification Report (see Section 2.3).

Edge of liner markers will be installed at the outside (exterior) edge of liner following placement of the protective soil layer and prior to the acceptance of waste in the new cell. Edge of liner markers shall be fabricated of materials and of a design that is highly visible (e.g., red, orange, etc.) and will not puncture or damage the underlying geosynthetics. Documentation and description of the edge of liner markers (design, materials, placement, locations and photographs) will be presented in Engineering Certification Reports.

6.10 HDPE FML Acceptance

The Installer shall retain ownership and responsibility for the HDPE FML until acceptance and payment by the Owner. The HDPE FML shall be accepted by the Owner when all of the following conditions are met:

1. Installation is completed.
2. Certified edge of liner survey is completed and approved by the Site CQA Engineer.
3. Verification in the form of a Certificate of Acceptance of the adequacy of field seams and repairs, including associated testing, is complete.
4. Certification by the Site CQA Engineer that the HDPE FML was installed in accordance with the CQA Plan and Technical Specifications.

7 NON-WOVEN GEOTEXTILES

7.1 Non-Woven Geotextile Properties

The following requirements are applicable to non-GCL non-woven geotextile materials only, used primarily in leachate collection system construction. Non-woven geotextiles used for GCL manufacturing are discussed in Section 5.0 of this CQA Plan.

The geotextile must be a 10 oz/sy non-woven needle punched geotextile manufactured from polypropylene staple or continuous fibers that meet the requirements of the Construction Plans, Technical Specifications and this CQA Plan. Table II.4-7 includes the minimum average roll values for non-woven geotextile:

Table II.4-7
Non-Woven Geotextile Properties

Property	Unit	Value	Test Method	Frequency
Mass Per Unit Area	oz/yd^2	10	ASTM D5261	Per Manufacturer's QC Program
Trapezoidal Tear	Lbs	105	ASTM D4533	
Grab Tensile Strength	Lbs	270	ASTM D4632	
Apparent Opening Size	Sieve	100	ASTM D4751	
Permeability	gpm/ft^2	75	ASTM D4491	

7.2 Manufacturer Quality Control (MQC) Documentation:

1. Prior to installation commencement of geotextile material, the Contractor shall provide the following information for each geotextile roll delivered to the project, as certified by the Manufacturer:
   - Manufacturer's name
   - Product identification
   - Manufacturer lot or control number
   - Roll number
   - Roll dimensions

2. The Manufacturer shall provide Manufacturer's Quality Control (MQC) Certificates for each roll of material supplied to the project, signed by the Manufacturer's Quality Assurance Manager. Each certificate shall include roll identification number, sampling procedures, and MQC testing frequency and test results. At a minimum the following tests shall be performed at a frequency in accordance with the manufacturer's Quality Control Program:
    - Mass per Unit Area (ASTM D5261)
    - Trapezoid Tear (ASTM D4533/6241)
    - Grab Tensile Strength (ASTM D4632)
    - Apparent Opening Size (ASTM D4751)
    - Permeability (ASTM D4491)

7.3 Conformance Testing

The Site CQA Engineer and/or Lead CQA Technician may elect to arrange conformance testing of the rolls delivered to the site should materials be suspected of not complying with the MQC Certificates. For this purpose, the Lead CQA Technician shall take a sample three feet (along roll length) by roll width according to ASTM D435. The sample shall be properly marked, wrapped and sent to an independent laboratory for conformance testing for the properties identified in Section 7.2.

Contractor shall be responsible for replacing any non-woven geotextiles not passing the CQA Plan or Technical Specifications requirements at no additional cost to the Owner.

7.4 Delivery, Storage and Handling

1. The geotextile shall be packaged in rolls, uniformly wound onto suitable cylindrical forms or cores to aid in handling and unrolling. Each roll shall be packaged to protect the geotextile from damage due to ultraviolet light and moisture during normal unloading, storage and handling.
2. Each roll shall be clearly marked with the following:
    - Manufacturer's name
    - Roll width and length
    - Brand name of the product
    - Roll number
    - Manufacturer lot or control number

3. Off-loading and storage of the geotextile shall be performed by the Installer under the observation of a CQA Technician.
4. Storage of the geotextile shall be in accordance with ASTM D4873. The installed material shall not be exposed to sunlight for longer than 14 days unless otherwise approved by the Site CQA Engineer.
5. The Installer shall be responsible for transporting the geotextile from the storage area to the cell area for installation. The Installer shall be responsible for replacing geotextile material damaged during transport or installation at no cost to the Owner.

7.5 Installation

7.5.1 Geotextile Installation

After GCL and HDPE FML placement has been completed and approved, the Installer shall place the non-woven geotextile within the leachate collection trench and sump(s) as shown on the Construction Plans to ensure protection of the HDPE FML from the overlying select aggregate layer.

1. Exposure of the geotextile to the elements between installation and cover placement shall be a maximum of 14 days unless otherwise approved by Site CQA Engineer.
2. The geotextile shall be placed such that the centerline of the geotextile roll lines up with the centerline of the trench.
3. In the presence of wind, the geotextile will be weighted by sand bags or approved equivalent. Such anchors will be installed during placement and will remain in-place until replaced by aggregate or soil cover material.
4. The non-woven geotextile shall be joined by overlapping the seams six (6) inches and sewing the panels together. Heat seaming of longitudinal seams will not be allowed. Seams will be sewn using a white polymetric thread with chemical resistance equal to or exceeding that of the geotextile. Seams will be continuous.
5. The Installer shall take care not to damage the liner system materials beneath the nonwoven geotextile. The Installer is responsible for damage to the non-woven geotextile and underlying HDPE FML and GCL caused during geotextile installation. The Installer shall replace or repair the liner system components at no cost to the Owner.

7.6 Field Quality Assurance

The Lead CQA Technician shall inspect the installation for proper placement, sufficient overlap and damaged material. Damaged areas will be repaired in accordance with the Repair Procedures identified in this CQA Plan.

7.7 Repair Procedures

1. A geotextile patch shall be placed over the damaged area and extend 12 inches beyond the perimeter of the tear or damaged area.
2. The geotextile will be heat-bonded to the lower geotextile layer. For heat-bonding, the methods used shall be as recommended by the manufacturer.
3. The Lead CQA Technician shall verify repairs, and verify that no separation of the heat-bonded seams or repairs occurs.

8 SELECT AGGREGATE

8.1 Select Aggregate Properties

Select aggregate, shall be used for bedding material that encases the leachate collection pipes and placed within the permanent leachate collection sumps. The select aggregate shall be washed aggregate, durable, resistant to weathering, and free of shale, limestone, soil, organic material, and other deleterious materials. The select aggregate shall have smooth particle shapes that will not damage the liner system when used in conjunction with the non-woven geotextile filter/cushion layer.

The select aggregate shall have particle sizes that range from three quarter (3/4)-inch minimum diameter to two (2)-inch maximum diameter, and fines less than five (5) percent (passing No. 200 sieve), in accordance with ASTM C136 unless otherwise approved by the Site CQA Engineer.

The select aggregate shall be tested once per 5,000 cubic yards, but no less than once per source, and approved by the Site CQA Engineer prior to placement.

8.2 Delivery, Storage and Handling

Select aggregate materials delivered to the site shall be stockpiled in designated areas approved by Owner. Provision shall be implemented to minimize surface water impacts from the stockpile(s). Removal and placement of the materials shall be conducted in a manner to minimize intrusion of native soils adjacent to and beneath the stockpile(s).

8.3 Select Aggregate Placement

1. After liner placement has been approved, non-woven geotextile will be placed in the leachate collection trench in accordance with Section 7.0.
2. An aggregate bedding layer shall be placed beneath the leachate pipe on top of the non-woven geotextile in the bottom of the trench, and then encased in aggregate backfill, as shown on the Construction Plans.
3. Backfilling around the leachate pipe will be to a depth and width shown on the Construction Plans.

4. Backfilling of the leachate pipe trench should be brought up to a height of six (9) inches to 12 inches above the top of the pipe or as shown on the Construction Plans.
5. "Spading" with shovels or any other operations which could jeopardize the underlying geosynthetics integrity will not be allowed.
6. Care shall be taken during backfilling of the pipe to assure the pipe will not be crushed or otherwise damaged.

8.4 Field Quality Assurance

The select aggregate material shall be sampled and tested in accordance with ASTM C136 – Standard Method for Sieve Analysis of Fine and Coarse Aggregates. Select aggregate must be approved by CQA Engineer prior to placement.

9 PROTECTIVE SOIL LAYER

9.1 Protective Soil Layer Properties

Protective soil layer material shall be of well-graded inorganic non-calcareous material, free from organic substance and other deleterious matter.

Particle size gradation shall be within the following limits (ASTM C136 or D422) unless otherwise approved by the Site CQA Engineer:

a. ≤ 10% passing 200 sieve;

b. Maximum particle size of ½-inch; and

c. Coefficient of uniformity [C_U, (D60/D10)] ≤ 7.5.

Hydraulic conductivity shall be a minimum $5.8\text{x}10^{-3}$ cm/s [$k \geq 5.8\text{x}10^{-3}$ cm/s] (ASTM D5084) unless otherwise approved by the Site CQA Engineer.

Pre-construction quality control testing and thickness verification of the protective soil layer shall be performed in accordance with Table II.4-8.

Table II.4-8
Protective Soil Layer Testing Schedule

Test Category	Type of Test	Test Method	Frequency
Quality Control of Source Materials	Sieve (Gradation)	ASTM C136 or D422	1 per 1,500 cy
	Hydraulic Conductivity	ASTM D5084 or Falling Head	1 per 2 acres
Constructed Protective Soil/Drainage Layer	Thickness	Registered Surveyor	5 per acre (on grid)

Protective soil layer material, which meets these requirements, has been historically available on-site and will be tested to confirm the material meets the above standards at the specified frequency prior to use in the project.

9.2 Delivery, Storage and Handling

Protective soil materials shall be stockpiled adjacent to the project site in areas approved by Owner. Provision shall be implemented to minimize surface water impacts from the stockpile(s). Removal and placement of the materials shall be

9.3 Protective Soil Layer Placement

After the completion of installation and acceptance of the liner system and related work activities, placement of the minimum 24-inch thick protective soil layer will commence as shown on the Construction Plans. Placement of protective soil layer will be performed using the following procedures:

1. During the placement of the protective soil layer material, care shall be taken to protect the installed liner system. Construction equipment shall be prohibited from operating directly on the installed liner system. Any damage to the liner system shall be repaired immediately in accordance with this CQA Plan at no cost to the Owner.
2. Soil roads/ramps shall be provided at downslopes and areas traveled by heavy equipment (haul trucks, scrapers, etc.) transporting soil to the cell. Soil roads/ramps traveled by heavy equipment shall have a minimum of three (3) feet of material above the HDPE FML, except those roads/ramps that are used by low ground pressure (LGP) equipment.
3. Protective soil shall be deployed using LGP equipment where the protective soil layer thickness shall be a minimum of 24 inches.
4. Only large radius turns by the loader and other equipment shall be permitted, as sharp turns may damage the underlying liner system.
5. During placement of protective soil layer, care will be taken by the Contractor to not push or shove soil material in way that will propagate the generation of wrinkles (i.e., soil will be cast onto the HDPE FML or placed in a manner that does not cause wrinkles). While nominal HDPE FML wrinkles are unavoidable, protective soil will be placed such that wrinkles are maintained less than three (3) inches in height and prevent HDPE FML wrinkles from folding over. This will be accomplished by placing protective soil up to the edge of the wrinkle, then placing protective soil on the other side of the wrinkle, and then placing protective soil over the wrinkle such that the wrinkle will not fold over, thus creating a crease in the HDPE FML or geotextile.
6. The Lead CQA Technician and Technicians will visually observe the HDPE FML for wrinkles and notify the Contractor if wrinkles are being generated.
7. If a wrinkle forms greater than three (3) inches in height, every effort should be made to “walk” the wrinkle out prior to placement of protective soil. The Lead CQA Technician will document any corrective action to remove the wrinkles during construction. If the wrinkle cannot be walked out to a height of three (3) inches or less, the wrinkle should be cut and repaired as specified in this CQA Plan.
8. Protective soil placed on top of the liner system should be backfilled onto the liner system rather than being pushed across it. This is done by either: (1)

using a front end loader to place soil ahead of spreading soil cover by dozer; or (2) spreading soil by building a mound at the edge, then casting soil (allowing the soil to descend vertically) onto the liner system using dozers.

9. A CQA Technician shall monitor the placement, thickness, and particle size of the protective soil layer.
10. Protective soil material shall be placed on the sideslopes starting at the toe of the slope and working toward the top of the slope/berm. Care should be taken not to place soil in a manner that entrains air below the HDPE FML (i.e., place material in the direction of anchor trench or other liner terminations).
11. Protective soil layer should be compacted sufficiently to provide a stable working surface. Excessive compaction is discouraged.
12. No protective soil layer shall be placed, spread, or compacted while the ground or protective soil is frozen or thawing, or during unfavorable weather conditions such as heavy rainfall.
13. The protective soil layer surface must be made smooth and free from ruts or indentations at the end of the working day.

9.4 Field Quality Assurance

The protective soil layer thickness shall be measured following construction to confirm that the thickness of the installed material is in accordance with the Technical Specifications, this CQA Plan, and the Construction Plans on a minimum frequency of five (5) points per acre on a pre-established grid. Field survey is the preferred technique because it is non-intrusive; the less preferred technique includes use of blunt rods or construction cones. Excessive use of test pits or probes is discouraged to prevent potential HDPE FML damage.

9.5 Protective Soil Layer - Thickness Confirmation Procedure

When the protective soil layer is installed incrementally, or the surface is adversely affected by weather prior to placement of the "fluff" layer of waste, the following procedures have proven effective at confirming protective layer thickness at the most important point in time: when the protective soil layer is being covered with waste.

1. Prior to advancing the fill face over new sections of the liner system, the protective soil layer cover in these areas must be tested to confirm a thickness not less than 24 inches.
2. The area that must be tested will include the footprint where the next lift of waste will be placed over the protective cover; plus a buffer zone at least 50

ft. ahead of the advancing fill face. Note that this buffer zone will be retested just prior to waste placement over it.

3. Add select protective cover soils from an approved designated stockpile in the area to be tested if additional thickness is required.
4. Perform final protective cover depth confirmation by field survey, or field testing at a minimum frequency of five (5) points per acre uniformly distributed on a grid. Construction guidance may also be accomplished using calibrated construction cones or other blunt-type measuring devices, although blunt-type measuring devices are not recommended to prevent potential damage to the liner system. Any measuring device shall have a smooth rounded or flat tip, and it shall be advanced carefully until the 24-inch thickness is confirmed, or contact with the HDPE FML surface is made. Care must be taken not to dent, scratch, or puncture the HDPE FML surface.
5. The devices shall be calibrated such that the 24-inch length is visible and prominently marked. Record protective soil layer thickness test results (both passing and failing) in the Site Log Book and/or on forms provided specifically for this purpose.
6. In sections when the protective cover is less than 24 inches thick (i.e., the 24-inch mark is visible when the tip is in contact with the liner), add additional pre-approved protective soil to the area and retest. Continue this procedure until test locations meet the 24-inch thickness criterion, and the intervening protective cover layer surface appears level and smooth.
7. Record retest data results in the Site Log Book and/or on forms provided specifically for this purpose. The information recorded shall include, at a minimum:
    - Testing Date
    - Testing Personnel
    - Testing Methodology
    - Approximate Test Locations (i.e., grid coordinates)
    - Test Results
    - Retest Results
8. Maintain records regarding the protective soil layer on-site at all times for review by NMED inspectors, and by landfill management and engineering personnel.

10 LEACHATE COLLECTION PIPE AND SUMPS

10.1 General

The landfill design employs a leachate collection and removal system (LCRS) atop the liner system. The LCRS for future cells includes perforated high-density polyethylene (HDPE) pipe(s) which collect leachate seepage through the select aggregate encasement and the protective soil layer. Leachate collected in the HDPE pipes will be conveyed to the permanent or temporary leachate collection sumps.

The perforated HPDE pipe will be placed above aggregate bedding and then encased in select aggregate (see Section 8.0) wrapped with non-woven geotextile material (i.e., burrito-wrap, see Section 7.0), and then covered by protective soil layer material (see Section 9.0).

At the downgradient terminus end of each perforated leachate collection pipe, solid HDPE clean-out and sump riser pipes will be installed up the landfill cell sideslope or berm.

10.2 HDPE Pipe and Fittings Material Properties

HDPE is the recommended material for manufacturing of pipe and fittings used in the LCRS. The HDPE pipe and fittings will be manufactured in accordance with ASTM F714 and have the following physical characteristics:

1. Solid and perforated six (6)-inch diameter HDPE pipe with a maximum standard dimension ratio (SDR) of 13.5 shall be used for clean-out risers and leachate collection trench pipe, respectively.
2. Minimum 12-inch diameter solid and perforated HDPE pipe with a maximum SDR of 17 shall be used for sump risers and within the leachate collection sump, respectively. Larger diameter sideslope risers also may be used for improved access to the sumps by sideslope riser pumps.
3. Solid wall piping shall be used up the sideslopes or berm of the landfill cell, (i.e., leachate riser pipes). Solid wall piping will include sealed ends/caps at the surface, such as blind flanges or welded caps.
4. HDPE pipe shall meet the requirements of cell classification PE 445574C or higher in accordance with ASTM D3350, and have a material designation of PE4710.

5. Perforations must conform to the Construction Plans.
6. The pipe shall be as uniform as commercially practical in color, opacity, density, and other physical properties.
7. Apart from structural voids and hollows associated with some profile wall designs, the pipe fittings shall be homogeneous throughout and free from visible cracks, holes, foreign inclusions or other defects.

10.3 Manufacturer Quality Control (MQC) Documentation

Prior to installation of HDPE pipe, the Contractor shall provide the following information certified by the Manufacturer:

1. Manufacturer's certification verifying that the quality of the raw materials used to manufacture the pipe meets the Project and Manufacturer's specifications.
2. Each pipe length delivered to the project site shall have the following identification information:
   - Manufacturer's name and/or trademark
   - Product identification and material designation
   - Nominal pipe size and SDR number
   - Production code designating plant location, machine, and date of manufacture

10.4 Delivery, Storage and Handling

1. Off-loading and storage of the HDPE pipe shall be performed by the Contractor.
2. Storage of the pipe shall not exceed the staking height per Manufacturer's recommendations, and the pipe ends shall be sealed until installation.
3. The Contractor shall be responsible for moving the pipes and fittings from the storage area to the area of pipe installation.
4. Pipes shall be handled using cloth/rubber slings or straps, as necessary; chains, sharp/abrasive materials and dragging across rocky or jagged surfaces will be prohibited.
5. The Contractor shall be responsible for replacing material damaged during transport or installation at no cost to the Owner.

10.5 Leachate Collection System Installation

10.5.1 Leachate Collection Trench/Sump Preparation

Before placement of LCRS components into position in the trench or sump, the following procedures will be completed:

1. The subgrade at the floor and sides of the trench and sump shall be carefully prepared by the Contractor according to this CQA Plan and Construction Plans, related to subgrade preparation (see Section II.4-0). Following subgrade preparation and compaction, corners and/or bottom of the leachate collection trench and sump will be surveyed for inclusion on record (as-built) drawings for inclusion into the Engineering Certification Report.
2. The Lead CQA Technician will inspect and approve the subgrade prior to geosynthetics deployment.
3. The subgrade will be covered by the GCL, HDPE FML and non-woven geotextile in accordance with the applicable sections of this CQA Plan.

10.5.2 Leachate Collection Pipe Installation

1. Three (3) inches of select aggregate bedding shall be placed within the leachate collection trench in accordance with Section 8.0 of this CQA Plan prior to pipe installation.
2. Installation of the six (6)-inch diameter perforated HDPE pipe onto the bedding layer will be performed in such a manner as not to jeopardize the integrity or design alignment of the pipe.
3. Trenches shall be kept free from deleterious material, water or backfill. The Contractor shall provide means and devices to remove promptly and dispose of deleterious material or water entering the area of pipe installation.
4. Pipe installation practices shall conform with ASTM D2321 and specific Manufacturer's recommendations.
5. HDPE pipe joints shall be butt-fused in the field in accordance with the Manufacturer's recommendations and ASTM D2657. Heat-fused joints shall be installed by a factory-qualified joining technician, as designated by the pipe manufacturer.
6. As many sections of pipe as practical shall be fused together outside of the lined landfill cell to minimize damage to the liner system.
7. No connection shall be made where joint surfaces and joint materials have been soiled until such surfaces are thoroughly cleaned.
8. As the work progresses, the interior of pipes shall be kept clean. After each line of pipe has been laid, it shall be carefully inspected and earth, trash, and other foreign matter removed from the interior.

9. Perforations on adjoining sections of pipe shall remain in alignment after fusion welding.
10. One (1) set of pipe perforations shall be facing vertically up after pipe placement in the trench as shown on the Construction Plans.
11. Solid segments of leachate collection riser pipes shall be installed as shown on the Construction Plans.

10.5.3 Leachate Collection Trench and Sump Backfill

a. The Contractor shall backfill completed sections of the leachate collection pipe trench and sump with additional select aggregate (see Section 8.0) around and above the pipe and in the sump(s) to a minimum thickness as shown on the Construction Plans. Backfilling will be allowed only after placement and workmanship have been approved by the Lead CQA Technician.

b. Placement and seaming of a non-woven geotextile (see Section 7.0) over the completed leachate collection trench and sump(s) shall be completed as shown on the Construction Plans.

c. The protective soil layer shall be placed over completed leachate collection trench and sump in accordance with Section 9.0 of this CQA Plan.

10.6 Field Quality Assurance

1. After completion of any section of pipe; the grades, joints, and alignment shall be true to line and grades tolerances shown on the Construction Plans.
2. The pipe grade shall be surveyed on at least 100-ft. centers for compliance with the Construction Plans.
3. Contractor shall perform a video camera inspection of the installed perforated leachate collection pipe to confirm that the pipe is clear of any obstructions or debris. This video will be submitted to NMED with the Engineering Certification Report, or at a minimum shall be certified as being completed by personnel who witnessed the inspection, and that the pipe is clear of obstructions or debris.
4. Survey of bottom of sump and top of sump riser for validation of the point of compliance for confirming leachate head on the liner is being maintained below 12 inches.

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO
NMED FACILITY PERMIT NOS. SWM-030738 AND SWM-030738(SP)

APPLICATION FOR PERMIT MODIFICATION AND RENEWAL

VOLUME II – LANDFILL MANAGEMENT PLANS
SECTION 5 – CLOSURE/POST-CLOSURE PLAN

Prepared for

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September 2022

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9/26/22

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1 INTRODUCTION

The Camino Real Landfill (CRLF) is an existing solid waste facility operating in compliance with its current Permits, SWM-030738 and SWM-030738(SP), and the New Mexico Environment Department (NMED) Solid Waste Rules (the Rules; 20.9.2-20.9.10 NMAC). The owner and operator of the Camino Real Landfill is Camino Real Environmental Center, Inc. (CREC).

CREC is seeking a Permit Modification (20.9.3.22 NMAC) and Permit Renewal (20.9.3.25 NMAC) for the CRLF to modify the existing permitted landfill configuration and to renew the current permit.

1.1 Site Location

The CRLF is an existing solid waste disposal facility that encompasses approximately 480 acres of land located at 1000 Camino Real Blvd. on the New Mexico (NM)/Mexico (MX) border in Sunland Park, New Mexico. The approximate geographic coordinates for the center of the CRLF site are: Latitude 31° 47' 24.7272" N and Longitude 106° 35' 32.6508" W. A topographic map showing the CRLF site location is provided as Figure II.5.1.

The legal description of the site is summarized as follows:

> *A certain parcel of land situated within Section 12 and 13, Township 29 South, Range 3 East, New Mexico Principal Meridian, City of Sunland Park, Dona Ana County, New Mexico.*

CRLF is constructed, operated, monitored, and inspected in compliance with the Solid Waste Facility Permits granted by the NMED Solid Waste Bureau (SWB) pursuant to the Rules (20.9.2-20.9.10 NMAC).

1.2 Existing Permitted Landfill Unit Overview

As shown on Figure II.5.2, MSW disposal and development at CRLF is defined by four "area fill" Units, i.e., 1 through 4, which are further divided into cells. Unit 1 (50 acres) is designated as closed. Unit 2 (124.2 acres) is an active landfill area. Unit 3 (60.5 acres) is permitted for waste disposal, and recently (2019) the first cell in this unit was developed. Portions of Unit 3 have been excavated to provide soils for ongoing operations. Unit 4 (73.0 acres) is located east of the current operations and is permitted but undeveloped. Soils from the Unit 4 area have been excavated to support the ongoing operation and the area has also been used to stockpile construction soils. Cell phasing within each unit is determined by operational conditions. This Application for Permit Modification and renewal addresses subgrade configurations in Units 3 and 4 and final contour design over all units.

1.3 Purpose

This document presents the Closure/Post-closure (C/PC) Plan (the "Plan") for the CRLF. This Plan has been prepared in accordance with the requirements of 20.9.6 NMAC and the 10/28/2009 SWB guidelines for C/PC plans; and it is a "written closure and post-closure care plan" as defined by 20.9.6.8.B NMAC.

The Closure Plan (Section 2.0) describes the steps that will be necessary to close CRLF. The Post-closure Plan (Section 3.0) outlines those activities that will be necessary to care for and monitor the Landfill during the 30-year post-closure care period. Financial Assurance cost estimates for each are documented in Section 4.0. This Plan addresses recent NMED policies that require it to be a stand-alone document, thus many components are excessively redundant with other elements of this Application (i.e., Hydrogeology, Groundwater, Siting, Landfill Gas, and Leachate Management).

1.4 Waste Volumes

The CRLF began accepting waste in April 1987. Based on geometric analysis of the January 31, 2022 aerial topographic survey of the site, approximately 22.4 million cubic yards (yd^3) of waste was landfilled in Units 1, 2, and 3 from 1987 through January 2022. Table II.5-1 provides estimates of the remaining waste capacity and projected operating timeframe for the entire landfill at 1,746 tons per day (tpd).

Table II.5-1
Waste Capacity Analysis Summary

Description	Total Fill Area (acres)	Constructed Fill Area (acres)	Approximate In-Place Waste and Soil Fill (yd^3)[1]	Remaining Total Cover (yd^3)[2]	Remaining Gross Airspace (yd^3)	Remaining Gross Airspace (tons)[4]	Remaining Longevity Estimate (years)[5,6] @ 1,746 tons/day
Landfill							
Unit 1	50.0	50.0	22,408,401	11,656,610	46,626,440	35,529,347	56
Unit 2	124.2	124.2					
Unit 3	60.5	9.1					
Unit 4	73.0	0					
Landfill Total	**307.7**	**183.3**					

Landfill Total[6] (m^3)	35,650,576
Landfill Total[6] (Mg)	32,225,118

---

[1] Approximate in-place waste and soil reported for Units 1-4 as of the January 2022 aerial topography.

[2] Includes daily cover and intermediate cover. Total cover volumes are summarized in Table III.1-2.

[3] Gross airspace value includes waste, daily cover, and intermediate cover.

[4] Waste density assumed to be 1,524 lbs/cy.

[5] 1,746 tons/day = 501,102 tons/yr based on 287 operating days/year and most recent waste receipts.

[6] 1 yd^3 = 0.7646m^3
1 ton = 0.907 Mg.

1.5 Site Topography and Climate

Topography

The 480-acre CRLF site generally slopes to the northeast at an average of approximately 300 feet per mile. The highest elevation of the undeveloped portion of the site is approximately 4,146 ft above mean sea level (ft-msl) in the southeast corner of the property; and the lowest site elevation is approximately 3,888 ft-msl along the northeast side of the site (Figure II.5.2).

Climate

Sunland Park, New Mexico lies at the very northern reaches of the Chihuahuan Desert, an area possessing a temperate, continental, semi-arid climate. The maximum average temperature is 94.3 degrees (°) Fahrenheit (F), and occurs in July. The minimum average temperature is 24.6°F, and occurs in January. The annual average precipitation is approximately 10.86 inches, the majority of which occurs in the form of convection thunderstorms during the summer months (i.e., occurring in the form of "monsoon" storms). Potential evaporation in New Mexico is much greater than average annual precipitation. Annual average pan evaporation in the CRLF vicinity is approximately 107.06 inches (Station: Caballo Dam, 1938-2005).

1.6 Geology and Hydrogeology

The regional and site geology and hydrogeology of the CRLF are presented in detail in Volume V, Sections 1 and 2 (Hydrogeology and Groundwater) of the 2007 Application. The 2007 Application data provide published literature of the southeastern New Mexico area, as well as the results of the local and on-site geologic investigations. The hydrogeology data provided in the 2007 Application demonstrated that depth to groundwater in the vicinity of the CRLF ranges from approximately 156 to 385 feet below ground surface (fbgs). The cumulative geotechnical data compiled in Volume V, Section 1 continue to satisfy the regulatory requirements for documentation of hydrogeology and groundwater conditions set forth in 20.9.3.9.B(7) and 20.9.4.9.A(2) NMAC of the Rules.

1.7 Landfill Gas Monitoring

1.7.1 Current Landfill Gas Monitoring Program

The current landfill gas (LFG) monitoring program for CRLF was implemented in August 1990 and includes two types of quarterly monitoring for methane:

1. Measurements at permanent monitoring points along the perimeter
2. Internal measurements in and around the four facility structures

The existing LFG monitoring program for CRLF consists of quarterly methane monitoring at eight gas monitoring probes and within and outside the four on-site structures (Gate House, Landfill Office, Barn, and Maintenance Compound). Permitted, permitted to be replaced, and proposed LFG monitoring program consist of the same monitoring schedule and are identified on Figure II.5.3 and listed on Table II.5-2.

Table II.5-2
Landfill Gas Monitoring Points and Compliance Standards

Monitoring Point I.D.	Monitoring Frequency	Compliance Standard
Existing Perimeter Probes	Quarterly	<5% methane by volume in air (100% LEL)
M-1, M-2, M-3, M-4, M-5, M-6, M-8, M-9		
Permitted Perimeter Probes		
M-10, M-11, M-12, M-13, M-14		
Permitted Perimeter Probes (to be relocated)		
M-15, M-16, M-17, M-18, M-19		
Proposed Perimeter Probes		
M-15, M-16, M-17, M-18, M-19, M-20, M-21, M-22, M-23, M-24		
Structures	Quarterly	<1.25% methane by volume in air (25% LEL)
Gate House		
Landfill Office		
Maintenance Compound*		
Barn		

* The maintenance compound will be relocated outside the permitted waste fill area in the future.

The extensive LFG monitoring database for CRLF encompasses approximately 29 years of historical monitoring results from August 1990 through 2019. Since 1990, the number of perimeter monitoring points has ranged from five to eight.

The requirements of 20.9.6.9.A(3)(b)(iv)(f) NMAC specify that methane concentrations along the landfill property boundary and within structures be identified on a topographic map. Due to the magnitude of the LFG database and dynamic nature of the monitoring network (i.e., monitoring point locations and nomenclature), Attachment II.5-A provides a summary of historical methane monitoring results, as well as graphical depictions for the variable monitoring locations. The monitoring results provided in Attachment II.5-A indicate that methane has not been detected above the regulatory thresholds at any of the monitoring points shown in Table II.5-2.

1.7.2 Permitted Landfill Gas Monitoring Program

CRLF is currently permitted to install perimeter probes M-10 through M-19 as shown on Figure II.5.3. The installation of the permitted LFG probes will occur as the construction of the landfill continues. The permitted LFG monitoring include quarterly monitoring for methane as discussed below and are listed in Table II.6-1.

1. Perimeter probe measurements at points positioned at maximum 1,000 foot intervals to facilitate through the development of Unit 3. The points are positioned between the fill areas and the site perimeter as close as practical to the landfill property and cell boundaries to confirm compliance with the maximum methane concentration limit established by Rule (i.e., 100% of LEL or 5% methane by volume in all).

Due to the new landfill configuration, permitted probes M-15, M-16, M-17, M-18, and M-19 will be relocated as shown on Figure II.5.3.

1.7.3 Proposed Landfill Gas Monitoring Program

The CRLF is seeking NMED approval to amend the current LFG monitoring program by adding ten new perimeter probes as shown on Figure II.5.3. The proposed LFG monitoring program for CRLF will be implemented following NMED approval of this Application, and includes two types of quarterly monitoring for methane, as discussed below and listed in Table II.5-3.

1. Perimeter probe measurements at points positioned at maximum 1,000 foot intervals to facilitate quarterly LFG monitoring through the development of Cells 3.1B, 3.2, 3.3, and Unit 4. The points are positioned between the fill areas and the site perimeter as close as practical to the landfill property and cell boundaries to confirm compliance with the maximum methane concentration limit established by Rule (i.e., 100% of the lower explosive limit (LEL) or 5% methane by volume in air).
2. Any future building that is incorporated into the landfill.

Based on surrounding land use and off-site structures, the inter-probe spacing is less than 1,000 feet except for in areas where there are nearby off-site structures, in which case the spacing will be reduced to approximately 500 feet.

1.8 Groundwater Monitoring

The original groundwater monitoring network at CRLF consisted of six monitoring wells (MW-A, MW-B, MW-D, MW-E, MW-F, and MW-G) (Figure II.5.3) positioned appropriate to detect a potential release from the landfill, and the wells are screened in the uppermost water-bearing unit. Currently, the groundwater monitoring network consists of two upgradient wells (MW-D2 and MW-H), four downgradient wells (MW-A, MW-B, MW-F, and MW-6), and one side gradient well (MW-E). These seven wells were installed between 1988 and 1995 to monitor groundwater quality for areas containing waste in Units 1 and 2. Upgradient Well D was decommissioned due to waste filling progression in Unit 3 and was replaced by MW-D2. In February 2006, two new groundwater monitoring wells (MW-D2 and MW-H) were installed, consistent with the NMED-approved Site Assessment Boring Plan (Volume V, Section 1), to augment the site-specific hydrogeologic database in preparation for planned transition into Unit 3. Well MW-C was decommissioned on April 29, 2008, consistent with the NMED Solid Waste Bureau (SWB) approval. Well MW-I is planned as a third additional well to monitor the Unit 3 area and will be installed when filling progresses to Unit 3.2. A fourth future replacement well (Well A2) is planned for installation as waste filling sequences progress to the north into Cells 3.2 and 3.3. The location and specifications for Well A2 will be determined in consultation with NMED prior to development of those cells. Construction of waste cells in Unit 4 will require that MW-G be decommissioned and replaced by MW-G2. Final location for replacement well MW-G2 will be determined in consultation with NMED SWB.

The Groundwater Monitoring Plan (Volume V, Section 2) includes a summary of the results of evaluations and statistical analyses performed to update the site's 16-year groundwater quality database. In January 2006, CRLF submitted a Groundwater Monitoring Program Update (Ref. No. 6) to NMED for Solid Waste Bureau review and approval. The update demonstrates that groundwater quality at the site has not been impacted by landfill operations; establishes assessment monitoring levels (AMLs) for the site's existing wells; and specifies the sampling and testing standards that will be implemented during site operations and during the post-closure care period. The 2019 Annual Groundwater Monitoring Report is provided in Attachment II.5-B.

2 CLOSURE PLAN

This Closure Plan includes the following measures to meet the requirements set forth in the 2007 New Mexico Solid Waste Rules (20.9.6 NMAC); specifically 20.9.6.8 NMAC and 20.9.6.9 NMAC. CRLF may perform incremental closure of cells as they reach final grade in order to keep open areas to a minimum.

2.1 Closure Notification and Schedule

Consistent with the requirements of 20.9.6.8.D NMAC, CRLF will notify NMED in advance of its intent to close the site for waste acceptance. CRLF will notify the Secretary in writing that a notice of intent to close the landfill has been placed in the Facility Operating Record at least 90 days before closure occurs; and will also notify the Secretary in writing within 14 days after becoming a locked facility.

These closure activities will commence no later than 30 days after the final known receipt of waste, and will be completed in accordance with the Closure Plan within 180 days of the final waste acceptance date, unless otherwise approved. As allowed by 20.9.6.9.A(5) NMAC, extensions of the closure period may be granted by the Secretary if the CRLF owner or operator demonstrates that closure will take longer than 180 days; and has taken and will continue to take all steps necessary to prevent potential threats to public health, welfare, and the environment.

On-site structures will be dismantled and disposed of, or relocated for re-use prior to final cover construction. Signs will be posted at the site entrance (per 20.9.6.9.A.(3)(g) NMAC) and along the perimeter of the landfill boundary at a frequency of at least two signs per perimeter boundary. The signs will be posted in such a manner that a person can easily discern the legend, and will conform to the requirements of 20" x 14" upright format signs. Spacing between any two lines shall be at least equal to the height of the upper two lines. The signs will read as follows in English and Spanish:

CLOSED LANDFILL – NO TRESPASSING
NO DUMPING PERMITTED – VIOLATORS WILL BE PROSECUTED
DOÑA ANA COUNTY SOLID WASTE AUTHORITY
(575) 589-9440

2.2 Final Cover Designs and Installation

The proposed Completion Plan for the CRLF disposal areas is provided in the Permit Plans, a copy of which is provided as Attachment II.5-C. To the extent possible, CRLF currently plans to utilize locally available resources for incremental or final closure construction of the site in an effort to promote sustainability of resources and minimize environmental impacts of importing soils or geosynthetics manufactured out-of-state. Final cover cross-sections for landfill, are provided as Figure II.5.4 (Final Cover Schematics); showing that these disposal areas have been designed to meet or exceed the requirements of 20.9.6.9, 20.9.6.10, and 20.9.8.12 NMAC. Consistent with the requirements of 20.9.6.9.A(1)(f) NMAC, both the stormwater run-on and run-off control systems that service CRLF have been designed to manage flow in excess of that generated by the 25-year, 24-hour design storm.

The site will utilize two final cover system designs that are consistent with the requirements of 20.9.6.9.A(2) NMAC; and that take advantage of the containment characteristic of naturally available on-site and locally sourced soils. The final cover systems are shown graphically on Figure II.5.4 and summarized below.

2.2.1 Closure Turf™ Geosynthetic System

- 0.3-inch-thick Top Turf Sand (Erosion) Layer (uncompacted, locally sourced sand)
- 0.2-inch-thick Turf Anchoring Sand Layer (uncompacted, locally sourced or on-site soils)
- 0.5-inch-thick Cover Layer (Closure Turf™)
- 12-inch-thick Intermediate Cover (uncompacted on-site soils)

2.2.2 Evapotranspiration (ET) Alternate Final Cover (AFC) System

- 6-inch-thick Vegetative (Erosion) Layer (uncompacted on-site soils)
- 30-inch-thick Barrier (Infiltration) Layer (compacted on-site soils)

Each layer of the ET AFC system is comprised of select on-site soils (i.e., silty sands) with an average hydraulic conductivity (KSAT) of $7.2x10^{-4}$ cm/sec.

The Closure Turf ™ Geosynthetic System is comprised of sand and geo engineered material that provides an average KSAT value of 1.0×10^{-2} cm/sec. This closure material is further discussed in Volume III Section 10.

Components of the above final cover systems are described in greater detail below; and the successful performance of the designs for the landfill alternates are demonstrated in Volume III Section 10 (HELP Model) to be in compliance with the 1998 NMED Guidance Document. Attachment II.5-G provides a summary of the

HELP model outputs for each final cover design system, demonstrating that the proposed final cover designs achieve equivalent reduction in infiltration when compared to the prescriptive standards identified in 20.9.6.9.A(1)(b) NMAC.

Final Contours

The final contours for CRLF shown in Attachment II.5-C have been designed to enhance slope stability, to promote drainage, to allow vegetation to be established, and to blend in with the natural terrain. As allowed by 20.9.6.9.A(2)(d) and 20.9.6.10.A(2) NMAC, when completed, the design final slopes will range from 5% (minimum) to 25% (maximum). The demonstrations that these design grades will minimize erosion (below acceptable rates) and provide reduction in infiltration are provided in detail in Volume III Section 6 (Erosion Calculations) and Volume III Section 10 (HELP Model), respectively.

The final surface of the completed landforms will be "crowned" so that positive drainage off the cap is promoted. The contours will provide sufficient slopes to minimize stormwater ponding, yet not be so steep as to allow excessive erosion of cover material. Calculations demonstrating the effectiveness of specified erosion control measures are provided in Volume III Section 6 (Erosion Calculations). Slope stability and drainage calculations are presented in Volumes III Section 3 and III Section 8, respectively.

2.2.3 Final Cover CQA Plan

Final cover construction quality assurance (CQA) will be performed in accordance with the Final Cover CQA Plan provided as Attachment II.5-E, which addresses the requirements of 20.9.4.14 NMAC. Final cover construction will be accomplished using conventional earthmoving equipment (e.g., vibratory or sheepsfoot rollers, scrapers, dump trucks, bulldozers, etc.).

2.3 Removal of On-Site Facilities

The need to maintain or dismantle on-site structures and GCCS components during the post-closure care period will be determined based on conditions at the time of closure. Structures that can continue to be used or re-purposed will be sustained or possibly re-located. Structures deemed unnecessary for post-closure care will be dismantled and disposed of during the post-closure care period. Any on-site structures will continue to be monitored for LFG in accordance with the Landfill Gas Management Plan (Volume II Section 6). GCCS components may be decommissioned consistent with the system performance and monitoring requirements set forth in NSPS regulations.

2.4 Materials Acceptance

Waste will not be accepted at CRLF after the closure period. Materials brought on-site for closure activities associated with the installation of the final cover system may include soil, seed, and possibly mulches, compost, and soil amendments. As specified in Section 3.0, final cover grading and maintenance may be implemented to correct localized erosion or differential settlement.

Consistent with the requirements of the NSPS, collection and control of potential LFG emissions is required in areas of the landfill within 60 days of the date when waste deposits reach 5 years of age. Therefore, it is anticipated that vertical LFG extraction wells and associated transmission piping would need to be extended to the most recently filled areas after the final receipt of waste. Final cover grading and maintenance may be required to restore select areas disturbed by the activities associated with the installation of GCCS components. Any waste excavated following closure will be transported off-site to a permitted solid waste facility.

2.5 Site Security

In order to prevent unauthorized access, the CRLF is fenced on all perimeters with 4-strand barbed wire and a locking gate at the facility entrance. Locking gates are secured at all times the facility is not operating. The Permit Plans and Figure II.5.2 show the locations of existing fencing, gates, and other access control measures.

Entry to the site by large animals and unauthorized persons will be prohibited during the closure period and throughout the post-closure period. To maintain site security, the existing fences and gates will be inspected on a routine basis and maintained as necessary, consistent with current practice. Signs will be posted on the perimeter warning against trespass, illegal dumping, etc. (see Section 2.1).

2.6 Recordkeeping

Records will be maintained in the Facility Operating Record to document closure activities. These records will include confirmation of adequate final cover thickness, a description of final cover system construction procedures, and as-built documentation. Subsequent to landfill closure activities, it is anticipated that the CRLF will utilize a licensed Professional Surveyor to perform a Plat of Survey for the site. Upon completion of closure activities, an as-built Engineering Certification Report will be prepared and submitted to NMED by a licensed N.M. Professional Engineer specializing in solid waste facility design and closure (20.9.6.8.L(2) NMAC). Records may be maintained at a separate off-site location to ensure their security since the site will not be staffed once typical landfill operations have ceased.

As required by 20.9.6.9.A(6) NMAC, a detailed description of the locations of areas of waste disposal at the facility and plat of the closed landfill, signed by registered surveyor, will be filed with the appropriate land-recording authorities (i.e., Doña Ana County Assessor) and other parties as necessary. A notation on the deed to the landfill property will notify any potential purchaser that "the land has been used as a landfill and its use is restricted as described in the post-closure care plan". Records will be maintained at the offices of the Camino Real Environmental Center, Inc. and/or other designated location identified to NMED.

2.7 Closure Certification

A closure certification team will be identified to implement the closure process and oversee critical aspects of this Closure Plan. The team will be comprised of a Professional Engineer registered in the State of New Mexico, who has demonstrated experience in landfill closure construction, and qualified field support staff. The critical technical elements to be documented by the team include, but are not limited to, the following:

- Characterization, particularly gradation and permeability, of the barrier and vegetative layer materials
- Moisture content and degree of compaction of the ET cap layers
- Grading of the waste and cover
- Thickness of the final cover layers
- Structural integrity of existing GCCS components (e.g., well casings, well heads and well head monitoring ports, transmission piping, in-line gate valves, condensate management system, blower/flare assembly, etc.)
- Engineering Certification of completed closure

3 POST-CLOSURE PLAN

The post-closure care period will begin following Engineering Certification and NMED approval of the completed closure activities for the CRLF. Consistent with the requirements of 20.9.6.9.A NMAC, CRLF will begin closure activities within 30 days after the last day that wastes are received; and closure activities will be completed within 180 days of that date. In addition, CRLF will notify the Secretary in writing within 14 days after becoming a locked facility. This Post-closure Plan is based upon the regulatory requirement to maintain and monitor the site for a 30-year period following closure and includes the required information as specified in 20.9.6.9.A(3)(h) NMAC.

Based upon the results of the post-closure monitoring and inspection program, CRLF may request a reduced post-closure care period, or decreased monitoring/inspection frequency, subject to NMED approval. Operations to be implemented as part of routine post-closure care activities include:

- Inspection and maintenance of the final cover system
- Inspection, maintenance, and operation of the leachate collection system
- Inspection, maintenance, and continued monitoring of LFG, GCCS, and groundwater monitoring systems
- Inspection and maintenance of stormwater control infrastructure
- Inspection and maintenance of site security and infrastructure features (e.g., perimeter fencing, gates, signage, etc.)

On an annual basis, CRLF will submit a report of the previous year's groundwater, leachate, and LFG monitoring data, and a summary of site inspection/maintenance activities, to NMED. Each report will be submitted within 45 days from the end of the calendar year, or other schedule established by NMED. Monitoring data for the GCCS will be submitted to the Air Quality Bureau (AQB) in accordance with the NSPS. Details regarding installation, inspection, and monitoring for the various environmental control systems are listed below:

- Leachate monitoring and collection are described in the Leachate Management Plan (Volume II Section 7)
- Groundwater monitoring is described in detail in the Groundwater Monitoring Plan (Volume V Section 2).

- GCCS perimeter and structure LFG monitoring systems are described in the Landfill Gas Management Plan (Volume II Section 6)
- Provisions for stormwater management are shown on the Permit Plans, Volume II Section 1; and calculations documenting the system's efficacy are provided as Volume III Section 8.

The perimeter and structure monitoring LFG network will be tested on a quarterly basis throughout the post-closure period, or until four consecutive events (typically 2 years) show no detections of methane, as described in the Landfill Gas Management Plan (Volume II, Section 6). A reduced perimeter LFG monitoring program would be the subject of future submittals to and approvals by NMED. Consistent with the requirements of the NSPS, the GCCS will be monitored until such time as it is decommissioned. Complete removal of the GCCS will be performed when all three of the following NSPS closure conditions for gas collection and control systems are met:

1. The landfill is no longer accepting solid waste and can be permanently closed
2. The GCCS has been in operation for the minimum of 15 years
3. Calculated non-methane organic compound (NMOC) emissions are less than 50 megagrams/year on three consecutive test dates. The test dates will be no less than 90 days apart, and no greater than 180 days apart.

Currently, monitoring of the GCCS includes:

1. Monthly monitoring at system well heads for temperature, pressure and oxygen
2. Quarterly surface emissions monitoring (SEM) for potential methane emissions
3. Continuous monitoring of the operational performance of the blower/flare assembly

As provided for by the NSPS, CRLF may submit to NMED Air Quality Bureau a request for a reduced monitoring schedule (e.g., quarterly or annual wellhead monitoring and annual SEM) for the GCCS. The request will be submitted to AQB for approval prior to implementation, and the Solid Waste Bureau will be copied for comment.

3.1 Site Inspection and Maintenance Program

3.1.1 Site Inspection Program

During the post-closure care period, CRLF will be inspected at least semi-annually or as otherwise approved by NMED. The site will also be inspected after significant storm events. A careful examination of the site using forms similar to the template provided as Figure II.5.5 (Site Inspection Checklist) and Figure II.5.6 (GCCS Inspection Checklist) will be used to record site observations, and photo-documentation will supplement the record as necessary. The Inspection Checklists will be maintained as part of the Facility Operating Record, and will elaborate on the following items:

Final Cover

- Evidence of leachate
- Landfill gas odor
- Exposed waste
- Cracks greater than 1 ft in width and 6 inches in depth
- Surface water ponding
- Eroded or scoured soils
- Dead or stressed vegetation
- Vegetation growing taproots in areas not designated to accommodate them
- Vectors, such as flies and rodents
- Recordkeeping and reporting

Leachate Management System

- Volume of leachate in sumps
- Volume of leachate in the leachate manhole
- Need for leachate extraction
- Conditions of pumps, pipes, caps, casing, etc.
- Recordkeeping and reporting

If a leachate riser pipe identification placard is compromised during closure activities or localized site conditions, a new placard will be affixed to the riser pipe providing the following information:

- Sump I.D. No.

Figure II.5.5
Site Inspection Checklist (Typical)

Page _____ of _____

Date: ____________

Inspectors: ____________________ **Weather:** Temperature __________deg. F Wind Speed ___________ mph

____________________ Skies ____________________ Wind Direction ___________

Precipitation (last 24 hours) __________ inches

NOTES:

"X" indicates that a Deficiency has been noted. "P" indicates that a Photograph has been taken. "S" indicates that a Sample has been collected. Complete descriptions of Deficiencies, Photographs, and Samples are provided on attached pages. Items are referenced by Location.

Final Cover

Location	Item									Sample
	LFG Odor	Leachate Seep	Exposed Waste	Cracks	Ponding	Erosion	Vegetation Stress	Vegetation Taproots	Vectors	

Leachate Collection System

Location	Action		Sample
	Pumping Required	Repair Needed	

Leachate Manhole

Location	Action		Sample
	Pumping Required	Repair Needed	

Surface Water Management System

Location	Deficiency			Sample
	Erosion/ Siltation	Structural Defect	Flow Obstruction	

Landfill Gas Monitoring System

Point I.D.	Deficiency		Methane Measurement (%CH_4)	Sample
	Probe Failure	Structural Defect		

Use additional sheets as necessary

NOTES: ____

____

Figure II.5.6
GCCS Site Inspection Checklist (Typical)

Page ____ of ____

Date: ____________

Inspectors: ____________________ **Weather:** Temperature ________deg. F Wind Speed __________ mph

____________________ Skies ____________________ Wind Direction __________

Precipitation (last 24 hours) ________ inches

NOTES:

"X" indicates that a Deficiency has been noted. "P" indicates that a Photograph has been taken. "Y/N" indicates that Action is required. Complete descriptions of Deficiencies, Photographs, and Actions taken are provided on attached pages. Items are referenced by Location.

Blower/Flare Assembly

Location	Item									Action Required Y/N
	LFG Odor	Flow Obstruction	Piping Integrity	Control Panel	Nitrogen Tank	Propane Tank	Temp Gauge	Vacuum Gauge	Blower Function	

Transmission Piping

Location	Item			Action Required Y/N
	LFG Odor	Flow Obstruction	Piping Integrity	

Vertical Extraction Wells

Location	Item			Action Required Y/N
	LFG Odor	Flow Obstruction	Well Head/ Well Casing	

In-Line Gate Valves

Location	Item			Action Required Y/N
	LFG Odor	Flow Obstruction	Valve Integrity	

Condensate Management System

Location	Item			Action Required Y/N
	Wet Well	Condensate Sump	Knockout Pot	

Use additional sheets as necessary

NOTES: ____

____

- Riser Length (from top of pipe to bottom of sump)
- Leachate Compliance Depth

Landfill Gas Monitoring Network

- Structural integrity of perimeter probes and on-site structures
- Gas readings from perimeter probes and on-site structures
- Structural integrity of GCCS well casings, well heads and well head monitoring ports, transmission piping, in-line gate valves, condensate management system, and blower/flare assembly
- Operational performance of the blower/flare assembly
- Monitoring of well heads and the landfill surface (i.e., SEM)
- Recordkeeping and reporting

Groundwater Monitoring Network

- Structural integrity of groundwater monitoring wells
- Recordkeeping and reporting

Surface Water Management System

- Drainageway siltation or erosion, or other structural defects
- Flow obstructions
- Continued performance capability/maintenance required

Site Security

- Structural integrity of fencing, gate(s), signage
- Continued performance capability/maintenance required

Deficiencies identified during site inspections will be corrected prior to the next semi-annual inspection, and reported to NMED in the Annual Reports submitted to NMED within 45 days after the end of each calendar year (20.9.6.9.B NMAC); or as otherwise established by NMED. Deficiencies identified for the GCCS will be corrected consistent with NSPS requirements. Upon completion of the corrective action, appropriate documentation will be prepared and placed in the Facility Operating Record.

3.1.2 Maintenance Program

It is expected that routine site maintenance will be necessary to maintain the facility during the early post-closure period, as described below:

Final Cover

The final cover may require periodic maintenance such as soil enhancement/repair, and attention to vegetative cover; as reflected in the C/PC Cost Estimates (Attachment II.5-F):

- Soil Repair – Cover repairs may be necessary due to ponding, surface water erosion or wind erosion, and phased installation of GCCS components. Ponding can result from differential settlement of the landfill contents, and erosion can be caused by runoff in areas without established vegetation or by repeated wind gusts. Areas where impacts are evident will be promptly repaired to maintain the integrity of the cover. Recently filled and covered areas will require the most maintenance since differential settlement decreases rapidly with time, and erosion is minimized as vegetation is established. The phased installation of GCCS components may result in disturbance of the final cover in areas where waste has reached 5 years of age. In the event that wastes are encountered during GCCS component installation these materials will be transported to a regulated solid waste disposal facility; and the final cover will be restored consistent with the requirements listed on Attachment II.5-E. Based on post-closure activities at similar landfills, it is estimated that a maximum of one acre of cover will require repair during each year of post-closure care. Repair of the final cover system due to the installation of GCCS components will likely increase the maximum area of repair to 3 acres. Soil for repairs will be obtained from on-site sources.
- Vegetation Re-establishment – Areas of cover requiring soil repair as described above may also require re-establishment of vegetative cover. However, since soil repair activities may extend beyond the perimeter of the repaired area, it is estimated that a maximum of two acres of vegetation will need to be re-established for every acre of cover repaired (i.e., 6 acres of vegetation/yr).
- Vegetation Care – Routine care that will be required for the native grass vegetation chosen for the site will be to control the growth of undesirable plant species (e.g., taproots) and enhancement of appropriate vegetation conditions.

For areas of final cover which have not been adequately stabilized with vegetation, CRLF proposes the use of alternative methods for cover stabilization. Materials and methods for alternative cover stabilization are discussed below.

Intermediate Cover Stabilization

The CRLF plans to implement the use of alternative methods of cover stabilization for areas of intermediate cover which have been inactive for greater than two (2) years and have not been adequately stabilized with vegetation. The use of alternative stabilization methods for intermediate cover is allowed in accordance with 20.9.5.9.O(3) NMAC.

Final Cover Stabilization

In addition, for areas that will receive final cover, the CRLF plans to implement these methods for the vegetative (erosion) layer where vegetation has not been adequately established. Final cover is required to include a layer for minimizing erosion which is a minimum of six (6) inches thick and capable of sustaining native plant growth (20.9.6.9.A(1)(c) NMAC). An alternative erosion layer is allowed in accordance with 20.9.6.9.A(2)(b) NMAC, but it must provide equivalent protection from both wind and water erosion.

Alternative Stabilization Materials and Methods

For those areas that have not been successfully stabilized with vegetation as required for intermediate or final cover, CRLF will implement the use of one or more alternative stabilization options. CRLF may submit an evaluation plan to the SWB to create test plot areas to evaluate alternative stabilization materials and methods such as:

- Compost
- Ongoing evaluation of organics
- Wood chips
- Shredded green waste
- Mixtures (e.g., compost, wood chips, soil)
- Gravel/rock (to simulate desert pavement)
- Inert fill
- Bermed materials
- Vertical tracking of slopes
- Manure from local horse track

Materials such as compost, wood chips, shredded green waste, mixtures of organic materials, gravel, etc. may be applied at depths determined to be effective based on pilot study evaluations and experience. Berms comprised of organic or crushed inert materials may be constructed perpendicular to the intermediate or final cover slopes to aid in the mitigation of wind and water erosion. In addition, vertical tracking of slopes with a dozer to allow the dozer's track segment grouser pattern to imprint the soil and slow the progress of water and wind erosion may also be implemented.

Leachate Management System

Closure of the CRLF will be conducted in compliance with 20.9.6.9.A NMAC. Based on post-closure activities at landfill sites at comparable arid locations, it is estimated that the CRLF leachate management systems will require minor maintenance on an annual basis. For example, it is expected that the leachate piping casing and locking caps, or pumps may require repair. Leachate will be removed from each sump on a routine basis such that the head on the liner is maintained at a depth of 12 inches in accordance with the Leachate Management Plan (Volume II, Section 7). The frequency of leachate removal from the sumps will be based on historic trends. Following closure, leachate will be transported for disposal to an approved publicly owned treatment works (POTW), or NMED-permitted liquids management facility. CRLF may request cessation of leachate monitoring and removal with NMED approval if leachate is not being produced.

Landfill Gas Monitoring Network

Based on existing maintenance activities currently conducted at the site, it is anticipated that some components of the GCCS will require minor repair and replacement. For example, due to continual operation of the blower/flare assembly, periodic shutdown of the blowers will be required to replace bearings, seals, etc., and to inspect/drain components of the condensate management system.

Groundwater Monitoring Network

It is anticipated that some components of the groundwater monitoring system shown on Figure II.5.3 may require minor repair and replacement. It is possible that the PVC components of the groundwater monitoring wells may be subject to UV degradation, or replacement of the steel protective casing/caps and concrete pads may be required. Coincident with groundwater monitoring during the 30-year post-closure care period, these system components will be inspected at least annually for structural/operational integrity and replaced/repaired as needed. The results of the inspections and any repairs will be noted in the Groundwater Monitoring Reports submitted to NMED annually.

During the 30-year post-closure period, groundwater monitoring wells may also be subject to disruption, vegetative overgrowth, and vector harborage. During routine post-closure groundwater monitoring, each on-site well will be inspected at least annually for evidence of these types of impacts, and repairs will be initiated immediately, if needed. The results of the inspections and any repairs will also be noted in the Groundwater Monitoring Reports submitted to NMED annually.

Surface Water Management System

It is estimated that some components of the surface water management systems may require minor general maintenance on an annual basis. For example, it is expected that a small quantity of drainageway armoring will require replacement each year; and perimeter drainageways may need to be cleared of obstructions or siltation to allow stormwater to flow unimpeded to stormwater detention systems.

Site Security

During the 30-year post-closure care period, it is anticipated that the structural integrity of some elements of the site's security may require maintenance. These elements include site fencing, signage, and gates (including locks); which may require repair/replacement on a semi-annual basis.

Notification

Within 60 days following the end of the 30-year post-closure period, CRLF will submit a Post-Closure Report to NMED. The Report will consist of a summary of post-closure activities, and a certification by a Professional Engineer registered in the state of New Mexico with specific applicable landfill experience that the post-closure requirements and any applicable corrective action requirements have been completed; and that the conditions of this Post-closure Plan have been satisfied (20.9.6.8.N(2) NMAC).

The post-closure care period for CRLF will terminate upon written verification by the Secretary that the requirements of this post-closure care plan have been satisfied. If the Secretary does not issue written verification, the Secretary will notify CRLF in writing that the activities required under 20.9.6 and 20.9.9 NMAC have not been conducted satisfactorily, and will specify the reasons for such a determination. The Secretary may require CRLF to amend the Post-closure Care Plan if the Secretary believes that the present or future implementation of the Plan may cause a threat to human health or the environment. CRLF may request that the Secretary approve a reduction in the 30-year post-closure care period requirements based on historical results and appropriate documentation.

3.2 Groundwater Monitoring Plan

The collection and analysis of groundwater samples at CRLF will continue through the post-closure care period on a frequency and duration approved by NMED. Semi-annual groundwater sampling for the full Table I parameter list will continue at the site for the next 2 years. At that time, CRLF may consider making specific demonstrations to refine and reduce the sampling frequency (i.e., to an annual schedule) and parameter list for the operational life and post-closure care period for the site. A similar evaluation will be performed for proposed wells after installation and background monitoring are completed. Any future refinements would be based on an evaluation of the groundwater quality results and site-specific hydrogeology, and requests for reductions will be submitted to NMED for approval prior to implementation.

It is anticipated that groundwater monitoring during the post-closure care period will be conducted on an annual basis, and will likely consist of the collection and analysis of groundwater samples for a reduced Table I parameter list. Consistent with 20.9.9.20 NMAC, full Table I sampling will be conducted every fifth year during operations and during the post-closure care period. All sampling and analytical techniques comply with the New Mexico Solid Waste Management Regulations (20.9.6 and 20.9.9 NMAC). Water quality samples will be submitted to a certified laboratory that complies with USEPA quality assurance/quality control (QA/QC) analytical procedures.

3.3 Landfill Gas Monitoring Plan

Quarterly LFG monitoring along the facility perimeter will continue after closure of the site. In addition, quarterly LFG monitoring will be performed in any structures that have not been dismantled. The need for monitoring and the frequency of monitoring will be evaluated during the post-closure care period, and will continue until:

1. The concentration of methane gas is <25% LEL for 4 consecutive measurements (i.e., one year) at each permanent perimeter monitoring point.
2. Methane is not detected in facility structures for 4 consecutive measurements (i.e., one year).

Any proposed changes to the LFG monitoring program will be coordinated with NMED Solid Waste Bureau for approval prior to implementation. The Landfill Gas Management Plan (Volume II Section 6) will be in effect throughout the operational period of the site, and during the post-closure period. If monitoring determines that the concentration of methane exceeds the lower explosive limit (LEL) at the property line, or 25% of the LEL in any remaining facility structures, a corrective action plan will be developed and implemented with NMED concurrence as described in the Landfill Gas Management Plan (Volume II Section 6). Corrective action associated with the GCCS will be implemented consistent with the requirements of NSPS and may include, but not be limited to, the installation of vertical extraction wells, horizontal collectors, etc.

Since LFG seeks the path of least resistance, gas migration through the site's composite liner into the surrounding subsurface environment is highly unlikely. The

LFG monitoring program will be used to confirm this assumption on an ongoing basis. Therefore, concerns associated with LFG management are primarily limited to two specific conditions:

1. Generation and emissions of LFG from a fill area before it reaches final grade.
2. Development of LFG positive pressures under the landfill cap following fill area completion.

Following intensive data evaluation, the first issue may likely be resolved by installing temporary vents through intermediate or daily cover into the underlying refuse. These would be either temporary or permanent passive installations drilled into the refuse mass, most commonly along the fill area perimeter. Ongoing monitoring will be used to determine the need for vents, vent locations, and provisions for expanding the LFG monitoring network, or converting it into an "active" control system required by the New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills (i.e., 40 CFR 60 XXX, as applicable).

3.4 Leachate Management Plan

It is anticipated that leachate monitoring during post-closure will be conducted at least semiannually consistent with the Leachate Management Plan (Volume II, Section 7). Following closure, the most effective treatment and disposal technology for leachate (if produced) will be determined and implemented with the approval of the Secretary. This may include supplemental disposal technologies such as hauling leachate off-site for treatment at an NMED-permitted disposal facility or a publicly owned treatment works (POTW).

Leachate management information will continue to be documented and maintained in the Facility Operating Record; and will also be provided to NMED as part of Annual Reporting. If it is determined that post-closure leachate management will include disposal at a POTW or other NMED-permitted disposal facility, several steps will be taken prior to initiating post-closure leachate disposal activities:

1. CRLF will identify a specific POTW or other permitted disposal facility, and obtain approval from the facility for leachate disposal.
2. CRLF will collect and submit leachate samples for laboratory analysis to demonstrate compliance with the disposal facility's leachate acceptance criteria for analytical parameters and concentrations.
3. A copy of the POTW approval letter and analytical test results will be provided to NMED, and will also be maintained in the Facility Operating Record.

4. Once approval is obtained from the identified facility, CRLF will update the Leachate Management Plan in effect at that time to include the disposal facility's approval letter, as well as the analytical parameters, concentrations, and transport methods specified by the facility.
5. The updated Plan will be submitted to NMED Solid Waste Bureau for approval as an administrative change to the Leachate Management Plan in effect at that time prior to implementation of alternative leachate disposal activities.
6. Following closure, CRLF may seek an exemption from leachate monitoring during the post-closure care period, with NMED approval.

3.5 Recordkeeping

Post-closure care data to be recorded include inspection dates, items inspected, and inspection results (Figures II.5.5 and II.5.6). If deficiencies are identified, the corrective measures and the follow-up inspection results will also be recorded. Records of the post-closure care and maintenance actions will be available for review by NMED upon request. Monitoring data and corrective measures performed will be maintained in the Facility Operating Record at the offices of the Camino Real Environmental Center, Inc., or other designated location.

3.6 Reporting

Annual reports of closure and post-closure activities including, but not limited to, monitoring, field investigation data, and maintenance procedures will be submitted to NMED within 45 days from the end of each calendar year or other approved schedule, in a format meeting the SWB requirements. Similarly, all closure activities associated with the decommissioning of the GCCS will be submitted to EPA and NMED's Air Quality Bureau consistent with NSPS requirements.

3.7 Final Use

Although no specific land use has been considered for the site after the post-closure period, the final landform could potentially be dedicated to passive and/or recreational uses such as:

- Livestock grazing
- Open-space park with shallow-rooted vegetation
- Community parks (e.g., playgrounds, radio controlled airplane park, etc.)
- Golf course

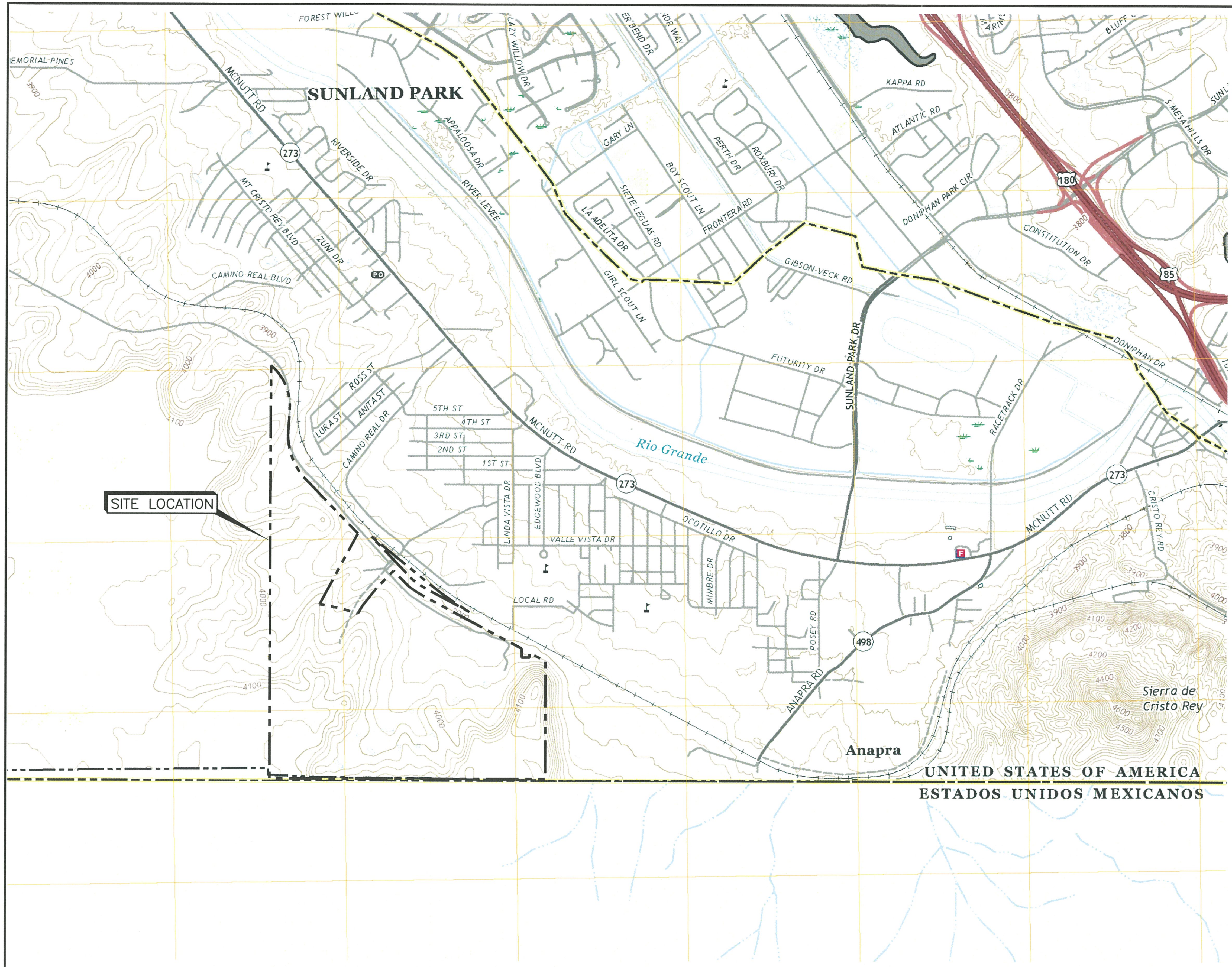
- Sports complexes (i.e., baseball, soccer, etc.)
- Communications tower(s)

Unfilled portions of the site could be utilized for landfill closure support; or to provide structures for the passive/recreational uses (e.g., security buildings, club houses, concessions, ticket offices, parking lots, etc.). On areas of the site known to contain underlying waste, no significant structures (i.e., foundations) or internal fencing will be allowed.

4 CLOSURE/POST-CLOSURE COST ESTIMATE

The cost estimate tables provided in Attachment II.5-F have been developed to address each of the required closure and post-closure activities for the Landfill stipulated in Sections 2.0–3.0 of this Plan in compliance with the Financial Assurance requirements of 20.9.10 NMAC. The closure cost estimate is based on an ET AFC system and a maximum open area requiring closure of 307.7 acres anticipated to be developed over the next 20-year Permit term. Figure II.5.2 is a topographic map of the facility showing the fill area dimensions required by 20.9.6.9.A.(3)(b)(iv)(d) NMAC; and also provides the applicable disposal area acreages for which closure costs have been developed for 307.7 acres.

The post-closure cost estimates – including maintenance and monitoring and decommissioning of the GCCS as well as Phase I/Phase II assessments – are applicable to the facilities that will be developed under the current Permit term. Consistent with the requirements of 20.9.10.9, 10, and 11 NMAC, CRLF will continue to adjust C/PC cost estimates annually to reflect changes to the Landfill footprint requiring closure, revisions to the closure/post-closure (C/PC) cost estimates, and to account for changes in the Consumer Price Index (CPI). CRLF may perform incremental closure of Landfill cells as they reach final grade in order to keep the open area to a minimum; and the accelerated rate of closed unit construction will reduce financial assurance. This will provide CRLF with the flexibility to adjust their Financial Assurance Cost Estimates (Volume VI Section 1) accordingly in the Annual Reports.



LEGEND

— - — PROPERTY BOUNDARY

NOTES:

1. BASED ON SMELTERTOWN, 2019 USGS QUADRANGLE 7.5' MAP.
2. GEOGRAPHIC COORDINATES FOR THE CENTER OF THE SITE: 31° 47' 22.67" N. 106° 35' 34.41" W.

JONATHAN VINCENT QUEEN
25844

7/26/22

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☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: II.5.1-SITE LOCATION.DWG

DRAWN BY: JDW
DESIGN BY: KRB
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

SITE LOCATION MAP

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

FIGURE II.5.1

N

0 300 600
SCALE IN FEET

LEGEND

▬ · · ▬	PROPERTY BOUNDARY
— — —	PERMITTED LIMITS OF WASTE FOR UNIT 2
— · — ·	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
— · — ·	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
- - - -	ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4
—— – ——	CELL BOUNDARY
E 8,000	SITE GRID
4120	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
WELL B	EXISTING GROUNDWATER MONITOR WELL
WELL I	PERMITTED GROUNDWATER MONITOR WELL
WELL G	PERMITTED GROUNDWATER MONITOR WELL (TO BE ABANDONED)
WELL G2	PROPOSED GROUNDWATER MONITOR WELL
M-4	EXISTING LANDFILL GAS PROBE
M-11	PERMITTED LANDFILL GAS PROBE
M-17	PERMITTED LANDFILL GAS PROBE (TO BE REPLACED WITH PROPOSED LOCATIONS)
M-27	PROPOSED LANDFILL GAS PROBE

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.

JONATHAN VINCENT QUEEN
NEW MEXICO
25844
PROFESSIONAL ENGINEER

9/26/22

☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: II-5-2-SITE PLAN.DWG

DRAWN BY: JDW
DESIGN BY: KRB
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

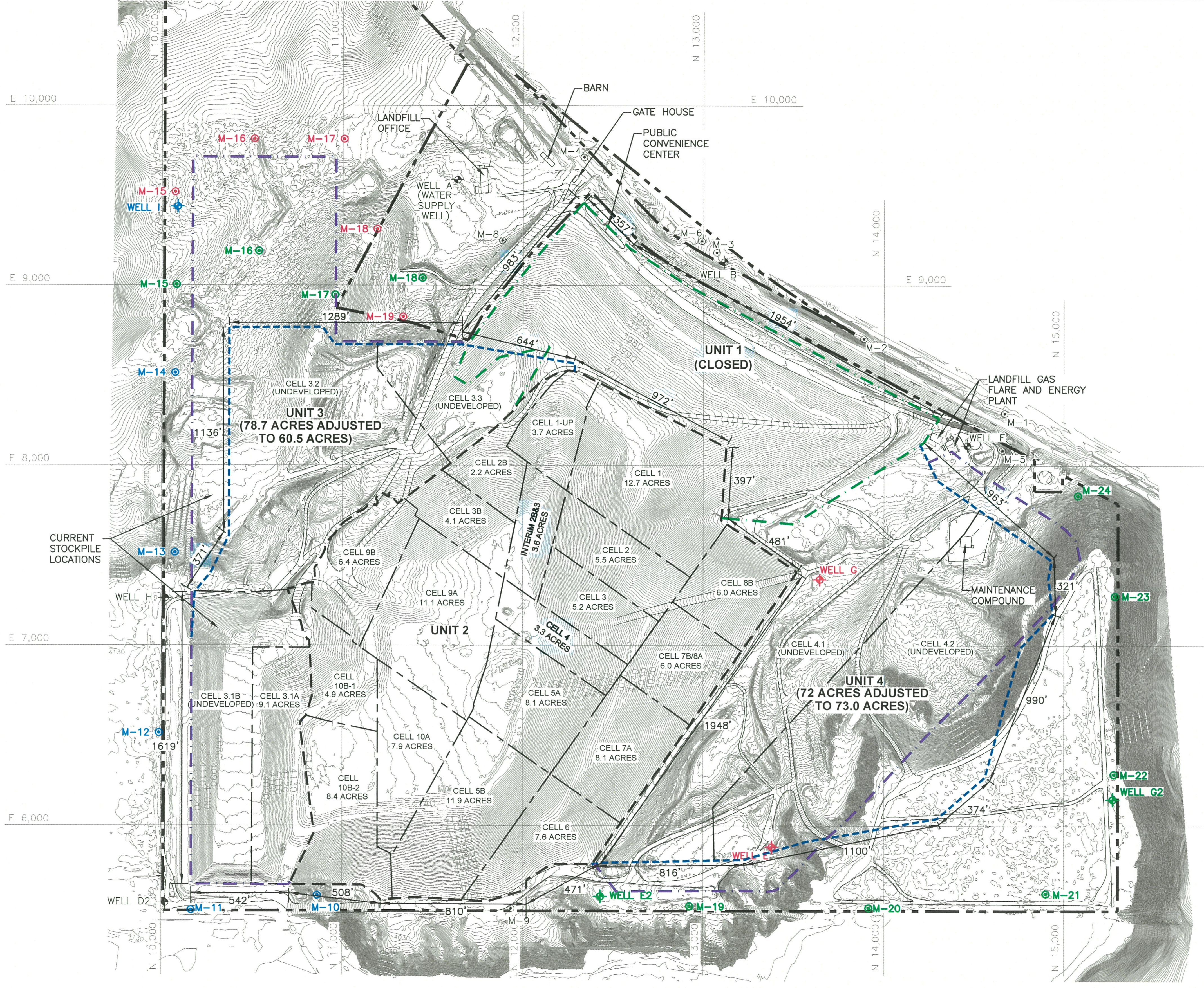
SITE PLAN

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

FIGURE II.5.2

O:\0601\667\EXPANSION 2019\VOLUME 2\PART 5\II-5-2-SITE PLAN.dwg, farrington, 1:2



0 300 600
SCALE IN FEET

LEGEND

— · —	PROPERTY BOUNDARY
— · —	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
— — —	PERMITTED LIMITS OF WASTE FOR UNIT 2
— · —	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
- - - -	ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4
— · —	CELL BOUNDARY
E 8,000	SITE GRID
4120	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
⊕ WELL B	EXISTING GROUNDWATER MONITOR WELL
⊕ WELL I	PERMITTED GROUNDWATER MONITOR WELL
⊕ WELL G	PERMITTED GROUNDWATER MONITOR WELL (TO BE ABANDONED)
⊕ WELL G2	PROPOSED GROUNDWATER MONITOR WELL
⊙M-4	EXISTING LANDFILL GAS PROBE
⊙M-11	PERMITTED LANDFILL GAS PROBE
⊙M-17	PERMITTED LANDFILL GAS PROBE (TO BE REPLACED WITH PROPOSED LOCATIONS)
⊙M-27	PROPOSED LANDFILL GAS PROBE

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.

JONATHAN VINCENT QUEEN
25844

7/26/22

☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: II-5-3 ENV MON PLAN.DWG

DRAWN BY: JDW
DESIGN BY: JAE
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

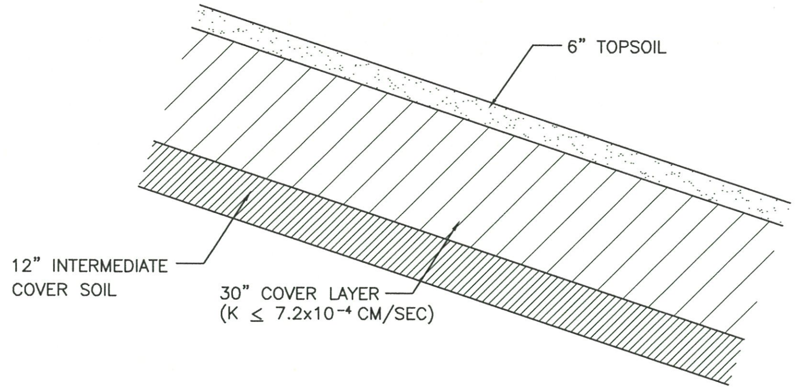
ENVIRONMENTAL MONITORING NETWORK

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

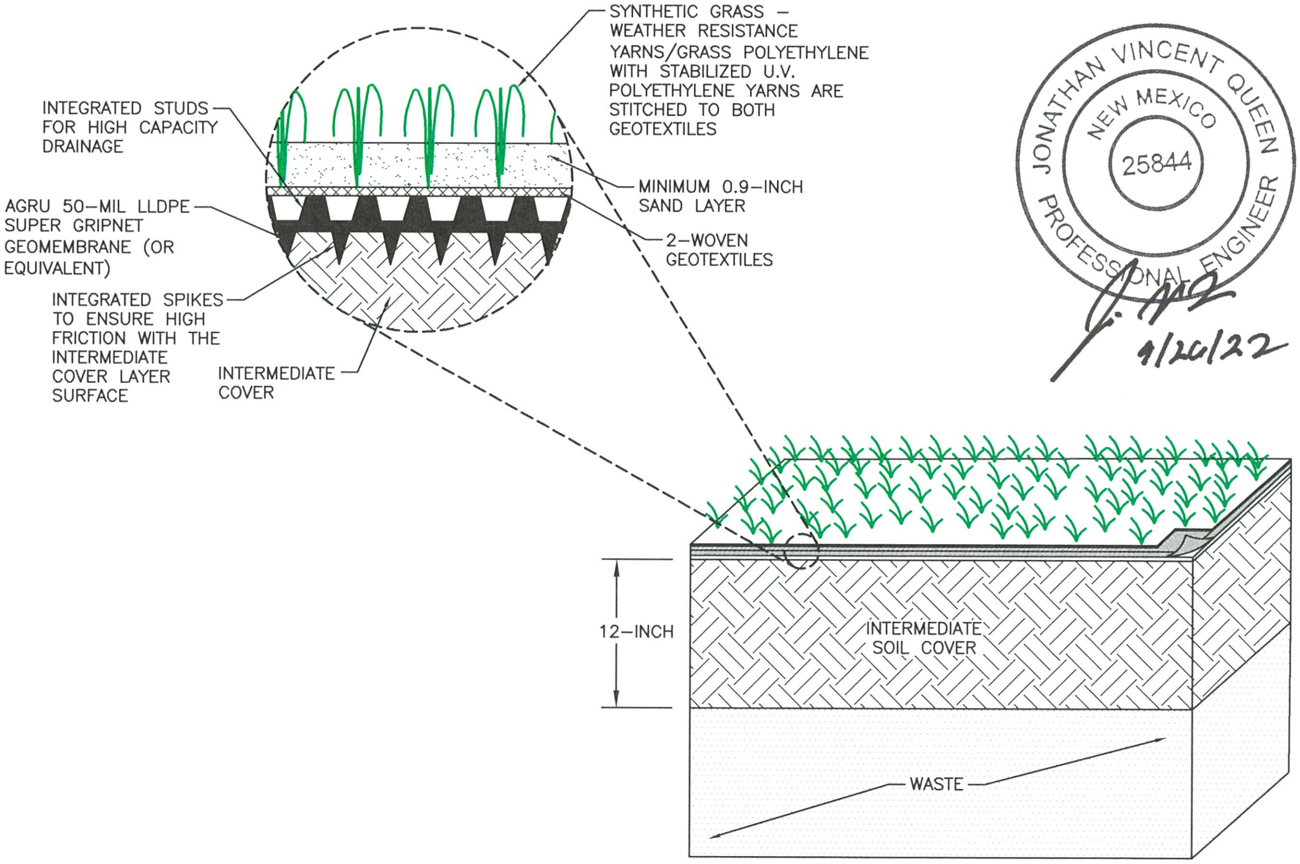
FIGURE II.5.3

O:\0601\667\EXPANSION 2019\VOLUME 2\PART 5\II-5-3 MONITORING NETWORK.dwg, rarrington, 1:2



ET AFC SYSTEM DETAIL

NTS



CLOSURE TURF DETAIL (TYP)

NTS

JONATHAN VINCENT QUEEN
25844

9/26/22

FINAL COVER SCHEMATIC

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

Weaver Consultants Group

DRAWN BY: JDW	DATE: 07/2022	FILE: FC DTL
REVIEWED BY: JVQ	CAD: 0601-667-11	FIGURE II.5.4

O:\0601\667\EXPANSION 2019\VOLUME 2\PART 5\II-5-4 FINAL COVER DETAIL.dwg, rarrington, 1:2

ATTACHMENT II.5-A

HISTORICAL METHANE MONITORING RESULTS

(Q1 2018 through Q1 2022)

JONATHAN VINCENT QUEEN
NEW MEXICO
25844
PROFESSIONAL ENGINEER

9/26/22

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 3/11/2018, 0.12 inches
Current Temp: 52 °F
Current Wind Speed: 4 mph
Current Wind Direction: NE
Current Barometric Pressure: 30.01 in Hg

Weather Conditions:
Sunny and clear

Date of Monitoring:
3/29/2018

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 3/29/2018, 8:30 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	9:55	0.0	0.0	20.0	80.0
M-2	4'	10:05	0.0	0.0	20.1	79.9
M-3	40'	10:10	0.0	0.0	20.0	80.0
M-4	40'	9:50	0.0	0.0	20.3	79.7
M-5	15'	10:35	0.0	0.0	20.4	79.6
M-6	15'	10:15	0.0	0.0	20.3	79.7
M-8	15'	9:20	0.0	0.1	20.0	79.9
M-9	30'	10:45	0.0	0.0	20.3	79.7

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	9:00	0.0	0.1	20.1	79.8
Upstairs Restroom	9:03	0.0	0.0	20.3	79.7
Kitchen	9:06	0.0	0.0	20.2	79.8
Gate House					
Restroom	9:40	0.0	0.0	20.3	79.7
Kitchen	9:43	0.0	0.0	20.2	79.8
Barn					
Corner Spigot	9:30	0.0	0.0	20.1	79.9
Recycling Center					
Conveyor Belt	9:11	0.0	0.0	20.2	79.8
Upstairs Sorting Bins	9:14	0.0	0.0	20.1	79.9
Four Peaks Energy Plant					
Office	10:28	0.0	0.0	20.7	79.3
Electrical Room	10:25	0.0	0.0	20.6	79.4
Maintenance Compound					
Pump House	10:58	0.0	0.0	20.3	79.7
Restroom	10:55	0.0	0.0	20.2	79.8

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill **Sampler Name:** Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 5/21/2018, 0.06 inches
Current Temp: 82 °F
Current Wind Speed: 6 mph
Current Wind Direction: NE
Current Barometric Pressure: 27.7 in Hg

Weather Conditions:
Sunny and Clear

Date of Monitoring:
5/29/2018

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 5/29/2018, 9:45 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:48	0.0	0.6	20.2	79.2
M-2	4'	10:55	0.0	4.9	15.3	79.8
M-3	40'	11:05	0.0	1.7	17.4	80.9
M-4	40'	10:38	0.0	3.6	16.9	79.5
M-5	15'	11:33	0.0	0.3	19.4	80.3
M-6	15'	11:10	0.0	0.1	19.7	80.2
M-8	15'	10:20	0.0	0.2	19.9	79.9
M-9	30'	11:48	0.0	0.8	19.4	79.8

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	10:00	0.0	0.0	20.2	79.8
Upstairs Restroom	10:06	0.0	0.0	20.3	79.7
Kitchen	10:03	0.0	0.0	20.3	79.7
Gate House					
Restroom	10:33	0.0	0.0	20.1	79.9
Kitchen	10:30	0.0	0.0	20.0	80.0
Barn					
Corner Spigot	10:25	0.0	0.0	20.1	79.9
Recycling Center					
Conveyor Belt	10:12	0.0	0.0	20.3	79.7
Upstairs Sorting Bins	10:15	0.0	0.0	20.2	79.8
Four Peaks Energy Plant					
Office	11:25	0.0	0.0	20.6	79.4
Electrical Room	11:28	0.0	0.0	20.5	79.5
Maintenance Compound					
Pump House	12:03	0.0	0.0	20.8	79.2
Restroom	12:00	0.0	0.0	20.7	79.3

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 9/5/2018 0.2 inches
Current Temp: 78 °F
Current Wind Speed: 12 mph
Current Wind Direction: NW
Current Barometric Pressure: 29.77 in Hg

Weather Conditions:
Clear and Sunny

Date of Monitoring: 9/12/2018

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 9/12/2018 at 10:15 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	11:55	0.0	0.6	18.5	80.9
M-2	4'	12:05	0.0	8.5	11.8	79.7
M-3	40'	12:15	0.0	2.0	16.9	81.1
M-4	40'	11:45	0.0	0.8	18.4	80.8
M-5	15'	12:55	0.0	0.3	19.6	80.1
M-6	15'	12:20	0.0	0.2	19.1	80.7
M-8	15'	11:35	0.0	0.1	19.8	80.1
M-9	30'	12:45	0.0	0.9	19.1	80.0

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	11:10	0.0	0.0	19.7	80.3
Upstairs Restroom	11:13	0.0	0.0	19.6	80.4
Kitchen	11:16	0.0	0.0	19.8	80.2
Gate House					
Restroom	11:43	0.0	0.0	19.9	80.1
Kitchen	11:40	0.0	0.0	20.0	80.0
Barn					
Corner Spigot	11:30	0.0	0.0	20.1	79.9
Recycling Center					
Conveyor Belt	11:21	0.0	0.0	20.0	80.0
Upstairs Sorting Bins	11:24	0.0	0.0	20.1	79.9
Four Peaks Energy Plant					
Office	13:00	0.0	0.0	19.8	80.2
Electrical Room	13:03	0.0	0.0	19.9	80.1
Maintenance Compound					
Pump House	12:33	0.0	0.0	20.1	79.9
Restroom	12:30	0.0	0.0	20.0	80.0

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 10/23/2018 0.16 inches
Current Temp: 51 °F
Current Wind Speed: 15 mph
Current Wind Direction: W
Current Barometric Pressure: 28.16 in Hg

Weather Conditions:
Clear and breeze

Date of Monitoring: 11/20/2018

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 11/20/2018 at 9:00 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:50	0.0	1.1	18.9	80.0
M-2	4'	10:55	0.0	6.2	11.8	82.0
M-3	40'	11:00	0.0	2.6	17.4	80.0
M-4	40'	10:40	0.0	4.0	16.4	79.6
M-5	15'	11:10	0.0	0.5	19.4	80.1
M-6	15'	11:03	0.0	0.4	20.2	79.4
M-8	15'	10:25	0.0	0.3	19.7	80.0
M-9	30'	11:20	0.0	0.7	19.5	79.8

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	10:00	0.0	0.0	20.1	79.9
Upstairs Restroom	10:03	0.0	0.0	20.2	79.8
Kitchen	10:06	0.0	0.0	20.0	80.0
Gate House					
Restroom	10:33	0.0	0.0	20.1	79.9
Kitchen	10:30	0.0	0.0	20.2	79.8
Barn					
Corner Spigot	10:20	0.0	0.0	20.1	79.9
Recycling Center					
Conveyor Belt	10:12	0.0	0.0	20.0	80.0
Upstairs Sorting Bins	10:15	0.0	0.0	20.1	79.9
Four Peaks Energy Plant					
Office	11:48	0.0	0.0	20.1	79.9
Electrical Room	11:45	0.0	0.0	20.0	80.0
Maintenance Compound					
Pump House	11:30	0.0	0.0	20.2	79.8
Restroom	11:33	0.0	0.0	20.1	79.9

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill **Sampler Name:** Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 2/22/2019, 0.04 inches
Current Temp: 70 °F
Current Wind Speed: 14 mph
Current Wind Direction: NE
Current Barometric Pressure: 29.99 in Hg

Weather Conditions:
Cloudy and breeze

Date of Monitoring:
3/7/2019

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 3/7/2019, 10:00 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	11:30	0.0	1.2	18.5	80.3
M-2	4'	11:40	0.0	10.8	12.4	76.8
M-3	40'	11:50	0.0	2.3	16.9	80.8
M-4	40'	11:20	0.0	4.4	15.9	79.7
M-5	15'	12:05	0.0	0.3	80.0	19.7
M-6	15'	11:55	0.0	0.4	19.3	80.3
M-8	15'	11:00	0.0	0.3	19.4	80.3
M-9	30'	12:20	0.0	1.4	18.3	80.3

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	10:30	0.0	0.0	20.0	80.0
Upstairs Restroom	10:33	0.0	0.0	19.9	80.1
Kitchen	10:36	0.0	0.0	19.8	80.2
Gate House					
Restroom	11:10	0.0	0.0	20.0	80.0
Kitchen	11:13	0.0	0.0	19.9	80.1
Barn					
Corner Spigot	10:50	0.0	0.0	19.8	80.2
Recycling Center					
Conveyor Belt	10:41	0.0	0.0	19.9	80.1
Upstairs Sorting Bins	10:44	0.0	0.0	19.8	80.2
Four Peaks Energy Plant					
Office	12:45	0.0	0.0	19.7	80.3
Electrical Room	12:48	0.0	0.0	19.8	80.2
Maintenance Compound					
Pump House	12:30	0.0	0.0	19.9	80.1
Restroom	12:33	0.0	0.0	19.8	80.2

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 6/10/2019, 0.06 inches

Current Temp: 77 °F

Current Wind Speed: 10 mph

Current Wind Direction: NW

Current Barometric Pressure: 29.91 in Hg

Weather Conditions: Sunny and Clear

Date of Monitoring: 6/25/2019

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®

Date and Time Last Calibrated: 6/25/2019, 8:00 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	9:11	0.0	0.4	19.5	80.1
M-2	4'	9:17	0.0	0.0	20.0	80.0
M-3	40'	9:25	0.0	0.1	19.9	80.0
M-4	40'	9:06	0.0	0.0	19.9	80.1
M-5	15'	9:48	0.0	0.1	19.9	80.0
M-6	15'	9:30	0.0	0.4	19.4	80.2
M-8	15'	8:53	0.0	0.2	19.2	80.6
M-9	30'	9:58	0.0	0.3	19.4	80.3

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	8:30	0.0	0.0	19.8	80.2
Upstairs Restroom	8:33	0.0	0.1	19.7	80.2
Kitchen	8:36	0.0	0.2	19.6	80.2
Gate House					
Restroom	8:58	0.0	0.0	19.6	80.4
Kitchen	9:01	0.0	0.1	19.5	80.4
Barn					
Corner Spigot	8:48	0.0	0.0	19.9	80.1
Recycling Center					
Conveyor Belt	8:40	0.0	0.0	19.7	80.3
Upstairs Sorting Bins	8:43	0.0	0.2	19.6	80.2
Four Peaks Energy Plant					
Office	9:40	0.0	0.0	20.3	79.7
Electrical Room	9:43	0.0	0.0	20.1	79.9
Maintenance Compound					
Pump House	10:13	0.0	0.0	19.8	80.2
Restroom	10:10	0.0	0.0	19.9	80.1

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 824/2019 0.38 inches
Current Temp: 84 °F
Current Wind Speed: 4 mph
Current Wind Direction: SE
Current Barometric Pressure: 29.55 in Hg

Weather Conditions:
Clear,Sunny and Hot

Date of Monitoring: 8/26/2019

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 8/26/2019 at 9:30 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	11:00	0.0	0.0	19.3	80.7
M-2	4'	11:10	0.0	4.8	15.4	79.8
M-3	40'	11:25	0.0	2.5	16.6	80.9
M-4	40'	10:50	0.0	0.4	19.0	80.6
M-5	15'	12:00	0.0	0.4	18.9	80.7
M-6	15'	11:40	0.0	0.3	19.1	80.6
M-8	15'	10:30	0.0	0.0	19.6	80.4
M-9	30'	12:15	0.0	1.0	18.7	80.3

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	10:06	0.0	0.0	20.0	80.0
Upstairs Restroom	10:03	0.0	0.0	19.9	80.1
Kitchen	10:00	0.0	0.0	20.0	80.0
Gate House					
Restroom	10:43	0.0	0.0	19.5	80.5
Kitchen	10:40	0.0	0.0	19.4	80.6
Barn					
Corner Spigot	10:20	0.0	0.0	19.7	80.3
Recycling Center					
Conveyor Belt	10:11	0.0	0.2	19.8	80.0
Upstairs Sorting Bins	10:14	0.0	0.1	19.9	80.0
Four Peaks Energy Plant					
Office	11:50	0.0	0.1	19.9	80.0
Electrical Room	11:53	0.0	0.0	20.0	80.0
Maintenance Compound					
Pump House	12:25	0.0	0.0	19.8	80.2
Restroom	12:28	0.0	0.0	19.9	80.1

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 11/29/2019 0.01 inches

Current Temp: 49 °F

Current Wind Speed: 3 mph

Current Wind Direction: SE

Current Barometric Pressure: 30.07 in Hg

Weather Conditions:
Cloudy and cool

Date of Monitoring: 12/4/2019

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®

Date and Time Last Calibrated: 12/4/2019 at 10:30 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	11:22	0.0	1.4	18.2	80.4
M-2	4'	11:27	0.0	6.2	14.2	79.6
M-3	40'	11:35	0.0	2.6	16.7	80.7
M-4	40'	11:17	0.0	4.9	15.5	79.6
M-5	15'	12:00	0.0	0.6	19.1	80.3
M-6	15'	11:38	0.0	0.5	19.0	80.5
M-8	15'	11:12	0.0	0.3	19.1	80.6
M-9	30'	12:15	0.0	0.8	18.9	80.3

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	10:40	0.0	0.1	19.3	80.6
Upstairs Restroom	10:43	0.0	0.0	19.4	80.6
Kitchen	10:46	0.0	0.1	19.2	80.7
Gate House					
Restroom	11:08	0.0	0.1	19.4	80.5
Kitchen	11:05	0.0	0.0	19.4	80.6
Barn					
Corner Spigot	11:00	0.0	0.0	19.5	80.5
Recycling Center					
Conveyor Belt	10:51	0.0	0.0	19.4	80.6
Upstairs Sorting Bins	10:54	0.0	0.1	19.5	80.4
Four Peaks Energy Plant					
Office	11:50	0.0	0.0	19.9	80.1
Electrical Room	11:53	0.0	0.0	20.0	80.0
Maintenance Compound					
Pump House	12:05	0.0	0.1	19.8	80.1
Restroom	12:08	0.0	0.0	19.9	80.1

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill
Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 3/25/2020, 0.04 inches
Current Temp: 56 °F
Current Wind Speed: 2 mph
Current Wind Direction: NE
Current Barometric Pressure: 29.83 in Hg

Weather Conditions:
Clear and sunny

Date of Monitoring:
3/25/2020

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 3/25/2020, 8:45 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	9:55	0.0	0.0	18.8	81.2
M-2	4'	10:00	0.0	0.0	18.9	81.1
M-3	40'	10:10	0.0	0.0	19.2	80.8
M-4	40'	9:45	0.0	0.0	18.9	81.1
M-5	15'	10:25	0.0	0.5	18.3	81.2
M-6	15'	10:15	0.0	0.6	18.6	80.8
M-8	15'	9:30	0.0	0.3	18.7	81.0
M-9	30'	10:50	0.0	0.9	18.3	80.8

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	9:00	0.0	0.1	19.1	80.8
Upstairs Restroom	9:03	0.0	0.1	19.0	80.9
Kitchen	9:06	0.0	0.0	19.2	80.8
Gate House					
Restroom	9:35	0.0	0.1	18.9	81.0
Kitchen	9:38	0.0	0.0	19.0	81.0
Barn					
Corner Spigot	9:19	0.0	0.0	19.0	81.0
Recycling Center					
Conveyor Belt	9:11	0.0	0.0	19.1	80.9
Upstairs Sorting Bins	9:14	0.0	0.0	19.0	81.0
Four Peaks Energy Plant					
Office	10:30	0.0	0.2	18.8	81.0
Electrical Room	10:33	0.0	0.1	19.0	80.9
Maintenance Compound					
Pump House	10:38	0.0	0.0	19.5	80.5
Restroom	10:41	0.0	0.1	19.6	80.3

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 3/18/2020, 0.04 inches

Current Temp: 66 °F

Current Wind Speed: 12 mph

Current Wind Direction: SE

Current Barometric Pressure: 29.74 in Hg

Weather Conditions: Sunny and Clear

Date of Monitoring: 6/9/2020

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®

Date and Time Last Calibrated: 6/9/2020, 8:15 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:45	0.0	0.0	19.2	80.8
M-2	4'	10:55	0.0	0.0	19.4	80.6
M-3	40'	11:05	0.0	0.1	19.3	80.6
M-4	40'	10:35	0.0	0.1	19.2	80.7
M-5	15'	11:20	0.0	0.2	19.1	80.7
M-6	15'	11:10	0.0	0.6	18.4	81.0
M-8	15'	10:20	0.0	0.4	18.6	81.0
M-9	30'	11:55	0.0	1.0	18.5	80.5

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	9:50	0.0	0.0	19.3	80.7
Upstairs Restroom	9:53	0.0	0.0	19.4	80.6
Kitchen	9:56	0.0	0.1	19.3	80.6
Gate House					
Restroom	10:25	0.0	0.1	19.1	80.8
Kitchen	10:28	0.0	0.0	19.1	80.9
Barn					
Corner Spigot	10:14	0.0	0.0	19.4	80.6
Recycling Center					
Conveyor Belt	10:05	0.0	0.0	19.4	80.6
Upstairs Sorting Bins	10:08	0.0	0.0	19.3	80.7
Four Peaks Energy Plant					
Office	11:25	0.0	0.1	19.3	80.6
Electrical Room	11:28	0.0	0.0	19.5	80.5
Maintenance Compound					
Pump House	11:43	0.0	0.0	19.6	80.4
Restroom	11:40	0.0	0.0	19.5	80.5

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 7/20/2020 0.06 inches

Current Temp: 78 °F

Current Wind Speed: 6 mph

Current Wind Direction: SE

Current Barometric Pressure: 29.97 in Hg

Weather Conditions:
Clear,Sunny and Dry

Date of Monitoring: 9/26/2020

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®

Date and Time Last Calibrated: 9/26/2020 at 9:10 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:45	0.0	0.2	18.8	81.0
M-2	4'	10:30	0.0	8.2	11.8	80.0
M-3	40'	10:55	0.0	2.3	16.5	81.2
M-4	40'	10:20	0.0	3.1	16.1	80.8
M-5	15'	11:20	0.0	0.4	17.7	81.9
M-6	15'	11:05	0.0	0.3	17.8	81.9
M-8	15'	10:15	0.0	0.4	18.2	81.4
M-9	30'	11:55	0.0	1.3	17.2	81.5

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	9:30	0.0	0.0	18.8	81.2
Upstairs Restroom	9:33	0.0	0.0	18.7	81.3
Kitchen	9:36	0.0	0.0	18.7	81.3
Gate House					
Restroom	9:55	0.0	0.0	18.9	81.1
Kitchen	9:58	0.0	0.0	18.8	81.2
Barn					
Corner Spigot	10:05	0.0	0.0	18.9	81.1
Recycling Center					
Conveyor Belt	9:45	0.0	0.0	18.9	81.1
Upstairs Sorting Bins	9:48	0.0	0.0	18.8	81.2
Four Peaks Energy Plant					
Office	11:30	0.0	0.0	19.1	80.9
Electrical Room	11:33	0.0	0.0	19.0	81.0
Maintenance Compound					
Pump House	11:40	0.0	0.0	18.8	81.2
Restroom	11:43	0.0	0.0	18.9	81.1

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill
Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 12/9/2020 0.08 inches
Current Temp: 37 °F
Current Wind Speed: 5 mph
Current Wind Direction: S
Current Barometric Pressure: 30.08 in Hg

Weather Conditions:
Clear and sunny

Date of Monitoring: 12/15/2020

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 12/15/2020 at 8:00 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	9:55	0.0	0.1	19.4	80.5
M-2	4'	10:00	0.0	2.1	17.3	80.6
M-3	40'	10:05	0.0	1.1	18.7	80.2
M-4	40'	9:45	0.0	0.0	19.5	80.5
M-5	15'	10:20	0.0	0.4	19.3	80.3
M-6	15'	10:08	0.0	0.5	19.3	80.2
M-8	15'	9:15	0.0	0.3	19.1	80.6
M-9	30'	10:55	0.0	0.2	19.7	80.1

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	8:45	0.0	0.1	19.4	80.5
Upstairs Restroom	8:48	0.0	0.2	19.2	80.6
Kitchen	8:51	0.0	0.1	19.3	80.6
Gate House					
Restroom	9:25	0.0	0.2	19.5	80.3
Kitchen	9:28	0.0	0.1	19.6	80.3
Barn					
Corner Spigot	9:05	0.0	0.1	19.4	80.5
Recycling Center					
Conveyor Belt	8:55	0.0	0.1	19.4	80.5
Upstairs Sorting Bins	8:58	0.0	0.2	19.2	80.6
Four Peaks Energy Plant					
Office	10:25	0.0	0.1	19.3	80.6
Electrical Room	10:28	0.0	0.2	19.2	80.6
Maintenance Compound					
Pump House	10:40	0.0	0.2	19.1	80.7
Restroom	10:43	0.0	0.1	19.3	80.6

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 1/26/2021, 0.02 inches
Current Temp: 54 °F
Current Wind Speed: 8 mph
Current Wind Direction: E
Current Barometric Pressure: 29.75 in Hg

Weather Conditions:
Clear and sunny

Date of Monitoring:
3/23/2021

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 3/23/2021, 9:40 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:45	0.0	0.0	19.7	80.3
M-2	4'	10:55	0.0	1.0	19.6	79.4
M-3	40'	11:05	0.0	3.0	15.0	82.0
M-4	40'	10:35	0.0	2.0	18.3	79.7
M-5	15'	11:30	0.0	0.0	19.9	80.1
M-6	15'	11:15	0.0	0.0	19.8	80.2
M-8	15'	10:25	0.0	0.0	20.2	79.8
M-9	30'	11:40	0.0	1.0	18.8	80.2

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	10:00	0.0	0.0	20.7	79.3
Upstairs Restroom	10:03	0.0	0.0	20.4	79.6
Kitchen	10:06	0.0	0.0	20.5	79.5
Gate House					
Restroom	10:30	0.0	0.0	20.3	79.7
Kitchen	10:33	0.0	0.0	20.2	79.8
Barn					
Corner Spigot	10:20	0.0	0.0	20.6	79.4
Recycling Center					
Conveyor Belt	10:10	0.0	0.0	20.6	79.4
Upstairs Sorting Bins	10:13	0.0	0.0	20.4	79.6
Four Peaks Energy Plant					
Office	12:10	0.0	0.0	20.3	79.7
Electrical Room	12:13	0.0	0.0	20.4	79.6
Maintenance Compound					
Pump House	11:55	0.0	0.0	20.2	79.8
Restroom	11:58	0.0	0.0	20.1	79.9

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill **Sampler Name:** Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 1/26/2021, 0.02 inches
Current Temp: 85 °F
Current Wind Speed: 12 mph
Current Wind Direction: E
Current Barometric Pressure: 26.81 in Hg

Weather Conditions: Sunny and Clear

Date of Monitoring: 6/7/2021

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 6/7/2021, 9:10 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:50	0.0	0.0	19.9	80.1
M-2	4'	11:00	0.0	0.0	19.4	80.6
M-3	40'	11:10	0.0	1.0	17.8	81.2
M-4	40'	10:30	0.0	2.0	18.7	79.3
M-5	15'	11:25	0.0	0.0	19.9	80.1
M-6	15'	11:15	0.0	0.0	19.8	80.2
M-8	15'	10:25	0.0	0.0	20.1	79.9
M-9	30'	11:50	0.0	0.0	19.5	80.5

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	9:50	0.0	0.0	19.1	80.9
Upstairs Restroom	9:53	0.0	0.0	19.2	80.8
Kitchen	9:56	0.0	0.0	19.1	80.9
Gate House					
Restroom	10:35	0.0	0.0	20.1	79.9
Kitchen	10:38	0.0	0.0	20.2	79.8
Barn					
Corner Spigot	10:15	0.0	0.0	20.4	79.6
Recycling Center					
Conveyor Belt	10:05	0.0	0.0	18.9	81.1
Upstairs Sorting Bins	10:08	0.0	0.0	19.0	81.0
Four Peaks Energy Plant					
Office	11:30	0.0	0.0	20.2	79.8
Electrical Room	11:33	0.0	0.0	20.1	79.9
Maintenance Compound					
Pump House	12:05	0.0	0.0	20.1	79.9
Restroom	12:08	0.0	0.0	20.0	80.0

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 9/1/2021 0.02 inches
Current Temp: 78 °F
Current Wind Speed: 6 mph
Current Wind Direction: SE
Current Barometric Pressure: 30.02 in Hg

Weather Conditions:
Clear,Sunny and Dry

Date of Monitoring: 9/17/2021

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 9/17/2021 at 9:30 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:50	0.0	0.0	20.2	79.8
M-2	4'	11:00	0.0	0.3	19.7	80.0
M-3	40'	11:10	0.0	1.7	18.2	80.1
M-4	40'	10:35	0.0	2.8	17.8	79.4
M-5	15'	11:45	0.0	0.6	19.1	80.3
M-6	15'	11:15	0.0	0.8	18.9	80.3
M-8	15'	10:15	0.0	0.6	20.0	79.4
M-9	30'	12:30	0.0	0.8	18.8	80.4

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	9:45	0.0	0.1	21.3	78.6
Upstairs Restroom	9:48	0.0	0.0	21.4	78.6
Kitchen	9:51	0.0	0.1	21.3	78.6
Gate House					
Restroom	10:25	0.0	0.0	20.5	79.5
Kitchen	10:28	0.0	0.0	20.6	79.4
Barn					
Corner Spigot	10:10	0.0	0.0	21.2	78.8
Recycling Center					
Conveyor Belt	10:00	0.0	0.0	21,2	100.0
Upstairs Sorting Bins	10:03	0.0	0.0	21.3	78.7
Four Peaks Energy Plant					
Office	11:25	0.0	0.0	20.0	80.0
Electrical Room	11:28	0.0	0.3	19.6	80.1
Maintenance Compound					
Pump House	12:05	0.0	0.0	20.3	79.7
Restroom	12:08	0.0	0.0	20.2	79.8

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 9/30/2021 0.02 inches
Current Temp: 49 °F
Current Wind Speed: 1 mph
Current Wind Direction: SE
Current Barometric Pressure: 28.77 in Hg

Weather Conditions:
Clear and Sunny

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 12/8/2021 9:00

Date of Monitoring:
12/8/2021

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:10	0.0	0.6	21.2	78.2
M-2	4'	10:20	0.0	2.2	19.0	78.8
M-3	40'	10:30	0.0	2.9	18.4	78.7
M-4	40'	10:00	0.0	3.3	19.0	77.7
M-5	15'	11:10	0.0	0.5	21.1	78.4
M-6	15'	10:40	0.0	0.8	20.8	78.4
M-8	15'	9:45	0.0	0.4	21.6	78.0
M-9	30'	11:40	0.0	0.9	20.2	78.9
M-10	60'	11:50	0.0	0.4	20.4	79.2
M-11	60'	11:55	0.0	0.4	20.6	79.0
M-12	60'	12:00	0.0	0.3	20.9	78.8

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	9:10	0.0	0.1	21.8	78.1
Upstairs Restroom	9:13	0.0	0.1	21.9	78.0
Kitchen	9;16	0.0	0.1	21.9	78.0
Gate House					
Restroom	9:50	0.0	0.1	22.1	77.8
Kitchen	9:53	0.0	0.2	22.0	77.8
Barn					
Corner Spigot	9:40	0.0	0.1	22.3	77.6
Recycling Center					
Conveyor Belt	9:25	0.0	0.3	21.3	78.4
Upstairs Sorting Bins	9:28	0.0	0.4	21.2	78.4
Four Peaks Energy Plant					
Office	10:55	0.0	0.0	20.4	79.6
Electrical Room	10:58	0.0	0.0	20.2	79.8
Maintenance Compound					
Pump House	11:20	0.0	0.0	20.8	79.2
Restroom	11:23	0.0	0.0	20.9	79.1

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 1/3/2022, 0.4 inches

Current Temp: 51 °F

Current Wind Speed: 8 mph

Current Wind Direction: NE

Current Barometric Pressure: 22.73 in Hg

Weather Conditions: Clear and sunny

Date of Monitoring: 3/24/2022

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®

Date and Time Last Calibrated: 3/24/2022, 9:00 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:20	0.0	0.0	20.3	79.7
M-2	4'	10:30	0.0	1.1	19.3	79.6
M-3	40'	10:40	0.0	0.2	20.0	79.8
M-4	40'	10:00	0.0	0.0	20.4	79.6
M-5	15'	11:10	0.0	0.3	19.9	79.8
M-6	15'	10:45	0.0	0.4	19.6	80.0
M-8	15'	9:50	0.0	0.2	20.2	79.6
M-9	30'	11:45	0.0	0.4	19.4	80.2
M-10	60'	11:50	0.0	0.0	20.2	79.8
M-11	60'	11:55	0.0	0.0	20.4	79.6
M-12	60'	12:05	0.0	0.0	20.5	79.5

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	9:15	0.0	0.1	20.5	79.4
Upstairs Restroom	9:18	0.0	0.0	20.6	79.4
Kitchen	9:21	0.0	0.1	20.5	79.4
Gate House					
Restroom	10:05	0.0	0.0	20.3	79.7
Kitchen	10:08	0.0	0.0	20.2	79.8
Barn					
Corner Spigot	9:40	0.0	0.0	20.5	79.5
Recycling Center					
Conveyor Belt	9:30	0.0	0.0	20.6	79.4
Upstairs Sorting Bins	9:33	0.0	0.1	20.5	79.4
Four Peaks Energy Plant					
Office	11:00	0.0	0.1	20.5	79.4
Electrical Room	11:03	0.0	0.0	20.6	79.4
Maintenance Compound					
Pump House	11:20	0.0	0.0	20.3	79.7
Restroom	11:23	0.0	0.0	20.4	79.6

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

ATTACHMENT II.5-B

GROUNDWATER MONITORING RESULTS

The CAREL
CORPORATION

August 24, 2021
Project No: 21-06-21

Mr. George Schuman
Permit Section Manager
NMED Solid Waste Bureau
Harold Runnels Bldg – Room N2150
P.O. Box 5469
Santa Fe, NM 87502-5469

Re: 2021 Annual Groundwater Monitoring Report; Camino Real Landfill; NMED Permit No. SWM-030738; Dona Ana County

Dear Mr. Schuman:

Please find attached two copies of the 2021 Annual Groundwater Detection Monitoring Report for the Camino Real Landfill. Groundwater samples were collected on June 6 and 7, 2021. Details of the 2021 annual monitoring even and a discussion of statistical analysis results are contained in the report.

We trust that this information is acceptable to you. Please call Brady Stewart at (314) 486-4733, Dr. Juan Carlos Tomas at (575) 589-9440 or me at (817) 991-7370 if you have any questions.

Sincerely,
THE CAREL CORPORATION

Kevin T. Carel

Kevin T. Carel, P.G.
President

Att: 2021 Annual Groundwater Monitoring Report

cc: Brady Stewart, P.E., Regional Engineer, Waste Connections (pdf copy)
Dr. Juan Carlos Tomas, Landfill Manager, Camino Real Landfill

2021 ANNUAL GROUNDWATER MONITORING REPORT

CAMINO REAL LANDFILL

NMED Permit No. SWM-030738
Sunland Park, New Mexico

PROJECT NO. 21-06-21

Prepared for:

Camino Real Environmental Center, Inc.

August 2020

Prepared by

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CONTENTS

TABLES AND FIGURES

Tables

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1 INTRODUCTION

The Camino Real Landfill is located one mile southwest of McNutt Road (NM 273) on Camino Real Boulevard in Sunland Park, New Mexico, (see Figure 1). The facility currently operates under New Mexico Environmental Department (NMED) Permit No. SWM-030738.

Groundwater monitoring at the site commenced during July 1989 with the semi-annual sampling and analysis of monitoring Well A (the site's water supply well) for select groundwater parameters. Wells B, C, and D were added to the network from 1990 to 1991. Three additional Wells (E, F, and G) were installed in October and November 1995 to enhance downgradient monitoring capabilities. In February 2006, Wells D2 and H were installed as a part of a landfill investigation program conducted for a March 2006 Permit Renewal. Well C was deleted from the monitoring program in 1997 and decommissioned on April 29, 2008, with NEMD approval. Well D was decommissioned on May 25, 2019 by Gordon Environmental/PSC to accommodate a new waste disposal cell. Monitoring of replacement Well D2 was initiated in February 2020.

Initial detections of 1,1-dichloroethane (1,1-DCA), tetrachloroethylene (PCE), trichloroethylene (TCE), and trichlorofluoromethane (freon-11) in ground water monitoring well G occurred during the 2016 annual groundwater monitoring event. The initial detections were not considered statistically significant unless confirmed by resampling. In a letter dated March 31, 2017, the NMED requested that confirmatory resampling be performed prior to May 31, 2017. The confirmatory resampling event for Well G was performed on May 9, 2017 in conjunction with the annual groundwater sampling event for the facility.

Each of the four originally detected VOCs in Well G were confirmed during the May 2017 confirmatory sampling event. In addition, methylene chloride (MC) was also detected in samples collected from Well G. None of the VOC concentrations for the May 2017 sampling event exceeded their respective Regulatory Presumptive Assessment Monitoring Level (AML) except for TCE. None of the detected VOC concentrations exceeded a Corrective Action Level (CAL) during the May 2017 event. No AML is established for methylene chloride and the reported concentration did not exceed the GWPS or CAL.

An Assessment Monitoring Plan was submitted on July 18, 2017 and approved by the NMED in a letter dated September 6, 2017. Assessment monitoring samples were collected from Well G on November 15, 2017. Samples for assessment monitoring parameters consisted of all analyzed constituents and parameters referenced and listed in Subsections B and C of 20.9.9.20 NMAC. The detected constituents consisted of seven volatile organic compounds, total organic carbon, one herbicide, 15 metals, radium, 13 inorganic compounds and perchlorate. All of the detected constituents are listed on Table V.2.2 the facility's alternate parameter list and monitoring schedule except for four new Subsection B constituents: dichlorodifluoromethane, perchlorate, sulfide, and dacthal. It is noted that TCE was detected below its Assessment Monitoring Level (AML) and below the Corrective Action Level (CAL) during the November 2017 sampling event. The results of the assessment monitoring event were provided to the NMED in a letter dated January 13, 2018. Chloride exceeded its AML and uranium was detected above its AML and CAL in Well G during the assessment monitoring event. An alternate source demonstration (The Carel Corp., 2018) for chloride and uranium concentrations in Well G was submitted on March 29, 2018 and was approved by the NMED in a letter dated November 14, 2018.

Background monitoring was conducted for dichlorodifluoromethane, perchlorate, sulfide, and dacthal in Well G and upgradient Well D per a January 29, 2018 letter by the NMED and 20.9.9.13.B NMAC. The results the background monitoring events were provided in letter reports dated March 15, May 25, and August 15, 2018 and in the 2018 Annual Report.

Groundwater monitoring and analysis at the site are being performed in accordance with the facility Groundwater Monitoring System Plan (GEI, 2012) and Title 20, Chapter 9, Part 9 of the New Mexico Administrative Code (NMAC). A copy of this report has been placed in the operating record for the facility.

2 GROUNDWATER MONITORING PROGRAM

2.1 Monitoring Network and Programs

The groundwater monitoring network at the Camino Real Landfill consisted of six (6) monitor wells: Well A, Well B, Well D2, Well E, Well F, and Well G. Each well was monitored under a detection monitoring program during the 2021 sampling event except for Well G, which is in assessment monitoring. Former Well D was decommissioned in April 2019 and replaced by Well D2. Well H was installed in February 2006 as part of a landfill investigation program conducted for a 2008 Permit Renewal/Modification and positioned generally upgradient of existing and future waste disposal cells. Currently Well H is being monitored for water levels only. Background sampling and analysis for Well H will commence when the future waste filling sequence advances toward its location. Table 1 of this report provides a summary of monitor well construction information.

Table 1
Monitor Well Summary

Well	Date Installed	Site Grid Coordinates[1]		Total Well Depth ft. bgs	Filter-Packed Interval ft. bgs	Hydraulic Position
		North	East			
Well A	1/28/1988	4121.57	1629.92	400	320 – 400	Downgradient
Well B	8/22/1990	3665.662	3112.099	190	155 – 190	Downgradient
Well D2	2/17/2006	105.02	19.31	405	375 – 405	Upgradient
Well E	11/3/1995	416.889	3377.561	298	265 – 295	Downgradient
Well F	10/28/1995	2644.209	4454.448	182	149 – 179	Downgradient
Well G	10/28/1995	1901.670	3642.710	218	185.5 – 215.5	Downgradient
Well H	2/26/2006	1783.99	8.47	408	378 – 408	Upgradient

Notes: bgs – below ground surface; MSL – mean sea level

1 – Location information based on site-specific coordinate system measured in feet. The axis of the coordinate system begins adjacent to the southwest corner of the site.

The current monitoring well network and programs are summarized on Table 2 - Monitoring Program Summary (pg. 4).

Table 2
Monitoring Program Summary

Well	Designation	Monitoring Status
Well A	Compliance	Detection
Well B	Compliance	Detection
Well D2	Background (upgradient)	Detection
Well E	Compliance	Detection
Well F	Compliance	Detection
Well G	Compliance	Assessment
Well H	Observation	Water Level Only

2.2 Monitoring Schedule

Groundwater monitoring is conducted on an annual schedule for detection monitoring wells (GEI, 2011). This report presents details of the 2021 annual groundwater monitoring event for monitor wells: Well A, Well B, Well D2, Well E, Well F, and Well G. Samples were collected on June 6 & 7, 2021. The next annual groundwater monitoring event is anticipated to occur in June 2022.

2.3 Monitoring Parameters

Detection monitoring parameters consisted of an alternate list of total metals, multiple inorganic compounds, volatile organic compounds (VOCs), and radium listed in Table V.2.2 of the facility Groundwater Monitoring System Plan (GEI, 2012) and in accordance with NMAC 20.9.9.20. Concentrations are determined down to the practical quantitation limits (PQLs) provided in the facility Groundwater Monitoring System Plan (GEI, 2012) and in compliance with NMAC 20.9.9.10(A).

2.4 Monitor Well Purging

Water-levels were measured in the monitor wells June 6 & 7, 2021, prior to purging except for Well A (the facility's water supply well) which has a sealed wellhead that prohibits a water level measurement. The sealed casing of Well A prohibits access and the typical purging methods (i.e. removal of three casing volumes of water) are not used. However, Well A is consistently flushed via use as a water supply well. After water-level measurements were completed, each well was purged with a dedicated submersible. Well G was purged and sampled using low flow techniques due to limited yield. Purging for all wells continued until stabilization of pH, specific conductance, temperature, and turbidity was achieved. Measurements were recorded on field data sheets; copies of which are provided in Appendix A. Figure 2 provides the water-level elevations for the sampled zone.

2.5 Monitor Well Sampling

All wells were sampled by means of dedicated submersible pump. Samples were collected in bottles provided by the laboratory, labeled, and placed in insulated coolers with sufficient ice to maintain the temperature as close as possible to 4°C. All wells produced a sufficient volume of water for sampling and analysis of the required parameters during 2021 annual monitoring event. Final field measurements for samples collected during the 2021 annual groundwater monitoring event are provided on the field data sheets in Appendix A.

2.6 Monitor Well Inspection and Maintenance Program

A monitor well preventive maintenance program is in place at this facility to ensure proper operation and usability of the groundwater monitor wells. During each sampling event, all monitor wells are inspected visually to determine the integrity of the pads, protective casings, locks and wellhead assemblies. Any issues are noted on field forms and provided to facility personnel.

3 SITE HYDROGEOLOGY SUMMARY

3.1 Regional and Site Geology

According to information provided in the Groundwater Monitoring Plan (GEI, 2012) and other published geologic reports of the southern New Mexico area, the CRLF site is situated on the southeastern flank of the Mesilla Basin and the western edge of the Rio Grande Valley. The topography of the landfill area generally slopes to the northeast at an average of approximately 300 feet per mile. According to the New Mexico Bureau of Geology and Mineral Resources, the southwestern portion of the site is underlain by the Upper Santa Fe Group. The northeastern portion of the site is underlain by Piedmont alluvial deposits.

The Upper Santa Fe Group includes Camp Rice and Fort Hancock Formations. It is middle Pleistocene to uppermost Miocene in age and is composed of primarily unconsolidated sand and gravel. The Piedmont alluvial deposits are upper and middle Quaternary in age. They were deposited by higher gradient tributaries bordering major stream valleys (e.g., the Rio Grande), alluvial veneers of the piedmont slope, and alluvial fans. The subsurface deposits are reportedly comprised of inter-bedded medium to very fine-grained sands with silt, silty sands, and sands. Reddish-brown clay layers are inter-bedded locally, as are caliche, carbonate nodules, and carbonate-cemented sands. The sediment clay content generally increases with increased depth based on boring logs and soils laboratory testing.

3.2 Site Hydrogeology

Based upon borings and soil samples analyzed in 1995 and 2006, the uppermost saturated zone occurs in the Fort Hancock Formation (GEI, 2016). The depth to groundwater varies primarily as a function of surface topography; and measured groundwater depths range from approximately 159 feet to 387 feet below ground surface. The approximate 228-foot difference is due primarily to surface topography differences across the site.

3.3 Groundwater Flow Gradient and Rate

The groundwater flow rate and direction in the uppermost water-bearing zone has been determined for the subject sampling event. In general, groundwater at the facility flows to the northeast. Figure 2 provides the water-level elevations for the uppermost water-bearing zone for June 6 & 7, 2021.

Hydraulic gradients were estimated for various parts of the site from the water-level measurements collected during this sampling event. The gradient for a particular part of the site is determined by calculating the difference between the groundwater contours (head difference) and dividing by the horizontal distance between the contours. The values are in ft./ft.; multiply by 5,280 for the gradient in feet per mile. Minimum and maximum rates of groundwater movement were estimated using the groundwater velocity equation (Driscoll, 1986).

$$v = 2{,}830Ki/n_e$$

Where:

v = groundwater velocity (ft./day);
K = hydraulic conductivity (cm/sec);
i = hydraulic gradient (ft./ft.);
n_e = effective porosity (percent); and
2,830 converts cm/sec to ft./day

The hydraulic conductivity for the uppermost water-bearing zone was estimated by GEI (2016) to be 1.0 x 10^{-3} cm/sec. The hydraulic gradient was estimated to be 0.0015 ft./ft. for the uppermost water-bearing zone from Figure 2. An effective porosity in the Fort Hancock Formation has been estimated at 15 percent (GEI 2016). Using the equation and the values described above, the estimated groundwater velocity (with flow direction) for the uppermost water-bearing zone is:

$$v = \frac{2830 \text{ x } 1.00\text{E-}03 \text{ x } 0.0016 \text{ x } 365}{15\%}$$

$$v = 10.67 \text{ ft./year (northeasterly)}$$

4 DISCUSSION OF LABORATORY ANALYSES

Laboratory analyses were conducted by Hall Environmental Analysis Laboratory, Inc., of Albuquerque, New Mexico. Laboratory reports are provided in Appendix B. This section discusses the analytical results in terms of laboratory quality control.

4.1 Field Quality Assurance/Quality Control Samples

Field quality-assurance/quality-control (QA/QC) samples consisted of one trip blank, one field blank, and one monitor well duplicate sample. The trip blank was prepared with deionized (DI) water by the laboratory, carried to the site, and returned to the lab in a sample cooler. The field blank was prepared with DI water at Well E. The monitor well duplicate sample was collected at Well A. The trip blank and field blank were analyzed for VOCs only. The monitor well duplicate sample was analyzed for all detection monitoring constituents.

The trip blank did not indicate problems with procedures as all constituents were below reporting limits. Acetone was detected in the field blank at a concentration of 58 μg/L. Acetone is used as a solvent by laboratories to clean glassware and is known to be a common analytical contaminant (Smith, Roy-Keith. 2000). No acetone was detected in the groundwater for Well E or any other monitor well sample. As such, the acetone detection in the field blank is concluded to reflect the water used to prepare the blank. Appendix C provides the analytical results for inorganic parameters collected from Well A, and the duplicate sample collected at Well A as well as the relative percent difference (RPD) between the two samples. The RPD is a calculated value used to compare two sample results and provide an estimate of analytical precision. The RPDs indicate that analytical results have reasonable precision and demonstrate overall consistency for all parameters except for fluoride, which only slightly exceed the 20% control limit. Field QA/QC results will continue to be closely monitored.

4.2 Laboratory Quality Assurance/Quality Control

The laboratory performed internal QA/QC analyses. Selected QA/QC analyses are described below. A laboratory case narrative and analysis checklist are prepared each analytical event. The laboratory case narrative and QA/QC checklist for the annual monitoring event are provided in Appendix B. The case narrative includes the chain of custody document.

General laboratory QA/QC consists of method blanks, matrix spikes, and laboratory control samples. Additional QA/QC samples may also be analyzed as necessary or required. In general, method blanks are analyzed to determine whether contamination resulting from the analytical process occurred. Matrix spikes are analyzed to document method bias in the sample matrix. Matrix spike duplicates are used to document the method precision and bias in the sample matrix. Laboratory control samples and laboratory control sample duplicates, composed of reagent spikes, are utilized to document laboratory performance. Sample duplicates are analyzed to test method precision. Results, narratives, and summary information meets applicable laboratory certification and NMAC criteria.

5 STATISTICAL ANALYSIS OF GROUNDWATER DATA

Groundwater data for the constituents listed in Table V.2.2 of the facility Groundwater Monitoring System Plan (GEI, 2012) were evaluated as required by NMAC 20.9.9.20. The full laboratory analytical reports are provided as Appendix B.

5.1 Detection Monitoring

All wells are currently in detection monitoring except for Well G.

5.1.1 Metals and Inorganic Indicator Parameters

Metal and inorganic constituent concentrations in point of compliance wells were evaluated by comparison to the established Assessment Monitoring Level (AML) and established Tolerance Limit Value (TLV). AMLs and TLVs were determined by The Carel Corporation. (The Carel Corp., 2019). The analytical results for each constituent, along with its respective AML and TLV, are provided in Appendix D. A constituent is considered to be a statistical exceedance if the concentration exceeds its established TLV. If a TLV has not been established for a particular constituent, the concentration is considered a statistical exceedance if it exceeds the established AML. Two monitored constituents (arsenic and total dissolved solids [TDS]) were the only constituents to exceed an established statistical limit (i.e., AML/TLV). Arsenic was detected at a concentration of 0.013 mg/L. The TLV is 0.012 mg/L. TDS was detected at a concentration of 1,740 mg/L, which exceeded the TLV is 1,700 mg/L. Review of available information indicates that the detections are not the result of a release from the facility but rather the result of disturbance created by removal and repair to the well pump. An alternate source demonstration is provided separately.

5.1.2 Organic Compounds

Evaluation of volatile organic compounds (VOCs) and phenolics is accomplished by comparing analytical results to PQLs. An initial detection is based on any VOC or phenolic observed at a concentration at or above the PQL. No VOCs or phenolics were detected in any of the detection monitoring wells during the June 2021 sampling event.

5.2 Assessment Monitoring

As previously stated, Well G is undergoing assessment monitoring in response to verified detections of volatile organic compounds 1,1-DCA, PCE, TCE, freon-11. Appendix E provides a summary of assessment monitoring results for Well G with regulatory standards.

5.2.1 Comparisons to Regulatory Standards

Per 20.9.9.13.F NMAC, if the concentration of any constituent in 20.9.9.20 NMAC is above the AML, but below the CAL, the facility will continue assessment monitoring. Additionally, per 20.9.9.13.G NMAC, if one or more constituents in 20.9.9.20 NMAC is detected above the CAL during any sampling event, the facility is to follow the procedures set forth in 20.9.9.13.G NMAC unless an alternate source demonstration is submitted.

Two (2) volatile organic compounds (1,1-dichloroethane, and trichlorofluoromethane [CFC 11]) were detected this sampling event. Concentrations are considerably lower than previous detections. None of the VOC concentrations are above corrective action levels.

Four constituents (chloride, TDS, dacthal and perchlorate) have concentrations that exceed their respective AML in Well G. No further action is proposed regarding TDS, dachthal or perchlorate because Well G is already undergoing assessment monitoring. Chloride was the only constituents detected at a concentration that exceeded a CAL.

Chloride concentrations in Well G have previously been demonstrated to be influenced by natural groundwater variation (The Carel Corp., March 2018). The demonstration was approved by the NMED in a letter dated November 14. 2018. As noted in the demonstration report, chloride is a main constituent of natural salts which can occur as primary deposits, secondary mineralization, or dissolved aqueous components, especially in arid to semi-arid regions and/or under evaporative conditions. Additionally, chloride concentrations occur at similar and greater concentration in other site wells (e.g., Well F). The chloride concentrations in Well F have also been attributed to natural fluctuations in groundwater quality (GEI, 2016b).

There is not an established primary maximum contaminant level (MCL) for chloride. Rather, a secondary drinking water standard exists. The secondary standard for chloride is 250 mg/L and is based on aesthetic considerations, such as taste, color, and odor. According to a USEPA publication "*Secondary Drinking Water Standards: Guidance for Nuisance Chemicals*" (USEPA, 2018), constituents with secondary drinking water standards such as chloride are not considered a risk to human health.

It should also be noted that Well G is situated proximal to Unit 2 and is situated within the limits of future fill area Unit 4. As such Well G is not located at the permit boundary.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

No organic compounds were detected in any of the detection monitoring wells during the June 2021 sampling event. Concentrations of two constituents, arsenic and TDS in Well A, exceeded statistical limits. The arsenic and TDS detections are not believed to be associated with a release from the facility and an ASD is being submitted separately. No other constituent exceeded statistical limits in detection monitoring wells.

Well G is undergoing assessment monitoring. Assessment Monitoring Levels (AMLs) have been calculated and Groundwater Protection Standards (GWPSs) and Corrective Action Levels (CALs) were derived from USEPA publications. Chloride, TDS, dacthal and perchlorate exceed their respective AMLs in Well G. No further action is proposed for TDS, dacthal or perchlorate as Well G is undergoing assessment monitoring. Chloride was the only constituents to exceed a CAL. An ASD has been approved for chloride.

6.2 Recommendations

It is recommended to continue detection monitoring in Well A pending approval of the forthcoming ASD for arsenic and TDS. It is recommended to continue assessment monitoring in Well G. No further action should be required regarding the chloride concentration in Well G based on the following:

- Well G is located within future fill area Unit 4 and not at the point of compliance. Eventually Well G will be decommissioned and a replacement well that is located outside of the permitted limits of waste and at the point of compliance will be installed.
- Chloride exceedances have previously been demonstrated to be the result of natural variability of the groundwater. The demonstration report was approved by the NMED in a letter dated November 14, 2018.
- Chloride is naturally occurring and is a main constituent of natural salts which can occur as primary deposits, secondary mineralization, or dissolved aqueous components, especially in arid to semi-arid regions and/or under evaporative conditions.
- There is not an established primary maximum contaminant level (MCL) for chloride. Rather, a secondary drinking water standard exists. The secondary standard for chloride is 250 mg/L and is based on aesthetic considerations, such as taste, color, and odor.
- According to a USEPA publication "*Secondary Drinking Water Standards: Guidance for Nuisance Chemicals*" (USEPA, 2018), chloride is not considered to present a risk to human health.
- Well G is situated proximal to Unit 2 and is situated within the limits of future fill area Unit 4. As such Well G is not located at the permit boundary.

7 QUALIFIED GROUNDWATER SCIENTIST CERTIFICATION

General Site Information

Site: Camino Real Landfill

Site Location: Sunland Park New Mexico

Permit No.: SW 00-(10)M

Qualified Groundwater Scientist Statement

I, Kevin T. Carel, am a qualified groundwater scientist as defined in 20.9.9 NMAC. I have prepared this groundwater monitoring report and the supporting data contained herein. In my professional opinion, the information provided in this report is true and accurate. Concentrations of two constituents in Well A, arsenic and TDS, exceeded statistical limits. The arsenic and TDS detections are not believed to be associated with a release from the facility and an ASD is forthcoming. No other statistically significant changes were noted for any of the other wells undergoing detection monitoring.

Two VOCs (1,1-dichloroethane, and trichlorofluoromethane) were detected in Well G at very low concentrations. Chloride in Well G is the only constituents to exceed a corrective action levels (CALs). No further action regarding chloride is recommended at this time based on the location of Well G, the absence of a primary maximum contaminant level (MCL) for chloride, other information regarding chloride listed in Section 6.2. The only warranty made by me in connection with this document is that I have used the degree of care and skill ordinarily exercised under similar conditions by reputable members of my profession, practicing in similar localities. No other warranty, expressed or implied, is intended.

Firm/Address: The Carel Corporation
136 Pecan Street
Keller, Texas 76248

Signature: Kevin T. Carel
Kevin T. Carel, P.G.

Date: August 24, 2021

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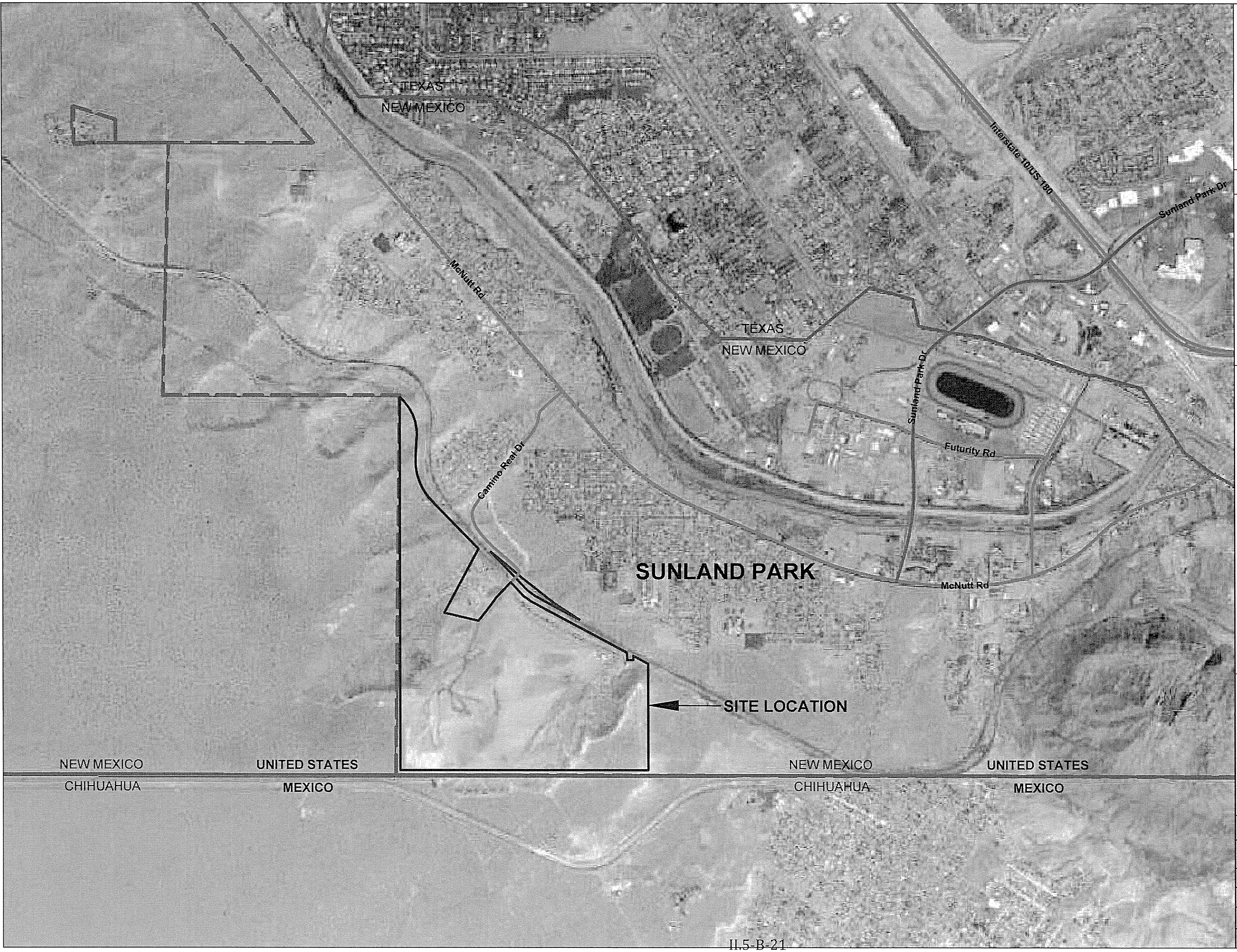
FIGURES



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The CAREL CORPORATION

136 Pecan Street, Keller, TX 76248

LEGEND

City of Sunland Park
State Boundary
Site Boundary
Major Roads

N

SCALE:
0 1000 2000
FEET

SITE LOCATION MAP

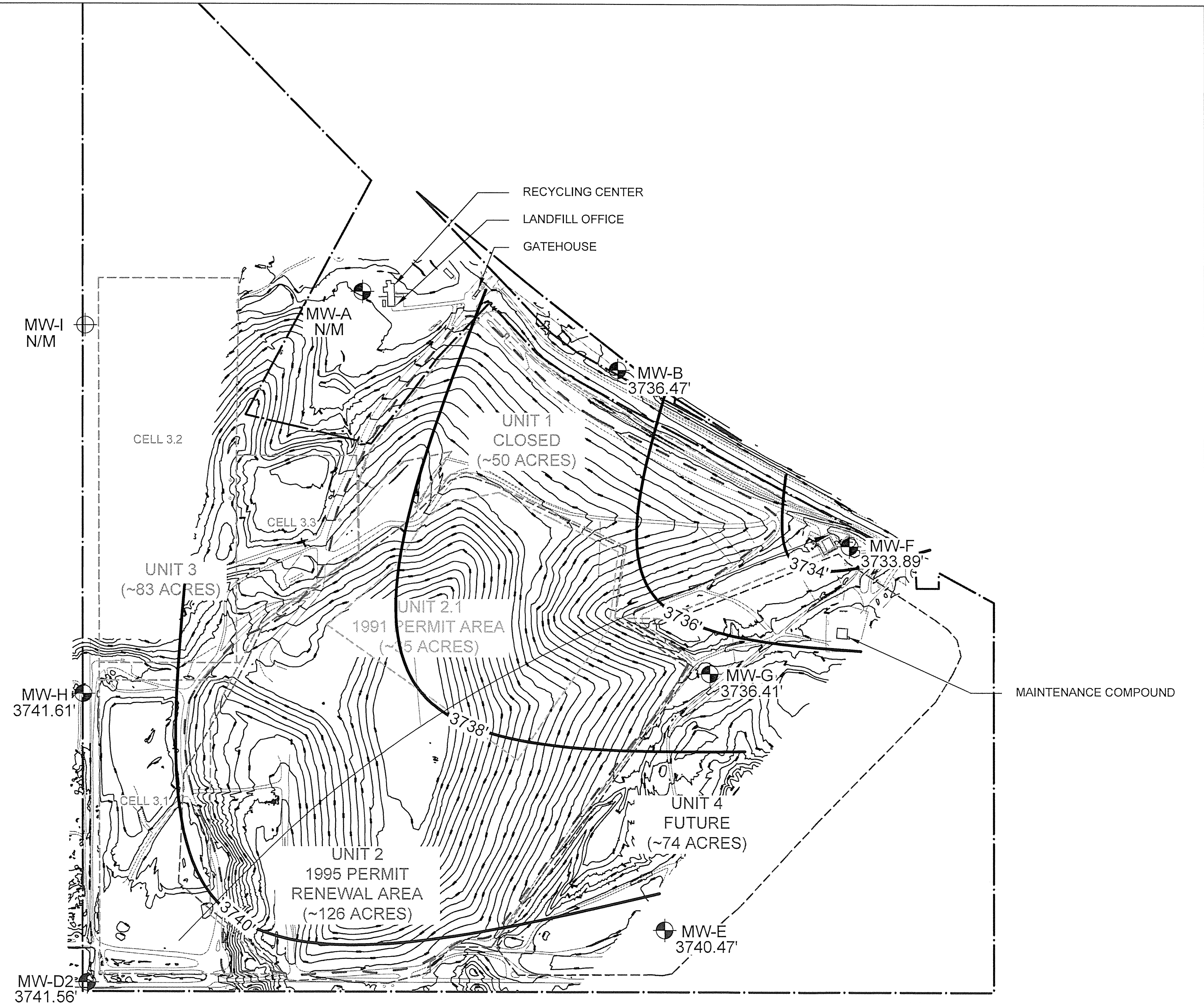
Camino Real Landfill

Sunland Park, New Mexico

DATE: June 20, 2017

FILENAME: I:\NEW MEXICO\Camino Real\2017\Site Location Map.dwg

DRAWN BY:	KMO	FIGURE:
DRAFTED BY:	CE	1
CHECKED BY:	KTC	
APPROVED BY:		



The CAREL CORPORATION

136 Pecan Street, Keller, TX 76248

LEGEND

—·—	FACILITY BOUNDARY
—3990—	TOPOGRAPHICAL CONTOURS
⊕	MONITORING WELL
—	GROUNDWATER CONTOURS
⊕	PROPOSED MONITORING WELL
— — —	APPROXIMATE LIMITS OF WASTE

N

SCALE:
0 300 600
FEET

GROUNDWATER CONTOUR MAP

June 2021

Camino Real Landfill

Sunland Park, New Mexico

DATE DRAFTED August 21, 2021

FILENAME: I:\NEW MEXICO\Camino Real\Contour\2020\032020 GW Map.dwg

DRAWN BY:	KTC	FIGURE:
DRAFTED BY:		2
CHECKED BY:		
APPROVED BY:		

NOTES:
1. WATER LEVELS MEASURED June 6 and 7, 2021.
2. N/M - GROUNDWATER ELEVATION NOT MEASURED.

APPENDIX A

GROUNDWATER SAMPLING FIELD DATA SHEETS

Camino Real Landfill

Sunland Park, New Mexico

GROUNDWATER SAMPLING FIELD DATA SHEET

Well Number: A
Project Number: 21-06-21

Project: 2021 Annual GME
Date: 7-6-21
Time:
Personnel: Robertson
Weather Conditions: PCloudy
Air Temp.: 78 °F

Calibration: pH Meter Model: Horiba U-52
Meter S/N VBVERBKH
Time: 1540
Conductivity Meter Model: same
Meter S/N: same
Time: same

WELL DATA:

Casing Diameter: _____ (in.) ☐ PVC ☐ Other:
DEPTH TO : Static Water: __________ ft. Well Bottom: ______ ft.
DATUM: ☐ Top of Protective Casing ☐ Top of Well Casing ☐ Other: ______
CONDITIOI Is Well clearly labeled? ☐ Yes ☐ No
Is Prot. Casing in Good Cond.? (not bent or corroded) ☐ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☐ Yes ☐ No
Is Padlock Functional? ☐ Yes ☐ No Is Inner Casing Intact? ☐ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☐ Yes ☐ No Reference Point ? ☐ Yes ☐ No

VOLUME OF WATER: $(d/24)^2$ (23.5)(TD-WL) = One Well Volume (2"=0.163; 4"=0.653)

Standing in well: ______ gal. To be purged: ______ gal.

PURGE DATA:

METHOD: ☐ Bladder Pump ☑ Submersible Pump ☐ Bailer
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other:
MATERIALS: Pump/Bailer: ☐ Teflon® ☐ Stainless Steel ☐ PVC ☑ Other: Steel
Tubing/Rope: ☐ Teflon® ☐ Stainless Steel ☐ PVC ☑ Other: Steel
PURGING EQUIPMENT: ☑ Dedicated ☐ Prepared Off-Site ☐ Field Cleaned ☐ Disposable
TIME SERIES DATA:

Time:	2012	2013	2014	2015	2016		
Cum. Volume (gal):	Start	2	4	6	8		
Temp. (☑°C ☐°F):	25.1	25.1	25.1	25.1	25.1		
pH (Std. Units):	7.30	7.45	7.49	7.55	7.62		
Spec. Cond. (µmhos/cm)	2550	2550	2540	2550	2550		
Turbidity (NTU):	1	1	2	1	1		
Other:							

Pumping Rate: 2 gal/min. Elapsed Time: 4 Volume Pumped: 8 gal.

SAMPLING DATA:

Sample Collection Time: 2016 Date: 7-6-21
Water Level at Time of Sample Collection: — ft.
METHOD: ☐ Bladder Pump ☑ Submersible Pump ☐ Bailer ☐ Other:
MATERIALS: Pump/Bailer: ☐ Teflon® ☐ Stainless Steel ☐ PVC ☑ Other: Steel
Tubing/Rope: ☐ Teflon® ☐ Stainless Steel ☐ PVC ☑ Other: Steel
SAMPLING EQUIPMENT: ☑ Dedicated ☐ Prepared Off-Site ☐ Field Cleaned ☐ Disposable
APPEARANCE: ☐ Clear ☑ Turbidity (NTU) 1 ☐ Color: ______
FIELD DETERMINATIONS: Temp. (☑°C ☐°F): 25.1 pH (SU): 7.62 Spec. Cond. (µmhos/cm): 2550

☐ Background ☐ Detection ☐ Assessment ☐ Quarterly ☐ Other

REMARKS: Duplicate here @ 2016

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature:
Date: 7-6-21

Camino Real Landfill

Sunland Park, New Mexico

GROUNDWATER SAMPLING FIELD DATA SHEET

Well Number: B
Project Number: 21-06-21

Project: 2021 Annual GME
Date: 7-7-21 Time: 0726
Personnel: Robertson
Weather Conditions: P.Cloudy Air Temp.: 70 °F

Calibration: pH Meter Model: Horiba U-52 Meter S/N: VBMERBKH Time: 0715
Conductivity Meter Model: same Meter S/N: same Time: same

WELL DATA:

Casing Diameter: 4 (in.) ☑ PVC ☐ Other:
DEPTH TO : Static Water: 160.50 ft. Well Bottom: 190.01 ft.
DATUM: ☐ Top of Protective Casing ☑ Top of Well Casing ☐ Other: ______
CONDITION: Is Well clearly labeled? ☑ Yes ☐ No
Is Prot. Casing in Good Cond.? (not bent or corroded) ☑ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ~~☑ Yes~~ ~~☐ No~~ ☑ No-covered w/soil
Is Padlock Functional? ☑ Yes ☐ No Is Inner Casing Intact? ☑ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☑ Yes ☐ No Reference Point ? ☑ Yes ☐ No

VOLUME OF WATER: $(d/24)^2$ (23.5)(TD-WL) = One Well Volume (2"=0.163; 4"=0.653)

Standing in well: 20 gal. To be purged: 60 gal.

PURGE DATA:

METHOD: ☐ Bladder Pump ☑ Submersible Pump ☐ Bailer
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other: ______
MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel ☐ PVC ☐ Other: ______
Tubing/Rope: ☐ Teflon® ☐ Stainless Steel ☑ PVC ☐ Other: ______
PURGING EQUIPMENT: ☑ Dedicated ☐ Prepared Off-Site ☐ Field Cleaned ☐ Disposable

TIME SERIES DATA:

Time:	0732	0736	0740	0744			
Cum. Volume (gal):	Start	20	40	60			
Temp. (☑°C ☐°F):	24.6	24.9	25.5	25.9			
pH (Std. Units):	5.59	5.75	6.46	6.79			
Spec. Cond. (µmhos/cm)	2260	2240	2310	2310			
Turbidity (NTU):	1	24	7	1			
Other:							

Pumping Rate: 5 gal/min. Elapsed Time: 12 Volume Pumped: 60 gal.

SAMPLING DATA:

Sample Collection Time: 0744 Date: 7-7-21
Water Level at Time of Sample Collection: — ft.
METHOD: ☐ Bladder Pump ☑ Submersible Pump ☐ Bailer ☐ Other: ______
MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel ☐ PVC ☐ Other: ______
Tubing/Rope: ☐ Teflon® ☐ Stainless Steel ☑ PVC ☐ Other: ______
SAMPLING EQUIPMENT: ☑ Dedicated ☐ Prepared Off-Site ☐ Field Cleaned ☐ Disposable
APPEARANCE: ☐ Clear ☑ Turbidity (NTU) 1 ☐ Color: ______
FIELD DETERMINATIONS: Temp. (☑ °C ☐ °F): 25.9 pH (SU): 6.79 Spec. Cond. (µmhos/cm): 2310

☐ Background ☐ Detection ☐ Assessment ☐ Quarterly ☐ Other

REMARKS:

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: Date: 7-7-21

Camino Real Landfill

Sunland Park, New Mexico

GROUNDWATER SAMPLING FIELD DATA SHEET

Well Number: D2
Project Number: 21-06-21

Project: 2021 Annual GME
Date: 7-6-21 Time: 1648
Personnel: Robertson
Weather Conditions: PCloudy Air Temp.: 91 °F

Calibration: pH Meter Model: Horiba U-52 Meter S/N: VBWERBK Time: 1540
Conductivity Meter Model: same Meter S/N: same Time: same

WELL DATA:

Casing Diameter: 4 (in.) ☑ PVC ☐ Other:
DEPTH TO : Static Water: 390.73 ft. Well Bottom: 406.92 ft.
DATUM: ☐ Top of Protective Casing ☑ Top of Well Casing ☐ Other: ______
CONDITION Is Well clearly labeled? ☑ Yes ☐ No
Is Prot. Casing in Good Cond.? (not bent or corroded) ☑ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☑ Yes ☐ No
Is Padlock Functional? ☑ Yes ☐ No Is Inner Casing Intact? ☑ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☑ Yes ☐ No Reference Point ? ☑ Yes ☐ No

VOLUME OF WATER: $(d/24)^2$ (23.5)(TD-WL) = One Well Volume (2"=0.163; 4"=0.653)

Standing in well: 11 gal. To be purged: 33 gal.

PURGE DATA:

METHOD: ☐ Bladder Pump ☑ Submersible Pump ☐ Bailer
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other: ______
MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel ☐ PVC ☐ Other: ______
Tubing/Rope: ☐ Teflon® ☐ Stainless Steel ☑ PVC ☐ Other: ______
PURGING EQUIPMENT: ☑ Dedicated ☐ Prepared Off-Site ☐ Field Cleaned ☐ Disposable
TIME SERIES DATA:

Time:	1653	1656	1659	1702			
Cum. Volume (gal):	Start	11	22	33			
Temp. (☑°C ☐°F):	27.0	26.4	26.7	27.4			
pH (Std. Units):	5.76	6.05	6.64	6.85			
Spec. Cond. (µmhos/cm)	1550	1400	1410	1400			
Turbidity (NTU):	67	30	1	1			
Other:							

Pumping Rate: 3.6 gal/min. Elapsed Time: 9 Volume Pumped: 33 gal.

SAMPLING DATA:

Sample Collection Time: 1702 Date: 7-6-21
Water Level at Time of Sample Collection: NA ft.
METHOD: ☐ Bladder Pump ☑ Submersible Pump ☐ Bailer ☐ Other: ______
MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel ☐ PVC ☐ Other: ______
Tubing/Rope: ☐ Teflon® ☐ Stainless Steel ☑ PVC ☐ Other: ______
SAMPLING EQUIPMENT: ☑ Dedicated ☐ Prepared Off-Site ☐ Field Cleaned ☐ Disposable
APPEARANCE: ☐ Clear ☑ Turbidity (NTU) 1 ☐ Color: ______
FIELD DETERMINATIONS: Temp. (☑°C ☐°F): 27.4 pH (SU): 6.85 Spec. Cond. (µmhos/cm): 1400

☐ Background ☐ Detection ☐ Assessment ☐ Quarterly ☐ Other

REMARKS:

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: Date: 7-6-21

Camino Real Landfill

Sunland Park, New Mexico

GROUNDWATER SAMPLING
FIELD DATA SHEET

Well Number: E

Project Number: 21-06-21

Project: 2021 Annual GME

Date: 7-6-21 Time: 1820

Personnel: Robertson

Weather Conditions: PCloudy Air Temp.: 85 °F

Calibration: pH Meter Model: Horiba U-52 Meter S/N: VBNERBKH Time: 1540

Conductivity Meter Model: same Meter S/N: same Time: same

WELL DATA:

Casing Diameter: 4 (in.) ☑ PVC ☐ Other:

DEPTH TO : Static Water: 281.17 ft. Well Bottom: 298.02 ft.

DATUM: ☐ Top of Protective Casing ☑ Top of Well Casing ☐ Other: ______

CONDITION: Is Well clearly labeled? ☑ Yes ☐ No

Is Prot. Casing in Good Cond.? (not bent or corroded) ☑ Yes ☐ No

Is Concrete Pad Intact? (not cracked or frost heaved) ☐ Yes ☑ No covered w/sand

Is Padlock Functional? ☑ Yes ☐ No Is Inner Casing Intact? ☑ Yes ☐ No

Is Inner Casing Properly Capped and Vented? ☑ Yes ☐ No Reference Point ? ☑ Yes ☐ No

VOLUME OF WATER: $(d/24)^2$ (23.5)(TD-WL) = One Well Volume (2"=0.163; 4"=0.653)

Standing in well: 11 gal. To be purged: 33 gal.

PURGE DATA:

METHOD: ☐ Bladder Pump ☑ Submersible Pump ☐ Bailer

☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other: ______

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel ☐ PVC ☐ Other: ______

Tubing/Rope: ☐ Teflon® ☐ Stainless Steel ☑ PVC ☐ Other: ______

PURGING EQUIPMENT: ☑ Dedicated ☐ Prepared Off-Site ☐ Field Cleaned ☐ Disposable

TIME SERIES DATA:

Time:	1827	1838	1849	1859			
Cum. Volume (gal):	Start	11	22	33			
Temp. (☑°C ☐°F):	27.6	27.1	27.0	28.1			
pH (Std. Units):	7.04	7.13	7.00	7.11			
Spec. Cond. (µmhos/cm)	2240	2300	2360	2330			
Turbidity (NTU):	13	119	37	12			
Other:							

Pumping Rate: 1.0 gal/min. Elapsed Time: 32 Volume Pumped: 33 gal.

SAMPLING DATA:

Sample Collection Time: 1859 Date: 7-6-21

Water Level at Time of Sample Collection: NA ft.

METHOD: ☐ Bladder Pump ☑ Submersible Pump ☐ Bailer ☐ Other: ______

MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel ☐ PVC ☐ Other: ______

Tubing/Rope: ☐ Teflon® ☐ Stainless Steel ☑ PVC ☐ Other: ______

SAMPLING EQUIPMENT: ☑ Dedicated ☐ Prepared Off-Site ☐ Field Cleaned ☐ Disposable

APPEARANCE: ☐ Clear ☑ Turbidity (NTU) 12 ☐ Color: ______

FIELD DETERMINATIONS: Temp. (☑°C ☐°F): 28.1 pH (SU): 7.11 Spec. Cond. (µmhos/cm): 2330

☐ Background ☐ Detection ☐ Assessment ☐ Quarterly ☐ Other

REMARKS: Field Blank here @ 1855

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: ______ Date: 7-6-21

Camino Real Landfill
Sunland Park, New Mexico

GROUNDWATER SAMPLING
FIELD DATA SHEET

Well Number: F
Project Number: 21-06-21

Project: 2021 Annual GME
Date: 7-6-21 Time: 1929
Personnel: Robertson
Weather Conditions: PCloudy Air Temp.: 83 °F

Calibration: pH Meter Model: Horiba U-52 Meter S/N: VBNERBKH Time: 1540
Conductivity Meter Model: same Meter S/N: same Time: same

WELL DATA:

Casing Diameter: 4 (in.) ☑ PVC ☐ Other:
DEPTH TO : Static Water: 162.79 ft. Well Bottom: 182.01 ft.
DATUM: ☐ Top of Protective Casing ☑ Top of Well Casing ☐ Other: ______
CONDITION Is Well clearly labeled? ☑ Yes ☐ No
Is Prot. Casing in Good Cond.? (not bent or corroded) ☑ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☐ Yes ☑ No Covered w/soil
Is Padlock Functional? ☑ Yes ☐ No Is Inner Casing Intact? ☑ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☑ Yes ☐ No Reference Point ? ☑ Yes ☐ No

VOLUME OF WATER: $(d/24)^2$ (23.5)(TD-WL) = One Well Volume (2"=0.163; 4"=0.653)
Standing in well: 13 gal. To be purged: 39 gal.

PURGE DATA:

METHOD: ☐ Bladder Pump ☑ Submersible Pump ☐ Bailer
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other: ______
MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel ☐ PVC ☐ Other: ______
Tubing/Rope: ☐ Teflon® ☐ Stainless Steel ☑ PVC ☐ Other: ______
PURGING EQUIPMENT: ☑ Dedicated ☐ Prepared Off-Site ☐ Field Cleaned ☐ Disposable
TIME SERIES DATA:

Time:	1934	1938	1942	1946			
Cum. Volume (gal):	Start	13	26	39			
Temp. (☑°C ☐°F):	25.1	25.7	26.3	26.4			
pH (Std. Units):	7.04	6.99	6.93	7.01			
Spec. Cond. (µmhos/cm)	2520	2090	2550	2660			
Turbidity (NTU):	1	41	3	1			
Other:							

Pumping Rate: 3.2 gal/min. Elapsed Time: 12 Volume Pumped: 39 gal.

SAMPLING DATA:

Sample Collection Time: 1946 Date: 7-6-21
Water Level at Time of Sample Collection: — ft.
METHOD: ☐ Bladder Pump ☑ Submersible Pump ☐ Bailer ☐ Other: ______
MATERIALS: Pump/Bailer: ☐ Teflon® ☑ Stainless Steel ☐ PVC ☐ Other: ______
Tubing/Rope: ☐ Teflon® ☐ Stainless Steel ☑ PVC ☐ Other: ______
SAMPLING EQUIPMENT: ☑ Dedicated ☐ Prepared Off-Site ☐ Field Cleaned ☐ Disposable
APPEARANCE: ☐ Clear ☑ Turbidity (NTU) 1 ☐ Color: ______
FIELD DETERMINATIONS: Temp. (☑°C ☐°F): 26.4 pH (SU): 7.01 Spec. Cond. (µmhos/cm): 2660

☐ Background ☐ Detection ☐ Assessment ☐ Quarterly ☐ Other

REMARKS:

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: Date: 7-6-21

Camino Real Landfill
Sunland Park, New Mexico

GROUNDWATER SAMPLING
FIELD DATA SHEET

Well Number: 6
Project Number: 21-06-21

Project: 2021 Annual GME
Personnel: Robertson
Date: 7-7-21
Weather Conditions: P Cloudy Air Temp: 75

WELL DATA:

Casing Diameter: 4 (in) ☑ PVC ☐ Other:

DEPTH TO: Static Water Level (WL): 198.95 (ft) Well Bottom: (ft)

DATUM: ☑ Top of Well Casing ☐ Top of Protective Casing ☐ Other:

CONDITION: Is well clearly labeled? ☑ Yes ☐ No

Is prot. casing in good cond.? (not bent or corroded) ☑ Yes ☐ No

Is concrete pad intact? (not cracked or frost heaved) ☐ Yes ☑ No Cracked

Is concrete pad covered with soil/debris? ☐ Yes ☑ No

Is padlock functional? ☑ Yes ☐ No Is inner casing intact? ☑ Yes ☐ No

Is inner casing properly capped and vented? ☑ Yes ☐ No Is Reference Point present? ☑ Yes ☐ No

PURGE DATA:

Low-Flow Purging Used? ☑ Yes ☐ No

METHOD: ☑ Bladder Pump ☐ Bailer ☐ Other:

(if no – Water Standing in Well (gal)
To be Purged (gal)

MATERIALS: Type of Pump: QED Well Wizard

Tubing: ☑ Teflon® ☐ Polyethylene ☐ Polypropylene ☐ Other:

PURGING EQUIPMENT: ☑ Dedicated ☐ Prepared Off-Site ☐ Field-Cleaned

PROCEDURES: Pump & Tubing Vol.: (ml) Pumping Rate: 200 (ml/min)

CALIBRATION: pH Meter Model: Horiba Meter S/N: VBNERPKH Time: 0715

Cond. Meter Model: Same Meter S/N: Same Time: Same

TIME SERIES DATA:

Time:	0811	0816	0821	0826	0831	0836	
Cum. Volume Removed (ml)	Start	1000	2000	3000	4000	5000	
Temp. (°C):	---	22.7	22.6	22.7	22.9	23.1	
pH (s.u.):	---	7.12	7.07	7.09	7.07	7.04	
Spec. Cond. (µmhos/cm):	---	2130	2130	2140	2130	2120	
Turbidity (NTU):	---	|	|	|	|	|	
DO (mg/L)	---	9.15	6.49	6.53	5.69	5.40	
ORP (mV)	---	134	134	137	138	138	

SAMPLING DATA:

Sample Collection Time: 0836

Water Level at Time of Sample: 199.45

METHOD: ☑ Bladder Pump ☐ Bailer ☐ Other:

SAMPLING EQUIPMENT: ☑ Dedicated ☐ Prepared Off-Site ☐ Field-Cleaned

APPEARANCE: ☐ Clear Turbid (NTU): | Color: ☐ Contains Immiscible Liquid

FIELD DETERMINATIONS: Temp. (°C): 23.1 pH (s.u.): 7.04 Spec. Cond. (µmhos/cm): 2120

☐ Background ☐ Detection ☐ Assessment ☐ Quarterly ☐ Other

REMARKS: Refill = 14 Disch. = 7, 112 psi

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: Date: 7-7-21

Camino Real Landfill
Sunland Park, New Mexico

GROUNDWATER SAMPLING FIELD DATA SHEET

Well Number: H
Project Number: 21-06-21

Project: 2021 Annual GME
Personnel: Robertson
Date: 7-6-21
Time:
Weather Conditions: PCloudy
Air Temp.: 90 °F

Calibration: pH Meter Model: ______ Meter S/N: ______ Time: ______
Conductivity Meter Model: same Meter S/N: same Time: same

WELL DATA:

Casing Diameter: 4 (in.) ☑ PVC ☐ Other:
DEPTH TO : Static Water: 388.31 ft. Well Bottom: ______ ft.
DATUM: ☐ Top of Protective Casing ☑ Top of Well Casing ☐ Other: ______
CONDITION: Is Well clearly labeled? ☐ Yes ☑ No
Is Prot. Casing in Good Cond.? (not bent or corroded) ☑ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☐ Yes ☑ No not visible-covered w/sand
Is Padlock Functional? ☑ Yes ☐ No Is Inner Casing Intact? ☑ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☑ Yes ☐ No Reference Point ? ☑ Yes ☐ No

VOLUME OF WATER: $(d/24)^2$ (23.5)(TD-WL) = One Well Volume (2"=0.163; 4"=0.653)

Standing in well: ______ gal. To be purged: ______ gal.

PURGE DATA:

METHOD: ☐ Bladder Pump ☐ Submersible Pump ☐ Bailer
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Other: ______
MATERIALS: Pump/Bailer: ☐ Teflon® ☐ Stainless Steel ☐ PVC ☐ Other: ______
Tubing/Rope: ☐ Teflon® ☐ Stainless Steel ☐ PVC ☐ Other: ______
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☐ Field Cleaned ☐ Disposable
TIME SERIES DATA:

Time:							
Cum. Volume (gal):							
Temp. (☐°C ☐°F):							
pH (Std. Units):							
Spec. Cond. (µmhos/cm):							
Turbidity (NTU):							
Other:							

Pumping Rate: ______ gal/min. Elapsed Time: ______ Volume Pumped: ______ gal.

SAMPLING DATA:

Sample Collection Time: ______ Date: ______
Water Level at Time of Sample Collection: ______ ft.
METHOD: ☐ Bladder Pump ☐ Submersible Pump ☐ Bailer ☐ Other: ______
MATERIALS: Pump/Bailer: ☐ Teflon® ☐ Stainless Steel ☐ PVC ☐ Other: ______
Tubing/Rope: ☐ Teflon® ☐ Stainless Steel ☐ PVC ☐ Other: ______
SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☐ Field Cleaned ☐ Disposable
APPEARANCE: ☐ Clear ☐ Turbidity (NTU) ______ ☐ Color: ______
FIELD DETERMINATIONS: Temp. (☐ °C ☐ °F): ______ pH (SU): ______ Spec. Cond. (µmhos/cm): ______

☐ Background ☐ Detection ☐ Assessment ☐ Quarterly ☐ Other

REMARKS: Water Level Only

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: ______ Date: 7-6-21

APPENDIX B

LABORATORY REPORTS

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

August 06, 2021

Kevin Carel
Carel Corporation
136 Pecan St
Keller, TX 76248
TEL: (817) 337-0112
FAX:

RE: Camino Real Landfill 2019 Annual GME OrderNo.: 2107339

Dear Kevin Carel:

Hall Environmental Analysis Laboratory received 9 sample(s) on 7/8/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2107339**
Date Reported: **8/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Carel Corporation
Client Sample ID: Well A
Project: Camino Real Landfill 2019 Annual GME
Collection Date: 7/6/2021 8:16:00 PM
Lab ID: 2107339-001
Matrix: GROUNDWA
Received Date: 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS						Analyst:	**bcv**
Arsenic	0.013	0.0010	*	mg/L	1	7/9/2021 4:26:29 PM	A79692
Selenium	0.0036	0.0010		mg/L	1	7/9/2021 4:26:29 PM	A79692
EPA METHOD 300.0: ANIONS						Analyst:	**JMT**
Fluoride	0.53	0.10		mg/L	1	7/12/2021 3:36:34 PM	R79741
Chloride	380	10		mg/L	20	7/12/2021 3:48:59 PM	R79741
Sulfate	870	10		mg/L	20	7/12/2021 3:48:59 PM	R79741
Nitrate+Nitrite as N	ND	0.50		mg/L	2.5	7/12/2021 9:48:52 PM	R79741
SM2510B: SPECIFIC CONDUCTANCE						Analyst:	**JRR**
Conductivity	2600	10		µmhos/c	1	7/15/2021 4:36:47 PM	R79813
SM2320B: ALKALINITY						Analyst:	**JRR**
Bicarbonate (As CaCO3)	28.88	20.00		mg/L Ca	1	7/15/2021 4:36:47 PM	R79813
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	7/15/2021 4:36:47 PM	R79813
Total Alkalinity (as CaCO3)	28.88	20.00		mg/L Ca	1	7/15/2021 4:36:47 PM	R79813
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**KS**
Total Dissolved Solids	1740	20.0	*	mg/L	1	7/13/2021 6:42:00 PM	61243
TOTAL NITROGEN						Analyst:	**CJS**
Nitrogen, Total	ND	1.0		mg/L	1	7/23/2021 2:30:00 PM	R80032
SM4500-H+B / 9040C: PH						Analyst:	**JRR**
pH	7.71		H	pH units	1	7/15/2021 4:36:47 PM	R79813
SM 4500 NORG C: TKN						Analyst:	**EKM**
Nitrogen, Kjeldahl, Total	ND	1.0		mg/L	1	7/21/2021 2:12:00 PM	61425
EPA METHOD 200.7: METALS						Analyst:	**ELS**
Aluminum	ND	0.020		mg/L	1	7/9/2021 11:43:51 AM	B79689
Barium	0.020	0.0030		mg/L	1	7/9/2021 11:43:51 AM	B79689
Boron	0.47	0.040		mg/L	1	7/9/2021 11:43:51 AM	B79689
Calcium	140	5.0		mg/L	5	7/9/2021 11:55:24 AM	B79689
Chromium	ND	0.0060		mg/L	1	7/9/2021 11:43:51 AM	B79689
Iron	ND	0.050		mg/L	1	7/9/2021 11:43:51 AM	B79689
Magnesium	3.2	1.0		mg/L	1	7/9/2021 12:35:32 PM	B79689
Manganese	ND	0.0020		mg/L	1	7/9/2021 11:43:51 AM	B79689
Potassium	6.7	1.0		mg/L	1	7/9/2021 11:43:51 AM	B79689
Sodium	440	5.0		mg/L	5	7/9/2021 11:55:24 AM	B79689
Sulfur	270	5.0		mg/L	5	7/9/2021 11:55:24 AM	B79689
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Benzene	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Date Reported: **8/6/2021**

CLIENT: Carel Corporation
Project: Camino Real Landfill 2019 Annual GME
Lab ID: 2107339-001 **Matrix:** GROUNDWA

Client Sample ID: Well A
Collection Date: 7/6/2021 8:16:00 PM
Received Date: 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Toluene	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Ethylbenzene	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Acetone	ND	10		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Bromodichloromethane	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Bromoform	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Bromomethane	ND	2.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
2-Butanone	ND	10		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Carbon disulfide	ND	10		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Carbon Tetrachloride	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Chlorobenzene	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Chloroethane	ND	2.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Chloroform	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Chloromethane	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
cis-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Dibromochloromethane	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Dibromomethane	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
1,1-Dichloroethane	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
1,1-Dichloroethene	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
1,2-Dichloropropane	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
2-Hexanone	ND	10		µg/L	1	7/15/2021 7:27:59 PM	LF79839
4-Methyl-2-pentanone	ND	10		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Methylene Chloride	ND	2.5		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Styrene	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
trans-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Trichlorofluoromethane	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
1,2,3-Trichloropropane	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Vinyl chloride	ND	1.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation
Client Sample ID: Well A
Project: Camino Real Landfill 2019 Annual GME
Collection Date: 7/6/2021 8:16:00 PM
Lab ID: 2107339-001
Matrix: GROUNDWA
Received Date: 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Xylenes, Total	ND	2.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Acrylonitrile	ND	10		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Bromochloromethane	ND	2.0		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Iodomethane	ND	10		µg/L	1	7/15/2021 7:27:59 PM	LF79839
trans-1,4-Dichloro-2-butene	ND	10		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Vinyl acetate	ND	10		µg/L	1	7/15/2021 7:27:59 PM	LF79839
Surr: 1,2-Dichloroethane-d4	112	70-130		%Rec	1	7/15/2021 7:27:59 PM	LF79839
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	7/15/2021 7:27:59 PM	LF79839
Surr: Dibromofluoromethane	106	70-130		%Rec	1	7/15/2021 7:27:59 PM	LF79839
Surr: Toluene-d8	98.1	70-130		%Rec	1	7/15/2021 7:27:59 PM	LF79839
TOTAL PHENOLICS BY SW-846 9067						Analyst:	**JPM**
Phenolics	ND	2.5		µg/L	1	7/20/2021 10:10:00 AM	61424

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation
Client Sample ID: Well B
Project: Camino Real Landfill 2019 Annual GME
Collection Date: 7/7/2021 7:44:00 AM
Lab ID: 2107339-002
Matrix: GROUNDWA
Received Date: 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS						Analyst:	**bcv**
Arsenic	0.0026	0.0010		mg/L	1	7/14/2021 11:54:37 AM	61253
Selenium	0.013	0.0010		mg/L	1	7/14/2021 11:54:37 AM	61253
EPA METHOD 300.0: ANIONS						Analyst:	**JMT**
Fluoride	0.40	0.10		mg/L	1	7/12/2021 4:51:02 PM	R79741
Chloride	310	10		mg/L	20	7/12/2021 5:03:27 PM	R79741
Sulfate	850	10		mg/L	20	7/12/2021 5:03:27 PM	R79741
Nitrate+Nitrite as N	1.2	0.50		mg/L	2.5	7/12/2021 10:01:17 PM	R79741
SM2510B: SPECIFIC CONDUCTANCE						Analyst:	**JRR**
Conductivity	2400	10		µmhos/c	1	7/15/2021 4:43:56 PM	R79813
SM2320B: ALKALINITY						Analyst:	**JRR**
Bicarbonate (As CaCO3)	43.92	20.00		mg/L Ca	1	7/15/2021 4:43:56 PM	R79813
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	7/15/2021 4:43:56 PM	R79813
Total Alkalinity (as CaCO3)	43.92	20.00		mg/L Ca	1	7/15/2021 4:43:56 PM	R79813
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**KS**
Total Dissolved Solids	1650	20.0	*	mg/L	1	7/13/2021 6:42:00 PM	61243
TOTAL NITROGEN						Analyst:	**CJS**
Nitrogen, Total	1.2	1.0		mg/L	1	7/23/2021 2:30:00 PM	R80032
SM4500-H+B / 9040C: PH						Analyst:	**JRR**
pH	7.78		H	pH units	1	7/15/2021 4:43:56 PM	R79813
SM 4500 NORG C: TKN						Analyst:	**EKM**
Nitrogen, Kjeldahl, Total	ND	1.0		mg/L	1	7/21/2021 2:12:00 PM	61425
EPA METHOD 200.7: METALS						Analyst:	**ELS**
Aluminum	ND	0.020		mg/L	1	7/13/2021 10:32:57 AM	61253
Barium	0.022	0.0030		mg/L	1	7/13/2021 10:32:57 AM	61253
Boron	0.40	0.040		mg/L	1	7/13/2021 10:32:57 AM	61253
Calcium	190	5.0		mg/L	5	7/13/2021 10:34:38 AM	61253
Chromium	ND	0.0060		mg/L	1	7/13/2021 10:32:57 AM	61253
Iron	0.46	0.050	*	mg/L	1	7/13/2021 10:32:57 AM	61253
Magnesium	19	1.0		mg/L	1	7/13/2021 10:32:57 AM	61253
Manganese	ND	0.0020		mg/L	1	7/13/2021 10:32:57 AM	61253
Potassium	12	1.0		mg/L	1	7/13/2021 10:32:57 AM	61253
Sodium	280	5.0		mg/L	5	7/13/2021 10:34:38 AM	61253
Sulfur	240	5.0		mg/L	5	7/13/2021 10:34:38 AM	61253
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Benzene	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation **Client Sample ID:** Well B
Project: Camino Real Landfill 2019 Annual GME **Collection Date:** 7/7/2021 7:44:00 AM
Lab ID: 2107339-002 **Matrix:** GROUNDWA **Received Date:** 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Toluene	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Ethylbenzene	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Acetone	ND	10		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Bromodichloromethane	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Bromoform	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Bromomethane	ND	2.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
2-Butanone	ND	10		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Carbon disulfide	ND	10		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Carbon Tetrachloride	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Chlorobenzene	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Chloroethane	ND	2.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Chloroform	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Chloromethane	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
cis-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Dibromochloromethane	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Dibromomethane	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
1,1-Dichloroethane	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
1,1-Dichloroethene	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
1,2-Dichloropropane	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
2-Hexanone	ND	10		µg/L	1	7/15/2021 8:49:06 PM	LF79839
4-Methyl-2-pentanone	ND	10		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Methylene Chloride	ND	2.5		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Styrene	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
trans-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Trichlorofluoromethane	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
1,2,3-Trichloropropane	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Vinyl chloride	ND	1.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Carel Corporation
Client Sample ID: Well B
Project: Camino Real Landfill 2019 Annual GME
Collection Date: 7/7/2021 7:44:00 AM
Lab ID: 2107339-002
Matrix: GROUNDWA
Received Date: 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Xylenes, Total	ND	2.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Acrylonitrile	ND	10		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Bromochloromethane	ND	2.0		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Iodomethane	ND	10		µg/L	1	7/15/2021 8:49:06 PM	LF79839
trans-1,4-Dichloro-2-butene	ND	10		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Vinyl acetate	ND	10		µg/L	1	7/15/2021 8:49:06 PM	LF79839
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	7/15/2021 8:49:06 PM	LF79839
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	1	7/15/2021 8:49:06 PM	LF79839
Surr: Dibromofluoromethane	106	70-130		%Rec	1	7/15/2021 8:49:06 PM	LF79839
Surr: Toluene-d8	101	70-130		%Rec	1	7/15/2021 8:49:06 PM	LF79839
TOTAL PHENOLICS BY SW-846 9067						Analyst:	**JPM**
Phenolics	ND	2.5		µg/L	1	7/20/2021 10:10:00 AM	61424

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation **Client Sample ID:** Well D2
Project: Camino Real Landfill 2019 Annual GME **Collection Date:** 7/6/2021 5:02:00 PM
Lab ID: 2107339-003 **Matrix:** GROUNDWA **Received Date:** 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS						Analyst:	**bcv**
Arsenic	0.0027	0.0010		mg/L	1	7/9/2021 4:31:12 PM	A79692
Selenium	0.010	0.0010		mg/L	1	7/9/2021 4:31:12 PM	A79692
EPA METHOD 300.0: ANIONS						Analyst:	**JMT**
Fluoride	0.42	0.10		mg/L	1	7/12/2021 5:15:51 PM	R79741
Chloride	140	10		mg/L	20	7/12/2021 5:28:15 PM	R79741
Sulfate	430	10		mg/L	20	7/12/2021 5:28:15 PM	R79741
Nitrate+Nitrite as N	1.4	0.50		mg/L	2.5	7/12/2021 10:13:41 PM	R79741
SM2510B: SPECIFIC CONDUCTANCE						Analyst:	**JRR**
Conductivity	1400	10		µmhos/c	1	7/15/2021 4:50:53 PM	R79813
SM2320B: ALKALINITY						Analyst:	**JRR**
Bicarbonate (As CaCO3)	52.92	20.00		mg/L Ca	1	7/15/2021 4:50:53 PM	R79813
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	7/15/2021 4:50:53 PM	R79813
Total Alkalinity (as CaCO3)	52.92	20.00		mg/L Ca	1	7/15/2021 4:50:53 PM	R79813
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**KS**
Total Dissolved Solids	929	20.0	*	mg/L	1	7/13/2021 6:42:00 PM	61243
TOTAL NITROGEN						Analyst:	**CJS**
Nitrogen, Total	1.4	1.0		mg/L	1	7/23/2021 2:30:00 PM	R80032
SM4500-H+B / 9040C: PH						Analyst:	**JRR**
pH	7.89		H	pH units	1	7/15/2021 4:50:53 PM	R79813
SM 4500 NORG C: TKN						Analyst:	**EKM**
Nitrogen, Kjeldahl, Total	ND	1.0		mg/L	1	7/21/2021 2:12:00 PM	61425
EPA METHOD 200.7: METALS						Analyst:	**ELS**
Aluminum	ND	0.020		mg/L	1	7/9/2021 11:45:32 AM	B79689
Barium	0.018	0.0030		mg/L	1	7/9/2021 11:45:32 AM	B79689
Boron	0.34	0.040		mg/L	1	7/9/2021 11:45:32 AM	B79689
Calcium	110	5.0		mg/L	5	7/9/2021 12:10:05 PM	B79689
Chromium	ND	0.0060		mg/L	1	7/9/2021 11:45:32 AM	B79689
Iron	ND	0.050		mg/L	1	7/9/2021 11:45:32 AM	B79689
Magnesium	12	1.0		mg/L	1	7/9/2021 12:37:15 PM	B79689
Manganese	ND	0.0020		mg/L	1	7/9/2021 11:45:32 AM	B79689
Potassium	8.9	1.0		mg/L	1	7/9/2021 11:45:32 AM	B79689
Sodium	180	5.0		mg/L	5	7/9/2021 12:10:05 PM	B79689
Sulfur	150	5.0		mg/L	5	7/9/2021 12:10:05 PM	B79689
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Benzene	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation **Client Sample ID:** Well D2
Project: Camino Real Landfill 2019 Annual GME **Collection Date:** 7/6/2021 5:02:00 PM
Lab ID: 2107339-003 **Matrix:** GROUNDWA **Received Date:** 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Toluene	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Ethylbenzene	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Acetone	ND	10		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Bromodichloromethane	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Bromoform	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Bromomethane	ND	2.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
2-Butanone	ND	10		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Carbon disulfide	ND	10		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Carbon Tetrachloride	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Chlorobenzene	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Chloroethane	ND	2.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Chloroform	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Chloromethane	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
cis-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Dibromochloromethane	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Dibromomethane	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
1,1-Dichloroethane	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
1,1-Dichloroethene	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
1,2-Dichloropropane	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
2-Hexanone	ND	10		µg/L	1	7/15/2021 9:16:06 PM	LF79839
4-Methyl-2-pentanone	ND	10		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Methylene Chloride	ND	2.5		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Styrene	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
trans-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Trichlorofluoromethane	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
1,2,3-Trichloropropane	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Vinyl chloride	ND	1.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation
Client Sample ID: Well D2
Project: Camino Real Landfill 2019 Annual GME
Collection Date: 7/6/2021 5:02:00 PM
Lab ID: 2107339-003
Matrix: GROUNDWA
Received Date: 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Xylenes, Total	ND	2.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Acrylonitrile	ND	10		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Bromochloromethane	ND	2.0		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Iodomethane	ND	10		µg/L	1	7/15/2021 9:16:06 PM	LF79839
trans-1,4-Dichloro-2-butene	ND	10		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Vinyl acetate	ND	10		µg/L	1	7/15/2021 9:16:06 PM	LF79839
Surr: 1,2-Dichloroethane-d4	107	70-130		%Rec	1	7/15/2021 9:16:06 PM	LF79839
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	7/15/2021 9:16:06 PM	LF79839
Surr: Dibromofluoromethane	106	70-130		%Rec	1	7/15/2021 9:16:06 PM	LF79839
Surr: Toluene-d8	100	70-130		%Rec	1	7/15/2021 9:16:06 PM	LF79839
TOTAL PHENOLICS BY SW-846 9067						Analyst:	**JPM**
Phenolics	ND	2.5		µg/L	1	7/20/2021 10:10:00 AM	61424

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation
Client Sample ID: Well E
Project: Camino Real Landfill 2019 Annual GME
Collection Date: 7/6/2021 6:59:00 PM
Lab ID: 2107339-004
Matrix: GROUNDWA
Received Date: 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS						Analyst:	**bcv**
Arsenic	0.0099	0.0010		mg/L	1	7/14/2021 11:57:02 AM	61253
Selenium	0.017	0.0010		mg/L	1	7/14/2021 11:57:02 AM	61253
EPA METHOD 300.0: ANIONS						Analyst:	**JMT**
Fluoride	0.54	0.50		mg/L	5	7/12/2021 5:40:39 PM	R79741
Chloride	250	10		mg/L	20	7/12/2021 5:53:04 PM	R79741
Sulfate	930	10		mg/L	20	7/12/2021 5:53:04 PM	R79741
Nitrate+Nitrite as N	2.1	0.50		mg/L	2.5	7/12/2021 10:26:06 PM	R79741
SM2510B: SPECIFIC CONDUCTANCE						Analyst:	**JRR**
Conductivity	2400	10		µmhos/c	1	7/15/2021 4:58:01 PM	R79813
SM2320B: ALKALINITY						Analyst:	**JRR**
Bicarbonate (As CaCO3)	49.04	20.00		mg/L Ca	1	7/15/2021 4:58:01 PM	R79813
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	7/15/2021 4:58:01 PM	R79813
Total Alkalinity (as CaCO3)	49.04	20.00		mg/L Ca	1	7/15/2021 4:58:01 PM	R79813
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**KS**
Total Dissolved Solids	1690	40.0	*D	mg/L	1	7/13/2021 6:42:00 PM	61243
TOTAL NITROGEN						Analyst:	**CJS**
Nitrogen, Total	2.1	1.0		mg/L	1	7/23/2021 2:30:00 PM	R80032
SM4500-H+B / 9040C: PH						Analyst:	**JRR**
pH	7.80		H	pH units	1	7/15/2021 4:58:01 PM	R79813
SM 4500 NORG C: TKN						Analyst:	**EKM**
Nitrogen, Kjeldahl, Total	ND	1.0		mg/L	1	7/21/2021 2:12:00 PM	61425
EPA METHOD 200.7: METALS						Analyst:	**ELS**
Aluminum	0.10	0.020		mg/L	1	7/13/2021 10:36:16 AM	61253
Barium	0.017	0.0030		mg/L	1	7/13/2021 10:36:16 AM	61253
Boron	0.58	0.040		mg/L	1	7/13/2021 10:36:16 AM	61253
Calcium	210	5.0		mg/L	5	7/13/2021 10:37:40 AM	61253
Chromium	0.093	0.0060		mg/L	1	7/13/2021 10:36:16 AM	61253
Iron	3.9	0.25	*	mg/L	5	7/13/2021 10:37:40 AM	61253
Magnesium	27	1.0		mg/L	1	7/13/2021 10:36:16 AM	61253
Manganese	0.015	0.0020		mg/L	1	7/13/2021 10:36:16 AM	61253
Potassium	12	1.0		mg/L	1	7/13/2021 10:36:16 AM	61253
Sodium	280	5.0		mg/L	5	7/13/2021 10:37:40 AM	61253
Sulfur	270	5.0		mg/L	5	7/13/2021 10:37:40 AM	61253
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Benzene	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quanitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation **Client Sample ID:** Well E
Project: Camino Real Landfill 2019 Annual GME **Collection Date:** 7/6/2021 6:59:00 PM
Lab ID: 2107339-004 **Matrix:** GROUNDWA **Received Date:** 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Toluene	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Ethylbenzene	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Acetone	ND	10		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Bromodichloromethane	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Bromoform	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Bromomethane	ND	2.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
2-Butanone	ND	10		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Carbon disulfide	ND	10		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Carbon Tetrachloride	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Chlorobenzene	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Chloroethane	ND	2.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Chloroform	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Chloromethane	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
cis-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Dibromochloromethane	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Dibromomethane	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
1,1-Dichloroethane	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
1,1-Dichloroethene	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
1,2-Dichloropropane	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
2-Hexanone	ND	10		µg/L	1	7/15/2021 9:43:05 PM	LF79839
4-Methyl-2-pentanone	ND	10		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Methylene Chloride	ND	2.5		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Styrene	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
trans-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Trichlorofluoromethane	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
1,2,3-Trichloropropane	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Vinyl chloride	ND	1.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation | **Client Sample ID:** Well E
Project: Camino Real Landfill 2019 Annual GME | **Collection Date:** 7/6/2021 6:59:00 PM
Lab ID: 2107339-004 | **Matrix:** GROUNDWA | **Received Date:** 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Xylenes, Total	ND	2.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Acrylonitrile	ND	10		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Bromochloromethane	ND	2.0		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Iodomethane	ND	10		µg/L	1	7/15/2021 9:43:05 PM	LF79839
trans-1,4-Dichloro-2-butene	ND	10		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Vinyl acetate	ND	10		µg/L	1	7/15/2021 9:43:05 PM	LF79839
Surr: 1,2-Dichloroethane-d4	113	70-130		%Rec	1	7/15/2021 9:43:05 PM	LF79839
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	7/15/2021 9:43:05 PM	LF79839
Surr: Dibromofluoromethane	110	70-130		%Rec	1	7/15/2021 9:43:05 PM	LF79839
Surr: Toluene-d8	101	70-130		%Rec	1	7/15/2021 9:43:05 PM	LF79839
TOTAL PHENOLICS BY SW-846 9067						Analyst:	**JPM**
Phenolics	ND	2.5		µg/L	1	7/20/2021 10:10:00 AM	61424

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation
Client Sample ID: Well F
Project: Camino Real Landfill 2019 Annual GME
Collection Date: 7/6/2021 7:46:00 PM
Lab ID: 2107339-005
Matrix: GROUNDWA
Received Date: 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS						Analyst:	**bcv**
Arsenic	0.0044	0.0010		mg/L	1	7/14/2021 11:59:26 AM	61253
Selenium	0.022	0.0010		mg/L	1	7/14/2021 11:59:26 AM	61253
EPA METHOD 300.0: ANIONS						Analyst:	**JMT**
Fluoride	0.58	0.50		mg/L	5	7/12/2021 6:05:28 PM	R79741
Chloride	410	25		mg/L	50	7/19/2021 3:28:40 PM	R79904
Sulfate	830	10		mg/L	20	7/12/2021 6:17:53 PM	R79741
Nitrate+Nitrite as N	1.7	0.50		mg/L	2.5	7/12/2021 10:38:30 PM	R79741
SM2510B: SPECIFIC CONDUCTANCE						Analyst:	**JRR**
Conductivity	2700	10		µmhos/c	1	7/15/2021 5:05:04 PM	R79813
SM2320B: ALKALINITY						Analyst:	**JRR**
Bicarbonate (As CaCO3)	56.36	20.00		mg/L Ca	1	7/15/2021 5:05:04 PM	R79813
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	7/15/2021 5:05:04 PM	R79813
Total Alkalinity (as CaCO3)	56.36	20.00		mg/L Ca	1	7/15/2021 5:05:04 PM	R79813
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**KS**
Total Dissolved Solids	1900	20.0	*	mg/L	1	7/13/2021 6:42:00 PM	61243
TOTAL NITROGEN						Analyst:	**CJS**
Nitrogen, Total	1.7	1.0		mg/L	1	7/23/2021 2:30:00 PM	R80032
SM4500-H+B / 9040C: PH						Analyst:	**JRR**
pH	7.76		H	pH units	1	7/15/2021 5:05:04 PM	R79813
SM 4500 NORG C: TKN						Analyst:	**EKM**
Nitrogen, Kjeldahl, Total	ND	1.0		mg/L	1	7/21/2021 2:12:00 PM	61425
EPA METHOD 200.7: METALS						Analyst:	**ELS**
Aluminum	0.13	0.020		mg/L	1	7/13/2021 10:39:06 AM	61253
Barium	0.057	0.0030		mg/L	1	7/13/2021 10:39:06 AM	61253
Boron	0.47	0.040		mg/L	1	7/13/2021 10:39:06 AM	61253
Calcium	240	5.0		mg/L	5	7/13/2021 10:40:32 AM	61253
Chromium	0.017	0.0060		mg/L	1	7/13/2021 10:39:06 AM	61253
Iron	1.2	0.25	*	mg/L	5	7/13/2021 10:40:32 AM	61253
Magnesium	33	1.0		mg/L	1	7/13/2021 10:39:06 AM	61253
Manganese	0.013	0.0020		mg/L	1	7/13/2021 10:39:06 AM	61253
Potassium	13	1.0		mg/L	1	7/13/2021 10:39:06 AM	61253
Sodium	290	5.0		mg/L	5	7/13/2021 10:40:32 AM	61253
Sulfur	240	5.0		mg/L	5	7/13/2021 10:40:32 AM	61253
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Benzene	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation **Client Sample ID:** Well F
Project: Camino Real Landfill 2019 Annual GME **Collection Date:** 7/6/2021 7:46:00 PM
Lab ID: 2107339-005 **Matrix:** GROUNDWA **Received Date:** 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Toluene	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Ethylbenzene	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Acetone	ND	10		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Bromodichloromethane	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Bromoform	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Bromomethane	ND	2.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
2-Butanone	ND	10		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Carbon disulfide	ND	10		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Carbon Tetrachloride	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Chlorobenzene	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Chloroethane	ND	2.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Chloroform	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Chloromethane	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
cis-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Dibromochloromethane	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Dibromomethane	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
1,1-Dichloroethane	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
1,1-Dichloroethene	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
1,2-Dichloropropane	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
2-Hexanone	ND	10		µg/L	1	7/15/2021 10:10:02 PM	LF79839
4-Methyl-2-pentanone	ND	10		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Methylene Chloride	ND	2.5		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Styrene	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
trans-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Trichlorofluoromethane	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
1,2,3-Trichloropropane	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Vinyl chloride	ND	1.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Carel Corporation
Project: Camino Real Landfill 2019 Annual GME
Lab ID: 2107339-005 **Matrix:** GROUNDWA
Client Sample ID: Well F
Collection Date: 7/6/2021 7:46:00 PM
Received Date: 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Xylenes, Total	ND	2.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Acrylonitrile	ND	10		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Bromochloromethane	ND	2.0		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Iodomethane	ND	10		µg/L	1	7/15/2021 10:10:02 PM	LF79839
trans-1,4-Dichloro-2-butene	ND	10		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Vinyl acetate	ND	10		µg/L	1	7/15/2021 10:10:02 PM	LF79839
Surr: 1,2-Dichloroethane-d4	112	70-130		%Rec	1	7/15/2021 10:10:02 PM	LF79839
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	7/15/2021 10:10:02 PM	LF79839
Surr: Dibromofluoromethane	107	70-130		%Rec	1	7/15/2021 10:10:02 PM	LF79839
Surr: Toluene-d8	99.1	70-130		%Rec	1	7/15/2021 10:10:02 PM	LF79839
TOTAL PHENOLICS BY SW-846 9067						Analyst:	**JPM**
Phenolics	ND	2.5		µg/L	1	7/20/2021 10:10:00 AM	61424

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation **Client Sample ID:** Well G
Project: Camino Real Landfill 2019 Annual GME **Collection Date:** 7/7/2021 8:36:00 AM
Lab ID: 2107339-006 **Matrix:** GROUNDWA **Received Date:** 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS						Analyst:	**bcv**
Arsenic	0.0014	0.0010		mg/L	1	7/9/2021 4:35:55 PM	A79692
Selenium	0.0012	0.0010		mg/L	1	7/9/2021 4:35:55 PM	A79692
EPA METHOD 300.0: ANIONS						Analyst:	**JMT**
Fluoride	ND	0.50		mg/L	5	7/12/2021 6:55:07 PM	R79741
Chloride	380	10		mg/L	20	7/12/2021 7:07:32 PM	R79741
Sulfate	330	10		mg/L	20	7/12/2021 7:07:32 PM	R79741
Nitrate+Nitrite as N	ND	0.50		mg/L	2.5	7/12/2021 10:50:55 PM	R79741
SM2510B: SPECIFIC CONDUCTANCE						Analyst:	**JRR**
Conductivity	2300	10		µmhos/c	1	7/15/2021 5:16:20 PM	R79813
SM2320B: ALKALINITY						Analyst:	**JRR**
Bicarbonate (As CaCO3)	364.3	20.00		mg/L Ca	1	7/15/2021 5:16:20 PM	R79813
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	7/15/2021 5:16:20 PM	R79813
Total Alkalinity (as CaCO3)	364.3	20.00		mg/L Ca	1	7/15/2021 5:16:20 PM	R79813
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**KS**
Total Dissolved Solids	1430	20.0	*	mg/L	1	7/13/2021 6:42:00 PM	61243
TOTAL NITROGEN						Analyst:	**CJS**
Nitrogen, Total	ND	1.0		mg/L	1	7/23/2021 2:30:00 PM	R80032
SM4500-H+B / 9040C: PH						Analyst:	**JRR**
pH	7.51		H	pH units	1	7/15/2021 5:16:20 PM	R79813
SM 4500 NORG C: TKN						Analyst:	**EKM**
Nitrogen, Kjeldahl, Total	ND	1.0		mg/L	1	7/21/2021 2:12:00 PM	61425
EPA METHOD 200.7: METALS						Analyst:	**ELS**
Aluminum	ND	0.020		mg/L	1	7/9/2021 11:47:17 AM	B79689
Barium	0.035	0.0030		mg/L	1	7/9/2021 11:47:17 AM	B79689
Boron	0.53	0.040		mg/L	1	7/9/2021 11:47:17 AM	B79689
Calcium	160	5.0		mg/L	5	7/9/2021 12:11:46 PM	B79689
Chromium	ND	0.0060		mg/L	1	7/9/2021 11:47:17 AM	B79689
Iron	ND	0.050		mg/L	1	7/9/2021 11:47:17 AM	B79689
Magnesium	25	1.0		mg/L	1	7/9/2021 12:38:59 PM	B79689
Manganese	0.0086	0.0020		mg/L	1	7/9/2021 11:47:17 AM	B79689
Potassium	13	1.0		mg/L	1	7/9/2021 11:47:17 AM	B79689
Sodium	310	5.0		mg/L	5	7/9/2021 12:11:46 PM	B79689
Sulfur	120	5.0		mg/L	5	7/9/2021 12:11:46 PM	B79689
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Benzene	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2107339**
Date Reported: **8/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Carel Corporation
Project: Camino Real Landfill 2019 Annual GME
Lab ID: 2107339-006 **Matrix:** GROUNDWA

Client Sample ID: Well G
Collection Date: 7/7/2021 8:36:00 AM
Received Date: 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Toluene	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Ethylbenzene	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Acetone	ND	10		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Bromodichloromethane	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Bromoform	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Bromomethane	ND	2.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
2-Butanone	ND	10		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Carbon disulfide	ND	10		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Carbon Tetrachloride	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Chlorobenzene	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Chloroethane	ND	2.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Chloroform	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Chloromethane	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
cis-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Dibromochloromethane	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Dibromomethane	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Dichlorodifluoromethane	1.2	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
1,1-Dichloroethane	1.2	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
1,1-Dichloroethene	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
1,2-Dichloropropane	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
2-Hexanone	ND	10		µg/L	1	7/15/2021 10:36:58 PM	LF79839
4-Methyl-2-pentanone	ND	10		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Methylene Chloride	ND	2.5		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Styrene	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
trans-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Trichlorofluoromethane	1.9	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
1,2,3-Trichloropropane	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Vinyl chloride	ND	1.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation
Client Sample ID: Well G
Project: Camino Real Landfill 2019 Annual GME
Collection Date: 7/7/2021 8:36:00 AM
Lab ID: 2107339-006
Matrix: GROUNDWA
Received Date: 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Xylenes, Total	ND	2.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Acrylonitrile	ND	10		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Bromochloromethane	ND	2.0		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Iodomethane	ND	10		µg/L	1	7/15/2021 10:36:58 PM	LF79839
trans-1,4-Dichloro-2-butene	ND	10		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Vinyl acetate	ND	10		µg/L	1	7/15/2021 10:36:58 PM	LF79839
Surr: 1,2-Dichloroethane-d4	110	70-130		%Rec	1	7/15/2021 10:36:58 PM	LF79839
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	1	7/15/2021 10:36:58 PM	LF79839
Surr: Dibromofluoromethane	111	70-130		%Rec	1	7/15/2021 10:36:58 PM	LF79839
Surr: Toluene-d8	99.1	70-130		%Rec	1	7/15/2021 10:36:58 PM	LF79839
TOTAL PHENOLICS BY SW-846 9067						Analyst:	**JPM**
Phenolics	ND	2.5		µg/L	1	8/2/2021 7:35:00 AM	61645

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation **Client Sample ID:** Duplicate
Project: Camino Real Landfill 2019 Annual GME **Collection Date:** 7/6/2021
Lab ID: 2107339-007 **Matrix:** GROUNDWA **Received Date:** 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS						Analyst:	**bcv**
Arsenic	0.013	0.0010	*	mg/L	1	7/9/2021 4:40:39 PM	A79692
Selenium	0.0034	0.0010		mg/L	1	7/9/2021 4:40:39 PM	A79692
EPA METHOD 300.0: ANIONS						Analyst:	**JMT**
Fluoride	0.70	0.50		mg/L	5	7/12/2021 7:19:56 PM	R79741
Chloride	370	10		mg/L	20	7/12/2021 7:32:21 PM	R79741
Sulfate	850	10		mg/L	20	7/12/2021 7:32:21 PM	R79741
Nitrate+Nitrite as N	ND	0.50		mg/L	2.5	7/12/2021 11:03:20 PM	R79741
SM2510B: SPECIFIC CONDUCTANCE						Analyst:	**JRR**
Conductivity	2600	10		µmhos/c	1	7/15/2021 5:33:06 PM	R79813
SM2320B: ALKALINITY						Analyst:	**JRR**
Bicarbonate (As CaCO3)	29.72	20.00		mg/L Ca	1	7/15/2021 5:33:06 PM	R79813
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	7/15/2021 5:33:06 PM	R79813
Total Alkalinity (as CaCO3)	29.72	20.00		mg/L Ca	1	7/15/2021 5:33:06 PM	R79813
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**KS**
Total Dissolved Solids	1720	20.0	*	mg/L	1	7/13/2021 6:42:00 PM	61243
TOTAL NITROGEN						Analyst:	**CJS**
Nitrogen, Total	ND	1.0		mg/L	1	7/23/2021 2:30:00 PM	R80032
SM4500-H+B / 9040C: PH						Analyst:	**JRR**
pH	7.60		H	pH units	1	7/15/2021 5:33:06 PM	R79813
SM 4500 NORG C: TKN						Analyst:	**EKM**
Nitrogen, Kjeldahl, Total	ND	1.0		mg/L	1	7/21/2021 2:12:00 PM	61425
EPA METHOD 200.7: METALS						Analyst:	**ELS**
Aluminum	ND	0.020		mg/L	1	7/9/2021 11:48:58 AM	B79689
Barium	0.021	0.0030		mg/L	1	7/9/2021 11:48:58 AM	B79689
Boron	0.48	0.040		mg/L	1	7/9/2021 11:48:58 AM	B79689
Calcium	140	5.0		mg/L	5	7/9/2021 12:14:59 PM	B79689
Chromium	ND	0.0060		mg/L	1	7/9/2021 11:48:58 AM	B79689
Iron	ND	0.050		mg/L	1	7/9/2021 11:48:58 AM	B79689
Magnesium	3.3	1.0		mg/L	1	7/9/2021 12:40:43 PM	B79689
Manganese	ND	0.0020		mg/L	1	7/9/2021 11:48:58 AM	B79689
Potassium	6.9	1.0		mg/L	1	7/9/2021 11:48:58 AM	B79689
Sodium	460	5.0		mg/L	5	7/9/2021 12:14:59 PM	B79689
Sulfur	270	5.0		mg/L	5	7/9/2021 12:14:59 PM	B79689
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Benzene	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation **Client Sample ID:** Duplicate
Project: Camino Real Landfill 2019 Annual GME **Collection Date:** 7/6/2021
Lab ID: 2107339-007 **Matrix:** GROUNDWA **Received Date:** 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Toluene	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Ethylbenzene	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Acetone	ND	10		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Bromodichloromethane	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Bromoform	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Bromomethane	ND	2.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
2-Butanone	ND	10		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Carbon disulfide	ND	10		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Carbon Tetrachloride	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Chlorobenzene	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Chloroethane	ND	2.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Chloroform	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Chloromethane	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
cis-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Dibromochloromethane	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Dibromomethane	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
1,1-Dichloroethane	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
1,1-Dichloroethene	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
1,2-Dichloropropane	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
2-Hexanone	ND	10		µg/L	1	7/15/2021 11:03:54 PM	LF79839
4-Methyl-2-pentanone	ND	10		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Methylene Chloride	ND	2.5		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Styrene	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
trans-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Trichlorofluoromethane	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
1,2,3-Trichloropropane	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Vinyl chloride	ND	1.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation
Project: Camino Real Landfill 2019 Annual GME
Lab ID: 2107339-007 **Matrix:** GROUNDWA

Client Sample ID: Duplicate
Collection Date: 7/6/2021
Received Date: 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Xylenes, Total	ND	2.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Acrylonitrile	ND	10		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Bromochloromethane	ND	2.0		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Iodomethane	ND	10		µg/L	1	7/15/2021 11:03:54 PM	LF79839
trans-1,4-Dichloro-2-butene	ND	10		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Vinyl acetate	ND	10		µg/L	1	7/15/2021 11:03:54 PM	LF79839
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	7/15/2021 11:03:54 PM	LF79839
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	7/15/2021 11:03:54 PM	LF79839
Surr: Dibromofluoromethane	106	70-130		%Rec	1	7/15/2021 11:03:54 PM	LF79839
Surr: Toluene-d8	99.1	70-130		%Rec	1	7/15/2021 11:03:54 PM	LF79839
TOTAL PHENOLICS BY SW-846 9067						Analyst:	**JPM**
Phenolics	ND	2.5		µg/L	1	8/2/2021 7:35:00 AM	61645

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation
Project: Camino Real Landfill 2019 Annual GME
Lab ID: 2107339-008 **Matrix:** AQUEOUS

Client Sample ID: Field Blank
Collection Date: 7/6/2021 6:55:00 PM
Received Date: 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Benzene	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Toluene	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Ethylbenzene	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Acetone	58	10		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Bromodichloromethane	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Bromoform	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Bromomethane	ND	2.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
2-Butanone	ND	10		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Carbon disulfide	ND	10		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Carbon Tetrachloride	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Chlorobenzene	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Chloroethane	ND	2.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Chloroform	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Chloromethane	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
cis-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Dibromochloromethane	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Dibromomethane	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
1,1-Dichloroethane	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
1,1-Dichloroethene	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
1,2-Dichloropropane	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
2-Hexanone	ND	10		µg/L	1	7/15/2021 11:30:50 PM	LF79839
4-Methyl-2-pentanone	ND	10		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Methylene Chloride	ND	2.5		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Styrene	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
trans-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Trichlorofluoromethane	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
1,2,3-Trichloropropane	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation
Client Sample ID: Field Blank
Project: Camino Real Landfill 2019 Annual GME
Collection Date: 7/6/2021 6:55:00 PM
Lab ID: 2107339-008
Matrix: AQUEOUS
Received Date: 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Vinyl chloride	ND	1.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Xylenes, Total	ND	2.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Acrylonitrile	ND	10		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Bromochloromethane	ND	2.0		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Iodomethane	ND	10		µg/L	1	7/15/2021 11:30:50 PM	LF79839
trans-1,4-Dichloro-2-butene	ND	10		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Vinyl acetate	ND	10		µg/L	1	7/15/2021 11:30:50 PM	LF79839
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	7/15/2021 11:30:50 PM	LF79839
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	7/15/2021 11:30:50 PM	LF79839
Surr: Dibromofluoromethane	110	70-130		%Rec	1	7/15/2021 11:30:50 PM	LF79839
Surr: Toluene-d8	99.7	70-130		%Rec	1	7/15/2021 11:30:50 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

CLIENT: Carel Corporation **Client Sample ID:** Trip Blak
Project: Camino Real Landfill 2019 Annual GME **Collection Date:**
Lab ID: 2107339-009 **Matrix:** TRIP BLANK **Received Date:** 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
Benzene	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Toluene	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Ethylbenzene	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Acetone	ND	10		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Bromodichloromethane	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Bromoform	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Bromomethane	ND	2.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
2-Butanone	ND	10		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Carbon disulfide	ND	10		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Carbon Tetrachloride	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Chlorobenzene	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Chloroethane	ND	2.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Chloroform	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Chloromethane	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
cis-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Dibromochloromethane	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Dibromomethane	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
1,1-Dichloroethane	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
1,1-Dichloroethene	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
1,2-Dichloropropane	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
2-Hexanone	ND	10		µg/L	1	7/15/2021 11:57:45 PM	LF79839
4-Methyl-2-pentanone	ND	10		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Methylene Chloride	ND	2.5		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Styrene	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
trans-1,2-DCE	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Trichlorofluoromethane	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Carel Corporation
Client Sample ID: Trip Blak
Project: Camino Real Landfill 2019 Annual GME
Collection Date:
Lab ID: 2107339-009
Matrix: TRIP BLANK
Received Date: 7/8/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES, TABLE I						Analyst:	**RAA**
1,2,3-Trichloropropane	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Vinyl chloride	ND	1.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Xylenes, Total	ND	2.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Acrylonitrile	ND	10		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Bromochloromethane	ND	2.0		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Iodomethane	ND	10		µg/L	1	7/15/2021 11:57:45 PM	LF79839
trans-1,4-Dichloro-2-butene	ND	10		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Vinyl acetate	ND	10		µg/L	1	7/15/2021 11:57:45 PM	LF79839
Surr: 1,2-Dichloroethane-d4	111	70-130		%Rec	1	7/15/2021 11:57:45 PM	LF79839
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	7/15/2021 11:57:45 PM	LF79839
Surr: Dibromofluoromethane	109	70-130		%Rec	1	7/15/2021 11:57:45 PM	LF79839
Surr: Toluene-d8	98.3	70-130		%Rec	1	7/15/2021 11:57:45 PM	LF79839

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Anatek Labs, Inc.
1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Client: Hall Environmental Analysis Lab
Address: 4901 Hawkins NE Suite D
Albuquerque, NM 87109
Attn: Andy Freeman

Work Order: MBG0386
Project: 2107339
Reported: 7/28/2021 11:08

Analytical Results Report

Sample Location: 2107339-006F (Well G)
Lab/Sample Number: MBG0386-01
Collect Date: 07/07/21 08:36
Date Received: 07/13/21 11:40
Collected By:
Matrix: Groundwater

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Perchlorate	0.768	ug/L	0.0500	7/21/21 13:24	MER	EPA 331.0	

Analytical Results Report

(Continued)

Sample Location: 2107339-006G (Well G)
Lab/Sample Number: MBG0386-02 Collect Date: 07/07/21 08:36
Date Received: 07/13/21 11:40 Collected By:
Matrix: Groundwater

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
Sulfide	ND	mg/L	0.215	7/19/21 15:40	GPB	SM 4500-S2 F	H1

Analytical Results Report

(Continued)

Sample Location:	2107339-006H (Well G)		
Lab/Sample Number:	MBG0386-03	Collect Date:	07/07/21 08:36
Date Received:	07/13/21 11:40	Collected By:	
Matrix:	Groundwater		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Semivolatiles							
DCPA (Acid Metabolites)	0.204	ug/L	0.100	7/21/21 14:33	SAT	EPA 8151A	
Surrogate: DCINA	*79.7%*		*70-130*	*7/21/21 14:33*	*SAT*	*EPA 8151A*	

Authorized Signature,

Justin Doty For Todd Taruscio, Laboratory Manager

H1	Sample analysis performed past holding time.
PQL	Practical Quantitation Limit
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was spiked or duplicated.

This report shall not be reproduced except in full, without the written approval of the laboratory
The results reported related only to the samples indicated.

Quality Control Data

Inorganics

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBG0548 - Inorganics										
Blank (BBG0548-BLK1)					Prepared & Analyzed: 7/19/2021					
Sulfide	ND		0.100	mg/L						
LCS (BBG0548-BS1)					Prepared & Analyzed: 7/19/2021					
Sulfide	0.180		0.100	mg/L	0.200		90.0	70-130		
Matrix Spike (BBG0548-MS1)		**Source: MBG0386-02**			Prepared & Analyzed: 7/19/2021					
Sulfide	0.605		0.378	mg/L	0.757	ND	80.0	70-130		
Batch: BBG0588 - Perchlorate										
Blank (BBG0588-BLK1)					Prepared: 7/20/2021 Analyzed: 7/21/2021					
Perchlorate	ND		0.0500	ug/L						
LCS (BBG0588-BS1)					Prepared: 7/20/2021 Analyzed: 7/21/2021					
Perchlorate	5.04		0.0500	ug/L	5.00		101	80-120		
Matrix Spike (BBG0588-MS1)		**Source: MBG0386-01**			Prepared: 7/20/2021 Analyzed: 7/21/2021					
Perchlorate	5.57		0.0500	ug/L	5.00	0.768	96.0	80-120		
Matrix Spike Dup (BBG0588-MSD1)		**Source: MBG0386-01**			Prepared: 7/20/2021 Analyzed: 7/21/2021					
Perchlorate	5.74		0.0500	ug/L	5.00	0.768	99.4	80-120	3.01	20

Quality Control Data

Semivolatiles

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBG0387 - Herbicides										
Blank (BBG0387-BLK1)					Prepared: 7/14/2021 Analyzed: 7/21/2021					
DCPA (Acid Metabolites)	ND		0.100	ug/L						
Surrogate: DCINA			*1.53*	*ug/L*	*2.00*		*76.5*	*70-130*		
LCS (BBG0387-BS1)					Prepared: 7/14/2021 Analyzed: 7/21/2021					
DCPA (Acid Metabolites)	2.19		0.100	ug/L	2.50		87.8	73-114		
Matrix Spike (BBG0387-MS1)		**Source: MBG0386-03**			Prepared: 7/14/2021 Analyzed: 7/21/2021					
DCPA (Acid Metabolites)	2.29		0.100	ug/L	2.50	0.204	83.4	72-127		
Matrix Spike Dup (BBG0387-MSD1)		**Source: MBG0386-03**			Prepared: 7/14/2021 Analyzed: 7/21/2021					
DCPA (Acid Metabolites)	2.41		0.100	ug/L	2.50	0.204	88.1	72-127	4.94	25

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

MBG0386

Due: 07/27/21

SUB CONTRATOR: Anatek ID	COMPANY: Anatek Labs, Inc.	PHONE: (208) 883-2839	FAX: (208) 882-9246
ADDRESS: 1282 Alturas Dr		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Moscow, ID 83843			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2107339-006F	Well G	125HDP	Groundwater	7/7/2021 8:36:00 AM	1	Perchlorate
2	2107339-006G	Well G	500PLNAOHZNAC	Groundwater	7/7/2021 8:36:00 AM	1	Sulfide
3	2107339-006H	Well G	~~500AMBNA2S2O3~~ 1 Liter Amber cn 7/12/21	Groundwater	7/7/2021 8:36:00 AM	1	Chlorinated Herbicides TCLP / Dacthal

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 7/12/2021	Time: 9:19 AM	Received By:	Date: 7/13/21	Time: 1140
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ■ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples ________ C Attempt to Cool ? ________

Comments: ________

Anatek Labs, Inc.

Sample Receipt and Preservation Form

MBG0386

Due: 07/27/21

Client Name: HAu   Project:

TAT: [✓ Normal]   RUSH: ______ days

Samples Received From: [✓ FedEx]   UPS   USPS   Client   Courier   Other: ______

Custody Seal on Cooler/Box: [✓ Yes]   No   Custody Seals Intact: [✓ Yes]   No   N/A

Number of Coolers/Boxes: 1   Type of Ice: [✓ Ice/Ice Packs]   Blue Ice   Dry Ice   None

Packing Material: Bubble Wrap   Bags   [✓ Foam/Peanuts]   None   Other: Paper

Cooler Temp As Read (°C): 4.8   Cooler Temp Corrected (°C): –   Thermometer Used: IR5

				Comments:
Samples Received Intact?	[✓ Yes]	No	N/A	
Chain of Custody Present?	[✓ Yes]	No	N/A	
Samples Received Within Hold Time?	[✓ Yes]	No	N/A	
Samples Properly Preserved?	[✓ Yes]	No	N/A	
VOC Vials Free of Headspace (<6mm)?	Yes	No	[✓ N/A]	
VOC Trip Blanks Present?	Yes	No	[✓ N/A]	
Labels and Chains Agree?	[✓ Yes]	No	N/A	
Total Number of Sample Bottles Received: 3				

Chain of Custody Fully Completed?	[✓ Yes]	No	N/A	
Correct Containers Received?	[✓ Yes]	No	N/A	
Anatek Bottles Used?	Yes	[✓ No]	Unknown	

Record preservatives (and lot numbers, if known) for containers below:

P250mL → NaOH/Zn Acetate x1

Notes, comments, etc. (also use this space if contacting the client - record names and date/time)

P125

G1000

Received/Inspected By: ______   Date/Time: 7/13/21 1140

Pace Analytical®

ANALYTICAL REPORT

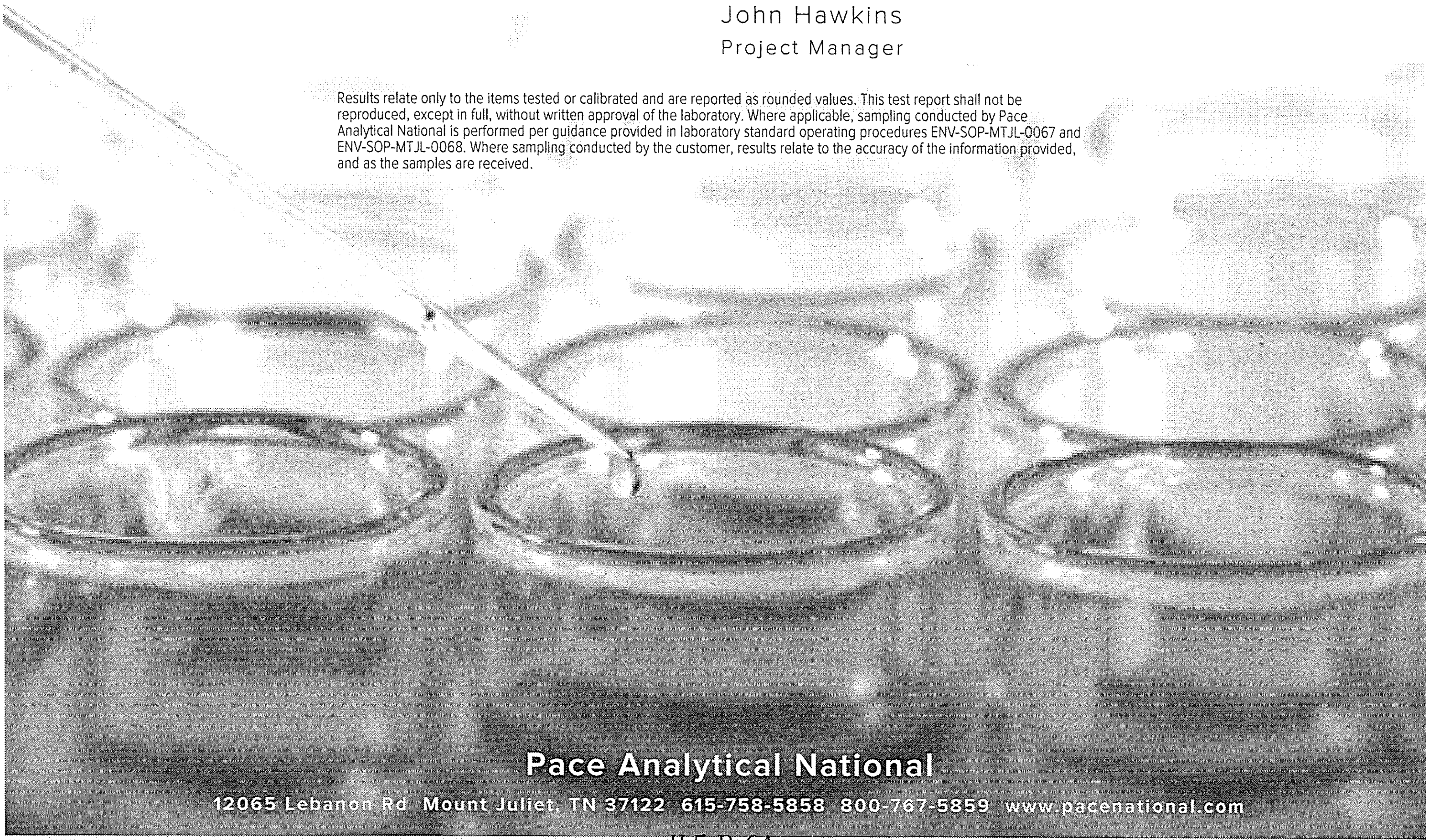
August 06, 2021

Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1377543
Samples Received:	07/13/2021
Project Number:	
Description:	
Report To:	Jackie Bolte

Entire Report Reviewed By: John V Hawkins

John Hawkins
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

2107339-001E WELL A L1377543-01 Non-Potable Water

Collected by	Collected date/time	Received date/time
	07/06/21 20:16	07/13/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1713401	1	07/30/21 15:50	08/04/21 12:05	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1707563	1	07/26/21 10:45	07/27/21 16:50	RGT	Mt. Juliet, TN

2107339-002E WELL B L1377543-02 Non-Potable Water

Collected by	Collected date/time	Received date/time
	07/07/21 07:44	07/13/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1713401	1	07/30/21 15:50	08/04/21 12:05	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1707563	1	07/26/21 10:45	07/27/21 16:50	RGT	Mt. Juliet, TN

2107339-003E WELL D2 L1377543-03 Non-Potable Water

Collected by	Collected date/time	Received date/time
	07/06/21 17:02	07/13/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1713401	1	07/30/21 15:50	08/04/21 12:05	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1707563	1	07/26/21 10:45	07/27/21 16:50	RGT	Mt. Juliet, TN

2107339-004E WELL E L1377543-04 Non-Potable Water

Collected by	Collected date/time	Received date/time
	07/06/21 18:59	07/13/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1713401	1	07/30/21 15:50	08/04/21 12:05	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1707563	1	07/26/21 10:45	07/27/21 16:50	RGT	Mt. Juliet, TN

2107339-005E WELL F L1377543-05 Non-Potable Water

Collected by	Collected date/time	Received date/time
	07/06/21 19:46	07/13/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1713401	1	07/30/21 15:50	08/04/21 12:05	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1707563	1	07/26/21 10:45	07/27/21 16:50	RGT	Mt. Juliet, TN

2107339-006E WELL G L1377543-06 Non-Potable Water

Collected by	Collected date/time	Received date/time
	07/07/21 08:36	07/13/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1713401	1	07/30/21 15:50	08/04/21 12:05	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1707563	1	07/26/21 10:45	07/27/21 16:50	RGT	Mt. Juliet, TN

2107339-007E DUPLICATE L1377543-07 Non-Potable Water

Collected by	Collected date/time	Received date/time
	07/06/21 00:00	07/13/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method 904	WG1713401	1	07/30/21 15:50	08/04/21 12:05	JMR	Mt. Juliet, TN
Radiochemistry by Method SM7500Ra B M	WG1707563	1	07/26/21 10:45	07/27/21 16:50	RGT	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John V Hawkins

John Hawkins
Project Manager

SAMPLE RESULTS - 01

L1377543

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.977		0.343	0.624	08/04/2021 12:05	WG1713401
(T) Barium	*102*			*62.0-143*	*08/04/2021 12:05*	WG1713401
(T) Yttrium	*108*			*79.0-136*	*08/04/2021 12:05*	WG1713401

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0290	U	0.162	0.303	07/27/2021 16:50	WG1707563
(T) Barium-133	*99.3*			*30.0-143*	*07/27/2021 16:50*	WG1707563

SAMPLE RESULTS - 02

L1377543

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.313	J	0.354	0.663	08/04/2021 12:05	WG1713401
(T) Barium	*101*			*62.0-143*	*08/04/2021 12:05*	WG1713401
(T) Yttrium	*97.6*			*79.0-136*	*08/04/2021 12:05*	WG1713401

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0987	U	0.193	0.304	07/27/2021 16:50	WG1707563
(T) Barium-133	*96.1*			*30.0-143*	*07/27/2021 16:50*	WG1707563

2107339-003E WELL D2

Collected date/time: 07/06/21 17:02

SAMPLE RESULTS - 03

L1377543

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.481	J	0.328	0.61	08/04/2021 12:05	WG1713401
(T) Barium	*98.1*			*62.0-143*	*08/04/2021 12:05*	WG1713401
(T) Yttrium	*96.7*			*79.0-136*	*08/04/2021 12:05*	WG1713401

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.220		0.185	0.199	07/27/2021 16:50	WG1707563
(T) Barium-133	*96.5*			*30.0-143*	*07/27/2021 16:50*	WG1707563

2107339-004E WELL E

Collected date/time: 07/06/21 18:59

SAMPLE RESULTS - 04

L1377543

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.974		0.298	0.536	08/04/2021 12:05	WG1713401
(T) Barium	*99.2*			*62.0-143*	*08/04/2021 12:05*	WG1713401
(T) Yttrium	*107*			*79.0-136*	*08/04/2021 12:05*	WG1713401

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.251		0.206	0.24	07/27/2021 16:50	WG1707563
(T) Barium-133	*97.3*			*30.0-143*	*07/27/2021 16:50*	WG1707563

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	1.17		0.278	0.49	08/04/2021 12:05	WG1713401
(T) Barium	*100*			*62.0-143*	*08/04/2021 12:05*	WG1713401
(T) Yttrium	*109*			*79.0-136*	*08/04/2021 12:05*	WG1713401

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.249		0.186	0.173	07/27/2021 16:50	WG1707563
(T) Barium-133	*101*			*30.0-143*	*07/27/2021 16:50*	WG1707563

2107339-006E WELL G

Collected date/time: 07/07/21 08:36

SAMPLE RESULTS - 06

L1377543

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.245	U	0.305	0.574	08/04/2021 12:05	WG1713401
(T) Barium	*101*			*62.0-143*	*08/04/2021 12:05*	WG1713401
(T) Yttrium	*109*			*79.0-136*	*08/04/2021 12:05*	WG1713401

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.194		0.157	0.168	07/27/2021 16:50	WG1707563
(T) Barium-133	*104*			*30.0-143*	*07/27/2021 16:50*	WG1707563

Radiochemistry by Method 904

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-228	0.611		0.331	0.61	08/04/2021 12:05	WG1713401
(T) Barium	*104*			*62.0-143*	*08/04/2021 12:05*	WG1713401
(T) Yttrium	*107*			*79.0-136*	*08/04/2021 12:05*	WG1713401

Radiochemistry by Method SM7500Ra B M

Analyte	Result pCi/l	Qualifier	Uncertainty + / -	MDA pCi/l	Analysis Date date / time	Batch
RADIUM-226	0.0565	U	0.200	0.318	07/27/2021 16:50	WG1707563
(T) Barium-133	*101*			*30.0-143*	*07/27/2021 16:50*	WG1707563

WG1713401

Radiochemistry by Method 904

QUALITY CONTROL SUMMARY

L1377543-01,02,03,04,05,06,07

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3688417-1 08/04/21 12:05

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-228	0.00971	U	0.417
(T) Barium	*106*		
(T) Yttrium	*106*		

Laboratory Control Sample (LCS)

(LCS) R3688417-2 08/04/21 12:05

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	5.76	115	80.0-120	
(T) Barium			*110*		
(T) Yttrium			*110*		

WG1707563

Radiochemistry by Method SM7500Ra B M

QUALITY CONTROL SUMMARY

L1377543-01,02,03,04,05,06,07

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3685135-1 07/27/21 16:50

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-226	-0.00862	U	0.0698
(T) Barium-133	*99.6*		

Laboratory Control Sample (LCS)

(LCS) R3685135-2 07/27/21 16:50

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.02	4.81	95.8	80.0-120	
(T) Barium-133			*99.6*		

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
U	Below Detectable Limits: Indicates that the analyte was not detected.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660
Alaska	17-026
Arizona	AZ0612
Arkansas	88-0469
California	2932
Colorado	TN00003
Connecticut	PH-0197
Florida	E87487
Georgia	NELAP
Georgia [1]	923
Idaho	TN00003
Illinois	200008
Indiana	C-TN-01
Iowa	364
Kansas	E-10277
Kentucky [1,6]	KY90010
Kentucky [2]	16
Louisiana	AI30792
Louisiana	LA018
Maine	TN00003
Maryland	324
Massachusetts	M-TN003
Michigan	9958
Minnesota	047-999-395
Mississippi	TN00003
Missouri	340
Montana	CERT0086
A2LA – ISO 17025	1461.01
A2LA – ISO 17025 [5]	1461.02
Canada	1461.01
EPA–Crypto	TN00003

Nebraska	NE-OS-15-05
Nevada	TN000032021-1
New Hampshire	2975
New Jersey–NELAP	TN002
New Mexico [1]	TN00003
New York	11742
North Carolina	Env375
North Carolina [1]	DW21704
North Carolina [3]	41
North Dakota	R-140
Ohio–VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LAO00356
South Carolina	84004002
South Dakota	n/a
Tennessee [1,4]	2006
Texas	T104704245-20-18
Texas [5]	LAB0152
Utah	TN000032021-11
Vermont	VT2006
Virginia	110033
Washington	C847
West Virginia	233
Wisconsin	998093910
Wyoming	A2LA
AIHA-LAP,LLC EMLAP	100789
DOD	1461.01
USDA	P330-15-00234

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: clients.hallenvironmental.com

SUB CONTRATOR: Pace TN	COMPANY: PACE TN	PHONE: (800) 767-5859	FAX: (615) 758-5859
ADDRESS: 12065 Lebanon Rd		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Mt. Juliet, TN 37122			

L1377541

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2107339-001E	Well A	1LHDPEHNO3	Groundwater	7/6/2021 8:16:00 PM	2	GW SAMPLE: RADIUM 226/228 <2 -01
2	2107339-002E	Well B	1LHDPEHNO3	Groundwater	7/7/2021 7:44:00 AM	2	GW SAMPLE: RADIUM 226/228 <2 -02
3	2107339-003E	Well D2	1LHDPEHNO3	Groundwater	7/6/2021 5:02:00 PM	2	GW SAMPLE: RADIUM 226/228 <2 -03
4	2107339-004E	Well E	1LHDPEHNO3	Groundwater	7/6/2021 6:59:00 PM	2	GW SAMPLE: RADIUM 226/228 <2 -04
5	2107339-005E	Well F	1LHDPEHNO3	Groundwater	7/6/2021 7:46:00 PM	2	GW SAMPLE: RADIUM 226/228 <2 -05
6	2107339-006E	Well G	1LHDPEHNO3	Groundwater	7/7/2021 8:36:00 AM	2	GW SAMPLE: RADIUM 226/228 <2 -06
7	2107339-007E	Duplicate	1LHDPEHNO3	Groundwater	7/6/2021	2	GW SAMPLE: RADIUM 226/228 <2 -07

Sample Receipt Checklist

COC Seal Present/Intact: ✓Y N
COC Signed/Accurate: ✓Y N
Bottles arrive intact: ✓Y N
Correct bottles used: ✓Y N
Sufficient volume sent: ✓Y N
RAD Screen <0.5 mR/hr: ✓Y N

If Applicable
VOA Zero Headspace: ~~Y N~~
Pres.Correct/Check: ~~Y N~~

B022

A3 Gl
12.0-.1=11.9
COCSI

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 7/8/2021	Time: 2:37 PM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date: 7/13/21	Time: 0915

TAT: Standard ■ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples ______ °C Attempt to Cool ? ______
Comments: ______

7305 8950 2029

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2107339**

06-Aug-21

Client: Carel Corporation

Project: Camino Real Landfill 2019 Annual GME

Sample ID: **MB** SampType: **MBLK** TestCode: **EPA Method 200.7: Metals**

Client ID: **PBW** Batch ID: **B79689** RunNo: **79689**

Prep Date: Analysis Date: **7/9/2021** SeqNo: **2802706** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0030								
Boron	ND	0.040								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Iron	ND	0.050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LLLCS** SampType: **LCSLL** TestCode: **EPA Method 200.7: Metals**

Client ID: **BatchQC** Batch ID: **B79689** RunNo: **79689**

Prep Date: Analysis Date: **7/9/2021** SeqNo: **2802708** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	98.3	50	150			
Barium	ND	0.0030	0.002000	0	99.9	50	150			
Boron	ND	0.040	0.04000	0	97.9	50	150			
Calcium	ND	1.0	0.5000	0	97.5	50	150			
Chromium	ND	0.0060	0.006000	0	86.3	50	150			
Iron	ND	0.050	0.02000	0	111	50	150			
Magnesium	ND	1.0	0.5000	0	100	50	150			
Manganese	ND	0.0020	0.002000	0	95.9	50	150			
Potassium	ND	1.0	0.5000	0	93.3	50	150			
Sodium	ND	1.0	0.5000	0	97.1	50	150			

Sample ID: **LCS** SampType: **LCS** TestCode: **EPA Method 200.7: Metals**

Client ID: **LCSW** Batch ID: **B79689** RunNo: **79689**

Prep Date: Analysis Date: **7/9/2021** SeqNo: **2802710** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	112	85	115			
Barium	0.52	0.0030	0.5000	0	104	85	115			
Boron	0.52	0.040	0.5000	0	104	85	115			
Calcium	51	1.0	50.00	0	102	85	115			
Chromium	0.50	0.0060	0.5000	0	101	85	115			
Iron	0.54	0.050	0.5000	0	107	85	115			
Magnesium	51	1.0	50.00	0	103	85	115			
Manganese	0.50	0.0020	0.5000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Client: Carel Corporation
Project: Camino Real Landfill 2019 Annual GME

Sample ID: **LCS** SampType: **LCS** TestCode: **EPA Method 200.7: Metals**
Client ID: **LCSW** Batch ID: **B79689** RunNo: **79689**
Prep Date: Analysis Date: **7/9/2021** SeqNo: **2802710** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	50	1.0	50.00	0	99.7	85	115			
Sodium	51	1.0	50.00	0	102	85	115			

Sample ID: **MB-61253** SampType: **MBLK** TestCode: **EPA Method 200.7: Metals**
Client ID: **PBW** Batch ID: **61253** RunNo: **79751**
Prep Date: **7/12/2021** Analysis Date: **7/13/2021** SeqNo: **2805300** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0030								
Boron	ND	0.040								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Iron	ND	0.050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LLLCS-61253** SampType: **LCSLL** TestCode: **EPA Method 200.7: Metals**
Client ID: **BatchQC** Batch ID: **61253** RunNo: **79751**
Prep Date: **7/12/2021** Analysis Date: **7/13/2021** SeqNo: **2805302** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	116	50	150			
Barium	ND	0.0030	0.002000	0	86.0	50	150			
Boron	ND	0.040	0.04000	0	99.1	50	150			
Calcium	ND	1.0	0.5000	0	101	50	150			
Chromium	0.0063	0.0060	0.006000	0	106	50	150			
Iron	ND	0.050	0.02000	0	126	50	150			
Magnesium	ND	1.0	0.5000	0	96.8	50	150			
Manganese	0.0021	0.0020	0.002000	0	103	50	150			
Potassium	ND	1.0	0.5000	0	106	50	150			
Sodium	ND	1.0	0.5000	0	97.8	50	150			

Sample ID: **LCS-61253** SampType: **LCS** TestCode: **EPA Method 200.7: Metals**
Client ID: **LCSW** Batch ID: **61253** RunNo: **79751**
Prep Date: **7/12/2021** Analysis Date: **7/13/2021** SeqNo: **2805304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Client: Carel Corporation

Project: Camino Real Landfill 2019 Annual GME

Sample ID: **LCS-61253** SampType: **LCS** TestCode: **EPA Method 200.7: Metals**

Client ID: **LCSW** Batch ID: **61253** RunNo: **79751**

Prep Date: **7/12/2021** Analysis Date: **7/13/2021** SeqNo: **2805304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.54	0.020	0.5000	0	108	85	115			
Barium	0.48	0.0030	0.5000	0	95.3	85	115			
Boron	0.50	0.040	0.5000	0	99.2	85	115			
Calcium	49	1.0	50.00	0	97.6	85	115			
Chromium	0.48	0.0060	0.5000	0	96.5	85	115			
Iron	0.50	0.050	0.5000	0	99.1	85	115			
Magnesium	48	1.0	50.00	0	96.1	85	115			
Manganese	0.47	0.0020	0.5000	0	94.2	85	115			
Potassium	48	1.0	50.00	0	96.1	85	115			
Sodium	48	1.0	50.00	0	96.0	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2107339**

06-Aug-21

Client: Carel Corporation
Project: Camino Real Landfill 2019 Annual GME

Sample ID: **MB** SampType: **MBLK** TestCode: **EPA 200.8: Metals**
Client ID: **PBW** Batch ID: **A79692** RunNo: **79692**
Prep Date: Analysis Date: **7/9/2021** SeqNo: **2802799** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Selenium	ND	0.0010								

Sample ID: **LCSLL** SampType: **LCSLL** TestCode: **EPA 200.8: Metals**
Client ID: **BatchQC** Batch ID: **A79692** RunNo: **79692**
Prep Date: Analysis Date: **7/9/2021** SeqNo: **2802800** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0011	0.0010	0.001000	0	106	50	150			
Selenium	0.0011	0.0010	0.001000	0	110	50	150			

Sample ID: **LCS** SampType: **LCS** TestCode: **EPA 200.8: Metals**
Client ID: **LCSW** Batch ID: **A79692** RunNo: **79692**
Prep Date: Analysis Date: **7/9/2021** SeqNo: **2802801** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	97.9	85	115			
Selenium	0.025	0.0010	0.02500	0	98.9	85	115			

Sample ID: **MB-61253** SampType: **MBLK** TestCode: **EPA 200.8: Metals**
Client ID: **PBW** Batch ID: **61253** RunNo: **79786**
Prep Date: **7/12/2021** Analysis Date: **7/14/2021** SeqNo: **2806618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Selenium	ND	0.0010								

Sample ID: **MSLLLCS-61253** SampType: **LCSLL** TestCode: **EPA 200.8: Metals**
Client ID: **BatchQC** Batch ID: **61253** RunNo: **79786**
Prep Date: **7/12/2021** Analysis Date: **7/14/2021** SeqNo: **2806619** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	98.1	50	150			
Selenium	ND	0.0010	0.001000	0	76.9	50	150			

Sample ID: **MSLCS-61253** SampType: **LCS** TestCode: **EPA 200.8: Metals**
Client ID: **LCSW** Batch ID: **61253** RunNo: **79786**
Prep Date: **7/12/2021** Analysis Date: **7/14/2021** SeqNo: **2806620** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Client: Carel Corporation

Project: Camino Real Landfill 2019 Annual GME

Sample ID: **MSLCS-61253** SampType: **LCS** TestCode: **EPA 200.8: Metals**

Client ID: **LCSW** Batch ID: **61253** RunNo: **79786**

Prep Date: **7/12/2021** Analysis Date: **7/14/2021** SeqNo: **2806620** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	98.2	85	115			
Selenium	0.025	0.0010	0.02500	0	99.6	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Client: Carel Corporation
Project: Camino Real Landfill 2019 Annual GME

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R79741** RunNo: **79741**
Prep Date: Analysis Date: **7/12/2021** SeqNo: **2805110** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R79741** RunNo: **79741**
Prep Date: Analysis Date: **7/12/2021** SeqNo: **2805111** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	100	90	110			
Chloride	4.9	0.50	5.000	0	98.6	90	110			
Sulfate	10	0.50	10.00	0	99.7	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			

Sample ID: **2107339-001CMS** SampType: **ms** TestCode: **EPA Method 300.0: Anions**
Client ID: **Well A** Batch ID: **R79741** RunNo: **79741**
Prep Date: Analysis Date: **7/12/2021** SeqNo: **2805120** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.90	0.10	0.5000	0.5300	74.3	73.3	111			

Sample ID: **2107339-001CMSD** SampType: **msd** TestCode: **EPA Method 300.0: Anions**
Client ID: **Well A** Batch ID: **R79741** RunNo: **79741**
Prep Date: Analysis Date: **7/12/2021** SeqNo: **2805121** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.95	0.10	0.5000	0.5300	83.6	73.3	111	5.02	20	

Sample ID: **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **R79904** RunNo: **79904**
Prep Date: Analysis Date: **7/19/2021** SeqNo: **2811330** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2107339**

06-Aug-21

Client: Carel Corporation

Project: Camino Real Landfill 2019 Annual GME

Sample ID: **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSW** Batch ID: **R79904** RunNo: **79904**

Prep Date: Analysis Date: **7/19/2021** SeqNo: **2811331** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2107339

06-Aug-21

Client: Carel Corporation

Project: Camino Real Landfill 2019 Annual GME

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles, Table I**
Client ID: **LCSW** Batch ID: **LF79839** RunNo: **79839**
Prep Date: Analysis Date: **7/15/2021** SeqNo: **2808585** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	113	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	20	1.0	20.00	0	98.5	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	109	70	130			
Trichloroethene (TCE)	22	1.0	20.00	0	110	70	130			
Surr: 1,2-Dichloroethane-d4	12		10.00		120	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	11		10.00		111	70	130			
Surr: Toluene-d8	9.9		10.00		98.9	70	130			

Sample ID: **2107339-001a ms** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles, Table I**
Client ID: **Well A** Batch ID: **LF79839** RunNo: **79839**
Prep Date: Analysis Date: **7/15/2021** SeqNo: **2808587** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	107	70	130			
Toluene	19	1.0	20.00	0	97.2	70	130			
Chlorobenzene	19	1.0	20.00	0	94.3	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	102	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	100	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		111	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.7		10.00		97.1	70	130			

Sample ID: **2107339-001a msd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles, Table I**
Client ID: **Well A** Batch ID: **LF79839** RunNo: **79839**
Prep Date: Analysis Date: **7/15/2021** SeqNo: **2808588** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	101	70	130	5.66	20	
Toluene	19	1.0	20.00	0	96.4	70	130	0.831	20	
Chlorobenzene	19	1.0	20.00	0	93.6	70	130	0.779	20	
1,1-Dichloroethene	18	1.0	20.00	0	91.2	70	130	11.0	20	
Trichloroethene (TCE)	19	1.0	20.00	0	95.4	70	130	5.00	20	
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130	0	0	
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130	0	0	
Surr: Dibromofluoromethane	10		10.00		103	70	130	0	0	
Surr: Toluene-d8	9.8		10.00		97.9	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Client: Carel Corporation

Project: Camino Real Landfill 2019 Annual GME

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles, Table I**

Client ID: **PBW** Batch ID: **LF79839** RunNo: **79839**

Prep Date: Analysis Date: **7/15/2021** SeqNo: **2808597** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
Acetone	ND	10								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	2.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	2.5								
Styrene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2107339**

06-Aug-21

Client: Carel Corporation

Project: Camino Real Landfill 2019 Annual GME

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles, Table I**

Client ID: **PBW** Batch ID: **LF79839** RunNo: **79839**

Prep Date: Analysis Date: **7/15/2021** SeqNo: **2808597** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,3-Trichloropropane	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	2.0								
Acrylonitrile	ND	10								
Bromochloromethane	ND	2.0								
Iodomethane	ND	10								
trans-1,4-Dichloro-2-butene	ND	10								
Vinyl acetate	ND	10								
Surr: 1,2-Dichloroethane-d4	11		10.00		114	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.9		10.00		99.5	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2107339

06-Aug-21

Client: Carel Corporation

Project: Camino Real Landfill 2019 Annual GME

Sample ID: **MB-61424** SampType: **MBLK** TestCode: **Total Phenolics by SW-846 9067**

Client ID: **PBW** Batch ID: **61424** RunNo: **79918**

Prep Date: **7/20/2021** Analysis Date: **7/20/2021** SeqNo: **2812192** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics	ND	2.5								

Sample ID: **LCS-61424** SampType: **LCS** TestCode: **Total Phenolics by SW-846 9067**

Client ID: **LCSW** Batch ID: **61424** RunNo: **79918**

Prep Date: **7/20/2021** Analysis Date: **7/20/2021** SeqNo: **2812193** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics	16	2.5	20.00	0	80.6	54.7	121			

Sample ID: **MB-61645** SampType: **MBLK** TestCode: **Total Phenolics by SW-846 9067**

Client ID: **PBW** Batch ID: **61645** RunNo: **80230**

Prep Date: **7/29/2021** Analysis Date: **8/2/2021** SeqNo: **2825786** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics	ND	2.5								

Sample ID: **LCS-61645** SampType: **LCS** TestCode: **Total Phenolics by SW-846 9067**

Client ID: **LCSW** Batch ID: **61645** RunNo: **80230**

Prep Date: **7/29/2021** Analysis Date: **8/2/2021** SeqNo: **2825787** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics	19	2.5	20.00	0	96.5	54.7	121			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2107339**

06-Aug-21

Client: Carel Corporation

Project: Camino Real Landfill 2019 Annual GME

Sample ID: **lcs-1 98.7uS eC** SampType: **lcs** TestCode: **SM2510B: Specific Conductance**

Client ID: **LCSW** Batch ID: **R79813** RunNo: **79813**

Prep Date: Analysis Date: **7/15/2021** SeqNo: **2809078** Units: **µmhos/cm**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	98	10	98.70	0	99.3	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2107339**
06-Aug-21

Client: Carel Corporation
Project: Camino Real Landfill 2019 Annual GME

Sample ID: **mb-1 alk** SampType: **mblk** TestCode: **SM2320B: Alkalinity**
Client ID: **PBW** Batch ID: **R79813** RunNo: **79813**
Prep Date: Analysis Date: **7/15/2021** SeqNo: **2809111** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-1 alk** SampType: **lcs** TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW** Batch ID: **R79813** RunNo: **79813**
Prep Date: Analysis Date: **7/15/2021** SeqNo: **2809112** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.92	20.00	80.00	0	98.6	90	110			

Sample ID: **mb-2 alk** SampType: **mblk** TestCode: **SM2320B: Alkalinity**
Client ID: **PBW** Batch ID: **R79813** RunNo: **79813**
Prep Date: Analysis Date: **7/15/2021** SeqNo: **2809134** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-2 alk** SampType: **lcs** TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW** Batch ID: **R79813** RunNo: **79813**
Prep Date: Analysis Date: **7/15/2021** SeqNo: **2809135** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.88	20.00	80.00	0	98.6	90	110			

Sample ID: **mb-3 alk** SampType: **mblk** TestCode: **SM2320B: Alkalinity**
Client ID: **PBW** Batch ID: **R79813** RunNo: **79813**
Prep Date: Analysis Date: **7/15/2021** SeqNo: **2809158** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: **lcs-3 alk** SampType: **lcs** TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW** Batch ID: **R79813** RunNo: **79813**
Prep Date: Analysis Date: **7/15/2021** SeqNo: **2809159** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.24	20.00	80.00	0	99.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2107339**

06-Aug-21

Client: Carel Corporation

Project: Camino Real Landfill 2019 Annual GME

Sample ID: **MB-61243** SampType: **MBLK** TestCode: **SM2540C MOD: Total Dissolved Solids**

Client ID: **PBW** Batch ID: **61243** RunNo: **79766**

Prep Date: **7/12/2021** Analysis Date: **7/13/2021** SeqNo: **2805948** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: **LCS-61243** SampType: **LCS** TestCode: **SM2540C MOD: Total Dissolved Solids**

Client ID: **LCSW** Batch ID: **61243** RunNo: **79766**

Prep Date: **7/12/2021** Analysis Date: **7/13/2021** SeqNo: **2805949** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	100	80	120			

Sample ID: **2107339-006CDUP** SampType: **DUP** TestCode: **SM2540C MOD: Total Dissolved Solids**

Client ID: **Well G** Batch ID: **61243** RunNo: **79766**

Prep Date: **7/12/2021** Analysis Date: **7/13/2021** SeqNo: **2805969** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1450	20.0						1.39	10	*

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2107339**

06-Aug-21

Client: Carel Corporation

Project: Camino Real Landfill 2019 Annual GME

Sample ID: **MB-61425** SampType: **MBLK** TestCode: **SM 4500 Norg C: TKN**
Client ID: **PBW** Batch ID: **61425** RunNo: **79962**
Prep Date: **7/20/2021** Analysis Date: **7/21/2021** SeqNo: **2813638** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	1.0								

Sample ID: **LCS-61425** SampType: **LCS** TestCode: **SM 4500 Norg C: TKN**
Client ID: **LCSW** Batch ID: **61425** RunNo: **79962**
Prep Date: **7/20/2021** Analysis Date: **7/21/2021** SeqNo: **2813639** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	9.9	1.0	10.00	0	99.4	80	120			

Sample ID: **2107339-002CMS** SampType: **MS** TestCode: **SM 4500 Norg C: TKN**
Client ID: **Well B** Batch ID: **61425** RunNo: **79962**
Prep Date: **7/20/2021** Analysis Date: **7/21/2021** SeqNo: **2813646** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	9.9	1.0	10.00	0	99.4	75	125			

Sample ID: **2107339-002CMSD** SampType: **MSD** TestCode: **SM 4500 Norg C: TKN**
Client ID: **Well B** Batch ID: **61425** RunNo: **79962**
Prep Date: **7/20/2021** Analysis Date: **7/21/2021** SeqNo: **2813647** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10	1.0	10.00	0	102	75	125	2.78	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: Carel Corporation   Work Order Number: 2107339   RcptNo: 1

Received By: Juan Rojas   7/8/2021 9:00:00 AM

Completed By: Isaiah Ortiz   7/8/2021 2:04:08 PM

Reviewed By: JR 7/8/21

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? FedEx

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☑ No ☐ NA ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? Yes ☑ No ☐
    (Note discrepancies on chain of custody)
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? Yes ☑ No ☐
    (If no, notify customer for authorization.)

\# of preserved bottles checked for pH: 35:1

([✓ <2] or [✓ >12] unless noted)

Adjusted? NO

Checked by: T.C. 7-8-21

SPA 7.12.21

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.6	Good	Not Present			
2	-1.5	Good	Not Present			
3	0.7	Good	Not Present			
4	-0.6	Good	Not Present			

Chain-of-Custody Record

Client: The Carel Corporation

Mailing Address: 136 Pecan St.
Keller, TX 76248

Phone #: 817-337-0112

email or Fax#: kevin.carel@thecarelcorporation.com

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ **Rush**

Project Name: Camino Real LF- 2021 Annual GME

Project #: 21-06-21

Project Manager: Kevin Carel

Sampler: Andrew Roberts

On Ice: ☒ Yes ☐ No

\# of Coolers: 4

Cooler Temp(including CF): See Remarks (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2107339	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	See Attached List *					
7-6-21	2016	GW	MW-A	Various	Various	001											✓					
7-7-21	0744		MW-B			002											✓					
7-6-21	1702		MW-D-2			003											✓					
7-6-21	1859		MW-E			004											✓					
7-6-21	1946		MW-F			005											✓					
7-7-21	0836		MW-G			006											✓					
7-6-21	—		Duplicate			007											✓					
7-6-21	1855	DI	Field Blank			008								✓								
—	—		Trip Blank			009								✓								

E.5-B-96

Date: 7-7-21 Time: 1205 Relinquished by:

Date: Time: Relinquished by:

Received by: Via: FedEx Date 7/8/21 Time 9:00

Received by: Via: Date Time

Remarks:
0.8-0.2=0.6 -0.7+0.1=-0.6
-1.3-0.2=-1.5
0.9-0.2=0.7
Not Frozen
AR 7/8/21

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

GROUNDWATER MONITORING PARAMETER LIST, CAMINO REAL LANDFILL

	Well A	Well B	Well B2	Well E	Well F	Well G	Dup	Field Blank	Trip Blank	Reserve
Organic Parameters										
Acetone	X	X	X	X	X	X	X	X	X	X
Acrylonitrile	X	X	X	X	X	X	X	X	X	X
Benzene	X	X	X	X	X	X	X	X	X	X
Bromochloromethane	X	X	X	X	X	X	X	X	X	X
Bromodichloromethane	X	X	X	X	X	X	X	X	X	X
Bromoform	X	X	X	X	X	X	X	X	X	X
Methyl bromide (Bromomethane)	X	X	X	X	X	X	X	X	X	X
2-Butanone (Methyl ethyl ketone - MEK)	X	X	X	X	X	X	X	X	X	X
Carbon Disulfide	X	X	X	X	X	X	X	X	X	X
Carbon Tetrachloride	X	X	X	X	X	X	X	X	X	X
Chlorobenzene	X	X	X	X	X	X	X	X	X	X
Chloroethane (Ethyl Chloride)	X	X	X	X	X	X	X	X	X	X
Chloroform (Trichloromethane)	X	X	X	X	X	X	X	X	X	X
Methyl chloride (Chloromethane)	X	X	X	X	X	X	X	X	X	X
Dibromochloromethane	X	X	X	X	X	X	X	X	X	X
Methylene Bromide (Dibromomethane)	X	X	X	X	X	X	X	X	X	X
o-Dichlorobenzene (1,2-)	X	X	X	X	X	X	X	X	X	X
p-Dichlorobenzene (1,4-)	X	X	X	X	X	X	X	X	X	X
trans-1,4-Dichloro-2-butene	X	X	X	X	X	X	X	X	X	X
1,1-Dichloroethane	X	X	X	X	X	X	X	X	X	X
1,2-Dichloroethane (EDC)	X	X	X	X	X	X	X	X	X	X
1,1-Dichloroethene (1,1-DCE)	X	X	X	X	X	X	X	X	X	X
cis-1,2-Dichloroethene	X	X	X	X	X	X	X	X	X	X
trans-1,2-Dichloroethene	X	X	X	X	X	X	X	X	X	X
Methylene chloride (Dichloromethane)	X	X	X	X	X	X	X	X	X	X
1,2-Dichloropropane	X	X	X	X	X	X	X	X	X	X
cis-1,3-Dichloropropene	X	X	X	X	X	X	X	X	X	X
trans-1,3-Dichloropropene	X	X	X	X	X	X	X	X	X	X
Ethylbenzene	X	X	X	X	X	X	X	X	X	X
2-Hexanone	X	X	X	X	X	X	X	X	X	X
Methyl iodide (Iodomethane)	X	X	X	X	X	X	X	X	X	X
4-Methyl-2-pentanone (MIBK)	X	X	X	X	X	X	X	X	X	X
Styrene	X	X	X	X	X	X	X	X	X	X
1,1,1,2-Tetrachloroethane	X	X	X	X	X	X	X	X	X	X
1,1,2,2-Tetrachloroethane	X	X	X	X	X	X	X	X	X	X
Tetrachloroethene (PCE)	X	X	X	X	X	X	X	X	X	X
Toluene	X	X	X	X	X	X	X	X	X	X
1,1,1-Trichloroethane (TCA)	X	X	X	X	X	X	X	X	X	X
1,1,2-Trichloroethane	X	X	X	X	X	X	X	X	X	X
Trichloroethene (1,1,2-Trichloroethylene, TCE)	X	X	X	X	X	X	X	X	X	X
Trichlorofluoromethane (CFC 11)	X	X	X	X	X	X	X	X	X	X
1,2,3-Trichloropropane	X	X	X	X	X	X	X	X	X	X
Vinyl Acetate	X	X	X	X	X	X	X	X	X	X
Vinyl Chloride	X	X	X	X	X	X	X	X	X	X
Xylenes (Total)	X	X	X	X	X	X	X	X	X	X
Phenolics	X	X	X	X	X	X	X			X
Heavy Metals										
Arsenic, As	X	X	X	X	X	X	X			X
Barium, Ba	X	X	X	X	X	X	X			X
Chromium, Cr	X	X	X	X	X	X	X			X
Selenium, Se	X	X	X	X	X	X	X			X
Aluminum, Al	X	X	X	X	X	X	X			X
Boron, B	X	X	X	X	X	X	X			X
Chloride, Cl-	X	X	X	X	X	X	X			X
Fluoride, F	X	X	X	X	X	X	X			X
Iron, Fe	X	X	X	X	X	X	X			X
Nitrate as N, NO_3-N	X	X	X	X	X	X	X			X
Sulfate, SO_4	X	X	X	X	X	X	X			X
Radioactivity										
Combined Radium, Ra 226 & Ra 228	X	X	X	X	X	X	X			X
Inorganic Chemicals										
Calcium, Ca	X	X	X	X	X	X	X			X
Manganese, Mn	X	X	X	X	X	X	X			X
Magnesium, Mg	X	X	X	X	X	X	X			X
Potassium, K	X	X	X	X	X	X	X			X
Sodium, Na	X	X	X	X	X	X	X			X
Total Nitrogen, TN	X	X	X	X	X	X	X			X
Bicarbonate Alkalinity, HCO_3 (as $CaCO_3$)	X	X	X	X	X	X	X			X
Total Dissolved Solids, TDS	X	X	X	X	X	X	X			X
Assessment Parameters										
CFC-12						X				X
Dacthal						X				X
Perchlorate						X				X
Sulfide						X				X
Physical Parameters										
pH	X	X	X	X	X	X	X			X
Specific Conductance	X	X	X	X	X	X	X			X
Temperature (field)	X	X	X	X	X	X	X			X
Depth to Water (field)	X	X	X	X	X	X	X			X

8151-

Notes for Laboratory:

1. Use historical practical quantitation/reporting limits
2. Please deliver containers to: The Carel Corporation, 136 Pecan Street, Keller, TX 76248
3. Call Kevin Carel at 817.991.7370 if you have questions

GROUNDWATER MONITORING PARAMETER LIST, CAMINO REAL LANDFILL

	Well A	Well B	Well D2	Well E	Well F	Well G	Dup	Field Blank	Trip Blank	Reserve
Organic Parameters										
Acetone	X	X	X	X	X	X	X	X	X	X
Acrylonitrile	X	X	X	X	X	X	X	X	X	X
Benzene	X	X	X	X	X	X	X	X	X	X
Bromochloromethane	X	X	X	X	X	X	X	X	X	X
Bromodichloromethane	X	X	X	X	X	X	X	X	X	X
Bromoform	X	X	X	X	X	X	X	X	X	X
Methyl bromide (Bromomethane)	X	X	X	X	X	X	X	X	X	X
2-Butanone (Methyl ethyl ketone - MEK)	X	X	X	X	X	X	X	X	X	X
Carbon Disulfide	X	X	X	X	X	X	X	X	X	X
Carbon Tetrachloride	X	X	X	X	X	X	X	X	X	X
Chlorobenzene	X	X	X	X	X	X	X	X	X	X
Chloroethane (Ethyl Chloride)	X	X	X	X	X	X	X	X	X	X
Chloroform (Trichloromethane)	X	X	X	X	X	X	X	X	X	X
Methyl chloride (Chloromethane)	X	X	X	X	X	X	X	X	X	X
Dibromochloromethane	X	X	X	X	X	X	X	X	X	X
Methylene Bromide (Dibromomethane)	X	X	X	X	X	X	X	X	X	X
o-Dichlorobenzene (1,2-)	X	X	X	X	X	X	X	X	X	X
p-Dichlorobenzene (1,4-)	X	X	X	X	X	X	X	X	X	X
trans-1,4-Dichloro-2-butene	X	X	X	X	X	X	X	X	X	X
1,1-Dichloroethane	X	X	X	X	X	X	X	X	X	X
1,2-Dichloroethane (EDC)	X	X	X	X	X	X	X	X	X	X
1,1-Dichloroethene (1,1-DCE)	X	X	X	X	X	X	X	X	X	X
cis-1,2-Dichloroethene	X	X	X	X	X	X	X	X	X	X
trans-1,2-Dichloroethene	X	X	X	X	X	X	X	X	X	X
Methylene chloride (Dichloromethane)	X	X	X	X	X	X	X	X	X	X
1,2-Dichloropropane	X	X	X	X	X	X	X	X	X	X
cis-1,3-Dichloropropene	X	X	X	X	X	X	X	X	X	X
trans-1,3-Dichloropropene	X	X	X	X	X	X	X	X	X	X
Ethylbenzene	X	X	X	X	X	X	X	X	X	X
2-Hexanone	X	X	X	X	X	X	X	X	X	X
Methyl iodide (Iodomethane)	X	X	X	X	X	X	X	X	X	X
4-Methyl-2-pentanone (MIBK)	X	X	X	X	X	X	X	X	X	X
Styrene	X	X	X	X	X	X	X	X	X	X
1,1,1,2-Tetrachloroethane	X	X	X	X	X	X	X	X	X	X
1,1,2,2-Tetrachloroethane	X	X	X	X	X	X	X	X	X	X
Tetrachloroethene (PCE)	X	X	X	X	X	X	X	X	X	X
Toluene	X	X	X	X	X	X	X	X	X	X
1,1,1-Trichloroethane (TCA)	X	X	X	X	X	X	X	X	X	X
1,1,2-Trichloroethane	X	X	X	X	X	X	X	X	X	X
Trichloroethene (1,1,2-Trichloroethylene, TCE)	X	X	X	X	X	X	X	X	X	X
Trichlorofluoromethane (CFC 11)	X	X	X	X	X	X	X	X	X	X
1,2,3-Trichloropropane	X	X	X	X	X	X	X	X	X	X
Vinyl Acetate	X	X	X	X	X	X	X	X	X	X
Vinyl Chloride	X	X	X	X	X	X	X	X	X	X
Xylenes (Total)	X	X	X	X	X	X	X	X	X	X
Phenolics	X	X	X	X	X	X	X			X
Heavy Metals										
Arsenic, As	X	X	X	X	X	X	X			X
Barium, Ba	X	X	X	X	X	X	X			X
Chromium, Cr	X	X	X	X	X	X	X			X
Selenium, Se	X	X	X	X	X	X	X			X
Aluminum, Al	X	X	X	X	X	X	X			X
Boron, B	X	X	X	X	X	X	X			X
Chloride, Cl-	X	X	X	X	X	X	X			X
Fluoride, F	X	X	X	X	X	X	X			X
Iron, Fe	X	X	X	X	X	X	X			X
Nitrate as N, NO_3-N	X	X	X	X	X	X	X			X
Sulfate, SO_4	X	X	X	X	X	X	X			X
Radioactivity										
Combined Radium, Ra 226 & Ra 228	X	X	X	X	X	X	X			X
Inorganic Chemicals										
Calcium, Ca	X	X	X	X	X	X	X			X
Manganese, Mn	X	X	X	X	X	X	X			X
Magnesium, Mg	X	X	X	X	X	X	X			X
Potassium, K	X	X	X	X	X	X	X			X
Sodium, Na	X	X	X	X	X	X	X			X
Total Nitrogen, TN	X	X	X	X	X	X	X			X
Bicarbonate Alkalinity, HCO_3 (as $CaCO_3$)	X	X	X	X	X	X	X			X
Total Dissolved Solids, TDS	X	X	X	X	X	X	X			X
Assessment Parameters										
CFC-12						X				X
Dacthal						X				X
Perchlorate						X				X
Sulfide						X				X
Physical Parameters										
pH	X	X	X	X	X	X	X			X
Specific Conductance	X	X	X	X	X	X	X			X
Temperature (field)	X	X	X	X	X	X	X			X
Depth to Water (field)	X	X	X	X	X	X	X			X

Notes for Laboratory:

1. Use historical practical quantitation/reporting limits
2. Please deliver containers to: The Carel Corporation, 136 Pecan Street, Keller, TX 76248
3. Call Kevin Carel at 817.991.7370 if you have questions

APPENDIX C

DUPLICATE SAMPLE ANALYSIS

Appendix C
Duplicate Sample Analysis

Constituent (mg/L)	PQL	5xPQL	MW-A	Duplicate	RPD	Absolute Difference	In Control?
Arsenic, As	0.0010	0.005	0.013	0.013	0.00	0.000	Yes
Selenium, Se	0.0010	0.005	0.0036	0.0034	NC	0.000	Yes
Fluoride, F	0.10	0.5	0.53	0.70	**27.64**	0.170	No
Chloride, Cl-	10	50	380	370	2.67	10.000	Yes
Sulfate, SO_4^{2-}	10	50	870	850	2.33	20.000	Yes
Nitrate as N, NO_3-N	0.50	2.5	<0.50	<0.50	NC	0.000	Yes
Total Dissolved Solids, TDS	20	100	1740	1720	1.16	20.000	Yes
Aluminum , Al	0.020	0.1	<0.020	<0.020	NC	0.000	Yes
Barium, Ba	0.0030	0.015	0.020	0.021	4.88	0.001	Yes
Boron, B	0.040	0.2	0.47	0.48	2.11	0.010	Yes
Chromium, Cr	0.0060	0.03	<0.0060	<0.0060	NC	0.000	Yes
Iron, Fe	0.050	0.25	<0.050	<0.050	NC	0.000	Yes
Combined Radium (pCi/L)	0.61	3.05	1.006	0.67	NC	0.339	Yes
Bicarbonate, HCO3 (as CaCO3)	20.00	100	28.88	29.72	NC	0.840	Yes
Total Nitrogen, TN	1.0	5	<1	<1	NC	0.000	Yes
Calcium, Ca	5.0	25	140	140	0.00	0.000	Yes
Magnesium, Mg	0.0020	0.01	3.2	3.3	3.08	0.100	Yes
Potassium, K	1.0	5	6.7	6.9	2.94	0.200	Yes
Sodium, Na	5.0	25	440	460	4.44	20.000	Yes

Notes:

$$RPD = [\ |S-D|/(S+D)/2\ ] \times 100$$

Where,
RPD - Relative Percent Difference
S - Sample Result (original sample)
D - Duplicate Sample Result
A control limit of 20% for the RPD is used for original and duplicate sample values >5x the RL.
A control limit of the RL is used if either the original or duplicate sample value is <5x the RL.
PQL - Practical Quantation Limit
ND - Not Detected
NC - Not Calculated

APPENDIX D

SUMMARY OF METALS AND INORGANIC PARAMETER STATISTICAL RESULTS

APPENDIX D
CAMINO REAL LANDFILL
SUMMARY OF METAL AND INORGANIC PARAMETER STATISTICAL RESULTS

	Well A					Well B					Well D2					Well E					Well F					
Subsection A Parameters	**Analytical Result**	Regulatory Presumptive AML	Established AML	Calculated TLV	Established TLV	Analytical Result	Regulatory Presumptive AML	Established AML	Calculated TLV	Established TLV	**Analytical Result**	Regulatory Presumptive AML	Established AML	Calculated TLV	Established TLV	**Analytical Result**	Regulatory Presumptive AML	Established AML	Calculated TLV	Established TLV	**Analytical Result**	Regulatory Presumptive AML	Established AML	Calculated TLV	Established TLV	**GWPS**
Arsenic, As	**0.013**	0.005	0.011	0.012	0.012	0.0026	0.005	0.01	0.007	0.007	0.0027	0.005	0.005	0.0335	0.0335	0.0099	0.005	0.009	0.014	0.014	0.0044	0.005	0.006	0.01	0.01	0.01
Selenium, Se	0.0036	0.025	0.025	0.012	NA	0.013	0.025	0.03	0.018	NA	0.01	0.025	0.025	0.0112	NA	0.017	0.025	0.025	0.025	NA	0.022	0.025	0.025	0.03	0.03	0.05
Fluoride, F	0.53	0.8	0.8	1.12	1.12	0.40	0.8	0.8	0.93	0.93	0.42	0.8	0.8	3.26	3.26	0.54	0.8	0.8	0.77	NA	0.58	0.8	0.8	0.91	0.91	1.6
Chloride, Cl-	380	188	321	395	395	310	187.5	270.63	324	324	140	187.5	187.5	151.9	NA	250	187.5	273	322	322	410	187.5	369	437	437	250.0
Sulfate, SO_4^{2-}	870	450	779	886	886	850	450	715	852	852	430	450	450	466.9	466.9	930	450	922	1,052	1,052	830	450	753	874	874	600.0
Nitrate as N, NO_3-N	<0.50	5	5	1	NA	1.2	5	5	1.9	NA	1.4	5	5	2.275	NA	2.1	5	5	3	NA	1.7	5	5	3	5	10
Total Dissolved Solids, TDS	**1740**	750	1634	1,700	1700	1650	750	1539	1,680	1680	1710	750	1710	997.5	NA	1690	750	1,826	2,010	2,010	1900	750	1,779	1,983	1,983	1,000.0
Aluminum , Al	<0.020	3.75	3.75	0.9	NA	<0.020	3.75	3.75	1.5	NA	<0.020	3.75	3.75	1.20	NA	0.10	3.75	3.75	0.3	NA	0.13	3.75	3.75	2.1	3.75	5.0
Barium, Ba	0.020	0.5	0.5	0.021	NA	0.022	0.5	0.5	0.025	NA	0.018	0.5	0.5	0.042	NA	0.017	0.5	0.5	0.02	NA	0.057	0.5	0.5	0.087	0.5	1
Boron, B	0.47	0.56	0.56	0.5	NA	0.40	0.56	0.56	0.5	NA	0.34	0.563	0.563	0.348	NA	0.58	0.5625	0.56	0.6	0.6	0.47	0.56	0.56	0.5	0.56	0.75
Chromium, Cr	<0.0060	0.025	0.025	0.01	NA	<0.0060	0.025	0.14	0.17	0.17	<0.0060	0.025	0.025	0.03	0.03	0.093	0.025	0.08	0.12	0.12	0.017	0.025	0.025	0.024	0.025	0.05
Iron, Fe	<0.050	0.75	0.75	0.39	NA	0.46	0.75	1.37	9.4	9.4	<0.050	0.75	0.75	104	104	3.9	0.75	3.6	5	5	1.2	0.75	1.9	7.9	7.9	1.0
Combined Radium (pCi/L)	1.006	2.5	2.5	2.5	NA	<0.663	2.5	2.5	3	3	0.701	2.5	2.5	1.4	NA	1.225	2.5	2.5	2.5	NA	1.419	2.5	2.5	2.71	2.71	5
Field pH (standard units)	7.62	6 - 9	6 - 9	7.3 - 8.38	6 - 9	6.79	6 - 9	6 - 9	7.27 - 8.48	6 - 9	6.85	6 - 9	6 - 9	6.82 - 8.59	6 - 9	7.11	6 - 9	6 - 9	7.24 - 8.17	6 - 9	7.01	6 - 9	6 - 9	7.38 - 7.96	6 - 9	6 - 9
Subsection C Parameters																										
Bicarbonate, HCO3 (as CaCO3)	28.88	—	—	—	—	43.92	—	—	—	—	52.92	—	—	—	—	49.04	—	—	—	—	56.36	—	—	—	—	---
Total Nitrogen, TN	<1	—	—	—	—	1.2	—	—	—	—	1.4	—	—	—	—	2.1	—	—	—	—	1.7	—	—	—	—	---
Calcium, Ca	140	—	—	—	—	190	—	—	—	—	110	—	—	—	—	210	—	—	—	—	240	—	—	—	—	---
Magnesium, Mg	3.2	—	—	—	—	19	—	—	—	—	12	—	—	—	—	27	—	—	—	—	33	—	—	—	—	---
Potassium, K	6.7	—	—	—	—	12	—	—	—	—	8.9	—	—	—	—	12	—	—	—	—	13	—	—	—	—	---
Sodium, Na	440	—	—	—	—	280	—	—	—	—	180	—	—	—	—	280	—	—	—	—	290	—	—	—	—	---
Field SC (µS/cm)	2550	—	—	—	—	2310	—	—	—	—	1400	—	—	—	—	2330	—	—	—	—	2660	—	—	—	—	---
Field Temperature (deg C)	25.1	—	—	—	---	25.9	—	—	—	---	27.4	---	---	---	---	28.1	—	—	—	---	26.4	—	—	—	---	---

Notes:

1 All units mg/L unless otherwise noted.
2 AML - Assessment Monitoring Level
3 TLV - Tolerance Limit Value
4 GWPS - Groundwater Protection Standard
5 Bold values exceed UTLV
6 TLVs established by The Carel Corportion April 2019
7 --- - TLV not established

APPENDIX E

ASSESSMENT MONITORING RESULTS
WELL G

APPENDIX E
CAMINO REAL LANDFILL
ASSESSMENT MONITORING RESULTS

Well G

Subsection A Parameters	**Analytical Result**	**Regulatory Presumptive AML**	**Established AML**	**Calculated TLV**	**Established TLV**		**GWPS**	**CAL**
Arsenic, As	0.0014	0.005	0.01	0.01	0.01		0.01	0.01
Selenium, Se	0.0012	0.025	0.025	0.008	NA		0.05	0.05
Fluoride, F	<0.50	0.8	0.8	1	1		1.6	3.34
Chloride, Cl-	380	187.5	270	370	370	#	250.0	332.0
Nitrate as N, NO_{3}-N	<0.50	5	5	2	NA	#	600.0	25
Sulfate, SO_4^{2-}	330	450	450	565	565	#	10	10
Total Dissolved Solids, TDS	1430	750	1171.76	1,480	1,480	#	1,000	1946
Aluminum , Al	<0.020	3.75	3.75	1.3	NA		5.0	5
Barium, Ba	0.035	0.5	0.5	0.048	NA		1.0	1.0
Boron, B	0.53	0.56	0.56	0.55	NA		0.75	0.75
Chromium, Cr	<0.0060	0.025	0.063	0.22	0.22		0.05	0.26
Iron, Fe	<0.050	0.75	2.04	11.9	11.9		1.0	2.32
Combined Radium (pCi/L)	<0.574	2.5	2.5	3.88	3.88		5.0	5.10
Field pH (standard units)	7.04	6 - 9	6 - 9	5.61 - 8.51	5.61 - 9		6 - 9	6 - 9
Subsection C Parameters								
Bicarbonate, HCO3 (as CaCO3)	364.3	___	___	___	___		---	---
Total Nitrogen, TN	<1	___	___	___	___		---	---
Calcium, Ca	160	___	___	___	___		---	---
Magnesium, Mg	25	___	___	___	___		---	---
Potassium, K	13	___	___	___	___		---	---
Sodium, Na	310	___	___	___	___		---	---
Field SC (µS/cm)	2120	___	___	___	___		---	---
Field Temperature (deg C)	23.1	___	___	___	---		---	---
Volatile Organic Compounds								
1,1-dichloroethane	1.2	___	___	___	---		25.0	25.0
Methylene Chloride	<2.5	___	___	___	---		5.0	5.0
Tetrachloroethene	<1.0	___	___	___	---		5.0	5.0
Trichloroethene	<1.0	___	___	___	---		5.0	5.0
Trichlorofluromentane	1.9	___	___	___	---		---	---
Assessment Parameters								
Dacthal (µg/L)	0.204	___	0.1(11)	___	---		3500(9)	3500(9)
Perchlorate (µg/L)	0.768	___	0.099(11)	___	---		25.6(10)	25.6(10)
Sulfide (mg/L)	<0.215	___	___	___	---		---	---
Dichlorodifluoromethane (µg/L)	1.2	___	7.05(11)	___	---		1000(8)	1000(8)

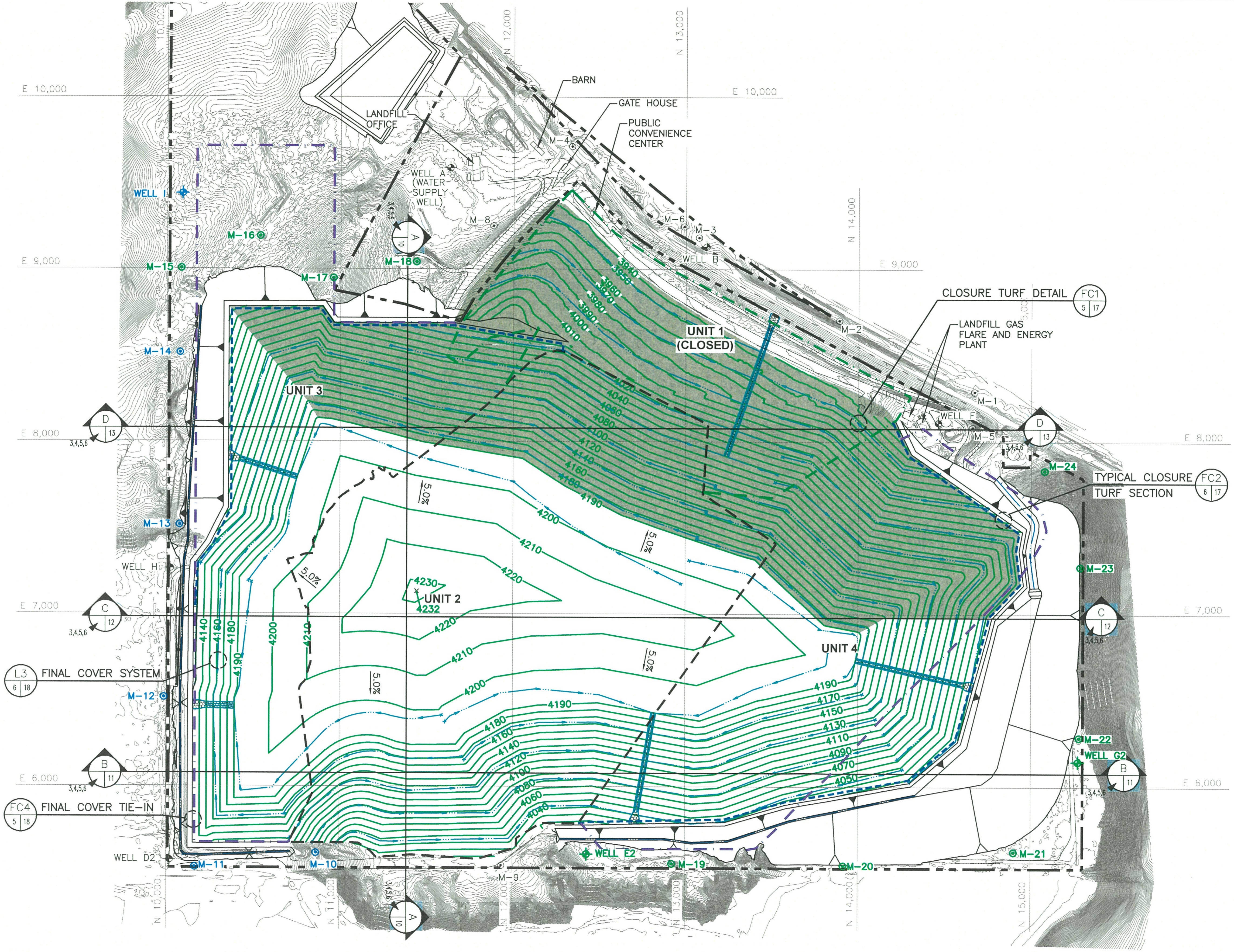
Notes:

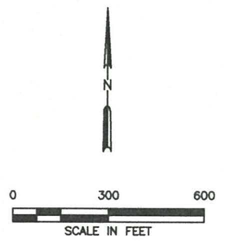
1 All units mg/L unless otherwise noted.
2 AML - Assessment Monitoring Level
3 TLV - Tolerance Limit Value
4 GWPS - Groundwater Protection Standard
5 GWPS - Derived from Groundwater Monitoring Plan unless otherwise stated.
6 TLVs established by The Carel Corportion April 2019
7 --- - TLV not established
8 National Library of Medicene, Toxnet Noxicology Data Network
9 USEPA Drinking Water Health Advisory for Dacthal and Dacthal Degradetes
10 USEPA Technical Fact Sheet - Perchlorate

ATTACHMENT II.5-C
FINAL COVER PLANS
(FROM PERMIT PLANS)

JONATHAN VINCENT QUEEN
NEW MEXICO
25844
PROFESSIONAL ENGINEER

9/26/22





LEGEND

━ ━ · · ━	PROPERTY BOUNDARY
— — — —	PERMITTED LIMITS OF WASTE FOR UNIT 2
— · — · —	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
— · — · —	PERMITTED LIMITS OF WASTE FOR UNIT 3 AND 4
- - - - - -	ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4
E 8,000	SITE GRID
4120	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
4170	PROPOSED FINAL CONTOUR
···→···	PROPOSED SWALE (SEE NOTE 2)
▨	PROPOSED DRAINAGE CHUTE (SEE NOTE 2)
WELL B	EXISTING GROUNDWATER MONITOR WELL
WELL I	PERMITTED GROUNDWATER MONITOR WELL
WELL G2	PROPOSED GROUNDWATER MONITOR WELL
M-4	EXISTING LANDFILL GAS PROBE
M-11	PERMITTED LANDFILL GAS PROBE
M-27	PROPOSED LANDFILL GAS PROBE
🟩	CLOSURE TURF AREA

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.
2. REFER TO VOLUME III, SECTION 8 FOR DRAINAGE DETAILS.

JONATHAN VINCENT QUEEN
25844

9/26/22

☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: 6-PROPOSED FINAL CONTOUR PLAN.DWG

DRAWN BY: JDW
DESIGN BY: JAE
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

PROPOSED COMPLETION PLAN

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

DRAWING 6

O:\0601\667\EXPANSION 2019\VOLUME 2\PERMIT DRAWINGS\6-PROP FINAL CONTOUR PLAN.dwg, rarrington, 1:2

ATTACHMENT II.5-D

HELP MODEL SUMMARY

JONATHAN VINCENT QUEEN
NEW MEXICO
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PROFESSIONAL ENGINEER

9/24/22

CONTENTS

1 INTRODUCTION

The purpose of this document is to summarize the results of the Hydrologic Evaluation of Landfill Performance (HELP) modeling used to demonstrate that the two final cover systems proposed for the Camino Real Landfill (CRLF) meet or exceed the prescriptive design requirements of 20.9.4.13 NMAC. A detailed discussion of the HELP modeling results is provided in Volume III, Section 10.

2 DESIGN CRITERIA

The United States Environmental Protection Agency (USEPA) HELP model was used to evaluate the performance of the prescriptive liner and two alternate final covers; and to demonstrate that the proposed designs will perform as well as or better than the regulatory prescriptive standards. Simulations were run for the existing landfill (Unit 2) and for the undeveloped waste units (Units 3 and 4).

2.1 Climate Data

Precipitation and temperature data were derived from the Western Regional Climate Center's Summary of the "Day" database. The nearest station location with sufficient data to meet NMED's Guidance Document (i.e., minimum of 40 years of data) is New Mexico State University in Las Cruces, New Mexico.

2.2 Prescriptive Liner Design

In the proposed prescriptive liner design, on-site soils are used for the leachate collection layer (i.e., protective soil layer); and a high-density polyethylene (HDPE) flexible membrane liner (FML) and reinforced geosynthetic clay liner (GCL) are used as the composite liner. The design for the prescriptive liner system includes the following layers from the top down:

- 24-inch protective soil layer (PSL) using on-site soils (KSAT ≥ 5.80 x 10^{-3} cm/sec)
- 60-mil HDPE FML (KSAT = 2.0 x 10^{-13} cm/sec)
- Reinforced GCL (KSAT = 3.0 x 10^{-9} cm/sec)

20.9.4.13.E(4)(a and b) NMAC require that the protective soil layer (PSL) be constructed using granular soils that contain no more than 5% fines by weight (i.e., material passing a No. 200 sieve) and that have a uniformity coefficient (Cu) less than 6. As part of the prescriptive liner design, CRLF proposes to use on-site soils for the PSL that have a fines content less than or equal to 20% and a Cu ≤10. Geotechnical analyses of on-site soils indicate that the soils available at the CRLF site consist primarily of a mixture of sand with varying amounts of silt (i.e., silty sand), and that these materials meet the proposed criteria for the PSL. The soil type used to represent the PSL in the HELP modeling is silty sand (SM). It is anticipated that, as on-site soil is excavated, the resulting mixture of soils will be best represented by this USCS classification.

2.3 Final Cover Designs

The site will utilize two alternative final cover system designs that are consistent with the requirements of 20.9.6.9.A(2) NMAC; and the take advantage of the containment characteristic of naturally available on-site and locally-sourced soils. The final cover design systems are summarized below.

Closure Turf^{TM} Geosynthetic System

- 0.9-inch-thick Top Turf Sand (Erosion) Layer (uncompacted, locally-sourced sand)
- 50-mil LDPE FML
- 12-inch-thick Intermediate Cover (uncompacted on-site soils)

Closure Turf^{TM} or Closure Turf^{TM} Geosynthetic System is comprised of sand and a geo engineered material that provides an average KSAT value of 1.0 x 10^{-2} cm/s. This closure material is further discussed in Volume III Section 10.

Evapotranspiration (ET) Alternative Final Cover (AFC) System

- 6-inch-thick Vegetative (Erosion) Layer (uncompacted on-site soils)
- 30-inch-thick Barrier (Infiltration) Layer (compacted on-site soils)

Each layer of the ET AFC system is comprised of the select on-site SM soils with an average hydraulic conductivity (KSAT) of 7.2 x 10-4 cm/sec.

3 HELP MODEL RESULTS

3.1 Final Cover Demonstrations

HELP model simulations were performed to compare the performance of the two final cover system designs to that of the prescriptive liner. For the simulations, climate data for the wettest consecutive 5-year period from the most recent 40-year period was used.

According to the HELP Model Guidance Document, a final cover system is considered acceptable if its performance has been demonstrated to be equal to or better than the permeability performance of the prescriptive liner system. The performance measure is the average annual rate of leakage through the bottom layer of the liner versus the cover system, and is evaluated by comparing the leakage rates for each. The HELP model results for the final cover simulations show the proposed alternative cover achieves less leakage than the prescriptive liner demonstrating a successful design. Results of the final cover can be found in Volume III, Section 10.

3.2 Head On Liner Demonstration

Seven HELP model simulations were performed to model the open, interim, and closed stages of the landfill to ensure less than 12 inches of head on the liner is maintained. The evaluation is based on the results of a series of simulations that represent hypothetical operating and climatologic conditions over the life of the landfill.

In each of the modeled simulations, the peak daily head on the liner was calculated to be less than 12 inches. The maximum head on the liner, in the worst case, was 3.414 inches in the open simulation for Unit 2. In summary, the HELP modeling demonstrates that the performance of the two final covers and the prescriptive liner designs meets the requirements of 20.9.4.13 NMAC. Results of the head on liner demonstration can be found in Volume III, Section 10.

ATTACHMENT II.5-E

FINAL COVER CONSTRUCTION QUALITY ASSURANCE PLAN

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO
NMED FACILITY PERMIT NOS. SWM-030738 AND SWM-030738(SP)

APPLICATION FOR PERMIT MODIFICATION AND RENEWAL

VOLUME II – LANDFILL MANAGEMENT PLANS
SECTION 5 – CLOSURE/POST-CLOSURE PLAN
ATTACHMENT II.5-E – FINAL COVER CONSTRUCTION QUALITY ASSURANCE PLAN

Prepared for

Camino Real Environmental Center, Inc.

September 2022

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CONTENTS

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FIGURES

TABLES

1 PROJECT OBJECTIVES

The purpose of the Final Cover Construction Quality Assurance (FCCQA) program, as set forth in this FCCQA Plan, is to provide independent confirmation of compliance with the Construction Plans and Technical Specifications during construction of the landfill final cover systems. The FCCQA Plan is also required by New Mexico Environmental Department (NMED) as a means of demonstrating compliance with design and performance standards, Permit conditions, and the applicable Rules. This FCCQA Plan has been prepared to document the measures that will be taken to ensure that the environmental control systems will be constructed properly, and in compliance with:

- The New Mexico Solid Waste Rules, 20.9.4.13 NMAC; Design Criteria for Municipal Landfills, Special Waste Landfills, and Monofills;
- The New Mexico Solid Waste Rules, 20.9.4.14 NMAC; Testing and Quality Control for Liners and Final Covers;
- The New Mexico Solid Waste Rules, 20.9.6.9 NMAC; Closure and Post-Closure Requirements for Municipal Solid Waste Landfills, and Monofills;
- The approved Engineering Design and Construction Plans;
- The Permit and Permit Conditions;
- Industry standards and other applicable technical criteria; and
- This FCCQA Plan.

This FCCQA Plan establishes the quantitative criteria that will be used in the field and laboratory to measure the quality of the installed infrastructure. Specific construction elements that are addressed in this Plan include:

A. Site Preparation (Section 3);
B. Subgrade Preparation and Intermediate Cover (Section 4)
C. Closure Turf^{TM} Geosynthetics (Section 5); and
D. Evapotranspiration Final Cover System (Section 6).

This FCCQA Plan is a “quality control plan” meeting the specifications of 20.9.4.14 NMAC. No revisions to the Technical Specifications are allowed without the express written approval of the Engineer. The Engineer will be a registered Professional Engineer in New Mexico with applicable experience in solid waste landfill design and construction. This FCCQA Plan may be updated in the future to address changes in materials, technologies, test methods, etc., in consultation with the NMED. For instance, updates will be made to the applicable geosynthetics testing standards as appropriate (see Table II.5-E-3). Testing specifications are provided for geomembrane components, turf components, and final cover components are in tables II.5-E-2, II.5-E-3, II.5-E-4 and II.5-E-6.

2 PROJECT ORGANIZATION

2.1 Project Organization

The Project Team shall be identified in advance of construction, and each Team Member will be assigned specific authorities and responsibilities as discussed in this section.

2.2 Authority and Responsibility

2.2.1 Owner

The Owner has the responsibility for scheduling and administration, which may include, but not be limited to:

- Contractor procurement.
- Some or all of the construction tasks.
- Assignments of duties of Project Team and orientation of the Project Staff to the needs and requirements of the project.
- Approval of project-specific procedures and internally prepared plans, drawings, and reports.
- Serving as the "collection point" for Project Staff reporting project documents and activities.
- Per 20.9.3.21.A NMAC, providing NMED with a major milestone schedule at least 14 days prior to the start of solid waste facility construction (i.e., final cover installation – typically furnished by Engineer).

2.2.2 Site FCCQA Engineer (Engineer-Of-Record)

The Site FCCQA Engineer shares responsibilities with the Owner for addressing technical and administrative issues, and has overall responsibility for FCCQA and confirming that the facility has been constructed in general accordance with the Permit and Permit Conditions, FCCQA Plan, and Construction Plans and Technical Specifications. The Site FCCQA Engineer will be present onsite at the outset of major project milestones and at other critical times during the construction. The Site

FCCQA Engineer's staff (e.g., FCCQA Technicians) shall be on-site continually for significant construction activities under the direction of the Site FCCQA Engineer. The FCCQA Technicians shall report directly to the Site FCCQA Engineer.

The Site FCCQA Engineer will perform the following tasks:

- Review of submittals from the Contractor/Installer.
- Approval of FCCQA Plan revisions.
- Approval of design revisions.
- Administrative functions as necessary to allocate staff and resources for the FCCQA activities.
- Periodic review and assessment of the FCCQA Plan as implemented to determine completeness and compliance.
- Review of field and laboratory methods and results for accuracy.
- Acceptance and approval of materials and workmanship. Compilation and submission to NMED of Final Cover Engineering Certification Reports and other project deliverables.
- Scheduling, at regular intervals, FCCQA meetings with Owner and Contractor.
- Communications and liaison with the Owner, Contractor, NMED, Landfill Staff, Inspector, etc.

Design and certification responsibilities mandate that the Site FCCQA Engineer must be a Professional Engineer registered in the State of New Mexico and have demonstrated competence and experience in landfill engineering and construction (20.9.4.14 and 15 NMAC).

2.2.3 CQA Technicians

At a minimum one (1) FCCQA Technician will be on-site continually for significant construction activities under the direction of the Site FCCQA Engineer. At the discretion of the Site FCCQA Engineer/Owner additional FCCQA Technicians will be onsite to assist with FCCQA activities. The qualifications required for each FCCQA Technician shall include previous experience in the construction of Subtitle D landfills; and certification and training on radiation safety in the use of nuclear density meters (as appropriate). The FCCQA Technicians will report directly to the Site FCCQA Engineer with the results of FCCQA field activities. The FCCQA Technicians will, under direct supervision of the FCCQA Engineer, perform the following:

- Review moisture-density curves for the borrow source.
- Review field particle size of materials to confirm suitability with FCCQA Plan (e.g., protective soil layer, select aggregate, etc.).

- Nuclear density testing as necessary for in-place compaction confirmation.
- Verification testing for thickness and placement of materials.
- Inspection and documentation of geosynthetic materials supply, offloading and storage, and installation.
- Confirm Contractor adherence to the FCCQA Plan.
- Additional field testing, surveying, recordkeeping, etc., as required by the Technical Specifications and the FCCQA Plan.
- Assistance in preparation of Daily Field Observation Reports.

The FCCQA Technicians will refer to the Site FCCQA Engineer for questions regarding implementation of the FCCQA Plan. The FCCQA Technicians may not approve exceptions to the specifications of this FCCQA Plan without prior approval by the Site FCCQA Engineer.

2.2.4 Contractor/Installer

Responsibilities of the Contractor/Installer may include:

- Facilitating access to and assisting in collection of samples required by FCCQA personnel for inspection or testing to confirm project components meet the FCCQA Plan and Technical Specifications.
- Management of daily field operations (labor and equipment allocation).
- Implementation of tasks identified in this FCCQA Plan specific to Contractor's assigned construction operations.
- Submittal of required shop drawings and certificates to the Site FCCQA Engineer.
- Submittal of required Work Plans to the Site FCCQA Engineer.
- Adherence to the FCCQA Plan, Construction Plans and Technical Specifications.
- Correction of deficiencies identified by the Site FCCQA Engineer.

2.3 Engineering Certification and Documentation

At the completion of construction a Final Cover Engineering Certification Report, incorporating the laboratory and field data, shall be prepared and submitted by the Site FCCQA Engineer to the NMED. This Final Cover Engineering Certification Report will include the documentation described in this FCCQA Plan for confirmation and certification that the final cover systems were installed in compliance with the Permit and Permit Conditions, Construction Plans, Technical Specifications, and this FCCQA Plan. The Final Cover Engineering Certification

Report shall be sealed by a Professional Engineer registered in the state of New Mexico; and who has demonstrated applicable geosynthetics and final cover installation expertise in compliance with 20.9.4.14 and 15 NMAC.

In addition, each Final Cover Engineering Certification Report must include all or parts of the following items as appropriate and depending on the constructed elements of the liner:

1. Field and laboratory test documentation for soils borrow source test results and installation test and sample locations plotted on a location plan.
2. Documentation related to installation of the closure turf system or evapotranspiration alternate final cover system including, as applicable the following:
    - Manufacturer's quality control certifications;
    - Inventory logs; and
    - Seaming, seam tests, and repair logs.
3. Closure turf geomembrane panel layout drawings, including location of seams, destructive tests, repairs, as applicable.
4. Test documentation for final cover soil components.
5. Record (as-built) surveys or drawings for the following:
    - Survey documentation of the final cover system components and confirmation of thickness of the final cover system components;

The Final Cover Engineering Certification Report will include the necessary documentation for demonstrating compliance with this FCCQA Plan, as described herein. The Site FCCQA Engineer shall be responsible for maintaining current records, on appropriate FCCQA forms, of field FCCQA activities. Documentation will be recorded on forms typically used for FCCQA, as identified in Table II.5-E-1.

Table II.5-E-1
Typical FCCQA Forms

Form No.	Title
1.	Daily Field Observation Report
2.	Field Compaction Testing Results
3.	FML Inventory Control Log
4.	FML Deployment Log
5.	FML Trial Seaming Test Log
6.	FML Seaming Log
7.	FML Seam Non-Destructive Pressure/Vacuum Test Log
8.	FML Destructive Field Test Record
9.	FML Seam Repair Log

Photographic documentation shall also be used to confirm the progress and acceptability of the Work and will be incorporated into the Daily Field Observation Report. When photographic documentation is used, photos shall be identified with the following information:

- Date
- Photograph Location and Orientation
- Subject

Electronic originals of the photographs will be retained by the Site FCCQA Engineer, and select photocopies will be submitted with the Final Cover Engineering Certification Report as applicable. An electronic copy and hard copy of the Final Cover Engineering Certification Report will be submitted to NMED.

3 SITE PREPARATION

3.1 General

The following is a list of the work to be included in site preparation:

1. Field check utility locations, as appropriate.
2. Establish site grid and mark pertinent survey hub markers, permanent benchmarks, monitoring wells, etc.
3. Install stormwater management systems necessary to protect the project area.
4. Strip topsoil and other material deemed unsuitable by the Site FCCQA Engineer or his/her representative, and stockpile at Owner-designated location.
5. Strip or remove brush and vegetation, surface debris, and similar materials from existing surface and relocate to an Owner-designated area on the site.
6. Excavate to design grade, as shown on the Construction Plans.
7. Place intermediate cover fill or structural fill, as necessary, to achieve design grades as shown on the Construction Plans.
8. Separate and stockpile excavated materials as directed by Site FCCQA Engineer to an Owner-designated area (e.g., structural fill, intermediate cover, infiltration layer, erosion layer, etc.).
9. Proof roll final cover subgrade to check stability conditions of existing or constructed surfaces and to provide a trafficable, smooth, working surface for construction equipment and subsequent cover installation as approved by the Site FCCQA Engineer.

3.2 Survey Coordinate System

Construction surveying will be performed using the State Plane Coordinate System or will be integrated into a pre-established site grid system. The survey system for the project will be used to verify the locations of sample and testing points made during construction.

If a site grid system is used, it shall consist of equidistant spaced parallel lines, typically 50 to 75–foot on center, projecting north to south and east to west within the construction limits. This grid system shall be tied to the established State Plane Coordinate System for future reference. The construction limits shall be staked out by the Contractor based on Record Drawings for existing disposal areas and the Construction Plans and confirmed by the Site FCCQA Engineer or third-party Professional Land Surveyor registered in New Mexico. The Owner and Site FCCQA Engineer shall confirm the appropriate location for permanent benchmarks, typically set back from the daily operations and construction activities. These benchmarks shall be clearly identified, and will allow determination of key features (i.e., cell boundaries, edge of liner, etc.) in conjunction with the Construction Plans.

4 SUBGRADE PREPARATION AND INTERMEDIATE COVER

Subgrade preparation will be required during final cover construction. The landfill will be graded to final cover subgrade elevations shown on the Construction Plans, or as otherwise identified by the Site FCCQA Engineer. Where fill is required to achieve final cover subgrade elevations, fill will be placed and compacted. The subgrade preparation and intermediate cover placement will performed and protected in accordance with the procedures outlined below.

4.1 Compacted Fill

The compacted fill material will consist of onsite materials, which are free of debris, rocks greater than 2-inches in diameter, plant materials, frozen materials, foreign objects, organic, or other deleterious materials. The compacted fill material will be placed in controlled lifts and compacted by reasonable means to create a stable surface/fill.

4.2 Intermediate Layer

Intermediate cover is placed over filled areas prior to installation of the final cover and consists of a minimum of 12 inches of uncompacted, select on-site soils. Intermediate cover will be installed in areas where active waste filling will not be conducted for a period of more than 30 days. Areas that will not be active within 24 months may be vegetated, sloped, and/or stabilized (20.9.5.9.0 NMAC). Intermediate cover serves to minimize infiltration and is placed, maintained, and inspected as prescribed in the Plan of Operations (Volume II, Section 2). Intermediate cover soils may be stripped when additional fill is placed above that area to preserve materials and to promote the flow of leachate and landfill gas.

4.3 Subgrade Preparation

Following completion of final cover subgrade elevations/grading, the following procedures will be performed for preparation of the subgrade:

1. The upper six (6) inches shall be wetted (if necessary) scarified and compacted to a minimum 90 percent of the maximum dry density, as

determined by the Standard Proctor Test (ASTM D 698), or as otherwise specified.

2. The surface of the final lift of final cover subgrade (intermediate cover) shall be free of surficial or protruding angular material or stones greater than one-half (1/2)-inch in diameter.
3. The final lift shall be wetted and rolled smooth. Abrupt changes of grade shall be corrected.
4. The completed subgrade shall be protected from traffic, erosion, standing water and damage.
5. Completed subgrade shall be kept free of trash and debris.
6. Prior to placement of the final cover system, areas of the subgrade impacted by traffic, erosion, settlement, or another cause, shall be repaired and the grades shown on the Construction Plans shall be re-established. Moisture conditioning of the completed subgrade shall be maintained until the cover system is placed. Exposed subgrade, which has dried or exhibits desiccation cracking, shall be wetted and re-compacted prior to final cover placement. Disturbed areas shall be reshaped, scarified, re-compacted and rolled prior to further work.
7. The condition of the final cover subgrade shall be approved by the Site FCCQA Engineer and Liner Installer prior to placement of final cover system materials.
8. Following completion of subgrade preparation, including grading and structural fill, the subgrade surface will be surveyed at a minimum at 5 locations per acre uniformly distributed on a grid. These survey points will also be used to verify the foundation soil layer thickness for the evapotranspiration final cover.

4.4 Structural Fill Placement (If Applicable)

Structural fill will be placed where existing topographic grades are below design subgrade elevations outside the final cover area for perimeter structure construction. Structural fill will be placed using the following procedures:

1. Structural fill material shall be free of debris, ice, snow, organics, angular or sharp rocks, and other deleterious materials. The top surface of structural fill where geosynthetic materials will be placed will be free stones greater than one-half (1/2)-inch in diameter.
2. Structural fill shall be used for berm construction integral to the containment or final cover systems (i.e., perimeter landfill berm, liner termination berms, etc.), or as required by the Site FCCQA Engineer.

3. Place structural fill material to the elevations shown on the Construction Plans, if required.
4. Place structural fill material in maximum nine (9)-inch loose lifts over the prepared surface. Compact to not less than 90 percent of the maximum dry density, as determined by the Standard Proctor Test (ASTM D 698), or as otherwise specified.
5. The surface of each lift shall be scarified prior to placing subsequent lifts.
6. The final surface of the structural fill shall be rolled smooth transverse to slopes and shall be free of deleterious material or protrusions. For surfaces/slopes upon which the liner system will be installed against, the surface shall meet the requirements described in Section 4.1 of this FCCQA Plan.
7. No soft, yielding, or uncompacted areas will be acceptable. Soft or yielding material will be uncut and removed and replaced with structural fill meeting the requirements of this section.
8. The surfaces of structural filled areas shall be graded to smooth true lines, conforming to grades indicated in the construction plans.

Pre-construction and construction test requirements for structural fill soils are included in Table II.5-E-6.

5 CLOSURE TURF™ GEOSYNTHETICS FCCQA PROCEDURES

5.1 Introduction

This section describes FCCQA procedures for the installation of geosynthetic components of the Closure Turf^{TM} or equivalent material.

The scope of geosynthetic-related FCCQA includes the following elements:

- Geomembrane Liner Component
  - 50-mil Structured Linear Low-Density Polyethylene (LLDPE) or High Density Polyethylene (HDPE) – Agru Super Grip Net (or equivalent) with the spikes placed on the landfill surface on top slopes and side slopes. Minimum required material properties for the geomembrane are listed in Table II.5-E-3.
- Synthetic Turf Component
  - Woven polypropylene geotextiles tufted with polyethylene yarns. The required material properties are shown in Table II.5-E-4.

The overall goal of the FCCQA program is to assure that proper construction techniques and procedures are used, the geosynthetic contractor implements his quality control plan in accordance with this FCCQA Plan, the construction and testing of all elements of the final cover are performed in accordance with this FCCQA Plan and the Closure Plan, and that the project is built in accordance with the project construction drawings and technical specifications. The FCCQA program is intended to identify and define problems that may occur during construction and to observe that these problems are avoided and/or corrected before construction is complete. The final documentation, prepared after project completion, will confirm that the construction meets design intent and specifications and that all final cover construction and quality assurance/quality control testing are performed in accordance with this FCCQA Plan.

5.2 Geosynthetics Quality Assurance

5.2.1 General

A structured geomembrane is the geosynthetic component for the final cover system. All testing requirements and minimum required properties are listed in Tables II.5-E-2 and II.5-E-3. Construction quality control for the geosynthetic installation will be performed by the geosynthetic installation contractor. Construction quality assurance for the geosynthetic installation will be performed by the Site FCCQA Engineer to assure the geosynthetic is constructed as specified in the design. Construction must be conducted in accordance with the project construction drawings, which will be developed in accordance with this FCCQA Plan and in accordance with specifications outlined in this FCCQA Plan. To monitor compliance, a quality assurance program will include the following:

- A review of the manufacturer's quality control submittals;
- Field and construction testing; and
- Construction monitoring.

The manufacturer's quality control submittals will include resin and physical material testing. Field and construction testing includes testing that occurs during geosynthetics installation.

Quality assurance testing will be conducted in accordance with this FCCQA Plan, the project construction drawings, and specifications. The Site FCCQA Engineer will observe field testing. Documentation must meet the requirements of this FCCQA Plan.

5.3 Geomembrane Component

5.3.1 General

This section describes handling, testing, and installation of geomembrane. Agru 50-mil LLDPE Super Grip Net (or equivalent HDPE) with the spikes placed on the landfill surface will be used on top slopes and side slopes.

5.3.2 Delivery

Upon delivery of the geomembrane, the Site FCCQA Engineer will observe that:

- The geomembrane is delivered in rolls and is not folded. Folded geomembrane is not acceptable because the highly crystalline structure of the geomembrane will be damaged if it is folded. Any evidence of folding (other than from the manufacturing process) or other shipping damage is cause for rejection of the material.

- Equipment used to unload and store the rolls or pallets does not damage the geomembrane.
- The geomembrane is stored in an acceptable location in accordance with the specifications and stacked not more than five rolls high. The geomembrane is protected from puncture, dirt, grease, water, moisture, mud, mechanical abrasions, excessive heat, or other damage.
- Manufacturing documentation required by the specifications has been received and reviewed for compliance with the specifications. This documentation will be included in the Final Cover Engineering Certification Report.
- The geosynthetics receipt log form has been completed for materials received.

Damaged geomembrane may be rejected and removed from the site or stored at a location separate from accepted geomembrane. Geomembrane that does not have proper manufacturer's documentation must be stored at a separate location until documentation has been received, reviewed, and accepted.

Table II.5-E-2
Required Testing for Structured LLDPE Geomembrane Component

Responsible Party	Type of Test		Standard Test Method	Frequency of Testing
Resin Manufacturer	Resin	Density	ASTM D 1505	Per manufacturer quality control and every resin lot
		Melt Flow Index	ASTM D 1238 (90/2.16 and 190/21.6)	
	Resin/Compound Quality Evaluation		Per manufacturer's quality control specifications	Per manufacturer's quality control specifications
Geomembrane Manufacturer	Manufacturer's Quality Control		Testing per GRI Standard, GRI Test Method GM17 for 50 mil LLDPE[1, 2]	
3rd Party FCCQA	Destructive Seam Field Testing[3, 4]	Shear & Peel	ASTM D 6392	Various for field, lab, and archive
3rd Party FCCQA	Non-Destructive Seam Field Testing	Air Pressure	GRI GM6	All dual-track fusion weld seams
		Vacuum	ASTM D 4437	All non-air pressure tested seams when possible
		Other		Concurrence of State

[1] UV Resistance testing not required for geomembrane, which is to be immediately covered.

[2] Carbon Black Dispersion: Only near spherical agglomerates for 10 views: 9 views in category 1 or 2, and 1 view in category 3.

[3] Break elongation calculated using 2-inch initial gauge length.

[4] Passing criteria for seams are listed in Table II.5-E-3.

Table II.5-E-3
Minimum Required Properties of the Structured LLDPE Geomembrane Component

Property	Test Method	Minimum Required Property
Thickness, mils Minimum average Lowest individual reading Lowest individual of 8 of 10 readings	ASTM D 5994	47.5 42.5 45
Density, g/cc (maximum)	ASTM D 792, Method B	0.939
Drainage Stud Height (min. ave.)	ASTM D 7466	145
Friction Spike Height (min. ave.)	ASTM D 7466	175
Tensile Properties[1] Break Strength, lb./in (min. ave.) Break Elongation, % (min. ave.)	ASTM D 6693, Type IV	105 300
Tear Resistance, lb. (min. ave.)	ASTM D 1004	30
Puncture Resistance, lb. (min. ave.)	ASTM D 4833	55
Break Resistance Strain, % (min)	ASTM D 5617	30
Carbon Black Content[2], %	ASTM D 1603	2.0 – 3.0
Oxidative Induction Time (OIT) (min. ave.) Standard OIT, minutes	ASTM D 3895	100
Carbon Black Dispersion[3], Category	ASTM D 5596	1 or 2 and 3
Internal Friction of Combined Components	ASTM D 5321	35 degrees, minimum
Oven Aging at 85ºC Standard OIT – % retained after 90 days or High Pressure OIT – % retained after 90 days	ASTM D 5721 ASTM D 3895 ASTM D 5885	35 60
Seam Properties Shear Strength, lb./in Peel Strength, lb./in	ASTM D 6392	100 76 (65, Extrusion Weld)

[1] Machine direction (MD) and cross machine direction (XMD) average values should be on the basis of 5 test specimens each direction. Break elongation is calculated using a gauge length of 2.0 inches.
[2] Other methods such as ASTM D 4218 or microwave methods are acceptable if an appropriate correlation can be established.
[3] Only near spherical agglomerates for 10 views: 9 views in Category 1 or 2, and 1 view in Category 3.
[4] The condition of the test should be 20 hr. UV cycle at 75ºC followed by 4 hr. condensation at 60ºC.
[5] UV resistance is based on percent-retained value regardless of the original HP-OIT value.

5.3.3 Manufacturer Quality Control

One geomembrane sample will be obtained for every resin lot of material supplied and for each 100,000 square feet of geomembrane. The material will be sampled at the manufacturer plant before the rolls are shipped to the site. Manufacturer shall provide documentation on the geomembrane manufacturer minimum properties.

No material shall be delivered to the site until all the manufacturer analysis conforms to the material specifications as determined by the Site FCCQA Engineer.

5.3.4 Anchor Trench Backfill

Compacted fill material placed in anchor trenches will be placed in uniform lifts, which do not exceed 12 inches in loose thickness and are compacted. In-place moisture/density tests may be taken at the discretion of the Site FCCQA Engineer to evaluate the quality of the backfill. The test results will not be required as part of the final documentation. Slightly rounded corners will be provided in anchor trenches where the geomembrane enters the trench so as to avoid sharp bends in the geomembrane. No loose soil (e.g., excessive water content) will be allowed to underlie the anchored components of final cover system. Vertical anchor trenches as well as anchor trenches along the toe shall not be backfilled until sand infill of the synthetic turf is in place.

5.3.5 Geomembrane Installation

Surface Preparation. Prior to any geomembrane installation, the subgrade (e.g., intermediate cover soil) should be inspected by the FCCQA Representative and geosynthetics contractor. The Site FCCQA Engineer must observe the following:

- Prior to deployment of the geomembrane the subgrade shall be inspected by the FCCQA Technician to insure that the final grades on the slopes as well as benches dimension and grades conforms with the design grades of the closure. Survey shots as well as drawings as-built shall be carefully reviewed and evaluated to insure the surface grades will drain as intended in the design drawings.
- The intermediate cover soil is free of surface irregularities and protrusions.
- The intermediate cover soil surface does not contain stones or other objects that could damage the geomembrane. The surface will be smooth and free of foreign and organic material, sharp objects, stones greater than 3/8 inches, or other deleterious material.
- The anchor trench dimensions have been checked, and the trenches are free of sharp objects and stones.
- The geomembrane will not be placed during inclement weather such as rain or high winds.
- Construction stakes and hubs have been removed and the resultant holes have been backfilled. There are no rocks, debris, or any other objects on the foundation soil surface.
- The geosynthetics contractor, Site FCCQA Engineer or his designated representative, and the Owner or his representative have certified in writing that the surface on which the geomembrane will be installed is acceptable.

Panel Placement. Prior to the installation of the geomembrane, the contractor must submit drawings showing the panel layout, indicating panel identification number, both fabricated (if applicable) and field seams, as well as details not conforming to the drawings. The Site FCCQA Engineer must review field conditions and approve revised panel layout plan if the field conditions vary from the original plan layout.

The FCCQA Technician must maintain an up-to-date panel layout drawing showing panel numbers that are keyed to roll numbers on the placement log. The panel layout drawing will also include seam numbers and destructive test locations.

During panel placement, the Site FCCQA Engineer must:

- Observe that the geomembrane is placed in direct and uniform contact with underlying intermediate cover soil.
- Record roll numbers, panel numbers, and dimensions on the panel or seam logs. Measure and record thickness of leading edge of each panel at 5-foot maximum intervals. No single thickness measurement can be less than the required nominal thickness.
- Observe the sheet surface, as it is deployed and record panel defects and repair of the defects (panel rejected, patch installed, extradite placed over the defect, etc.) on the repair sheet. Repairs must be made in accordance with the specifications and located on a repair drawing.
- Observe that support equipment is not allowed on the geomembrane during handling.
- Observe that the surface beneath the geomembrane has not deteriorated since previous acceptance.
- Observe that there are no stones, construction debris, or other items beneath the geomembrane that could cause damage to the geomembrane.
- Observe that the geomembrane is not dragged across a surface that could damage the material. If the geomembrane is dragged across an unprotected surface, the geomembrane must be inspected for scratches and repaired or rejected, as necessary.
- Record weather conditions including temperature, wind, and humidity. The geomembrane must not be deployed in the presence of excess moisture (fog, dew, mist, etc.). In addition, geomembrane seaming operation should not be performed when the air temperature is less than 35°F or greater than 104°F, or when standing water or frost is on the ground, unless these requirements are waived by the design engineer. Excessive wind is that which can lift and move the geomembrane panels.

- The FCCQA Technician may consider welding at temperatures outside the recommended values only after demonstration by the welding crew that the weld trials can accomplished the required welding specifications.
- Observe that people working on the geomembrane do not smoke, wear shoes that could damage the liner, or engage in activities that could damage the liner.
- Observe that the method used to deploy the sheet minimizes wrinkles but does not cause bridging and that the sheets are anchored to prevent movement by the wind (the contractor is responsible for any damage to or from windblown geomembrane). Excessive wrinkles should be walked-out or removed at the discretion of the FCCQA Technician as described in sections 5.3.8 and 5.3.9.
- Observe that no more panels are deployed than can be seamed on the same day.
- Observe that horizontal or cross seams on the side slope are staggered in order not to produce a long horizontal seam across the slope. Adjacent panels should be continuous in as much as possible on both sides of the horizontal seam.

Field Seaming. The contractor must provide the Site FCCQA Engineer with a seam and panel layout drawing and update this drawing daily as the job proceeds. No panels should be seamed until the panel layout drawing has been accepted by the Site FCCQA Engineer. A seam numbering system must provide a unique number for each seam and be agreed to by the Site FCCQA Engineer and contractor prior to the start of seaming operations. One procedure is to identify the seam by adjacent panels. For example, the seam located between Panels 306 and 401 would be Seam No. 306/401.

Prior to geomembrane welding, each welder and welding apparatus (both wedge and extrusion welder) must be tested, at a minimum, at daily start-up and immediately after any break, and/or anytime the machine is turned off for more than 30 minutes in accordance with the specifications to determine if the equipment is functioning properly. The final documentation should include the names for each seamer and the time and the temperatures for each seaming apparatus used each day.

One trial weld will be taken prior to the start of work. In addition, a trial weld will also be obtained prior to seaming the tie-in. The trial weld sample must be 3 feet long and 12 inches wide, with the seam centered lengthwise. The minimum number of specimens per trial weld test must be two coupons for shear and two coupons for peel. Both the inner and outer welds of dual track fusion welds must be tested for each peel test coupon (or additional coupons will be required). Trial weld samples must comply with "Passing Criteria for Welds" included in Section 5.3.6 – Construction Testing. The FCCQA Technician must observe welding operations, quantitative testing of each trial weld for peel and shear, and recording of the results on the trial weld form. The trial weld will be completed under conditions similar to those under which the panels will be welded. Regarding the locus-of-break patterns of the different seaming methods in shear and peel, the following are unacceptable break codes per their description in ASTM D 6392:

Hot Wedge:	AD and AD-Brk>25%
Extrusion Fillet:	AD1, AD2, AD-WLD (unless strength is achieved)

Additionally, there should be no apparent weld separation (i.e., greater than 1/8 inch). The third party strength tests must meet the manufacturer's specifications for the sample sheets, or percentage of the manufacturer's parent sheet strength as determined by the manufacturer. For dual-track fusion welds, both sides (the inner and outer weld) must meet the minimum requirements for a satisfactory peel test. If, at any time, the FCCQA Technician believes that an operator or welding apparatus is not functioning properly, a weld test must be performed. If there are wide changes in temperature (±30° Fahrenheit), humidity, or wind speed, the test weld should be repeated. The test weld must be allowed to cool to ambient temperature before testing. If a weld test fails the shear or peel test, the length of the non-passing weld will be identified at a 10-foot interval, and the failed area will be patched.

Patching will be performed by placing additional geomembrane material over the failed area or removing the failed geomembrane weld and patching it with additional geomembrane per Site FCCQA Engineer's direction. The welding for patches must comply with the welding passing criteria requirements outlined in this section.

FCCQA documentation of trial seam procedures will include, at a minimum, the following:

- Documentation that trial seams are performed by each welder and welding apparatus prior to commencement of welding and prior to commencement of the second half of the workday.
- The welder, the welding apparatus number, time, date, ambient air temperature, and welding machine temperatures.

During geomembrane welding operations, the FCCQA Technician must observe the following:

- The contractor has the number of welding apparatuses and spare parts necessary to perform the work.
- Equipment used for welding will not damage the geomembrane.
- The extrusion welder is purged prior to beginning a weld until the heat degraded extradite is removed (extrusion welding only).

- Seam grinding has been completed less than one hour before seam welding, and the upper sheet is beveled (extrusion welding only).
- The ambient temperature, measured 6 inches above the geomembrane surface, is between 35°F and 104°F, or manufacturer's recommended temperature limits if they are more stringent.
- The end of old welds, more than five minutes old, are ground to expose new material before restarting a weld (extrusion welding only).
- The contact surfaces of the sheets are clean, free of dust, grease, dirt, debris, and moisture prior to welding.
- The weld is free of dust, rocks, and other debris.
- The seams are overlapped a minimum of 3 inches for extrusion and hot wedge welding, or in accordance with manufacturer's recommendations, whichever is more stringent. Panels should be overlapped (shingled) in the downgrade direction.
- No solvents or adhesives are present in the seam area.
- The procedure used to temporarily hold the panels together does not damage the panels and does not preclude FCCQA testing.
- The panels are being welded in accordance with the plans and specification. Seams should be oriented parallel to the line of maximum slope with no horizontal seams on side slopes. In corners and odd-shaped geometric locations, the number of field seams should be minimized.
- There is no free moisture in the weld area.
- Measure surface sheet temperature every two hours.
- Observe that at the end of each day or installation segment, unseamed edges are anchored with sandbags or other approved device. Penetration anchors will not be used to secure the geomembrane.

5.3.6 Construction Testing

Nondestructive Seam Testing. The purpose of nondestructive testing is to detect discontinuities or holes in the seam. It also indicates whether a seam is continuous and non-leaking. Nondestructive tests for geomembrane include vacuum testing for extrusion welds and air pressure testing for dual-track fusion welds. Nondestructive testing must be performed over the entire length of the seam.

Nondestructive testing is performed entirely by the contractor. The FCCQA Technician or his designee's responsibility is to observe and document that testing performance is in compliance with the specifications and document any seam defects and their repairs.

Nondestructive testing procedures are described below.

- For welds tested by vacuum method, the weld is placed under suction utilizing a vacuum box made of rigid housing with a transparent viewing window, a soft neoprene rubber gasket attached to the open bottom perimeter, a vacuum gauge on the inside, and a valve assembly attached to the vacuum hose connection. The box is placed over a seam section that has been thoroughly saturated with a soapy water solution (1 oz. soap to 1 gallon water). The rubber gasket on the bottom perimeter of the box must fit snugly against the soaped seam section of the liner, to ensure a leak-tight seal. The vacuum pump is energized, and the vacuum box pressure is reduced to approximately 3 to 5 psi gauge. Any pinholes, porosity, or non-bonded areas are detected by the appearance of soap bubbles in the vicinity of the defect. Dwell time must not be less than ten seconds.
- Air pressure testing is used to test double seams with an enclosed air space. Both ends of the air channel should be sealed. The pressure feed device, usually a needle equipped with a pressure gauge, is inserted into the channel. Air is then pumped into the channel to a minimum pressure of 30 psi. The air chamber must sustain the pressure for five minutes without losing more than 4 psi. Following a passed pressure test, the opposite end of the tested seam must be punctured to release the air. The pressure gauge must return to zero; if not, a blockage is most likely present in the seam channel. Locate the blockage and test the seam on both sides of the blockage. The penetration holes must be sealed after testing.

During nondestructive testing, the FCCQA Technician must perform the following work:

- Review technical specifications regarding test procedures.
- Observe that equipment operators are fully trained and qualified to perform their work.
- Observe that test equipment meets project specifications.
- Observe that the entire length of each seam is tested in accordance with the specifications.
- Observe all continuity testing and record results on the appropriate log.
- Observe that testing is completed in accordance with the project specifications.
- Identify the failed areas by marking the area with a waterproof marker compatible with the geomembrane and inform the contractor of any required repairs, then record the repair area on the repair log.
- Observe that repairs are completed and tested in accordance with the project specifications.
- Record completed and tested repairs on the repair log and the repair drawing.

Destructive Seam Testing. Destructive seam tests for geomembrane seams will be performed at a frequency of at least one test for each 500 linear feet of seam length. At a minimum, a destructive test will be completed for each welding machine used for seaming. A destructive test will also be completed for individual repairs (or additional seaming for the failed welds) of more than 10 feet of seam length. The FCCQA Technician must perform additional tests if he suspects a seam does not meet specification requirements. Reasons for performing additional tests may include, but are not limited to the following:

- Wrinkling in seam area
- Non-uniform weld
- Excess crystallinity
- Suspect seaming equipment or techniques
- Weld contamination
- Insufficient overlap
- Adverse weather conditions
- Possibility of moisture, dust, dirt, debris, and other foreign material in the seam
- Failing tests

There are two types of destructive testing required for the geomembrane installation: peel adhesion (peel) and bonded seam strength (shear) in accordance with ASTM D 6392. The purpose of peel and shear tests is to evaluate seam strength and to evaluate long-term performance. Shear strength measures the continuity of tensile strength through the seam and into the parent material. Peel strength determines weld quality. Test welds must be allowed to cool naturally to ambient temperature prior to testing.

The FCCQA Technician selects locations where seam samples will be cut for laboratory testing. Select these locations as follows:

- A minimum of one stratified location for every 500 feet of field seam length or major fraction thereof.
- Sample locations should not be disclosed to the contractor prior to completion of the seam.
- A maximum frequency must be agreed to by the contractor, Site FCCQA Engineer, and the Owner at the pre-construction meeting. However, if the number of failed samples exceeds 5 percent of the tested samples, this frequency may be increased at the discretion of the Site FCCQA Engineer. Samples taken as the result of failed tests do not count toward the total number of required tests.

Sampling Procedures. The contractor will remove samples at locations identified by the FCCQA Technician. The FCCQA Technician must:

- Observe sample cutting.
- Mark each sample with an identifying number that contains the seam number and destructive test number.
- Record sample location on the panel layout drawing and destructive seam log.
- Record the sample location, weather conditions, and reason sample was taken (e.g., random sample, visual appearance, result of a previous failure, etc.).

For each destructive test obtain one sample approximately 45 inches long by 12 inches wide, with the weld centered along the length. Cut two 1-inch-wide coupons from each end of the sample (a total of 4 coupons). The contractor must test two of these coupons in shear and two in peel (one shear and one peel from each end) using a tensiometer capable of quantitatively measuring the seam strengths. For double wedge welding, both sides of the air channel will be tested in peel. The FCCQA Technician must observe the tests and record the results on the destructive seam test log. A geomembrane seam sample passes the field testing when the break is a film tear bond (FTB) and the seam strength meets the required strength values for peel and shear given previously in Table II.5-E-3 and below in the subsection "Passing Criteria for Welds" for both field testing and third party laboratory testing. As previously discussed, both welds have to pass for dual-track welds. Also, it is recommended that additional samples be obtained as discussed in the following paragraph if there is apparent separation of the weld (i.e., greater than 1/8 inch) during peel testing.

If one or both of the 1-inch specimens fail in either peel or shear, the contractor can, at his discretion: (1) reconstruct the entire seam between passed test locations, or (2) take two additional test samples 10 feet or more in either direction from the point of the failed test and repeat this procedure. For tracking purposes the additional samples should be identified by assigning an identifying letter to the initial destructive test sample number (e.g., DS-6A and B). Only satisfactory tests count toward the required minimum number, and additional tests (i.e., A and B) count as one test, if passing. If the second set of tests pass, the contractor can reconstruct or cap-strip the seam between the two passed test locations. If subsequent tests fail, the sampling and testing procedure is repeated until the length of the poor quality seam is established. Repeated failures indicate that either the seaming equipment or operator is not performing properly and appropriate corrective action must be taken immediately.

If the field test coupons are satisfactory, divide the remaining sample into three parts: one 12-inch by 12-inch section for the contractor, one 12-inch by 16-inch section for the third party laboratory for testing, and one 12-inch by 12-inch section for the Owner to archive. The laboratory sample will be shipped to the third party laboratory for delivery and subsequent testing.

If the laboratory test fails in either peel or shear, the contractor must either reconstruct the entire seam between passing test locations or recover additional samples at least 10 feet on either side of the failed sample for retesting. Sample size and disposition must be as described in the preceding paragraph. This process is repeated until passed tests bracket the failed seam section. Seams must be bounded by locations from which passing laboratory tests have been taken. Laboratory testing governs seam acceptance. In no case can field-testing of repaired seams be used for final acceptance.

Third Party Laboratory Testing. Destructive samples can be shipped to a third party laboratory for seam testing or tested at the site with the installer equipment tensiometer under the supervision of the FCCQA Technician. Testing for each sample will include five bonded seam shear strength tests and five peel adhesion tests (ten for dual-track welds). For dual-track welds each peel test specimen (coupon) will be tested on both sides of the air channel (i.e., the inner and outer welds). At least four of the five specimens tested in peel and shear will meet the minimum strength requirements. The minimum peel strength and the minimum shear strength values must meet the manufacturer's specifications. Additionally, 4 of 5 of the peel test coupons must have no greater than 25 percent seam separation. For dual-track welds if either weld exhibits greater than 25 percent separation or does not meet the required strength, that coupon is considered out of compliance and two out of compliance coupons cause the weld to fail. The third party laboratory must provide test results in timely manner, in writing or via telephone, to the Site FCCQA Engineer. Certified test results are to be provided within five days. The FCCQA Technician must immediately notify the Site FCCQA Engineer in the event of a calibration discrepancy or failed test results.

Passing Criteria for Welds. Passing criteria are established by Geosynthetic Institute GRI Test Method GM-19 for geomembrane seams. A passing extrusion or fusion-welded seam will be achieved when the following values are tested. The following values listed for shear and peel strengths are for 4 out of 5 test specimens (the 5th specimen can be as low as 80 percent of the listed values) for 50-mil LLDPE geomembrane. Elongation measurements should be omitted for field-testing.

• Shear strength (lb./in)	100
• Shear elongation at break (%)	50
• Peel strength (lb./in)	76 (65 extrusion weld)
• Peel separation (%)	25

5.3.7 Repairs

Any portion of the geomembrane with a detected flaw, or which fails a nondestructive or destructive test, or where destructive tests were cut, or where nondestructive tests left cuts or holes, must be repaired in accordance with the specifications developed for each phase of final cover construction and consistent with application parts (e.g., material requirements, installation, testing, etc.) of Section 2 of this FCCQA Plan. The FCCQA Technician must locate and record all repairs on the repair sheet and panel layout drawing. Repair techniques include the following:

- Patching – used to repair large holes, tears, large panel defects, undispersed raw materials, contamination by foreign matter, and destructive sample locations.
- Extrusion – used to repair small defects in the panels and seams. In general, this procedure should be used for defects less than 3/8-inch in the largest dimension.
- Capping – used to repair failed welds or to cover seams where welds or bonded sections cannot be nondestructively tested.
- Removal – used to replace areas with large defects where the preceding methods are not appropriate. Also used to remove excess material (wrinkles, fish mouths, intersections, etc.) from the installed geomembrane. Areas of removal will be patched or capped.

Repair procedures include the following:

- Abrade geomembrane surfaces to be repaired (extrusion welds only) no more than one hour prior to the repair.
- Clean and dry surfaces at the time of repair.
- Extend patches or caps at least 6 inches beyond the edge of the defect, and round corners of material to be patched and the patches to a radius of at least 3 inches. Bevel the top edges of patches prior to extrusion welding.
- Perform testing on repair seams consistent with Section 5.3.6 – Construction Testing.

5.3.8 Wrinkles

Wrinkles must be walked-out or removed as much as possible prior to field seaming. Any wrinkles which can fold over must be repaired either by cutting out excess material or, if possible, by allowing the liner to contract by temperature reduction. In no case can material be placed over the geomembrane, which could result in the geomembrane folding. The FCCQA Technician must monitor geomembrane for wrinkles and notify the contractor if wrinkles are being formed above the maximum tolerance level as described below. The FCCQA Technician is then responsible for documenting corrective action to remove the wrinkles.

Wrinkles occur during the geomembrane installation due to changes in liner temperatures and deployment methods. The wrinkles may interfere with the installation of the synthetic turf layer as well as the final appearance of the closure turf cover.

Minimizing wrinkles can greatly reduce problems resulting from geomembrane wrinkles and bridging. Large wrinkles typically start at the welding seams and extend from that point across the geomembrane width. For this reason, after each panel welding the sheet should be hand pulled in order to avoid the formation of ridging along the vertical seams. This technique is typically referred to as "snapping" and shall be implemented after welding every geomembrane panel. Additionally, slightly pretension pulling may be necessary at certain lower areas of the geomembrane panel to reduce diagonal wrinkles. The FCCQA Technician shall implement wrinkle inspection to include the following guidelines:

- Enforce snapping procedures after welding or seaming every panel as described above.
- After panel deployment and before welding, any horizontal wrinkles must be walked down or wiggled down the slope to minimize wrinkles after welding.
- Limit maximum wrinkle height to 4 inches during warmer ambient temperatures and potentially less wrinkle height of 2 to 3 inches in cooler temperatures.
- No geomembrane wrinkle should be folded over (see Section 5.3.9).
- Physically remove wrinkles by walking them or by pretension pulling on the sheet after welding each panel.
- Mechanically remove fish mouths larger than 5 inches in height by cutting, overlapping, flattening, and extrusion welding a patch over the affected geomembrane.

Avoid backfilling the anchor trenches until the synthetic grass and sand infill placement of the closure turf component. This will allow making correction in the field during the deployment of both the geomembrane and the synthetic grass component. Note that wrinkles will travel down the slopes and cannot be redistributed up slopes, so it is important that bottom anchor trenches remain open so that pulling adjustments can be made.

5.3.9 Folded Material

Folded geomembrane must be removed. Remnant folds evident after deployment of the roll that are due to the manufacturing process are acceptable.

5.3.10 Geomembrane Anchor Trench

The geomembrane anchor trench will be left open until seaming and placement of the synthetic grass and sand infill placement have been completed. Expansion and contraction of the geomembrane should be accounted for in the geomembrane placement. Prior to backfilling, the depth of penetration of the geomembrane into the anchor trench must be verified by the FCCQA Technician at a minimum of 100-foot spacing along the anchor trench. The anchor trench should be filled in the morning when temperatures are coolest to reduce bridging of the geomembrane.

5.3.11 Geomembrane Acceptance

The contractor retains all Ownership and responsibility for the geomembrane until acceptance by the Owner. In the event the contractor is responsible for placing cover over the geomembrane, the contractor retains all Ownership and responsibility for the geomembrane until all required documentation is complete, and the cover material is placed. After panels are placed, seamed, tested successfully, and any repairs are made, the completed installation will be walked by the operator's and contractor's representatives. Any damage or defect found during this inspection will be repaired properly by the installer. The installation will not be accepted until it meets the requirements of both representatives. In addition, the geomembrane will be accepted by the Site FCCQA Engineer only when the following has been completed:

- The installation is finished.
- Seams have been inspected and verified to be acceptable.
- Required laboratory and field tests have been completed and reviewed.
- Required contractor-supplied documentation has been received and reviewed.
- As-built record drawings have been completed and verified by the Site FCCQA Engineer. The as built drawings show the true panel dimensions, the location of seams, trenches, pipes, appurtenances, and repairs.

5.4 Turf Component

5.4.1 General

The turf layer installation consists of the placement and seaming of the synthetic grass component (two woven geotextiles made of polypropylene tufted with polyethylene yarns) overlying the geomembrane drain liner on the top slopes and side slopes. The FCCQA Technician will provide on-site observation of the installation. The Site FCCQA Engineer will make sufficient site visits during the turf layer installation to document the installation in the final documentation. The turf will meet the material property requirements listed in Table II.5-E-4.

5.4.2 Delivery

Upon delivery the FCCQA Technician must observe the following:

- The turf is wrapped in rolls with protective covering.
- The rolls are not damaged during unloading.
- Protect the turf from mud, soil, dirt, dust, debris, cutting, or impact forces.
- Each roll must be marked or tagged with proper identification.

Any damaged rolls will be rejected and removed from the site or stored at a location separate from accepted rolls, designated by the Owner. Rolls that do not have proper manufacturer's documentation will also be stored at a separate location until documentation has been received and approved.

5.4.3 Testing

The turf manufacturer (or supplier) will conduct quality control testing and certify that materials delivered to the site comply with project specifications for each phase of final cover construction.

Table II.5-E-4
Typical Values Turf Component

Property Turf Component	Test Method	Minimum Required Property
Yarn count (Denier)	ASTM D 1907	8000 (min 7300)
Tensile Grass @ Break lbs. (N)	ASTM D 2256	20 lbs. (88)±5 lbs. avg 15 lbs. min
Elongation @ Break %	ASTM D 2256	30-80%
Shrinkage @ 90°C	N/A	N/A
Tape thickness (micron)	ASTM D 3218	100 Varies based on client request.
Width (mm)	N/A	9±1%
Coating Temp	N/A	N/A
Yarn Weight Minimum (grams per sq. cm)	ASTM D 5261	19 oz./sy (0.063)
Double 13/18 Pic Polybag (grams per sq. cm)	ASTM D 5261	6 oz./sy (0.023)
Product Weight w/o ballast (grams per sq. cm)	ASTM D 5261	25 oz./sy (0.091) ±1oz/sy
Pile Height Minimum (cm)	Varies on client request	1.25 in (3.17)
Tufting Gauge (cm)	N/A	0.5 (1.27) to ¾ inch (1.9)
Transmissivity with underlying structured geomembrane Normal stress 50 psf and 0.33 gradient (m2/sec)	ASTM D 4716	2.5E-03 m^2/sec, Minimum
Internal Friction of combined components	ASTM D 5321	35 degrees, Minimum
UV Resistance and Stability. Tensile testing after weathering. Climate Zone 200W/m2 30 years exposure –accelerated or projected	ASTM G 147 (02) ASTM G 7 (05)	55% Retained Strength, Minimum 30-year exposure
Sand in-fill Gradation and Ballast	ASTM D 6913	SP/SW at a minimum of half inch as ballast weight to be approved by Site FCCQA Engineer prior to installation.

5.4.4 Manufacturer Quality Control

Turf manufacturer shall provide inspection records of the tufting procedures for the turf material. These will include visual inspection records of the following properties every 150,000 sq. ft:

- Tufting gauge
- Pile height
- Roll length and roll numbers

Manufacturer shall also provide documentation on the geotextile and yarn manufacturer minimum properties.

5.4.5 Turf Installation

Surface Preparation. Prior to turf installation, the FCCQA Technician must observe the following:

- The bottom liner has been prepared in accordance with the specifications and the geomembrane has been installed as outlined in Section 5.3.5.
- The geomembrane installation documentation has been completed over the areas that will be covered by the synthetic turf.
- The supporting surface (i.e., the geomembrane) does not contain stones or debris that could damage the turf.

Turf Placement. Prior to the installation of the turf, the contractor shall submit drawings showing the panel layout, indicating panel lengths, direction of deployment and the sequence proposed for flipping the panels after seaming. The Site FCCQA Engineer must review field conditions and approve the panel sequencing placement and the proposed direction of flipping after sewing as well as any revision to the panel layout.

- Observe the turf as it is deployed and record defects and disposition of the defects (panel rejected, patch installed, etc.). Repairs are to be made in accordance with the specifications.
- Verify that equipment used does not damage the turf or underlying geomembrane by handling, trafficking, leakage of hydrocarbons, or by other means.
- Verify that all panels are deployed from the top of the slope in a way that the leading edge of the roll stays at the top of the slope with the grass filaments always pointing upwards.
- Verify that the turf is anchored to prevent movement by the wind (the contractor is responsible for any damage resulting to or from windblown turf.
- Verify that the turf remains free of contaminants such as soil, grease, fuel, etc.
- Observe that the turf is laid smooth and free of tension, stress, folds, wrinkles, or creases.
- Observe that on slopes the turf is secured with sand bag anchoring at the top of the slope and then rolled down the slope.
- Observe the deployment of the panels to insure proper flipping in order to exposed the grass surface up after seaming operations.
- Observe that the seaming operation is performed using a 4-inch overlap and fastened with heavy-duty textile stitching machine. A single stitch prayer

type seam is constructed using a Nulong sewing machine or equivalent. The thread shall be 207 Polyester or equivalent.

- The FCCQA Technician shall review the specifications of the thread to be used for sewing the turf.
- Observe that stitching operations are performed so that the woven geotextiles are not exposed.
- Observe that after seaming operations, the ends of the turf panels are permanently anchored in the perimeter anchor trenches and covered with a minimum of two feet of soil.

Repair procedures include:

- Holes or tears in the turf will be repaired by placing a patch extending 2 feet beyond the edges of the hole or tear. Use Nordot 34G adhesives.
- Where the hole or tear width across the roll is more than 50 percent of the roll width, the damaged area will be cut out across the entire roll, and the two portions of the turf will be jointed either by adhesives or stitching operations.
- Patches will be installed in accordance with "Turf Placement" adhesives. Use Nordot 34G or Nordot 34G-4 adhesives or equivalent following the manufacturer recommendations. Use a seaming tape a minimum 10 inches wide.

5.5 Equipment on Geomembrane Materials

Construction equipment on the final cover system will be minimized to reduce the potential for geosynthetics liner material puncture. The FCCQA Technician will verify that small equipment such as generators are placed on scrap geomembrane material (rub sheets) above geosynthetic materials in the final cover system.

Unless otherwise specified by the Site FCCQA Engineer, rubber tire/track equipment over geosynthetics proposed by contractor shall be approved by the engineer. No equipment will be left running and unattended over the constructed geomembrane. Rubber tired / tracked ATV's and trucks are acceptable if wheels pressure is less than 15 psi.

Driver shall check for sharp edges embedded rocks, or other foreign materials stuck into or protruding from tires/track prior to driving on the geomembrane. Path driven on geomembrane shall be as straight as possible with no sharp turns, sudden stops or quick starts.

5.6 Equipment on Turf Materials

No equipment shall be allowed on slopes exceeding 15% until the sand infill is in place. On flatter slopes, such as top decks, ATV and vehicles will be allowed prior to infill placement if the tire pressure is less than 15 psi. Post construction drivability tire pressures should be limited on the slopes to 30 to 60 psi based on slope angle. Allowable tire pressures may be increased to 80 psi depending on subgrade conditions and Site FCCQA Engineer approval.

5.7 Reporting

The Site FCCQA Engineer, on behalf of the Owner, will submit to the State a Final Cover Engineering Certification Report for record of the constructed final cover system.

5.8 Sand installation

The following provides procedures for installation of the sand ballast for the closure turf final cover system.

- The sand layer will be of ½-inch-thick nominal. The sand will be worked into the turf layer as in-fill between the synthetic yarn blades. The physical characteristics of the sand layer will be evaluated through visual observation (and laboratory testing if deemed necessary by the Site FCCQA Engineer) before construction and visual observation during construction. Additional testing during construction will be at the discretion of the Site FCCQA Engineer.
- The sand layer may be placed using any appropriate equipment capable of completing the work and should only receive minimal compaction required for stability. No equipment shall be allowed on slopes exceeding 15% until the sand infill is in place. On flatter slopes, such as top decks, ATV and vehicles will be allowed prior to infill placement if the tire pressure is less than 15 psi.
- Conveyor Systems and or Express Blowers can be used to spread and place the sand in-fill. Contractor shall explain in detail in the pre-construction meeting the method of sand deployment to be used. The method shall be approved by the Engineer. For slopes 3H:1V or steeper the sand infill shall be placed using long reach conveyors belts or using water or air express blower methods.
- The FCCQA Technician will verify that the geosynthetics are not displaced while the sand layer is being placed.

- The sand aggregate to be used shall consist of highly permeable sand with an SW or SP curve specification. The curve should indicate the material consisting of medium sand having approximately 10% coarse and 10% fine sand. Alternative gradations may be considered by the Site FCCQA Engineer based on material availability and cost.
- The minimum initial lift of sand infill will be determined based on the type of placement equipment, and the slope and geometry considerations of the slope. An average of 0.5 to 0.75 inches is recommended for equipment with light ground pressure of less than 30 psi.
- The sand placement shall be done in front of the deployment equipment to improve the bearing capacity of the cover system below.
- An average thickness of ½ inch of sand infill shall be applied before allowing lightweight vehicles on the turf. This is particularly important on slopes steeper than 3H:1V where light rubber or tracked vehicles could start pulling on the turf before the sand infill is in place.
- Sand placement cannot occur with snow or ice on turf. Rain or wet conditions do not hamper the placement of sand (ballast) onto the turf, however wet sand or turf conditions severely hinder the ability to broom the sand in correctly. The sand will dry very quickly when spread evenly and exposed to atmospheric conditions conducive to drying the material. The sand can then be broomed into the turf correctly.

During construction the FCCQA Technician will:

- Verify that grade control is performed prior to work.
- Verify that underlying geosynthetic installations are not damaged during placement operations. Mark damaged geosynthetics and verify that damage is repaired.
- Verify that average thickness of ½ inch (nominal) of sand is placed on the turf. Frequency will be 20 measurements per acre of final cover installed.

6 EVAPOTRANSPIRATION ALTERNATIVE FINAL COVER SYSTEM

6.1 Introduction

The following sections of this FCCQA Plan address the construction of the soil components of the ET AFC system and outlines the program to be implemented with regard to materials selection and evaluation, laboratory test requirements, field test requirements and treatment of problems.

The scope of earthwork and related construction quality assurance includes the following elements:

- Intermediate Layer (refer to Section 4.2)
- Barrier Layer Preparation
- Vegetative Layer

6.2 Earthwork Construction

The following paragraphs describe general construction procedures to be used for various earthwork components of the final cover system.

6.2.1 Barrier Layer

The barrier (i.e., infiltration) layer will be comprised of compacted, select on-site or pre-approved offsite soils. The function of the barrier layer is to reduce infiltration and resulting fluid flow through the waste profile in accordance with NMED standards. This layer will be compacted to 90 percent of the Standard Proctor density. In accordance with field experience and USEPA Guidance (Technical Guidance for RCRA, CERCLA Final Covers, April 2002), the barrier layer will typically be compacted "dry of optimum" moisture to minimize the potential for desiccation.

HELP modeling performed to evaluate the effectiveness of this barrier for the final cover design systems confirms the performance of this layer in reducing infiltration potential, and it is further protected from desiccation by the vegetative layer. The hydraulic conductivity for the barrier layer (i.e., $\leq 7.2 \times 10^{-4}$ cm/sec) used for the Tier I demonstration results provided in Volume III, Section 10 (HELP Model) will be used as the performance specification for final cover soils, as demonstrated by laboratory and field density testing.

6.2.2 Vegetative Layer

The vegetative (i.e., erosion) layer will serve as the uppermost horizon in the proposed final cover designs. It is comprised of soils derived from select on-site deposits or local off-site sources stockpiled in advance that are suitable for sustaining native plant growth, which may be seeded to achieve permanent soil stabilization. Unlike the barrier (infiltration) layer, the vegetative layer soil will be placed uncompacted to assist in its function of promoting vegetative growth. During installation, care will be taken to ensure that the soil is not compacted. For example, construction equipment operators will be directed to minimize travel on the vegetative layer.

6.3 Vegetation Plan

Vegetation may be established in the vegetative layer of the final cover to limit erosion potential. The vegetation will serve to achieve permanent soil stabilization, and to enhance the aesthetic appearance of the final landform. Accordingly, the seed mix and application rates (based on a conservative broadcast seeding methodology) shown in Table II.5-E-5 are representative of the natural vegetation suitable for CRLF, as recommended by the Natural Resource Conservation Services (NRCS), Las Cruces NM field office.

Table II.5-E-5
Recommended Seed Mix

Seed	Application Rate (pounds pure live seed per acre)
Switch Grass	3.0 pounds per acre
Cane Bluestem	3.0 pounds per acre
Black Grama (Bouteloua eriopoda)	2.0 pounds per acre
Alkalai Sacaton	1.0 pounds per acre
Lehman Lovegrass	3.0 pounds per acre
Green Sprangletop	3.0 pounds per acre
Total	**15.0**

Note: Subject to change based on NRCS recommendations, new technologies, seed availability, etc., at the time of seeding.

The plant species selected are suited to site-specific conditions (e.g., soil type, climate, slope, and exposure) and the intended final use. The selected species have the capacity to achieve adequate density and vigor within an appropriate timeframe to stabilize the site sufficiently to permit suited uses with ordinary management activities. These select species are well-rooted (but not deep-rooted) and require minimal care for establishment and maintenance. Comparable vegetative species native to Doña Ana County may also be used, depending on price and availability, and the success of emerging new species under development.

Site preparation will vary depending on the method used in seed planting. If seed is to be broadcast (either by whirlwind spreader or hydromulcher), the soil cover will be disked or harrowed with a coil tine prior to planting. This will establish small furrows (2"-4" in depth) that reduce water erosion, retain soil moisture, and create a microclimate conducive to the germination of grass seeds. If seed is to be planted by use of a grass drill, no further site preparation is necessary following the placement of topsoil/vegetative layer. Care will be exercised to minimize disruption of the final cover system. The most commonly used planting methods are summarized below:

Seed Drilling

Drilling is the method recommended by the NRCS in critical planting areas (i.e., areas having disturbed soil). Drills must be equipped with hoppers that can properly meter out the seed. The drill should also have depth bands, or some other positive type of control, to prevent seeding too deeply. The drill should be equipped with packer wheels or the area should be rolled immediately after seeding, as firm soil/seed contact is essential to insure successful plantings.

Broadcast Seeding

Broadcast seeding can be accomplished by two basic methods: whirlwind seeders and hydromulchers. The amount of seed planted, intensity of post-planting maintenance, and level of post-planting watering will vary depending on the planting method(s) used. If whirlwind seeders are used, the amount of seed planted per acre must be double that of other methods. In addition, the area must be rolled following planting to ensure adequate soil/seed contact. These techniques are required because of low seed germination resulting from the great variability in depth of planting encountered when using this method.

Hydromulching

Hydromulching consists of mixing grass seed with straw, newspaper, or similar biodegradable material and broadcasting the shredded mixture on the soil surface. The shredded material acts as a soil stabilizer and retains moisture during the grass seed germination.

The timing of planting is a critical aspect for ensuring the revegetation of disturbed areas. In southern New Mexico, the best time to plant is just prior to, or immediately after, the start of summer rains. Most of the grass species native to this region require high soil temperatures to ensure maximum seed germination. To maximize the germination of planted seed, the method used must place the proper amount of seed at the proper depth to ensure that the seeds are in full contact with the soil. Wood chips, compost, amended soils, etc. may also be used to augment vegetation.

Maintenance requirements following seed planting will depend on the method used and results expected. If a seed drill is used for planting, the establishment of a dead vegetation layer to hold the soil in place is recommended. This can be achieved by including annual species in the seed mix which will grow and die, leaving a standing crop that holds the soil while perennial species become established. The area also can be mulched with straw, compost, wood chips, or similar biodegradable material that will hold the soil in place and retain soil moisture.

If broadcast seeding is used, the site should be rolled to press the seed into the soil. This will achieve proper depth of planting and ensure maximum soil/seed contact. The placement of mulch (i.e., compost/wood chips) is also highly recommended following broadcast seeding. The mulch will hold the soil and seeds in place and retain soil moisture, ensuring maximum seed germination and seedling establishment.

Once native grass species have been established on closed landfill areas, future maintenance will be minimal and consist primarily of the removal of undesirable vegetation (i.e., invader species, deep-rooted plants, etc.). The plant species to be used for revegetation are perennial, self-seeding, bunch grasses. Many of the species also reproduce by extending horizontal stems (stolons) through the soil and sprouting new grass clumps at various intervals along the stolons.

6.4 Testing and Surveying

The tests, methods, frequencies, and Closure Plan specifications for final cover installation are listed in Table II.5-E-6 (Final Cover – CQA Materials and Testing Specifications). If new technologies that are as effective as those listed are available at the time of closure, they may be substituted in consultation with NMED. The tests will be performed at representative locations on a grid pattern approximately 100 feet by 100 feet extending over the cover area. All ex-situ tests will be performed on representative samples collected for laboratory evaluation.

Once closure activities have been completed, the NM Professional Engineer with appropriate landfill engineering experience (20.9.6.8L(2) NMAC) will certify that the closure has been completed in accordance with this Closure Plan. A Certification Report sealed by the NM Professional Engineer that includes a summary of closure activities and engineering drawings detailing as-built conditions will be submitted to NMED within 60 days of closure completion. The Certification Report will be maintained in the Facility Operating Record.

Table II.5-E-6
Final Cover – CQA Materials and Testing Specifications

Description	ASTM Test Method	Test Frequency	Test Standard
1.0 Pre-construction			
1.1 Borrow Source			
• Grain Size	D1140	1,per 1,000 yd^3	Classification
• Permeability (Permeameter)	D2434 or 5084	1 per 5,000 yd^3	$k \leq 7.2x10^{-4}$ cm/s (infiltration layer)
• Atterberg Limits	D4318	1 per 5,000 yd^3	Classification
• Proctor Density (Standard)	D698	1 per 5,000 yd^3	Classification
• Internal Friction Testing – See Note 1			
1.2 Survey			
• Surface	NA	1 per 100’ on grid	Smooth Surface
1.3 Visual Inspection	NA	Continuous	No organic material or stones $\geq$ 2”
2.0 Construction			
2.1 Field Testing			
• Visual Inspection	NA	Continuous	No organic material or stones $\geq$ 2”
• Moisture/Density (Nuclear) (Infiltration Layer Only)	D2922	4 tests/ac/lift	$\geq$90% Standard Proctor (Dry of Optimum)
2.2 Survey			
• Infiltration Layer Thickness	NA	1 per 100’ on grid	12” maximum lifts
• Vegetative Layer Thickness	NA	1 per 100’ on grid	
3.0 Post-construction			
3.1 Visual Inspection	NA	Continuous	No organic material or stones $\geq$ 2”
3.2 Field Testing			
• Permeability (Infiltrometer) (Optional)	D5084	1 test/2 ac	$k \leq 7.2x10^{-4}$ cm/s (infiltration layer)
3.3 Survey			
• Layer Thickness	NA	1 per 100’ on grid	$\leq$30 inches infiltration layer $\leq$6 inches vegetation layer
• Slope	NA	1 per 100’ on grid	2% to 5% minimum, 25% max

1 Specific laboratory testing should be conducted on representative samples of the final cover material to confirm the validity of the parameters used in the stability modeling; see Table III.3-6 in Volume 3, Section 3.

6.5 Reporting

The Site FCCQA Engineer on behalf of the Owner shall submit to the NMED a Final Cover Engineering Certification Report for approval of each final cover area.

Figure II.5.E-1
Camino Real Landfill
Closure Documentation Record

Area		Barrier Layer			Vegetation Layer		Thickness Verification (Survey or Probe)	Vegetation Activities
		Infiltration Layer		Certified				
I.D.	Dimensions	Installed	Compacted		Installed	Certified		

____________ Recorded by: ________________ Certified by: ________________ Inspected by: ________________

ATTACHMENT II.5-F

C/PC COST ESTIMATES

II.5-F-1 Closure/Post-Closure: Cost Estimate Summary

II.5-F-2 Closure Construction: Closure Cost Estimate

II.5-F-3 Landfill Maintenance: Post-Closure Cost Estimate

II.5-F-4 Environmental Monitoring: Post-Closure Cost Estimate

II.5-F-5 GCCS Maintenance: Post-Closure Cost Estimate

II.5-F-6 Phase I/II Assessments: Cost Estimate

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TABLE II.5.F.1
CLOSURE/POST-CLOSURE
COST ESTIMATE SUMMARY
Camino Real Landfill

Task	2007 COST ESTIMATE	2022 COST ESTIMATE
1.0 CLOSURE CONSTRUCTION	**$ 3,860,450**	**$ 11,090,635**
2.0 LANDFILL MAINTENANCE	**$ 785,400**	**$ 852,281**
3.0 ENVIRONMENTAL MONITORING	**$ 1,841,400**	**$ 2,716,916**
4.0 GCCS MAINTENANCE	**$ 487,300**	**$ 638,850**
5.0 PHASE I/II ASSESSMENT	**$ 497,200**	**$ 651,829**
TOTAL COST ESTIMATE	**$ 7,471,750**	**$ 15,950,512**

TABLE II.5.F.2
CLOSURE CONSTRUCTION
CLOSURE COST ESTIMATE
Camino Real Landfill

Task 1.0	Unit Quantity	Unit	2007 Unit Cost	Inflation Factor	2022 Unit Cost	Total Cost
1.1 Final Cover Installation						
1.1.1 Install and compact 30" Infiltration Layer	1241057	CY	$ 2.50	1.311	$ 3.28	$ 4,067,563
1.1.2 Install 6" Vegetative Layer	248211	CY	$ 2.00	1.311	$ 2.62	$ 650,810
1.1.3 Vegetative Layer Seeding (Class A)	307.7	AC	$ 1,500	1.311	$ 1,967	$ 605,092
1.1.4 Install Stormwater Downdrains	3600	LF	$ 1,000	1.311	$ 1,311	$ 4,719,600
					Task Subtotal	**$ 10,043,065**
1.2 Final Cover CQA						
1.2.1 Inspection and Testing	1	LS	$ 25,000	1.311	$ 32,775	$ 32,775
1.2.2 Certification	1	LS	$ 5,000	1.311	$ 6,555	$ 6,555
					Task Subtotal	**$ 39,330**
					Subtotal	$ 10,082,395
					Contract Management Cost (10% of Subtotal)	$ 1,008,240
					Total Cost	**$ 11,090,635**

Notes

1 The 2022 Unit Cost is calculated using an inflation factor of 1.311. The inflation factor is a product of the inflation factors for each year between 2007 and 2019 as published by the Gross National Product (2.7, 2.2, 1.2, 0.9, 2.1, 1.8, 1.5, 1.5, 1.0, 1.3, 1.8, 2.3, 1.7, 1.2, and 4.2 respectively for 2007, 2008, 2009, 2010, 2011. 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, and 2022).

2 Final Cover installation costs assume that :

> The greatest area requiring final cover is 307.7 acres
> Cell 3.1 (~30 acres) minus 6 acres of overlap
> 12" of intermediate cover is already installed (consistent with current Landfill practices)
> All soils necessary for closure are available on-site

TABLE II.5.F.3
LANDFILL MAINTENANCE
POST-CLOSURE COST ESTIMATE
Camino Real Landfill

Task 2.0	Unit Quantity	Unit	2007 Unit Cost	Inflation Factor	2022 Unit Cost	Total Cost Per Year	Total Cost For 30 Years
2.1 Final Cover Inspection and Reporting							
2.1.1 Inspection	2	events/yr	$ 1,200	1.311	$ 1,573	$ 3,146	$ 94,392
2.1.2 Recordkeeping and Reporting	2	events/yr	$ 400	1.311	$ 524	$ 1,049	$ 31,464
					Task Subtotal	**$ 4,195**	**$ 125,856**
2.2 Final Cover Maintenance							
2.2.1 Cover Maintenance	3	AC	$ 2,500	1.311	$ 3,278	$ 9,833	$ 294,975
2.2.2 Vegetation	6	AC	$ 1,500	1.311	$ 1,967	$ 11,799	$ 353,970
					Task Subtotal	**$ 21,632**	**$ 648,945**
2.3 Leachate System							
2.3.1 Inspection/Repair	1	LS	$ 400	1.311	$ 524	$ 524	$ 15,732
2.3.2 Pump Replacement	1	LS	$ 500	1.311	$ 656	$ 656	$ 19,665
2.3.3 Disposal	4	events/yr	$ 400	1.311	$ 524	$ 2,098	$ 62,928
					Task Subtotal	**$ 3,278**	**$ 98,325**
2.4 Surface Water Management System							
2.4.1 Inspection/Repairs	2	events/yr	$ 400	1.311	$ 524	$ 1,049	$ 31,464
					Task Subtotal	**$ 1,049**	**$ 31,464**
2.5 Fencing							
2 2.2.1 Cover Maintenance	2	repairs/yr	$ 400	1.311	$ 524	$ 1,049	$ 31,464
					Task Subtotal	**$ 1,049**	**$ 31,464**
					Subtotal	**$ 25,827**	**$ 774,801**
					Contract Management Cost (10% of Subtotal)	$ -	$ 77,480
					Total Cost	**$ 25,827**	**$ 852,281**

Notes

1 The 2022 Unit Cost is calculated using an inflation factor of 1.311. The inflation factor is a product of the inflation factors for each year between 2007 and 2022 as published by the Gross National Product (2.7, 2.2, 1.2, 0.9, 2.1, 1.8, 1.5, 1.5, 1.0, 1.3, 1.8, 2.3, 1.7, 1.2, and 4.2 respectively for 2007, 2008, 2009, 2010, 2011. 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, and 2020).

TABLE II.5.F.4
ENVIRONMENTAL MONITORING
POST-CLOSURE COST ESTIMATE
Camino Real Landfill

Task 3.0	**Unit Quantity**	**Unit**	**2007 Unit Cost**	**Inflation Factor**	**2022 Unit Cost**	**Total Cost Per Year**	**Total Cost For 30 Years**
3.1 Landfill Gas Monitoring							
3.1.1 Field Services/ Reporting (30 years	4	events/yr	$ 800	1.311	$ 1,049	$ 4,195	$ 125,856
					Task Subtotal	**$ 4,195**	**$ 125,856**
3.2 GCCS Surface Emissions Monitoring (SEM)							
3.2.1 Field Services/ Reporting (30 years	2	events/yr	$ 7,000	1.311	$ 9,177	$ 18,354	$ 550,620
					Task Subtotal	**$ 18,354**	**$ 550,620**
3.3 Groundwater Monitoring							
3.3.1 Field Services/ Reporting (30 years	2	events/yr	$ 10,500	1.311	$ 13,766	$ 27,531	$ 825,930
3.3.2 Lab Analysis (30 years)	14	samples	$ 1,500	1.311	$ 1,967	$ 27,531	$ 825,930
					Task Subtotal	**$ 55,062**	**$ 1,651,860**
3.4 NPDES Monitoring							
3.4.1 Field Services/ Reporting (30 years	1	LS	$ 3,600	1.311	$ 4,720	$ 4,720	$ 141,588
					Task Subtotal	**$ 4,720**	**$ 141,588**
					Subtotal	**$ 82,331**	**$ 2,469,924**
					Contract Management Cost (10% of Subtotal)	$ -	$ 246,992
					Total Cost	**$ 82,331**	**$ 2,716,916**

Notes

1 The 2022 Unit Cost is calculated using an inflation factor of 1.311. The inflation factor is a product of the inflation factors for each year between 2007 and 2022 as published by Gross National Product (2.7, 2.2, 1.2, 0.9, 2.1, 1.8, 1.5, 1.5, 1.0, 1.3, 1.8, 2.3, 1.7, 1.2, and 4.2 respectively for 2007, 2008, 2009, 2010, 2011. 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, and 2020).

TABLE II.5.F.5
GCCS MAINTENANCE
POST-CLOSURE COST ESTIMATE
Camino Real Landfill

Task 4.0	**Unit Quantity**	**Unit**	**2007 Unit Cost**	**Inflation Factor**	**2022 Unit Cost**	**Total Cost Per Year**	**Total Cost**
4.1 Maintenance and Repairs							
4.1.1 LFG Well Replacement (15 years)	1	well/yr	$ 3,500	1.311	$ 4,589	$ 4,589	$ 68,828
4.1.2 Mechanical Repairs (15 years)	1	repairs/yr	$ 5,000	1.311	$ 6,555	$ 6,555	$ 98,325
4.1.3 System Inspection (15 years)	1	per week/yr	$ 100	1.311	$ 131	$ 6,817	$ 102,258
4.1.4 Reporting (15 years)	2	events/yr	$ 3,500	1.311	$ 4,589	$ 9,177	$ 137,655
					Task Subtotal	**$ 27,138**	**$** 407,066
4.2 Additional Wells							
4.2.1 Well Installation (Piping and well heads)	5	wells	$ 20,000	1.311	$ 26,220	$ --	$ 131,100
4.2.2 Reporting	1	LS	$ 3,500	1.311	$ 4,589	$ --	$ 4,589
					Task Subtotal	**$ --**	**$** 135,689
4.3 GCCS Decommissioning							
4.3.1 Above-ground Equipment Removal	1	LS	$ 12,000	1.311	$ 15,732	$ --	$ 15,732
4.3.2 Cover Material Replacement and Revegetatio	1	LS	$ 12,000	1.311	$ 15,732	$ --	$ 15,732
4.3.3 Inspection and Certification	1	LS	$ 2,500	1.311	$ 3,278	$ --	$ 3,278
4.3.4 As-built Documentation	1	LS	$ 2,500	1.311	$ 3,278	$ --	$ 3,278
					Task Subtotal	**$ --**	**$** 38,019
					Subtotal	**$ 27,138**	**$** 580,773
					Contract Management Cost (10% of Subtotal)	$ --	$ 58,077
					Total Cost	**$ 27,138**	**$** 638,850

Notes

1 The 2022 Unit Cost is calculated using an inflation factor of 1.311. The inflation factor is a product of the inflation factors for each year between 2007 and 2022 as published by the Gross National Product (2.7, 2.2, 1.2, 0.9, 2.1, 1.8, 1.5, 1.5, 1.0, 1.3, 1.8, 2.3, 1.7, 1.2, and 4.2 respectively for 2007, 2008, 2009, 2010, 2011. 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, and 2020).

TABLE II.5.F.6
PHASE I/II ASSESSMENTS
COST ESTIMATE
Camino Real Landfill

Task 5.0	Unit Quantity	Unit	2007 Unit Cost	Inflation Factor	2022 Unit Cost	Total Cost Per Year
Downgradient Wells (6)						
5.1 Sampling and Analysis						
5.1.1 Full Table II Lab Analysis	6	samples	$ 3,000	1.311	$ 3,933	$ 23,598
5.1.2 Field Services/Reporting	1	events	$ 9,000	1.311	$ 11,799	$ 11,799
					Task Subtotal	**$ 35,397**
All Wells (7)						
5.2 Sampling and Analysis						
5.2.1 Table II Lab Analysis for Detected Parameters	28	samples	$ 1,000	1.311	$ 1,311	$ 36,708
5.2.2 Field Services/Reporting	4	events	$ 10,500	1.311	$ 13,766	$ 55,062
					Task Subtotal	**$ 91,770**
All Wells (7)						
5.3 Sampling and Analysis						
5.3.1 Full Table I Lab Analysis	14	samples	$ 1,500	1.311	$ 1,967	$ 27,531
5.3.2 Table II Lab Analysis for Detected Parameters	14	samples	$ 1,000	1.311	$ 1,311	$ 18,354
5.3.3 Field Services/Reporting	2	events	$ 10,500	1.311	$ 13,766	$ 27,531
					Task Subtotal	**$ 73,416**
New Wells (3)						
5.4 New Well Installation, Sampling and Analysis						
5.4.1 Well Installation	3	wells	$ 50,000	1.311	$ 65,550	$ 196,650
5.4.2 Full Table I Analysis	6	samples	$ 1,500	1.311	$ 1,967	$ 11,799
5.4.3 Table II Lab Analysis for Detected Parameters	6	samples	$ 1,000	1.311	$ 1,311	$ 7,866
5.4.4 Field Services/Reporting	2	events	$ 4,500	1.311	$ 5,900	$ 11,799
					Task Subtotal	**$ 228,114**
5.5 Consultant Assessment						
5.5.1 PhaseI/PhaseII Assessment and Corrective Action Pr	1	LS	$ 125,000	1.311	$ 163,875	$ 163,875
					Task Subtotal	**$ 163,875**
					Subtotal	**$ 592,572**
					Contract Management Cost (10% of Subtotal)	$ 59,257
					Total Cost	**$ 651,829**

Notes

1 The 2022 Unit Cost is calculated using an inflation factor of 1.311. The inflation factor is a product of the inflation factors for each year between 2007 and 2022 as published by the Gross National Product (2.7, 2.2, 1.2, 0.9, 2.1, 1.8, 1.5, 1.5, 1.0, 1.3, 1.8, 2.3, 1.7, 1.2, and 4.2 respectively for 2007, 2008, 2009, 2010, 2011. 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, and 2020).

2 Cost estimates are based on sampling and analysis of wells that are intended to be part of the groundwater monitoring network over the next 10 years, plus three additional wells.

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO
NMED FACILITY PERMIT NOS. SWM-030738 AND SWM-030738(SP)

APPLICATION FOR PERMIT MODIFICATION AND RENEWAL

VOLUME II – LANDFILL MANAGEMENT PLANS
SECTION 6 – LANDFILL GAS MANAGEMENT PLAN

Prepared for

Camino Real Environmental Center, Inc.

September 2022

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1 INTRODUCTION

The Camino Real Landfill (CRLF) is an existing solid waste facility operating in compliance with its current Permits, SWM-030738 and SWM-030738(SP), and the New Mexico Environment Department (NMED) Solid Waste Rules (the Rules; 20.9.2 20.9.10 NMAC). The owner and operator of the Camino Real Landfill is Camino Real Environmental Center, Inc. (CREC).

CREC is seeking a Permit Modification (20.9.3.22 NMAC) and Permit Renewal (20.9.3.25 NMAC) for the CRLF to modify the existing permitted landfill configuration and to renew the current permit.

1.1 Site Location

The CRLF is an existing solid waste disposal facility that encompasses approximately 480 acres of land located at 1000 Camino Real Blvd. on the New Mexico (NM)/Mexico (MX) border in Sunland Park, New Mexico. The approximate geographic coordinates for the center of the CRLF site are: Latitude 31° 47' 24.7272" N and Longitude 106° 35' 32.6508" W.

The legal description of the site is summarized as follows:

> *A certain parcel of land situated within Section 12 and 13, Township 29 South, Range 3 East, New Mexico Principal Meridian, City of Sunland Park, Doña Ana County, New Mexico.*

CRLF is constructed, operated, monitored, and inspected in compliance with the Solid Waste Facility Permits granted by the NMED Solid Waste Bureau (SWB) pursuant to the Rules (20.9.2-20.9.10 NMAC).

1.2 Existing Permitted Landfill Unit Overview

MSW disposal and development at CRLF is defined by four "area fill" Units, i.e., 1 through 4, which are further divided into cells. Unit 1 (50 acres) is designated as closed. Unit 2 (124.2 acres) is an active landfill area. Unit 3 (60.5 acres) is permitted for waste disposal, and recently (2019) the first cell in this unit was developed. Portions of Unit 3 have been excavated to provide soils for ongoing operations. Unit 4 (73.0 acres) is located east of the current operations and is permitted but undeveloped. Soils from the Unit 4 area have also been excavated to support the ongoing operation. Cell phasing within each unit is determined by operational conditions. This Application for Permit Modification and renewal addresses subgrade configurations in Units 3 and 4 and final contour design over all units.

1.3 Landfill Gas

The decomposition of putrescible waste in a landfill can produce specific gases as a result of microbial action. Anaerobic decomposition, which requires moisture and the absence of air, produces a gas which consists primarily of methane and carbon dioxide in approximately equal proportions. In addition, trace constituents (e.g., hydrogen sulfide) are also generated during anaerobic decomposition. Methane and carbon dioxide are both colorless and odorless gases. Methane is a potentially explosive gas in a specific range of concentrations (5% to 15% by volume in air), if allowed to accumulate in confined spaces. The odor attributed to landfill gas (LFG) is derived entirely from the trace constituents. LFG is generated by naturally-occurring microbes that require moisture and the absence of oxygen to survive. LFG is produced when the microbes digest organic matter in the waste after disposal and encapsulation by daily, intermediate or final cover.

The key elements that promote the generation of LFG are supplies of wet organic matter and moisture in an environment that is devoid of air. However, the waste types, engineering design, and operating procedures specific to CRLF provide a very poor environment for the generation of LFG. Most significantly, the low moisture content of the waste mass and low precipitation serve to minimize the propagation of anaerobic microbes. The factors which inhibit LFG production include:

- Low proportion of organic materials in the waste, with higher-than-normal non-putrescible commercial and industrial (non-hazardous) waste types.
- Low inherent moisture content of the incoming waste, due to the origin of the material and the arid climate characteristic of Doña Ana County.
- Low precipitation (10.86-inch annual rainfall), which minimizes moisture addition through the cover and waste. The HELP modeling provided in Volume III Section 10 demonstrates the low rate of moisture infiltration and subsequent leachate generation.
- Low potential for moisture contribution from other sources, such as stormwater run-on and leachate, due to the installation of engineered control systems that divert run-on and collect leachate before it can accumulate.

The cornerstone of this Landfill Gas Management Plan (the "Plan") for the CRLF consists of routine LFG monitoring conducted along the facility's active perimeter boundary and within/around on-site structures. The monitoring will be used to confirm that gas is not being generated at a sufficient rate or concentration to cause migration toward the perimeter of the facility, and that an explosion hazard within on-site structures is not present. Some LFG will be generated by the Landfill, but there are several factors which serve to minimize the potential for an adverse impact:

- The composite liner system is a barrier which precludes gas flow into the soil environment either laterally or vertically.
- There are no off-site structures within 900 feet of waste cells that could conceivably be impacted.
- There are only four on-site structures constructed on-grade (i.e., no basements or crawl spaces).
- There will be insufficient moisture and putrescible matter to generate enough LFG to create a pressure head differential.

1.4 Purpose

This Plan was developed to ensure that migration does not pose a threat in the future. This Plan, developed in conformance with 20.9.3.9.B(12) NMAC, prescribes measures for:

- Quarterly monitoring of gas monitoring points along the facility boundary.
- Quarterly monitoring in and around on-site structures to ensure that LFG does not accumulate in potentially explosive concentrations.
- Augmenting the monitoring procedures in the event that methane is detected in excess of regulatory thresholds.
- LFG collection and control system (GCCS) monitoring.

1.5 Regulatory Requirements

This Plan provides the "plans and specifications for landfill gas monitoring and management programs" required by 20.9.3.9 NMAC. The Plan for CRLF described herein demonstrates compliance with 20.9.5.9 NMAC for LFG monitoring. Consistent with the requirements of 20.9.4.16 NMAC, this plan provides a description of the existing and future landfill gas collection and control system (GCCS) expansion. Should monitoring results identify elevated methane concentrations, additional monitoring and evaluation will be implemented in accordance with this Plan (Section 3.8).

1.6 Other Regulatory Requirements

40 CFR 60 Subpart XXX

CRLF is also subject to the requirements of the federal New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills, which are administered by NMED's Air Quality Bureau (AQB).

The requirements in Subpart XXX apply to MSW landfills for which construction, modification, or reconstruction commenced on or after 07/17/2014, and which have a "design capacity" equal to or greater than 2.5 million m3 (i.e., 3.27 million yd3) or 2.5 million megagrams (i.e., 2.76 million tons).

CRLF is currently authorized by a Title V Operating Permit P186L, which includes the operation of the GCCS.

As this Application modifies (i.e., increases) the design capacity of the facility, CRLF will be subject to the NSPS Subpart XXX regulations.

2 LANDFILL GAS MONITORING PROGRAM

2.1 Current Landfill Gas Monitoring Program

The current landfill gas (LFG) monitoring program for CRLF was implemented in August 1990, and includes two types of quarterly monitoring for methane:

1. Measurements at permanent monitoring points along the perimeter
2. Internal measurements in and around the facility structures

The extensive LFG monitoring database for CRLF encompasses approximately 29 years of historical monitoring results from August 1990 through 2019. Since 1999, the number of perimeter monitoring points has ranged from five to eight. In addition, monitoring point nomenclature has varied over the 18-year timeframe.

The existing LFG monitoring program for CRLF consists of quarterly methane monitoring at eight perimeter points and the four on-site structures (Gate House, Landfill Office, Barn, and Maintenance Compound). The maintenance compound will be relocated outside the permitted waste fill area in the future. Permitted and proposed LFG monitoring program consists of the same monitoring schedule as the existing LFG monitoring program and are listed in Table II.6-1. Boring logs for existing probes are located in Attachment II.6-C.

Table II.6-1
Landfill Gas Monitoring Points and Compliance Standards

Monitoring Point I.D.	Monitoring Frequency	Compliance Standard
Existing Perimeter Probes	Quarterly	<5% methane by volume in air (100% LEL)
M-1, M-2, M-3, M-4, M-5, M-6, M-8, M-9		
Permitted Perimeter Probes		
M-10, M-11, M-12, M-13, M-14		
Permitted Perimeter Probes (to be relocated)		
M-15, M-16, M-17, M-18, M-19		
Proposed Perimeter Probes		
M-15, M-16, M-17, M-18, M-19, M-20, M-21, M-22, M-23, M-24		
Structures	Quarterly	<1.25% methane by volume in air (25% LEL)
Gate House		
Landfill Office		
Maintenance Compound*		
Barn		

*The maintenance compound will be relocated outside the permitted waste fill area in the future.

Landfill gas monitoring at CRLF is currently performed by trained personnel with a portable combustible gas analyzer that allows for measurement of methane concentrations from 0 – 100% of the lower explosive limit (LEL) for methane, or 5% methane by volume in air; and more precise readings from 2.5% to 100% by volume in air. The instrument is also equipped to measure concentrations of oxygen (O2), carbon monoxide (CO), and hydrogen sulfide (H2S). The gas analyzer is equipped with suction sampling line equipped with an airtight fitting. The instrument is calibrated by trained personnel in the field prior to each monitoring event with 100% methane, 2.5% methane, and "balance air" calibration gases, or other appropriate calibration gas for methane monitoring.

2.2 Historical Monitoring Results

Due to the magnitude of the LFG database and dynamic nature of the monitoring network (i.e., monitoring point locations and nomenclature), Attachment II.6-A provides historical methane monitoring results from 2018 through the third quarter of 2020. Monitoring results between 1997 and 2017 were provided in the 2008 Permit Application, the 2013 Interim Review Report, and the 2018 Interim Review

Report. The results show that methane has not been detected at concentrations above 100% LEL at the perimeter monitoring points; or above 25% LEL (i.e., 1.25% methane by volume in air) within on-site structures. These negative results confirm that the facility is not only compliant with NMED and USEPA standards, but that the LFG monitoring program is protective of human health, welfare, and the environment.

2.3 Permitted Landfill Gas Monitoring Program

CRLF is currently permitted to install perimeter probes M-10 through M-19 as shown on Figure II.6.1. The installation of the permitted LFG probes will occur as the construction of the landfill continues. The permitted LFG monitoring include quarterly monitoring for methane as discussed below and are listed in Table II.6-1.

1. Perimeter probe measurements at points positioned at maximum 1,000 foot intervals to facilitate through the development of Unit 3. The points are positioned between the fill areas and the site perimeter as close as practical to the landfill property and cell boundaries to confirm compliance with the maximum methane concentration limit established by Rule (i.e., 100% of LEL or 5% methane by volume in all).

Due to the new landfill configuration, permitted probes M-15, M-16, M-17, M-18, and M-19 will be relocated as shown on Figure II.6.1.

2.4 Proposed Landfill Gas Monitoring Program

The CRLF is seeking NMED approval to amend the current LFG monitoring program by adding 10 new perimeter probes including relocation of 5 permitted perimeter probes as shown on Figure II.6.1. The proposed LFG monitoring program for CRLF will be implemented following NMED approval of this Application, and includes two types of quarterly monitoring for methane, as discussed below and listed in Table II.6-1.

1. Perimeter probe measurements at points positioned at maximum 1,000 foot intervals to facilitate quarterly LFG monitoring through the development of Cells 3.1B, 3.2, and 3.3, and Unit 4. The points are positioned between the fill areas and the site perimeter as close as practical to the landfill property and cell boundaries to confirm compliance with the maximum methane concentration limit established by Rule (i.e., 100% of the LEL or 5% methane by volume in air).
2. Any future building that is incorporated into the landfill.

The CRLF may elect to install permanent LFG probes at positions deemed to be most appropriate for detection monitoring and determined in consultation with the NMED SWB as shown on Figure II.6.1. Based on the surrounding land use and off-site structures, the inter-probe spacing was based on nearby off-site structures. The inter-probe spacing is less than 1,000 feet except for in areas where there are nearby off-site structures, in which case the spacing will be reduced to approximately 500 feet.

After evaluating the site's soil, hydrogeologic, and hydraulic conditions surrounding the facility, the new LFG monitoring probes are designed to be single-completion probes. Permanent probes will be constructed of solid and perforated sections of 2-inch-diameter SCH 40 PVC pipe. Each probe will be constructed such that the perforated section is installed within soil layers that are conducive to monitoring potential subsurface LFG flow across the perforated section. The upper section of the probe below ground surface (bgs) will be constructed of solid pipe to preclude ambient air impacts to LFG monitoring results as shown on Figure II.6.2. The ultimate depth of each probe, as well as the perforated section length, will be determined in the field based on the final probe location and the subsurface soil conditions encountered during installation. However, at a minimum it will extend down to the bottom of waste elevation within 1,000 feet of the proposed probe location, and/or the seasonal low groundwater elevation at the proposed probe location, whichever is encountered first. The as-built probe data will be submitted to the SWB.

The top of each probe will be equipped with an air tight fitting that is compatible with connection to a portable combustible gas analyzer. The fitting effectively prevents ambient air from interfering with (and potentially diluting) the gas composition measured in the probe. Figure II.6.2 (Landfill Gas Monitoring Probe Profile) provides a generalized construction schematic for permanent probes.

3 LANDFILL GAS MONITORING PLAN

3.1 Objective

This Plan outlines site-specific procedures to ensure ongoing compliance with 20.9.5.9 NMAC; and establishes a program to monitor for potential subsurface lateral migration of methane; and for possible accumulation of methane within on-site structures. The monitoring program proposed in Section 2 relies on at least quarterly LFG measurements at the points identified on Figure II.6.1.

Should monitoring results identify elevated methane concentrations, timely supplemental monitoring and data evaluation will be implemented in accordance with this Plan. If monitoring results indicate the possibility of off-site methane migration, additional monitoring will be performed to determine the extent of migration, and/or the potential for methane accumulation within on-site structures (i.e., buildings, sub-grade utilities). A final objective of this Plan is to ensure that the site complies with applicable regulatory and safety guidelines regarding methane management; and is protective of human health, welfare, and the environment.

3.2 Landfill Gas Monitoring Schedule and Parameters

During the active life of the CRLF, LFG monitoring will be conducted by trained personnel on a quarterly basis at perimeter points and on-site structures using a portable gas analyzer. At a minimum, the analyzer will be capable of measuring methane (CH4), oxygen (O2), carbon dioxide (CO2), and balance gas (typically nitrogen).

3.3 Monitoring Instrumentation

Landfill gas monitoring will be performed in the field using an electronic, intrinsically safe portable gas analyzer or equivalent instrument capable of expressing methane concentrations from 0-100% of the LEL for methane, or percent by volume total gas in air. The instrument will be calibrated prior to each monitoring event using manufacturer-certified calibration gases.

Instrumentation will be allowed to stabilize to 0% LEL methane prior to monitoring at each location; and monitoring activities will not proceed until instrument stabilization is achieved. The stabilization check will be performed in areas where the ambient methane concentration is reasonably expected to be below the detection limits of the instrument. If the methane concentration does not stabilize at 0% LEL methane, the instrument will be re-calibrated.

Personnel responsible for LFG monitoring and data reporting will be trained in the operation, maintenance, and calibration of the monitoring equipment; and a calibration log specific to the gas monitoring equipment will be maintained. Calibration documentation and LFG measurements will be recorded on a form similar to that provided as Attachment II.6-B (Landfill Gas Monitoring Log).

3.4 Structures

Each structure will be monitored for methane using the same sampling train and instrumentation operation as for perimeter point monitoring. A 3-foot-long fiberglass extension rod (or similar attachment) will be attached to the Teflon® tubing to facilitate gas monitoring. The portable gas analyzer will be operated until a continuous gas measurement (i.e., stabilized value) is recorded. If LFG measurements indicate a methane concentration above 25% LEL, the contingency measures outlined in Volume II, Section 8 will be implemented.

In the future, permanent sensors may be installed in facility structures to augment the routine NMED-required monitoring of structures. The sensors would be installed where methane gas is most likely to accumulate (e.g., foundations, confined spaces, etc.). The results of routine LFG monitoring will dictate the need for, and scheduling of, permanent sensor installation. As continuous monitoring devices, these sensors have a built-in alarm system which is activated if gas concentrations exceed a predetermined value. The sensors would be calibrated to sound an internal alarm when combustible gas concentrations reach or exceed 1% methane by volume in air (i.e., 20% LEL or 10,000 ppmv).

3.5 Permanent Probes

Methane concentrations in the permanent probes will be measured by the portable gas analyzer will be connected to the probe air-tight fitting via an appropriate length (typically 3 ft) of Teflon® tubing or equivalent fittings. The gas analyzer will be operated until continuous gas measurements (i.e., stabilized value) of methane, carbon dioxide, oxygen, and balance gas (typically nitrogen) are recorded. If monitoring indicates the presence of methane above 100% LEL in permanent probes, the contingency measures outlined in Section 3.6 will be implemented.

3.6 Contingency Measures

This action plan has been prepared consistent with 20.9.5.9(c)(3) in order to protect human health in the event that concentrations of methane exceed NMED compliance thresholds either in facility structures within the permit boundary or at the LFG monitoring probe. The appropriate emergency response is different for each situation; therefore, the plan will address the situations for buildings and probes separately.

3.6.1 Initial Action

The initial action in the event methane is detected at levels above regulatory limits is to immediately take necessary steps to protect human health. The specific response depends on the circumstances of the situation.

Building/Structures. If a monitoring device in a facility within the permit boundary is triggered or if continuous LFG monitor/alarm equipment indicates that 25 percent of the LEL (1.25 percent methane by volume) has been exceeded, the building is to be immediately evacuated of all personnel and the Landfill Manager will be notified. Personnel (except for qualified monitoring personnel) will not be allowed to reenter the affected structure until additional measures are taken. Notification procedures will be implemented as described in Section 3.7.

Perimeter Monitoring Probes. If a level above the regulatory limit of methane is detected at the permit boundary in one of the monitoring probes, the Landfill Manager will be notified immediately. The initial action will also include an immediate re-calibration of the monitoring equipment and re-monitoring of the affected probe(s). The immediate emergency response measure will be for the Landfill Manager to determine if any nearby buildings (including off site structures) are at risk and if evacuation of the building(s) should be requested. Notification procedures will be implemented as described in Section 3.7.

3.7 Notification Procedures

When methane levels above the regulatory limit have been accurately detected, notification will be made to secretary. The notification will be made by telephone, fax, or e-mail. Notification made verbally or in writing, along with a description of the steps taken to ensure protection of public health, welfare, and the environment will be also be recorded and placed into the Site Operating Record within seven days of detection of methane above the regulatory limits.

3.8 Remediation Plan

Once methane levels above regulatory limits have been detected in the facility buildings/structures or in one or more of the LFG monitoring probes at the permit boundary, a specific remediation plan will be developed and implemented within 60 days of detection, describing the nature and extent of the problem and proposed remedy. The remediation plan will be implemented within 60 days of detection or as approved by the secretary. The secretary will be promptly notified in writing that the remediation plan has been implemented and a copy will be placed in the Site Operating Record.

The initial remediation action will be an investigation of the cause of the methane levels. The investigation may include some or all of the following elements, depending on the circumstances:

- Bar-hole probe or hydropunch testing in the vicinity of the impacted monitoring probe/trench vent
- Sampling and laboratory analysis of LFG samples collected from the monitoring probe/trench vent to determine the concentration of methane and trace compounds
- A gas analysis to try to determine the source
- Additional LFG monitoring

Using accumulated data, an assessment will be made to determine an appropriate course of action to mitigate the LFG migration. Such actions may vary with the specific incident, but may include (and are not limited to) increasing the vacuum or re-tuning the existing GCCS and/or installation of the following:

- Passive vents
- Cut-off trenches
- GCCS Expansion

3.9 Recordkeeping and Reporting

LFG monitoring results will be recorded on the Landfill Gas Monitoring Log similar to that provided as Attachment II.6-B. The Monitoring Log and any accompanying information (e.g., weather data, Site Plan, etc.) will be maintained as part of the Facility Operating Record; and will be submitted to NMED Solid Waste Bureau on a quarterly basis no later than 30 days following the conclusion of each calendar quarter.

4 LANDFILL GAS CONTROL

4.1 Landfill Gas Control System

The existing GCCS consists of vertical LFG extraction wells, a piping network, condensate management system, flare facility, and a LFG-To-Energy Plant as shown in Figure II.6.3. The gas collection piping system conveys the extracted LFG from the collection points (i.e., vertical wells) to the flare facility and/or energy plant.

The existing GCCS will be expanded as needed to control LFG and in accordance with Federal and/or State Regulations. The installation of future GCCS components is addressed in the site's GCCS Design Plan.

5 POST-CLOSURE LANDFILL GAS MONITORING

5.1 Post-Closure Monitoring

Quarterly LFG monitoring along the CRLF perimeter will continue after closure of the site. In addition, quarterly LFG monitoring will be performed in any structures that have not been decommissioned. The need for monitoring and the frequency of monitoring will be evaluated during the post-closure care period, and will continue until:

1. The concentration of methane is less than 25% LEL for 4 consecutive measurements (i.e., one year) at each permanent perimeter monitoring point.
2. Methane is not detected in facility structures for 4 consecutive measurements (i.e., one year).

If LFG monitoring has consistently produced negative results for one year, CRLF may request a reduced monitoring frequency or provide justification to NMED that the LFG monitoring program may be terminated. Any proposed changes to the LFG monitoring program for CRLF will be coordinated with NMED Solid Waste Bureau for approval prior to implementation.

5.2 Post-Closure Gas Control

During the post-closure care period, the integrity of the landfill cap will be preserved unless regulations or conditions warrant active control measures; and the resultant cap disruption will be localized. Proven LFG control technologies generally require penetration of the barrier layer in the final cover. This also applies to mechanisms for monitoring LFG within the waste mass. One objective of this Plan is to minimize penetration of the landfill cap.

Individual LFG management system components will be decommissioned when methane gas generation has declined to a point when its management is no longer necessary. This process may be accomplished incrementally, with older areas reaching stabilization first. The closure procedure will generally consist of removing above-grade components of the system. The barrier and vegetative layers will be subsequently re-established. Each individual gas extraction well will be terminated when its useful life is expired.

5.3 Decommissioning

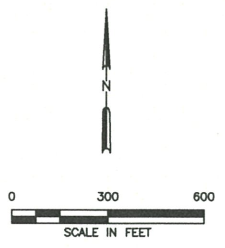
During the post-closure care period, operations and maintenance of the GCCS will include the following items:

- Routine inspections and maintenance
- Replacement of extraction wells (if necessary)
- Repair or replacement of GCCS components
- Installation of additional wells

Individual GCCS components will be deactivated when LFG generation has declined to a point when its management is no longer required. This may be accomplished incrementally, with older areas reaching stabilization first. The deactivation procedure will likely consist of closing transmission piping in-line gate valves and wellhead flow control valves in non-productive areas. Alternatively, above-grade components will be removed to 24 inches below ground surface, and the barrier and vegetative layers will be re-established at the same time.

Complete removal of the GCCS will be performed when all three of the following closure conditions for gas collection and control systems are met:

1. The landfill is no longer accepting solid waste and can be permanently closed.
2. The GCCS has been in operation for a minimum of 15 years or the landfill owner or operator demonstrates that the gas construction and control system will be unable to operate for 15 years due to declining gas flows.
3. The calculated NMOC emissions is less than 34mg/yr on three consecutive test dates. The test dates will be no less than 90 days apart and no greater than 180 days apart.



LEGEND

— · —	PROPERTY BOUNDARY
— · —	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
— —	PERMITTED LIMITS OF WASTE FOR UNIT 2
— · —	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
- - - -	ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4
E 8,000	SITE GRID
4120	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
⊙M-4	EXISTING LANDFILL GAS MONITORING PROBE
⊙M-11	PERMITTED LANDFILL GAS MONITORING PROBE
⊙M-17	PERMITTED LANDFILL GAS MONITORING PROBE (TO BE RELOCATED)
⊙M-27	PROPOSED LANDFILL GAS MONITORING PROBE

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.
2. PERMITTED LANDFILL GAS PROBE LOCATION BASED ON 2007 PERMIT APPLICATION.
3. LOCATIONS OF PROPOSED LANDFILL GAS MONITORING PROBES ARE APPROXIMATE. ACTUAL LOCATIONS MAY VARY BASED ON FIELD CONDITIONS AT THE TIME OF INSTALLATION.
4. FUTURE LANDFILL GAS MONITORING PROBES TO BE INSTALLED SIMILAR TO THE DETAL SHOWN ON FIGURE II.6.2.

JONATHAN VINCENT QUEEN
25844

9/26/22

☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: II.6.1 ENV MON PLAN.DWG

DRAWN BY: JDW
DESIGN BY: JAE
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

ENVIRONMENTAL MONITORING NETWORK

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

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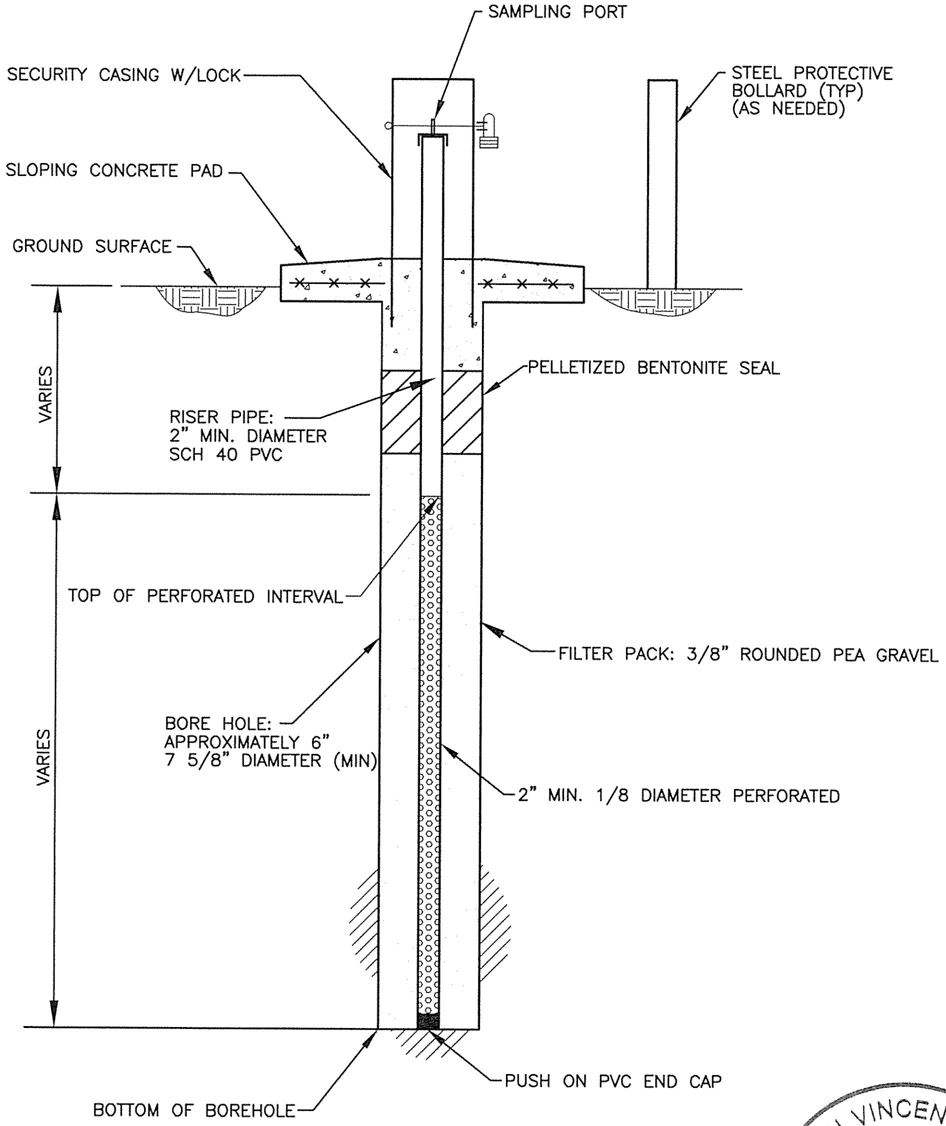
FIGURE II.6.1

O:\0601\667\EXPANSION 2019\VOLUME 2\PART 6\II-6-1 MONITORING NETWORK.dwg, rarrington, 1:2



TYPICAL LANDFILL GAS MONITORING PROBE

NTS

NOTES:

1. ALL SIZES AND DIMENSIONS ARE APPROXIMATE.
2. ACTUAL LOCATION AND DESIGN OF LFG MONITORING PROBE WILL BE DETERMINED BASED ON FIELD CONDITIONS AT THE TIME OF INSTALLATION.

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7/26/22

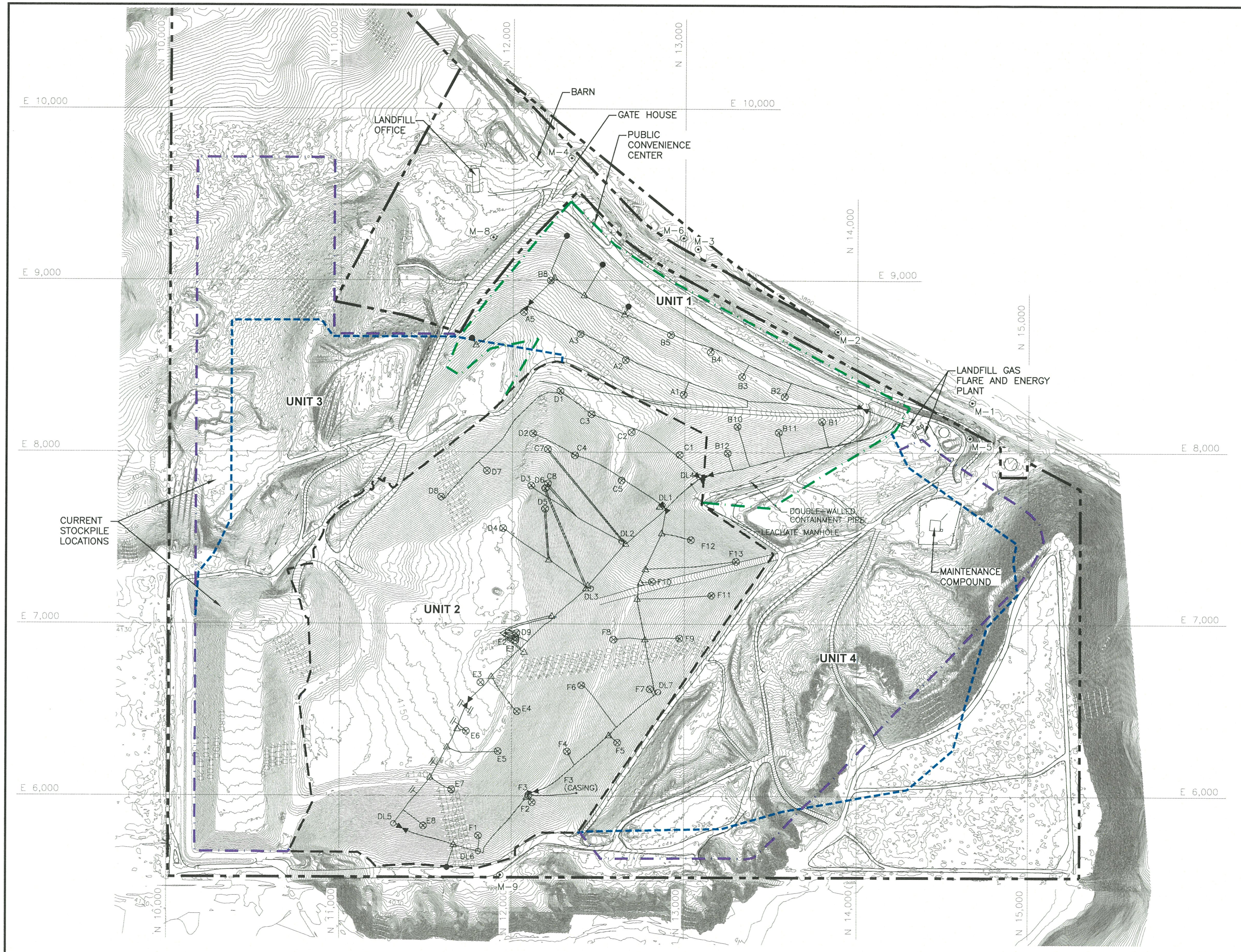
LANDFILL GAS MONITORING
PROBE PROFILE

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

Weaver Consultants Group

DRAWN BY: JDW | DATE: 07/2022 | FILE: PROBE DTL
REVIEWED BY: JVQ | CAD: 0601-667-11 | FIGURE II.6.2

O:\0601\667\EXPANSION 2019\VOLUME 2\PART 6\II-6-2_GAS PROBE DETAIL.dwg, rarrington, 1:2



LEGEND

▬ · ▬	PROPERTY BOUNDARY
— · —	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
— — —	PERMITTED LIMITS OF WASTE FOR UNIT 2
— · —	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
- - - -	ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4
E 8,000	SITE GRID
4120	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
⊗ EW-1	EXISTING LFG EXTRACTION WELL
——	EXISTING LFG COLLECTION PIPING
— — — —	EXISTING LEACHATE FORCEMAIN
△	EXISTING REMOTE WELLHEAD
⋈	EXISTING LFG ISOLATION VALVE
●	EXISTING CLEANOUT RISER
○	EXISTING DRIPLEG
⊙M-4	EXISTING LANDFILL GAS MONITORING PROBE

NOTE:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.

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25844

7/24/22

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☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

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FILE: 0601-667-11
CAD: II.6.3 LFG CONTROL PLAN.DWG

DRAWN BY: JDW
DESIGN BY: JAE
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

LANDFILL GAS CONTROL PLAN

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

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FIGURE II.6.3

O:\0601\667\EXPANSION 2019\VOLUME 2\PART 6\II-6-3 LFG CONTROL.dwg, rarrington, 1:2

ATTACHMENT II.6-A

HISTORICAL METHANE MONITORING RESULTS
(Q1 2018 through Q1 2022)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill **Sampler Name:** Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 3/11/2018, 0.12 inches
Current Temp: 52 °F
Current Wind Speed: 4 mph
Current Wind Direction: NE
Current Barometric Pressure: 30.01 in Hg

Weather Conditions:
Sunny and clear

Date of Monitoring:
3/29/2018

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 3/29/2018, 8:30 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	9:55	0.0	0.0	20.0	80.0
M-2	4'	10:05	0.0	0.0	20.1	79.9
M-3	40'	10:10	0.0	0.0	20.0	80.0
M-4	40'	9:50	0.0	0.0	20.3	79.7
M-5	15'	10:35	0.0	0.0	20.4	79.6
M-6	15'	10:15	0.0	0.0	20.3	79.7
M-8	15'	9:20	0.0	0.1	20.0	79.9
M-9	30'	10:45	0.0	0.0	20.3	79.7

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	9:00	0.0	0.1	20.1	79.8
Upstairs Restroom	9:03	0.0	0.0	20.3	79.7
Kitchen	9:06	0.0	0.0	20.2	79.8
Gate House					
Restroom	9:40	0.0	0.0	20.3	79.7
Kitchen	9:43	0.0	0.0	20.2	79.8
Barn					
Corner Spigot	9:30	0.0	0.0	20.1	79.9
Recycling Center					
Conveyor Belt	9:11	0.0	0.0	20.2	79.8
Upstairs Sorting Bins	9:14	0.0	0.0	20.1	79.9
Four Peaks Energy Plant					
Office	10:28	0.0	0.0	20.7	79.3
Electrical Room	10:25	0.0	0.0	20.6	79.4
Maintenance Compound					
Pump House	10:58	0.0	0.0	20.3	79.7
Restroom	10:55	0.0	0.0	20.2	79.8

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill
Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 5/21/2018, 0.06 inches
Current Temp: 82 °F
Current Wind Speed: 6 mph
Current Wind Direction: NE
Current Barometric Pressure: 27.7 in Hg

Weather Conditions:
Sunny and Clear

Date of Monitoring:
5/29/2018

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 5/29/2018, 9:45 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:48	0.0	0.6	20.2	79.2
M-2	4'	10:55	0.0	4.9	15.3	79.8
M-3	40'	11:05	0.0	1.7	17.4	80.9
M-4	40'	10:38	0.0	3.6	16.9	79.5
M-5	15'	11:33	0.0	0.3	19.4	80.3
M-6	15'	11:10	0.0	0.1	19.7	80.2
M-8	15'	10:20	0.0	0.2	19.9	79.9
M-9	30'	11:48	0.0	0.8	19.4	79.8

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	10:00	0.0	0.0	20.2	79.8
Upstairs Restroom	10:06	0.0	0.0	20.3	79.7
Kitchen	10:03	0.0	0.0	20.3	79.7
Gate House					
Restroom	10:33	0.0	0.0	20.1	79.9
Kitchen	10:30	0.0	0.0	20.0	80.0
Barn					
Corner Spigot	10:25	0.0	0.0	20.1	79.9
Recycling Center					
Conveyor Belt	10:12	0.0	0.0	20.3	79.7
Upstairs Sorting Bins	10:15	0.0	0.0	20.2	79.8
Four Peaks Energy Plant					
Office	11:25	0.0	0.0	20.6	79.4
Electrical Room	11:28	0.0	0.0	20.5	79.5
Maintenance Compound					
Pump House	12:03	0.0	0.0	20.8	79.2
Restroom	12:00	0.0	0.0	20.7	79.3

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill **Sampler Name:** Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 9/5/2018 0.2 inches
Current Temp: 78 °F
Current Wind Speed: 12 mph
Current Wind Direction: NW
Current Barometric Pressure: 29.77 in Hg

Weather Conditions:
Clear and Sunny

Date of Monitoring: 9/12/2018

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 9/12/2018 at 10:15 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	11:55	0.0	0.6	18.5	80.9
M-2	4'	12:05	0.0	8.5	11.8	79.7
M-3	40'	12:15	0.0	2.0	16.9	81.1
M-4	40'	11:45	0.0	0.8	18.4	80.8
M-5	15'	12:55	0.0	0.3	19.6	80.1
M-6	15'	12:20	0.0	0.2	19.1	80.7
M-8	15'	11:35	0.0	0.1	19.8	80.1
M-9	30'	12:45	0.0	0.9	19.1	80.0

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	11:10	0.0	0.0	19.7	80.3
Upstairs Restroom	11:13	0.0	0.0	19.6	80.4
Kitchen	11:16	0.0	0.0	19.8	80.2
Gate House					
Restroom	11:43	0.0	0.0	19.9	80.1
Kitchen	11:40	0.0	0.0	20.0	80.0
Barn					
Corner Spigot	11:30	0.0	0.0	20.1	79.9
Recycling Center					
Conveyor Belt	11:21	0.0	0.0	20.0	80.0
Upstairs Sorting Bins	11:24	0.0	0.0	20.1	79.9
Four Peaks Energy Plant					
Office	13:00	0.0	0.0	19.8	80.2
Electrical Room	13:03	0.0	0.0	19.9	80.1
Maintenance Compound					
Pump House	12:33	0.0	0.0	20.1	79.9
Restroom	12:30	0.0	0.0	20.0	80.0

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 10/23/2018 0.16 inches

Current Temp: 51 °F

Current Wind Speed: 15 mph

Current Wind Direction: W

Current Barometric Pressure: 28.16 in Hg

Weather Conditions:
Clear and breeze

Date of Monitoring: 11/20/2018

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®

Date and Time Last Calibrated: 11/20/2018 at 9:00 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:50	0.0	1.1	18.9	80.0
M-2	4'	10:55	0.0	6.2	11.8	82.0
M-3	40'	11:00	0.0	2.6	17.4	80.0
M-4	40'	10:40	0.0	4.0	16.4	79.6
M-5	15'	11:10	0.0	0.5	19.4	80.1
M-6	15'	11:03	0.0	0.4	20.2	79.4
M-8	15'	10:25	0.0	0.3	19.7	80.0
M-9	30'	11:20	0.0	0.7	19.5	79.8

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	10:00	0.0	0.0	20.1	79.9
Upstairs Restroom	10:03	0.0	0.0	20.2	79.8
Kitchen	10:06	0.0	0.0	20.0	80.0
Gate House					
Restroom	10:33	0.0	0.0	20.1	79.9
Kitchen	10:30	0.0	0.0	20.2	79.8
Barn					
Corner Spigot	10:20	0.0	0.0	20.1	79.9
Recycling Center					
Conveyor Belt	10:12	0.0	0.0	20.0	80.0
Upstairs Sorting Bins	10:15	0.0	0.0	20.1	79.9
Four Peaks Energy Plant					
Office	11:48	0.0	0.0	20.1	79.9
Electrical Room	11:45	0.0	0.0	20.0	80.0
Maintenance Compound					
Pump House	11:30	0.0	0.0	20.2	79.8
Restroom	11:33	0.0	0.0	20.1	79.9

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill **Sampler Name:** Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 2/22/2019, 0.04 inches
Current Temp: 70 °F
Current Wind Speed: 14 mph
Current Wind Direction: NE
Current Barometric Pressure: 29.99 in Hg

Weather Conditions:
Cloudy and breeze

Date of Monitoring:
3/7/2019

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 3/7/2019, 10:00 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	11:30	0.0	1.2	18.5	80.3
M-2	4'	11:40	0.0	10.8	12.4	76.8
M-3	40'	11:50	0.0	2.3	16.9	80.8
M-4	40'	11:20	0.0	4.4	15.9	79.7
M-5	15'	12:05	0.0	0.3	80.0	19.7
M-6	15'	11:55	0.0	0.4	19.3	80.3
M-8	15'	11:00	0.0	0.3	19.4	80.3
M-9	30'	12:20	0.0	1.4	18.3	80.3

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	10:30	0.0	0.0	20.0	80.0
Upstairs Restroom	10:33	0.0	0.0	19.9	80.1
Kitchen	10:36	0.0	0.0	19.8	80.2
Gate House					
Restroom	11:10	0.0	0.0	20.0	80.0
Kitchen	11:13	0.0	0.0	19.9	80.1
Barn					
Corner Spigot	10:50	0.0	0.0	19.8	80.2
Recycling Center					
Conveyor Belt	10:41	0.0	0.0	19.9	80.1
Upstairs Sorting Bins	10:44	0.0	0.0	19.8	80.2
Four Peaks Energy Plant					
Office	12:45	0.0	0.0	19.7	80.3
Electrical Room	12:48	0.0	0.0	19.8	80.2
Maintenance Compound					
Pump House	12:30	0.0	0.0	19.9	80.1
Restroom	12:33	0.0	0.0	19.8	80.2

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill **Sampler Name:** Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 6/10/2019, 0.06 inches
Current Temp: 77 °F
Current Wind Speed: 10 mph
Current Wind Direction: NW
Current Barometric Pressure: 29.91 in Hg

Weather Conditions:
Sunny and Clear

Date of Monitoring:
6/25/2019

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 6/25/2019, 8:00 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	9:11	0.0	0.4	19.5	80.1
M-2	4'	9:17	0.0	0.0	20.0	80.0
M-3	40'	9:25	0.0	0.1	19.9	80.0
M-4	40'	9:06	0.0	0.0	19.9	80.1
M-5	15'	9:48	0.0	0.1	19.9	80.0
M-6	15'	9:30	0.0	0.4	19.4	80.2
M-8	15'	8:53	0.0	0.2	19.2	80.6
M-9	30'	9:58	0.0	0.3	19.4	80.3

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	8:30	0.0	0.0	19.8	80.2
Upstairs Restroom	8:33	0.0	0.1	19.7	80.2
Kitchen	8:36	0.0	0.2	19.6	80.2
Gate House					
Restroom	8:58	0.0	0.0	19.6	80.4
Kitchen	9:01	0.0	0.1	19.5	80.4
Barn					
Corner Spigot	8:48	0.0	0.0	19.9	80.1
Recycling Center					
Conveyor Belt	8:40	0.0	0.0	19.7	80.3
Upstairs Sorting Bins	8:43	0.0	0.2	19.6	80.2
Four Peaks Energy Plant					
Office	9:40	0.0	0.0	20.3	79.7
Electrical Room	9:43	0.0	0.0	20.1	79.9
Maintenance Compound					
Pump House	10:13	0.0	0.0	19.8	80.2
Restroom	10:10	0.0	0.0	19.9	80.1

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill
Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 824/2019 0.38 inches
Current Temp: 84 °F
Current Wind Speed: 4 mph
Current Wind Direction: SE
Current Barometric Pressure: 29.55 in Hg

Weather Conditions:
Clear,Sunny and Hot

Date of Monitoring: 8/26/2019

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 8/26/2019 at 9:30 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	11:00	0.0	0.0	19.3	80.7
M-2	4'	11:10	0.0	4.8	15.4	79.8
M-3	40'	11:25	0.0	2.5	16.6	80.9
M-4	40'	10:50	0.0	0.4	19.0	80.6
M-5	15'	12:00	0.0	0.4	18.9	80.7
M-6	15'	11:40	0.0	0.3	19.1	80.6
M-8	15'	10:30	0.0	0.0	19.6	80.4
M-9	30'	12:15	0.0	1.0	18.7	80.3

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	10:06	0.0	0.0	20.0	80.0
Upstairs Restroom	10:03	0.0	0.0	19.9	80.1
Kitchen	10:00	0.0	0.0	20.0	80.0
Gate House					
Restroom	10:43	0.0	0.0	19.5	80.5
Kitchen	10:40	0.0	0.0	19.4	80.6
Barn					
Corner Spigot	10:20	0.0	0.0	19.7	80.3
Recycling Center					
Conveyor Belt	10:11	0.0	0.2	19.8	80.0
Upstairs Sorting Bins	10:14	0.0	0.1	19.9	80.0
Four Peaks Energy Plant					
Office	11:50	0.0	0.1	19.9	80.0
Electrical Room	11:53	0.0	0.0	20.0	80.0
Maintenance Compound					
Pump House	12:25	0.0	0.0	19.8	80.2
Restroom	12:28	0.0	0.0	19.9	80.1

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill
Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 11/29/2019 0.01 inches
Current Temp: 49 °F
Current Wind Speed: 3 mph
Current Wind Direction: SE
Current Barometric Pressure: 30.07 in Hg

Weather Conditions:
Cloudy and cool

Date of Monitoring: 12/4/2019

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 12/4/2019 at 10:30 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	11:22	0.0	1.4	18.2	80.4
M-2	4'	11:27	0.0	6.2	14.2	79.6
M-3	40'	11:35	0.0	2.6	16.7	80.7
M-4	40'	11:17	0.0	4.9	15.5	79.6
M-5	15'	12:00	0.0	0.6	19.1	80.3
M-6	15'	11:38	0.0	0.5	19.0	80.5
M-8	15'	11:12	0.0	0.3	19.1	80.6
M-9	30'	12:15	0.0	0.8	18.9	80.3

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	10:40	0.0	0.1	19.3	80.6
Upstairs Restroom	10:43	0.0	0.0	19.4	80.6
Kitchen	10:46	0.0	0.1	19.2	80.7
Gate House					
Restroom	11:08	0.0	0.1	19.4	80.5
Kitchen	11:05	0.0	0.0	19.4	80.6
Barn					
Corner Spigot	11:00	0.0	0.0	19.5	80.5
Recycling Center					
Conveyor Belt	10:51	0.0	0.0	19.4	80.6
Upstairs Sorting Bins	10:54	0.0	0.1	19.5	80.4
Four Peaks Energy Plant					
Office	11:50	0.0	0.0	19.9	80.1
Electrical Room	11:53	0.0	0.0	20.0	80.0
Maintenance Compound					
Pump House	12:05	0.0	0.1	19.8	80.1
Restroom	12:08	0.0	0.0	19.9	80.1

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 3/25/2020, 0.04 inches
Current Temp: 56 °F
Current Wind Speed: 2 mph
Current Wind Direction: NE
Current Barometric Pressure: 29.83 in Hg

Weather Conditions:
Clear and sunny

Date of Monitoring:
3/25/2020

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 3/25/2020, 8:45 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	9:55	0.0	0.0	18.8	81.2
M-2	4'	10:00	0.0	0.0	18.9	81.1
M-3	40'	10:10	0.0	0.0	19.2	80.8
M-4	40'	9:45	0.0	0.0	18.9	81.1
M-5	15'	10:25	0.0	0.5	18.3	81.2
M-6	15'	10:15	0.0	0.6	18.6	80.8
M-8	15'	9:30	0.0	0.3	18.7	81.0
M-9	30'	10:50	0.0	0.9	18.3	80.8

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	9:00	0.0	0.1	19.1	80.8
Upstairs Restroom	9:03	0.0	0.1	19.0	80.9
Kitchen	9:06	0.0	0.0	19.2	80.8
Gate House					
Restroom	9:35	0.0	0.1	18.9	81.0
Kitchen	9:38	0.0	0.0	19.0	81.0
Barn					
Corner Spigot	9:19	0.0	0.0	19.0	81.0
Recycling Center					
Conveyor Belt	9:11	0.0	0.0	19.1	80.9
Upstairs Sorting Bins	9:14	0.0	0.0	19.0	81.0
Four Peaks Energy Plant					
Office	10:30	0.0	0.2	18.8	81.0
Electrical Room	10:33	0.0	0.1	19.0	80.9
Maintenance Compound					
Pump House	10:38	0.0	0.0	19.5	80.5
Restroom	10:41	0.0	0.1	19.6	80.3

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill **Sampler Name:** Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 3/18/2020, 0.04 inches
Current Temp: 66 °F
Current Wind Speed: 12 mph
Current Wind Direction: SE
Current Barometric Pressure: 29.74 in Hg

Weather Conditions:
Sunny and Clear

Date of Monitoring:
6/9/2020

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 6/9/2020, 8:15 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:45	0.0	0.0	19.2	80.8
M-2	4'	10:55	0.0	0.0	19.4	80.6
M-3	40'	11:05	0.0	0.1	19.3	80.6
M-4	40'	10:35	0.0	0.1	19.2	80.7
M-5	15'	11:20	0.0	0.2	19.1	80.7
M-6	15'	11:10	0.0	0.6	18.4	81.0
M-8	15'	10:20	0.0	0.4	18.6	81.0
M-9	30'	11:55	0.0	1.0	18.5	80.5

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	9:50	0.0	0.0	19.3	80.7
Upstairs Restroom	9:53	0.0	0.0	19.4	80.6
Kitchen	9:56	0.0	0.1	19.3	80.6
Gate House					
Restroom	10:25	0.0	0.1	19.1	80.8
Kitchen	10:28	0.0	0.0	19.1	80.9
Barn					
Corner Spigot	10:14	0.0	0.0	19.4	80.6
Recycling Center					
Conveyor Belt	10:05	0.0	0.0	19.4	80.6
Upstairs Sorting Bins	10:08	0.0	0.0	19.3	80.7
Four Peaks Energy Plant					
Office	11:25	0.0	0.1	19.3	80.6
Electrical Room	11:28	0.0	0.0	19.5	80.5
Maintenance Compound					
Pump House	11:43	0.0	0.0	19.6	80.4
Restroom	11:40	0.0	0.0	19.5	80.5

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill **Sampler Name:** Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 7/20/2020 0.06 inches
Current Temp: 78 °F
Current Wind Speed: 6 mph
Current Wind Direction: SE
Current Barometric Pressure: 29.97 in Hg

Weather Conditions:
Clear,Sunny and Dry

Date of Monitoring: 9/26/2020

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 9/26/2020 at 9:10 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:45	0.0	0.2	18.8	81.0
M-2	4'	10:30	0.0	8.2	11.8	80.0
M-3	40'	10:55	0.0	2.3	16.5	81.2
M-4	40'	10:20	0.0	3.1	16.1	80.8
M-5	15'	11:20	0.0	0.4	17.7	81.9
M-6	15'	11:05	0.0	0.3	17.8	81.9
M-8	15'	10:15	0.0	0.4	18.2	81.4
M-9	30'	11:55	0.0	1.3	17.2	81.5

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	9:30	0.0	0.0	18.8	81.2
Upstairs Restroom	9:33	0.0	0.0	18.7	81.3
Kitchen	9:36	0.0	0.0	18.7	81.3
Gate House					
Restroom	9:55	0.0	0.0	18.9	81.1
Kitchen	9:58	0.0	0.0	18.8	81.2
Barn					
Corner Spigot	10:05	0.0	0.0	18.9	81.1
Recycling Center					
Conveyor Belt	9:45	0.0	0.0	18.9	81.1
Upstairs Sorting Bins	9:48	0.0	0.0	18.8	81.2
Four Peaks Energy Plant					
Office	11:30	0.0	0.0	19.1	80.9
Electrical Room	11:33	0.0	0.0	19.0	81.0
Maintenance Compound					
Pump House	11:40	0.0	0.0	18.8	81.2
Restroom	11:43	0.0	0.0	18.9	81.1

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill **Sampler Name:** Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 12/9/2020 0.08 inches
Current Temp: 37 °F
Current Wind Speed: 5 mph
Current Wind Direction: S
Current Barometric Pressure: 30.08 in Hg

Weather Conditions:
Clear and sunny

Date of Monitoring: 12/15/2020

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 12/15/2020 at 8:00 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	9:55	0.0	0.1	19.4	80.5
M-2	4'	10:00	0.0	2.1	17.3	80.6
M-3	40'	10:05	0.0	1.1	18.7	80.2
M-4	40'	9:45	0.0	0.0	19.5	80.5
M-5	15'	10:20	0.0	0.4	19.3	80.3
M-6	15'	10:08	0.0	0.5	19.3	80.2
M-8	15'	9:15	0.0	0.3	19.1	80.6
M-9	30'	10:55	0.0	0.2	19.7	80.1

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	8:45	0.0	0.1	19.4	80.5
Upstairs Restroom	8:48	0.0	0.2	19.2	80.6
Kitchen	8:51	0.0	0.1	19.3	80.6
Gate House					
Restroom	9:25	0.0	0.2	19.5	80.3
Kitchen	9:28	0.0	0.1	19.6	80.3
Barn					
Corner Spigot	9:05	0.0	0.1	19.4	80.5
Recycling Center					
Conveyor Belt	8:55	0.0	0.1	19.4	80.5
Upstairs Sorting Bins	8:58	0.0	0.2	19.2	80.6
Four Peaks Energy Plant					
Office	10:25	0.0	0.1	19.3	80.6
Electrical Room	10:28	0.0	0.2	19.2	80.6
Maintenance Compound					
Pump House	10:40	0.0	0.2	19.1	80.7
Restroom	10:43	0.0	0.1	19.3	80.6

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill **Sampler Name:** Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 1/26/2021, 0.02 inches
Current Temp: 54 °F
Current Wind Speed: 8 mph
Current Wind Direction: E
Current Barometric Pressure: 29.75 in Hg

Weather Conditions: Clear and sunny

Date of Monitoring: 3/23/2021

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 3/23/2021, 9:40 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:45	0.0	0.0	19.7	80.3
M-2	4'	10:55	0.0	1.0	19.6	79.4
M-3	40'	11:05	0.0	3.0	15.0	82.0
M-4	40'	10:35	0.0	2.0	18.3	79.7
M-5	15'	11:30	0.0	0.0	19.9	80.1
M-6	15'	11:15	0.0	0.0	19.8	80.2
M-8	15'	10:25	0.0	0.0	20.2	79.8
M-9	30'	11:40	0.0	1.0	18.8	80.2

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	10:00	0.0	0.0	20.7	79.3
Upstairs Restroom	10:03	0.0	0.0	20.4	79.6
Kitchen	10:06	0.0	0.0	20.5	79.5
Gate House					
Restroom	10:30	0.0	0.0	20.3	79.7
Kitchen	10:33	0.0	0.0	20.2	79.8
Barn					
Corner Spigot	10:20	0.0	0.0	20.6	79.4
Recycling Center					
Conveyor Belt	10:10	0.0	0.0	20.6	79.4
Upstairs Sorting Bins	10:13	0.0	0.0	20.4	79.6
Four Peaks Energy Plant					
Office	12:10	0.0	0.0	20.3	79.7
Electrical Room	12:13	0.0	0.0	20.4	79.6
Maintenance Compound					
Pump House	11:55	0.0	0.0	20.2	79.8
Restroom	11:58	0.0	0.0	20.1	79.9

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 1/26/2021, 0.02 inches

Current Temp: 85 °F

Current Wind Speed: 12 mph

Current Wind Direction: E

Current Barometric Pressure: 26.81 in Hg

Weather Conditions: Sunny and Clear

Date of Monitoring: 6/7/2021

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®

Date and Time Last Calibrated: 6/7/2021, 9:10 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:50	0.0	0.0	19.9	80.1
M-2	4'	11:00	0.0	0.0	19.4	80.6
M-3	40'	11:10	0.0	1.0	17.8	81.2
M-4	40'	10:30	0.0	2.0	18.7	79.3
M-5	15'	11:25	0.0	0.0	19.9	80.1
M-6	15'	11:15	0.0	0.0	19.8	80.2
M-8	15'	10:25	0.0	0.0	20.1	79.9
M-9	30'	11:50	0.0	0.0	19.5	80.5

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	9:50	0.0	0.0	19.1	80.9
Upstairs Restroom	9:53	0.0	0.0	19.2	80.8
Kitchen	9:56	0.0	0.0	19.1	80.9
Gate House					
Restroom	10:35	0.0	0.0	20.1	79.9
Kitchen	10:38	0.0	0.0	20.2	79.8
Barn					
Corner Spigot	10:15	0.0	0.0	20.4	79.6
Recycling Center					
Conveyor Belt	10:05	0.0	0.0	18.9	81.1
Upstairs Sorting Bins	10:08	0.0	0.0	19.0	81.0
Four Peaks Energy Plant					
Office	11:30	0.0	0.0	20.2	79.8
Electrical Room	11:33	0.0	0.0	20.1	79.9
Maintenance Compound					
Pump House	12:05	0.0	0.0	20.1	79.9
Restroom	12:08	0.0	0.0	20.0	80.0

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 9/1/2021 0.02 inches
Current Temp: 78 °F
Current Wind Speed: 6 mph
Current Wind Direction: SE
Current Barometric Pressure: 30.02 in Hg

Weather Conditions:
Clear,Sunny and Dry

Date of Monitoring: 9/17/2021

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 9/17/2021 at 9:30 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:50	0.0	0.0	20.2	79.8
M-2	4'	11:00	0.0	0.3	19.7	80.0
M-3	40'	11:10	0.0	1.7	18.2	80.1
M-4	40'	10:35	0.0	2.8	17.8	79.4
M-5	15'	11:45	0.0	0.6	19.1	80.3
M-6	15'	11:15	0.0	0.8	18.9	80.3
M-8	15'	10:15	0.0	0.6	20.0	79.4
M-9	30'	12:30	0.0	0.8	18.8	80.4

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	9:45	0.0	0.1	21.3	78.6
Upstairs Restroom	9:48	0.0	0.0	21.4	78.6
Kitchen	9:51	0.0	0.1	21.3	78.6
Gate House					
Restroom	10:25	0.0	0.0	20.5	79.5
Kitchen	10:28	0.0	0.0	20.6	79.4
Barn					
Corner Spigot	10:10	0.0	0.0	21.2	78.8
Recycling Center					
Conveyor Belt	10:00	0.0	0.0	21,2	100.0
Upstairs Sorting Bins	10:03	0.0	0.0	21.3	78.7
Four Peaks Energy Plant					
Office	11:25	0.0	0.0	20.0	80.0
Electrical Room	11:28	0.0	0.3	19.6	80.1
Maintenance Compound					
Pump House	12:05	0.0	0.0	20.3	79.7
Restroom	12:08	0.0	0.0	20.2	79.8

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill

Sampler Name: Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 9/30/2021 0.02 inches
Current Temp: 49 °F
Current Wind Speed: 1 mph
Current Wind Direction: SE
Current Barometric Pressure: 28.77 in Hg

Weather Conditions:
Clear and Sunny

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 12/8/2021 9:00

Date of Monitoring:
12/8/2021

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:10	0.0	0.6	21.2	78.2
M-2	4'	10:20	0.0	2.2	19.0	78.8
M-3	40'	10:30	0.0	2.9	18.4	78.7
M-4	40'	10:00	0.0	3.3	19.0	77.7
M-5	15'	11:10	0.0	0.5	21.1	78.4
M-6	15'	10:40	0.0	0.8	20.8	78.4
M-8	15'	9:45	0.0	0.4	21.6	78.0
M-9	30'	11:40	0.0	0.9	20.2	78.9
M-10	60'	11:50	0.0	0.4	20.4	79.2
M-11	60'	11:55	0.0	0.4	20.6	79.0
M-12	60'	12:00	0.0	0.3	20.9	78.8

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	9:10	0.0	0.1	21.8	78.1
Upstairs Restroom	9:13	0.0	0.1	21.9	78.0
Kitchen	9;16	0.0	0.1	21.9	78.0
Gate House					
Restroom	9:50	0.0	0.1	22.1	77.8
Kitchen	9:53	0.0	0.2	22.0	77.8
Barn					
Corner Spigot	9:40	0.0	0.1	22.3	77.6
Recycling Center					
Conveyor Belt	9:25	0.0	0.3	21.3	78.4
Upstairs Sorting Bins	9:28	0.0	0.4	21.2	78.4
Four Peaks Energy Plant					
Office	10:55	0.0	0.0	20.4	79.6
Electrical Room	10:58	0.0	0.0	20.2	79.8
Maintenance Compound					
Pump House	11:20	0.0	0.0	20.8	79.2
Restroom	11:23	0.0	0.0	20.9	79.1

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

Landfill Gas Monitoring Field Log

Landfill Name: Camino Real Landfill **Sampler Name:** Juan Carlos Tomas

Weather Information

Date and Amount of Last Precipitation: 1/3/2022, 0.4 inches
Current Temp: 51 °F
Current Wind Speed: 8 mph
Current Wind Direction: NE
Current Barometric Pressure: 22.73 in Hg

Weather Conditions: Clear and sunny

Date of Monitoring: 3/24/2022

Equipment Information

Monitoring Equipment Used: CES Landtec GEM-2000®
Date and Time Last Calibrated: 3/24/2022, 9:00 AM

Dedicated Perimeter Probes

Monitoring Probe ID (Depth)	Probe Depth	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
M-1	3'	10:20	0.0	0.0	20.3	79.7
M-2	4'	10:30	0.0	1.1	19.3	79.6
M-3	40'	10:40	0.0	0.2	20.0	79.8
M-4	40'	10:00	0.0	0.0	20.4	79.6
M-5	15'	11:10	0.0	0.3	19.9	79.8
M-6	15'	10:45	0.0	0.4	19.6	80.0
M-8	15'	9:50	0.0	0.2	20.2	79.6
M-9	30'	11:45	0.0	0.4	19.4	80.2
M-10	60'	11:50	0.0	0.0	20.2	79.8
M-11	60'	11:55	0.0	0.0	20.4	79.6
M-12	60'	12:05	0.0	0.0	20.5	79.5

Landfill Structures

Structure	Time of Measurement	CH_4 Concentration (% in air)	CO_2 %	O_2 %	Balance Gas %
Landfill Office					
Downstairs Restroom	9:15	0.0	0.1	20.5	79.4
Upstairs Restroom	9:18	0.0	0.0	20.6	79.4
Kitchen	9:21	0.0	0.1	20.5	79.4
Gate House					
Restroom	10:05	0.0	0.0	20.3	79.7
Kitchen	10:08	0.0	0.0	20.2	79.8
Barn					
Corner Spigot	9:40	0.0	0.0	20.5	79.5
Recycling Center					
Conveyor Belt	9:30	0.0	0.0	20.6	79.4
Upstairs Sorting Bins	9:33	0.0	0.1	20.5	79.4
Four Peaks Energy Plant					
Office	11:00	0.0	0.1	20.5	79.4
Electrical Room	11:03	0.0	0.0	20.6	79.4
Maintenance Compound					
Pump House	11:20	0.0	0.0	20.3	79.7
Restroom	11:23	0.0	0.0	20.4	79.6

Note: Monitoring locations are shown on attached "Landfill Gas Monitoring Points" map (**Figure 1**)

ATTACHMENT II.6-B

LANDFILL GAS MONITORING LOG

Landfill Gas Monitoring Log (Typical)
Camino Real Landfill

I. General Information

Date: ____________ Time: ________ Barometric Pressure: ____________________

Weather: __________ Temp: ________ Wind (speed and direction): ______________

II. Equipment

Gas Monitor Model: ______________________________

Date Last Calibrated: ______________________________

Calibration Specifications: ______________________________

III. Field Measurements

Monitoring Location	CH_4 (%)	CO_2 (%)	O_2 (%)	Pump Time (Sec)	Time of Measurement	Observations
Perimeter Probes						
M-1						
M-2						
M-3						
M-4						
M-5						
M-6						
M-8						
M-9						
M-10						
M-11						
M-12						
M-13						
M-14						
M-15						
M-16						
M-17						
M-18						
M-19						
M-20						
M-21						
M-22						
M-23						
M-24						
Landfill Office						
Gate House						
Barn						
Maintenance Compound						

ATTACHMENT II.6-C

LANDFILL GAS MONITORING BORING LOGS

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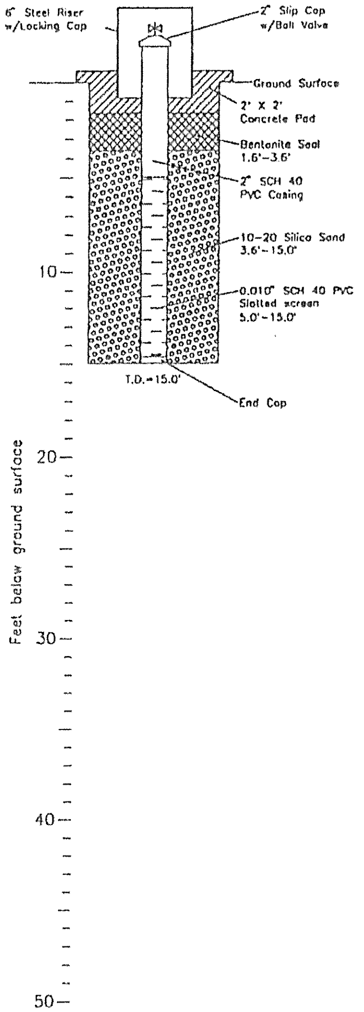
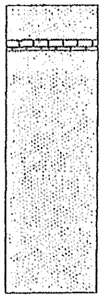


Graphic Log	Pocket * Penetrometer (tons/ft²)	Sampling Device	Blow Counts (for 0.5 ft.)	Sample Recovery (ft)	Sample Interval (ft)	USCS Symbol	Depth (ft)	Descriptive Log
	0.0	split spoon	5,8,11	1.8	4.5–6.5	SP	5 –	Sand; very pale brown (10 YR 7/3); very fine– to fine-grained; moderately sorted; subangular to subrounded grains; unconsolidated; dry
	0.0	split spoon	7,10,15	1.7	9.5–11.5	SP	10 –	Sand; pale brown (10 YR 6/3); same as above, only damp
	0.25	split spoon	11,16,22	1.7	14.5–16.5	SP	15 –	Sand; same as above

Graphic Log Symbols

░	SP – Poorly graded sands, gravelly sands, little or no fines	▦	CA – Caliche, calcareous sands	⁙	SW – Well graded sands, gravelly sand, little or no fines
▥	SM – Silty sands, sand–silt mixture	▥	ML – Inorganic silts and very fine sands rock flour, silt or clayey fine sands, or clayey silt with slight plasticity	▨	CH – Inorganic clays of high plasticity, fat clays

Geologist: C. Pigman
Driller: Precision Engineering
Date Completed: 10–24–95
Drilling Method: Hollow Stem Auger

Bit Diameter: 7.625 in. O.D.
Total Drill Depth: 15.0 ft.
Top-of-concrete El.: 3900.50 fmsl

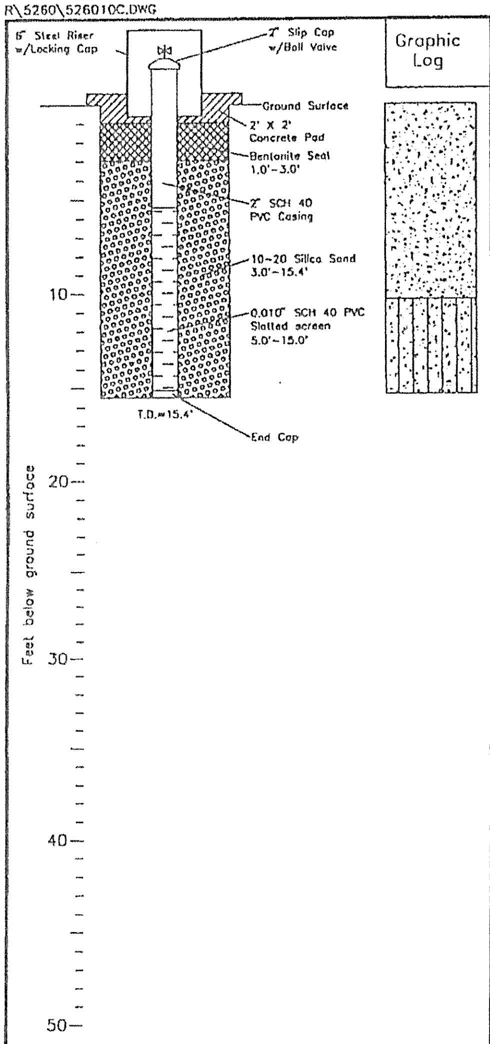
* Note: Pocket penetrometer reading in granular soils is used only as a qualitative guide; units of TSF do not apply

DANIEL B. STEPHENS & ASSOCIATES,

CAMINO REAL LANDFILL

Boring Log: M-5

R\5260\526010C.DWG



Pocket * Penetrometer (tons/ft²)	Sampling Device	Blow Counts (for 0.5 ft.)	Sample Recovery (ft)	Sample Interval (ft)	USCS Symbol	Depth (ft)	Descriptive Log
0.0	split spoon	7,7,7	1.6	4.5-6.5	SW	5	– Sand; light brownish gray (10 YR 6/2); very fine- to medium-grained; poorly sorted; subrounded grains; unconsolidated; dry to damp
0.25	split spoon	12,15,20	1.8	9.5-11.5	SM	10	– Silty sand; light reddish brown (5 YR 6/3); very fine- to medium-grained; poorly sorted; subrounded grains; unconsolidated to slightly consolidated; dry; 85% sand, 15% silt and carbonate
0.0	split spoon	10,14,15	1.7	14.5-16.5	SM	15	– Silty sand; same as above

Graphic Log Symbols

░ SP – Poorly graded sands, gravelly sands, little or no fines

▥ SM – Silty sands, sand-silt mixture

▦ CA – Caliche, calcareous sands

▥ ML – Inorganic silts and very fine sands rock flour, silt or clayey fine sands, or clayey silt with slight plasticity

⁘ SW – Well graded sands, gravelly sand, little or no fines

▨ CH – Inorganic clays of high plasticity, fat clays

Geologist: C. Pigman
Driller: Precision Engineering
Date Completed: 10-25-95
Drilling Method: Hollow Stem Auger

Bit Diameter: 7.625 in. O.D.
Total Drill Depth: 15.0 ft.
Top-of -concrete El.: 3907.53 fmsl

* Note: Pocket penetrometer reading in granular soils is used only as a qualitative guide; units of TSF do not apply

CAMINO REAL LANDFILL
Boring Log: M-6

DANIEL B. STEPHENS & ASSOCIATES, INC.
11-16-95
JN 5260

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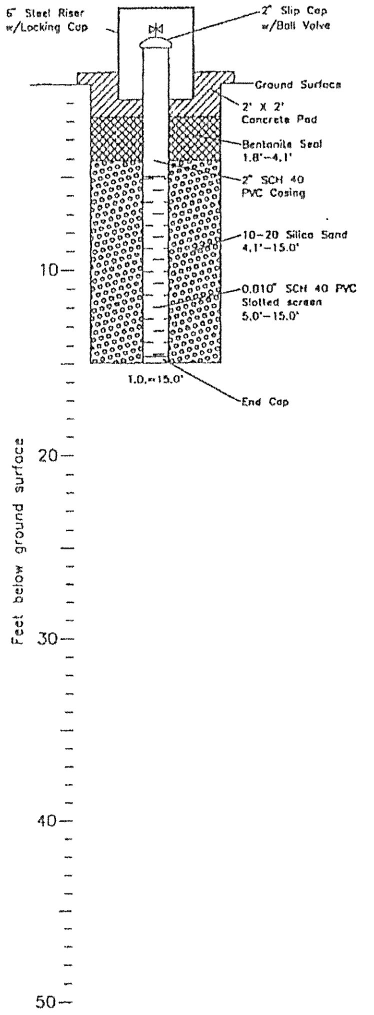

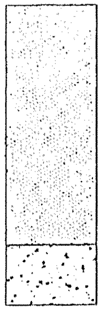

Graphic Log	Pocket * Penetrometer (tons/ft²)	Sampling Device	Blow Counts (for 0.5 ft.)	Sample Recovery (ft)	Sample Interval (ft)	USCS Symbol	Depth (ft)	Descriptive Log
	0.0	split spoon	10,12,13	1.1	4.5–6.5	SP	5 –	Sand; light brownish gray (10 YR 6/2); very fine- to fine-grained; well sorted; subrounded grains; unconsolidated; wet; gray staining
	0.5	split spoon	8,13,16	1.7	9.5–11.5	SP	10 –	Sand; same as above
	>4.5	split spoon	26,39,38	1.6	14.5–16.5	SW–CH	15 –	Sand with clay; light brown (7.5 YR 6/4); very fine- to fine-grained; subrounded grains; moderately sorted; unconsolidated; wet; at 15', encountered reddish brown clayey sand

Graphic Log Symbols

░	SP – Poorly graded sands, gravelly sands, little or no fines
▥	SM – Silty sands, sand-silt mixture
▦	CA – Caliche, calcareous sands
▥	ML – Inorganic silts and very fine sands rock flour, silt or clayey fine sands, or clayey silt with slight plasticity
⁘	SW – Well graded sands, gravelly sand, little or no fines
▨	CH – Inorganic clays of high plasticity, fat clays

Geologist: C. Pigman
Driller: Precision Engineering
Date Completed: 10–24–95
Drilling Method: Hollow Stem Auger

Bit Diameter: 7.625 in. O.D.
Total Drill Depth: 15.0 ft.
Top-of-concrete El.: 3926.54 fmsl

* Note: Pocket penetrometer reading in granular soils is used only as a qualitative guide; units of TSF do not apply

CAMINO REAL LANDFILL
Boring Log: M-7

DANIEL B. STEPHENS & ASSOCIATES, INC.

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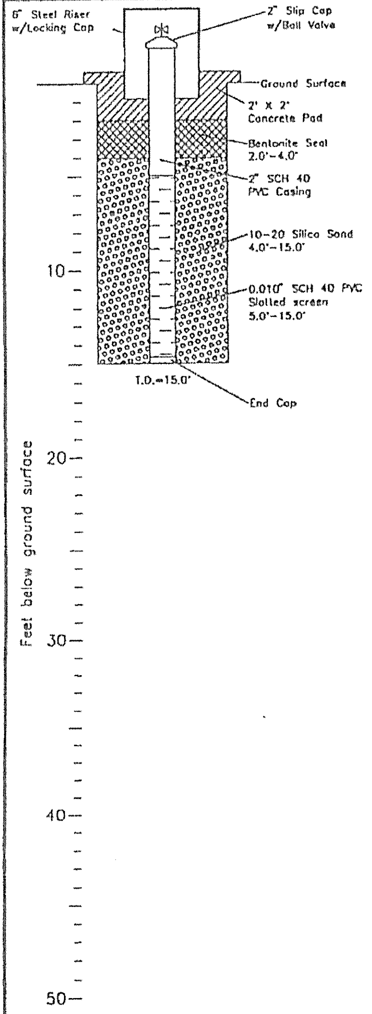
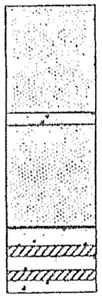


Graphic Log	Pocket * Penetrometer (tons/ft²)	Sampling Device	Blow Counts (for 0.5 ft.)	Sample Recovery (ft)	Sample Interval (ft)	USCS Symbol	Depth (ft)	Descriptive Log
	0.12	split spoon	9,15,22	1.6	4.5-6.5	SP	5 -	Sand; pinkish gray (7.5 YR 6/2); fine-grained; well sorted; rounded grains; unconsolidated; wet; thin gravel layer at 6.0'
	0.0	split spoon	14,35,46	1.8	9.5-11.5	SP	10 -	Sand; same as above, except very fine- to fine-grained; moderately sorted
	>4.5 (clay)	split spoon	16,19,34	1.6	14.5-16.5	SW/CH	15 -	Sand with interbeds of clay; pinkish gray (7.5 YR 6/2); very fine- to medium-grained; poorly sorted; subrounded grains; unconsolidated; wet; clay reddish brown (2.5 YR 5/4); high plasticity; gravel layer at 14.5'

Graphic Log Symbols

░	SP - Poorly graded sands, gravelly sands, little or no fines
⁝	SM - Silty sands, sand-silt mixture
▦	CA - Caliche, calcareous sands
▥	ML - Inorganic silts and very fine sands rock flour, silt or clayey fine sands, or clayey silt with slight plasticity
⁘	SW - Well graded sands, gravelly sand, little or no fines
▨	CH - Inorganic clays of high plasticity, fat clays

Geologist: C. Pigmon
Driller: Precision Engineering
Date Completed: 10-25-95
Drilling Method: Hollow Stem Auger

Bit Diameter: 7.625 in. O.D.
Total Drill Depth: 15.0 ft.
Top-of-concrete El.: 3932.01 fmsl

* Note: Pocket penetrometer reading in granular soils is used only as a qualitative guide; units of TSF do not apply

CAMINO REAL LANDFILL
Boring Log: M-8

DANIEL B. STEPHENS & ASSOCIATES, INC.
11-16-95
JN 5260

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO
NMED FACILITY PERMIT NOS. SWM-030738 AND SWM-030738(SP)

APPLICATION FOR PERMIT MODIFICATION AND RENEWAL

VOLUME II – LANDFILL MANAGEMENT PLANS
SECTION 7 – LEACHATE MANAGEMENT PLAN

Prepared for

Camino Real Environmental Center, Inc.

September 2022

JONATHAN VINCENT QUEEN
25844

9/26/22

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Placitas, NM 87043
505-301-2026

WCG Project No. 0601-667-11-06

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JONATHAN VINCENT QUEEN
25844

9/24/22

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JONATHAN VINCENT QUEEN
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1 INTRODUCTION

The Camino Real Landfill (CRLF) is an existing solid waste facility operating in compliance with its current Permits, SWM-030738 and SWM-030738(SP), and the New Mexico Environment Department (NMED) Solid Waste Rules (the Rules; 20.9.2-20.9.10 NMAC). The owner and operator of the Camino Real Landfill is Camino Real Environmental Center, Inc. (CREC).

CREC is seeking a Permit Modification (20.9.3.22 NMAC) and Permit Renewal (20.9.3.25 NMAC) for the CRLF to modify the existing permitted landfill configuration and to renew the current permit.

1.1 Site Location

The CRLF is an existing solid waste disposal facility that encompasses approximately 480 acres of land located at 1000 Camino Real Blvd. on the New Mexico (NM)/Mexico (MX) border in Sunland Park, New Mexico. The approximate geographic coordinates for the center of the CRLF site are: Latitude 31° 47' 24.7272" N and Longitude 106° 35' 32.6508" W.

The legal description of the site is summarized as follows:

> *A certain parcel of land situated within Section 12 and 13, Township 29 South, Range 3 East, New Mexico Principal Meridian, City of Sunland Park, Doña Ana County, New Mexico.*

CRLF is constructed, operated, monitored, and inspected in compliance with the Solid Waste Facility Permits granted by the NMED Solid Waste Bureau (SWB) pursuant to the Rules (20.9.2-20.9.10 NMAC).

1.2 Existing Permitted Landfill Unit Overview

MSW disposal and development at CRLF is defined by four "area fill" Units, i.e., 1 through 4, which are further divided into cells. Unit 1 (50 acres) is designated as closed. Unit 2 (124.2 acres) is an active landfill area. Unit 3 (60.5 acres) is permitted for waste disposal, and recently (2019) the first cell in this unit was developed. Portions of Unit 3 have been excavated to provide soils for ongoing operations. Unit 4 (73.0 acres) is located east of the current operations and is permitted but undeveloped. Soils from the Unit 4 area have been excavated to support the ongoing operation, and the area has also been used to stockpile construction soils. Cell phasing within each unit is determined by operational conditions. This Application for Permit Modification and renewal addresses subgrade configurations in Units 3 and 4 and final contour design over all units.

1.3 Purpose

This Leachate Management Plan (the "Plan") details the procedures that will be used to manage contact waters (i.e., leachate) generated at CRLF during the 20-year Permit period and following closure. This Plan has been developed to address the design and performance requirements of 20.9.4.15 NMAC, and addresses the following items:

1. Projected amounts and rates of leachate generation
2. Expected duration of leachate generation
3. Leachate monitoring
4. Means of analysis
5. Proposed treatment and disposal methods

2 LEACHATE MANAGEMENT SYSTEM

The existing leachate management system for the CRLF includes the following components:

- A collection system comprised of perforated pipes, enveloped in aggregate and geotextile, and leading to sumps and leachate manhole.
- Leachate clean-out risers installed at both hydraulically upgradient and downgradient locations.
- Leachate extraction risers installed at the collection system's downgradient end, and keyed into the primary leachate collection sump and leachate manhole to facilitate fluid extraction.
- Automated leachate monitoring and extraction systems.

2.1 Existing Leachate Collection System

The existing CRLF leachate collection system encompasses Units 2 and 3 as shown on Figure II.7.1; and will be operated and maintained such that less than 12 inches of leachate will be present on the liner at a given time. The existing system includes the elements shown on Table II.7-1:

Table II.7-1
Existing Leachate Collection System – Unit 2 and Cell 3.1A

1. Minimum designed slope on the liner and leachate piping system is 2.0%.
2. Perforated leachate collection piping enveloped in aggregate and geotextile promotes flow while minimizing the intrusion of fines as the leachate flows through the drainage blanket (i.e., protective soil layer).
3. The 24-inch-thick protective soil layer (PSL) that provides protection for the liner and promotes leachate flow to the piping and extraction system; and which meets the Construction Quality Assurance (CQA) standards for soil quality.
4. Each leachate collection manhole (Unit 2) and leachate collection temporary sump (Cell 3.1A). The temporary sump will be replaced with a permanent sump upon construction of Cell 3.1B.
5. 6-inch-diameter PVC SCH 80 or SDR 13.5 HDPE cleanout riser pipes of the leachate collection system piping for Unit 2 and Cell 3.1A.

2.2 Proposed Leachate Collection System

The proposed CRLF leachate collection system encompasses Cells 3.1B, 3.2, 3.3, and Unit 4 as shown on Figure II.7.1; and will also be operated and maintained in a manner such that less than 12 inches of leachate will be present on the liner at a given time. The proposed leachate collection system designed for Cells 3.1B, 3.2, 3.3, and Unit 4 shown in Table II.7-2 meets or exceeds the minimum design and performance standards specified in 20.9.4.15 NMAC:

Table II.7-2
Proposed Leachate Collection System
(See Attachment II.7-A)

1. The minimum designed slope on the landfill liner and leachate piping system is 2.0%.
2. The perforated leachate collection piping will be enveloped in aggregate and geotextile to promote flow while minimizing the intrusion of fines as leachate flows through the drainage blanket (i.e., PSL).
3. The PSL, a minimum 24 inches of pervious soil, will provide protection for the liner and promote leachate flow to the piping and extraction system.
4. Cleanout riser pipes will be installed both upgradient and downgradient of the leachate collection system piping.
5. The leachate collection/cleanout piping system will consist of perforated and solid pipe with a minimum diameter of 6 inches.
6. The SCH 80 PVC and SDR 13.5 HDPE piping currently utilized at the site are demonstrated to meet the site-specific performance standards.

Temporary sumps and vertical extraction risers will also be installed in new Cells (Figure II.7.1), when appropriate, as filling progresses into each proposed Cell or sub-cell. Solid-wall riser pipes provide access to each temporary and permanent leachate sump (with perforated sections) to measure liquid levels; as well as access to remove accumulated fluids. CRLF leachate collection system details are provided in the Permit Plans, and Attachment II.7-A provides detailed installation and operational specifications for key system components constructed in a manner to maintain fluid levels of less than 12 inches on the cell floor (20.9.4.14.A(1) NMAC). Site-wide compliance with the design standards of 20.9.4.15 NMAC is demonstrated by the Permit Plans; and the performance standards are addressed as follows:

1. The CRLF leachate collection system will be operated and maintained such that less than 12 inches of leachate will be present on the liner at any point at any given time.
2. The CQA Plan (Volume II, Section 4) specifies the materials and installation techniques which will be used to document that construction of the leachate collection system and PSL meets design and performance standards.

3. The performance of the design and the specified materials are documented to meet the requirements of 20.9.4.15 NMAC in the following Landfill Engineering Calculations (Volume III) of this Permit Application:

    - Settlement Calculations (Section 2)
    - Slope Stability Analysis (Section 3)
    - Compatibility Documentation (Section 4)
    - Pipe Loading Calculations (Section 5)
    - HELP Model (Section 10)

3 LEACHATE GENERATION

3.1 Leachate Generation

Leachate levels for the site are measured at least weekly, and CRLF maintains a record of actual leachate generation and management volumes. The most recent records for 2018 through 2021, and part of 2022 are provided as Attachment II.7-B. Note that data for November and December 2018 was not available during development of this application. Table II.7-3 indicates that based on the most current data for an entire year (2021), approximately 5,585 gallons of leachate are generated per week, including LFG collection system condensate, the Unit 2 manhole, and the Cell 3.1A temporary sump.

Table II.7-3
Historical Fluids Management Summary (2021)

Month	Unit 2 Manhole	
	Average Leachate Depth (ft)	Volume Pumped (gal)
January	15.2	25,849
February	15.5	24,674
March	13.7	27,171
April	13.2	24,160
May	14.2	26,069
June	14.2	26,069
July	13.5	20,929
August	14.1	21,810
September	14.2	22,104
October	13.5	21,223
November	14.6	26,951
December	14.9	23,426
Total Leachate Pumped for the Year 2021		**290,435**

Leachate production (290,435 gal/365 days/141 acres) = 5.6 gal/acre/day.

The actual leachate generated equates to approximately 5.6 gallon/acre/day in an active phase with more than 165 feet of waste, which is an extremely low rate of generation due to the arid site location, dry waste stream, and stormwater controls. The leachate manhole measures 40 feet deep with a 60-inch diameter, and the gross available storage capacity in the leachate manhole in approximately 6,000 gals. When the leachate depth approaches 14 ft, the manhole provides storage at actual generation rates while maintaining compliance with the 12-inch head limit on the floor liner.

Cell 3.1A was constructed in 2019. Leachate is extracted from Cell 3.1A through a temporary sump. The quantity of leachate removed from the Cell 3.1A temporary sump is summarized in Table 11.7-3.

The leachate sumps that will be installed in Cells 3.1B-3.3 and Unit 4 have a storage volume of approximately 20,100 gallons. Leachate is extracted before the leachate depth reaches 3.5 ft, which will maintain fluid levels on the cell floor below 12 inches.

The actual leachate generation rates are consistent with observations at other similar arid landfills. In addition to the actual rates, hypothetical leachate generation rates are calculated using the New Mexico Environment Department's (NMED) approved Hydrologic Evaluation of Landfill Performance (HELP) Modeling approach (Volume III, Section 10). HELP modeling produces leachate estimates that are 100 and 1,100 times greater than the actual measured results, which are summarized in Table II.7-4. This confirms that, even under the most conservative set of assumptions, CRLF leachate collection system is adequately designed to manage landfill fluids.

Table II.7-4
HELP Model Comparison to Actual Leachate Generation Rates

Units	HELP Model Estimate (gal/acre/year)	Actual Leachate (gal/acre/day)
Unit 2	481.3 – 5,015.0	5.6
Unit 3/4	488.5 – 5,200.9	

20.9.4.15 NMAC requires that the maximum head accumulation on the liner not exceed 12 inches. HELP model simulations using conservative model input parameters indicate a maximum head accumulation of 11.416 inches. This demonstrates that operation of the leachate collection system is in compliance with 20.9.4.15 NMAC. The 11.416 inches of head was predicted by a HELP simulation based on the wettest 5-year period for which records exist (1984-1988). The HELP model output, as well as site-specific experience, shows that the maximum head accumulation decreases significantly once the waste is placed in the cell. Therefore, the actual maximum head accumulation on the landfill liner is expected to be less than the predicted HELP model output.

HELP Modeling (Volume III, Section 10) was performed to estimate the quantities of leachate produced over the lifetime (i.e., Cells with no waste); and the results are summarized in Table II.7-4. As discussed in detail in the Plan of Operations (Volume II Section 2), routine site operation procedures dictate that a loose (i.e., fluff) lift of waste approximately 5 feet thick be placed over the entire floor of a newly constructed cell as soon as practical. This process protects the liner, and reduces the generation of contact water (due to absorption), which is stormwater collected within the cell footprint. During the post-closure care period, the site will have been capped and vegetated with one of these two options; and leachate production is modeled to decline to near zero.

Table II.7-5
HELP Model Leachate Generation Estimates

Units (acres ±)	Modeled Condition	Estimated Leachate Generation Rates [1]		
		Average Annual Head on Liner (in)	No Waste (gallons/day)	150 Feet of Waste (gallons/day)
307.7	Open	0.862	14,545	--
307.7	Partially Filled	0.024	--	406

[1] Estimated leachate generation rates based on average precipitation conditions for the site. Simulations for the existing landfill (Unit 2) were used.

3.2 Leachate Extraction

20.9.4.14.A(1) NMAC and USEPA Subtitle D require that the maximum head accumulation on the liner not exceed 12 inches (i.e., 30 cm). Since 1993, CRLF has been managing leachate to comply with these regulatory requirements. Leachate management includes routine leachate level measurements and extraction. The existing systems consist of the components listed in Table II.7-5.

Table II.7-6
Leachate Extraction System Components

The leachate system riser pipes for Cells 3.1B, 3.2, 3.3, and 4 are positioned within a headwall, bollards, or other structure to prevent damage.
On an as-needed basis, leachate is extracted from the manhole and the sump(s) with portable submersible pumps or vacuum apparatus to a water truck or other suitable device(s) (Section 5.1).

Consistent with current practice, leachate will be pumped from each on-site sump and used in leachate recirculation, as discussed in Section 5.1. The pumped leachate will then be applied to lined areas of the site for recirculation (e.g., active fill face, previous fill deposits) or for dust control (e.g., on-site access roads). The combined capacity of the water wagon (i.e., 8,000 gallons) and the six primary leachate sumps (i.e., 58,800 gallons) is more than adequate to manage the projected quantities of leachate projected in Table II.7-4.

3.3 Leachate Sumps

Routine level monitoring of leachate in the site sumps occurs at least weekly or after significant precipitation events. Monitoring of leachate in the site sumps typically occurs more frequently than weekly given the beneficial use of leachate in site operations. Sump geometry and storage capacity is calculated in Attachment II.7-E. The sump geometry is also shown in the Permit Plans included in Section 1 of Volume II.

4 LEACHATE MONITORING

4.1 Leachate Sampling

CRLF will conduct leachate sampling at a frequency of once every 2 years, commencing 180 days after issuance of the Solid Waste Permit resulting from this Application. Samples will be analyzed for the parameters listed in Parts A and B of the 06/20/2008 NMED Solid Waste Bureau Landfill Leachate Monitoring Guidelines. Copies of the leachate analytical results will be maintained in the Facility Operating record and submitted to NMED with the subsequent quarterly leachate monitoring report; and summarized in Annual Reports.

4.2 Leachate Monitoring and Extraction

During the active life of the CRLF and following closure, fluid levels in the primary sumps and manhole will be maintained such that the regulatory threshold of 12 inches on the liner is not exceeded through the routine monitoring and extraction procedures outlined in Table II.7-6:

Table II.7-7

Leachate Monitoring and Extraction Procedures

1. Routine Monitoring – Monitor the level of the leachate in the sumps and the manhole at least weekly or after significant precipitation events. Extract leachate at least quarterly or more frequently as necessary.
   - Temporary Sumps with Vertical Risers – Measure leachate levels with a minimum 6-foot rigid calibrated measuring pole. Remove leachate when a liquid thickness of 12" above the liner is recorded.
   - Permanent Sumps with Inclined Risers – Monitor leachate level by lowering a calibrated measuring pole into the leachate cleanout riser pipe. The calibrated pole should be a minimum of 3 feet longer than the "as-built" length of the cleanout riser pipe, with a minimum 20-foot-long strip of "water contact indicator tape" affixed to the end of the pole. Remove leachate when the colored portion of the water contact tape on the calibrated measuring pole indicates a minimum fluid level of 35 inches in the cleanout riser pipe.

Table II.7-7 (Continued)
Leachate Monitoring and Extraction Procedures

- Pump leachate from sump (both temporary and permanent) and the manhole to water truck, water wagon or similar equipment equipped with appropriate fluid transfer hoses. Vacuum trucks may be used as a leachate extraction alternative.
- Transfer pumped leachate to active fill face or previous fill deposits for recirculation or apply to on-site roads over lined areas only for dust control by implementing the appropriate procedures outlined in Section 5.1.
- Extract leachate at least quarterly or more frequently as necessary until system repairs are complete.
- Measure fluid levels in the leachate extraction riser pipe utilizing the "Supplemental Leachate Level Compliance Measurement Guidelines" provided as Attachment II.7-C.

2. Documentation – Document leachate monitoring and management data on a form similar to the example provided as Attachment II.7-D. Maintain the form as part of the Facility Operating Record; provide the form to NMED within 30 days of the end of each calendar quarter; and summarize the monitoring/management data in the Annual Report.

4.3 Leachate Extraction System Protection and Identification

The riser pipes for permanent upgradient cleanouts and temporary vertical extraction points will be clearly marked in a highly visible and consistent manner to denote their respective location(s). A placard will be affixed to each riser pipe providing the following as-built information:

- Sump I.D. No.
- Riser Length (from top of pipe to bottom of sump)
- Leachate Compliance Length

5 LEACHATE DISPOSAL

Leachate will be managed consistent with the following proposed beneficial uses:

1. Recirculation of undiluted leachate to aid in fill face compaction.
2. Application of diluted leachate for dust control over lined areas.

CRLF is requesting approval of these proven beneficial-use practices; as well as additional approval to transport leachate to a permitted publicly owned treatment plant (POTW) or liquids management facility following closure. Any proposal for POTW disposal will be submitted to NMED in advance, accompanied by appropriate documentation from the treatment plant(s) (Section 5.2). Leachate beneficial use activities will be documented on a form similar to the example provided as Attachment II.7-D. These data records will be maintained as part of the Facility Operating Record; and will also be provided to NMED as part of Annual Reporting. The following sections describe the proposed leachate management methods via beneficial use and post-closure POTW disposal:

5.1 Beneficial Use of Leachate

As required by 20.9.2.10.A.(9) NMAC, beneficial use activities will be conducted in accordance with applicable NMED Rules and industry guidelines:

1. The beneficial use of undiluted leachate to aid in fill face compaction will be accomplished as follows:
    - On an as-needed basis, leachate will be pumped from the manhole and the sump(s) with the dedicated submersible pump or vacuum apparatus to a water truck, water wagon or similar equipment equipped with appropriate fluid transfer hoses. The leachate will then be transported to the active cell.
    - Leachate will be uniformly spray-applied to the active fill face using a water truck, water wagon or similar method.
    - Spray-application will not be performed where the active fill face is located <20 ft from unlined areas; and the leachate will be applied downwind of the unlined areas.

- Spray-application at the fill face will be conducted during times when customers are not present at the fill face (e.g., during active unloading, compacting, etc.), typically at the end of the working day. Site personnel will be stationed upwind of the spray application activity; and this process will not be conducted during high (i.e., > 15 mph) or shifting winds.
- Dilution of leachate prior to spray application will be conducted, if necessary, to address odor concerns. The dilute nature of the contact water currently being managed does not present an odor issue.

2. The beneficial use of dilute leachate for dust control over lined areas will be accomplished as follows:
   - On an as-needed basis, leachate will be pumped from the leachate manhole and sump(s) with the dedicated submersible pump or vacuum apparatus to a water truck, water wagon or similar equipment equipped with appropriate fluid transfer hoses. Prior to application, leachate will be diluted with 3 parts clean water and one part leachate (3:1) to minimize odors.
   - The leachate application method will consist of spraying the dilute leachate using a water truck, water wagon or similar method over lined areas only.
   - Leachate will be sprayed evenly and thinly only over lined areas to provide for effective dust control and evaporation, and to minimize the potential of recirculation through waste, and to minimize the potential for ponding.
   - For the most effective application, and to avoid short-circuiting, the leachate will be applied only in areas where the cell surface is at least 10 feet above the liner system. In addition, the leachate will be applied on cells directly upgradient of the collection system whenever possible.
   - To enhance public health and safety, leachate will be applied only when personnel access is controlled near the spray surface. In addition, leachate will not be applied on windy days.
   - If there are any concerns regarding the potential composition of the leachate (for example, leachate being generated by some means other than heavy rainfall on a new cell), leachate may be analyzed in accordance with the NMED Solid Waste Bureau Landfill Leachate Monitoring Guidelines prior to this beneficial use.

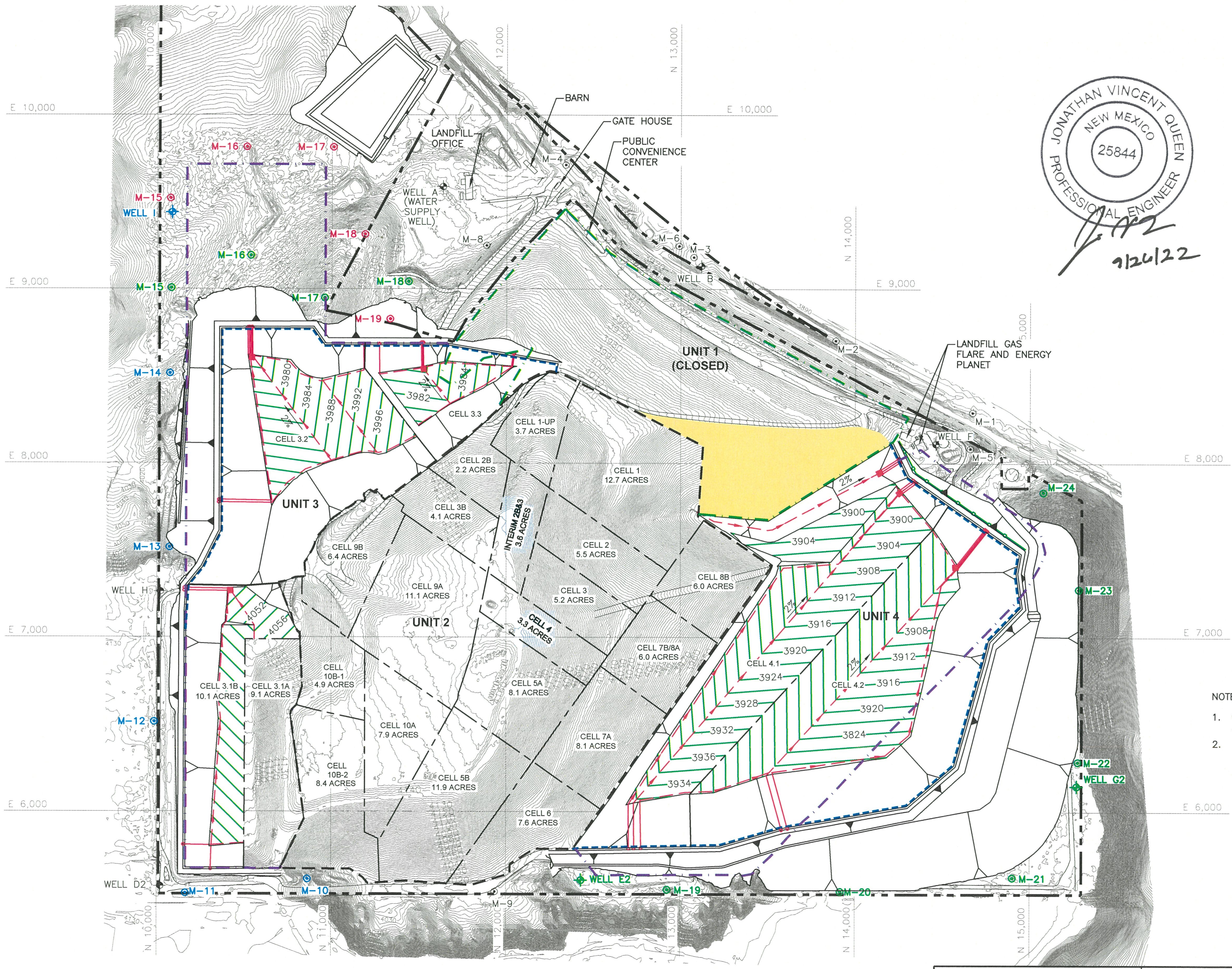
5.2 Post-Closure Leachate Monitoring/Disposal

Leachate monitoring during post-closure will be conducted consistent with the procedures outlined in Section 4.0, adjusted to a semi-annual schedule. Leachate management information will continue to be documented and maintained in the Facility Operating Record; and will also be provided to NMED as part of Annual Reporting. Post-closure leachate monitoring and management data will be documented on a form similar to the example provided as Attachment II.7-D; and provided to NMED within 30 days of each semi-annual monitoring event.

Following closure, the most effective treatment and disposal technology for leachate (if produced) will be determined and implemented with the approval of the Secretary. This supplemental disposal technology may include transporting leachate off-site for treatment at a POTW or other NMED-permitted disposal facility. If it is determined that post-closure leachate management will include disposal at a POTW or other NMED-permitted disposal facility, several steps will be taken prior to initiating post-closure leachate disposal activities:

1. CRLF will identify a specific POTW or other permitted disposal facility, and obtain specific approval from the facility for leachate disposal.
2. CRLF will collect and submit leachate samples for laboratory analysis to demonstrate compliance with the disposal facility's leachate acceptance criteria for analytical parameters and concentrations.
3. A copy of the approval letter and analytical test results will be provided to NMED, and will also be maintained in the Facility Operating Record.
4. Once approval is obtained from the identified facility, CRLF will update the Leachate Management Plan in effect at the time to include the approval letter, as well as the analytical parameters, concentrations, and transport methods specified by the facility.
5. The updated Plan will be submitted to NMED Solid Waste Bureau for approval as an administrative change to the existing Plan prior to implementation of alternative leachate disposal activities.

CRLF may elect to deploy leachate evaporation technology following closure with the concurrence of New Mexico Environmental Department Solid Waste Bureau. Following closure, CRLF may seek an exemption from leachate monitoring during the post-closure care period based on historical monitoring and sampling data, with NMED approval.



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9/26/22

0 300 600
SCALE IN FEET

LEGEND

▬ ‒ ‒ ▬	PROPERTY BOUNDARY
‒ ‒ ‒ ‒	PERMITTED LIMITS OF WASTE FOR UNIT 2
‒ · ‒ · ‒	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
‒ · ‒ · ‒	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
- - - - -	ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4
── ‒ ──	CELL BOUNDARY
E 8,000	SITE GRID
——4120——	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
——3980——	PROPOSED SUBGRADE CONTOUR
—□—□—□—	10-FOOT TALL ENGINEERED FENCE TO PROVIDE SCREENING TO EAST
— —► — —►	LEACHATE COLLECTION PIPE
■	LEACHATE COLLECTION SUMP
▭	UNIT 1 OVERLINER AREA
⌖ WELL B	EXISTING GROUNDWATER MONITOR WELL
⌖ WELL I	PERMITTED GROUNDWATER MONITOR WELL
⌖ WELL G	PERMITTED GROUNDWATER MONITOR WELL (TO BE ABANDONED)
⌖ WELL G2	PROPOSED GROUNDWATER MONITOR WELL
⊙M-4	EXISTING LANDFILL GAS PROBE
⊙M-11	PERMITTED LANDFILL GAS PROBE
⊙M-17	PERMITTED LANDFILL GAS PROBE (TO BE REPLACED WITH PROPOSED LOCATIONS)
⊙M-27	PROPOSED LANDFILL GAS PROBE

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2018 AERIAL SURVEYS.
2. THE UNIT 2 SUMP IS LOCATED NORTHEAST OF UNIT 2. DURING THE DEVELOPMENT OF UNIT 4, THIS SUMP WILL BE REMOVED AND REPLACED WITH A NEW SUMP IN UNIT 4. UNIT 2 WILL BE CONNECTED TO THE SUMP BY LEACHATE COLLECTION PIPES THAT WILL SLOPE A MINIMUM OF 2% FROM UNIT 2 TO THE UNIT 4 SUMP.

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☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: II-7-1 LEACHATE PLAN.DWG

DRAWN BY: JDW
DESIGN BY: JAE
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
WASTE CONNECTIONS, INC.

REVISIONS

NO.	DATE	DESCRIPTION

LEACHATE MANAGEMENT SYSTEM LAYOUT

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

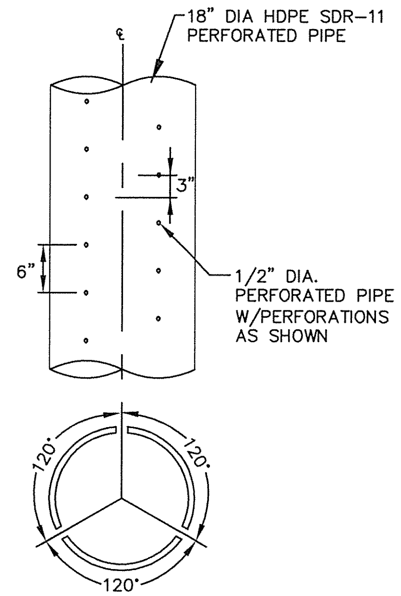
WWW.WCGRP.COM

FIGURE II.7.1

O:\0601\667\EXPANSION 2019\VOLUME 2\PART 7\II-7-1 LEACHATE PLAN.dwg, rarrington, 1:2

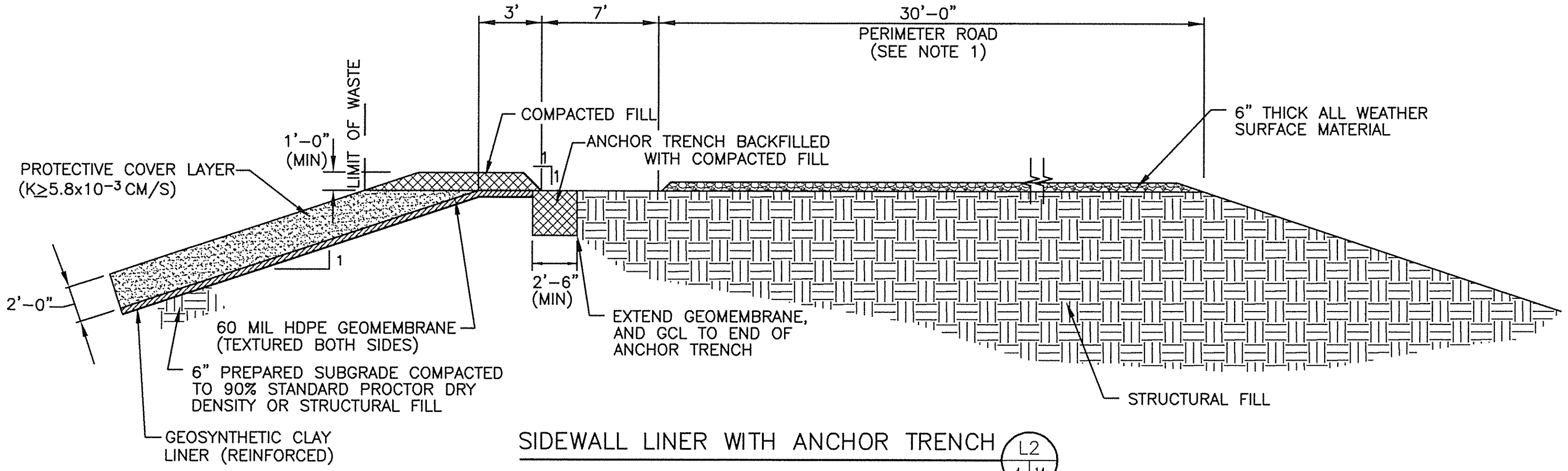
ATTACHMENT II.7-A

LEACHATE COLLECTION SYSTEM DETAILS (FROM PERMIT PLANS)



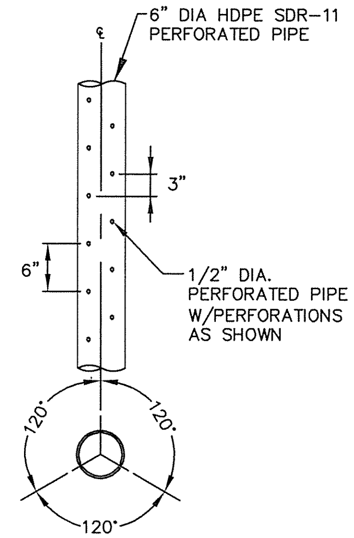
PERFORATED TYPICAL LEACHATE RISER PIPE
L5 15 | 14

0 1 2
SCALE IN SCALE



SIDEWALL LINER WITH ANCHOR TRENCH
L2 4 | 14

0 5 10
SCALE IN FEET



PERFORATED TYPICAL LEACHATE COLLECTION PIPE
L4 14 | 14

0 1 2
SCALE IN SCALE

NOTES:

1. THE ROAD WIDTH ON THE SOUTHERN AND EASTERN SIDE OF UNIT 4 IS 20 FEET WIDE.

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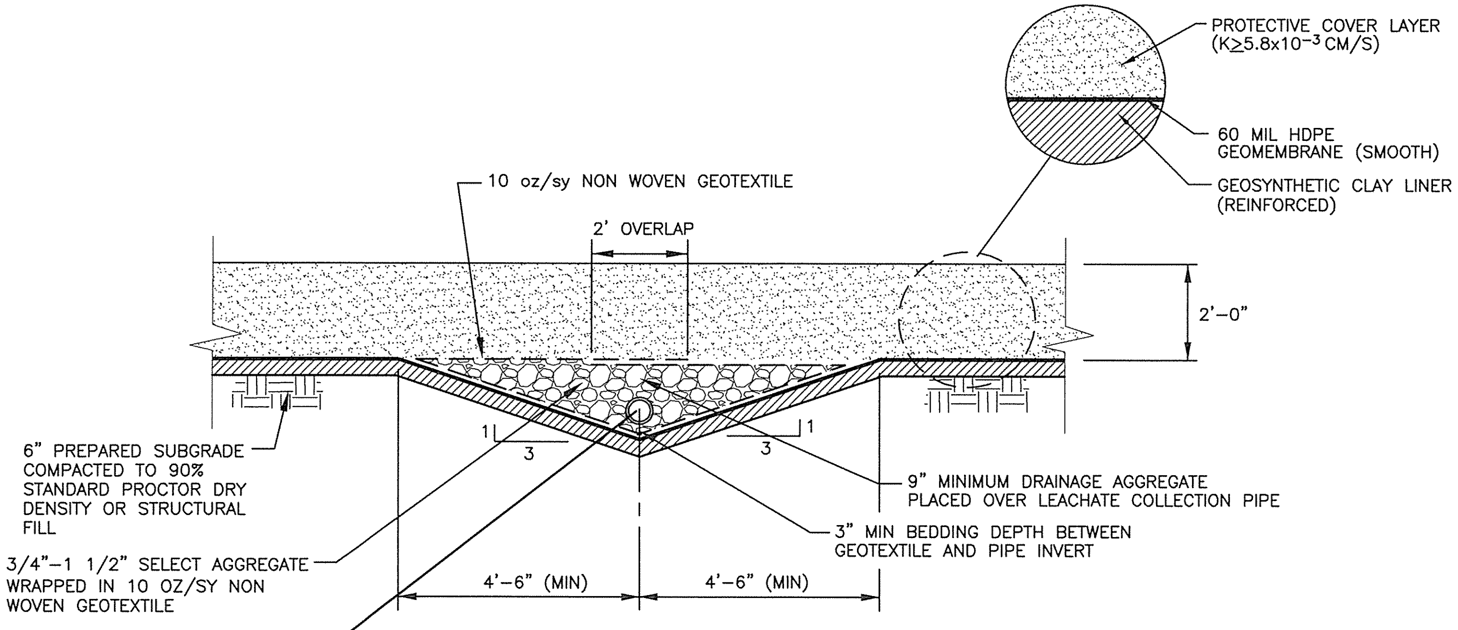
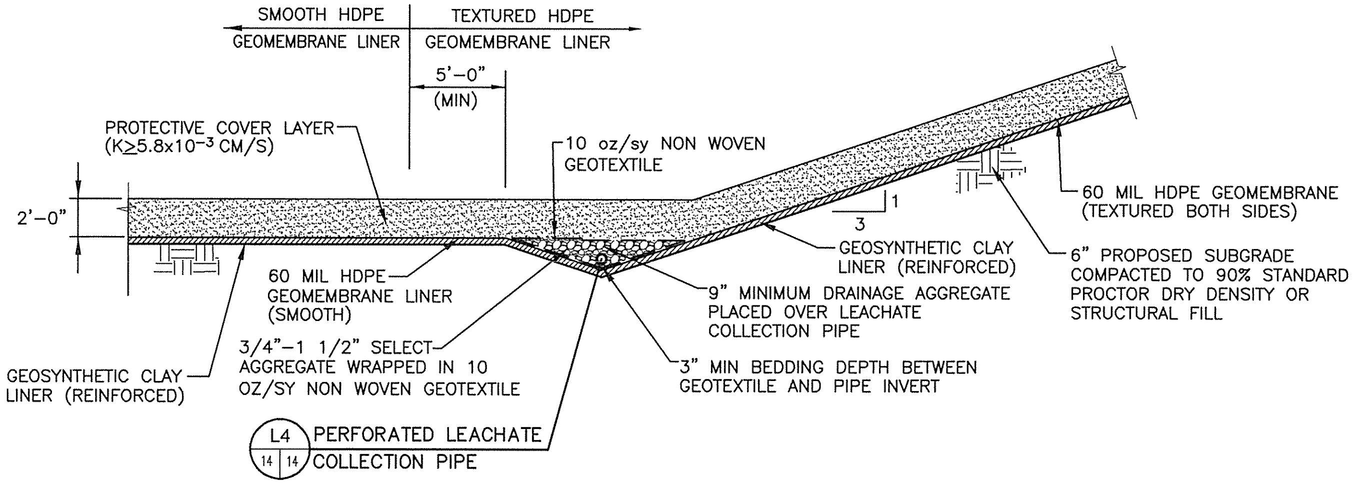


LINER SYSTEM
L1 4 | 14

0 2 4
SCALE IN FEET



SIDEWALL LINER
L3 4 | 14

0 5 10
SCALE IN FEET

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PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

DATE: 09/2022	DRAWN BY: JDW
FILE: 0601-667-11	DESIGN BY: JAE
CAD: 14-LINER SYSTEM DETAILS.DWG	REVIEWED BY: JVQ

REVISIONS

NO.	DATE	DESCRIPTION

Weaver Consultants Group

LINER SYSTEM DETAILS

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

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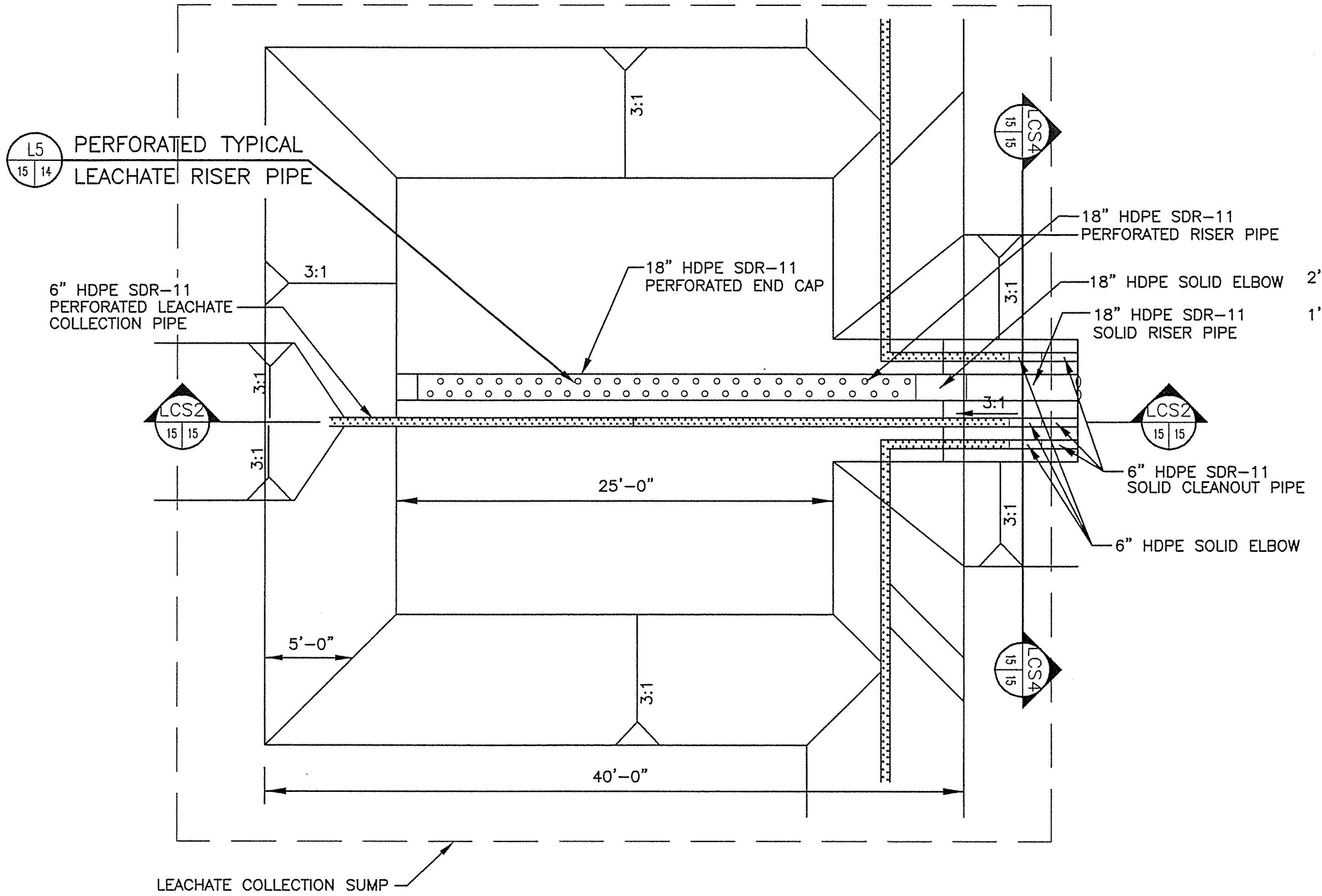
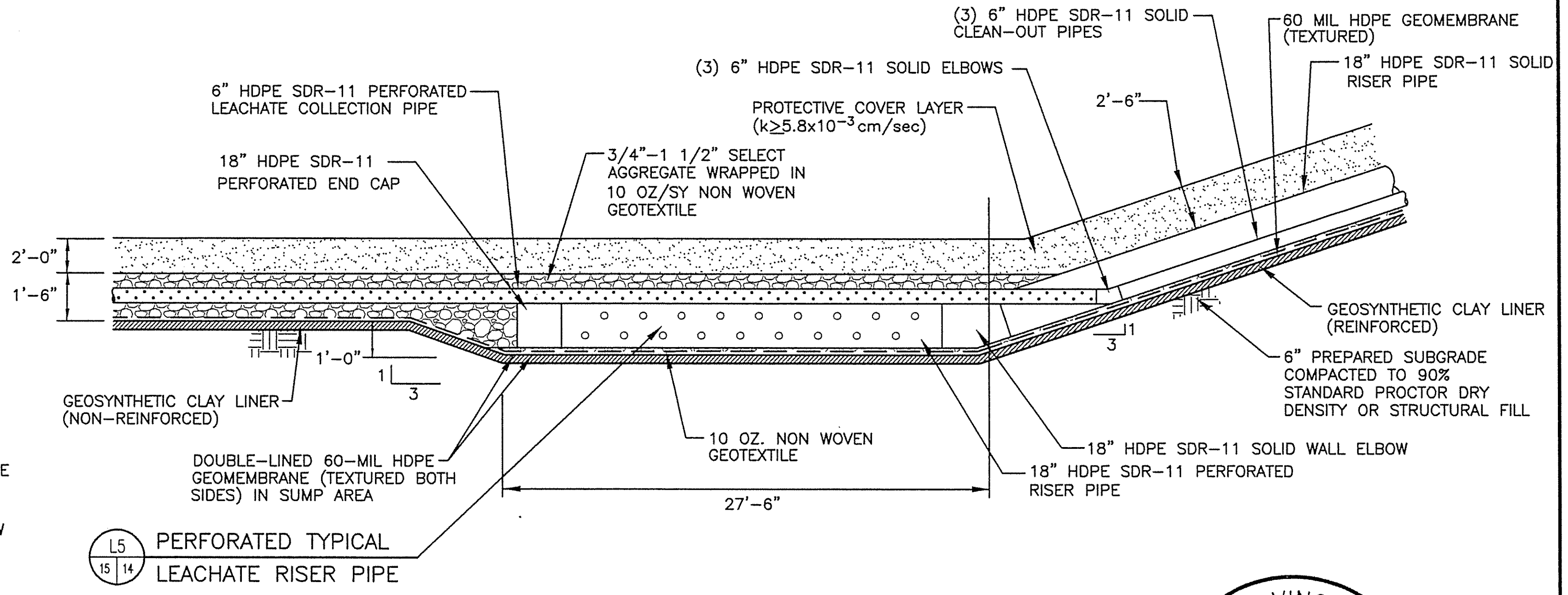
DRAWING 14



LEACHATE COLLECTION SUMP PLAN (LCS1 4 15)
(SEE NOTE 2)

0 5 10
SCALE IN FEET

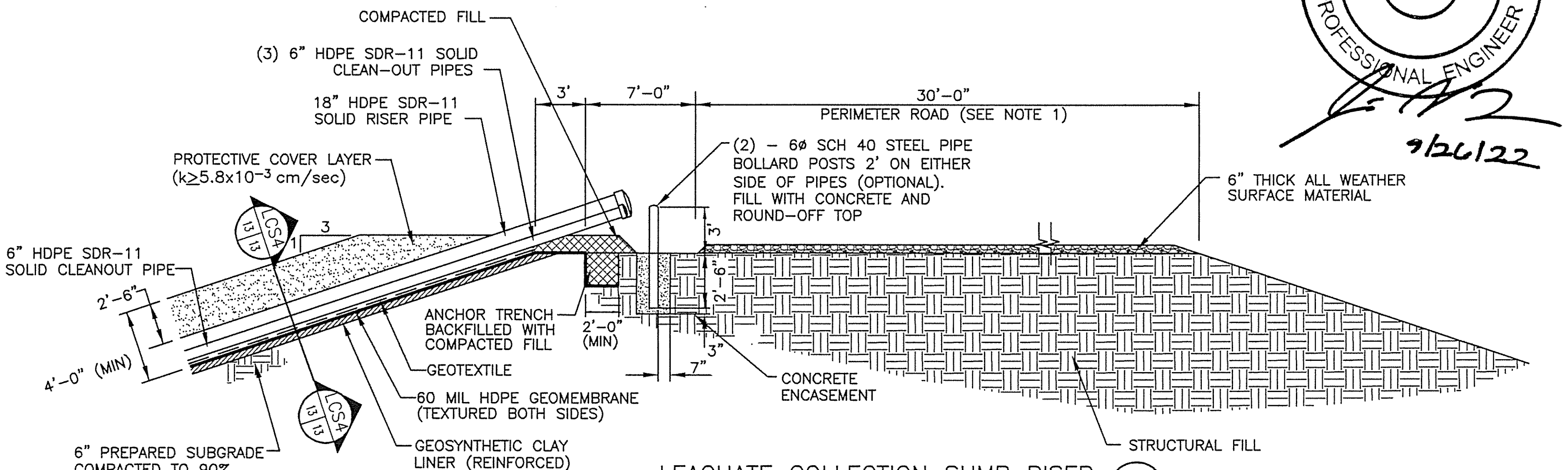


LEACHATE COLLECTION SUMP SECTION (LCS2 15 15)
(SEE NOTE 2)

0 5 10
SCALE IN FEET

JONATHAN VINCENT QUEEN
25844

9/26/22



LEACHATE COLLECTION SUMP RISER (LCS3 4 15)

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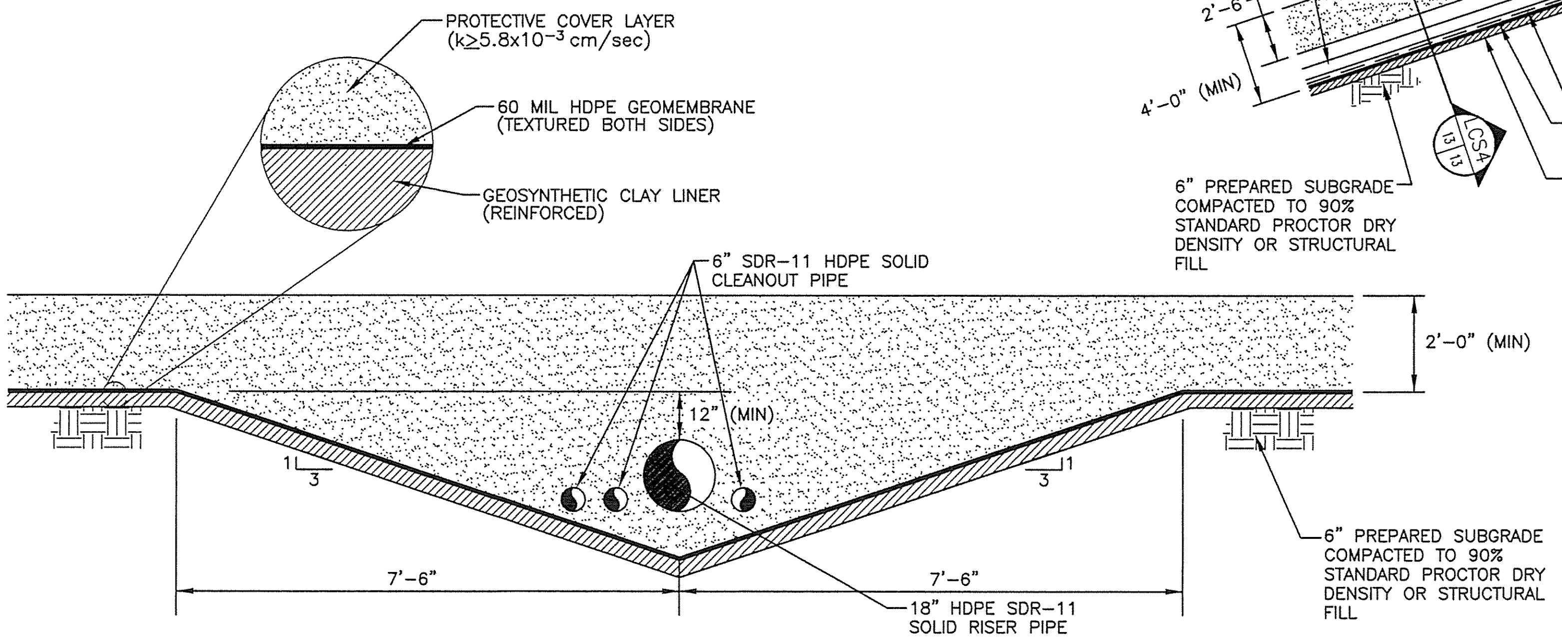

LEACHATE RISER PIPES (LCS4 15 15)
(SEE NOTE 2)

0 2 4
SCALE IN FEET

NOTES:
1. THE ROAD WIDTH ON THE SOUTHERN AND EASTERN SIDE OF UNIT 4 IS 20 FEET WIDE.
2. MOST SUMPS WILL INCLUDE TOE DRAINS ON EACH SIDE AND 3 CLEANOUTS. HOWEVER MAY NOT BE APPLICABLE TO ALL SUMPS

☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

DATE: 09/2022
FILE: 0601-667-11
CAD: 15-LEACHATE DETAILS.DWG

DRAWN BY: JDW
DESIGN BY: JAE
REVIEWED BY: JVQ

REVISIONS

NO.	DATE	DESCRIPTION

Weaver Consultants Group

LEACHATE COLLECTION SYSTEM DETAILS

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

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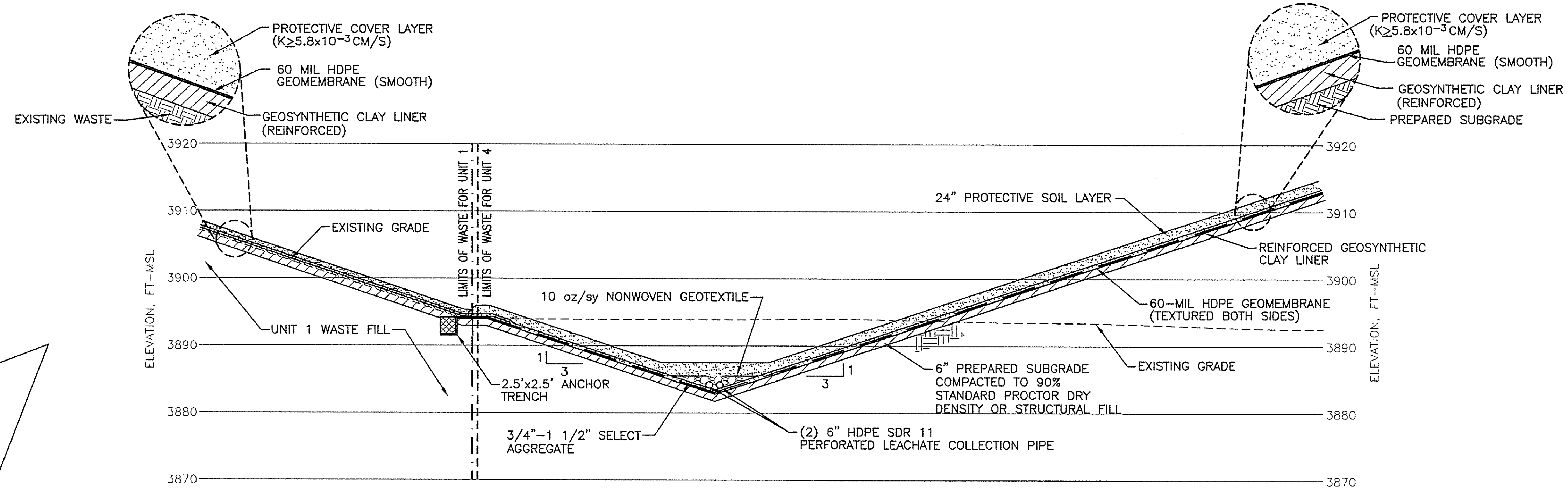
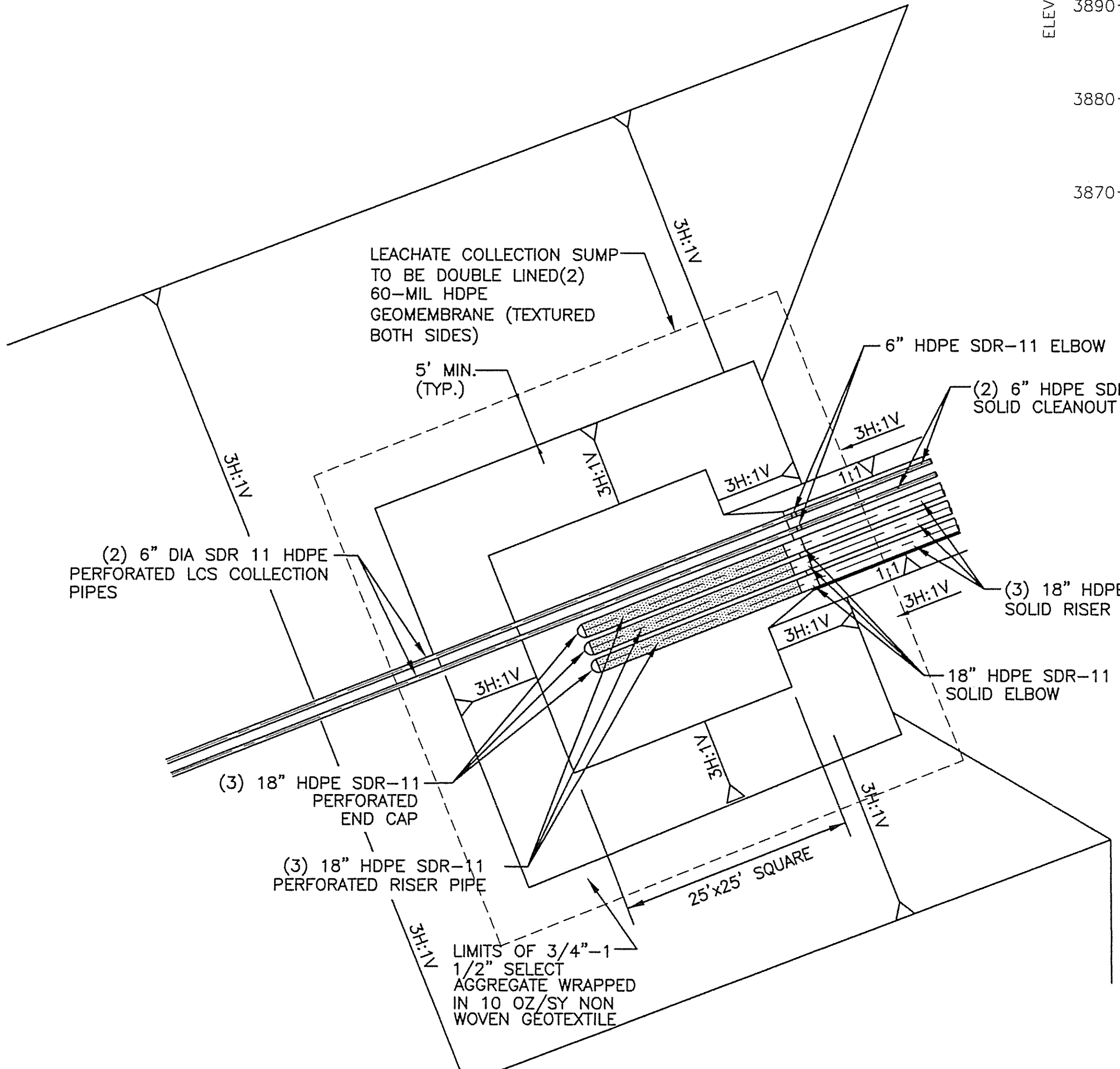
DRAWING 15

O:\0601\667\EXPANSION 2019\VOLUME 2\PERMIT DRAWINGS\15-LEACHATE DETAILS.dwg, rarrington, 1:2

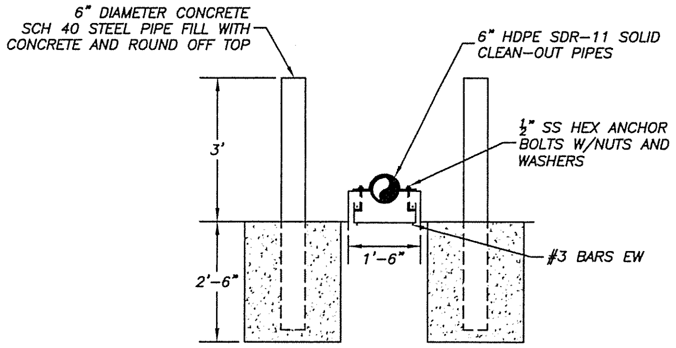


UNIT 2/4 CROSS SECTION L7 4|16

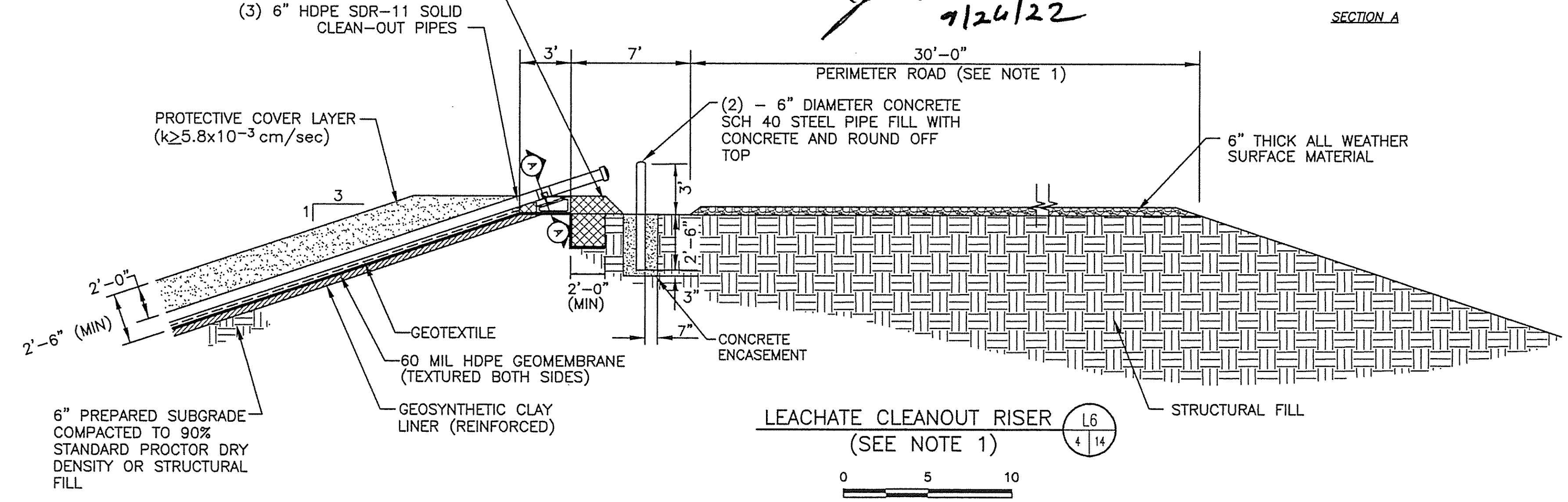


UNIT 2/4 NORTH SUMP LEACHATE SUMP PLAN L8 4|16

JONATHAN VINCENT QUEEN
25844
9/24/22



SECTION A



LEACHATE CLEANOUT RISER L6 4|14
(SEE NOTE 1)

NOTES:

1. THE ROAD WIDTH ON THE SOUTHERN AND EASTERN SIDE OF UNIT 4 IS 20 FEET WIDE.
2. MOST SUMPS WILL INCLUDE TOE DRAINS ON EACH SIDE AND 3 CLEANOUTS. HOWEVER MAY NOT BE APPLICABLE TO ALL SUMPS

☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 09/2022
FILE: 0601-667-11
CAD: 16-LINER AND FC DETAILS.DWG

DRAWN BY: JDW
DESIGN BY: JAE
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

UNIT 2/4 LINER SYSTEM DETAILS

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

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DRAWING 16

O:\0601\667\EXPANSION 2019\VOLUME 2\PERMIT DRAWINGS\16-LINER DETAILS.dwg, rarrington, 1:2

ATTACHMENT II.7-B

FLUID MANAGEMENT RECORDS

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
Date	Time Measured	Monitored By	Before Pumping		Time Pumped	Time Elapsed (minutes)	After Pumping		Company	Volume Pumped (gal)	Disposal Method		
			Depth to Leachate (ft)	Leachate Depth (ft)			Depth to Leachate (ft)	Leachate Depth (ft)					
01/02/18	9:57 AM	AS	27.0	13.0	10:00 AM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
01/05/18	10:37 AM	AS	27.0	13.0	10:40 AM	25.0	39.5	0.5	Camino Real	1836	Recirculation	-	
01/08/18	11:03 AM	AS	27.0	13.0	11:05 AM	27.0	39.5	0.5	Camino Real	1836	Recirculation	-	
01/12/18	11:37 AM	AS	27.0	13.0	1:40 PM	28.0	39.5	0.5	Camino Real	1836	Recirculation	-	
01/15/18	11:17 AM	AS	27.0	13.0	11:20 AM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
01/22/18	11:18 AM	AS	26.0	14.0	11:20 AM	40.0	39.5	0.5	Camino Real	1983	Recirculation	-	
01/24/18	2:08 PM	AS	28.0	12.0	2:10 PM	20.0	39.5	0.5	Camino Real	1689	Recirculation	-	
01/26/18	10:37 AM	AS	27.0	13.0	10:40 AM	25.0	39.5	0.5	Camino Real	1836	Recirculation	-	
01/29/18	11:23 AM	AS	28.0	12.0	11:25 AM	20.0	39.5	0.5	Camino Real	1689	Recirculation	-	
TOTAL VOLUME PUMPED JANUARY 2018										16376			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
02/02/18	1:33 PM	AS	27.0	13.0	1:35 PM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
02/05/18	11:22 AM	AS	27.0	13.0	11:25 AM	25.0	39.5	0.5	Camino Real	1836	Recirculation	-	
02/09/18	11:17 AM	AS	27.0	12.0	11:20 AM	30.0	39.5	0.5	Camino Real	1689	Recirculation	-	
02/12/18	11:33 AM	AS	27.0	12.0	11:35 AM	30.0	39.5	0.5	Camino Real	1689	Recirculation	-	
02/16/18	1:13 PM	AS	28.0	12.0	1:15 PM	30.0	39.5	0.5	Camino Real	1689	Recirculation	-	
02/19/18	11:23 AM	AS	28.0	12.0	11:25 AM	30.0	39.5	0.5	Camino Real	1689	Recirculation	-	
02/23/18	11:27 PM	AS	28.0	12.0	11:30 AM	30.0	39.5	0.5	Camino Real	1689	Recirculation	-	
02/26/18	11:33 AM	AS	28.0	12.0	11:35 AM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
TOTAL VOLUME PUMPED FEBRUARY 2018										13806			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
03/02/18	11:18 AM	AS	28.0	12.0	11:25 AM	30.0	39.5	0.5	Camino Real	1689	Recirculation	-	
03/06/18	11:22 AM	AS	27.0	13.0	11:25 AM	35.0	39.5	0.5	Camino Real	1836	Recirculation	-	
03/09/18	11:20 AM	AS	28.0	12.0	11:25 AM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
03/12/18	11:23 AM	AS	28.0	12.0	11:25 AM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
03/16/18	2:03 PM	AS	28.0	12.0	2:03 PM	30.0	39.5	0.5	Camino Real	1689	Recirculation	-	
03/19/18	11:03 AM	AS	28.0	12.0	11:05 AM	30.0	39.5	0.5	Camino Real	1689	Recirculation	-	
03/23/18	1:37 PM	AS	28.0	12.0	1:40 PM	30.0	39.5	0.5	Camino Real	1689	Recirculation	-	
03/27/18	9:47 AM	AS	28.0	12.0	9:50 AM	30.0	39.5	0.5	Camino Real	1689	Recirculation	-	
03/30/18	11:22 AM	AS	28.0	12.0	11:25 AM	30.0	39.5	0.5	Camino Real	1689	Recirculation	-	
TOTAL VOLUME PUMPED March 2018										15348			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
Date	Time Measured	Monitored By	Before Pumping		Time Pumped	Time Elapsed (minutes)	After Pumping		Company	Volume Pumped (gal)	Disposal Method		
			Depth to Leachate (ft)	Leachate Depth (ft)			Depth to Leachate (ft)	Leachate Depth (ft)					
04/03/18	2:48 PM	AS	28.0	12.0	2:50 PM	30.0	39.5	0.5	Camino Real	1689	Recirculation	-	
04/06/18	3:57 PM	AS	28.0	12.0	4:00 PM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
04/10/18	10:33 AM	As	27.0	13.0	10:35 AM	25.0	39.5	0.5	Camino Real	1836	Recirculation	-	
04/13/18	12:42 PM	AS	28.0	13.0	12:45 PM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
04/16/18	11:33 AM	AS	28.0	12.0	11:35 AM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
04/20/18	11:32 AM	AS	27.0	13.0	11:35 AM	28.0	39.5	0.5	Camino Real	1836	Recirculation	-	
04/23/18	11:18 AM	AS	27.0	13.0	11:20 AM	25.0	39.5	0.5	Camino Real	1836	Recirculation	-	
04/27/18	1:43 PM	AS	27.0	13.0	1:45 PM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
04/30/18	10:57 AM	AS	27.0	13.0	11:00 AM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
TOTAL VOLUME PUMPED April 2018										16082			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
05/04/18	3:52 PM	AS	27.0	13.0	3:55 PM	28.0	39.5	0.5	Camino Real	1836	Recirculation	-	
05/08/18	9:22 AM	AS	27.0	13.0	9:25 AM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
05/11/18	3:37 PM	AS	28.0	12.0	3:40 PM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
05/15/18	11:12 AM	AS	28.0	12.0	11:15 AM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
05/18/18	3:47 PM	AS	27.0	13.0	3:50 PM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
05/22/18	8:57 AM	AS	28.0	12.0	9:00 AM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
05/25/18	3:42 PM	AS	28.0	12.0	3:45 PM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
05/29/18	11:30 AM	AS	27.0	13.0	11:33 AM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
TOTAL VOLUME PUMPED May 2018										14099			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
06/01/18	1:32 PM	AS	27.0	13.0	1:35 PM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
06/04/18	9:40 AM	JCT	29.0	11.0	9:42 AM	20.0	39.5	0.5	Camino Real	1542	Recirculation	-	
06/07/18	11:30 AM	JCT	28.0	12.0	11:33 AM	23.0	39.5	0.5	Camino Real	1689	Recirculation	-	
06/13/18	11:27 AM	AS	27.0	13.0	11:30 AM	32.0	39.5	0.5	Camino Real	1836	Recirculation	-	
06/19/18	10:32 AM	AS	26.0	14.0	10:35 AM	40.0	39.5	0.5	Camino Real	1983	Recirculation	-	
06/25/18	9:52 AM	AS	27.0	13.0	9:55 AM	33.0	39.5	0.5	Camino Real	1836	Recirculation	-	
06/29/18	11:27 AM	AS	27.0	13.0	11:30 AM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
TOTAL VOLUME PUMPED June 2018										12557			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
07/03/18	11:12 AM	AS	28.0	12.0	11:15 AM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
07/05/18	9:40 AM	JCT	29.0	11.0	9:42 AM	15.0	39.5	0.5	Camino Real	1542	Recirculation	-	
07/06/18	11:48 AM	AS	31.0	9.0	11:50 AM	10.0	39.5	0.5	Camino Real	1248	Recirculation	-	
07/09/18	11:17 AM	AS	29.0	11.0	11:20 AM	20.0	39.5	0.5	Camino Real	1542	Recirculation	-	
07/13/18	11:13 AM	AS	27.0	13.0	11:15 AM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
07/16/18	11:32 AM	AS	28.0	12.0	11:35 AM	20.0	39.5	0.5	Camino Real	1689	Recirculation	-	
07/18/18	8:57 AM	AS	27.0	13.0	9:00 AM	25.0	39.5	0.5	Camino Real	1836	Recirculation	-	
07/24/18	10:23 AM	AS	27.0	13.0	10:25 AM	27.0	39.5	0.5	Camino Real	1836	Recirculation	-	
07/27/18	11:30 AM	AS	27.0	13.0	11:33 AM	25.0	39.5	0.5	Camino Real	1836	Recirculation	-	
07/31/18	11:07 AM	AS	27.0	13.0	11:10 AM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
TOTAL VOLUME PUMPED July 2018										16890			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							**Water Added* (gallons)**	**Notes**
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
08/03/18	1:20 PM	AS	28.0	12.0	1:25 PM	20.0	39.5	0.5	Camino Real	1689	Recirculation	-	
08/06/18	11:08 AM	AS	28.0	12.0	11:10 AM	20.0	39.5	0.5	Camino Real	1689	Recirculation	-	
08/10/18	1:37 PM	AS	28.0	12.0	1:40 PM	20.0	39.5	0.5	Camino Real	1689	Recirculation	-	
08/13/18	11:23 AM	AS	28.0	12.0	11:25 AM	20.0	39.5	0.5	Camino Real	1689	Recirculation	-	
08/17/18	11:27 AM	AS	27.0	13.0	11:30 AM	25.0	39.5	0.5	Camino Real	1836	Recirculation	-	
08/20/18	11:32 AM	AS	28.0	12.0	11:35 PM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
08/24/18	11:12 AM	AS	28.0	12.0	11:15 AM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
08/28/18	11:30 AM	AS	27.0	13.0	11:33 AM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
08/31/18	8:57 AM	AS	28.0	12.0	9:00 AM	20.0	39.5	0.5	Camino Real	1689	Recirculation	-	
TOTAL VOLUME PUMPED August 2018										15495			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
09/04/18	11:25 AM	AS	28.0	12.0	11:27 AM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
09/07/18	11:07 AM	AS	28.0	12.0	11:10 AM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
09/10/18	11:08 AM	AS	28.0	12.0	11:10 AM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
09/14/18	11:42 AM	AS	28.0	12.0	11:45 AM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
09/17/18	11:22 AM	AS	27.0	13.0	11:25 AM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
09/26/18	9:37 AM	AS	26.0	14.0	9:40 AM	45.0	39.5	0.5	Camino Real	1983	Recirculation	-	
09/28/18	11:38 AM	AS	29.0	11.0	11:40 AM	20.0	39.5	0.5	Camino Real	1542	Recirculation	-	
TOTAL VOLUME PUMPED September 2018										12117			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
10/02/18	11:07 AM	AS	27.0	13.0	11:10 AM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/08/18	1:26 PM	AS	27.0	13.0	1:30 PM	35.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/12/18	11:27 AM	AS	27.0	13.0	11:30 AM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/15/18	11:26 AM	AS	28.0	12.0	11:30 AM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
10/23/18	10:30 AM	AS	26.0	14.0	10:33 AM	40.0	39.5	0.5	Camino Real	1983	Recirculation	-	
10/26/18	1:27 PM	AS	27.0	13.0	1:30 PM	35.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/29/18	11:22 AM	AS	28.0	12.0	11:25 AM	25.0	39.5	0.5	Camino Real	1689	Recirculation	-	
TOTAL VOLUME PUMPED October 2018										12704			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					**Pumping Data**							**Water Added* (gallons)**	**Notes**
Date	Time Measured	Monitored By	Before Pumping		Time Pumped	Time Elapsed (minutes)	After Pumping		Company	Volume Pumped (gal)	Disposal Method		
			Depth to Leachate (ft)	Leachate Depth (ft)			Depth to Leachate (ft)	Leachate Depth (ft)					
01/03/19	9:07 AM	AS	27.0	13.0	9:10 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
01/09/19	8:57 AM	AS	26.0	14.0	9:00 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
01/14/19	11:37 AM	AS	27.0	13.0	11:40 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
01/18/19	11:17 AM	AS	26.0	14.0	11:20 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
01/22/19	10:36 AM	AS	27.0	13.0	10:40 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
01/25/19	1:17 PM	AS	26.0	14.0	1:20 PM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
01/31/19	10:35 AM	JCT	24.0	16.0	10:38 AM	75.0	39.5	0.5	Camino Real	2276	Recirculation	-	
TOTAL VOLUME PUMPED JANUARY 2019										13732			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
02/04/19	8:30 AM	JCT	30.0	10.0	8:32 AM	70.0	39.5	0.5	Camino Real	1395	Recirculation	-	
02/05/19	8:55 AM	JCT	28.0	12.0	9:00 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
02/06/19	3:17 PM	AS	30.0	10.0	3:20 PM	25.0	39.5	0.5	Camino Real	1395	Recirculation	-	
02/07/19	11:35 AM	JCT	31.0	9.0	11:37 AM	13.0	39.5	0.5	Camino Real	1248	Recirculation	-	
02/08/19	11:32 AM	AS	31.0	9.0	11:35 AM	15.0	39.5	0.5	Camino Real	1248	Recirculation	-	
02/11/19	10:48 AM	AS	27.0	13.0	10:50 AM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
02/13/19	11:37 AM	AS	27.0	13.0	11:40 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
02/15/19	10:57 AM	AS	27.0	13.0	11:00 AM	35.0	39.5	0.5	Camino Real	1836	Recirculation	-	
02/18/19	11:18 AM	AS	27.0	13.0	11:20 AM	43.0	39.5	0.5	Camino Real	1836	Recirculation	-	
02/20/19	11:22 AM	AS	27.0	13.0	11:25 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
02/22/19	11:22 AM	AS	28.0	12.0	11:25 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
02/25/19	11:17 AM	AS	28.0	12.0	11:20 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
02/27/19	11:17 AM	AS	28.0	12.0	11:20 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
TOTAL VOLUME PUMPED FEBRUARY 2019										17845			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
03/01/19	11:13 AM	AS	28.0	12.0	11:15 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
03/05/19	11:20 AM	AS	26.0	14.0	11:23 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
03/08/19	11:03 AM	AS	27.0	13.0	11:05 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
03/11/19	10:53 AM	AS	27.0	13.0	10:55 AM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
03/13/19	9:17 AM	AS	28.0	12.0	9:20 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
03/15/19	11:12 AM	AS	28.0	12.0	11:15 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
03/25/19	11:22 AM	AS	24.0	16.0	11:25 AM	50.0	39.5	0.5	Camino Real	2276	Recirculation	-	
03/27/19	9:22 AM	AS	26.0	14.0	9:25 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
03/28/19	11:23 AM	AS	29.0	11.0	11:25 AM	28.0	39.5	0.5	Camino Real	1542	Recirculation	-	
03/29/19	1:37 PM	AS	30.0	10.0	1:40 PM	25.0	39.5	0.5	Camino Real	1395	Recirculation	-	
TOTAL VOLUME PUMPED March 2019										17918			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
Date	Time Measured	Monitored By	Before Pumping		Time Pumped	Time Elapsed (minutes)	After Pumping		Company	Volume Pumped (gal)	Disposal Method		
			Depth to Leachate (ft)	Leachate Depth (ft)			Depth to Leachate (ft)	Leachate Depth (ft)					
04/01/19	11:22 AM	AS	27.0	13.0	11:25 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
04/02/19	11:27 AM	AS	29.0	11.0	11:30 AM	30.0	39.5	0.5	Camino Real	1542	Recirculation	-	
04/10/19	11:07 AM	As	23.0	17.0	11:10 AM	80.0	39.5	0.5	Camino Real	2423	Recirculation	-	
04/12/19	1:47 PM	AS	27.0	13.0	1:50 PM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
04/15/19	11:12 AM	AS	27.0	13.0	11:15 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
04/17/19	11:02 AM	AS	28.0	12.0	11:05 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
04/19/19	11:02 AM	AS	28.0	12.0	11:05 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
04/23/19	8:53 AM	AS	26.0	14.0	8:55 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
04/26/19	11:12 AM	AS	27.0	13.0	11:15 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
04/30/19	10:07 AM	AS	27.0	13.0	10:10 AM	65.0	39.5	0.5	Camino Real	1836	Recirculation	-	
TOTAL VOLUME PUMPED April 2019										18506			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							**Water Added* (gallons)**	**Notes**
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
05/04/19	10:48 AM	AS	27.0	13.0	10:50 AM	60.0	39.5	0.5	Camino Real	1836	Recirculation	-	
05/07/19	11:07 AM	AS	27.0	13.0	11:10 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
05/10/19	1:12 PM	AS	28.0	12.0	1:15 PM	45.0	39.5	0.5	Camino Real	1689	Recirculation	-	
05/13/19	11:15 AM	AS	28.0	12.0	11:17 AM	45.0	39.5	0.5	Camino Real	1689	Recirculation	-	
05/15/19	11:17 AM	AS	29.0	11.0	11:20 AM	35.0	39.5	0.5	Camino Real	1542	Recirculation	-	
05/17/19	11:07 AM	AS	28.0	12.0	11:10 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
05/20/19	11:12 PM	AS	27.0	13.0	11:15 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
05/22/19	1:32 PM	AS	27.0	13.0	1:35 PM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
05/24/19	11:07 AM	AS	29.0	11.0	11:10 AM	30.0	39.5	0.5	Camino Real	1542	Recirculation	-	
05/28/19	10:00 AM	JCT	29.0	11.0	10:03 AM	60.0	39.5	0.5	Camino Real	1542	Recirculation	-	
05/30/19	11:02 AM	JCT	32.0	8.0	11:05 AM	30.0	39.5	0.5	Camino Real	1102	Recirculation	-	
TOTAL VOLUME PUMPED May 2019										18138			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					**Pumping Data**								
Date	Time Measured	Monitored By	Before Pumping		Time Pumped	Time Elapsed (minutes)	After Pumping		Company	Volume Pumped (gal)	Disposal Method	**Water Added* (gallons)**	**Notes**
			Depth to Leachate (ft)	Leachate Depth (ft)			Depth to Leachate (ft)	Leachate Depth (ft)					
06/07/19	11:07 AM	AS	27.0	13.0	11:10 AM	60.0	39.5	0.5	Camino Real	1836	Recirculation	-	
06/10/19	11:22 AM	AS	27.0	13.0	11:25 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
06/12/19	2:37 PM	AS	27.0	13.0	2:40 PM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
06/14/19	11:13 AM	AS	29.0	11.0	11:15 AM	35.0	39.5	0.5	Camino Real	1542	Recirculation	-	
06/17/19	11:13 AM	AS	27.0	13.0	11:15 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
06/19/19	11:17 AM	AS	28.0	12.0	11:20 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
06/21/19	11:22 AM	AS	28.0	12.0	11:25 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
06/24/19	11:07 AM	AS	27.0	13.0	11:10 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
06/26/19	3:27 PM	AS	28.0	12.0	3:30 PM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
06/28/19	11:22 AM	AS	30.0	10.0	11:25 AM	30.0	39.5	0.5	Camino Real	1395	Recirculation	-	
TOTAL VOLUME PUMPED June 2019										17184			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
07/01/19	11:22 AM	AS	28.0	12.0	11:25 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
07/03/19	11:12 AM	AS	28.0	12.0	11:15 AM	45.0	39.5	0.5	Camino Real	1689	Recirculation	-	
07/05/19	11:06 AM	AS	29.0	11.0	11:10 AM	30.0	39.5	0.5	Camino Real	1542	Recirculation	-	
07/08/19	11:32 AM	AS	28.0	12.0	11:35 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
07/11/19	9:17 AM	AS	28.0	12.0	9:20 AM	45.0	39.5	0.5	Camino Real	1689	Recirculation	-	
07/16/19	8:57 AM	AS	26.0	14.0	9:00 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
07/19/19	1:26 PM	AS	28.0	12.0	1:30 PM	45.0	39.5	0.5	Camino Real	1689	Recirculation	-	
07/22/19	11:17 AM	AS	28.0	12.0	11:20 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
07/24/19	11:36 AM	AS	28.0	12.0	11:40 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
07/26/19	11:37 AM	AS	28.0	12.0	11:40 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
07/29/19	11:17 AM	AS	27.0	13.0	11:20 AM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
07/31/19	9:03 AM	AS	29.0	11.0	9:05 AM	35.0	39.5	0.5	Camino Real	1542	Recirculation	-	
TOTAL VOLUME PUMPED July 2019										18873			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
08/02/19	11:27 AM	AS	29.0	11.0	11:30 AM	30.0	39.5	0.5	Camino Real	1542	Recirculation	-	
08/05/19	11:10 AM	AS	27.0	13.0	11:13 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
08/07/19	11:00 AM	AS	29.0	11.0	11:05 AM	28.0	39.5	0.5	Camino Real	1542	Recirculation	-	
08/09/19	11:06 AM	AS	29.0	11.0	11:10 AM	25.0	39.5	0.5	Camino Real	1542	Recirculation	-	
08/13/19	11:07 AM	AS	27.0	13.0	11:10 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
08/16/19	11:33 AM	AS	27.0	13.0	11:35 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
08/20/19	8:37 AM	AS	27.0	13.0	9:40 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
08/23/19	1:30 PM	AS	27.0	13.0	1:35 PM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
08/26/19	9:25 AM	AS	27.0	13.0	9:28 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
08/30/19	10:57 AM	AS	26.0	14.0	11:00 AM	50.0	39.5	0.5	Camino Real	1983	Recirculation	-	
TOTAL VOLUME PUMPED August 2019										17624			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
09/03/19	11:17 AM	AS	26.0	14.0	11:20 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
09/06/19	2:22 PM	AS	27.0	13.0	2:25 PM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
09/09/19	10:53 AM	AS	27.0	13.0	10:55 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
09/11/19	11:12 AM	AS	28.0	12.0	11:15 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
09/16/19	11:08 AM	AS	26.0	14.0	11:10 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
09/18/19	11:18 AM	AS	27.0	13.0	11:20 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
09/20/19	1:32 PM	AS	28.0	12.0	1:35 PM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
09/23/19	11:13 AM	AS	27.0	13.0	11:15 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
09/25/19	11:12 AM	AS	28.0	12.0	11:15 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
09/27/19	11:22 AM	AS	29.0	11.0	11:25 AM	30.0	39.5	0.5	Camino Real	1542	Recirculation	-	
09/30/19	11:17 AM	AS	27.0	13.0	11:20 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
TOTAL VOLUME PUMPED September 2019										19754			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data								Water Added* (gallons)	Notes
			Before Pumping				After Pumping							
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method			
10/02/19	10:42 AM	AS	28.0	12.0	10:45 AM	30.0	39.5	0.5	Camino Real	1689	Recirculation	-	
10/07/19	11:07 AM	AS	27.0	13.0	11:10 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/09/19	11:17 AM	AS	27.0	13.0	11:20 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/11/19	11:17 AM	AS	28.0	12.0	11:20 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
10/14/19	11:12 AM	AS	27.0	13.0	11:15 AM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/16/19	11:22 AM	AS	28.0	13.0	11:25 AM	30.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/18/19	11:18 AM	AS	28.0	12.0	11:20 AM	30.0	39.5	0.5	Camino Real	1689	Recirculation	-	
10/22/19	10:52 AM	AS	27.0	13.0	10:55 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/25/19	3:22 PM	AS	27.0	13.0	3:25 PM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/28/19	11:17 AM	AS	27.0	13.0	11:20 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/31/19	10:12 AM	AS	27.0	13.0	10:15 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
TOTAL VOLUME PUMPED October 2019										19754			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
Date	Time Measured	Monitored By	Before Pumping		Time Pumped	Time Elapsed (minutes)	After Pumping		Company	Volume Pumped (gal)	Disposal Method		
			Depth to Leachate (ft)	Leachate Depth (ft)			Depth to Leachate (ft)	Leachate Depth (ft)					
11/04/19	11:17 AM	AS	27.0	13.0	11:20 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/06/19	10:48 AM	AS	28.0	12.0	10:50 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
11/08/19	1:17 PM	AS	28.0	12.0	1:20 PM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
11/12/19	11:12 AM	AS	27.0	13.0	11:15 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/15/19	11:07 AM	AS	27.0	13.0	11:10 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/18/19	11:17 AM	AS	27.0	13.0	11:20 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/20/19	11:13 AM	AS	28.0	12.0	11:15 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
11/22/19	1:12 PM	AS	27.0	13.0	1:15 PM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/25/19	10:57 AM	AS	27.0	13.0	11:00 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/27/19	11:17 AM	AS	28.0	12.0	11:20 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
11/29/19	11:02 AM	AS	27.0	13.0	11:05 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
TOTAL VOLUME PUMPED November 2019										19607			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
12/03/19	11:23 AM	AS	26.0	14.0	11:25 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
12/05/19	1:42 PM	AS	27.0	13.0	1:45 PM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
12/10/19	11:22 AM	AS	26.0	14.0	11:25 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
12/13/19	10:12 AM	AS	25.0	15.0	10:15 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
12/16/19	10:53 AM	AS	25.0	15.0	10:55 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
12/18/19	11:07 AM	AS	27.0	13.0	11:10 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
12/20/19	10:52 AM	AS	27.0	13.0	10:55 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
12/23/19	10:57 AM	AS	26.0	14.0	11:00 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
12/24/19	11:12 AM	AS	28.0	12.0	11:15 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
12/30/19	10:27 AM	AS	26.0	14.0	10:30 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
12/31/19	10:47 AM	AS	27.0	13.0	10:50 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
TOTAL VOLUME PUMPED December 2019										21223			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data								Water Added* (gallons)	Notes
			Before Pumping				After Pumping							
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method			
01/02/20	11:17 AM	AS	27.0	13.0	11:20 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
01/03/20	11:17 AM	AS	27.0	13.0	11:20 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
01/06/20	11:22 AM	AS	27.0	13.0	11:25 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
01/08/20	10:47 AM	AS	27.0	13.0	10:50 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
01/10/20	10:56 AM	AS	26.0	14.0	11:00 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
01/13/20	10:57 AM	AS	26.0	14.0	11:00 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
01/15/20	11:22 AM	AS	27.0	13.0	11:25 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
01/21/20	8:57 AM	AS	26.0	14.0	9:00 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
01/24/20	11:07 AM	AS	27.0	13.0	11:10 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
01/27/20	11:18 AM	AS	26.0	14.0	11:20 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
01/29/20	2:17 PM	AS	27.0	13.0	2:20 PM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
TOTAL VOLUME PUMPED JANUARY 2020										20782			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
02/03/20	10:17 AM	AS	26.0	14.0	10:20 AM	70.0	39.5	0.5	Camino Real	1983	Recirculation	-	
02/05/20	10:47 AM	AS	27.0	13.0	10:50 AM	42.0	39.5	0.5	Camino Real	1836	Recirculation	-	
02/07/20	10:56 AM	AS	26.0	14.0	11:00 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
02/10/20	10:27 AM	AS	26.0	14.0	10:30 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
02/13/20	10:17 AM	JCT	26.0	14.0	10:20 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
02/14/20	8:47 AM	JCT	29.0	11.0	8:50 AM	30.0	39.5	0.5	Camino Real	1542	Recirculation	-	
02/17/20	10:52 AM	AS	26.0	14.0	10:55 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
02/18/20	11:12 AM	AS	28.0	12.0	11:15 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
02/19/20	11:13 AM	AS	29.0	11.0	11:15 AM	25.0	39.5	0.5	Camino Real	1542	Recirculation	-	
02/20/20	11:07 AM	AS	30.0	10.0	11:10 AM	20.0	39.5	0.5	Camino Real	1395	Recirculation	-	
02/21/20	11:18 AM	AS	29.0	11.0	11:20 AM	25.0	39.5	0.5	Camino Real	1542	Recirculation	-	
02/24/20	11:12 AM	AS	27.0	13.0	11:15 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
02/26/20	11:28 AM	AS	27.0	13.0	11:30 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
02/27/20	11:17 AM	AS	28.0	12.0	11:20 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
02/28/20	1:18 PM	AS	29.0	11.0	1:20 PM	30.0	39.5	0.5	Camino Real	1542	Recirculation	-	
TOTAL VOLUME PUMPED FEBRUARY 2020										19460			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					**Pumping Data**							**Water Added* (gallons)**	**Notes**
Date	Time Measured	Monitored By	Before Pumping		Time Pumped	Time Elapsed (minutes)	After Pumping		Company	Volume Pumped (gal)	Disposal Method		
			Depth to Leachate (ft)	Leachate Depth (ft)			Depth to Leachate (ft)	Leachate Depth (ft)					
03/02/20	10:57 AM	AS	27.0	13.0	11:00 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
03/04/20	11:07 AM	AS	28.0	12.0	11:10 AM	45.0	39.5	0.5	Camino Real	1689	Recirculation	-	
03/06/20	11:12 AM	AS	28.0	12.0	11:15 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
03/09/20	10:47 AM	AS	27.0	13.0	10:50 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
03/11/20	11:02 AM	AS	27.0	13.0	11:05 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
03/13/20	1:12 PM	AS	28.0	12.0	1:15 PM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
03/16/20	10:57 AM	AS	27.0	13.0	11:00 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
03/17/20	11:12 AM	AS	28.0	12.0	11:15 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
03/19/20	1:12 PM	AS	27.0	13.0	1:15 PM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
03/20/20	1:47 PM	AS	29.0	11.0	1:50 PM	30.0	39.5	0.5	Camino Real	1542	Recirculation	-	
03/24/20	10:18 AM	AS	26.0	14.0	10:20 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
03/25/20	1:52 PM	AS	29.0	11.0	1:55 PM	25.0	39.5	0.5	Camino Real	1542	Recirculation	-	
03/27/20	11:13 AM	AS	27.0	13.0	11:15 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
03/30/20	10:58 AM	AS	27.0	13.0	11:00 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
03/31/20	10:38 AM	AS	30.0	10.0	10:40 AM	20.0	39.5	0.5	Camino Real	1395	Recirculation	-	
TOTAL VOLUME PUMPED March 2020										19460			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
04/03/20	10:42 AM	AS	27.0	13.0	10:45 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
04/06/20	10:58 AM	AS	26.0	14.0	11:00 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
04/08/20	11:07 AM	As	28.0	12.0	11:10 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
04/10/20	11:33 PM	AS	28.0	12.0	10:35 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
04/14/20	10:42 AM	AS	26.0	14.0	10:45 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
04/17/20	2:17 PM	AS	27.0	13.0	2:20 PM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
04/20/20	11:03 AM	AS	27.0	13.0	11:05 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
04/22/20	11:07 AM	AS	28.0	12.0	11:10 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
04/24/20	1:17 PM	AS	28.0	12.0	1:20 PM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
04/27/20	11:18 AM	AS	26.0	14.0	11:20 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
04/29/20	1:37 PM	AS	28.0	12.0	1:40 PM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
TOTAL VOLUME PUMPED April 2020										19901			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data								Water Added* (gallons)	Notes
			Before Pumping				After Pumping							
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method			
05/01/20	1:47 PM	AS	27.0	13.0	1:50 PM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
05/04/20	10:37 AM	AS	26.0	14.0	10:40 AM	50.0	39.5	0.5	Camino Real	1983	Recirculation	-	
05/06/20	11:15 AM	AS	27.0	13.0	11:18 AM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
05/08/20	11:12 AM	AS	27.0	13.0	11:15 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
05/11/20	10:22 AM	AS	26.0	14.0	10:25 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
05/13/20	11:13 AM	AS	27.0	13.0	11:16 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
05/15/20	1:27 PM	AS	27.0	13.0	1:30 PM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
05/18/20	10:58 AM	AS	26.0	14.0	11:01 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
05/20/20	10:53 AM	AS	28.0	12.0	10:56 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
05/22/20	11:07 AM	AS	27.0	13.0	11:10 AM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
05/26/20	10:36 AM	AS	26.0	14.0	10:39 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
05/29/20	10:47 AM	AS	26.0	14.0	10:50 AM	50.0	39.5	0.5	Camino Real	1983	Recirculation	-	
TOTAL VOLUME PUMPED May 2020										20635			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					**Pumping Data**							**Water Added* (gallons)**	**Notes**
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
06/01/20	11:42 AM	AS	26.0	14.0	11:45 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
06/03/20	11:37 AM	AS	27.0	13.0	11:40 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
06/05/20	1:07 PM	AS	28.0	12.0	1:10 PM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
06/09/20	10:32 AM	AS	25.0	15.0	10:35 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
06/11/20	1:17 PM	AS	27.0	13.0	1:20 PM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
06/16/20	9:52 AM	AS	25.0	15.0	9:55 AM	80.0	39.5	0.5	Camino Real	2130	Recirculation	-	
06/19/20	1:27 PM	AS	26.0	14.0	1:30 PM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
06/22/20	10:58 AM	AS	26.0	14.0	11:00 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
06/24/20	10:27 AM	AS	27.0	13.0	10:30 AM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
06/26/20	9:27 AM	AS	28.0	12.0	9:30 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
06/30/20	11:03 AM	AS	26.0	14.0	11:05 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
TOTAL VOLUME PUMPED June 2020										21076			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
07/02/20	11:02 AM	AS	26.0	14.0	11:05 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
07/06/20	10:32 AM	AS	26.0	14.0	10:35 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
07/08/20	10:13 AM	AS	27.0	13.0	10:15 AM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
07/10/20	1:17 PM	AS	28.0	12.0	1:20 PM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
07/13/20	10:32 AM	AS	26.0	14.0	10:35 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
07/15/20	1:33 PM	AS	28.0	12.0	1:35 PM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
07/17/20	10:26 AM	AS	28.0	12.0	10:30 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
07/20/20	12:57 PM	AS	26.0	14.0	1:00 PM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
07/24/20	10:22 AM	AS	25.0	15.0	10:25 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
07/28/20	11:03 AM	AS	25.0	15.0	11:05 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
07/31/20	9:23 AM	AS	25.0	15.0	9:25 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
TOTAL VOLUME PUMPED July 2020										21223			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
08/03/20	10:22 AM	AS	25.0	15.0	10:25 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
08/05/20	10:28 AM	AS	28.0	12.0	10:30 AM	45.0	39.5	0.5	Camino Real	1689	Recirculation	-	
08/07/20	11:07 AM	AS	28.0	12.0	11:10 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
08/10/20	11:12 AM	AS	26.0	14.0	11:15 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
08/12/20	11:07 AM	AS	28.0	12.0	11:10 AM	45.0	39.5	0.5	Camino Real	1689	Recirculation	-	
08/14/20	3:12 PM	AS	28.0	12.0	3:15 PM	45.0	39.5	0.5	Camino Real	1689	Recirculation	-	
08/17/20	10:32 AM	AS	26.0	14.0	10:35 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
08/19/20	11:22 AM	AS	28.0	12.0	11:25 AM	45.0	39.5	0.5	Camino Real	1689	Recirculation	-	
08/24/20	10:22 AM	AS	25.0	15.0	10:25 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
08/26/20	1:18 PM	AS	28.0	12.0	1:20 PM	50.0	39.5	0.5	Camino Real	1689	Recirculation	-	
08/28/20	11:07 AM	AS	28.0	12.0	11:10 AM	45.0	39.5	0.5	Camino Real	1689	Recirculation	-	
08/31/20	11:18 AM	AS	26.0	14.0	11:20 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
TOTAL VOLUME PUMPED August 2020										20048			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
Date	Time Measured	Monitored By	Before Pumping		Time Pumped	Time Elapsed (minutes)	After Pumping		Company	Volume Pumped (gal)	Disposal Method		
			Depth to Leachate (ft)	Leachate Depth (ft)			Depth to Leachate (ft)	Leachate Depth (ft)					
09/02/20	1:22 PM	AS	27.0	13.0	1:25 PM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
09/04/20	9:43 AM	AS	28.0	12.0	9:45 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
09/08/20	10:27 AM	AS	26.0	14.0	10:30 AM	75.0	39.5	0.5	Camino Real	1983	Recirculation	-	
09/11/20	2:07 PM	AS	26.0	14.0	2:10 PM	75.0	39.5	0.5	Camino Real	1983	Recirculation	-	
09/14/20	9:15 AM	JCT	26.0	14.0	9:18 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
09/16/20	8:45 AM	JCT	27.0	13.0	8:48 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
09/18/20	9:05 AM	JCT	28.0	12.0	9:08 AM	55.0	39.5	0.5	Camino Real	1689	Recirculation	-	
09/21/20	10:12 AM	AS	25.0	15.0	10:15 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation	-	
09/23/20	1:47 PM	AS	28.0	12.0	1:50 PM	55.0	39.5	0.5	Camino Real	1689	Recirculation	-	
09/25/20	10:28 AM	AS	26.0	14.0	10:30 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
09/28/20	8:30 AM	JCT	25.0	15.0	8:32 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
09/30/20	9:15 AM	JCT	27.0	13.0	9:17 AM	60.0	39.5	0.5	Camino Real	1836	Recirculation	-	
TOTAL VOLUME PUMPED September 2020										20929			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
10/05/20	10:32 AM	AS	24.0	16.0	10:35 AM	90.0	39.5	0.5	Camino Real	2276	Recirculation	-	
10/06/20	10:27 AM	AS	27.0	13.0	10:30 AM	80.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/07/20	10:33 AM	AS	28.0	12.0	10:35 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
10/09/20	11:22 AM	AS	28.0	12.0	11:25 AM	45.0	39.5	0.5	Camino Real	1689	Recirculation	-	
10/13/20	11:27 AM	AS	24.0	16.0	11:30 AM	90.0	39.5	0.5	Camino Real	2276	Recirculation	-	
10/14/20	8:47 AM	AS	28.0	12.0	8:50 AM	45.0	39.5	0.5	Camino Real	1689	Recirculation	-	
10/16/20	10:42 AM	AS	27.0	13.0	10:45 AM	60.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/19/20	11:00 AM	JCT	27.0	13.0	11:03 AM	88.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/21/20	9:22 AM	JCT	28.0	12.0	9:25 AM	75.0	39.5	0.5	Camino Real	1689	Recirculation	-	
10/23/20	10:52 AM	JCT	28.0	12.0	10:55 AM	90.0	39.5	0.5	Camino Real	1689	Recirculation	-	
10/26/20	10:17 AM	JCT	27.0	13.0	10:20 AM	110.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/27/20	11:47 AM	JCT	28.0	12.0	11:50 AM	50.0	39.5	0.5	Camino Real	1689	Recirculation	-	
10/29/20	9:20 AM	JCT	27.0	13.0	9:23 AM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/30/20	10:12 AM	JCT	27.0	13.0	10:15 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
TOTAL VOLUME PUMPED October 2020										20341			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
Date	Time Measured	Monitored By	Before Pumping		Time Pumped	Time Elapsed (minutes)	After Pumping		Company	Volume Pumped (gal)	Disposal Method		
			Depth to Leachate (ft)	Leachate Depth (ft)			Depth to Leachate (ft)	Leachate Depth (ft)					
11/02/20	9:07 AM	JCT	27.0	13.0	9:10 AM	100.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/04/20	11:07 AM	JCT	27.0	13.0	11:10 AM	60.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/06/20	9:53 AM	JCT	27.0	13.0	9:55 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/09/20	9:27 AM	JCT	27.0	13.0	9:30 AM	120.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/11/20	11:18 AM	JCT	27.0	13.0	11:20 AM	80.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/13/20	10:08 AM	JCT	27.0	13.0	10:10 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/17/20	10:38 AM	JCT	25.0	15.0	10:40 AM	120.0	39.5	0.5	Camino Real	2130	Recirculation	-	
11/18/20	11:48 AM	JCT	27.0	13.0	11:50 AM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/20/20	8:02 AM	JCT	27.0	13.0	8:05 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/23/20	12:27 PM	JCT	27.0	13.0	12:30 PM	120.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/25/20	9:17 AM	JCT	27.0	13.0	9:20 AM	40.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/27/20	9:47 AM	JCT	27.0	13.0	9:50 AM	66.0	39.5	0.5	Camino Real	1836	Recirculation	-	
11/30/20	9:07 AM	JCT	27.0	13.0	9:10 AM	80.0	39.5	0.5	Camino Real	1836	Recirculation	-	
TOTAL VOLUME PUMPED November 2020										24160			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
12/01/20	9:58 AM	JCT	25.0	15.0	10:00 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
12/02/20	8:35 AM	JCT	27.0	13.0	8:37 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
12/04/20	9:02 AM	JCT	25.0	15.0	9:05 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
12/07/20	10:23 AM	JCT	26.0	14.0	10:25 AM	95.0	39.5	0.5	Camino Real	1983	Recirculation	-	
12/09/20	11:38 AM	JCT	25.0	15.0	11:40 AM	80.0	39.5	0.5	Camino Real	2130	Recirculation	-	
12/11/20	11:42 AM	JCT	27.0	13.0	11:45 AM	80.0	39.5	0.5	Camino Real	1836	Recirculation	-	
12/14/20	10:22 AM	JCT	27.0	13.0	10:25 AM	85.0	39.5	0.5	Camino Real	1836	Recirculation	-	
12/16/20	10:02 AM	JCT	26.0	14.0	10:05 AM	80.0	39.5	0.5	Camino Real	1983	Recirculation	-	
12/18/20	10:52 AM	JCT	28.0	12.0	10:55 AM	85.0	39.5	0.5	Camino Real	1689	Recirculation	-	
12/21/20	10:47 AM	JCT	26.0	14.0	10:50 AM	90.0	39.5	0.5	Camino Real	1983	Recirculation	-	
12/23/20	9:30 AM	JCT	27.0	13.0	9:33 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
12/28/20	9:50 AM	JCT	28.0	12.0	9:53 AM	90.0	39.5	0.5	Camino Real	1689	Recirculation	-	
12/30/20	10:10 AM	JCT	27.0	13.0	10:12 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
TOTAL VOLUME PUMPED December 2020										21370			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
01/04/21	9:40 AM	JCT	23.0	17.0	9:43 AM	100.0	39.5	0.5	Camino Real	2423	Recirculation	-	
01/06/21	10:05 AM	AS	23.0	17.0	10:08 AM	95.0	39.5	0.5	Camino Real	2423	Recirculation	-	
01/08/21	10:37 AM	AS	26.0	14.0	10:40 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
01/11/21	10:58 AM	AS	25.0	15.0	11:00 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation	-	
01/13/21	10:27 AM	AS	26.0	14.0	10:30 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
01/15/21	8:57 AM	AS	27.0	13.0	9:00 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
01/18/21	10:28 AM	AS	26.0	14.0	10:30 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
01/20/21	10:32 AM	AS	25.0	15.0	10:35 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
01/22/21	10:22 AM	AS	25.0	15.0	10:25 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
01/25/21	10:17 AM	AS	23.0	17.0	10:20 AM	80.0	39.5	0.5	Camino Real	2423	Recirculation	-	
01/27/21	10:38 AM	AS	25.0	15.0	10:40 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
01/29/21	10:23 AM	AS	24.0	16.0	10:25 AM	75.0	39.5	0.5	Camino Real	2276	Recirculation	-	
TOTAL VOLUME PUMPED JANUARY 2021										25849			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
02/01/21	11:08 AM	AS	25.0	15.0	11:10 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
02/03/21	11:07 AM	AS	26.0	14.0	11:10 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
02/05/21	10:17 AM	AS	26.0	14.0	10:20 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
02/08/21	11:03 AM	AS	25.0	15.0	11:05 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation	-	
02/10/21	10:57 AM	AS	26.0	14.0	11:00 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
02/12/21	11:07 AM	AS	26.0	14.0	11:10 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
02/15/21	10:52 AM	AS	24.0	16.0	10:55 AM	90.0	39.5	0.5	Camino Real	2276	Recirculation	-	
02/17/21	9:12 AM	AS	25.0	15.0	9:15 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation	-	
02/19/21	10:37 AM	AS	26.0	14.0	10:40 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
02/22/21	11:12 AM	AS	26.0	14.0	11:15 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
02/24/21	11:02 AM	AS	25.0	15.0	11:05 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
02/26/21	1:72:00 AN	AS	26.0	14.0	11:30 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
TOTAL VOLUME PUMPED FEBRUARY 2021										24674			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
03/01/21	10:33 AM	AS	26.0	14.0	10:35 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
03/03/21	11:02 AM	AS	27.0	13.0	11:05 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
03/05/21	1:12 PM	AS	27.0	13.0	1:15 PM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
03/08/21	10:58 AM	AS	26.0	14.0	11:00 AM	70.0	39.5	0.5	Camino Real	1983	Recirculation	-	
03/10/21	9:42 AM	AS	27.0	13.0	9:45 AM	65.0	39.5	0.5	Camino Real	1836	Recirculation	-	
03/12/21	11:22 AM	AS	27.0	13.0	11:25 AM	60.0	39.5	0.5	Camino Real	1836	Recirculation	-	
03/15/21	11:13 AM	AS	26.0	14.0	11:15 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
03/17/21	8:13 AM	AS	27.0	13.0	8:15 AM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
03/19/21	10:42 AM	AS	26.0	14.0	10:45 AM	50.0	39.5	0.5	Camino Real	1983	Recirculation	-	
03/22/21	11:27 AM	AS	25.0	15.0	11:30 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
03/24/21	11:02 AM	AS	26.0	14.0	11:05 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
03/26/21	10:42 AM	AS	27.0	13.0	10:45 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
03/29/21	9:52 AM	AS	25.0	15.0	9:55 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation	-	
03/31/21	10:58 AM	AS	26.0	14.0	11:00 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
TOTAL VOLUME PUMPED March 2021										27171			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					**Pumping Data**							**Water Added* (gallons)**	**Notes**
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
04/02/21	11:27 AM	AS	28.0	12.0	11:30 AM	35.0	39.5	0.5	Camino Real	1689	Recirculation	-	
04/05/21	10:53 AM	AS	26.0	14.0	10:55 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
04/07/21	11:07 AM	AS	28.0	12.0	11:10 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
04/09/21	11:33 PM	AS	27.0	13.0	11:35 AM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
04/12/21	10:42 AM	AS	26.0	14.0	10:45 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
04/14/21	11:30 AM	AS	27.0	13.0	11:33 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
04/16/21	11:12 AM	AS	26.0	14.0	11:15 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
04/19/21	10:45 AM	AS	26.0	14.0	10:48 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
04/21/21	11:22 AM	AS	27.0	13.0	11:25 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
04/23/21	10:30 AM	AS	27.0	13.0	10:33 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
04/26/21	11:00 AM	AS	26.0	14.0	11:03 AM	70.0	39.5	0.5	Camino Real	1983	Recirculation	-	
04/28/21	11:32 AM	AS	28.0	12.0	11:35 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
04/30/21	10:50 AM	AS	27.0	13.0	10:53 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
TOTAL VOLUME PUMPED April 2021										24160			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data								**Water Added* (gallons)**	**Notes**
Date	Time Measured	Monitored By	Before Pumping		Time Pumped	Time Elapsed (minutes)	After Pumping		Company	Volume Pumped (gal)	Disposal Method			
			Depth to Leachate (ft)	Leachate Depth (ft)			Depth to Leachate (ft)	Leachate Depth (ft)						
05/03/21	10:18 AM	AS	24.0	16.0	10:20 AM	80.0	39.5	0.5	Camino Real	2276	Recirculation		-	
05/05/21	10:37 AM	AS	25.0	15.0	10:40 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation		-	
05/07/21	2:22 PM	AS	27.0	13.0	2:25 PM	45.0	39.5	0.5	Camino Real	1836	Recirculation		-	
05/10/21	10:12 AM	AS	26.0	14.0	10:15 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation		-	
05/12/21	10:43 AM	AS	26.0	14.0	10:45 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation		-	
05/14/21	9:12 AM	AS	27.0	13.0	9:15 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation		-	
05/17/21	11:43 AM	AS	27.0	13.0	11:45 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation		-	
05/19/21	10:45 AM	AS	26.0	14.0	10:47 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation		-	
05/21/21	11:55 AM	AS	26.0	14.0	11:58 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation		-	
05/24/21	11:00 AM	AS	25.0	15.0	11:03 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation		-	
05/26/21	10:15 AM	AS	26.0	14.0	10:18 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation		-	
05/28/21	9:47 AM	AS	26.0	14.0	9:50 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation		-	
05/31/21	11:15 AM	AS	25.0	15.0	11:17 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation		-	
TOTAL VOLUME PUMPED May 2021										26069				

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					**Pumping Data**								**Water Added* (gallons)**	**Notes**
			Before Pumping				After Pumping							
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method			
06/02/21	9:15 AM	AS	26.0	14.0	9:18 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
06/04/21	10:42 AM	AS	26.0	14.0	10:45 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
06/07/21	11:07 AM	AS	25.0	15.0	11:10 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
06/09/21	10:15 AM	AS	26.0	14.0	10:18 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
06/11/21	10:27 AM	AS	27.0	13.0	10:30 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
06/14/21	9:52 AM	AS	25.0	15.0	9:55 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation	-	
06/16/21	9:27 PM	AS	26.0	14.0	9:30 PM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
06/18/21	10:48 AM	AS	26.0	14.0	10:50 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
06/21/21	10:17 AM	AS	25.0	15.0	10:20 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation	-	
06/23/21	9:27 AM	AS	26.0	14.0	9:30 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
06/25/21	11:13 AM	AS	27.0	13.0	11:15 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
06/28/21	9:48 AM	AS	25.0	15.0	9:50 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation	-	
06/30/21	10:38 AM	AS	26.0	14.0	10:40 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
TOTAL VOLUME PUMPED June 2021										26069			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
07/02/21	10:47 AM	AS	26.0	14.0	10:50 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
07/05/21	10:12 AM	AS	26.0	14.0	10:15 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
07/07/21	10:22 AM	AS	27.0	13.0	10:25 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
07/09/21	1:17 PM	AS	26.0	14.0	1:20 PM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
07/12/21	10:58 AM	AS	28.0	12.0	11:00 AM	40.0	39.5	0.5	Camino Real	1689	Recirculation	-	
07/14/21	9:00 AM	AS	27.0	13.0	9:05 AM	50.0	39.5	0.5	Camino Real	1836	Recirculation	-	
07/16/21	11:17 AM	AS	26.0	14.0	11:20 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
07/19/21	10:58 AM	AS	27.0	13.0	11:00 AM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
07/21/21	10:27 AM	AS	27.0	13.0	10:30 AM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
07/23/21	11:17 AM	AS	27.0	13.0	11:20 AM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
07/26/21	9:27 AM	AS	25.0	15.0	9:30 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
07/28/21	10:12 AM	AS	26.0	14.0	10:15 AM	50.0	39.5	0.5	Camino Real	1983	Recirculation	-	
07/30/21	9:42 AM	AS	27.0	13.0	9:45 AM	45.0	39.5	0.5	Camino Real	1836	Recirculation	-	
TOTAL VOLUME PUMPED July 2021										20929			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
08/02/21	10:53 AM	AS	25.0	15.0	10:55 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
08/04/21	11:47 AM	AS	26.0	14.0	11:50 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
08/06/21	10:22 AM	AS	27.0	13.0	10:25 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
08/09/21	10:57 AM	AS	25.0	15.0	11:00 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation	-	
08/11/21	10:37 AM	AS	27.0	13.0	10:40 AM	60.0	39.5	0.5	Camino Real	1836	Recirculation	-	
08/13/21	1:22 PM	AS	27.0	13.0	1:25 PM	60.0	39.5	0.5	Camino Real	1836	Recirculation	-	
08/16/21	9:45 AM	AS	25.0	15.0	9:48 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
08/18/21	11:12 AM	AS	28.0	12.0	11:15 AM	55.0	39.5	0.5	Camino Real	1689	Recirculation	-	
08/20/21	9:08 AM	AS	27.0	13.0	9:10 AM	60.0	39.5	0.5	Camino Real	1836	Recirculation	-	
08/23/21	9:50 AM	AS	24.0	16.0	9:55 AM	80.0	39.5	0.5	Camino Real	2276	Recirculation	-	
08/25/21	10:06 AM	AS	25.0	15.0	10:10 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
08/27/21	11:07 AM	AS	25.0	15.0	11:10 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
08/30/21	10:08 AM	AS	26.0	14.0	10:10 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
TOTAL VOLUME PUMPED August 2021										21810			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					**Pumping Data**							**Water Added* (gallons)**	**Notes**
Date	Time Measured	Monitored By	Before Pumping		Time Pumped	Time Elapsed (minutes)	After Pumping		Company	Volume Pumped (gal)	Disposal Method		
			Depth to Leachate (ft)	Leachate Depth (ft)			Depth to Leachate (ft)	Leachate Depth (ft)					
09/01/21	10:23 AM	AS	26.0	14.0	10:25 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
09/03/21	9:50 AM	AS	26.0	14.0	9:53 AM	55.0	39.5	0.5	Camino Real	1983	Recirculation	-	
09/07/21	8:45 AM	JCT	25.0	15.0	8:48 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation	-	
09/08/21	9:27 AM	JCT	26.0	14.0	9:30 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
09/10/21	9:02 AM	JCT	26.0	14.0	9:05 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
09/13/21	8:33 AM	JCT	25.0	15.0	8:35 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
09/15/21	9:25 AM	JCT	26.0	14.0	9:28 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
09/17/21	8:42 AM	AS	27.0	13.0	8:45 AM	65.0	39.5	0.5	Camino Real	1836	Recirculation	-	
09/20/21	11:52 AM	AS	25.0	15.0	11:55 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation	-	
09/22/21	9:28 AM	AS	26.0	14.0	9:30 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
09/24/21	8:42 AM	AS	26.0	14.0	8:45 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
09/27/21	9:35 AM	AS	25.0	15.0	9:37 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation	-	
09/29/21	9:55 AM	AS	26.0	14.0	9:58 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
TOTAL VOLUME PUMPED September 2021										22104			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					**Pumping Data**							**Water Added* (gallons)**	**Notes**
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
10/01/21	10:57 AM	AS	27.0	13.0	11:00 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/04/21	10:13 AM	AS	25.0	15.0	10:15 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
10/06/21	10:42 AM	AS	28.0	12.0	10:45 AM	50.0	39.5	0.5	Camino Real	1689	Recirculation	-	
10/08/21	11:42 AM	AS	28.0	12.0	11:45 AM	45.0	39.5	0.5	Camino Real	1689	Recirculation	-	
10/11/21	10:27 AM	AS	24.0	16.0	10:30 AM	80.0	39.5	0.5	Camino Real	2276	Recirculation	-	
10/13/21	9:27 AM	AS	27.0	13.0	9:30 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/15/21	9:12 AM	AS	28.0	12.0	9:15 AM	50.0	39.5	0.5	Camino Real	1689	Recirculation	-	
10/18/21	10:52 AM	JCT	25.0	15.0	10:55 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation	-	
10/20/21	9:42 AM	JCT	27.0	13.0	9:45 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/22/21	8:52 AM	JCT	27.0	13.0	8:55 AM	60.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/25/21	11:07 AM	JCT	24.0	16.0	11:10 AM	75.0	39.5	0.5	Camino Real	2276	Recirculation	-	
10/27/21	10:07 AM	JCT	27.0	13.0	10:10 AM	55.0	39.5	0.5	Camino Real	1836	Recirculation	-	
10/29/21	9:42 AM	JCT	28.0	12.0	9:45 AM	45.0	39.5	0.5	Camino Real	1689	Recirculation	-	
TOTAL VOLUME PUMPED October 2021										21223			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data								Water Added* (gallons)	Notes
			Before Pumping				After Pumping							
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method			
11/01/21	11:22 AM	AS	25.0	15.0	11:25 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation		-	
11/03/21	10:17 AM	AS	26.0	14.0	10:20 AM	45.0	39.5	0.5	Camino Real	1983	Recirculation		-	
11/05/21	9:57 AM	AS	26.0	14.0	10:00 AM	40.0	39.5	0.5	Camino Real	1983	Recirculation		-	
11/08/21	10:43 AM	AS	25.0	15.0	10:45 AM	60.0	39.5	0.5	Camino Real	2130	Recirculation		-	
11/10/21	10:13 AM	AS	26.0	14.0	10:15 AM	45.0	39.5	0.5	Camino Real	1983	Recirculation		-	
11/12/21	11:32 AM	AS	26.0	14.0	11:35 AM	50.0	39.5	0.5	Camino Real	1983	Recirculation		-	
11/15/21	9:18 AM	AS	25.0	15.0	9:20 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation		-	
11/17/21	10:37 AM	AS	25.0	15.0	10:40 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation		-	
11/19/21	11:02 AM	AS	26.0	14.0	11:05 AM	50.0	39.5	0.5	Camino Real	1983	Recirculation		-	
11/22/21	10:17 AM	AS	26.0	14.0	10:20 AM	45.0	39.5	0.5	Camino Real	1983	Recirculation		-	
11/24/21	10:27 AM	AS	25.0	15.0	10:30 AM	60.0	39.5	0.5	Camino Real	2130	Recirculation		-	
11/26/21	10:38 AM	AS	25.0	15.0	10:40 AM	60.0	39.5	0.5	Camino Real	2130	Recirculation		-	
11/29/21	9:27 AM	AS	24.0	16.0	9:30 AM	75.0	39.5	0.5	Camino Real	2276	Recirculation		-	
TOTAL VOLUME PUMPED November 2021										26951				

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					**Pumping Data**							**Water Added* (gallons)**	**Notes**
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
12/01/21	2:02 PM	AS	25.0	15.0	2:05 PM	60.0	39.5	0.5	Camino Real	2130	Recirculation	-	
12/03/21	10:33 AM	AS	25.0	15.0	10:35 AM	55.0	39.5	0.5	Camino Real	2130	Recirculation	-	
12/06/21	10:12 AM	AS	24.0	16.0	10:15 AM	75.0	39.5	0.5	Camino Real	2276	Recirculation	-	
12/08/21	8:47 AM	AS	25.0	15.0	8:50 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
12/10/21	9:58 AM	AS	25.0	15.0	10:00 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
12/13/21	8:53 AM	AS	24.0	16.0	8:55 AM	75.0	39.5	0.5	Camino Real	2276	Recirculation	-	
12/15/21	11:08 AM	AS	25.0	15.0	11:10 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation	-	
12/17/21	10:42 AM	AS	26.0	14.0	10:45 AM	70.0	39.5	0.5	Camino Real	1983	Recirculation	-	
12/20/21	10:17 AM	AS	24.0	16.0	10:20 AM	80.0	39.5	0.5	Camino Real	2276	Recirculation	-	
01/22/00	10:23 AM	AS	26.0	14.0	10:25 AM	75.0	39.5	0.5	Camino Real	1983	Recirculation	-	
01/24/00	10:27 AM	AS	26.0	14.0	10:30 AM	70.0	39.5	0.5	Camino Real	1983	Recirculation	-	
01/27/00	11:37 AM	AS	25.0	15.0	11:40 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation	-	
12/29/21	10:33 AM	AS	25.0	15.0	10:35 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
12/31/21	9:43 AM	AS	26.0	14.0	9:45 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
TOTAL VOLUME PUMPED December 2021										23426			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							**Water Added* (gallons)**	**Notes**
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
01/03/22	10:38 AM	AS	23.0	17.0	10:40 AM	80.0	39.5	0.5	Camino Real	2423	Recirculation	-	
01/05/22	11:33 AM	AS	25.0	15.0	11:35 AM	75.0	39.5	0.5	Camino Real	2130	Recirculation	-	
01/07/22	10:22 AM	AS	26.0	14.0	10:25 AM	70.0	39.5	0.5	Camino Real	1983	Recirculation	-	
01/10/22	10:43 AM	AS	23.0	17.0	10:45 AM	75.0	39.5	0.5	Camino Real	2423	Recirculation	-	
01/12/22	10:53 AM	AS	25.0	15.0	10:55 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
01/14/22	10:28 AM	AS	25.0	15.0	10:30 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
01/17/22	10:33 AM	AS	23.0	17.0	10:35 AM	75.0	39.5	0.5	Camino Real	2423	Recirculation	-	
01/19/22	11:03 AM	AS	25.0	15.0	11:05 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
01/21/22	10:18 AM	AS	24.0	16.0	10:20 AM	65.0	39.5	0.5	Camino Real	2276	Recirculation	-	
01/24/22	10:42 AM	AS	23.0	17.0	10:45 AM	75.0	39.5	0.5	Camino Real	2423	Recirculation	-	
01/26/22	10:33 AM	AS	25.0	15.0	10:35 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
01/28/22	10:27 AM	AS	25.0	15.0	10:30 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
01/31/22	10:03 AM	AS	23.0	17.0	10:05 AM	80.0	39.5	0.5	Camino Real	2423	Recirculation	-	
TOTAL VOLUME PUMPED JANUARY 2022										26730			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
02/02/22	10:33 AM	AS	24.0	16.0	10:35 AM	70.0	39.5	0.5	Camino Real	2276	Recirculation	-	
02/04/22	10:23 AM	AS	25.0	15.0	10:25 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
02/07/22	10:17 AM	AS	24.0	16.0	10:20 AM	70.0	39.5	0.5	Camino Real	2276	Recirculation	-	
02/09/22	10:22 AM	AS	25.0	15.0	10:25 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
02/11/22	10:18 AM	AS	26.0	14.0	10:20 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
02/14/22	11:13 AM	AS	24.0	16.0	11:15 AM	70.0	39.5	0.5	Camino Real	2276	Recirculation	-	
02/16/22	10:38 AM	AS	25.0	15.0	10:40 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
02/18/22	11:22 AM	AS	25.0	15.0	11:25 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
02/21/22	10:23 AM	AS	24.0	16.0	10:25 AM	75.0	39.5	0.5	Camino Real	2276	Recirculation	-	
02/23/22	10:42 AM	AS	25.0	15.0	10:45 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
02/25/22	10:53 AM	AS	25.0	15.0	10:55 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
02/28/22	10:23 AM	AS	24.0	16.0	10:25 AM	75.0	39.5	0.5	Camino Real	2276	Recirculation	-	
TOTAL VOLUME PUMPED FEBRUARY 2022										26143			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
03/02/22	10:33 AM	AS	24.0	16.0	10:35 AM	70.0	39.5	0.5	Camino Real	2276	Recirculation	-	
03/04/22	10:52 AM	AS	24.0	16.0	10:55 AM	70.0	39.5	0.5	Camino Real	2276	Recirculation	-	
03/07/22	10:22 AM	AS	24.0	16.0	10:25 AM	70.0	39.5	0.5	Camino Real	2276	Recirculation	-	
03/09/22	10:53 AM	AS	26.0	14.0	10:55 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
03/11/22	9:57 AM	AS	25.0	15.0	10:00 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
03/14/22	10:42 AM	AS	24.0	16.0	10:45 AM	70.0	39.5	0.5	Camino Real	2276	Recirculation	-	
03/16/22	10:43 AM	AS	25.0	15.0	10:45 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
03/18/22	9:42 AM	AS	25.0	15.0	9:45 AM	60.0	39.5	0.5	Camino Real	2130	Recirculation	-	
03/21/22	10:32 AM	AS	24.0	16.0	10:35 AM	70.0	39.5	0.5	Camino Real	2276	Recirculation	-	
03/23/22	9:03 AM	AS	25.0	15.0	9:05 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
03/25/22	10:02 AM	AS	25.0	15.0	10:05 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
03/28/22	11:43 AM	AS	24.0	16.0	11:45 AM	75.0	39.5	0.5	Camino Real	2276	Recirculation	-	
03/30/22	8:22 AM	AS	25.0	15.0	8:25 AM	65.0	39.5	0.5	Camino Real	2130	Recirculation	-	
TOTAL VOLUME PUMPED March 2022										28419			

Figure II.7.1
Camino Real Landfill
Leachate Field Measurements

Leachate Data					Pumping Data							Water Added* (gallons)	Notes
			Before Pumping				After Pumping						
Date	Time Measured	Monitored By	Depth to Leachate (ft)	Leachate Depth (ft)	Time Pumped	Time Elapsed (minutes)	Depth to Leachate (ft)	Leachate Depth (ft)	Company	Volume Pumped (gal)	Disposal Method		
04/01/22	9:32 AM	AS	25.0	15.0	9:35 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
04/04/22	10:53 AM	AS	24.0	16.0	10:55 AM	75.0	39.5	0.5	Camino Real	2276	Recirculation	-	
04/06/22	10:17 AM	AS	25.0	15.0	10:20 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
04/08/22	11:38 PM	AS	26.0	14.0	11:40 AM	60.0	39.5	0.5	Camino Real	1983	Recirculation	-	
04/11/22	11:37 AM	AS	24.0	16.0	11:40 AM	75.0	39.5	0.5	Camino Real	2276	Recirculation	-	
04/13/22	10:18 AM	AS	25.0	15.0	10:20 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
04/15/22	10:07 AM	AS	26.0	14.0	10:10 AM	70.0	39.5	0.5	Camino Real	1983	Recirculation	-	
04/18/22	10:22 AM	AS	24.0	16.0	10:25 AM	75.0	39.5	0.5	Camino Real	2276	Recirculation	-	
04/20/22	11:37 AM	AS	25.0	15.0	11:40 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
04/22/22	10:38 AM	AS	26.0	14.0	10:40 AM	65.0	39.5	0.5	Camino Real	1983	Recirculation	-	
04/25/22	11:07 AM	AS	24.0	16.0	11:10 AM	75.0	39.5	0.5	Camino Real	2276	Recirculation	-	
04/27/22	11:03 AM	AS	25.0	15.0	11:05 AM	70.0	39.5	0.5	Camino Real	2130	Recirculation	-	
04/29/22	10:28 AM	AS	26.0	14.0	10:30 AM	70.0	39.5	0.5	Camino Real	1983	Recirculation	-	
TOTAL VOLUME PUMPED April 2022										27685			

ATTACHMENT II.7-C

SUPPLEMENTAL LEACHATE LEVEL COMPLIANCE MEASUREMENT GUIDELINES

TO BE USED IN THE EVENT OF AUTOMATED SYSTEM MALFUNCTION/MAINTENANCE

Note: Submit Forms (as applicable) to NMED on a quarterly basis within 30 days of the associated monitoring event.

Step Procedures for Permanent Sump Inclined Riser Pipes Only

1. "Riser Length": This number has been pre-recorded on Line 1 of Forms 1 through 5.
2. "Leachate Compliance Length": This number has been pre-recorded on Lines 2 and 6 of Forms 1 through 5.
3. "Riser Length" (reconfirm): Using a rigid calibrated measuring pole (see Step 4.B below), reconfirm this measurement at the bottom edge of the riser pipe, as shown on Forms 1 through 5. Record this measurement on Line 3.
    - Note: The measuring pole must be calibrated in feet and inches; and should be at least 3 feet longer than the "Riser Length".
4. "Length to Leachate": After the pump, transducer, discharge pipe, and motor lead have been removed from the leachate extraction riser pipe, measure the fluid level in the riser pipe using either Procedure A or B, described below. Record this measurement on Lines 4 and 5.

    Procedure A – Portable Electronic Depth-to-Water Meter:

    - Lower the electronic depth-to-water meter probe and tape into the riser pipe until an audible tone is heard. The rigid measuring pole can be used to facilitate lowering the probe into the inclined riser pipe for permanent sumps.
    - At the tone, hold the tape against the bottom edge of the riser pipe as shown on Forms 1 through 5.
    - Note the measurement on the tape when held against the bottom edge of the riser pipe. Record this measurement on Lines 4 and 5.
    - Remove tape and probe, and thoroughly rinse both with either potable or distilled water. Do not use meter in groundwater monitoring wells.

    Procedure B – Rigid Calibrated Measuring Pole:

    - Affix a minimum 20-foot-long strip of "water contact indicator tape" to the end of the rigid calibrated measuring pole.
    - Lower the pole into the riser pipe until the "Riser Length" noted on Line 3 is reached.

- Withdraw the pole and note the length of the colored portion on the "water contact indicator tape".
- Subtract the length of the colored portion on the "water contact indicator tape" from the "Riser Length" measurement recorded in Step 1. Record the resulting number on Lines 4 and 5.

5. "Length to Leachate": Record measurement obtained from Step 4 on Line 5.
6. Subtract Line 6 from Line 5. Record this number on Line 7.
    - "Leachate Level Compliance": If number is positive (+), leachate level is in compliance.
    - "Leachate Level Compliance": If number is negative (-), remove leachate immediately.

ATTACHMENT II.7-D

LEACHATE FIELD MEASUREMENTS

Camino Real Landfill
Leachate Field Measurements

Leachate Level Data						Pumping Data			Notes
Date	Sump I.D.	Time	Monitored By	Depth to Leachate	Leachate Depth	Date	Company	Volume Pumped (gal)	

ATTACHMENT II.7-E

LEACHATE COLLECTION SUMP DESIGN

JONATHAN VINCENT QUEEN
NEW MEXICO
25844
PROFESSIONAL ENGINEER

9/26/22

CAMINO REAL LANDFILL
0601-667-11-06
LEACHATE SUMP DESIGN

REQUIRED: Size the leachate collection sump that will service Unit 2 and a small portion of Unit 4.

METHOD:

A. Determine the leachate production and the sump drainage area.
B. Determine geometry of sump and its corresponding storage capacity.
C. Assume pump size and determine the average pump cycle time.

REFERENCES:

1. Bass, J., *Avoiding Failure of Leachate Collection and Cap Drainage Systems*, Pollution Technology Review No. 138, Noyles Data Corporation, 1986.

2. Phillips 66 Driscopipe, *System Design*, 1991.

3. Heisler, Sanford I., P.E., Wiley Engineer's Desk Reference, John Wiley & Sons, Inc., New York, 1998.

SOLUTION:

A. Determine the leachate production and the sump drainage area.

The estimated leachate production rate based on pumping data is approximately than 2,044 gallons/acre/year.

Therefore, use 2,500 gallons/acre/year to provide a conservative design.

The area draining to the sump includes all of Unit 2 and a small portion of Unit 4. In addition, to provide a conservative design, it is assumed the overlined portion of Unit 1 also contributes to the sump.

Unit 2 Area =	124.2	acres
Unit 4 Area =	4.8	acres
Unit 1 Area =	12.0	acres
Total Drainage Area =	**141.0**	**acres**

The leachate production, V_C, is:

2,500 gal/ac/yr x 141 ac =	352,500	gallons/year
V_C =	965.8	gallons/day
V_C =	**129.1**	**cf/day**

B. Determine geometry of sump and its corresponding storage capacity.

Assumed porosity of drainage stone, P = 0.35

$$V_{\text{Daily Inflow}} = V_C / P$$

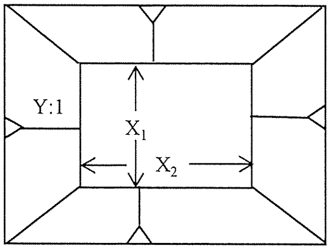
$V_{\text{Daily Inflow}}$ = 368.9 cf/day

Total sump volume:

$$V_{TOT} = 1/3\left(A_1 + A_2 + \sqrt{(A_1 \cdot A_2)}\right)h$$ (Ref. 3, page 17)

Where:

A_1 = Area of bottom of sump
A_2 = Area of top of sump
h = Depth of sump



Y = Slope of sump side walls
$A_1 = X_1 * X_2$
$A_2 = (X_1 + 2(h*Y))*(X_2 + 2(h*Y))$

X_1 (ft)	X_2 (ft)	Y (ft)	h (ft)	A_1 (ft^2)	A_2 (ft^2)	V_{TOT} (ft^3)
25	25	3	2.5	625	1,600	2,688

Compute the number of days storage provided for the following:

$$\text{STORAGE (Detention Time)} = \frac{V_{\text{TOT}}}{V_{\text{Daily Inflow}}}$$

Storage = 7.3 days

Sump provides storage for 7 day's worth of leachate production.

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO
NMED FACILITY PERMIT NOS. SWM-030738 AND SWM-030738(SP)

APPLICATION FOR PERMIT MODIFICATION AND RENEWAL

VOLUME II – LANDFILL MANAGEMENT PLANS
SECTION 8 – SPECIAL WASTE DISPOSAL MANAGEMENT PLANS

Prepared for

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September 2022

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1 INTRODUCTION

The Camino Real Landfill (CRLF) is an existing solid waste facility operating in compliance with its current Permits, SWM-030738 and SWM-030738(SP), and the New Mexico Environment Department (NMED) Solid Waste Rules (the Rules; 20.9.2-20.9.10 NMAC). The owner and operator of the Camino Real Landfill is Camino Real Environmental Center, Inc. (CREC).

CREC is seeking a Permit Modification (20.9.3.22 NMAC) and Permit Renewal (20.9.3.25 NMAC) for the CRLF to modify the existing permitted landfill configuration and to renew the current permit.

1.1 Site Location

The CRLF is an existing solid waste disposal facility that encompasses approximately 480 acres of land located at 1000 Camino Real Blvd. on the New Mexico (NM)/Mexico (MX) border in Sunland Park, New Mexico. The approximate geographic coordinates for the center of the CRLF site are: Latitude 31° 47' 24.7272" N and Longitude 106° 35' 32.6508" W.

The legal description of the site is summarized as follows:

> *A certain parcel of land situated within Section 12 and 13, Township 29 South, Range 3 East, New Mexico Principal Meridian, City of Sunland Park, Doña Ana County, New Mexico.*

CRLF is constructed, operated, monitored, and inspected in compliance with the Solid Waste Facility Permits granted by the NMED Solid Waste Bureau (SWB) pursuant to the Rules (20.9.2-20.9.10 NMAC).

1.2 Existing Permitted Landfill Unit Overview

MSW disposal and development at CRLF is defined by four "area fill" Units, i.e., 1 through 4, which are further divided into cells. Unit 1 (50 acres) is designated as closed. Unit 2 (124.2 acres) is an active landfill area. Unit 3 (60.5 acres) is permitted for waste disposal, and recently (2019) the first cell in this unit was developed. Portions of Unit 3 have been excavated to provide soils for ongoing operations. Unit 4 (73.0 acres) is located east of the current operations and is permitted but undeveloped. Soils from the Unit 4 area have been excavated to support the ongoing operation and the area has also been used to stockpile construction soils. Cell phasing within each unit is determined by operational conditions. This Application for Permit Modification and renewal addresses subgrade configurations in Units 3 and 4 and final contour design over all units.

1.3 Purpose

"Special Waste" is defined in 20.9.2.7.S(13) NMAC as "solid wastes that have unique handling, transportation, or disposal requirements to assure protection of the environment, and the public health, welfare and safety." This document presents the Special Waste Disposal Management Plans (DMPs) for the Camino Real Landfill (CRLF). These DMPs have been developed in accordance with the requirements set forth in the New Mexico Solid Waste Rules to address the types of special waste, characterization, and management practices:

- 20.9.3.9.C NMAC – Special Waste Disposal Management Plans
- 20.9.3.13.D NMAC – General Disposal Management Plans
- 20.9.8 NMAC – Special Waste Requirements

1.4 Organization

This section of the Application presents information for accepting, managing, and disposing of special wastes. In order to address the requirements of individual special waste streams, one general Disposal Management Plan (DMP); and three waste-specific DMPs have been developed to manage special wastes at CRLF. Each DMP has been prepared in accordance with the applicable requirements of 20.9.8 NMAC "Special Waste Requirements". Disposal of special wastes is anticipated for the duration of CRLF's operational lifespan.

The General Special Waste DMP (Section 2.0) addresses the applicable requirements for the special wastes CRLF is authorized (or proposing) to accept. In order to minimize redundancy among the waste-specific DMPs, the General Special Waste DMP (Section 2.0) provides information common to all special wastes proposed for acceptance. This common information includes: waste profiling requirements; prohibited wastes; employee training; operator certification; disposal procedures at the active fill face; manifesting; regulatory reporting, etc. Similarly, site maps and recordkeeping forms that are also common to the special wastes are included in Section 2.0.

As noted above, the management of a particular special waste requiring additional discussion or clarification is addressed in each separate waste-specific DMP. For example, the analytical testing requirements for sludges are unique; therefore, these testing requirements are discussed specifically in Section 3.0 – Sludge DMP. When managing sludge, CRLF follows the procedures outlined in both the General Special Waste DMP (Section 2.0), and the Sludge DMP (Section 3.0).

To provide operational flexibility and meet the region's growing disposal needs, additional Special Waste DMPs may be developed and submitted to the Department for approval.

2 GENERAL SPECIAL WASTE DISPOSAL MANAGEMENT PLAN

This General Special Waste Disposal Management Plan (DMP) has been prepared to address the requirements of 20.9.8 NMAC. Included in this DMP are procedures for the proper identification, treatment and disposal of special wastes to be managed at CRLF. Additional procedures for addressing other special wastes which may potentially require special handling are detailed in three separate waste-specific DMPs as follows:

Section 3.0	Sludge
Section 4.0	Petroleum Contaminated Soils (PCS)
Section 5.0	Industrial Solid Waste (ISW)

CRLF is currently permitted to accept sludge, PCS, and ISW.

2.1 Special Waste Evaluation Procedures

2.1.1 Special Waste Approvals and Personnel Qualifications

CRLF utilizes in-house expertise and outside consultants as necessary, for evaluation of special waste streams (review of Special Waste Permit Application, laboratory analytical documentation, manifests, etc.). Evaluation personnel are professionals with several years of experience in the solid waste industry; and are qualified due to their training and work experience in the management and evaluation of solid wastes. They are familiar with and knowledgeable of the Federal and State requirements related to the management of solid wastes and are able to recognize waste streams which are prohibited from disposal. They also possess the skills needed to determine the acceptability of the waste for management at CRLF. These skills include:

1. Understanding chemical and physical data on the waste profile/manifest
2. Ability to read and interpret analytical laboratory results
3. Possessing a working knowledge of the driving regulations such as United States (US) Department of Transportation (DOT), US Environmental Protection Agency (EPA) Land Disposal Restriction (LDR), and NMED Special Waste

4. Understanding the CRLF Permit requirements related to the acceptance of special wastes
5. Having knowledge of the operational capabilities that allow the facility to manage the waste in a manner which is protective of human health and the environment

2.1.2 Profile Decision Evaluation Logic

The profiling process is a pre-acceptance control procedure that will be used to determine the acceptability of special waste for management at CRLF. Acceptability is determined by a technical evaluation, which verifies that the management of the waste is within Permit conditions or the limitations of existing regulations; and confirms that the facility has the capability to manage the waste in a manner that protects human health and the environment. The special waste stream evaluation that is conducted by CRLF personnel will conclude with a decision to accept or deny the waste. This evaluation process consists of the following:

1. Obtaining pertinent chemical data, physical data, and "acceptable knowledge" on the special waste profile.
2. Obtaining generator-provided lab results or a sample, if necessary. Lab data may not be required if approval staff determine that the pre-acceptance documentation provides sufficient information to maintain compliance with Permit and operational constraints (i.e., acceptable knowledge").
3. Confirming the generator's waste characterization; as well as US DOT, US EPA LDR Notification/Certification, NMED Special Waste.
4. Evaluating other supporting documentation such as Material Safety Data Sheets (MSDS), product ingredients, etc.
5. Obtaining or evaluating NMED-approved supporting documentation, such as DMPs for sludge, special liquids management approvals, waste characterization confirmations, etc.
6. Review of the Special Waste Permit Application (Section 2.1.1) and the Manifest.

The profiles will be reviewed for completeness of the requested information, adequacy of the descriptions, consistency of the information, accurate and proper reporting, or other information that may require additional review of the waste. Laboratory analytical results will be compared to the profiled information for consistency of the data and verified to ensure that those constituents that are present on the profile are shown on the lab results as being below federal and state limitations for disposal. The approval may require supplemental information to finalize evaluation of the waste stream, including:

1. Clarifications/additional descriptions of the chemical and physical properties of the waste.
2. Clarification of the process generating the waste (i.e., acceptable knowledge).
3. NMED concurrence of generator waste characterizations for RCRA, Land Disposal Restrictions of 40 CFR Part 268 or State Special Waste Status.
4. Additional laboratory analytical testing.

The special waste profile evaluation will be concluded with documentation of the decision regarding the acceptability of the waste, and may include any special recommendations related to additional testing and the proposed method of management. A waste may be rejected during the pre-acceptance process for one of the following reasons:

1. The waste generator provides incomplete or outdated information.
2. The waste type is specifically excluded from acceptance at the facility per regulatory restrictions.
3. The waste cannot be treated or disposed of at the facility as a result of health, safety, or environmental considerations.

Should the waste be rejected for any of the above criteria, the generator will be instructed to comply with CRLF's additional requests, or contact NMED SWB for other disposal options.

2.1.3 Special Waste Permit Application (SWPA)

In order to evaluate special wastes for treatment and disposal, CRLF will determine if the generator has satisfied the waste characterization requirements of 20.9.8 NMAC, other applicable regulations, and the applicable DMP(s). Each generator will be required to complete the CRLF Special Waste Permit Application (SWPA; Attachment II.8-A), which requires the following information:

- Waste generator name and address
- Waste description
- Waste quantity
- Frequency of disposal/schedule
- Process generating the waste
- Location of waste generation
- Generator representation/contact information
- Transporter information

- Physical and chemical characteristics of the waste
- Non-hazardous determination
- Waste Certification Statement

The information required for the SWPA fulfills the documentation requirements listed in 20.9.8.11 NMAC, including analytical results from waste characterization testing (discussed further in Section 2.3), if applicable. In addition, the SWPA also requires the generator to execute a Waste Certification Statement affirming that the SWPA information is true and correct, and that the analytical test results were derived from a representative sample.

On an as-needed basis, CRLF reserves the right to request that special waste generators provide a new SWPA. The request will be based on CRLF's review of SWPAs for incoming waste streams to confirm that the continued receipt of a waste stream is acceptable. Acceptability is determined by a technical evaluation, which verifies that the management of the waste is within the limitations of existing regulations and permit conditions; and confirms that CRLF has the capability to manage the waste in a manner that is protective of human health, welfare, and the environment.

Completion of the SWPA may be supplemented by written communication, phone survey or other methods which will accurately identify waste types. When supplementation via telephone or email is being provided to the SWPA, a signature from the generator relaying the information is required on the Waste Certification Statement.

Descriptive and accurate information regarding the waste-generating process is essential for the SWPA to be most effective. For example, depending on the SWPA information, supplemental analyses may be appropriate (e.g., based on materials used in the process, or suspected contaminant source) as stated by 20.9.8.11.A(1) NMAC.

Changes made to an initial SWPA submittal will be recorded by the CRLF professional making the changes, and the reasons for the changes will also be recorded. If these changes affect the precautions, conditions, or limitations of managing the waste, the generator will be informed of the changes. The following protocol (Table II.8-1) summarizes the process CRLF utilizes when evaluating special wastes for treatment and disposal:

Table II.8-1
Special Waste Acceptance Protocol

1. The generator must complete and submit a Special Waste Permit Application (SWPA) for the waste and sign the SWPA Waste Certification Statement (Attachment II.8-A).
2. CRLF will review the SWPA and supporting information to ensure that the generator has adequately characterized the waste. The information provided by the generator must be sufficient to assign conditions/limitations on managing the waste (if appropriate). CRLF will review all generator-provided documentation to ensure that the waste is acceptable for disposal.
3. If the waste is determined to be acceptable, applicable conditions/limitations will be described in the decision to accept the material (if appropriate).
4. CRLF will notify the generator of conditions/limitations that apply to managing the waste, and that the generator is required to comply with all conditions/limitations.
5. CRLF will inform the generator that the delivery of special waste for treatment or disposal must be scheduled in advance.

For each SWPA submitted to CRLF, a decision to approve or reject the waste for treatment or disposal will be documented and maintained on-site as part of the Facility Operating Record.

2.1.4 Prohibited Wastes

Generator information provided on the SWPA and reviewed by CRLF is sufficient to identify and preclude unacceptable wastes from being accepted at CRLF. Generators with unacceptable wastes will be referred to NMED SWB for disposal options.

2.1.5 Manifesting

CRLF requires each generator and transporter of special waste to complete a Non-hazardous Special Waste Manifest (or equivalent document) prior to the delivery of special waste for treatment or disposal. After the special waste has been unloaded, the transporter returns to the Gate House to obtain a signed copy of the Manifest that acknowledges CRLF receipt of the special waste. CRLF will retain one completed copy of the manifest for the Facility Operating Record. The remaining two manifest copies are provided to the transporter, and these copies are to be divided between the transporter and generator.

An example Non-hazardous Special Waste Manifest used at CRLF is provided as Attachment II.8-B. This example Manifest fulfills the requirements of 20.9.8.19 NMAC. Prior to arrival at CRLF, special waste generators are notified that an CRLF manifest (or approved equivalent) is required.

2.1.6 Laboratory Testing – Analytical Requirements

CRLF will evaluate the laboratory analytical results for tested special waste to determine if the waste is acceptable for treatment and disposal, as applicable. Laboratory analyses acceptable for evaluation will be performed in accordance with the testing requirements for special waste listed in 20.9.8.11.B and C NMAC. In lieu of laboratory analytical results, 40 CFR 262.11 provides that certified generator's knowledge of the waste and process generation of the waste is an acceptable alternative for most industrial waste types (i.e., acceptable knowledge).

The analytical test results will be valid for up to three years, after which time the generator is required to complete a new SWPA, including updated laboratory analytical test results, unless an alternate schedule is approved by SWB. When analytical test results are provided by the generator as part of the SWPA, the generator is required to sign a Waste Certification Statement that affirms that the submitted information is true and correct (Attachment II.8-A).

2.1.7 Acceptable Laboratories

The laboratories used for analysis of special waste must satisfy the Quality Assurance/Quality Control (QA/QC) requirements and test procedures listed in 20.9.8.11.B and C NMAC, in addition to CRLF's internal guidelines.

2.2 Operational Procedures

2.2.1 Employee Training

CRLF employs operating personnel that have received specialized training for identifying prohibited wastes, including attendance and completion of the NMED-required Solid Waste Facility Operator Training Certification course. CRLF employees are trained upon hire, and annually thereafter. Training documentation is maintained in the Facility Operating Record.

The CRLF Manager manages overall landfill operations. If necessary, the Manager will consult with technical specialists regarding unique special waste streams that might require individual handling procedures. An updated list of Certified Operators will be provided to NMED when additional staff are hired, trained, and certified. Operator Certification documentation will be maintained in the Facility Operating Record (also see Volume I Section 7).

At a minimum, landfill inspection personnel will be trained to identify suspicious wastes based on visual (and olfactory) characteristics in addition to the waste screening procedures outlined in the Operator's Certification and waste screening courses conducted by NMED, SWANA, etc. Some of the indications that they will be trained to identify include:

- Hazardous placarding or markings
- Liquids
- Powders or dusts
- Sludges
- Bright or unusual colors
- Drums or commercial size containers
- "Chemical" odors
- Red bag waste (infectious waste)

Whenever a suspicious waste is found, the landfill inspection personnel follow specific procedures listed in the Waste Screening and Inspection Plan (Volume II Section 10) that may include:

- Segregating suspicious waste
- Identifying the unacceptable waste by characteristic, estimated quantity, transport vehicle, and the names and addresses of those associated with the waste load
- Questioning the driver of the vehicle
- Reviewing the manifest, if used
- Contacting the possible source and notifying the originator of waste pursuant to the regulations
- Denying access to the vehicle
- Contacting the NMED Solid Waste Bureau or Hazardous Waste Bureau, whichever is applicable, if required
- Using protective equipment
- Contacting consultant or laboratory, if necessary
- Calling an emergency response agency, if required

2.2.2 Waste Arrival

Vehicles hauling special waste access CRLF using Camino Real Drive. Each special waste hauler is required to first stop at the Gate House (Figure II.8.1), where information regarding the generator, waste type, waste quantity, and transporter will be compared to the information on the approved SWPA. This information will be reviewed, verified, and recorded. For the majority of special waste deliveries which do not require special handling, the hauler will be directed to the active fill face for disposal. Exceptions to this include special wastes requiring treatment or for temporary storage. Special waste is anticipated to originate primarily from sources within Doña Ana County, the city of El Paso, and the southeast NM region, although special waste may also originate from other areas of NM or from out-of-state (e.g., Texas). Table II.8-2 shows potential quantities over the 20-year permit term:

2.2.3 Waste Screening and Inspection

Landfill personnel are trained to identify prohibited and suspicious wastes as part of the waste screening and inspection procedures outlined in the Waste Screening and Inspection Plan (Volume II Section 10). The minimum sampling frequency employed at CRLF is one load of waste per day, or 1% of the total average vehicles per day, whichever is greater. Loads of incoming waste are selected randomly for inspection. All incoming waste loads are subject to load inspection process, including private vehicles.

Table II.8-2

Anticipated Special Waste Receipts

Special Waste Type	Current Anticipated Annual Amount[1, 2]	Anticipated Annual Amount at End of 20-Year Permit Term[1, 2]
Sludge[3]	3,000 tons	4,000 tons
ISW	15,000 tons	15,000 tons
PCS[3]	600 tons	1,000 tons

1 Estimated rates only. Rates subject to change.
2 Actual special waste receipts will be documented in the CRLF Facility Operating Record and in the Annual Reports to NMED.
3 Assumed average annual increase of 1%.

At least one of the weekly random load inspections will be conducted on a load of special waste, if received. Special waste inspections include review of the SWPA (Attachment II.8-A) and the Non-Hazardous Special Waste Manifest (Attachment II.8-B). Documentation of special waste inspections will be recorded on a Load Inspection Form (Attachment II.8-C) and maintained as part of the Facility Operating Record.

2.2.4 Waste Storage

Typically, special wastes will be incorporated directly into the active fill face with municipal solid waste (MSW) the same day as received (see Plan of Operations Volume II Section 2). If special wastes are delivered to CRLF with insufficient documentation, they are refused until such time that proper documentation is obtained. In the event a special waste cannot immediately be incorporated into the active fill face, they will be stored on site in covered, leak-proof containers with appropriate labels. An example container label is provided as Attachment II.8-D. Storage of special waste at CRLF is limited to a maximum of 45 days, unless a longer duration is specifically approved by the Department. The special waste storage area is shown on Figure II.8.1.

In addition, PCS may be stored in bermed remediation areas within Units 2 and 3 for short durations prior to treatment and disposal. The bermed areas are required to be over a lined cell that already contains MSW and at least one foot of intermediate cover, or a bermed area located in a permitted (but not yet constructed) unit where a liner and MSW disposal are planned for installation/placement in the future. Additional information regarding storage of PCS is provided in Section 4.0

2.2.5 Waste Treatment

Special wastes disposed of at CRLF are required to be treated prior to delivery as described in the special waste DMPs provided in Sections 3.0 – 5.0. PCS (Section 4.0) will not be treated on-site. CRLF does not currently accept PCS containing petroleum products at concentrations greater than those listed in 20.9.8.15.C NMAC. If a waste is subject to becoming windborne, it may be wetted down prior to or during the unloading process, as needed.

2.2.6 Waste Disposal

Details regarding the disposition of different special waste streams are described in the specific DMPs provided in Sections 3.0 – 5.0. Once a special waste delivery has been reviewed and inspected, and treated as necessary for disposal, landfill personnel will direct the special waste hauler to a specific unloading position adjacent to the active fill face. The special waste will typically be unloaded and incorporated with that day's MSW. To minimize potential odor impacts, sludge may be unloaded at a location that is downwind of active fill face activities and incorporated and covered immediately.

Special wastes and MSW will be compacted and covered with daily cover soil as soon as practical. If a certain special waste requires individual handling, the material will be unloaded at a separate location near the active fill face to facilitate this activity. The special waste will then be unloaded, moved to the active fill face by CRLF equipment, and covered with soil. The hauler will then return to the Gate House to complete documentation requirements (Section 2.1.5).

2.3 Contingency Plan

2.3.1 Prohibited Wastes

If prohibited waste is identified at CRLF, the material will be segregated until adequate documentation is obtained to determine the appropriate management method. Access to the suspect waste will be controlled using flagging, barriers or similar equipment. Furthermore, all reasonable efforts will be implemented to identify the hauler and generator of the material. Unacceptable waste is managed in accordance with CRLF's Contingency Plan (Volume II Section 3). As required, NMED will be notified within 24 hours of when prohibited waste is identified.

2.3.2 Spilled Material

If a special waste is inadvertently spilled within CRLF property, the material will be cleaned up promptly and transported to the active fill face for disposal. In the unlikely event the material cannot be removed in a timely manner, or if precipitation is occurring or threatening, the spilled material may be covered by waterproof tarps to protect it from precipitation or wind dispersal. In addition, diversion berms may be constructed to isolate the material and minimize potential stormwater impacts. After the spilled special waste clean-up and disposal are complete, the location of the spill will be regraded to pre-existing conditions, and the event will be documented in the Facility Operating Record. Contingency practices applicable to each of the specific special wastes are described in the specific DMPs provided in Sections 3.0 through 5.0, and general Contingency Plan provisions are outlined in Volume II Section 3.

2.3.3 Personnel Protection/First Aid/Safety Equipment

Personal protective equipment (PPE) necessary for general on-site safety, as well as for emergency response, is stored in the Maintenance Facility/Administration Center. Available PPE includes:

- Tyvek suits
- Gloves
- Vests
- Safety glasses
- Ear protection, etc.

First aid kits are maintained in the Gate House, the Maintenance Compound, and select site vehicles. Additional safety equipment located in the Administration Center includes an eye wash station and an emergency shower. Prominent signs identify the location of health and safety equipment, and emergency response items (e.g., fire extinguishers). A list of CRLF emergency equipment (Attachment II.3-C) is provided in the Contingency Plan (Volume II Section 3).

2.4 Documentation

2.4.1 Recordkeeping

CRLF maintains records of its Special Waste Management Program in the Facility Operating Record. This information includes, but is not limited to:

- SWPAs submitted by generators (Attachment II.8-A)
- Completed Non-hazardous Special Waste Manifest (Attachment II.8-B)
- NMED Annual Report information (Section 2.4.2)
- Records of spills or releases
- Location of PCS treatment at CRLF (consistent with the site's grid coordinate system)
- Locations of special waste disposal at CRLF (consistent with the site's grid coordinate system)

2.4.2 Annual Reporting

In accordance with 20.9.5.16.D NMAC, records regarding special waste disposal will be included in Annual Reports submitted to NMED. This information includes:

- The type and weight or volume of waste materials received each month and the country (if other than the U.S.), state, county, and municipality in which the waste originated.
- The type and weight or volume of solid waste received from each commercial hauler that delivered waste to the facility.
- The weight or volume of each type of special waste received at the facility in the previous year.

In accordance with 20.9.5.16.F NMAC, special waste records are maintained by CRLF in the on-site Facility Operating Record.

3 SLUDGE DISPOSAL MANAGEMENT PLAN

This Sludge Disposal Management Plan (DMP) addresses the requirements of 20.9.8.16 NMAC (sludge disposal), and 20.9.3.9.C(1-6) NMAC (special waste disposal management plans). The procedures in this DMP will be implemented along with the General Special Waste DMP procedures outlined in Section 2.0.

Sludge is defined in 20.9.2.S(7) NMAC as the following:

> "Sludge" means any solid, semi-solid, or liquid waste generated by a municipal, commercial, or industrial waste water treatment plant, water supply treatment plant, or air pollution control facility, but does not include treated effluent from a waste water treatment plant.

CRLF currently (2019 Annual Report) accepts approximately 1,536 tons/year. Information in this Sludge DMP includes:

- Laboratory testing requirements for sludge characterization/waste profiling
- Limiting the daily receipt of sludge (proportionate to MSW) to minimize the potential for leachate generation
- Sludge testing frequency
- Acceptable sludge disposal locations

3.1 Sludge Waste Profiling and Analysis

3.1.1 Sludge Waste Profiling

20.9.3.9.C(1) NMAC requires a description of methods to identify special wastes, including the use of test parameters in 20.9.8.11 NMAC. Methods used to identify sludge waste include:

- Review of the SWPA (Attachment II.8-A)
- Review of laboratory analytical results required per 20.9.8.11.A NMAC
- Review of detailed descriptions of the generator's knowledge of specific wastes required per 20.9.8.11.A NMAC

- Review of the special waste manifest required per 20.9.8.19 NMAC
- Visual inspection of the containers, labels, and waste itself; prior to acceptance and at the active fill face (or other designated screening or storage area) as the waste is unloaded

Generators of sludge are required to follow the waste profiling requirements of Section 2.0, including completion of the SWPA (Attachment II.8-A). In addition, sludge generators must also meet the specifications of 20.9.8.16.D NMAC – Minimum Test Parameters for Landfill Disposal of Sludge (Table II.8-3) as well as any other parameters specified by NMED. Water treatment plant sludge generators must comply with the reduced testing requirements provided in Table II.8-4, as well as any other parameters specified by the Department. The sludge generator must utilize a laboratory that follows U.S. EPA quality assurance/quality control (QA/QC) procedures in accordance with U.S. EPA approved analytical methods, or other methods acceptable to NMED (20.9.8.11 NMAC).

20.9.8.16.D NMAC requirements apply to municipal, industrial and commercial generators of sludge. After reviewing the SWPA submitted by the generator, CRLF may require additional information and/or analytical testing to confirm that the sludge is not hazardous, and is acceptable for disposal. Sludge is required to have been dewatered and stabilized prior to delivery, and have a varying solids content.

3.1.2 Waste Analysis and Generator Requirements

Consistent with 20.9.8.16.D NMAC, sludge generators are required to comply with the minimum testing requirements for sludge in Table II.8-3, or Table II.8-4 for water treatment plant sludge. If a commercial or industrial process has generated the sludge, CRLF may require information and/or analytical testing to confirm that the sludge is acceptable for disposal and is not hazardous. The Generator will identify the laboratory used to analyze sludge samples and will provide certification that, to the best of the Generator's knowledge, the laboratory follows QA/QC procedures in accordance with USEPA-approved methods. Prior to CRLF agreeing to accept a generator's sludge for disposal, the sludge testing laboratory's QA/QC plan must have been approved by NMED (20.9.9.18 NMAC).

Table II.8-3
Testing Requirements for Sludge

Parameter (Test Method)	Limit
Paint Filter Liquids Test (EPA Method 9095)	No free liquids
Percent Solids	Varies
pH	2.0 – 12.5 (acceptable range)
PCBs	< 50 mg/kg
TCLP (EPA Method 1311)	
Arsenic	5.0 mg/L
Benzene	0.5 mg/L
Cadmium	1.0 mg/L
Chlordane	0.03 mg/L
Chromium	5.0 mg/L
2,4-Dichlorophenoxy-acetic acid	10.0 mg/L
Lead	5.0 mg/L
Lindane	0.4 mg/L
Mercury	0.2 mg/L
Methyl ethyl ketone	200.0 mg/L
Toxaphene	0.5 mg/L

Table II.8-4
Testing Requirements for Water Treatment Plant Sludge

Parameter (Test Method)	Limit
Paint Filter Liquids Test (EPA Method 9095)	No free liquids
Percent Solids	(no specified limits)
pH	2.0 – 12.5 (acceptable range)
TCLP (EPA Method 1311)	
Arsenic	5.0 mg/L
Cadmium	1.0 mg/L
Chromium	5.0 mg/L
Lead	5.0 mg/L
Mercury	0.2 mg/L

3.1.3 Sludge Sampling Frequency

The minimum sludge testing frequency is one sample per 100 cubic yards of sludge, consistent with 20.9.8.16.C(1) NMAC, unless otherwise approved by NMED. If a sludge generator does not generate more than 100 cubic yards per 12-month period, the generator must complete and submit a new SWPA before 12 months have elapsed since the date of original laboratory testing.

If a generator believes that the composition of sludge is homogeneous, the generator may prepare a request for an Alternate Frequency of Sampling for NMED review and approval (20.9.8.16.C(1) NMAC). For sludges which were previously approved for disposal at other facilities, previous sludge characterization records and analytical test results will be allowed to assist the generator in demonstrating sludge homogeneity. Sludge accepted for disposal at CRLF is required to be dewatered and stabilized prior to receipt.

3.2 Operational Procedures

3.2.1 Sludge Transportation and Arrival

Transporters of sludge are required to register with NMED to haul special waste and shall comply with the requirements of 20.9.3.31 NMAC (Registration of Commercial Haulers and Haulers of Special Waste). Sludge is received primarily in 10 – 20 cubic yard loads in covered dump trucks (or equivalent), and these transport vehicles are required to meet leak-resistant criteria. Vehicles hauling sludge access the CRLF using Camino Real Drive (Figure II.8.1). Each of these roads is suitable for the anticipated daily traffic loads for the facility.

3.2.2 Sludge Disposition

Sludge disposal is conducted only in lined landfill cells equipped with leachate collection systems and stormwater controls. Special handling requirements for sludge include the restriction that sludge be placed no closer than 10 feet above the floor of the liner/leachate collection system; and no closer than 20 feet from the sidewall liner. The objectives of these setbacks include:

- Using the underlying waste to absorb moisture in the sludge and prevent "short circuiting" of the leachate collection process.
- Allowing the waste layer to filter solids from the sludge to restrict solids entry into the leachate collection system.
- Restricting potential landfill gas accumulation adjacent to the floor and sidewall liners.

When sludge is incorporated with MSW, it is covered with at least 6 inches of soil or 12 inches of other solid waste by the end of each operating day. For deliveries with odor potential, the sludge may be unloaded at the most downwind portion of the active fill face, and covered immediately with soil or other solid waste. CRLF does not store or treat sludge on-site, as it will be immediately incorporated into MSW cells once approved for disposal; and loads of sludge without proper documentation or manifest are refused until such a time that complete documentation is made available.

However, should temporary storage be required, sludge will be stored in enclosed leak-resistant, containers within the Special Waste Storage Area identified on Figure II.8.2. Stored waste will be clearly marked with labels identifying waste type, generator, potential hazards, and special handling instructions. Waste will not be stored for longer than 45 days without specific Department approval.

3.2.3 Notification Procedures

20.9.3.9.C(3) NMAC requires procedures for notifying NMED in the event wastes either fail the tests listed in 20.9.8.11 NMAC, or prove not to be one of the listed special wastes. If tests listed in 20.9.8.11 NMAC fail, or the waste proves not to be sludge waste (or one of the other approved special wastes), then NMED SWB will be notified within 24 hours.

3.2.4 Sludge Waste Tracking

20.9.3.9.C(4) NMAC requires a description of the tracking system to be used to:

(a) compile and record the amounts and types of wastes received

(b) identify the area or disposal coordinates where the waste was placed in the disposal cell

(c) complete the manifest requirements of 20.9.8.19 NMAC

CRLF will include a copy of the SWPA, and a copy of the special waste manifest (Attachment II.8-B) in the daily operating record in compliance with 20.9.8.19.A-G NMAC. In addition, CRLF personnel will record typical waste receipts information per 20.9.5.16.A NMAC (i.e., type, weight, origin, hauler name, any handling problems or emergency activities, etc.) in its electronic records system as part of the daily operating log. The disposal area coordinates for the special waste will be recorded using a GPS device and recorded in the daily operating log. CRLF personnel will review the manifest for the information required by 20.9.8.19.A NMAC and the appropriate signatures (generator, haulers, and storage facilities). CRLF personnel will sign the manifest once it is determined that the information is accurate. Any discrepancies will be reported to the involved parties and NMED SWB within 24 hours. CRLF will return the original signed manifest for the generator to acknowledge receipt within 30 days. A copy of the manifest will be retained by CRLF and kept in the Facility Operating Record.

3.2.5 Sludge Contingency Plan

20.9.3.9.C(5) NMAC requires a description of emergency and mitigation measures in case of a special waste spill or leak. CRLF is permitted to accept only non-hazardous MSW and specific special wastes. The CRLF Contingency Plan is provided as Volume II Section 3. The Waste Screening and Inspection Plan (Volume II Section 10) will be enforced at the Gate House and the fill face (for direct disposal), to preclude acceptance of unauthorized wastes. The following implementation and notification procedures will be followed in the event of an emergency involving a release of sludge waste:

1. The employee who first becomes aware of the spill/release will immediately notify the CRLF Emergency Coordinator (EC; Primary or Alternate).
2. The employee(s) at the scene of the spill or release will immediately initiate actions within the scope of their training to contain the release and prevent the spread and/or windblown dispersion of the spilled materials.
3. The EC will assess the source, amount, and extent of the released materials and determine possible hazards to human health or the environment.
4. The EC's assessment of the emergency situation will be the basis for deciding if additional resources are required (e.g., personnel, equipment), as well as to notify the appropriate local and state authorities, including NMED SWB, as necessary.
5. If the EC's assessment indicates a need to notify appropriate state and local agencies, he/she will do so immediately by telephone.
6. Released/spilled special waste will be disposed of at the active fill face.

3.2.6 Sludge Special Waste Requirements

Per 20.9.3.9.C(6) NMAC, special waste disposal management plans are required to include a description of the procedures implemented to meet the applicable special waste requirements listed in 20.9.8.12-17 NMAC. The procedures to meet the applicable requirements for disposal of sludge waste as specified in 20.9.8.16 NMAC will be followed as described in this Special Waste Disposal Management Plan for sludge waste.

4 PETROLEUM CONTAMINATED SOILS DISPOSAL MANAGEMENT PLAN

This Petroleum Contaminated Soils (PCS) DMP addresses the requirements of 20.9.8.15 NMAC (disposal of PCS), and 20.9.3.9.C(1-6) NMAC (special waste disposal management plans). PCS are soils contaminated with petroleum products originating from sources such as from a motor oil or gasoline spill, fuel oil spill, or remediation project. The procedures in this DMP will be implemented in conjunction with the General Special Waste DMP procedures outlined in Section 2.0. The procedures in this PCS DMP provide additional information regarding:

- PCS evaluation procedures
- PCS treatment prior to disposal
- Laboratory testing requirements for waste profiling and to establish when PCS treatment is complete
- PCS waste manifesting requirements
- The option for limited PCS storage (prior to treatment or disposal)
- Providing operational flexibility to use treated PCS on-site as a beneficial resource

4.1 PCS Evaluation Procedures

4.1.1 PCS Waste Profiling and Analytical Testing

20.9.3.9.C(1) NMAC requires a description of methods to identify special wastes, including the use of test parameters in 20.9.8.11 NMAC. Methods used to identify PCS include:

- Review of the SWPA (Attachment II.8-A)
- Review of laboratory analytical results required per 20.9.8.11.A NMAC
- Review of detailed descriptions of the generator's knowledge of specific wastes required per 20.9.8.11.A NMAC
- Review of the special waste manifest required per 20.9.8.19 NMAC

- Visual inspection of the containers, labels, and waste itself, prior to acceptance and at the active fill face as the waste is unloaded

In addition to the Section 2.0 procedures, CRLF requires that, at a minimum, each PCS waste delivery be tested for the following constituents:

- Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX)
- Total Petroleum Hydrocarbons (TPH)
- Paint Filter Test (PCS containing free liquid will not be accepted per 20.9.8.15.B NMAC)
- Supplemental analyses as deemed appropriate (e.g., based on the contaminant source or waste generating process, per 20.9.8.11 NMAC). Supplemental analyses may be required by either CRLF or NMED.

4.1.2 PCS Sampling Frequency

The frequency of sampling will be one representative sample per 100 cubic yards of contaminated soil, unless an alternate frequency is approved by the Secretary upon demonstration that the soil is homogeneous. Copies of laboratory analytical results will be kept in the Facility Operating Record. If a PCS generator does not generate more than 100 cubic yards per 12-month period, the generator must complete and submit a new SWPA before 12 months have elapsed since the date of the previous laboratory testing.

If a generator believes that the composition of PCS is homogeneous, the generator may prepare a request for an Alternate Frequency of Sampling for the Department review and approval (20.9.8.15.A(2) NMAC). For PCS that was previously approved for disposal at other landfills, previous PCS characterization records and analytical test results may be allowed to assist the generator in demonstrating soil homogeneity.

4.2 Operational Procedures

4.2.1 PCS Waste Arrival

PCS are delivered in covered dump trucks, roll-off containers, or equivalent, which are required to meet leak-resistant criteria. Transporters of PCS must be registered with NMED to haul special waste and shall comply with the requirements of 20.9.3.31 NMAC (Registration of Commercial Haulers and Haulers of Special Waste). After the PCS hauler checks in at the Gate House, the vehicle is directed to one of two locations:

- To the fill face for disposal, if the PCS already meets the specifications listed in 5.2.6
- To the designated remediation area for the treatment

Information regarding PCS disposal at the fill face is provided in Section 2.0, while PCS treatment is discussed below.

4.2.2 PCS Treatment Area Preparation

PCS received for treatment will be remediated only within the boundaries of Units 2 and 3. Prior to unloading PCS for treatment, the area will be prepared in the following manner:

- The area will be graded to remove any vegetation and surface irregularities.
- The surface will be inspected for large cracks. If large cracks are present, they will be backfilled with on-site soil to prevent infiltration of precipitation.

4.2.3 Stormwater Control

After the surface of the treatment area has been prepared, but before the PCS is unloaded, a minimum 1' high berm will be constructed around the treatment area perimeter. The berm will prevent stormwater run-on into the treatment area, and runoff from leaving the treatment area. At the downslope end of the treatment area, the perimeter berm may be increased in height to contain PCS runoff that accumulates within the berm. When construction of the perimeter berm is complete, PCS unloading may begin.

4.2.4 PCS Storage

While it is anticipated that PCS will typically be disposed of upon arrival, it may be stored (up to 45 days) temporarily as allowed by 20.9.8.15 NMAC. PCS may be stored within a bermed PCS treatment area overlying Units 2, 3, and 4. During temporary PCS storage, CRLF will inspect and maintain the integrity of the perimeter berm. Consistent with prescribed PCS storage practices, PCS storage/treatment areas are located separate from the existing fill face and distant from the landfill entrance to minimize potential human exposure or odors. PCS may also be stored in labeled leak-resistant containers within the Temporary Special Waste Storage Area (Figure II.8.2).

4.2.5 PCS Treatment Area Locations

PCS may be treated at locations within Units 2 and 3 as follows:

- Within lined cell areas that have received MSW and intermediate cover.

- Within areas that have not yet been constructed, but are permitted for disposal. These areas include locations that will be lined in the future, consistent with the approved Permit.

4.2.6 PCS Treatment

PCS is spread in thin lifts no greater than six inches thick, and the PCS is diked or turned over at least once every two weeks during peak weather conditions to enhance the volatilization of volatile organic compounds (VOCs) and mitigate potential odors. Consistent with the site's existing Title V Operating Permit P186L, emissions of VOCs from treated PCS are projected to be approximately 1.35 tons/yr. No air quality standards apply to the process, and potential VOC emissions from the PCS landfarm are provided to NMED Air Quality Bureau on a semi-annual basis. During non-optimal conditions, such as cold periods, when disking at the required two-week frequency is detrimental to bioremediation, the frequency and depth of disking may be modified to maximize bacterial growth. During disking and turning, water may be sprayed on the PCS to control dust and promote bioremediation.

The collection and analysis of a composite sample will be used to evaluate the extent of PCS remediation. Four samples of the treated PCS will be collected at locations that are spatially representative of the treatment area; and where the soil appears to be the most heavily contaminated. The samples will be composited in a clean, laboratory-supplied sample container, and the container will be labeled and placed in a cooler with ice to maintain the temperature near 4°C. Chain-of custody documentation will be prepared and will accompany the sample until delivery to the laboratory.

Remediation will be deemed adequate when an analysis of the treated PCS meets the criteria of 20.9.18.15. CNMAC as summarized below:

- The sum of Benzene, Toluene, Ethlybenzene and Zylene (BTEX) isomer concentrations is less than 500 mg/Kg, and
- Benzene is less than 10 mg/Kg, and
- The TPH concentration is less than 1,000 mg/Kg.

Results of sampling and analysis to confirm that PCS remediation is complete will be maintained in the Facility Operating Record.

4.2.7 PCS Beneficial Use

PCS may be used for beneficial use on-site, or disposed of at the fill face. Beneficial on-site use will include deployment as daily and intermediate cover, except on exterior sideslopes.

4.2.8 Notification Procedures

20.9.3.9.C(3) NMAC requires procedures for notifying the Department in the event wastes either fail the tests listed in 20.9.8.11 NMAC, or prove not to be one of the listed special wastes. A written report is submitted to NMED summarizing remediation completion. While the report is being reviewed by NMED, CRLF may transport treated soils to a temporary storage location (within Units 2 and 3) so as to not interfere with daily operations. If tests listed in 20.9.8.11 NMAC fail, or the waste proves not to be PCS waste (or one of the other approved special wastes), then the NMED SWB will be notified within 24 hours. Upon Department approval of the report, the treated soil may be left in place, removed for beneficial use, or disposed of at the fill face.

4.2.9 PCS Waste Tracking

20.9.3.9.C(4) NMAC requires a description of the tracking system to be used to:

(a) compile and record the amounts and types of wastes received

(b) identify the area or disposal coordinates where the waste was placed in the disposal cell

(c) complete the manifest requirements of 20.9.8.19 NMAC

CRLF will include a copy of the SWPA, and the special waste manifest (Attachment II.8-B) in the daily operating record in compliance with 20.9.8.19.A-G NMAC. In addition, CRLF personnel will record typical waste receipt information per 20.9.5.16.A NMAC (i.e., type, weight, origin, hauler name, any handling problems or emergency activities, etc.) in its electronic records system as part of the daily operating log. The disposal area coordinates for the PCS will be recorded using a GPS device and recorded in the daily operating log. CRLF personnel will review the manifest for the information required by 20.9.8.19.A NMAC and the appropriate signatures (generator, haulers, and storage facilities). CRLF personnel will sign the manifest once it is determined that the information is accurate. Any discrepancies will be reported to the involved parties and NMED SWB within 24 hours. CRLF will return the original signed manifest for the generator to acknowledge receipt within 30 days. A copy of the manifest will be retained by CRLF and kept in the Facility Operating Record.

4.2.10 PCS Contingency Plan

20.9.3.9.C(5) NMAC requires a description of emergency and mitigation measures in case of a special waste spill or leak. CRLF is permitted to accept only non-hazardous MSW and specific special wastes. The CRLF Contingency Plan is provided as Volume II Section 3. The Waste Inspection and Screening program is described in the Plan of Operations (Volume II Section 2), and is practiced at all times at the Gate House, and the active fill face in an effort to preclude acceptance of unauthorized wastes. The following implementation and notification procedures are followed in the event of an emergency involving a release of PCS waste:

1. The employee who first becomes aware of the spill/release will immediately notify the CRLF Emergency Coordinator (EC; Primary or Alternate).
2. The employee(s) at the scene of the spill or release will immediately initiate actions within the scope of their training to contain the release and prevent the spread and/or windblown dispersion of the spilled materials.
3. The EC will assess the source, amount, and extent of the released materials and determine possible hazards to human health or the environment.
4. The EC's assessment of the emergency situation will be the basis for deciding if additional resources are required (e.g., personnel, equipment), as well as to notify the appropriate local and state authorities, including NMED SWB, as necessary.
5. If the EC's assessment indicates a need to notify appropriate state and local agencies, he/she will do so immediately by telephone.
6. Released/spilled special waste will be disposed of at the CRLF active fill face.

4.2.11 PCS Special Waste Requirements

Per 20.9.3.9.C(6) NMAC, special waste disposal management plans are required to include a description of the procedures to meet the applicable special waste requirements listed in 20.9.8.12-17 NMAC. The procedures to meet the applicable requirements for disposal of PCS waste as specified in 20.9.8.15 NMAC will be followed as described in this Special Waste Disposal Management Plan for PCS waste.

5 INDUSTRIAL SOLID WASTE DISPOSAL MANAGEMENT PLAN

This Industrial Solid Waste (ISW) DMP addresses the requirements of 20.9.8.18 NMAC (i.e., Disposal of Special Waste Not Otherwise Specified), and 20.9.3.9.C NMAC (Special Waste Disposal Management Plans). The procedures described in this DMP are implemented by CRLF in conjunction with the General Special Waste DMP procedures described in Section 2.0. Approximately 12,819 tons/year of ISW are received for disposal from industries within Doña Ana County, including a small portion from out-of-country.

CRLF currently accepts industrial waste generated in Mexico. Industrial waste includes discards generated during manufacturing (e.g., material scraps from the clothing industry) at American plants in Mexico. Because the waste crosses the USA/Mexico international boundary, and it originates from a manufacturing operation, it must be manifested. Consequently, these materials are designated as a "special waste".

5.1 Types of ISW

Industrial solid wastes may require special handling or management due to either unique physical characteristics, employee safety, or because the wastes are not specifically addressed elsewhere by the Rules or this Application for Permit. These wastes potentially include discarded materials from non-residential sources that are non-hazardous and not specifically identified by 20.9.8 NMAC. Examples of industrial solid waste include, but are not limited to:

- Manufacturing waste
- Industrial process waste
- Food and related products/by-products
- Out-of-date/off-specification beverages in consumer packaging
- Plastics and resin waste
- Water treatment waste
- Auto shredder residue
- Solid resins and debris

- Sandblast grit
- Inorganic filter cake
- Baghouse dust

ISW does not typically require special handling and is generally more innocuous than typical municipal solid waste.

5.2 ISW Identification and Testing

20.9.3.9.C(1) NMAC requires a description of the methods used to identify special wastes, including the use of test parameters in 20.9.8.11 NMAC. Methods used to identify ISW include:

- Review of the SWPA (Attachment II.8-A)
- Review of laboratory analytical results required per 20.9.8.11.A NMAC (if applicable)
- Review of detailed descriptions of the generator's knowledge of specific wastes required per 20.9.8.11.A NMAC
- Review of the special waste manifest required per 20.9.8.19 NMAC
- Visual inspection of the containers, labels, and waste itself, prior to acceptance and at the active fill face (or other designated screening or storage area) as the waste is unloaded

Laboratory analyses may be required by either CRLF or NMED (if not already provided) including:

- Ignitability
- Corrosivity (pH)
- Reactivity
- Toxicity characteristics: TCLP parameters (per US EPA Test Method 1311)
- Free liquids (paint filter liquids test)
- Polychlorinated biphenyls (PCBs)
- Additional parameters deemed necessary to characterize the waste

At a minimum, the generator is required to demonstrate that the waste is not a hazardous waste as defined by the US EPA RCRA Subtitle Standards.

5.3 Operational Procedures

5.3.1 ISW Disposition

20.9.3.9.C(2) NMAC requires a description of the disposition procedures for incoming ISW. ISW may or may not require special handling from a regulatory standpoint or employee safety perspectives. Special handling elements may include laboratory analyses, treatment, disposal, water application, etc. As new information pertaining to this waste stream develops, CRLF will update this ISW DMP. Updates will be provided to NMED for review and approval prior to implementation.

After waste confirmation and acceptance, ISW will be offloaded at the active fill face (downwind, if necessary) and mixed with municipal solid waste. If windblown dispersion of ISW materials is a concern, the waste may be wetted down prior to or during unloading. The waste will be covered with 6 inches of soil, or approved alternative daily cover, or 12 inches of non-special waste, prior to compaction. ISW delivered to CRLF without proper documentation will be refused until such time that proper documentation is received. ISW waste may be temporarily stored in appropriately sealed and labeled, leak-resistant containers (typically delivery vehicles or containers) in the designated Special Waste Storage Area (Figure II.8.2). Although special waste storage is not anticipated, ISW will not be stored longer than 45 days, or as approved by the NMED SWB.

5.3.2 Notification Procedures

20.9.3.9.C(3) NMAC requires procedures for notifying the Department in the event wastes either fail the tests listed in 20.9.8.11 NMAC or prove not to be one of the listed special wastes. If tests listed in 20.9.8.11 NMAC fail or the waste proves not to be ISW (or one of the approved special wastes), then the NMED SWB will be notified within 24 hours.

5.3.3 ISW Tracking

20.9.3.9.C(4) NMAC requires a description of the tracking system to be used to:

(a) compile and record the amounts and types of wastes received

(b) identify the area or disposal coordinates where the waste was placed in the disposal cell

(c) complete the manifest requirements of 20.9.8.19 NMAC

CRLF includes a copy of the SWPA (Attachment II.8-A), and special waste manifest (Attachment II.8-B) in the daily operating record. In addition, CRLF records typical waste receipts information per 20.9.5.16.A NMAC (i.e., type, weight, origin, hauler name, any handling problems or emergency activities, etc.) in its electronic records system as part of the daily operating log. The disposal area coordinates for the special waste will be recorded using a GPS device and recorded in the daily operating log. The manifest requirements of 20.9.8.19.A-G NMAC will be complied with. CRLF will review the manifest for the information required by 20.9.8.19.A NMAC and the appropriate signatures (generator, haulers, and storage facilities). CRLF will sign the manifest once it is determined that the information is accurate. Any discrepancies will be reported to the involved parties and NMED SWB within 24 hours. CRLF will return the original signed manifest for the generator to acknowledge receipt within 30 days. A copy of the manifest will be retained by CRLF and kept in the Facility Operating Record.

5.3.4 ISW Contingency Plan

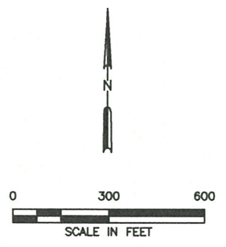
20.9.3.9.C(5) NMAC requires a description of emergency and mitigation measures in case of a special waste spill or leak. CRLF is permitted to accept only non-hazardous MSW and specific special wastes. The CRLF Contingency Plan is provided in Volume II Section 3. The Waste Inspection and Screening Program (included in Volume II Section 2) is implemented at the Gate House and the active fill face (for direct disposal), in an effort to preclude acceptance of unauthorized wastes. The following implementation and notification procedures will be followed in the event of an emergency involving a release of ISW:

1. The employee who first becomes aware of the spill/release will immediately notify the CRLF Emergency Coordinator (EC; Primary or Alternate).
2. The employee(s) at the scene of the spill or release will immediately initiate actions within the scope of their training to contain the release and prevent the spread and/or windblown dispersion of the spilled materials.
3. The EC will assess the source, amount, and extent of the released materials and determine possible hazards to human health or the environment.
4. The EC's assessment of the emergency situation will be the basis for deciding if additional resources are required (e.g., personnel, equipment), as well as to notify the appropriate local and state authorities, including NMED SWB, as necessary.
5. If the EC's assessment indicates a need to notify appropriate state and local agencies, he/she will do so immediately by telephone.
6. Released/spilled ISW type special waste will be disposed of at the CRLF active fill face.

5.3.5 ISW Special Waste Requirements

Per 20.9.3.9.C(6) NMAC, special waste disposal management plans are required to include a description of the procedures to meet the applicable special waste requirements listed in 20.9.8.12-17 NMAC. ISW falls within the description of

20.9.8.18 NMAC, Disposal of Special Waste Not Otherwise Specified. The procedures to meet the applicable requirements for disposal of ISW as specified in 20.9.8.18 NMAC will be followed as described in the General Special Waste Disposal DMP (Section 2.0) and this Special Waste Disposal Management Plan for ISW.



LEGEND

— · —	PROPERTY BOUNDARY
— — —	PERMITTED LIMITS OF WASTE FOR UNIT 2
— · —	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
— · —	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
- - - -	ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4
E 8,000	SITE GRID
4120	COMPOSITE TOPOGRAPHY (SEE NOTE 1)
🟧	EXISTING SPECIAL WASTE DISPOSAL AREA
🟩	EXISTING SPECIAL WASTE STORAGE AREA
→	EXISTING SPECIAL WASTE HAUL ROUTE

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2022 AERIAL SURVEYS.

JONATHAN VINCENT QUEEN
25844

9/26/22

☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: II-8-1 SPECIAL WASTE PLAN.DWG

DRAWN BY: JDW
DESIGN BY: KRB
REVIEWED BY: JVQ

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

SPECIAL WASTE MANAGEMENT AREAS

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

FIGURE II.8.1

O:\0601\667\EXPANSION 2019\VOLUME 2\PART 8\II-8-1 SPECIAL WASTE PLAN.dwg, rarrington, 1:2

ATTACHMENT II.8-A

SPECIAL WASTE PERMIT APPLICATION (SWPA)

Camino Real
ENVIRONMENTAL CENTER, INC.

SPECIAL WASTE PERMIT APPLICATION

Approval No. ____________________
Facility ________________________

Generator: Name ____
Address ____
Waste Description: ____
____

Quantity: ____________ >Frequency of disposal: ☐ One-time ☐ Monthly ☐ Other: ________________
Process Generating Waste: ____
Point of Waste Generation (include Zip Code): ______________________________
____

Generator Representative/Contact: ____________________ Company Name: ____________________
Phone: ___/__________ Fax: ___/__________
Transporter: ______________________ Phone: ___/________ Fax: ___/________

PHYSICAL CHARACTERISTICS AND DOCUMENTATION

Physical State: ☐ Solid ☐ Semi-solid ☐ Dusty ☐ Sludge ☐ Color ______________

Analytical Results: ☐ TPH (PCS) ☐ Volatiles ☐ TOX ☐ TCLP: ____________________
☐ BTEX ☐ Pesticides ☐ PCB ☐ Other: ____________________

Sample Source: ☐Pile ☐ In-ground ☐ Pit Bottom ☐ Other: __

Additional Information: ☐ MSDS ☐ Process Knowledge ☐ Other: ____________________

NON-HAZARDOUS DETERMINATION

Under 40 CFR Part 261, is this a Listed or Characteristic waste? ☐ Yes ☐ No
Is waste classified as a state-only or provincial hazardous waste? ☐ Yes ☐ No
Is waste covered or restricted from landfilling by any permit? ☐ Yes ☐ No
Basis for non-hazardous determination: ____

WASTE CERTIFICATION STATEMENT

I hereby certify that all information contained herein is true and correct, and the material described is properly identified, classified, packaged, labeled, and prepared as indicated. I certify this waste is not hazardous as defined by the U.S. EPA or the state or province of origin. I certify this waste does not contain any regulated radioactive materials. I certify that all samples used for this analysis are representative of the materials described herein. I will notify the company if there is a change in the composition of, or process generating this waste stream.

____
Name (print) *Authorized Representative's Signature*

____
Title/Company *Date*

Camino Real Landfill
P.O. BOX 580 • Sunland Park, New Mexico 88063
Tel: 505 589-9440 • Fax 589-2427 • www.creci.com

ATTACHMENT II.8-B

NON-HAZARDOUS SPECIAL WASTE MANIFEST

CAMINO REAL LANDFILL

P.O. Box 580　Sunland Park, N.M. 88063　(505) 589-9440

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

№ 44100

NON HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

MANIFEST DOCUMENT NO.

2. Page 1 of

3. Generator's Name and Mailing Address

A. State Manifest Document Number

B. State Generator's ID

4. Generator's Phone (　　)

5. Transporter 1 Company Name

6. Address

C. State Transporter's ID

D. Transporter's Phone

7. Transporter 2 Company Name

8. Address

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address

10. US EPA ID Number

G. State Facility's ID

H. Facility's Phone

GENERATOR

11A HM	11. US DOT Description (including Proper Shipping Name, Non Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol.	I. Waste No.
	a.					
	b.					
	c.					
	d.					

J. Additional Descriptions for Materials Listed Above

K. Handling codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name　Signature　Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials　Date

Printed/Typed Name　Signature　Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials　Date

Printed/Typed Name　Signature　Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest except as noted in Item 19.　Date

Printed/Typed Name　Signature　Month Day Year

White - Original　Green - Transporter I　Canary - Transporter II　Pink - TSD Facility　Gold-Rod - Generator's first copy

ATTACHMENT II.8-C

VEHICLE INSPECTION FORM

Vehicle Inspection Form
Camino Real Landfill

Date of Inspection:		Driver Name:	
Time of Inspection:		Company:	
Inspector Name and Title:		Phone:	

Inspection Type:	☐ Visual ☐ Sample Collected (Sample Disposition) ____________________ ☐ Weight/Volume

Truck License No.:		Truck Description:	

Source of Load:	

Description of Load:	

Observations/ Comments	

Action Taken:	

Inspector Signature

Driver Signature

ATTACHMENT II.8-D

SPECIAL WASTE CONTAINER LABEL (EXAMPLE)

NON-HAZARDOUS WASTE

DISPOSAL FACILITY Camino Real Landfill

DATE OF WASTE RECEIPT ______________________________

WASTE TYPE (Refer to Special Waste Permit Application):

____

WASTE GENERATOR (Refer to Special Waste Permit Application):

NAME______________________________
ADDRESS______________________________
TELEPHONE______________________________
FAX______________________________

POTENTIAL HAZARDS (Refer to MSDS as applicable):

____
____
____
____
____
____
____

SPECIAL HANDLING INSTRUCTIONS (Refer to MSDS as applicable):

____
____
____
____
____
____
____

ATTACHMENT II.8-E

NMED SWB GUIDANCE DOCUMENT FOR THE DISPOSAL OF “VEHICLE WASH SUMP WASTE”

NEW MEXICO
ENVIRONMENT DEPARTMENT

Environmental Protection Division
Solid Waste Bureau

BILL RICHARDSON
Governor
DIANE DENISH
Lieutenant Governor

1190 St. Francis Drive, Room S2050
P.O. Box 5469
Santa Fe, New Mexico 87502-5469
Telephone (505) 827-0197
Fax (505) 827-2902
www.nmenv.state.nm.us

RON CURRY
Secretary
SARAH COTTRELL
Deputy Secretary

GUIDANCE DOCUMENT FOR THE DISPOSAL OF "VEHICLE WASH SUMP WASTE"

(Revision Date: 12/23/2010)

APPLICABILITY

The following guidance is provided for generators, transporters and solid waste disposal facilities in order to assure proper management and disposal of Vehicle Wash Sump Waste (VWSW), a special waste that consists of the non-liquid sediments and residuals retrieved from vehicle wash rack sumps, in accordance with the New Mexico Solid Waste Rules (SWR), 20.9.2-10 NMAC.

REQUIREMENTS FOR PROPER MANAGEMENT AND DISPOSAL

1. Background. VWSW in the past has been considered by the NMED Solid Waste Bureau (SWB) to be a special waste that fell under the special waste category of "Industrial Solid Waste" (ISW). Recent discussion within the Bureau has determined that the VWSW should actually be in the special waste category of "Special Waste Not Otherwise Specified" (SWNOS) as listed under 20.9.8.18 NMAC. Because the waste stream has unique handling, transportation and disposal requirements, sampling and laboratory analysis are necessary to ensure that the waste does not constitute a liquid waste and does not exhibit characteristics that render it a hazardous waste regulated under RCRA Subtitle C. **Please note that this waste stream does not fall under the special waste category of "Sludge."**

2. Solid Waste Disposal Facilities (landfills). A Disposal Management Plan (DMP) for the waste must have been approved by the SWB in the disposal facility's permit and the disposal facility must be specifically authorized to accept "Industrial Solid Waste" or "Special Waste Not Otherwise Specified" in its permit in order to accept VWSW for disposal. For those solid waste facilities currently permitted to accept ISW, they may continue to receive VWSW under the category of ISW. In the future as solid waste facilities submit for permit renewals, modifications or new permits they will be required to add the special waste category "Special Waste Not Otherwise Specified" for VWSW if they choose to accept it.

3. Transporters of VWSW are required to obtain a commercial hauler or a special waste hauler registration. For haulers currently registered to haul ISW, they may continue to transport VWSW

under the category of ISW. For new hauler registrations or hauler registration renewals requesting to haul VWSW, they will need to add it under the "Other" category as VWSW. The transporter must adhere to all applicable provisions of the SWR, including, but not limited to, 20.9.3.31 through 20.9.3.37 NMAC, and the special waste manifesting requirements specified in 20.9.8.19 NMAC.

4. Sampling Requirements. Because VWSW may contain free liquids and hazardous or otherwise regulated contaminants, the generator is required to characterize the waste stream in accordance with the SWR, 20.9.8.11.A NMAC. A representative sample of the waste shall be taken at least once every 100 cubic yards, unless an alternate frequency is approved, in writing, by the SWB. Samples shall be analyzed at a laboratory that adheres to U.S. EPA protocols for the following:

A. BTEX – Benzene, Toluene, Ethylbenzene and Xylene (Benzene must be individually less than 10 mg/Kg);
B. RCRA 8 Metals (Totals) [and USEPA Method 1311 TCLP if totals result approaches or exceeds twenty (20) times the TCLP regulatory limit];
C. Paint Filter Liquids Test (U.S. EPA Test Method 9095); and
D. Any other tests as required by the SWB or the disposal facility's owner or operator based upon generator process knowledge.

NOTE: VWSW may not be transported or disposed until the laboratory results, as per A-D above, have been reviewed by the generator, and approved and incorporated into the disposal facility's operating record, thereby assuring that the VWSW does not contain free liquids or does not constitute a hazardous or otherwise prohibited waste.

If you have any questions regarding this guidance document, you may contact the Solid Waste Bureau's Permit Manager or Enforcement Manager at (505) 827-0197.

Approved:

Auralie Ashley-Marx 12/23/10

Auralie Ashley-Marx
Chief, Solid Waste Bureau

Date

CAMINO REAL LANDFILL

SUNLAND PARK, NEW MEXICO

NMED FACILITY PERMIT NOS. SWM-030738 AND SWM-030738 (SP)

APPLICATION FOR PERMIT MODIFICATION AND RENEWAL

VOLUME II – LANDFILL MANAGEMENT PLANS
SECTION 9 – TRANSPORTATION PLAN

Prepared for

Camino Real Environmental Center, Inc.

September 2022

JONATHAN VINCENT QUEEN
25844

9/26/22

Prepared by

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6420 Southwest Boulevard, Suite 206
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Placitas, NM 87043
505-301-2026

WCG Project No. 0601-667-11-06

CONTENTS

LIST OF ATTACHMENTS

JONATHAN VINCENT QUEEN
NEW MEXICO
25844
PROFESSIONAL ENGINEER

9/26/22

1 INTRODUCTION

The Camino Real Landfill (CRLF) is an existing solid waste facility operating in compliance with its current Permits, SWM-030738 and SWM-030738(SP), and the New Mexico Environment Department (NMED) Solid Waste Rules (the Rules; 20.9.2-20.9.10 NMAC). The owner and operator of the Camino Real Landfill is Camino Real Environmental Center, Inc. (CREC).

CREC is seeking a Permit Modification (20.9.3.22 NMAC) and Permit Renewal (20.9.3.25 NMAC) for the CRLF to modify the existing permitted landfill configuration and to renew the current permit. Each of these items is discussed in more detail below.

1.1 Site Location

The CRLF is an existing solid waste disposal facility that encompasses approximately 480 acres of land located at 1000 Camino Real Blvd. on the New Mexico (NM)/Mexico (MX) border in Sunland Park, New Mexico. The approximate geographic coordinates for the center of the CRLF site are: Latitude 31° 47' 24.7272" N and Longitude 106° 35' 32.6508" W.

The legal description of the site is summarized as follows:

> *A certain parcel of land situated within Section 12 and 13, Township 29 South, Range 3 East, New Mexico Principal Meridian, City of Sunland Park, Doña Ana County, New Mexico.*

CRLF is constructed, operated, monitored, and inspected in compliance with the Solid Waste Facility Permits granted by the NMED Solid Waste Bureau (SWB) pursuant to the Rules (20.9.2-20.9.10 NMAC).

1.2 Existing Permitted Landfill Unit Overview

MSW disposal and development at CRLF is defined by four "area fill" Units, i.e., 1 through 4, which are further divided into cells. Unit 1 (50 acres) is designated as closed. Unit 2 (124.2 acres) is an active landfill area. Unit 3 (60.5 acres) is permitted for waste disposal, and recently (2019) the first cell in this unit was developed. Portions of Unit 3 have been excavated to provide soils for ongoing operations. Unit 4 (73.0 acres) is located east of the current operations and is permitted but undeveloped. Soils from the Unit 4 area have been excavated to support the ongoing operation, and the area has also been used to stockpile construction soils. Cell phasing within each unit is determined by operational conditions. This Application for Permit Modification and renewal addresses subgrade configurations in Units 3 and 4 and final contour design over all units.

1.3 Purpose

This Transportation Plan (the "Plan") provides a description of the types of vehicles that use the CRLF, and the roadway network designed to accommodate the traffic. This Plan addresses the requirements of 20.9.3.8.C(6)(d) and (g) NMAC, as well as 20.9.3.9.B(3)(j) NMAC, and the applicable operating requirements of 20.9.5.9.I NMAC. The requirements that are specific to waste haulers are not addressed (e.g., 20.9.3, 20.9.5.14, and 20.9.8 NMAC) herein. A traffic study is included in Attachment II.9-A.

2 TRAFFIC FLOW

Traffic volume data, roadway capacity usage and route information for vehicles accessing CRLF are provided in the Traffic Study (Attachment II.9-A). The majority of both residential and commercial deliveries originated from Doña Ana County. MSW is delivered to the CRLF in conventional rear-loaders, front-loaders, dump trucks, roll-off tilt-frames, and comparable vehicles. Waste capacities for these vehicles are typically 20 cubic yards (5 tons) for rear loaders, 40 cubic yards (10 tons) for front loaders, and 30 cubic yards (4 tons) for roll off trucks. Private individuals are estimated to bring in an average of 0.25 tons of waste each to the site.

Residential self-haul waste, which account for a low percentage of vehicles entering the site, are delivered via a combination of pickup trucks, flatbeds, and personal vehicles with capacities typically less than 5 cubic yards. Most residential self-haul loads are directed to a ramp and roll-off box at the Public Convenience Center which is positioned near the site entrance that is specifically designated for residential deliveries. The separation of self-haul customers from commercial waste delivery trucks maximizes safety and operating efficiency.

Special wastes are delivered in commercial vehicles specifically designed to haul that type of material (e.g., leak-proof dump trucks, roll-off tilt-frames, etc.). Other incidental traffic is nominal, including employees and visitors, and the occasional outbound load of recyclable materials.

3 TRAFFIC ROUTES

The facility entrance and the onsite road network is provided on the Site Plan (Figure 2-1 in Attachment II.9-A). As shown on Figure 2-1, access to CRLF is provided by Camino Real Drive, by way of New Mexico State Highway (NM) 273. The current traffic routes are comprised of paved roadways designed to accommodate heavy truck traffic.

The traffic analysis provided in the traffic study discusses the traffic volume and roads in further detail (Attachment II.9-A). Traffic associated with CRLF typically occurs during daylight hours. No new traffic impacts are anticipated based on the Permit Renewal and Modification because the incoming waste volume and traffic is not proposed to increase.

4 IMPACT MITIGATION

The measures for controlling litter, odor, dust and noise potentially caused by traffic are discussed in the Plan of Operations, provided as Volume II, Section 2 of this Application. Summaries of mitigative measures for litter, dust and noise are provided below.

4.1 Litter Control

The majority of wastes are delivered in enclosed vehicles subject to NMED's litter control requirements; and litter is further minimized by enforcement of the facility's load-tarping requirement. To prevent litter from blowing from the vehicles, CREC requires that vehicles arriving at CRLF be properly covered or tarped.

CRLF personnel conduct routine inspections of the property and within about one mile surrounding the Landfill and particularly Camino Real Boulevard, and litter collection is scheduled based on the inspection results, with the emphasis on off-site controls first. Collected litter is incorporated into the active fill face, placed in containers, or otherwise covered until the following working day. In addition, the working face is kept small as practicable and, when possible, shielded from wind by portable litter fencing, other perimeter fencing, berms, or existing fill deposits. The working face is covered with soil or approved alternative daily cover material at the end of each working day or during the day as conditions warrant.

4.2 Odor Control

Waste is anticipated to arrive at the Facility the same day as collected, and thus will have had little opportunity for decomposition as a source of odor. Special wastes destined for remediation or disposal will be delivered in appropriate containers. Wastes that may have the highest potential to generate odors (i.e., sludge) will be disposed of and covered with soils promptly, or will be stored in sealed containers to control potential odors (see Volume II, Section 8, Special Waste Management Plans).

4.3 Dust Control

A number of dust control methods are utilized at the CRLF. These methods include:

- Paved surfaces for waste delivery vehicles until they are well within the site.
- The application of water, leachate and/or dust palliatives on a routine basis.

Potential dust generation is mitigated at CRLF via the use of the facility's water wagon. The water wagon (8,000-gallon capacity) is used on-site and along the landfill access road on a daily basis (or more often as necessary) for watering roads and surfaces to prevent fugitive dust. Approved dust palliatives may also be applied as needed. In addition, on-site traffic is restricted to 20 miles per hour (mph), reducing the potential for dust propagation. CREC is also seeking approval for beneficial use of leachate at CRLF. An approved leachate solution may be used beneficially over lined areas of the landfill for dust control, or at the working face for dust control and compaction. Details regarding beneficial use of leachate are provided in the Leachate Management Plan, Volume II, Section 7.

4.4 Noise Control

Vehicles transporting waste to CRLF are required to have noise suppressant devices in accordance with NM laws. Operational sequencing, below-grade operations, and physical barriers all assist in the reduction of potential noise impacts.

5 WASTE DIVERSION

A drop-off recycling center may be provided in conjunction with the Public Convenience Center to divert specific waste stream components from the residential self-haul waste stream which may include:

- green waste
- paper
- aluminum
- newsprint
- corrugated cardboard

The existing Public Convenience Center is shown on Figure 2-2, Attachment II.9-A. Waste containers are hauled by CRLF vehicles to the active fill face at least once per day. Diverted materials will be stored for short periods, hauled to market when sufficient quantities have been collected, or disposed of at the landfill. The storage of these materials will be for a limited duration which will not result in health issues or fire potential.

6 ON-SITE ACCESS ROADS

The current on-site access roads are shown on the Permit Plans, and roadways planned following site completion are depicted on the Final Grading Plan. The roads are of all-weather construction, and roadway slopes, except temporary ramps in the fill area, are typically less than 7%. All roads are sloped to drain into adjacent drainageways. The on-site roadway network includes the entire site perimeter, providing access to both Landfill disposal cells and environmental monitoring points. Surfacing for temporary and permanent roadways may include gravel, recycled asphalt, crushed aggregate, and other suitable materials. Some road segments may be paved if extensive use is anticipated.

Signs are posted at the entrance to the CRLF indicating the facility name, hours of operation, emergency telephone numbers, and disposal instructions. Posted entrance signs also list additional site rules, applicable speed limits, and that fires and scavenging are prohibited. The Site Entrance Sign is depicted in Volume II, Section 2, Figure II.2.4.

7 ALTERNATIVE WASTE HANDLING

In compliance with 20.9.3.8.C(6)(d) NMAC, alternative waste handling procedures will be implemented in the event the facility is not in operation during its normal hours due to unforeseen circumstances. The facility's layout and operating practices provide flexibility with regard to fill phasing and access. In the event of an unlikely temporary disruption to service, the following alternative procedures are available:

- In the event of inclement weather, a "wet weather" area may be selected that is readily accessible from established roadways.
- There is extensive equipment available for daily operations which includes significant back-up for any unplanned downtime.
- Additional waste compaction and earthmoving equipment may be rented under routine arrangements with local suppliers or from other regional facilities.
- Temporary storage of waste at the active face could be implemented to address short-term equipment breakdown.
- Waste compaction and covering tasks could be extended beyond normal hours to complete the day's activities.

An extreme situation that disrupts access to or use of the facility would result in temporary closure (with immediate notification of haulers), or be managed by diverting waste directly to other permitted disposal facilities (e.g., Corralitos Landfill, Otero/Lincoln Landfill or City of El Paso Solid Waste Facilities).

ATTACHMENT II.9-A

TRAFFIC STUDY

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

TRAFFIC STUDY

Prepared for

Camino Real Environmental Center, Inc.

August 2022

JONATHAN VINCENT QUEEN
NEW MEXICO
25844
PROFESSIONAL ENGINEER

9/26/22

Prepared by
Weaver Consultants Group, LLC
6420 Southwest Boulevard, Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0601-667-11-06

CONTENTS

APPENDIX

JONATHAN VINCENT QUEEN
NEW MEXICO
25844
PROFESSIONAL ENGINEER

9/26/22

1 INTRODUCTION

1.1 Purpose

The purpose of this study is to provide traffic volume data, roadway capacity usage, and route information for vehicles accessing the Camino Real Landfill (CRLF). The CRLF access road (Camino Real Dr.) will continue to provide the primary access to the site after the existing landfill is expanded by the proposed permit modification. However, the traffic patterns and access roads will not be altered.

The study is completed consistent with the requirements listed in 20.9.3.8(C)(6)(g)(iv) NMAC, which requires the following information.

(i) The size and approximate number of vehicles that will deliver waste to the facility daily;

(ii) The anticipated routes that will be used by waste vehicles and the suitability of roads and bridges involved;

(iii) Measures for controlling litter, dust and noise caused by traffic;

(iv) Other predicted impacts of traffic to and from the facility; and

1.2 Summary of Existing Landfill Expansion

The Camino Real Landfill (CRLF) is an existing solid waste facility operating in compliance with its current Permits, SWM-030738 and SWM-030738(SP), and the New Mexico Environment Department (NMED) Solid Waste Rules (the Rules; 20.9.2-20.9.10 NMAC). The owner and operator of the Camino Real Landfill is Camino Real Environmental Center, Inc. (CREC).

The overall concept of the permit modification and permit renewal is to maximize the use of the existing permitted footprint, without significantly changing the visible configuration of the site to surrounding communities. The footprint in the northern part of the site will be reduced by about 18 acres to create a greater physical buffer between the landfill and the communities located north of the facility. Contiguous lined areas will be provided between the units so they can be combined to provide one contiguous landfill footprint, with 4H:1V exterior side slopes. This will facilitate drainage, minimize erosion, and provide for the long-term stability of the site.

The proposed permit modification will decrease the currently permitted waste disposal footprint from 333 acres to 307.7 acres.

The landfill currently accepts approximately 2,000 tons per day of MSW for disposal (based on 2019 waste projections). Incoming loads of waste enter the site and are directed to the gate house for weighing. Commercial waste haulers and private vehicles are directed to the working face of the landfill and discharged. Onsite roads are generally paved or compacted soil, to reduce the incidence of mud being tracked from the landfill property.

The landfill accepts municipal solid waste, sludge, petroleum contaminated soils, and non-hazardous industrial waste as permitted by the NMED. Properly trained personnel are onsite to operate the landfill. A detailed site operating plan has previously been prepared for the facility and will be updated for the permit amendment application (Volume II, Section 2). The plan details the required equipment, personnel, and safety procedures required to operate the site in accordance with NMED regulations. The CRLF is inspected by the NMED on a regular basis to ensure the site is in compliance with state regulations.

Traffic Data and Site Location Maps are provided in Appendix II.9-A-A.

2 TRAFFIC INFORMATION

2.1 Availability and Adequacy of Roads

As shown on Figure 2-1, access to the site is provided by Camino Real Drive, by way of New Mexico (NM) 273. Other roads within one mile of the site are shown on Figure 2-1. These roads may be periodically used by waste collection vehicles to serve residences and businesses located along or near these roadways; however, these roads are not main access roads that collection vehicles will use to access the site. Aerial inspection of these roads located within 1 mile of the site indicates they are generally paved roads serving rural residences.

The CRLF site entrance is located off of NM 273, approximately 0.6 mile south of the intersection of NM 273 and Camino Real Drive. Camino Real Drive is a 2-lane, asphalt-paved roadway. Traffic from Camino Real Drive currently enters the site at the location shown on Figure 2-2. NM 273 is a 4-lane, asphalt-paved roadway that provides access via turn lanes to Camino Real Drive.

The site entrance and entrance facilities are shown on Figure 2-3. As shown on Figure 2-3, the existing site entrance road is a two lane, paved road approximately 30-feet wide. The entrance road widens and splits into four separate lanes with an inbound lane, inbound scale, outbound scale, and outbound lane. The inbound and outbound lanes are each approximately 20-foot wide paved asphalt. The inbound and outbound scales are each approximately 15-foot-wide. The inbound and outbound lanes and gate house lanes merge to form a 30-foot-wide roadway that travels to the landfill working face. Approximately 0.6 mile of highway vehicle queuing is provided to the inbound lane from NM 273 to the scalehouse.

2.2 Volume of Vehicular Traffic

The volume of vehicle traffic on Camino Real Drive is summarized in Table 2.1 in Appendix II.9-A-A. As noted on Table 2.1, the traffic count was obtained from observations by operation personnel. Traffic counts are actual counts of vehicles entering and exiting the site during a typical 6–day period.

Table 2.2 presents a summary of the estimated traffic patterns and vehicle counts for the access roads within one mile of the site. A list of the various assumptions that were used to derive the estimates is also presented in Table 2.2.

APPENDIX II.9-A-A

TRAFFIC DATA AND SITE LOCATIONS MAPS

JONATHAN VINCENT QUEEN
NEW MEXICO
25844
PROFESSIONAL ENGINEER

9/26/22

Table 2-1
2-Way Traffic Volumes

Road	2-Way Traffic Volumes[1]		Existing Traffic Volume 2019			
			Daily		Peak Hour[3]	
	Daily	Peak Hour[2]	LF Trips[3]	Total[4]	LF Trips	Total
Camino Real Drive	746	75	746	746	75	75
NM 273	746	75	746	746	75	75

Notes:

1. The number of vehicles per day was counted during a typical 6-day period by operation personnel.
2. Peak hour volumes are assumed to be ten percent of total daily traffic.
3. Landfill trips estimated from information provided by the site operator. The number of trucks per day was calculated based on truck capacity, density, and tonnage then doubled to account for all trucks entering and leaving the site.

24-Hour One-Way Landfill Station Vehicle Estimates[4]

Vehicle Type						Totals
Rear Loader (20 cy Capacity)	Front Loader (40 cy Capacity)	Roll-Off (30 cy Capacity)	Transfer Trailers (125 cy Capacity)	Private Individuals (Approx. 0.25 Tons Maximum Each)	Facility Personal/Misc. Vehicles	
97	45	94	27	60	49	373

Notes:

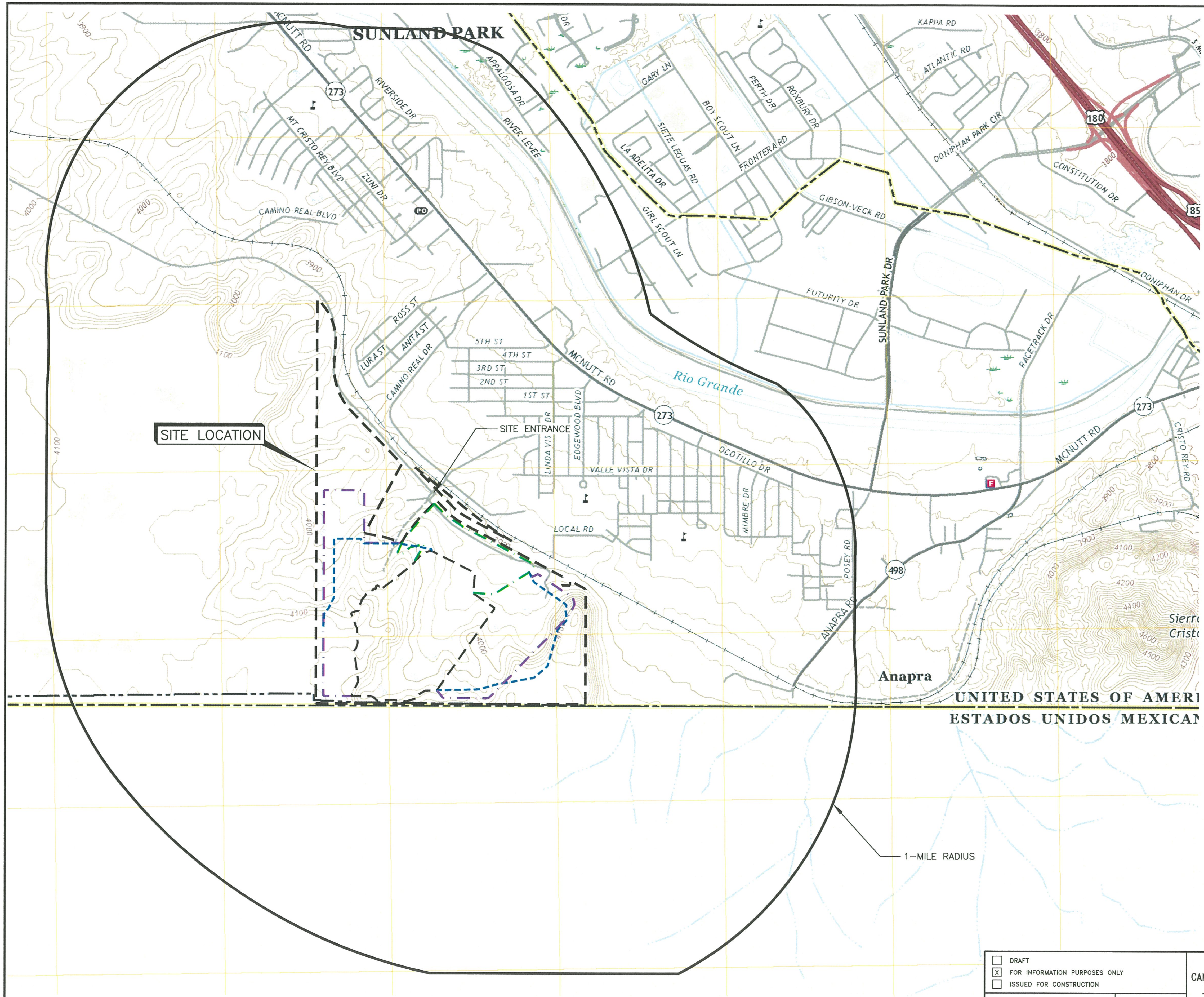
4. The number of vehicles per day was counted during a typical 6-day period by operation personnel.

Table 2-2
Traffic Impact Assessment[1]

Road	Roadway Capacity[3] (Vehicles/ Hour)	2018 Traffic Conditions[2,3]		Projected 2085 Traffic Conditions[2,3]	
		Landfill Traffic (vpd)	% of Roadway Capacity Used by Landfill Vehicles	Level of Service (based on percent time spent following)	% of Roadway Capacity Used by Landfill Vehicles
Camino Real Drive	2,400	746	25.0%	A	25.0%
NM 273	4,800	746	12.5%	A	12.5%

Notes:

1. Traffic volumes listed in this table include two-way traffic volumes.
2. The number of vehicles per day was counted during a typical 6-day period by operation personnel.
3. Capacities were obtained or estimated using the Highway Capacity Manual, 2016. Projected landfill traffic quantities are the same for 2018 and 2085.



LEGEND

- PROPERTY BOUNDARY
- PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
- PERMITTED LIMITS OF WASTE FOR UNIT 2
- PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
- ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4

NOTES:

1. BASED ON SMELTERTOWN, 2019 USGS QUADRANGLE 7.5' MAP.
2. THE ONLY ACCESS ROADS WITHIN 1 MILE OF THE SITE ARE CAMINO REAL DRIVE AND NM-273.

JONATHAN VINCENT QUEEN
25844

J. Q

9/26/22

O:\0601\667\EXPANSION 2019\TRAFFIC STUDY\FIG 2-1 PUBLIC ROADS.dwg, rarrington, 1:2

☐ DRAFT
☒ FOR INFORMATION PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: 2-1-PUBLIC ROADS.DWG

DRAWN BY: RAA
DESIGN BY: GWT
REVIEWED BY: CKM

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

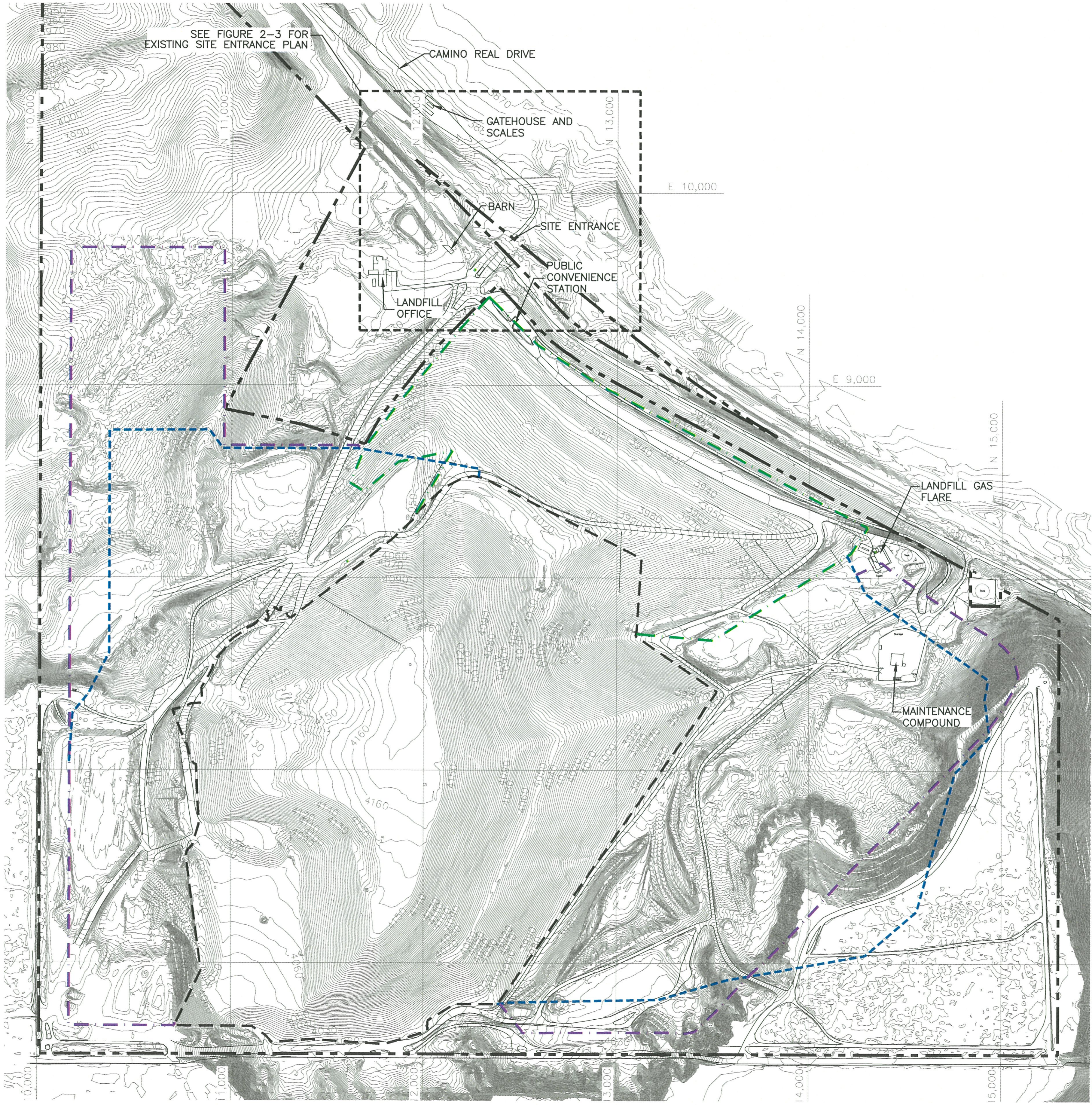
NO.	DATE	DESCRIPTION

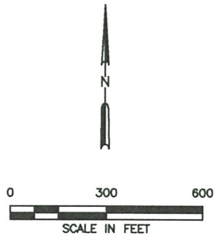
TRAFFIC STUDY
PUBLIC ROADS WITHIN 1 MILE

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

FIGURE 2-1





LEGEND

— · · —	PROPERTY BOUNDARY
— · — (green)	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
— — —	PERMITTED LIMITS OF WASTE FOR UNIT 2
— · — (purple)	PERMITTED LIMITS OF WASTE FOR UNITS 3 AND 4
- - - - (blue)	ADJUSTED LIMITS OF WASTE FOR UNITS 3 AND 4
—— – ——	CELL BOUNDARY
E 8,000	SITE GRID
——4120——	COMPOSITE TOPOGRAPHY (SEE NOTE 1)

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2018 AERIAL SURVEYS.

JONATHAN VINCENT QUEEN
25844

7/26/22

☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601–667–11
CAD: 2–2–FACILITY LAYOUT.DWG

DRAWN BY: RAA
DESIGN BY: GWT
REVIEWED BY: CKM

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

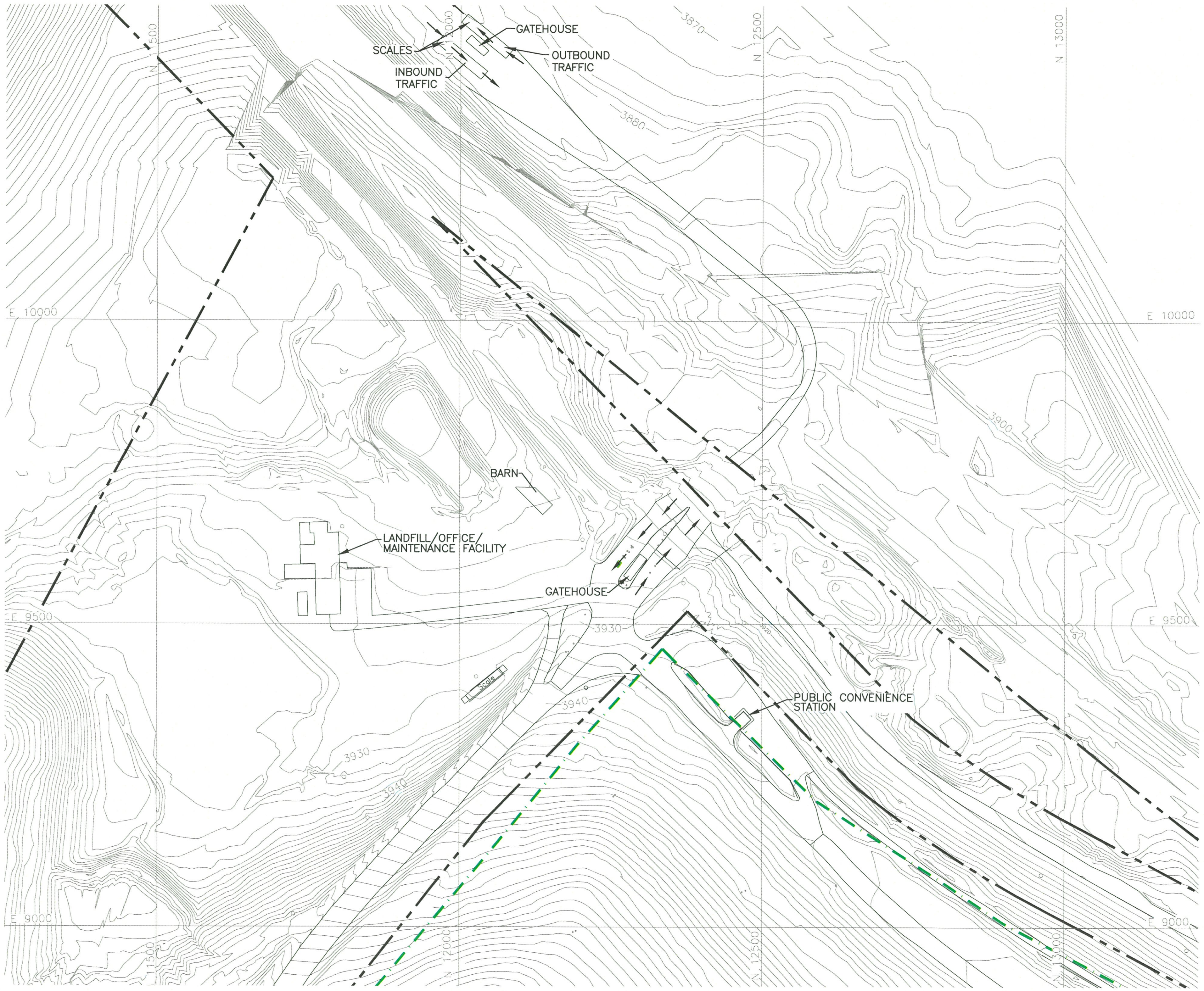
TRAFFIC STUDY
FACILITY LAYOUT

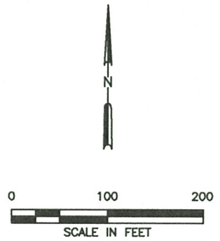
CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

FIGURE 2–2

O:\0601\667\EXPANSION 2019\TRAFFIC STUDY\FIG 2-2 SITE LAYOUT.dwg, rarrington, 1:2





LEGEND

— · — · —	PROPERTY BOUNDARY
— · — · —	PERMITTED LIMITS OF WASTE FOR UNIT 1 (CLOSED)
N 12000	STATE PLANE COORDINATE
3930	EXISTING CONTOUR
——→	VEHICLE TRAFFIC DIRECTION

NOTES:

1. COMPOSITE TOPOGRAPHY IS A COMPOSITE FROM THE 2005 AND 2018 AERIAL SURVEYS.

JONATHAN VINCENT QUEEN
25844

9/26/22

☐ DRAFT
☒ FOR INFORMATIONAL PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601–667–11
CAD: FIG 2–3–EXISTING SITE LAYOUT.DWG

DRAWN BY: RAA
DESIGN BY: GWT
REVIEWED BY: CKM

Weaver Consultants Group

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

TRAFFIC STUDY
EXISTING SITE ENTRANCE LAYOUT

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

FIGURE 2–3

O:\0601\667\EXPANSION 2019\TRAFFIC STUDY\FIG 2-3-EXISTING SITE ENTRANCE LAYOUT.dwg, rarrington, 1:2

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO
NMED FACILITY PERMIT NOS. SWM-030738 AND SWM-030738(SP)

APPLICATION FOR PERMIT MODIFICATION AND RENEWAL

VOLUME II – LANDFILL MANAGEMENT PLANS
SECTION 10 – WASTE SCREENING AND INSPECTION PLAN

Prepared for

Camino Real Environmental Center, Inc.

September 2022

JONATHAN VINCENT QUEEN
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WCG Project No. 0601-667-11-06

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CONTENTS (Continued)

FIGURES

JONATHAN VINCENT QUEEN
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TABLES

ATTACHMENTS

1 INTRODUCTION

The Camino Real Landfill (CRLF) is an existing solid waste facility operating in compliance with its current Permits, SWM-030738 and SWM-030738(SP), and the New Mexico Environment Department (NMED) Solid Waste Rules (the Rules; 20.9.2-20.9.10 NMAC). The owner and operator of the Camino Real Landfill is Camino Real Environmental Center, Inc. (CREC).

CREC is seeking a Permit Modification (20.9.3.22 NMAC) and Permit Renewal (20.9.3.25 NMAC) for the CRLF to modify the existing permitted landfill configuration and to renew the current permit. Each of these items is discussed in more detail below.

1.1 Site Location

The CRLF is an existing solid waste disposal facility that encompasses approximately 480 acres of land located at 1000 Camino Real Blvd. on the New Mexico (NM)/Mexico (MX) border in Sunland Park, New Mexico. The approximate geographic coordinates for the center of the CRLF site are: Latitude 31° 47' 24.7272" N and Longitude 106° 35' 32.6508" W. A topographic map showing the CRLF site location is provided as Figure II.10.1.

The legal description of the site is summarized as follows:

> *A certain parcel of land situated within Section 12 and 13, Township 29 South, Range 3 East, New Mexico Principal Meridian, City of Sunland Park, Doña Ana County, New Mexico.*

CRLF is constructed, operated, monitored, and inspected in compliance with the Solid Waste Facility Permits granted by the NMED Solid Waste Bureau (SWB) pursuant to the Rules (20.9.2-20.9.10 NMAC).

1.2 Existing Permitted Landfill Unit Overview

MSW disposal and development at CRLF is defined by four "area fill" Units, i.e., 1 through 4, which are further divided into cells. Unit 1 (50 acres) is designated as closed. Unit 2 (124.2 acres) is an active landfill area. Unit 3 (60.5 acres) is permitted for waste disposal, and recently (2019) the first cell in this unit was developed. Portions of Unit 3 have been excavated to provide soils for ongoing operations. Unit 4 (73.0 acres) is located east of the current operations and is permitted but undeveloped. Soils from the Unit 4 area have been excavated to support the ongoing operation, and the area has also been used to stockpile construction soils. Cell phasing within each unit is determined by operational conditions. This Application for Permit Modification and renewal addresses subgrade configurations in Units 3 and 4 and final contour design over all units.

1.3 Purpose

CRLF will employ this Waste Screening and Inspection Plan (the Plan), developed in accordance with 20.9.5.8.B(2) NMAC, and described herein, on a daily basis at the CRLF. The New Mexico Solid Waste Rules (The "Rules"), specifically 20.9.5.8.B(2) NMAC, require owners and operators of solid waste facilities to:

> (2) implement a plan approved by the secretary to inspect loads to detect and prevent the disposal of unauthorized waste including:
>
> (a) inspection frequency;
>
> (b) inspection personnel;
>
> (c) method of inspection; and
>
> (d) a training program for the facility employees in the identification of unauthorized waste, including hazardous waste, hot waste, and PCBs; (20.9.5.8.B.(2) NMAC)

This Plan addresses each of the elements of 20.9.5.8.B(2)(a-d) NMAC in Section 2.0, Waste Inspection and Screening Program. In addition, Section 3.0 of this Plan provides a detailed discussion of unauthorized wastes, contaminants of concern, recognition of unauthorized wastes, state and federal rules pertaining to each waste type, and applicable disposal requirements.

2 WASTE SCREENING AND INSPECTION PROGRAM

2.1 Introduction

Owners and operators of solid waste facilities are required to implement a plan, approved by the Secretary, to inspect loads to detect and prevent the disposal of unauthorized wastes. Unauthorized wastes identification is outlined in Section 2.2, and subject materials are described in detail in Section 3.0 of this Plan. For the purposes of this Plan, waste screening and waste inspection are identified as follows:

Waste Screening:	The daily, ongoing observation and consideration of incoming waste loads as they enter and unload at the facility.
Waste Inspection:	The careful and critical examination of randomly selected loads of waste, or those that trigger suspicion during the "screening" process.

2.2 Waste Screening

The first survey and analysis process for precluding unauthorized waste from receipt at the facility is based on an initial screening of material sources prior to delivery. Materials accepted at the CRLF are generally received from known sources, and most are delivered by commercial and industrial collection vehicles operated by established customers. A sign posted near the Gate House check-in point at the CRLF (Figure II.10.2) identifies unauthorized wastes not accepted at the facility. Knowledge of the commercial and industrial base of the solid waste facility service area, as well as those haulers and vehicles transporting the waste, is important and aids in identification of deliveries that have the highest potential to deliver unauthorized wastes. Commercial waste is delivered in collection vehicles that have specific markings, truck numbers, and/or other identifying characteristics. Special waste deliveries require manifests (refer to Volume II, Section 8 for Special Waste Disposal Management Plans).

The first opportunity for on-site waste screening at the CRLF is the Gate House. All waste delivered to the CRLF is checked in at the Gate House, and data related to the source, volume, and vehicle is recorded. Waste loads identified as potentially unacceptable during the initial screening process are inspected and managed in accordance with Section 2.5 of this Plan, and the Contingency Plan (Volume II Section 3) as necessary.

The secondary screening location is at the fill face, where the vehicle unloads. As material is unloaded, the screening frequency is continuous by equipment operators and facility personnel. Only acceptable material is processed for disposal at the fill face. Unacceptable material is inspected and managed in accordance with Section 2.5 of this Plan, and the Contingency Plan (Volume II Section 3) as necessary.

2.3 Identification of Unauthorized, Prohibited, and Suspicious Wastes

In order to comply with the Federal Regulations for excluding the receipt of hazardous waste (i.e., 40 CFR Part 258.200) a facility must screen to exclude hazardous wastes which include:

- EPA listed waste
- Ignitable waste
- Corrosive waste
- Reactive waste
- Toxic waste
- Poly-chlorinated biphenyls (PCBs)

In addition, in order to comply with the Rules for prohibited wastes, the CRLF screens for the following wastes, which are also identified in Table II.10-1 (Prohibited Acts):

- Unpermitted solid waste (i.e., materials deemed incompatible with CRLF protocol)
- Unpermitted special waste (e.g., ash, infectious waste, etc.)
- Petroleum waste
- Sludge (which doesn't meet the criteria of 20.9.8.16 NMAC)
- Septage
- Domestic sewage or treated domestic sewage
- Hazardous wastes (RCRA Subtitle C)
- Liquid waste
- Radioactive waste
- Lead-acid batteries

- Waste subject to the Federal Toxic Substances Control Act (TSCA)
- Oil Conservation Division (OCD) wastes

2.4 Waste Inspection Frequency & Methodology

2.4.1 Purpose

CREC has been conducting random load inspections at CRLF since permitted operations were initiated, and will continue to utilize these proven waste inspection procedures to scrutinize loads on a random basis. The objective is to detect and prevent the receipt and subsequent processing of unauthorized materials (e.g., hot loads, liquid waste, hazardous waste, medical wastes, ash, asbestos, PCBs, and other wastes deemed incompatible with the facility's operation). The random waste screening process accomplishes the following:

1. Random waste screening allows recognition of unauthorized wastes by both solid waste disposal customers and CRLF personnel.
2. Random waste screening establishes a protocol for:
   - Refusing unauthorized waste
   - Recognition of Generators/Haulers who are not delivering approved waste streams
3. Random waste screening also increases Hauler awareness of site and waste disposal rules.

Table II.10-1
Prohibited Acts (20.9.2.10.A NMAC)
Sheet 1 of 3

A. In addition to the prohibited acts identified in Section 74-9-31(A) and Section 74-13-4(J), and subject to the exemptions in Section 74-9-31(B) of the Solid Waste Act, no person shall:

(1) store, process, or dispose of solid waste except by means approved by the secretary and in accordance with board regulations;

(2) dispose of any solid waste in this state in a manner that the person knows or should know will harm the environment or endangers the public health, welfare or safety;

(3) dispose of any solid waste in a place other than a solid waste facility that meets the requirements of 20.9.2 - 20.9.10 NMAC;

(4) dispose of any solid waste, including special waste, in a solid waste facility when that facility's permit does not authorize the disposal of the particular type of solid waste in that facility;

Table II.10-1 (Continued)
Prohibited Acts (20.9.2.10.A NMAC)
Sheet 2 of 3

(5) construct, operate, modify or close a solid waste facility unless the facility has approval under 20.9.2 – 20.9.10 NMAC from the department for the described action;

(6) modify permit conditions or modify a solid waste facility unless the facility has applied for and received permission from the secretary for the modification pursuant to 20.1.4 NMAC Permit Procedures – Environment Department;

(7) dispose of petroleum waste, sludge which that does not meet the analytical criteria of 20.9.8.16 NMAC, septage, domestic sewage, or treated domestic sewage at any solid waste facility;

(8) dispose of hazardous wastes which are subject to regulation under Subtitle C of the Resource Conservation and Recovery Act, 42 USC 6901 et seq, at any solid waste facility, unless the facility is permitted for the disposal of hazardous wastes;

(9) dispose of liquid waste at any landfill unless:

  (a) the liquid waste is household waste other than septic waste and is in a small container similar in size to that normally found in household waste and the container is designed to hold liquids for use other than storage;

  (b) the liquid waste is leachate or landfill gas condensate generated on-site which is recirculated in accordance with applicable laws and regulations; or

  (c) the liquid waste is managed in accordance with an approval issued by the secretary;

  (d) the use of uncontaminated water for dust control or to improve vegetation on a final or intermediate cover is not considered disposal;

(10) process, recycle, transfer, transform, or dispose of radioactive waste in a solid waste facility;

(11) dispose of lead-acid batteries at any landfill or incinerator;

(12) dispose of any infectious waste in a landfill;

(13) dispose of any material regulated under the Federal Toxic Substances Control Act, 15 U.S.C. Sections 2601-2692, except in a solid waste facility, registered facility or operation authorized to accept such waste;

(14) allow open burning at a solid waste facility;

(15) excavate or trench a closed cell or solid waste disposal area without written approval by the department and a determination whether an excavation plan will be required, unless in response to an emergency situation; excavation and trenching do not include excavations or trenches of less than 120 cubic yards or exploratory borings for the purpose of waste characterization, site investigation or mapping, nor does it include removal of waste for routine maintenance on gas collection and control and venting systems;

(16) violate a term or condition of a closure and post-closure care plan, a registration, or conditions contained in an approval of the department;

(17) allow liquid extraction from sludge at a solid waste facility unless authorized by permit; or

Table II.10-1 (Continued)
Prohibited Acts (20.9.2.10.A NMAC)
Sheet 3 of 3

(18) process, transfer, store, dispose, or allow the disposal of special waste at a collection center.

(19) dispose at a solid waste facility any type of non-hazardous material that is excluded from the definition of solid waste, unless permitted to do so, except that a landfill may dispose of non-hazardous excluded waste listed under the following subparagraphs of Paragraph (9) of Subsection S of 20.9.2.7 NMAC unless prohibited from doing so in its permit; Subparagraphs (d) (agricultural), (f) (sand and gravel), (i) (densified refuse derived fuel), (m) (scrap tires), (n) (recyclable materials), (o) (compost), and (p) (materials, other than those that are regulated as hazardous, toxic or special waste, that are retained as evidence in a criminal proceeding and that are required to be destroyed or managed in accordance with a court or administrative order, and ash derived from such materials).

(20) dispose of any solid waste, including special waste, in a solid waste facility when that facility's permit does not authorize the disposal of the particular type of solid waste in that facility;

2.4.2 Frequency

The minimum sampling frequency employed at the CRLF is one load per day or 1% of the total average vehicles per day, whichever is greater. One of the required daily load inspections will be conducted upon a load of maquiladora waste, unless no loads of such waste were received during the operating day. Truckloads of incoming waste are selected at random and unloaded at the designated inspection area (Section 2.3.3). Data related to the material source, vehicle information, and date/time is recorded in accordance with the requirements of 20.9.5.8.B(3) and 20.9.5.16 NMAC. Inspection personnel will maintain a record of inspected loads on the form provided as Attachment II.10-A. Additional random inspections may be conducted, and/or the frequency of inspection increased, as directed by the Landfill Manager. Additional inspections may occur in the event that traffic or waste volume increases, or for special conditions or circumstances, including suspect loads identified during the screening process (i.e., at the Gate House or the daily fill face during unloading).

At least one of the weekly random load inspections will be conducted on a load of special waste, if received. Special waste inspections include review of the Special Waste Manifest and the Generator Waste Profile Form (Attachments II.8-A and II.8-B). Documentation of special waste inspections will be recorded on the Load Inspection Form (i.e., Attachment II.10-A) and maintained as part of the Facility Operating Record.

2.4.3 Inspection Location and Personnel

Waste loads flagged for random inspection, or identified as suspicious during the screening process (i.e., at the Gate House or at the fill face), are spread out and inspected in a designated area situated close enough to the fill face for the compactor or dozer to push the waste to the active disposal area after inspection. The inspection area is identified via signage, and markings (e.g., cones, flagging, or temporary fencing), and is segregated for safety, so as not to impede fill face activities or cause a conflict with site traffic. The inspection area is located within a lined cell on daily or intermediate cover so that any potential spills will be contained by the cell liner and controlled by the leachate collection system. Inspections are typically conducted by up to two trained CRLF staff, and loads are inspected using manual equipment.

2.4.4 Methodology

Physical waste inspection at the CRLF generally includes the following tasks:

1. Spreading, breaking up, and visual examination of waste loads
2. Flagging and segregation of suspicious waste
3. Third party field testing of waste as appropriate (i.e., pH, PCB's, free liquids, reactive wastes and organic vapors)
4. Third party waste sampling for laboratory analysis (as appropriate)
5. Management of suspicious wastes (as necessary)

The basic inspection equipment used during the waste inspection process may include the following tools:

- Bulldozer, front-end loader, skidsteer, or wheel loader (to spread waste)
- Shovel, rake and/or hoe (to move, raise, turn waste)
- Wire flags (to mark suspicious waste locations)
- Trowel or large spoon (for laboratory samples, if necessary)
- Waterproof tarp (to segregate waste, temporary cover, etc.)
- Sample jars (for laboratory samples, if necessary)
- Labels (sample identification, if necessary)
- Pocket tape recorder (to record findings)
- Stakes/markers (to segregate area, if necessary)
- Digital camera (to record inspection)
- Watch (to time inspection)

- Recordkeeping forms to record inspection data and findings (Attachment II.10-A)

The initial spreading of the load will typically be conducted mechanically (i.e.., via bulldozer, front-end loader, skidsteer), and the visual inspection will be facilitated by hand-held equipment (rake, shovel, or hoe).

2.4.5 Personal Protective Equipment (PPE)

Due to the nature of their task, CRLF inspectors may have more exposure to suspect wastes than the average facility employee, and they may be required to use protective clothing and equipment, supplied by the facility. PPE worn during the waste inspection process may include the items listed in Table II.10-2, as necessary, in addition to the standard apparel requirements (i.e., steel-toed boots):

Table II.10-2
Personal Protective Equipment (PPE)

Eye protection (safety glasses and goggles)
Puncture resistant footwear (hard-toed shoes with covers)
Gloves (both leather and disposables)
High-visibility (brightly colored) jackets/vests
Hard hats
Hearing protection (ear plugs)
Dust masks

2.5 Inspection Personnel and Training Program

The CREC trains its field personnel (i.e., Gate House Attendants, Managers, Equipment Operators, Spotters, Inspectors, etc.) in the identification of unauthorized wastes and waste screening and inspection procedures. The Landfill Manager is responsible for ongoing on-site training of CRLF staff, and this Plan will be provided to each individual participating in training. This Plan includes documents, reference materials, figures, diagrams, and photographs used during training. An example of an additional document that could be used in the training program is "Waste Screening at Solid Waste Facilities in New Mexico" dated November 1996, which was prepared by the Solid Waste Bureau for use in waste screening training courses. The Training Program may additionally include, dependent on the employee's list of responsibilities:

- Familiarity with the CRLF Landfill Management Plans (including Plan of Operations, Contingency Plan, and Waste Screening and Inspection Plan).
- Manager of Landfill Operations (MOLO) Training offered by NMED/SWANA (Solid Waste Association of North America)

- Hazardous Waste Operations and Emergency Response (HAZWOPER) Training
- Waste Screening Training offered through SWANA or NMED
- Health and Safety Training, including use of PPE
- Identification of Unauthorized Wastes as described in Section 3.0 of this Plan (includes types of unauthorized waste, characteristics, identifiers, etc.)

Select training will be provided to new employees, and thereafter on an annual or as-needed basis, dependent on the type of training. Documentation identifying the person conducting training, names of staff receiving training, and the date of training will be maintained in the CRLF Facility Operating Record.

2.5.1 Basic Indicators – Visual and Olfactory Identifiers

CRLF waste screening and inspection personnel will be trained to identify suspicious wastes based on visual and olfactory characteristics. Some of the indications that they are trained to identify include:

- Hazardous placarding or markings
- Liquids
- Powders or dusts
- Sludges
- Bright or unusual colors (i.e., red plastic bags)
- Drums or commercial size containers
- "Chemical" odors
- Smoke

Containers (enclosed barrels, drums, pails, cans, etc.) with placards, marks, shipping labels, etc. are obvious clues to alert the waste inspector that the contents may be hazardous or prohibited. Additionally, brightly colored labels, bags, or containers are also indicators of prohibited wastes such as potentially infectious materials. Examples of labels that can be found on hazardous or prohibited waste containers are provided on Figure II.10.3. Large drums or containers will be inspected for information with regard to current or previous contents.

Wastes exhibiting a high moisture content or visible liquids are suspicious. Additionally, granular material, powders, dust, or dried solids should also be investigated. Wastes that have an unusual appearance, create an offensive odor, are smoking or putting out vapors are additional indicators of potentially hazardous or otherwise prohibited wastes. Soils in the waste stream may contain spilled material, and PCS and sludge waste must be accompanied by a manifest (refer to the Special Waste Disposal Management Plans, Volume II Section 8). Section 3.0 (Unauthorized

Wastes) of this Plan provides further detail regarding unauthorized wastes identification and exclusion.

2.6 Management of Suspicious Wastes:

When a suspicious waste is identified, CRLF inspection personnel will follow specific procedures that may include the action items listed in Table II.10-3.

Table II.10-3
Management of Suspicious Wastes

Segregating suspicious waste in a separate area over a lined or future lined area to protect health and safety of landfill employees and the public. Flagging, barriers, and signs may be used to limit human exposure potential.
Identifying the unacceptable waste by characteristic, estimated quantity, transport vehicle, and the names and addresses of those associated with the waste load.
Questioning the driver of the vehicle.
Reviewing the manifest, if applicable.
Contacting the possible source and notifying the originator of waste within 24 hours pursuant to the Rules (if known).
Contacting NMED Solid Waste Bureau or Hazardous Waste Bureau within 24 hours, whichever is applicable, as required.
Contacting and notifying the responsible Hauler within 24 hours.
Using protective equipment if necessary.
Contacting laboratory support or outside contractors if necessary.
Calling emergency response assistance, if required.
Taking photographs or collect sample(s) as appropriate.

Table II.10-4
Emergency Response Agencies and Contacts

Name and Address	Phone
Fire	
Sunland Park Fire Department 1030 McNutt Rd, Sunland Park, NM 88063	911 or (575) 589-2302
El Paso Fire Department 416 N Stanton St #200, El Paso, TX 79901	911 or (915) 212-5600
Police	
Sunland Park Police Department 1000 McNutt Rd, Suite C, Sunland Park, NM 88063	911 or (575) 589-2225
Doña Ana County Sheriff's Department 845 N Motel Blvd., Las Cruces, NM 88007	911 or (575) 525-1911
New Mexico State Police 4055 Sonoma Ranch Blvd., Las Cruces, NM 88011	911 or (575) 382-2500
El Paso Police Department 911 N. Raynor St., El Paso, TX 79903	911 or (915) 832-4400
Medical/Ambulance	
Sunland Park Fire Department 1030 McNutt Rd., Sunland Park, NM 88063	911 or (575) 589-2302
Elite Medical Transport 1000 Texas Ave., El Paso, TX 79901	911 or (915) 542-1144
State Emergency Response Contacts	
New Mexico Environment Department	
Solid Waste Bureau, Santa Fe	(505) 827-0197
Hazardous Waste Bureau, Santa Fe	(505) 476-6000
Radiation Control Bureau, Santa Fe	(505) 476-8600
Spill Emergencies 24-hour Hotline (NMED)	(505) 827-9329
Federal Emergency Response Contacts	
National Emergency Response Center (U.S. Coast Guard)	(800) 424-8802
Region 6 Emergency Response Center (USEPA)	(866) 372-7745
Local Emergency Planning Committee for Doña Ana County	
Local Emergency Planning Committee	(575) 647-7900

Emergency response agency and contact information is posted at prominent locations at the Facility for ready reference (e.g., Gate House, Landfill Office, Maintenance Compound, etc.), and is also provided in Table II.10-4. This information is verified and updated on an annual basis at a minimum. Management of unauthorized wastes is also addressed in the CRLF Contingency Plan, provided in Volume II Section 3.

Subsequent waste deliveries made by a transportation company or service that has previously delivered suspect waste to the facility will be scrutinized with additional care and frequency. In the event a suspicious waste is identified, it will be segregated and treated as hazardous until confirmation is made. CREC may elect to utilize advanced methods of waste characterization in the field, as appropriate. Advanced methods are described in Table II.10-5:

Table II.10-5
Advanced Equipment

Explosive gas meter
Volatile gas detection meter
PCB comparator/measurement device
Hazardous materials identification kit
Volatile organic carbon analysis kit
Heavy metals analysis kit
pH meter

Alternatively, the CREC may contact a permitted hazardous waste response company to inspect the hazardous material and perform in-field analyses and/or laboratory sampling for waste characterization (Table II.10-4).

If waste is confirmed as hazardous (or otherwise unauthorized for disposal), CREC will elect one of the following options:

1. Arrange for disposal of the unauthorized material by an authorized contractor and invoice the Hauler or Generator.
2. Allow the Hauler or Generator to arrange for and provide evidence of proper waste disposal by an authorized contractor.

NMED will be notified of the resolution in accordance with the Rules, as described in Section 2.6.

2.7 Recordkeeping

CREC utilizes a computer software program at the CRLF to record the waste receiving information required by 20.9.5.16.A(1) – (5) NMAC. The following data is recorded as part of the random waste or suspect load inspection process:

- Date & time of unauthorized (or suspicious) waste detection
- Hauler data (company & driver)
- Material Generator (if identifiable)
- Materials detected, if any
- Actions taken to manage or return the materials
- Efforts taken if hazardous material identified (or suspected)
- CRLF waste inspector
- Photo or video recorded

Inspections will be recorded on a form similar to the one provided as Attachment II.10-A. Copies of inspection forms will be kept in the CRLF Facility Operating Record.

3 REGULATED WASTES

The implementation of this Plan will aid in preventing the disposal of regulated hazardous waste, prohibited and unauthorized wastes, and materials deemed incompatible with CRLF's operation (e.g., odorous waste). These categories of waste include:

- Hazardous wastes
- PCBs
- Refrigerant-containing waste
- Bloodborne Pathogen waste
- Infectious Waste
- Radioactive waste
- Asbestos
- Pesticides
- Pesticide Containers
- Liquids
- Lead-acid Batteries
- Used Oil
- Ash
- Heavy Metals
- Septage
- Unpermitted special wastes (e.g., ash, infectious waste, etc)

The regulated wastes are considered prohibited or unauthorized by the United States Environmental Protection Agency (EPA) and the Code of Federal Regulations (CFR), and/or the NMED Solid Waste Rules (20.9.2-20.9.10 NMAC). A description and characteristics of each type of waste and a reference to the applicable regulations are outlined below.

3.1 Hazardous Wastes

Regulated Hazardous Wastes are regulated under the Resource Conservation and Recovery Act

(RCRA), Subtitle C. The EPA has identified the following types of Regulated Hazardous Wastes:

- Listed Wastes: wastes that EPA has determined are hazardous. The lists include the F-list (wastes from common manufacturing and industrial processes), K-list (wastes from specific industries), and P- and U-lists (wastes from commercial chemical products).
- Characteristic Wastes: wastes that do not meet any of the listings above but that exhibit any one of the signs of ignitability, corrosivity, reactivity, or toxicity.
- Universal Wastes: batteries, pesticides, mercury-containing equipment (e.g., thermostats) and lamps (e.g., fluorescent bulbs).
- Mixed Wastes: waste that contains both radioactive and hazardous waste components. (https://www.epa.gov/hw)

When properly prepared, hazardous wastes should be marked with special labels, brightly colored packaging, or placards. Examples of some universal symbols for characteristic wastes are provided in Figure II.10.3 (i.e., ignitability, corrosivity, reactivity, and toxicity).

3.2 Poly-chlorinated Biphenyls (PCBs)

PCBs are a member of the chlorinated hydrocarbon family and were produced in the United States between 1929 and 1977. Production was halted in 1977 due to environmental concerns. PCBs were used as an insulating liquid in closed electrical systems of transformers and capacitors. They are a mixture of chemicals appearing as oily liquids or solids, clear to yellow in color. PCBs are regulated under TSCA and the rules are found in 40 CFR Part 761 (Polychlorinated Biphenyls Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions). PCB items must be disposed of as described in 40 CFR 761.60, Disposal Requirements. The Rules, specifically 20.9.2.10.A NMAC state that no person shall dispose of any material regulated under the Federal TSCA, except at a facility authorized to accept such waste.

3.3 Refrigerant-containing Waste

Refrigerant-containing wastes are typically discarded white goods (i.e., appliances). More specifically, these wastes include refrigerators, air conditioners, freezers, ice makers, dehumidifiers, water coolers, and vending machines, as well as vehicle air conditioners. The contaminants of concern for refrigerant-containing wastes include chlorofluorocarbons gases (CFCs); which, when released, have been found to deplete the ozone layer. Under Section 608 of the Federal Clean Air Act (CAA), the EPA has established regulations (40 CFR Part 82, Subpart F) that:

- Require service practices that maximize recovery and recycling of ozone-depleting substances (both CFCs and hydrochlorofluorocarbons (HCFCs) and their blends) during the servicing and disposal of air-conditioning and refrigeration equipment.
- Set certification requirements for refrigerant recycling and recovery equipment, technicians, and refrigerant reclaimers.
- Restrict the sale of refrigerant to certified technicians.
- Require persons servicing or disposing of air-conditioning and refrigeration equipment to certify to EPA that they have acquired refrigerant recovery and/or recycling equipment and are complying with the requirements of the rule.
- Require the repair of substantial leaks in air-conditioning and refrigeration equipment with a refrigerant charge greater than 50 pounds.
- Establish safe disposal requirements to ensure removal of refrigerants from goods that enter the waste stream with the charge intact (e.g., motor vehicle air conditioners, home refrigerators, and room air conditioners). (https://www.epa.gov/section608/safe-disposal-procedures-household-appliances-use-refrigerants)

A copy of EPA's fact sheet entitled Safe Disposal Procedures for Household Appliances that Use Refrigerants (EPA July 2006) is provided in Attachment II.10-B-1. EPA requires that facilities that dispose or service refrigerant containing appliances certify that they have acquired recovery or recycling devices that meet EPA standards; and example certification provided by EPA is attached (Attachment II.10-B-2). EPA also requires that facilities that dispose of or recycle appliances must obtain a written and signed statement from each customer verifying that the refrigerant has been property removed prior to delivery to the facility. CREC does not accept refrigerant-containing appliances at the CRLF. An example form for facility acceptance of refrigerant-containing appliances is provided as Attachment II.10-B-3, should CREC elect to accept refrigerant-containing appliances in the future.

3.4 Medical Waste

3.4.1 Bloodborne Pathogen Waste

Occupational Safety and Health Administration (OSHA) requirements for bloodborne pathogens are listed in 29 CFR Part 1910.1030. OSHA defines bloodborne pathogens as the following:

> pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV). (29 CFR Part 1910.1030)

In accordance with 29 CFR Part 1910.1030, other potentially infectious materials include:

(1) The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids;

(2) Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and

(3) HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV. (29 CFR Part 1910.1030)

Biomedical wastes are required to be specially prepared and labeled for disposal, typically in brightly (red or orange) colored bags and/or labels identifying the waste as a biohazard.

> Regulated Waste means liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials. (29 CFR Part 1910.1030)

3.4.2 Infectious Waste

The Rules define infectious waste as described in Table II.10-6. Infectious wastes typically originate from hospitals, mortuaries, nursing homes, dentist offices, clinics, veterinary offices, research laboratories, etc. Infectious waste is prohibited from disposal in NM landfills (20.9.2.10.A(12) NMAC), and CREC focuses its waste screening and inspection program on identifying and precluding these materials.

Table II.10-6
Infectious Waste (20.9.2.7.I(5) NMAC)
Sheet 1 of 2

(5) "Infectious waste" means a solid waste that carries a probable risk of transmitting disease to humans or animals, and includes the following which shall be considered infectious waste:

- (a) cultures and stocks of infectious agents and associated biologicals, including: cultures from medical and pathological laboratories; cultures and stock of infectious agents from research and industrial laboratories; wastes from the production of biologicals; discarded live and attenuated vaccines except for residue in emptied containers; and culture dishes, assemblies and devices used to conduct diagnostic tests or to transfer, inoculate, and mix cultures;
- (b) human pathological wastes, including tissues, organs, and body parts that are removed during surgery, autopsy, other medical procedures, or laboratory procedures, but not including hair, or nails;
- (c) human and body fluid waste, including:
  - (i) liquid waste human blood;
  - (ii) blood products;
  - (iii) items with human blood (caking, flaking, saturated or dripping);
  - (iv) items with human blood, including serum, plasma, and other blood components, which were used or intended for use in patient care, specimen testing, or the development of biological products or pharmaceuticals;
  - (v) intravenous bags that have been used for blood transfusions;
  - (vi) items, including dialysate, that have been in contact with the blood of patients undergoing hemodialysis at hospitals or independent treatment centers;
  - (vii) items contaminated by body fluids from persons at trauma scenes, during surgery, autopsy, other medical procedures, or laboratory procedures;
  - (viii) specimens of blood products, and their containers; and
  - (ix) other potentially infectious materials as defined by the U.S. department of labor occupational safety and health administration at 29 CFR 1910.1030(b), including the following body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids;
- (d) contaminated animal carcasses, body parts, blood, blood products, secretions, excretions, and bedding of animals that were known to have been exposed to zoonotic infectious agents or non-zoonotic human pathogens, including during research (including research in veterinary schools and hospitals), production of biologicals, or testing of pharmaceuticals;

Table II.10-6 (Continued)
Infectious Waste (20.9.2.7.I(5) NMAC)
Sheet 2 of 2

(e) biological wastes and waste contaminated with bloody excretions, exudates, or secretions from:

  (x) humans who are isolated to protect others from rare diseases such as viral hemorrhagic fevers (Ebola, Lassa, Marburg) or other emerging infectious diseases whose biological wastes and waste contaminated with bloody excretions, exudates, or secretions are deemed infectious waste as described by advisory agencies such as the center for disease control (CDC);

  (xi) isolated animals known or suspected to be infected with rare diseases such as bovine spongiform encephalopathy (BSE) or other emerging infectious diseases identified by an advisory agency;

(f) discarded sharps, used or unused (unless in original packaging), generated at a facility, that have, or are likely to have, come in contact with infectious agents while involved in human or animal patient care, treatment, or research, including hypodermic needles, syringes (with the attached needle), Pasteur pipettes, scalpel blades, blood vials, needles with attached tubing, culture dishes, suture needles, slides, cover slips, and other broken or unbroken glass or plasticware, unless properly treated or otherwise specifically exempted;

(g) infectious waste **does not include**:

  (xii) wastes generated in a household (except for infectious wastes generated by home health care professionals);

  (xiii) human corpses, remains, and anatomical parts that are intended for interment or incineration as specified in Paragraphs (4) and (5) of Subsection E of 20.9.8.13 NMAC, or are donated and used for scientific or medical education, research, or treatment;

  (xiv) etiological agents being transported for purposes other than waste processing or disposal pursuant to the requirements of the United States department of transportation (49 CFR 171.1-190) and the New Mexico department of transportation and other applicable shipping requirements;

  (xv) reusable or recyclable containers or other non-disposable materials, if they are cleaned and disinfected by a method approved by the secretary pursuant to NMSA 1978 74-9-3 P, or if there has been no direct contact between the surface of the container and materials identified as "infectious waste;"

  (xvi) soiled diapers that do not contain materials identified as infectious waste;

  (xvii) body excretions such as feces and secretions such as nasal discharges, saliva, sputum, sweat, tears, urine, and vomitus unless visibly contaminated with blood or waste from a person or animal as described in Subparagraph (e) of Paragraph (5) of Subsection I of 20.9.2.7 NMAC; or

  (xviii) used or unused syringes that have not come into contact with human blood or other bodily fluids or infectious agents and do not have a needle attached.

3.5 Radioactive Waste

Radioactive wastes are regulated by the Nuclear Regulatory Commission (NRC). Radioactive wastes are those that spontaneously emit ionizing radiation, and these regulated wastes include:

- Low-level waste (LLW) includes radioactively contaminated protective clothing, tools, filters, rags, medical tubes, and many other items
- Waste incidental to reprocessing (WIR) refers to certain waste byproducts that result from reprocessing spent nuclear fuel, which the U.S. Department of Energy (DOE) has distinguished from high-level waste (described below)
- High-level waste (HLW) is "irradiated" or used nuclear reactor fuel
- Uranium mill tailings are the residues remaining after the processing of natural ore to extract uranium and thorium (http://www.nrc.gov/waste.html)

These wastes are prohibited from acceptance at NMED-regulated municipal solid waste facilities. The Rules prohibit the processing, recycling, transferring, transformation, or disposal of radioactive waste in a solid waste facility (20.9.2.10.A(10) NMAC).

3.6 Asbestos

Asbestos is a mineral composed of silicon, oxygen, hydrogen, and various metal cations (positively charged metal ions). The three most common varieties of asbestos are chrysotile (fibers are pliable and cylindrical, and often arranged in bundles), amosite and crocidolite (fibers are like tiny needles). Unlike most minerals, which turn into dust particles when crushed, asbestos breaks up into fine fibers that are too small to be seen by the human eye. Often individual fibers are mixed with a material that binds them together, producing asbestos containing material (ACM).

An Asbestos Fact Sheet, compiled by the Environmental Information Association, is provided as Attachment II.10.C. The fact sheet provides a list of common asbestos-containing materials that may enter a solid waste facility, as well as a list of definitions and regulatory references.

At the Federal level, asbestos is regulated through the OSHA, the Asbestos Hazard Emergency response Act (AHERA), and the National Emission Standard for Hazardous Air Pollutants (NESHAP). The Rules considers asbestos a special waste, requiring special handling and disposal. The Rules require that a facility must be permitted to accept ACM (20.9.2.10.A(4) NMAC).

3.7 Pesticides and Pesticide Containers

Pesticides are regulated under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The term pesticide applies to a variety of substances used to control pests, including herbicides and fungicides. The EPA identifies a pesticide as any substance or mixture of substances intended for:

- preventing,
- destroying,
- repelling, or
- mitigating any pest (https://www.epa.gov/pesticides)

Household use pesticide containers may be disposed of in a municipal solid waste landfill, if empty. If pesticide containers are still partially full of product, the EPA recommends that consumers contact their local solid waste agency for instruction on disposal. Generally, pesticides can be collected as part of household hazardous waste (HHW) collection programs. Leftover pesticides should NEVER be poured into a sink, toilet, sewer, or street drain. Non-hazardous pesticides may be disposed of in an approved municipal solid waste landfill; hazardous pesticides must be disposed of in a permitted hazardous waste disposal facility as approved by the state solid waste agency. FIFRA requires pesticide containers to be labeled with hazard information and safe disposal information.

3.8 Liquids

A liquid waste is any waste material that has been determined to contain "free liquids" as identified through the Paint Filter Liquid Test. EPA guidelines (Method 9095B) for the liquid waste classification test are provided as Attachment II.10.D. Liquid wastes are prohibited from disposal in municipal solid waste landfills. The Criteria for Municipal Solid Waste Landfills (40 CFR 258.28) require that bulk or non-containerized liquid waste cannot be disposed of in a municipal solid waste landfill unless:

1. The material is household waste other than septic waste
2. The waste is leachate or gas condensate derived from the landfill unit (40 CFR 258.28)

Containers holding liquid waste may not be placed in a municipal solid waste landfill unless:

1. The container is a small container similar in size to that found in household waste
2. The container is designed to hold liquids for use other than storage

3. The waste is household waste (40 CFR 258.28)

3.9 Lead-acid Batteries

Lead-acid batteries are most commonly used in vehicles, and nearly 90 percent of all lead-acid batteries are recycled. Many retailers that sell lead-acid batteries also collect used batteries for recycling. In NM, the disposal of lead-acid batteries at any landfill or incinerator is prohibited (20.9.2.10(11) NMAC). Recycling lead-acid batteries is the most viable alternative. Reclaimers crush batteries into nickel-sized pieces and separate the plastic components. They send the plastic to a re-processor for manufacture into new plastic products and deliver purified lead to battery manufacturers and other industries. A typical lead-acid battery contains 60 to 80 percent recyclable lead and plastic.

3.10 Used Oil

Used oil generally originates from vehicles, from household consumers who change out their own oil, or from commercial or industrial facilities. Oil is considered a 'liquid waste' because it fails the Paint Filter Liquid Test (Attachment II.10-D), and is therefore prohibited from disposal in NM landfills. Used oil recycling is a viable alternative, where used oil is collected in an appropriate container (generally an above-ground storage tank situated within a spill containment basin) and regularly picked up by a recycler.

3.11 Ash

Ash is a "special waste" in NM, requiring a special waste permit for disposal at a municipal solid waste landfill (20.9.8.14 NMAC), and CRLF does not accept ash that meets the definition of special waste. Ash is defined as the residue that results from the incineration or transformation of solid waste at a power generating facility or solid waste facility; and includes both fly ash and bottom ash, as well as residue from the incineration of densified-refuse-derived fuel and refuse-derived fuel (20.9.2.7.A(10) NMAC). This definition does not include residue from structure fires, fireplaces, air curtain incinerators, or small animal crematoria. (20.9.2.7.A(10) NMAC).

3.12 Heavy Metals

Many energy-efficient light bulbs contain mercury. The two most common types of energy-efficient lighting that contain mercury are:

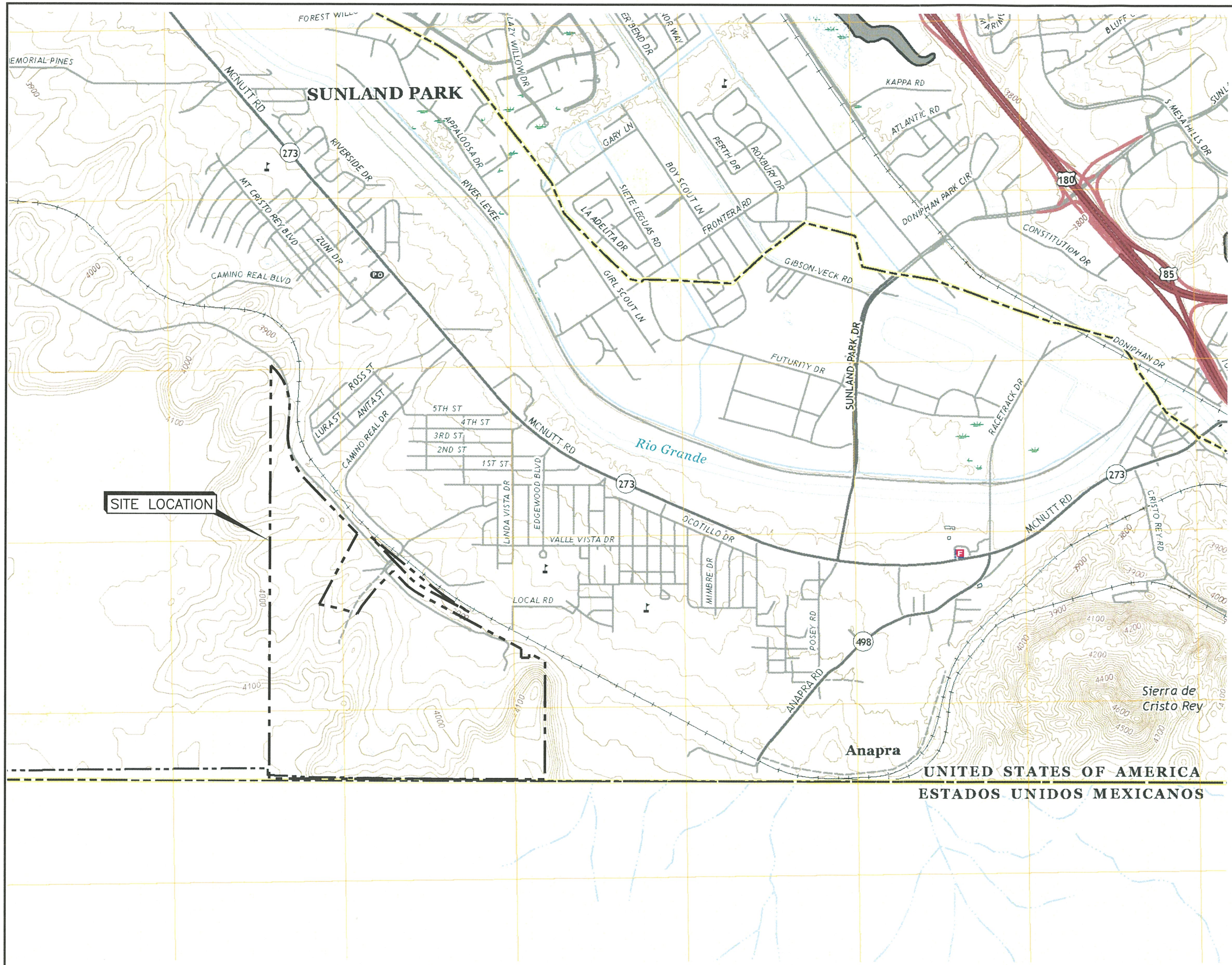
- fluorescent bulbs, including compact fluorescent light bulbs (CFLs) and

- high intensity discharge (HID) bulbs.

Fluorescent bulbs are commonly found in schools, hospitals, manufacturing plants, office buildings and stores. HID bulbs include mercury vapor bulbs, metal halide and high-pressure sodium bulbs, and are used for streetlights, floodlights, parking lots, and industrial lighting. Other mercury-containing bulbs include neon/argon lamps commonly used in the electric sign industry. The use of mercury-containing devices is on the decline, and CREC precludes their acceptance and disposal at the CRLF.

3.13 Septage

Septage is defined as the residual wastes and water periodically pumped from a liquid waste treatment unit or from a holding tank (20.9.2.7.S(5) NMAC). Septage is both a liquid waste and can potentially carry pathogens. Septage is prohibited from disposal in municipal solid waste landfills in NM. CREC precludes the acceptance of septage at the CRLF.



LEGEND

— - —	PROPERTY BOUNDARY

NOTES:

1. BASED ON SMELTERTOWN, 2019 USGS QUADRANGLE 7.5' MAP.
2. GEOGRAPHIC COORDINATES FOR THE CENTER OF THE SITE: 31° 47' 22.67" N. 106° 35' 34.41" W.

JONATHAN VINCENT QUEEN
25844

9/26/22

☐ DRAFT
☒ FOR PERMITTING PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 07/2022
FILE: 0601-667-11
CAD: II.10.1-SITE LOCATION.DWG

DRAWN BY: JDW
DESIGN BY: KRB
REVIEWED BY: JVQ

PREPARED FOR
CAMINO REAL ENVIRONMENTAL CENTER, INC.

REVISIONS

NO.	DATE	DESCRIPTION

Weaver Consultants Group

SITE LOCATION MAP

CAMINO REAL LANDFILL
SUNLAND PARK, NEW MEXICO

WWW.WCGRP.COM

FIGURE II.10.1

O:\0601\667\EXPANSION 2019\VOLUME 2\PART 10\II-10-1-SITE LOCATION.dwg, rarrington, 1:2

ATTACHMENT II.10-A

VEHICLE INSPECTION FORM

Vehicle Inspection Form
Camino Real Landfill

Date of Inspection:		Driver Name:	
Time of Inspection:		Company:	
Inspector Name and Title:		Phone:	

Inspection Type:	☐ Visual ☐ Sample Collected (Sample Disposition) ____________________ ☐ Weight/Volume

Truck License No.:		Truck Description:	

Source of Load:			

Description of Load:			

Observations/Comments:			

Action Taken:			

____________________________________ Inspector Signature

____________________________________ Driver Signature

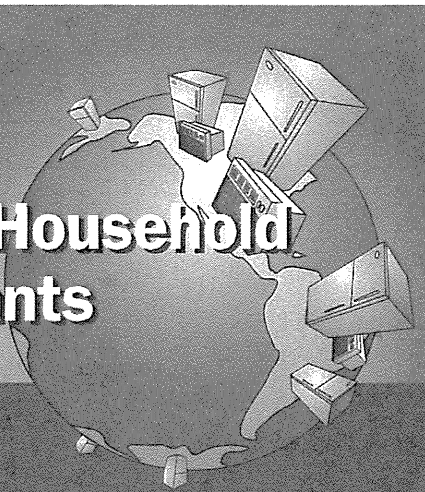
ATTACHMENT II.10-B

REFRIGERANT CONTAINING WASTES

ATTACHMENT II.10-B.1

SAFE DISPOSAL PROCEDURES FOR HOUSEHOLD APPLIANCES
(EPA JULY 2006)

EPA United States
Environmental Protection
Agency



Safe Disposal Procedures for Household Appliances that Use Refrigerants

Introduction

Appliances that are no longer needed are often dropped off for disposal at solid waste landfills, metal recyclers, or similar facilities. Many of these appliances, such as window air conditioners, motor vehicle air conditioners, and refrigerators, rely on ozone-depleting refrigerants and their substitutes. As the owner or operator of a solid waste landfill or metal recycling facility, you need to comply with the U.S. Environmental Protection Agency's (EPA's) regulations for the removal of refrigerants before you dispose of any appliances.

Common refrigerants include ozone-depleting substances called chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs), which are also known by the trade name Freon®.

This brochure describes the federal safe disposal requirements you must follow when your facility accepts an appliance that might contain refrigerants for disposal. ***You should also check with your local environmental agency to make sure that you comply with any local or state regulations as well when disposing of these appliances.***

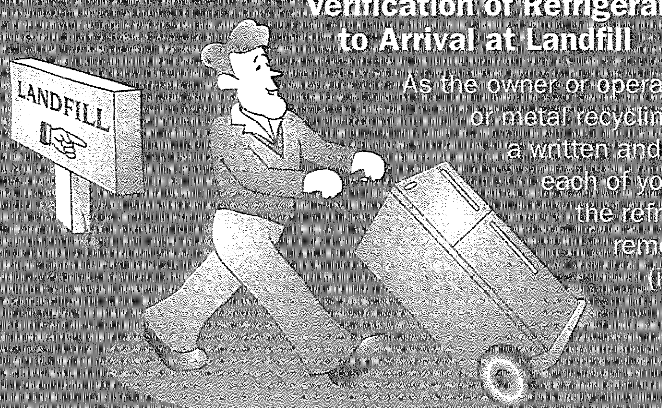
Which Appliances You Need to Check Before Accepting for Disposal

Appliances with cooling elements, such as motor vehicle air conditioners, household refrigerators and freezers, window air conditioners, water coolers, vending machines, ice makers and dehumidifiers, are subject to EPA's safe disposal requirements.

What You Need to Do When You Accept these Appliances for Disposal

Under the federal regulations, you are responsible for making sure the refrigerant has been properly removed before an appliance is buried, shredded or dismantled, either by verifying its removal prior to arrival at your facility, or by removing it yourself.

Verification of Refrigerant Removal Prior to Arrival at Landfill



As the owner or operator of a solid waste landfill or metal recycling facility, you must obtain a written and signed statement from each of your customers verifying that the refrigerant has been properly removed from all appliances (including motor vehicle air conditioners) prior to delivery to your facility.

What if I receive an appliance with a sticker on it?

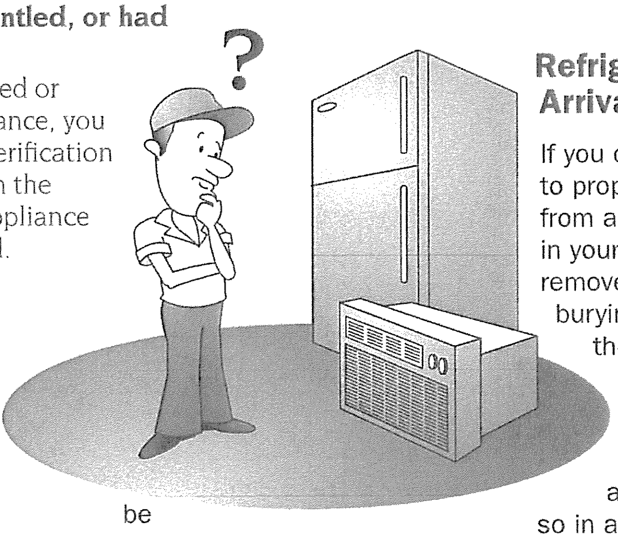
In most cases, marks on appliances such as "X" or the presence of a sticker in some way stating that the appliance has been "emptied" do **NOT** satisfy the EPA verification requirements.

You must maintain copies of these documents on site for at least three years. This documentation must include:

- A signed statement from the customer that sent the appliance for disposal stating that all refrigerant has been removed from the appliance in accordance with the standards listed in EPA's regulations, and
- The name and address of the person (for example, an appliance retailer) who removed the refrigerant and the specific date the refrigerant was removed, OR a contract that refrigerant will be removed prior to delivery.

What if I receive an appliance that has been crushed, partially dismantled, or had its refrigerant line cut?

If you receive such a crushed or partially dismantled appliance, you still must obtain written verification of refrigerant removal from the customer that sent that appliance to your facility for disposal.



As part of your verification efforts, EPA recommends that you notify any customers sending these appliances for disposal that the refrigerant must be properly removed before the appliances arrive at your facility. You may do this by:

- Posting warning signs at your facility's entrance stating that your facility will not accept any whole, partially dismantled, or crushed appliance or motor vehicle air conditioner for disposal without accompanying documentation of proper refrigerant removal, or
- Sending letters to more frequent customers stating that refrigerant must be properly removed (and documentation of the removal brought by the truck driver) before such appliances or motor vehicle air conditioners can be accepted for disposal, or
- Using any other equivalent means you can think of to notify your customers.

What should I do if a truck delivers a load of solid waste containing one or more appliances, but does not have any refrigerant removal documentation for the appliances or know who the original appliance owners or trash collector were?

You can do any of the following:

- Refuse to dispose of the appliance(s) and make the truck driver load the appliance back on the truck for return to whatever location the driver started from;
- Accept the appliance(s) from the truck driver, and then send the appliance(s) to a technician who can remove the refrigerant in accordance with EPA's regulations; or
- Remove the refrigerant yourself using EPA-certified equipment (see next section).

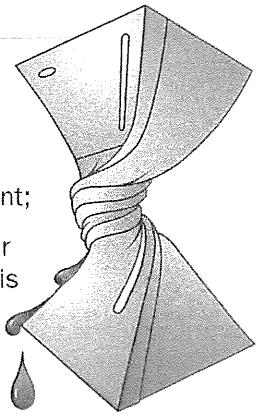
Refrigerant Removal after Arrival at Your Facility

If you do not require your customers to properly remove the refrigerant from any appliance before it arrives in your facility, you must properly remove the refrigerant prior to burying, shredding or dismantling the appliance at your facility.

If you choose to remove and collect the remaining refrigerant from an appliance at your facility, you must do so in accordance with EPA's safe disposal requirements. You must obtain and properly use refrigerant recovery equipment that has been certified for use with small appliances or motor vehicle air-conditioners. As the owner of refrigerant recovery equipment you must register or certify that you have obtained refrigerant recovery equipment and that you will comply with the safe disposal requirements.

The equipment certification must be signed by the owner of the equipment or another responsible officer and sent to the appropriate EPA Regional Office. You are not required to send in a new certification each time you add refrigerant recovery equipment at your facility.

Equipment certification requirements are located in 40 CFR Part 82, Subpart F, §82.162(c) and at **http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=b37988720482f5c67595ddf2ebd45422&rgn=div8&view=text&node=40:17.0.1.1.2.6.1.8&idno=40**



The certification must include:

1. The name and address, including the county name, of the purchaser of the equipment;
2. The name and address of your facility (where the equipment is or will be located);
3. The number of service trucks (or other vehicles) used to transport technicians and equipment between your facility, any job sites and the field;
4. The manufacturer name, the date of manufacture, and, if applicable, the model and serial number of the equipment; and
5. A statement that the equipment will be properly used in servicing, recovering, or disposing of appliances and that the information given is true and correct.

You can find a sample form for equipment certification at **www.epa.gov/ozone/title6/608/recoveryform.pdf**

On-site personnel recovering refrigerant from appliances that arrive at your facility for disposal are not required to obtain EPA technician certification.

Further Information

For further information regarding the proper disposal of appliances, please visit **www.epa.gov/ozone** or call EPA's Stratospheric Ozone Information Hotline at 1-800-296-1996

A factsheet with more information on the disposal requirements may be found at **www.epa.gov/ozone/title6/608/608fact.html#disposal**

A copy of the federal regulations described in this brochure, located in 40 CFR Part 82, Subpart F, are available at **http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=0cdade3c39eb979704559c80ede2ef61&tpl=/ecfrbrowse/Title40/40cfr82_main_02.tpl**

Required levels for the evacuation of refrigerant from appliances may be found at **www.epa.gov/ozone/title6/608/608evtab.html**

Lists of certified refrigerant recovery equipment may be obtained from the following sources:

- The Air-Conditioning and Refrigeration Institute at 703-524-8800 or online at **www.ari.org/directories/rrre/#previous**
- Underwriters Laboratories 708-272-8800 ext. 42371 or online at **www.ul.com**
- EPA's listing of approved refrigerant recovery equipment for motor vehicle air conditioners online at **www.epa.gov/ozone/title6/609/technicians/appequip.html**

A list of EPA-certified refrigerant reclaimers is available at **www.epa.gov/ozone/title6/608/reclamation/reclist.html**

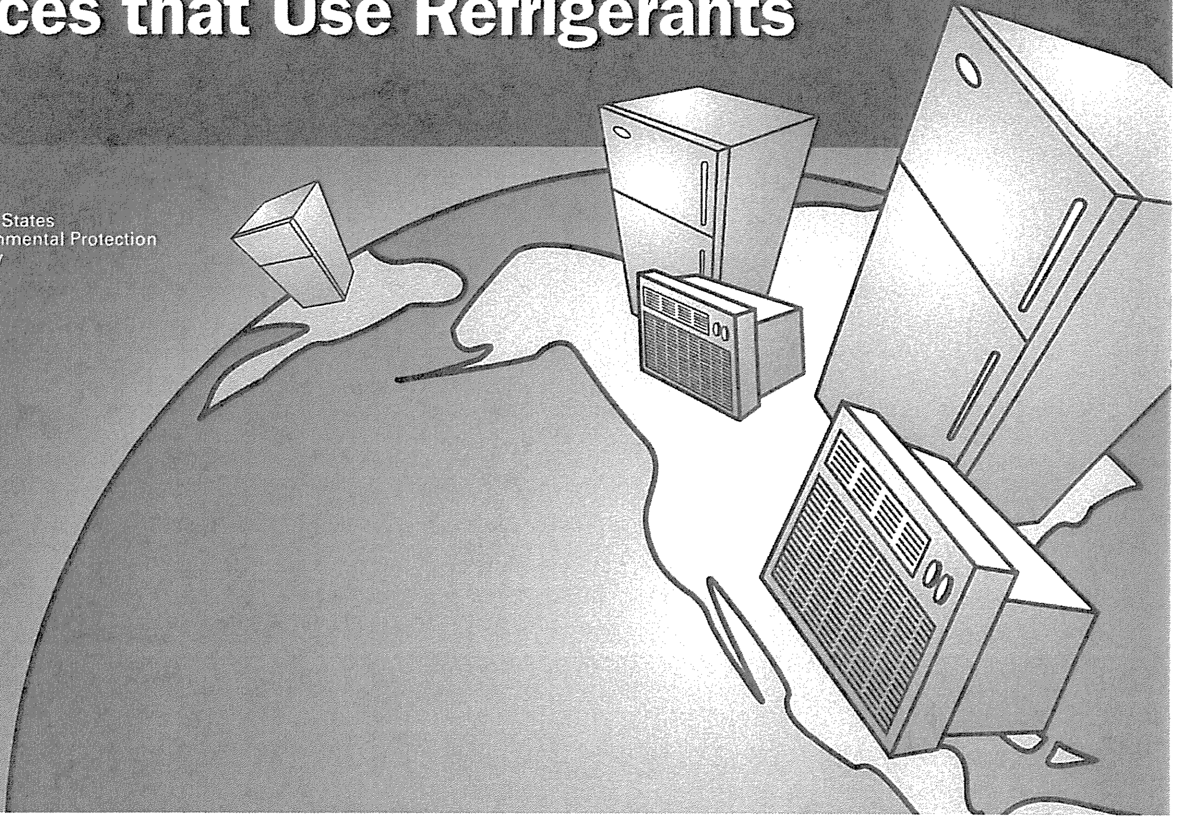
Links to all state environmental agencies can be found at **www.epa.gov/epahome/state.htm**

What can I do with the refrigerant when I remove it from an appliance at my facility?

- You must collect the refrigerant, since EPA's regulations prohibit the venting of refrigerant compounds to the atmosphere.
- In most cases, you cannot sell the collected refrigerant for direct re-use. Used refrigerant must be reclaimed by an EPA-certified reclaimer prior to resale to a new owner. EPA-certified refrigerant reclaimers have specialized equipment that has the ability to clean used refrigerant back to virgin specifications.
- You can sell collected refrigerant for direct re-use if the refrigerant was **ONLY** removed from motor vehicle air conditioners and will **ONLY** be used in motor vehicle air conditioners by the new owner.

Safe Disposal Procedures for Household Appliances that Use Refrigerants

United States
Environmental Protection
Agency



Recycled/Recyclable
Printed with Vegetable Oil-Based Inks on Recycled Paper
(Minimum 50% Postconsumer) Process Chlorine Free

United States
Environmental Protection
Agency
5305P
Washington, DC 20460
EPA530-F-06-020
July 2006
www.epa.gov/osw

ATTACHMENT II.10-B.2

REFRIGERANT RECOVERY OR RECYCLING DEVICE ACQUISITION CERTIFICATION FORM
(EPA DECEMBER 2017)

Form Approved 11/04/2011
OMB No. 2060-0256
Expires: 12/31/2017

ENVIRONMENTAL PROTECTION AGENCY
REFRIGERANT RECOVERY OR RECYCLING DEVICE ACQUISITION CERTIFICATION FORM

EPA regulations require establishments that service or dispose of refrigeration or air-conditioning equipment to certify that they have acquired recovery or recycling devices that meet EPA standards for such devices. To certify that you have acquired equipment, please complete this form according to the instructions and **mail it to the appropriate EPA Regional Office. BOTH THE INSTRUCTIONS AND MAILING ADDRESSES CAN BE FOUND ON THE REVERSE SIDE OF THIS FORM.**

PART 1: ESTABLISHMENT INFORMATION

Name of Establishment

Street

(Area Code) Telephone Number

City State Zip Code

Number of Service Equipment Based at Establishment

Country

PART 2: REGULATORY CLASSIFICATION

Identify the type of work performed by the establishment. **Check all boxes that apply.**

☐ Type A - Service small appliances
☐ Type B - Service refrigeration or air-conditioning equipment other that small appliances
☐ Type C- Dispose of small appliances
☐ Type D - Dispose of refrigeration or air-conditioning equipment other than small appliances

PART 3: DEVICE IDENTIFICATION

	Name of Device(s) Manufacturer	Model Number	Year	Serial Number (if any)	Check Box if Self-Contained
1.					☐
2.					☐
3.					☐
4.					☐
5.					☐

PART 4: CERTIFICATION SIGNATURE

I certify that the establishment in Part 1 has acquired the refrigerant recovery or recycling device(s) listed in Part 2, that the establishment is complying with Section 608 regulations, and that the information gives is true and correct.

Signature of Owner/Responsible Officer Date Name (Please Print) Title

Form Approved 11/04/2011
OMB No. 2060-0256
Expires: 12/31/2017

INSTRUCTIONS

Part 1: Please provide the name, address, and telephone number of the establishment where the refrigerant recovery or recycling device(s) is (are) located. Please complete one form for each location. State the number of vehicles based at this location that are used to transport technicians and equipment to and from service sites.

Part 2: Check the appropriate boxes for the type of work performed by technicians who are employees of the establishment. The term "small appliance" refers to any of the following products tat are fully manufactured, charged, and hermetically sealed in a factory with five pounds or less of refrigerant: refrigerators, and freezers designed for home use, room air conditioners (including window air conditioners and packaged terminal air conditioners), packaged terminal heat pumps, dehumidifiers, under-the-counter ice makers, vending machines, and drinking water coolers.

Part 3: For each recovery or recycling device acquired, please list the name of the manufacturer of the device, and (if applicable) its model number and serial number.

If more that seven devices have been acquired, please fill out an additional form and attach it to this one. Recovery devices that are self-contained should be listed first and should be identified by checking the box in the last column on the right. Self-contained recovery equipment means refrigerant recovery or recycling equipment that is capable of removing the refrigerant from an appliance without the assistance of components contained in the appliance. On the other hand, system-dependent recovery equipment means refrigerant recovery equipment that requires the assistance of components contained in an appliance to remove the refrigerant from the appliance.

If the establishment has been listed as Type B and/or Type D in Part 2, then the first device listed in Part # must be a self-contained device and identifies as such by checking the box in the last column on the right.

If any of the devices are homemade, they should be identified by writing "homemade" in the column provided for listing the name of the device manufacturer. Type A or Type B establishments can use homemade devices manufactured before November 15, 1993. Type C or Type D establishments can use homemade manufactured anytime. If, however, a Type C or Type D establishment is using homemade equipment manufactured after November 15, 1993, then it must <u>not</u> use these devices for service jobs.

Form Approved
OMB No. 2060-0256
Expires: 12/31/2017

EPA REGIONAL OFFICES

Send your form to the EPA office listed under the state or territory in which the establishment is located.

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

CAA 608 Enforcement Contact: EPA
Region I; Mail Code OES04-2; 5 Post
Office Square; Boston, MA 02109

New York, New Jersey, Puerto Rico, Virgin Islands

CAA 608 Enforcement Contact: EPA
Region II; Mail Code 2DECA-AC; 290
Broadway; New York, NY 10007-1866

Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia

CAA 608 Enforcement Contact: EPA
Region III-Wheeling Office; Mail Code
3AP20; 1060 Chapline Street, Suite 303
Wheeling, WV 26003-2995

Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee

CAA 608 Enforcement Contact: EPA
Region IV; Mail Code APT-AE; 61 Forsyth
Street, SW; Atlanta, GA 30303-8960

Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

CAA 608 Enforcement Contact: EPA
Region V; Mail Code AE-17J; 77 West
Jackson Blvd.; Chicago, IL 60604-3507

Arkansas, Louisiana, New Mexico, Oklahoma, Texas

CAA 608 Enforcement Contact: EPA
Region VI; Mail Code 6EN-HM; 1445 Ross
Ave., Suite 1200; Dallas, TX 75202

Iowa, Kansas, Missouri, Nebraska

CAA 608 Enforcement Contact: EPA
Region VII; Mail Code AWMD/APCO
11201 Renner Boulevard
Lenexa, Kansas 66219

Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming

CAA 608 Enforcement Contact: EPA
Region VIII; Mail Code 8ENE-AT; 1595
Wynkoop Street, Denver, CO 80202

American Samoa, Arizona, California, Guam, Hawaii, Nevada

CAA 608 Enforcement Contact: EPA
Region IX; Mail Code AIR-5; 75
Hawthorne Street; San Francisco, CA
94105

Alaska, Idaho, Oregon, Washington

CAA 608 Enforcement Contact: EPA
Region X; Mail Code OAQ-107; 1200
Sixth Ave.; Seattle, WA 98101

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PUBLIC BURDEN

The purpose and need of this renewed collection request is to facilitate compliance with and enforcement of Section 608 of the Act by reducing emissions of class I and class II ozone-depleting refrigerants to the lowest achievable level during the service, maintenance, repair, and disposal of appliances. EPA has used and will continue to use these records and reports to ensure that refrigerant releases are minimized during the recovery and recycling of ozone-depleting refrigerants during the service, maintenance, repair, and disposal of appliances. Collection of this information is mandated by EPA regulations, in accordance with 40 CFR 82.162. This information is not shared with parties outside of the Federal government. EPA's confidentiality regulations (40 CFR 2.201 et seq.) assure computer data security, disclosure prevention, proper handling, proper storage, and proper disposal of the submitted information.

The public reporting and recordkeeping burden for this collection of information is estimated to average one (1) hour per response per respondent annually. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques, EPA has established a public docket for this ICR under Docket ID No. OAR-2003-0018, which is available for public viewing at the Air and Radiation Docket and Information Center in the EPA Docket Center (EPA/DC), EPA West, Room B102, 1301 Constitution Ave., NW, Washington, DC. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Reading Room is (202) 566-1744, and the telephone number for the OAR Docket is (202) 566-1742. An electronic version of the public docket is available through EPA Dockets (EDOCKET) at http://www.epa.gov/edocket. Use EDOCKET to submit or view public comments, access the index listing of the contents of the public docket, and to access those documents in the public docket that are available electronically. Once in the system, select "search," then key in the docket ID number identified above. Also, you can send comments to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW, Washington, DC 20503, Attention: Desk Office for EPA. Please include the EPA Docket ID No. (OAR-2003-0018) and OMB control number (2060-0256) in any correspondence.

ATTACHMENT II.10-B.3

REFRIGERANT CONTAINING APPLIANCES ACCEPTANCE FORM

REFRIGERANT CONTAINING APPLIANCES
ACCEPTANCE FORM

As the owner or operator of a solid waste landfill, you must obtain a written and signed statement from each of your customers verifying that the refrigerant has been property removed from all appliances (including motor vehicle air conditioners) prior to delivery to your facility. You must maintain copies of these documents on site for a minimum of three years.

Refrigerant Evacuation Performed By:

Name ______________________ Date of Refrigerant Evacuation ______________________

Company Name ______________________ Phone ______________________

Address ______________ City ______________ State ______________ Zip ______________

1. Type of Appliance ______________________ Serial Number ______________________

2. Type of Appliance ______________________ Serial Number ______________________

Customer Certification:

I, ______________________________, certify that all refrigerant has been removed from the appliance(s) listed above in accordance with the standards listed in the EPA regulations (40 CFR Part 82, Subpart F).

Customer Signature ______________________ Date ______________________

Customer Name (Print) ______________________ Phone ______________________

Address ______________ City ______________ State ______________ Zip ______________

Appliance(s) Accepted By:

Facility Name ______________________ Date ______________________

Employee Name ______________________ Employee Title ______________________

Employee Signature ______________________

Disposition of Appliance(s): ☐ Disposal ☐ Recycling ☐ Other/Notes: ______________________

Certification by Owners of Refrigerant Recovery and Recycling Equipment

EPA requires that persons servicing, disposing, or recycling air-conditioning and refrigeration equipment certify to the appropriate EPA Regional Office that they have acquired (built, bought, or leased) refrigerant recovery or recycling equipment and that they are complying with the applicable requirements of this rule. This certification must be signed by the owner of the equipment or another responsible officer and sent to the appropriate EPA Regional Office. Although owners of recycling and recovery equipment are required to list the number of trucks based at their shops, they do not need to have a piece of recycling or recovery equipment for every truck. Owners do not have to send in a new form each time they add recycling or recovery equipment to their inventory.

Safe Disposal Requirements

Refrigeration and air-conditioning equipment that is typically dismantled on-site before disposal (e.g., retail food refrigeration, central residential air conditioning, chillers, and industrial process refrigeration) has to have the refrigerant recovered in accordance with EPA's requirements for servicing prior to their disposal. However, equipment that typically enters the waste stream with the charge intact (e.g., motor vehicle air conditioners, household refrigerators and freezers, and room air conditioners) are subject to special safe disposal requirements.

Under these requirements, the final person in the disposal chain (e.g., a scrap metal recycler or landfill owner) is responsible for ensuring that refrigerant is recovered from equipment before the final disposal of the equipment. If the final person in the disposal chain accepts appliances that no longer hold a refrigerant charge, that person is responsible for maintaining a signed statement from whom the appliance/s is being accepted. The signed statement must include the name and address of the person who recovered the refrigerant, and the date that the refrigerant was recovered, or a copy of a contract stating that the refrigerant will be removed prior to delivery. EPA does not mandate a sticker as a form of verification that the refrigerant has been removed prior to disposal of the appliance. Such stickers do not relieve the final disposer of their responsibility to recover any remaining refrigerant in the appliance, unless the sticker consists of a signed statement that includes the name and address of the person who recovered the refrigerant, and the date that the refrigerant was recovered.

Technician certification is not required for individuals removing refrigerant from small appliances, motor vehicle air conditioners, and motor vehicle-like air conditioners, when preparing them for disposal. However, the equipment used to recover refrigerant from appliances prior to their final disposal must meet the same performance standards as refrigerant recovery equipment used prior to servicing, Persons involved in the final disposal of appliances must certify to their EPA Regional Office that they have obtained and are properly using EPA certified refrigerant recovery equipment. [http://www.epa.gov/Ozone/title6/608/608fact.html#disposal]

For Further Information

For further information concerning regulations related to stratospheric ozone protection, please call the Stratospheric Ozone Information Hotline: 1-800-296-1996. Lists of certified equipment may be obtained by contacting The Air Conditioning, Heating, and Refrigeration Institute (AHRI) at 703-524-8800 and Underwriters Laboratories (UL) at 708-272-8800 ext. 42371.

ATTACHMENT II.10-C

ASBESTOS FACT SHEET
(ENVIRONMENTAL INFORMATION ASSOCIATION 2009)

Asbestos Fact Sheet

Asbestos was used in a wide variety of building materials and building components during the twentieth century. The widest use occurred from 1940 - 1975.
Among the building materials found to contain asbestos are:

- acoustical texture
- Fire-proofing
- plaster
- joint compound
- wall texture
- spackle
- attic and wall insulation
- resilient flooring
- mastic
- recessed lighting fixtures
- wiring
- elevator brakes
- fire doors
- piping insulation
- piping joints
- gaskets
- valve packing and insulation
- exhaust pipe
- exhaust hoods
- lab benches
- blackboards
- duct insulation
- duct tape
- boiler blocking
- vibration damping cloth
- building panels
- siding
- shingles
- roofing felt
- roofing tar
- textured paint
- flashing
- water-proofing putty
- window caulking
- door insulation
- stucco
- mortar
- concrete
- swimming pool plaster
- asbestos cement pipe, shingles, panels, siding (transite™)

Asbestos is hazardous when inhaled. When asbestos-containing materials deteriorate or are damaged, asbestos fibers are released into the air. Fibers that are inhaled can lodge and remain in the lungs, or migrate to other locations in the body. Asbestos fibers have been shown to cause asbestosis, lung cancer and mesothelioma. Especially at risk are 1) occupationally exposed workers (mainly in the construction industry), 2) children, who will retain any inhaled fibers for decades, and 3) occupationally exposed smokers, who experience a greatly enhanced risk of lung cancer.

The most likely building materials to release fibers are those that are most likely to be damaged (friable materials). Typical friable materials are fireproofing on beams, acoustical texture and ceiling tiles. Non-friable materials are not likely to release fibers unless heavily damaged (made friable). Typical non-friable materials include vinyl floor tile, asphaltic roofing, mastics and asbestos-cement (transite) materials.

Current federal regulations 1) ban most mechanical system insulation and spray applied products, but do not restrict the use of most of the above bulleted list in new buildings, 2) specify work practices for the disturbance of asbestos-containing material, and 3) require the identification of asbestos in schools (AHERA) and in commercial and public buildings that are to be remodeled or demolished by either assuming or presuming it's presence or by sampling (OSHA, NESHAP). Exposure standards exist for the workplace (OSHA) and to clear abatements in schools (AHERA).

ASTM International has also published three standards for asbestos control, and may be accessed at www.astm.org.

Definitions:

ACM: Asbestos containing material wit greater than 1% asbestos. The current regulatory threshold in most cases.

AHERA: Asbestos Hazard Emergency Response Act (1986); legislation requiring the cataloging of asbestos containing building materials in schools. 40 CFR 763, Subpart E.

Asbestiform: tending to separate into fibers having length:width ratios from 10:1 to over 100:1.

Asbestos: any of a group of commercially mined minerals that tend to break into fibers. The regulated asbestos minerals are the serpentine mineral chrysotile and the asbestiform varieties of the amphibole minerals grunerite (amosite), riebeckite (crocidilite), tremolite, actinolite and anthophylitte. Amphibole minerals occure in both the regulated, asbestiform varieties and the non-regulated, non-asbestiform varieties. Asbestos fibers are resistant to high temperatures, have high tensile strength, and in some cases can be woven into cloth.

Asbestosis: a chronic fibrosis of the lungs caused by large exposures to asbestos, usually affecting miners, ship-builders and mill-workers.

EPA: Environmental Protection Agency; environmental issues government agency.

f/cc: fibers per cubic centimeter; reporting units for PCM analyses.

friable: able to be crumbled to powder by hand pressure when dry.

Mesothelioma: cancer of the lining of the lung or intestines.

NESHAP: National Emission Standard for Hazardous Air Pollutants.40 CFR 61, Subpart M.

Non-asbestiform: tending to break into cleavage fragments having length:width ratios from 2:1 to 20:1.

OSHA: Occupational Safety & Health Administration; requires that workers be protected from asbestos exposure.29 CFR 1926.1101, 29 CFR 1910.1001.

PCM: phase-contrast microscopy, an optical microscopy method used to perform fiber counts on air sample filters. Its disadvantages for asbestos analysis are that 1) it cannot resolve all asbestos fibers, and 2) it cannot distinguish asbestos fibers from other fibers.

PEL: permissible exposure limit; OSHA mandated maximum exposure level for workers without respiratory protection (8 hour time weighted average 0.1 f/cc and 30 minute exposure 1.0 f/cc).

PLM: polarized light microscopy method used to analyze bulk samples for asbestos content; required by both OSHA and EPA as the basic analytical method to determine applicability under the asbestos regulations.
structures/mm2: asbestos structures, as defined by AHERA (fiber, bundle, matrix or cluster), per square millimeter of filter; reporting units for AHERA TEM analyses.

TEM: transmission electron microscopy, highly technical equipment used to perform asbestos analysis on air samples. It can resolve and distinguish all asbestos fibers from other fibers. Required for "final clearance" before re-occupancy in schools under AHERA.

The primary federal asbestos regulations are:

- OSHA Asbestos in the construction industry (29 CFR 1926.1101)
- OSHA Asbestos in general industry (29 CFR 1910.1001)
- OSHA Respiratory protection (29 CFR 1910.134)
- EPA AHERA: Asbestos in schools (40 CFR 763, subpart E)
- EPA NESHAP: Control of emissions, waste management & disposal(40 CFR 61 subpart M).
- EPA Model Accreditation Plan: certified persons and specifications (40 CFR 763, appendix C of subpart E)
- EPA Worker Protection: protects asbestos workers excluded from federal OSHA (40 CFR 763, subpart G)

ATTACHMENT II.10-D

METHOD 9095B – PAINT FILTER LIQUIDS TEST (EPA NOVEMBER 2004)

METHOD 9095B

PAINT FILTER LIQUIDS TEST

1.0 SCOPE AND APPLICATION

1.1 This method is used to determine the presence of free liquids in a representative sample of waste.

1.2 The method is used to determine compliance with 40 CFR 264.314 and 265.314.

2.0 SUMMARY OF METHOD

2.1 A predetermined amount of material is placed in a paint filter. If any portion of the material passes through and drops from the filter within the 5-min test period, the material is deemed to contain free liquids.

3.0 INTERFERENCES

3.1 Filter media were observed to separate from the filter cone on exposure to alkaline materials. This development causes no problem if the sample is not disturbed.

3.2 Temperature can affect the test results if the test is performed below the freezing point of any liquid in the sample. Tests must be performed above the freezing point and can, but are not required to, exceed room temperature of 25 °C.

4.0 APPARATUS AND MATERIALS

4.1 Conical paint filter -- Mesh number 60 +/- 5% (fine meshed size). Available at local paint stores such as Sherwin-Williams and Glidden.

4.2 Glass funnel -- If the paint filter, with the waste, cannot sustain its weight on the ring stand, then a fluted glass funnel or glass funnel with a mouth large enough to allow at least 1 in. of the filter mesh to protrude should be used to support the filter. The funnel should be fluted or have a large open mouth in order to support the paint filter yet not interfere with the movement, to the graduated cylinder, of the liquid that passes through the filter mesh.

4.3 Ring stand and ring, or tripod.

4.4 Graduated cylinder or beaker -- 100-mL.

5.0 REAGENTS

5.1 None.

6.0 SAMPLE COLLECTION, PRESERVATION, AND HANDLING

A 100-mL or 100-g representative sample is required for the test. If it is not possible to obtain a sample of 100 mL or 100 g that is sufficiently representative of the waste, the analyst may use larger size samples in multiples of 100 mL or 100 g, i.e., 200, 300, 400 mL or g. However, when larger samples are used, analysts shall divide the sample into 100-mL or 100-g portions and test each portion separately. If any portion contains free liquids, the entire sample is considered to have free liquids. If the sample is measured volumetrically, then it should lack major air spaces or voids.

7.0 PROCEDURE

7.1 Assemble test apparatus as shown in Figure 1.

7.2 Place sample in the filter. A funnel may be used to provide support for the paint filter. If the sample is of such light bulk density that it overflows the filter, then the sides of the filter can be extended upward by taping filter paper to the <u>inside</u> of the filter and above the mesh. Settling the sample into the paint filter may be facilitated by lightly tapping the side of the filter as it is being filled.

7.3 In order to assure uniformity and standardization of the test, material such as sorbent pads or pillows which do not conform to the shape of the paint filter should be cut into small pieces and poured into the filter. Sample size reduction may be accomplished by cutting the sorbent material with scissors, shears, a knife, or other such device so as to preserve as much of the original integrity of the sorbent fabric as possible. Sorbents enclosed in a fabric should be mixed with the resultant fabric pieces. The particles to be tested should be reduced smaller than 1 cm (i.e., should be capable of passing through a 9.5 mm (0.375 inch) standard sieve). Grinding sorbent materials should be avoided as this may destroy the integrity of the sorbent and produce many "fine particles" which would normally not be present.

7.4 For brittle materials larger than 1 cm that do not conform to the filter, light crushing to reduce oversize particles is acceptable if it is not practical to cut the material. Materials such as clay, silica gel, and some polymers may fall into this category.

7.5 Allow sample to drain for 5 min into the graduated cylinder.

7.6 If any portion of the test material collects in the graduated cylinder in the 5-min period, then the material is deemed to contain free liquids for purposes of 40 CFR 264.314 and 265.314.

8.0 QUALITY CONTROL

8.1 Duplicate samples should be analyzed on a routine basis.

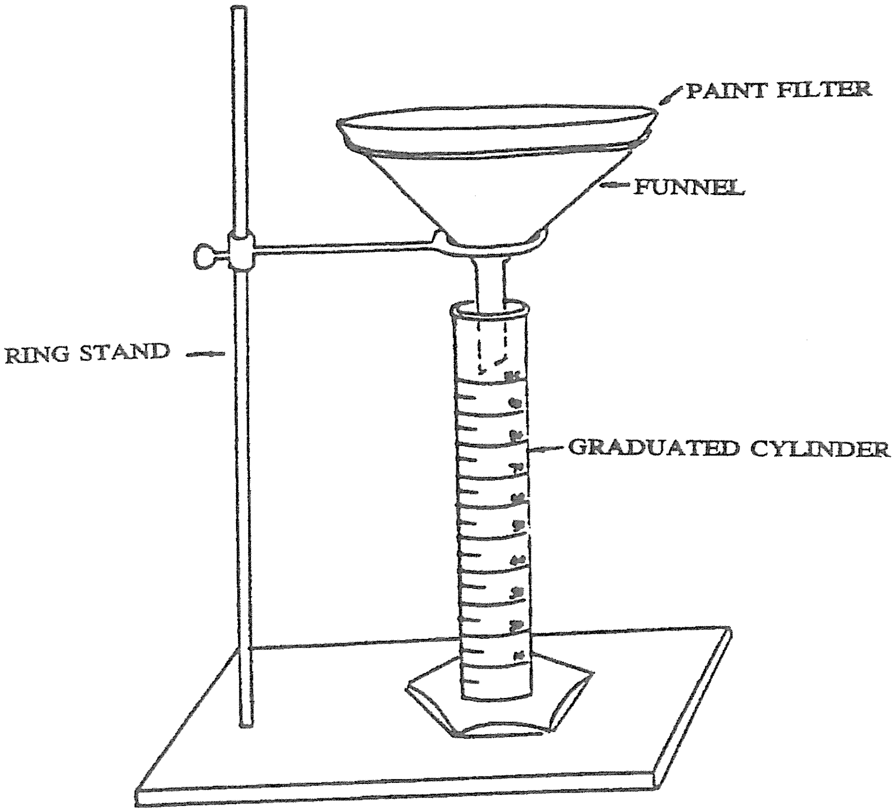
9.0 METHOD PERFORMANCE

9.1 No data provided.

10.0 REFERENCES

10.1 None provided.

FIGURE 1
PAINT FILTER TEST APPARATUS



METHOD 9095B
PAINT FILTER LIQUIDS TEST