Photograph Log

[redacted]

Fort Bliss
Limits of Waste Investigation
30056989

	**Photograph: CP-11-4** **Description:** Top view of concrete pile. Visible are some street curb concrete pieces. **Location:** Fort Bliss Landfill **Photograph taken by:** [redacted] **Date:** 5/27/2021
	**Photograph: CP-11-5** **Description:** Some visible rebar steel wire within the concrete pile. **Location:** Fort Bliss Landfill **Photograph taken by:** [redacted] **Date:** 5/27/2021

Photograph Log

[redacted]

Fort Bliss
Limits of Waste Investigation
30056989

Photograph: CP-11-6

Description: Large pieces of concrete some measuring up to 5 feet in length visible in the concrete pile along with steel pipes and steel rebar wire.

Location: Fort Bliss Landfill

Photograph taken by: [redacted]

Date: 5/27/2021

Photograph: CP-11-7

Description: Possible lead-based paint chipping from a cinder block wall near pile of broken up concrete.

Location: Fort Bliss Landfill

Photograph taken by: [redacted]

Date: 5/27/2021

Photograph Log

[redacted]

Fort Bliss
Limits of Waste Investigation
30056989

	**Photograph: CP-12-1** **Description:** Large concrete structure found on north side of landfill. Vertical height of about 6 feet. **Location:** Fort Bliss Landfill **Photograph taken by:** [redacted] **Date:** 5/27/2021
	**Photograph: CP-12-2** **Description:** Concrete Structure approximately 20 feet away from another concrete structure that measures about 6 feet tall. **Location:** Fort Bliss Landfill **Photograph taken by:** [redacted] **Date:** 5/27/2021

Photograph Log

[redacted]

Fort Bliss
Limits of Waste Investigation
30056989

	**Photograph: CP-13-1** **Description:** Large concrete structure similar as CP-12-1 but measuring a width of about 4 feet. **Location:** Fort Bliss Landfill **Photograph taken by:** [redacted] **Date:** 5/27/2021
	**Photograph: CP-13-2** **Description:** Concrete structure measuring about 6 feet tall. **Location:** Fort Bliss Landfill **Photograph taken by:** [redacted] **Date:** 5/27/2021 5/27/2021

Photograph Log

[redacted]

Fort Bliss
Limits of Waste Investigation
30056989

	**Photograph: CP-13-3** **Description:** Looking northeast at side of concrete structure. **Location:** Fort Bliss Landfill **Photograph taken by:** [redacted] **Date:** 5/27/2021 5/27/2021
	**Photograph: CP-14-1** **Description:** Visible small pieces of concrete thrown across the northeastern portion of the landfill. **Location:** Fort Bliss Landfill **Photograph taken by:** [redacted] **Date:** 5/27/2021

Photograph Log

[redacted]

Fort Bliss
Limits of Waste Investigation
30056989

	**Photograph: CP-14-2** **Description:** More visible pieces of concrete measuring up to 3 feet thrown across the northeastern portion of the landfill. **Location:** Fort Bliss Landfill **Photograph taken by:** [redacted] **Date:** 5/27/2021
	**Photograph: CP-15-1** **Description:** Massive concrete structure, possible a foundation for a column at one point. **Location:** Fort Bliss Landfill **Photograph taken by:** [redacted] **Date:** 5/27/2021 5/27/2021

Photograph Log

[redacted]

Fort Bliss
Limits of Waste Investigation
30056989

	**Photograph: CP-15-2** **Description:** The center piece of the massive structure is about 3 feet in diameter. **Location:** Fort Bliss Landfill **Photograph taken by:** [redacted] **Date:** 5/27/2021
	**Photograph: CP-15-3** **Description:** Same concrete structure as previous photo with measuring up to 8 feet wide. **Location:** Fort Bliss Landfill **Photograph taken by:** [redacted] **Date:** 5/27/2021

Photograph Log

[redacted]

Fort Bliss
Limits of Waste Investigation
30056989

	**Photograph: CP-16-1** **Description:** Concrete structure with steel wire measuring about 2.5 feet tall. **Location:** Fort Bliss Landfill **Photograph taken by:** [redacted] **Date:** 5/27/2021 5/27/2021
	**Photograph: CP-16-2** **Description:** Same concrete structure as previous photo with measuring up to 8 feet wide. **Location:** Fort Bliss Landfill **Photograph taken by:** [redacted] **Date:** 5/27/2021 5/27/2021

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Appendix C – Laboratory Report

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[redacted]

PROJECT ASTM SOIL CLASSIFICATION REPORT
SOIL SIEVE ANALYSIS, HYDROMETER ANALYSIS
ATTERBERG LIMITS, SOIL CLASSIFICATION
TEST RESULTS

[redacted]

CQC PROJECT NO: ATCQC21-001-22 (Misc.)
PROJECT NAME: Laboratory Testing Services
Fort Bliss Geotech Samples Project
[redacted]
Certified Project Manager

REPORT DATE: 06/28/21
CLIENT: [redacted]

PCN No.: 21-2633-1
SAMPLE NO.: 1

SAMPLE INFORMATION:

DELIVERED DATE: 6/15/2021 SAMPLED BY: Client
ARRIVAL TIME: NA
DEPARTURE TIME: NA
STAND-BY TIME: --

SOIL SAMPLE LOCATION: Provided Soil Material (1-Gal. Bag) - IT20-10, approx. 0'-½' below existing grade elevation (Per Client).

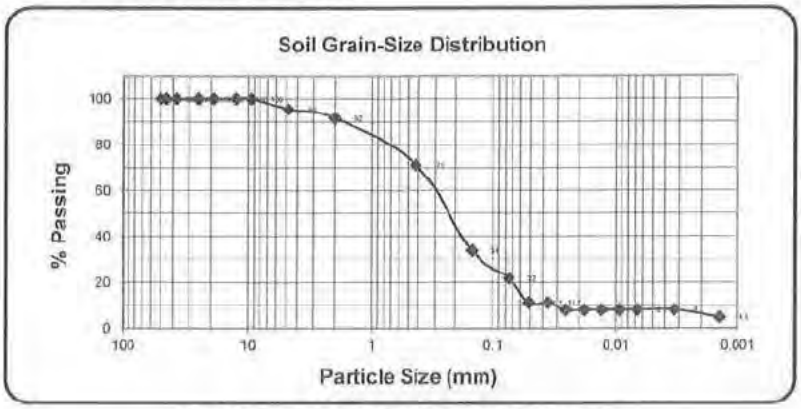
SPECIFIED USE: --

SOIL / DESCRIPTION: Provided Soil Material (1-Gal. Bag) - **Project Sample No. 1 (IT20-10)** / Fine to Medium Grained, Light Brown, Silty Sand with traces of fine gravel.

SAMPLE TEST RESULTS:

Sieve Analysis Test: ASTM C 136, D 6913

Sieve Size/No.	Percent Retained	Percent Passing	Fill Material Specification % Passing
3"	0	100	*
1½"	0	100	*
1"	0	100	*
¾"	0	100	*
½"	0	100	*
⅜"	0	100	*
#4	4	96	*
#10	8	92	*
#40	29	71	*
#100	66	34	*
#200	78.2	21.8	*



D10= 0.03
D30= 0.13
D60= 0.34
Cc= 1.35
Cu= 9.97

Test Method: ASTM D 2487 - Soil Class: SM

Particle Size Distribution (Hydrometer Analysis): ASTM D7928

D (mm)	Mass Finer (%)
0.051	11.2
0.0361	11.2
0.0258	8.0
0.0182	8.0
0.0133	8.0
0.0094	8.0
0.0067	8.0
0.0033	8.0
0.0014	4.8

Estimated (%)	
Gravel	4.4
Sand	73.7
Fines	21.8
Silt	13.8
Clay	8.0

Atterberg Limits Test: ASTM D 4318

Limit Test	Index Test Result	Fill Material Specification
LL	NV	*
PL	NV	*
PI	NPT	*

Comment: NPT- Nonplastic by Test / NS - Not Specified / NV - No Value / NA - Non Applicable

Reference Specifications:
[1] Specification not provided by Client.

FILE COPY

Remarks: *Specification not provided by Client.

REPORT DISTRIBUTION
1.) [redacted]

[redacted]
Supervised and Reviewed By:
[redacted]

/mh/ab/cs

[redacted]
TBPE Firm Registration
AASHTO Certified Commercial Laboratory

Testing and Engineering, L.L.C.
"Call-Out" - General Material Observation and Sampling Field Report

[redacted]

	DAY	S	M	T	W	T	F	S
WEATHER	(Sunny)		Clear		Overcast		Rain	Snow
TEMP (°F)	Below 40		40 - 50		(50 - 70)		70 - 90	Above 90
WIND	(Still)		Moderate		High		Relates to PCN No.:	
HUMIDITY	(Low)		Moderate		High		21-2633-1	

Date: 6/15/2021

Contractor: _____

Project Name: [redacted] (ATCU42/-001-22)

CQC Technician: CLIENT

1.) Existing Subgrade Soil 2) Existing Backfill 3) Import Fill 4) Aggregate Base Course 5) Gravel
6) HMAC 7.) Concrete Cores (8) Other: GRADATION AND HYDROMETER / PLASTICITY INDEX

Material Sampled (Proctor, HMAC, etc...)	Quantity	Visual Description of Material or Type
B	7 - 1 GALLON	GRAB SAMPLES

Remarks (Sample Location, etc....): IT20-10, IT20-20, IT20-30, IT20-40, IT20-50

TT20-10, TT 20-20

Material / Ground Temp. (°F):

Material Sampled (Proctor, HMAC, etc...)	Quantity	Visual Description of Material or Type

Remarks (Sample Location, etc....):

Material / Ground Temp. (°F):

Comments: _____

FILE COPY

Arrived at Site: 3:00 PM Total Tech Time: — Stand by Time: —

Departed from Site: —

Acknowledgement of Field Tests and Report, please print and date: [redacted]

(PRINT NAME)

06/15/21

(DATE)

Per authorized scope of work testing services performed on a "Call-Out" basis. Full time testing services may be requested by Client if authorized as an additional service. This field report contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our projects reports. Engineering evaluations or opinions regarding suitability of subject work or materials should not be constituted from this information. Requested testing services are performed under the supervision of [redacted]. Any questions should be directed to [redacted] for clarification. This standard triplicate form and format should be considered a proprietary product of [redacted]

1) Client - White 2) File - Yellow 3) General Contractor - Pink

[redacted] TBPE Firm Registration No. [redacted]

[redacted]

PROJECT ASTM SOIL CLASSIFICATION REPORT
SOIL SIEVE ANALYSIS, HYDROMETER ANALYSIS
ATTERBERG LIMITS, SOIL CLASSIFICATION
TEST RESULTS

[redacted]

CQC PROJECT NO: ATCQC21-001-22 (Misc.)
PROJECT NAME: **Laboratory Testing Services**
Fort Bliss Geotech Samples Project
[redacted]
Certified Project Manager

REPORT DATE: 06/28/21
CLIENT: [redacted]

PCN No.: 21-2633-2
SAMPLE NO.: 2

SAMPLE INFORMATION:

DELIVERED DATE: 6/15/2021 SAMPLED BY: Client
ARRIVAL TIME: NA
DEPARTURE TIME: NA
STAND-BY TIME: --

SOIL SAMPLE LOCATION: Provided Soil Material **(1-Gal. Bag)** - **IT20-20**, approx. 0'-½' below existing grade elevation (Per Client).

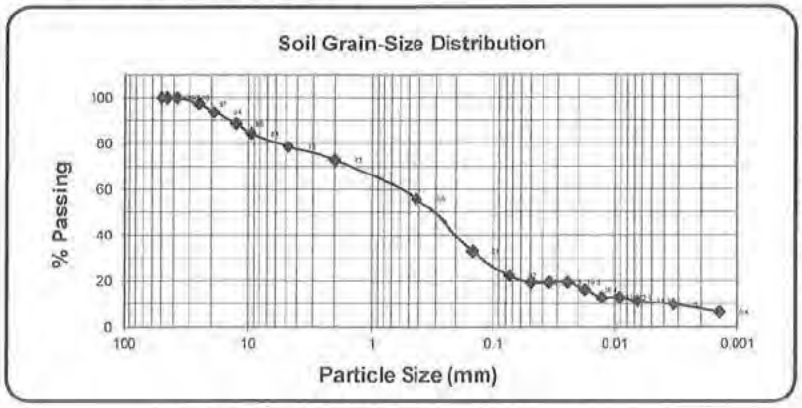
SPECIFIED USE: --

SOIL / DESCRIPTION: Provided Soil Material (1-Gal. Bag) - **Project Sample No. 2 (IT20-20)** / Fine to Coarse Grained, Brown, Clayey Sand with fine gravel.

SAMPLE TEST RESULTS:

Sieve Analysis Test: ASTM C 136, D 6913

Sieve Size/No.	Percent Retained	Percent Passing	Fill Material Specification % Passing
3"	0	100	*
1½"	0	100	*
1"	3	97	*
¾"	6	94	*
½"	11	89	*
⅜"	16	84	*
#4	21	79	*
#10	27	73	*
#40	44	56	*
#100	67	33	*
#200	77.7	22.3	*



D10= 0.03
D30= 0.13
D60= 0.80
Cc= 0.62
Cu= 23.90

Test Method: ASTM D 2487 - **Soil Class:** SC

Particle Size Distribution (Hydrometer Analysis): ASTM D7928

D (mm)	Mass Finer (%)
0.0495	19.3
0.035	19.3
0.0248	19.3
0.0177	16.1
0.013	12.9
0.0092	12.9
0.0066	11.3
0.0033	9.7
0.0014	6.4

Estimated (%)	
Gravel	21.5
Sand	56.2
Fines	22.3
Silt	11.0
Clay	9.7

Atterberg Limits Test: ASTM D 4318

Limit Test	Index Test Result	Fill Material Specification
LL	22	*
PL	12	*
PI	10	*

Comment:
NPT- Nonplastic by Test / NS - Not Specified / NV - No Value / NA - Non Applicable

Reference Specifications:
[1] Specification not provided by Client.

FILE COPY

Remarks: *Specification not provided by Client.

REPORT DISTRIBUTION

1.) [redacted]
Certified Project Manager
[redacted]

[redacted]
Supervised and Reviewed By:

[redacted]

/mh/ab/cs

[redacted]
TBPE Firm Registration
AASHTO Certified Commercial Laboratory

[redacted]

[redacted]

Page ___ of ___

"Call-Out" - General Material Observation and Sampling Field Report

[redacted]

	DAY	S	M	T	W	T	F	S
WEATHER	(Sunny)		Clear		Overcast		Rain	Snow
TEMP (°F)	Below 40		40 - 50		(50 - 70)		70 - 90	Above 90
WIND	(Still)		Moderate		High		Relates to PCN No.:	
HUMIDITY	(Low)		Moderate		High		21-26033-2	

Date: 6/15/2021

Contractor: _____

Project Name: [redacted] (ATCOL21-001-22)

CQC Technician: CLIENT

1.) Existing Subgrade Soil 2) Existing Backfill 3) Import Fill 4) Aggregate Base Course 5) Gravel
6) HMAC 7.) Concrete Cores (8) Other: GRADATION AND HYDROMETER / PLASTICITY INDEX

Material Sampled (Proctor, HMAC, etc...)	Quantity	Visual Description of Material or Type
B	7 - 1 GALLON	GRAB SAMPLES

Remarks (Sample Location, etc....): IT20-10, IT20-20, IT20-30, IT20-40, IT20-50

TT20-10, TT 20-20

Material / Ground Temp. (°F):

Material Sampled (Proctor, HMAC, etc...)	Quantity	Visual Description of Material or Type

Remarks (Sample Location, etc....):

Material / Ground Temp. (°F):

FILE COPY

Comments: _____

Arrived at Site: 3:00 PM Total Tech Time: — Stand by Time: —

Departed from Site: —

Acknowledgement of Field Tests and Report, please print and date: [redacted]

(PRINT NAME)

06/15/21

(DATE)

Per authorized scope of work testing services performed on a "Call-Out" basis. Full time testing services may be requested by Client if authorized as an additional service. This field report contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our projects reports. Engineering evaluations or opinions regarding suitability of subject work or materials should not be constituted from this information. Requested testing services are performed under the supervision of [redacted] Any questions should be directed to [redacted] clarification. This standard triplicate form and format should be considered a proprietary product of [redacted]

1) Client - White 2) File - Yellow 3) General Contractor - Pink

[redacted] TBPE Firm Registration No. [redacted]

[redacted]

PROJECT ASTM SOIL CLASSIFICATION REPORT
SOIL SIEVE ANALYSIS, HYDROMETER ANALYSIS
ATTERBERG LIMITS, SOIL CLASSIFICATION
TEST RESULTS

[redacted]

CQC PROJECT NO: ATCQC21-001-22 (Misc.)
PROJECT NAME: **Laboratory Testing Services**
[redacted]

REPORT DATE: 06/28/21
CLIENT: [redacted]

PCN No.: 21-2633-3
SAMPLE NO.: 3

SAMPLE INFORMATION:

DELIVERED DATE: 6/15/2021 SAMPLED BY: Client
ARRIVAL TIME: NA
DEPARTURE TIME: NA
STAND-BY TIME: --

SOIL SAMPLE LOCATION: Provided Soil Material **(1-Gal. Bag)** - IT20-30, approx. 0'-½' below existing grade elevation (Per Client).

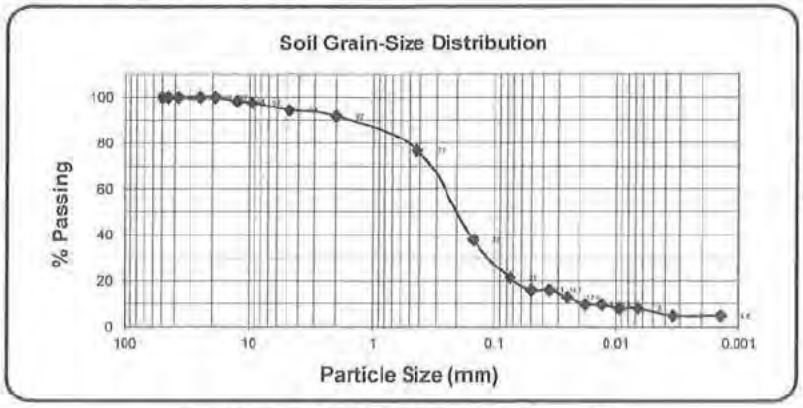
SPECIFIED USE: --

SOIL / DESCRIPTION: Provided Soil Material (1-Gal. Bag) - **Project Sample No. 3 (IT20-30)** / Fine to Medium Grained, Brown, Silty Sand with some fine gravel.

SAMPLE TEST RESULTS:

Sieve Analysis Test: ASTM C 136, D 6913

Sieve Size/No.	Percent Retained	Percent Passing	Fill Material Specification % Passing
3"	0	100	*
1½"	0	100	*
1"	0	100	*
¾"	0	100	*
½"	2	98	*
⅜"	2	98	*
#4	6	94	*
#10	8	92	*
#40	23	77	*
#100	62	38	*
#200	78.7	21.3	*



D10= 0.04
D30= 0.11
D60= 0.31
Cc= 1.21
Cu= 8.69

Test Method: ASTM D 2487 - **Soil Class: SM**

Particle Size Distribution (Hydrometer Analysis): ASTM D7928

D (mm)	Mass Finer (%)
0.05	16.1
0.0354	16.1
0.0255	12.9
0.018	9.6
0.0132	9.6
0.0094	8.0
0.0066	8.0
0.0034	4.8
0.0014	4.8

Estimated (%)	
Gravel	5.6
Sand	73.1
Fines	21.3
Silt	13.3
Clay	4.8

Atterberg Limits Test: ASTM D 4318

Limit Test	Index Test Result	Fill Material Specification
LL	NV	*
PL	NV	*
PI	NPT	*

Comment:
NPT- Nonplastic by Test / NS - Not Specified / NV - No Value / NA - Non Applicable

Reference Specifications:
[1] Specification not provided by Client.

Remarks: *Specification not provided by Client.

FILE COPY

REPORT DISTRIBUTION
1.) [redacted]

[redacted]
Supervised and Reviewed By:
[redacted]

[redacted]
TBPE Firm Registration No. [redacted]
AASHTO Certified Commercial Laboratory

/mh/ab/cs

[redacted] [redacted] [redacted]

Page ___ of ___

"Call-Out" - General Material Observation and Sampling Field Report

[redacted]

	DAY	S	M	T	W	T	F	S
WEATHER	Sunny		Clear		Overcast		Rain	Snow
TEMP (°F)	Below 40		40 - 50		50 - 70		70 - 90	Above 90
WIND	Still		Moderate		High		Relates to PCN No.:	
HUMIDITY	Low		Moderate		High		21-2633-3	

Date: 6/15/2021 **Contractor:** _____

Project Name: [redacted] (ATCOL21-001-22) **CQC Technician:** CLIENT

1.) Existing Subgrade Soil 2) Existing Backfill 3) Import Fill 4) Aggregate Base Course 5) Gravel
6) HMAC 7.) Concrete Cores 8) Other: GRADATION AND HYDROMETER / PLASTICITY INDEX

Material Sampled (Proctor, HMAC, etc...)	Quantity	Visual Description of Material or Type
B	7 - 1 GALLON	GRAB SAMPLES

Remarks (Sample Location, etc....): IT20-10, IT20-20, IT20-30, IT20-40, IT20-50
TT20-10, TT20-20

Material / Ground Temp. (°F):

Material Sampled (Proctor, HMAC, etc...)	Quantity	Visual Description of Material or Type

Remarks (Sample Location, etc....):

Material / Ground Temp. (°F):

FILE COPY

Comments: _____

Arrived at Site: 3:00 PM Total Tech Time: — Stand by Time: —

Departed from Site: —

Acknowledgement of Field Tests and Report, please print and date: [redacted]
(PRINT NAME)

06/15/21
(DATE)

Per authorized scope of work testing services performed on a "Call-Out" basis. Full time testing services may be requested by Client if authorized as an additional service. This field report contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our projects reports. Engineering evaluations or opinions regarding suitability of subject work or materials should not be constituted from this information. Requested testing services are performed under the supervision of [redacted] Any questions should be directed to [redacted] for clarification. This standard triplicate form and format should be considered a proprietary product [redacted]

1) Client - White 2) File - Yellow 3) General Contractor - Pink

[redacted]
TBPE Firm Registration [redacted]

[redacted]

PROJECT ASTM SOIL CLASSIFICATION REPORT
SOIL SIEVE ANALYSIS, HYDROMETER ANALYSIS
ATTERBERG LIMITS, SOIL CLASSIFICATION
TEST RESULTS

[redacted]

CQC PROJECT NO: ATCQC21-001-22 (Misc.)
PROJECT NAME: Laboratory Testing Services
Fort Bliss Geotech Samples Project
[redacted]
Certified Project Manager

REPORT DATE: 06/28/21
CLIENT: [redacted]

PCN No.: 21-2633-4
SAMPLE NO.: 4

SAMPLE INFORMATION:

DELIVERED DATE: 6/15/2021 SAMPLED BY: Client
ARRIVAL TIME: NA
DEPARTURE TIME: NA
STAND-BY TIME: –

SOIL SAMPLE LOCATION: Provided Soil Material (1-Gal. Bag) - IT20-40, approx. 0'-½' below existing grade elevation (Per Client).

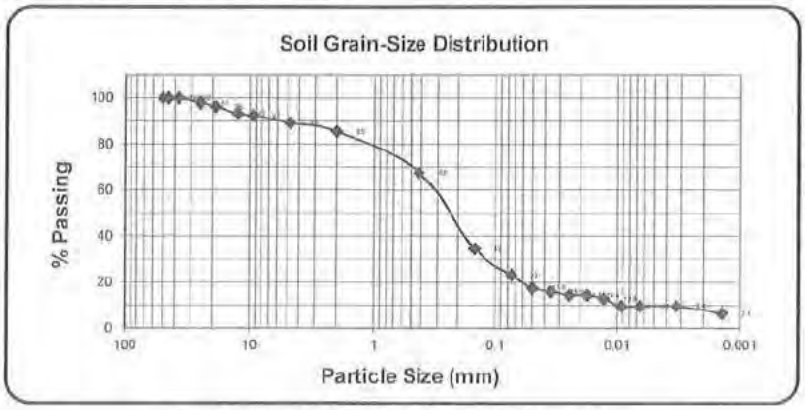
SPECIFIED USE: –

SOIL / DESCRIPTION: Provided Soil Material (1-Gal. Bag) - **Project Sample No. 4 (IT20-40)** / Fine to Coarse Grained, Brown, Clayey Sand with some fine gravel.

SAMPLE TEST RESULTS:

Sieve Analysis Test: ASTM C 136, D 6913

Sieve Size/No.	Percent Retained	Percent Passing	Fill Material Specification % Passing
3"	0	100	*
1½"	0	100	*
1"	2	98	*
¾"	4	96	*
½"	7	93	*
⅜"	8	92	*
#4	11	89	*
#10	15	85	*
#40	32	68	*
#100	65	35	*
#200	76.8	23.2	*



D10= 0.03
D30= 0.12
D60= 0.36
Cc= 1.23
Cu= 11.16

Test Method: ASTM D 2487 - Soil Class: SC

Particle Size Distribution (Hydrometer Analysis): ASTM D7928

D (mm)	Mass Finer (%)
0.0498	17.5
0.0354	15.9
0.0251	14.4
0.0178	14.4
0.013	12.8
0.0093	9.6
0.0066	9.6
0.0033	9.6
0.0014	6.4

Estimated (%)	
Gravel	10.8
Sand	66.0
Fines	23.2
Silt	13.6
Clay	9.6

Atterberg Limits Test: ASTM D 4318

Limit Test	Index Test Result	Fill Material Specification
LL	26	*
PL	18	*
PI	8	*

Comment:
NPT- Nonplastic by Test / NS - Not Specified / NV - No Value / NA - Non Applicable

Reference Specifications:
[1] Specification not provided by Client.

Remarks: *Specification not provided by Client.

FILE COPY

REPORT DISTRIBUTION

1.) [redacted]

[redacted]
Supervised and Reviewed By:

[redacted]

[redacted]
TBPE Firm Registration [redacted]
AASHTO Certified Commercial Laboratory

/mh/ab/cs

[redacted]

[redacted]

Page ___ of ___

"Call-Out" - General Material Observation and Sampling Field Report

[redacted]

	DAY	S	M	T	W	T	F	S
WEATHER	(Sunny)		Clear		Overcast		Rain	Snow
TEMP (°F)	Below 40		40 - 50		(50 - 70)		70 - 90	Above 90
WIND	(Still)		Moderate		High		Relates to PCN No.:	
HUMIDITY	(Low)		Moderate		High		21-2633-4	

Date: 6/15/2021

Contractor: _____

Project Name: [redacted] (ATCRL21-001-22)

CQC Technician: CLIENT

1.) Existing Subgrade Soil 2) Existing Backfill 3) Import Fill 4) Aggregate Base Course 5) Gravel
6) HMAC 7.) Concrete Cores (8) Other: GRADATION AND HYDROMETER / PLASTICITY INDEX

Material Sampled (Proctor, HMAC, etc…)	Quantity	Visual Description of Material or Type
8	7 - 1 GALLON	GRAB SAMPLES

Remarks (Sample Location, etc….): IT20-10, IT20-20, IT20-30, IT20-40, IT20-50

TT20-10, TT 20-20

Material / Ground Temp. (°F):

Material Sampled (Proctor, HMAC, etc…)	Quantity	Visual Description of Material or Type

Remarks (Sample Location, etc….):

Material / Ground Temp. (°F):

FILE COPY

Comments: _____

Arrived at Site: 3:00 PM Total Tech Time: — Stand by Time: —

Departed from Site: —

Acknowledgement of Field Tests and Report, please print and date: [redacted]

(PRINT NAME)

06/15/21

(DATE)

Per authorized scope of work testing services performed on a "Call-Out" basis. Full time testing services may be requested by Client if authorized as an additional service. This field report contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our projects reports. Engineering evaluations or opinions regarding suitability of subject work or materials should not be constituted from this information. Requested testing services are performed under the supervision of [redacted]. Any questions should be directed to [redacted] for clarification. This standard triplicate form and format should be considered a proprietary product of [redacted]

1) Client - White 2) File - Yellow 3) General Contractor - Pink

CQCTF0004

[redacted] *TBPE Firm Registration* [redacted]

[redacted]

PROJECT ASTM SOIL CLASSIFICATION REPORT
SOIL SIEVE ANALYSIS, HYDROMETER ANALYSIS
ATTERBERG LIMITS, SOIL CLASSIFICATION
TEST RESULTS

[redacted]

CQC PROJECT NO: ATCQC21-001-22 (Misc.)
PROJECT NAME: Laboratory Testing Services
Fort Bliss Geotech Samples Project
[redacted]
Certified Project Manager

REPORT DATE: 06/30/21
CLIENT: [redacted]

PCN No.: 21-2633-5
SAMPLE NO.: 5

SAMPLE INFORMATION:

DELIVERED DATE: 6/15/2021 SAMPLED BY: Client
ARRIVAL TIME: NA
DEPARTURE TIME: NA
STAND-BY TIME: --

SOIL SAMPLE LOCATION: Provided Soil Material (1-Gal. Bag) - IT20-50, approx. 0'-½' below existing grade elevation (Per Client).

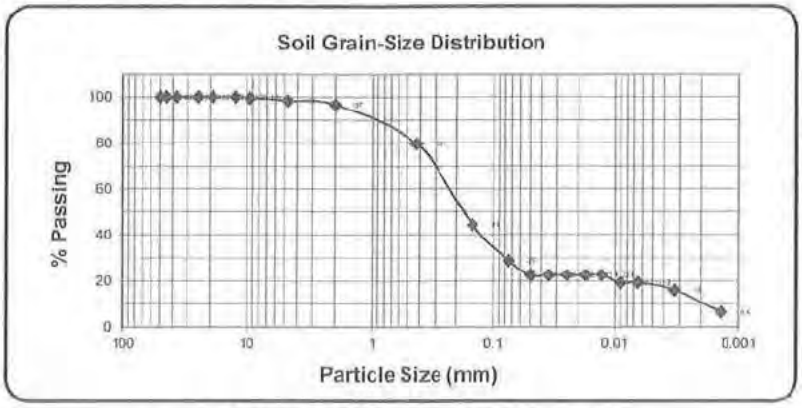
SPECIFIED USE: --

SOIL / DESCRIPTION: Provided Soil Material (1-Gal. Bag) - **Project Sample No. 5 (IT20-50)** / Fine to Medium Grained, Brown, Clayey Sand with traces of fine gravel.

SAMPLE TEST RESULTS:

Sieve Analysis Test: ASTM C 136, D 6913

Sieve Size/No.	Percent Retained	Percent Passing	Fill Material Specification % Passing
3"	0	100	*
1½"	0	100	*
1"	0	100	*
¾"	0	100	*
½"	0	100	*
⅜"	0	100	*
#4	2	98	*
#10	3	97	*
#40	20	80	*
#100	56	44	*
#200	71.2	28.8	*



D10= 0.03
D30= 0.08
D60= 0.27
Cc= 0.92
Cu= 10.43

Test Method: ASTM D 2487 -**Soil Class:** SC

Particle Size Distribution (Hydrometer Analysis): ASTM D7928

D (mm)	Mass Finer (%)
0.0495	22.4
0.035	22.4
0.0248	22.4
0.0175	22.4
0.0128	22.4
0.0091	19.2
0.0065	19.2
0.0033	16.0
0.0014	6.4

Estimated (%)	
Gravel	1.6
Sand	69.6
Fines	28.8
Silt	9.6
Clay	16.0

Atterberg Limits Test: ASTM D 4318

Limit Test	Index Test Result	Fill Material Specification
LL	26	*
PL	16	*
PI	10	*

Comment:
NPT- Nonplastic by Test / NS - Not Specified / NV - No Value / NA - Non Applicable

Reference Specifications:
[1] Specification not provided by Client.

FILE COPY

Remarks: *Specification not provided by Client.

REPORT DISTRIBUTION
1.) [redacted]

[redacted]
Supervised and Reviewed By:
[redacted]

[redacted] [redacted]

Page ___ of ___

"Call-Out" - General Material Observation and Sampling Field Report

[redacted]

	DAY	S	M	T	W	T	F	S
WEATHER	Sunny		Clear		Overcast		Rain	Snow
TEMP (°F)	Below 40		40 - 50		50 - 70		70 - 90	Above 90
WIND	Still		Moderate		High		Relates to PCN No.:	
HUMIDITY	Low		Moderate		High		21-2633-5	

Date: 6/15/2021

Contractor: _____

Project Name: [redacted] (ATC042/-001-22)

CQC Technician: CLIENT

1.) Existing Subgrade Soil 2) Existing Backfill 3) Import Fill 4) Aggregate Base Course 5) Gravel
6) HMAC 7.) Concrete Cores 8) Other: GRADATION AND HYDROMETER / PLASTICITY INDEX

Material Sampled (Proctor, HMAC, etc...)	Quantity	Visual Description of Material or Type
B	7 - 1 GALLON	GRAB SAMPLES

Remarks (Sample Location, etc....): IT20-10, IT20-20, IT20-30, IT20-40, IT20-50

TT20-10, TT 20-20

Material / Ground Temp. (°F):

Material Sampled (Proctor, HMAC, etc...)	Quantity	Visual Description of Material or Type

Remarks (Sample Location, etc....):

Material / Ground Temp. (°F):

FILE COPY

Comments: _____

Arrived at Site: 3:00 PM Total Tech Time: — Stand by Time: —

Departed from Site: —

Acknowledgement of Field Tests and Report, please print and date: [redacted]

(PRINT NAME)

06/15/21

(DATE)

Per authorized scope of work testing services performed on a "Call-Out" basis. Full time testing services may be requested by Client if authorized as an additional service. This field report contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our projects reports. Engineering evaluations or opinions regarding suitability of subject work or materials should not be constituted from this information. Requested testing services are performed under the supervision of [redacted]. Any questions should be directed to [redacted] for clarification. This standard triplicate form and format should be considered a proprietary product of [redacted]

1) Client - White 2) File - Yellow 3) General Contractor - Pink

CQCTF0004

[redacted]

[redacted]

PROJECT ASTM SOIL CLASSIFICATION REPORT
SOIL SIEVE ANALYSIS, HYDROMETER ANALYSIS
ATTERBERG LIMITS, SOIL CLASSIFICATION
TEST RESULTS

[redacted]

CQC PROJECT NO: ATCQC21-001-22 (Misc.)
PROJECT NAME: **Laboratory Testing Services**
Fort Bliss Geotech Samples Project
[redacted]
Certified Project Manager

REPORT DATE: 07/01/21
CLIENT: [redacted]

PCN No.: 21-2633-6
SAMPLE NO.: 6

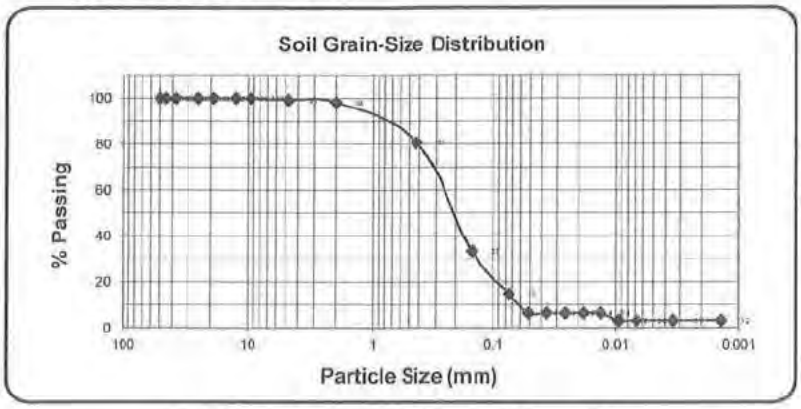
SAMPLE INFORMATION:

DELIVERED DATE: 6/15/2021 SAMPLED BY: Client
ARRIVAL TIME: NA
SOIL SAMPLE LOCATION: Provided Soil Material **(1-Gal. Bag)** - **TT20-10**, approx. 0'-½' below existing grade elevation (Per Client).
DEPARTURE TIME: NA
STAND-BY TIME: --
SPECIFIED USE: --
SOIL / DESCRIPTION: Provided Soil Material (1-Gal. Bag) - **Project Sample No. 6 (TT20-10)** / Fine to Medium Grained, Brown, Silty Sand.

SAMPLE TEST RESULTS:

Sieve Analysis Test: ASTM C 136, D 6913

Sieve Size/No.	Percent Retained	Percent Passing	Fill Material Specification % Passing
3"	0	100	*
1½"	0	100	*
1"	0	100	*
¾"	0	100	*
½"	0	100	*
⅜"	0	100	*
#4	1	99	*
#10	2	98	*
#40	19	81	*
#100	67	33	*
#200	85.1	14.9	*



D10= 0.05
D30= 0.14
D60= 0.30
Cc= 1.21
Cu= 6.04

Test Method: ASTM D 2487 - **Soil Class: SM**

Particle Size Distribution (Hydrometer Analysis): ASTM D7928

D (mm)	Mass Finer (%)
0.0515	6.4
0.0364	6.4
0.0258	6.4
0.0182	6.4
0.0133	6.4
0.0095	3.2
0.0067	3.2
0.0034	3.2
0.0014	3.2

Estimated (%)	
Gravel	0.8
Sand	84.4
Fines	14.9
Silt	11.7
Clay	3.2

Atterberg Limits Test: ASTM D 4318

Limit Test	Index Test Result	Fill Material Specification
LL	NV	*
PL	NV	*
PI	NPT	*

Comment:
NPT- Nonplastic by Test / NS - Not Specified / NV - No Value / NA - Non Applicable

Reference Specifications:
[1] Specification not provided by Client.

Remarks: *Specification not provided by Client.

FILE COPY

REPORT DISTRIBUTION

1.) [redacted]
Certified Project Manager
[redacted]

[redacted]
Supervised and Reviewed By:
[redacted]

[redacted]
TBPE Firm Registration [redacted]
AASHTO Certified Commercial Laboratory

/mh/ab/cs

[redacted]

[redacted]

Page ___ of ___

"Call-Out" - General Material Observation and Sampling Field Report

[redacted]

	DAY	S	M	T	W	T	F	S
WEATHER	(Sunny)		Clear		Overcast		Rain	Snow
TEMP (°F)	Below 40		40 - 50		(50 - 70)		70 - 90	Above 90
WIND	(Still)		Moderate		High		Relates to PCN No.:	
HUMIDITY	(Low)		Moderate		High		21-26033-6	

Date: 6/15/2021

Contractor: _____

Project Name: [redacted] (ATCR21-001-22)

CQC Technician: CLIENT

1.) Existing Subgrade Soil 2) Existing Backfill 3) Import Fill 4) Aggregate Base Course 5) Gravel
6) HMAC 7.) Concrete Cores (8) Other: GRADATION AND HYDROMETER / PLASTICITY INDEX

Material Sampled (Proctor, HMAC, etc...)	Quantity	Visual Description of Material or Type
B	7 - 1 GALLON	GRAB SAMPLES

Remarks (Sample Location, etc....): IT20-10, IT20-20, IT20-30, IT20-40, IT20-50

TT20-10, TT 20-20

Material / Ground Temp. (°F):

Material Sampled (Proctor, HMAC, etc...)	Quantity	Visual Description of Material or Type

Remarks (Sample Location, etc....):

Material / Ground Temp. (°F):

FILE COPY

Comments: _____

Arrived at Site: 3:00 PM

Total Tech Time: —

Stand by Time: —

Departed from Site: —

Acknowledgement of Field Tests and Report, please print and date:

[redacted]
(PRINT NAME)

06/15/21
(DATE)

Per authorized scope of work testing services performed on a "Call-Out" basis. Full time testing services may be requested by Client if authorized as an additional service. This field report contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our projects reports. Engineering evaluations or opinions regarding suitability of subject work or materials should not be constituted from this information. Requested testing services are performed under the supervision of [redacted] Any questions should be directed to [redacted] for clarification. This standard triplicate form and format should be considered a proprietary product of [redacted]

1) Client - White 2) File - Yellow 3) General Contractor - Pink

[redacted]

[redacted]

PROJECT ASTM SOIL CLASSIFICATION REPORT
SOIL SIEVE ANALYSIS, HYDROMETER ANALYSIS
ATTERBERG LIMITS, SOIL CLASSIFICATION
TEST RESULTS

[redacted]

CQC PROJECT NO: ATCQC21-001-22 (Misc.)
PROJECT NAME: Laboratory Testing Services
Fort Bliss Geotech Samples Project
[redacted]
Certified Project Manager

REPORT DATE: 07/02/21
CLIENT: [redacted]

PCN No.: 21-2633-7
SAMPLE NO.: 7

SAMPLE INFORMATION:

DELIVERED DATE: 6/15/2021 SAMPLED BY: Client
ARRIVAL TIME: NA
DEPARTURE TIME: NA
STAND-BY TIME: --

SOIL SAMPLE LOCATION: Provided Soil Material **(1-Gal. Bag)** - TT20-20, approx. 0'-½' below existing grade elevation (Per Client).

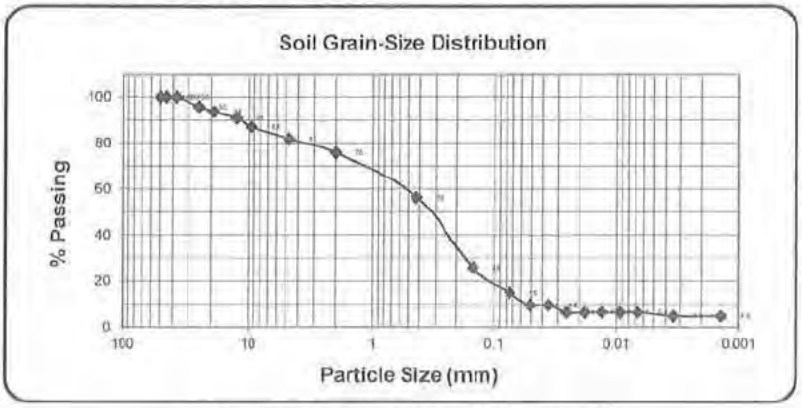
SPECIFIED USE: --

SOIL / DESCRIPTION: Provided Soil Material (1-Gal. Bag) - **Project Sample No. 7 (TT20-20)** / Fine to Coarse Grained, Brown, Silty Sand with gravel.

SAMPLE TEST RESULTS:

Sieve Analysis Test: ASTM C 136, D 6913

Sieve Size/No.	Percent Retained	Percent Passing	Fill Material Specification % Passing
3"	0	100	*
1½"	0	100	*
1"	4	96	*
¾"	6	94	*
½"	9	91	*
⅜"	13	87	*
#4	18	82	*
#10	24	76	*
#40	44	56	*
#100	74	26	*
#200	85.1	14.9	*



D10= 0.05
D30= 0.19
D60= 0.71
Cc= 0.97
Cu= 14.18

Test Method: ASTM D 2487 - Soil Class: SM

Particle Size Distribution (Hydrometer Analysis): ASTM D7928

D (mm)	Mass Finer (%)
0.051	9.6
0.0361	9.6
0.0258	6.4
0.0182	6.4
0.0133	6.4
0.0094	6.4
0.0067	6.4
0.0034	4.8
0.0014	4.8

Estimated (%)	
Gravel	18.1
Sand	67.0
Fines	14.9
Silt	8.5
Clay	4.8

Atterberg Limits Test: ASTM D 4318

Limit Test	Index Test Result	Fill Material Specification
LL	NV	*
PL	NV	*
PI	NPT	*

Comment:
NPT- Nonplastic by Test / NS - Not Specified / NV - No Value / NA - Non Applicable

Reference Specifications:
[1] Specification not provided by Client.

FILE COPY

Remarks: *Specification not provided by Client.

REPORT DISTRIBUTION
1 [redacted]

[redacted]
Supervised and Reviewed By:

[redacted]

[redacted]
TBPE Firm Registration [redacted]
AASHTO Certified Commercial Laboratory

/mh/ab/cs

[redacted]

[redacted]

Page ___ of ___

"Call-Out" - General Material Observation and Sampling Field Report

[redacted]

	DAY	S	M	T	W	T	F	S
WEATHER	(Sunny)		Clear		Overcast		Rain	Snow
TEMP (°F)	Below 40		40 - 50		(50 - 70)		70 - 90	Above 90
WIND	(Still)		Moderate		High		Relates to PCN No.:	
HUMIDITY	(Low)		Moderate		High		21-2633	

Date: 6/15/2021 **Contractor:** _____

Project Name: [redacted] (ATCRL21-001-22) **CQC Technician:** CLIENT

1.) Existing Subgrade Soil 2) Existing Backfill 3) Import Fill 4) Aggregate Base Course 5) Gravel
6) HMAC 7.) Concrete Cores (8) Other: GRADATION AND HYDROMETER / PLASTICITY INDEX

Material Sampled (Proctor, HMAC, etc…)	Quantity	Visual Description of Material or Type
B	7 - 1 GALLON	GRAB SAMPLES

Remarks (Sample Location, etc….): IT20-10, IT20-20, IT20-30, IT20-40, IT20-50

TT20-10, TT 20-20

Material / Ground Temp. (°F):

Material Sampled (Proctor, HMAC, etc…)	Quantity	Visual Description of Material or Type

Remarks (Sample Location, etc….):

Material / Ground Temp. (°F):

FILE COPY

Comments: _____

Arrived at Site: 3:00 PM Total Tech Time: — Stand by Time: —

Departed from Site: —

Acknowledgement of Field Tests and Report, please print and date: [redacted]
(PRINT NAME)

06/15/21
(DATE)

Per authorized scope of work testing services performed on a "Call-Out" basis. Full time testing services may be requested by Client if authorized as an additional service. This field report contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our projects reports. Engineering evaluations or opinions regarding suitability of subject work or materials should not be constituted from this information. Requested testing services are performed under the supervision of [redacted]. Any questions should be directed to [redacted] for clarification. This standard triplicate form and format should be considered a proprietary product of [redacted]

1) Client - White 2) File - Yellow 3) General Contractor - Pink

[redacted] *TBPE Firm Registration No* [redacted]

Permit Modification Application

Fort Bliss Municipal Solid Waste Landfill Permit 1422

Attachment 2
Marked (Redline/Strikeout) Pages

July 11, 2022
Previous Modifications:
March 2008 Application (issued March 11, 2009)
October 2011 Application (issued July 5, 2012)
July 2014 Application (Issued May 15, 2015)

[redacted]

~~U.S. Army Corps of Engineers, Fort Worth District~~
~~819 Taylor Street, Fort Worth, TX 76102~~

Permit Modification Application

Fort Bliss Municipal Solid Waste Landfill Permit 1422

July 11, 2022~~July 31, 2014 (Revised October 24, 2014)~~

Previous Modifications:
March 2008 Application (issued March 11, 2009) October 2011 Application (issued July 5, 2012)
July 2014 Application (Issued May 15, 2015)

[redacted]

Prepared By:

[redacted]

Engineering Certification

I attest that this Application has been prepared in accordance with good engineering practices, including consideration of applicable industry standards, and with the requirements of Title 30 of the Texas Administrative Code (Title 30 TAC) Chapter §330. This certification in no way relieves Fort Bliss of its duty to prepare and fully implement this Application.

Certifying Engineer:	[redacted]
State:	Texas
Registration Number:	[redacted]

Signature: _____

Certification Date: _____

Engineering Seal:

TCEQ Core Data Form

List of Tables

List of Figures

Appendices

Acronym List

ADC	Alternate Daily Cover
BRAC	Base Realignment and Closure
C&D	Construction and Demolition
DPW-ED	Directorate of Public Works – Environmental Division
EAD	Echelons Above Decision
FAA	Federal Aviation Administration
MPH	Miles Per Hour
msl	mean sea level
MSW	Municipal Solid Waste
MSWLF	Municipal Solid Waste Landfill Facility
RACM	Regulated Asbestos Containing Material
SOP	Site Operating Plan
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TDS	Total Dissolved Solids
TPDES	Texas Pollutant Discharge Elimination System
USAFB	United States Army Fort Bliss
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey

Executive Summary

Background and Description of Proposed Change

The Fort Bliss Municipal Solid Waste Landfill is an approximately 106-~~-~~acre facility consisting of several cells as follows:

- An inactive 10.5-acre Subtitle D Type I Cell;
- A closed 3-acre Non-Subtitle D Type I Cell (Texas Commission on Environmental Quality (TCEQ) closure approval received February 24, 1999);
- An inactive 5-acre Non-Subtitle D Type IV Construction and Demolition (C&D) Cell;
- Approximately 80 acres of 1970's era previously filled with interim cover placed; and Approximately 7 acres designated for landfill roads, access areas, and guard shack/scale house, etc.

This permit modification application is intended to seek approval ~~to~~ of revisions to the approved optimized evapotranspiration (ET) final cover system for the final closure construction of the facility. The revisions include changes to the approved final contours and slopes to allow, to the extent practical, relocation of waste identified outside of the permitted cell boundaries in the 2021 Limits of Waste Investigation (LOWI) and to maintain a three-foot cover thickness.~~-~~

Changes to Optimized ET Final Cover Design

Both the inactive Subtitle D Type I cell and the inactive Non-Subtitle D Type IV C&D cell ~~are nearing capacity and are scheduled to~~ ceased accepting waste in 2015. ~~-~~In addition, ~~the facility permit does not allow further placement of waste within the 1970's era inactive areas.~~ a~~A~~ccording to the March 1995 Final Closure Plan and Cost Estimate, interim cover has been placed over the~~se~~ 80 acres which represent the 1970's era inactive areas. As part of the 2014 permit modification application (issued in 2015), Fort Bliss received approval to provide an optimized ET final cover system to replace the final cover systems for those parts of the landfill that have not already received a permitted final cover (i.e., the ~~An optimized ET final cover will be placed over the~~ inactive Subtitle D Type I cell, the inactive Non-Subtitle D Type IV C&D cell, ~~active landfill cells~~ and the inactive 1970's era areas.)

The Non-Subtitle D Type I (Cell 2) was closed in 1999 with a non-Subtitle D final cover that complied with the closure plan for that cell and for which TCEQ closure approval was obtained in 1999. ~~-~~As a result, this cell wa~~i~~s not proposed to be capped with the optimized ET cover system.

~~Fort Bliss is considering post-closure land use for solar power, and seeks to adjust permitted grades to maximize southern and western exposure. Fort Bliss is seeking a permit modification to provide an optimized ET final cover system to replace the final cover systems for those parts of the landfill that have not already received a permitted final cover (i.e., all landfill cells except the non-subtitle D cell (Cell 2) that was capped/closed in 1999).~~As part of the 2014 permit modification application (issued in 2015), Fort Bliss also adjusted permitted grades to maximize southern and western exposure to allow for future Photo-Voltaic (PV) development on the final cover system, for potential post-closure land use for solar power (see further discussion in Section 2.2.1.3).

~~The proposed optimized ET Final Cover System will consist of a 3-foot optimized soil layer overlying the waste. The intent is to utilize on-site silty sand (SM) and clayey sand (SC) soil for the optimized cover. These soils will be capable of storing moisture, which will then be removed by evaporation and transpiration from the vegetation growing on the cover. A minimum of ten percent coverage of vegetation will be established upon completion of the optimized cover construction.~~

~~The TCEQ Municipal Solid Waste (MSW) Permitting Program uses a 25-inch average annual precipitation line as defined by Title 30 of the Texas Administrative Code (TAC) Rule §330.5(b)(1)(D)) to delineate areas of the State defined as arid. El Paso lies to the west of the 25-inch average annual precipitation line and therefore has been deemed arid for the purposes of considering an optimized landfill design and modeling without calibration.~~

Th~~e~~is modification~~e~~ proposes changes to the currently permitted optimized ET landfill cover final grading plan (2014 application issued in May 2015) to ~~also~~ alter~~s~~ the final grades ~~presented in the currently permitted ET cover system (October 2011 MOD)~~ to allow, to the extent practical, ~~the final grades to generally conform to the grades developed during filling operations to provide more easily constructible ridges, swales, and slopes and a more uniform surface for installation and maintenance of the ET cap. In addition, the grading minimizes the~~ relocation of waste identified ~~in the 2021 Limits of Waste Investigation to be currently~~ outside of the permitted cell boundaries in the 2021 LOWI. ~~and also provides slopes that maximize the southern and western orientation for the potential future Photo-Voltaic (PV) development on the final cover system. The permit modification also proposes to extend the landfill buffer along the northern side, eastern end of the landfill to address the existing waste limit in Cell 4 that has encroached on the permitted boundary. Rather than relocate the waste, since Fort Bliss owns the surrounding lands, the cap has been extended in this area and a new 50-foot buffer to the limit of waste will be established as part of the closure activities.~~

The final grading and drainage plan remains consistent with the previously approved modification~~MOD~~s, with no height or capacity increase over the maximum permitted landfill height or capacity, and no impact to off-site drainage. ~~-~~Final drainage patterns on the landfill cover ~~at the landfill~~ will consist mostly of overland flow paths and shallow concentrated flow leading off the optimized ET cover landfill side slopes. ~~-~~Swales provide flow paths for internal watersheds to the existing landfill perimeter swales. ~~-~~Surface water runoff flows off the landfill into the existing shallow perimeter drainage swales that discharge to the natural flow patterns of the surrounding area, generally towards the southwest and southeast corners of the landfill.

~~Conventional landfill covers typically include a gas collection layer and passive gas vents to relieve landfill gas pressures on the overlying impermeable geomembrane and minimize slope stability concerns. Gas monitoring wells that monitor the potential for landfill gas migration were installed at the site in 1998, and these existing gas monitoring wells are being preserved as part of the closure design, with some modifications. The permit drawings identify gas monitoring wells that need to be extended as well as gas monitoring wells that will be abandoned and then re-installed because they conflict with proposed drainage features. However, because the optimized ET landfill cover will only consist of course grained permeable soil; no additional passive gas venting system is proposed as part of the final ET landfill cover design. Rather, the optimized ET cover soil will naturally and effectively vent landfill gas, similar to the existing conditions and the daily/intermediate cover soil at the site. Additionally, the microbes in the optimized ET cover soil will oxidize some of the methane as it vents, creating more environmentally friendly emissions. Based on the operational and regulatory history of the landfill (83 acres of 1970's era waste), significant future landfill gas generation is not expected. Should excessive methane concentrations be detected in the existing perimeter landfill gas monitoring wells or ambient landfill air during routine landfill gas monitoring, corrective venting and reporting procedures are outlined in the Fort Bliss Guidance Document titled Procedures Following a Methane Exceedance.~~

Purpose of Change and Provision Under Which Modification is Sought

The purpose of the proposed changes to the previously approved optimized ET Final Cover System design is to ~~-~~revise the approved final contours and slopes~~provide a more cost effective closure that offers equivalent environmental protections as those provided by the closure design previously approved~~, with~~.~~ no height or capacity increase over the maximum permitted height or capacity, and no impact to off-site drainage. Accordingly, permit modification is sought ~~per~~ under Title 30 TAC §305.70(k)(~~10~~9)~~, the purpose of this permit modification application is to request approval of an optimized ET Final Cover System as an alternative final cover system for closure of the Fort Bliss Landfill~~.

Permit Modification Application Organization and Structure

In accordance with Title 30 TAC §305.70(e), this permit modification application consists of a TCEQ Core Data form and a new TCEQ Part I form, a description of the proposed permit changes, revisions to existing applicable permit documents (including strikeout and clean copies), and an updated landowners map and landowners list as required under Title 30 TAC §330.59(c)(3). ~~We have included a~~A matrix of changes to the permit package ~~to assist in the application review process~~ is presented~~,~~ following the Part I form to assist in the application review process.

This application is organized to follow the layout of the 2008 permit application, as revised in 2012 and 2015. ~~-~~Changes to elements of the 2008 permit application (as revised in 2012 and 2015) are identified as tracked changes and/or complete section revisions as applicable.

Application appendices which are revised include the following:

- Appendix B provides the updated landfill modification and closure design drawings.
- Appendix L provides the updated Facility Surface Water Drainage Report.
- Appendix ~~Q~~ O provides ~~the equivalent optimized ET cover design~~revisions to the Final Closure Plan for the landfill.~~Appendix R provides details of the potential future use (PV Development) and revised Closure and Post Closure Care Plan that incorporate the PV Development, as required under Title 30 TAC §330 Subchapter T.~~

Post Closure Potential Future Use

The potential future land use after closure is described in detail in the new Appendix R Post Closure Use Report. As previously noted, the potential post closure future use of the area over the landfill is PV development. Fort Bliss has a Net Zero goal and is actively developing alternative energy systems to offset the current utility based energy usage. The closed landfill cover system is being permitted for the potential development of non-penetrating, self ballasting PV panels on the landfill cover and supporting systems located at the adjacent area beyond the landfill boundary. The beneficial use of the landfill cover to support the PV development is considered desirable as it puts the landfill footprint to productive use and it does not consume currently undeveloped land that may be put to other use.

It is anticipated that the PV development will occur in phases, as funding and incentive programs provide the financial resources for PV development. The Post Closure Use Report provides the current assumptions and approach to the PV development, to obtain TCEQ approval of the future use concept on the closed landfill ar

1. Part I of the Application

1.1. Part I Permit Application

A Part I permit application form for ~~the proposed~~revisions to the approved optimized Evapo-Transpiration (ET) alternative landfill closure design at the Fort Bliss Municipal Solid Waste Landfill (MSWLF) follows this page.

Facility Name: Fort Bliss Municipal Solid Waste Landfill
Permittee/Registrant Name: U.S. Army Air Defense Artillery and Fort Bliss (USAADACENFB)
MSW Authorization #: 1422
Initial Submittal Date: 7/31/2014
Revision Date: 10/24/2014

Texas Commission on Environmental Quality

Permit/Registration Modification and Temporary Authorization Application Form for an MSW Facility

1. Reason for Submittal

☐ Initial Submittal ☒ Notice of Deficiency (NOD) Response

2. Authorization Type

☒ Permit ☐ Registration

3. Application Type

☒ Modification with Public Notice ☐ Modification without Public Notice
☐ Temporary Authorization (TA) ☐ Modification for Name Change/Transfer

4. Application Fees

☐ Pay by Check ☒ Online Payment

If paid online, e-Pay Confirmation Number: 582EA000171596

5. Application URL

Is the application submitted for a permit/registration modification with public notice?

☒ Yes ☐ No

If the answer is "Yes", enter the URL address of a publicly accessible internet web site where the application and all revisions to that application will be posted in the space provided: http://www.bliss.army.mil/DPW/Environmental/EISDocuments2.html

6. Confidential Documents

Does the application contain confidential documents?

☐ Yes ☒ No

If "Yes", cross-reference the confidential documents throughout the application and submit as a separate attachment in a binder clearly marked "CONFIDENTIAL."

7. General Facility Information

Facility Name: Fort Bliss Municipal Solid Waste Landfill

MSW Authorization No.: 1422

Regulated Entity Reference No.: RN100210095

Physical or Street Address (if available): Section 6, Township 2, Block 80

City: Fort Bliss County: El Paso State: TX Zip Code: 79916-0058

(Area code) Telephone Number: [redacted]

Latitude: N 31 deg 52.70' Longitude: W 106 deg 22.60'

8. Facility Type(s)

☒ Type I	☒ Type IV	☐ Type V
☐ Type I AE	☐ Type IV AE	☐ Type VI

9. Description of the Revisions to the Facility

Provide a brief description of all revisions to the permit/registration conditions and supporting documents referred by the permit/registration, and a reference to the specific provisions under which the modification/temporary authorization application is being made. Also, provide an explanation of why the modification/temporary authorization is requested: A permit modification is being requested for approval of a monolithic evapotranspiration (ET) Final Cover System as an alternative final cover for closure of the Fort Bliss Landfill, under Title 30 TAC §305.70(k)(10).

Revisions are being made to the permit conditions and supporting documents presented in Table 1-1.

This section is intentionally left blank; please continue to the next page.

10. Facility Contact Information

Site Operator (Permittee/Registrant) Name: U.S. Army Fort Bliss

Customer Reference No. (if issued)*: CN600126262

Mailing Address: [redacted]

City: Fort Bliss County: El Paso State: TX Zip Code: 79916

(Area Code) Telephone Number: [redacted]

Email Address: [redacted]

TX Secretary of State (SOS) Filing Number:

*If the Site Operator (Permittee/Registrant) does not have this number, complete a TCEQ Core Data Form (TCEQ-10400) and submit it with this application. List the Site Operator (Permittee/Registrant) as the Customer.

Operator Name[1]: Same as Site Operator (Permittee/Registrant)

Customer Reference No. (if issued)*:

Mailing Address:

City: County: State: Zip Code:

(Area Code) Telephone Number:

Email Address:

Charter Number: N/A

[1]If the Operator is the same as Site Operator/Permittee type "Same as "Site Operator (Permittee/Registrant)".
*If the Operator does not have this number, complete a TCEQ Core Data Form (TCEQ-10400) and submit it with this application. List the Operator as the customer.

Consultant Name (if applicable): [redacted]

Texas Board of Professional Engineers Firm Registration Number:

Mailing Address: [redacted]

City: Houston County: Harris State: Texas Zip Code: 77042

(Area Code) Telephone Number: [redacted]

E-Mail Address: [redacted]

Agent in Service Name (required only for out-of-state): N/A

Mailing Address:

City: County: State: Zip Code:

(Area Code) Telephone Number:

E-Mail Address:

11. Ownership Status of the Facility

Is this a modification that changes the legal description, the property owner, or the Site Operator (Permittee/Registrant)?

☐ Yes ☒ No

If the answer is "No", skip this section.

Does the Site Operator (Permittee/Registrant) own all the facility units and all the facility property?

☒ Yes ☐ No

If "No", provide the information requested below for any additional ownership.

Owner Name:

Street or P.O. Box:

City: County: State: Zip Code:

(Area Code) Telephone Number:

Email Address (optional):

Charter Number:

Signature Page

I, [redacted], Director of Public Works,
(Site Operator (Permittee/Registrant)'s Authorized Signatory) (Title)

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: [redacted] Date: 1/14/15

TO BE COMPLETED BY THE OPERATOR IF THE APPLICATION IS SIGNED BY AN AUTHORIZED REPRESENTATIVE FOR THE OPERATOR

I, _____, hereby designate _____
(Print or Type Operator Name) (Print or Type Representative Name)

as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

_____
Printed or Typed Name of Operator or Principal Executive Officer

_____
Signature

SUBSCRIBED AND SWORN to before me by the said [redacted]

On this 14 day of JAN., 2015

My commission expires on the 10 day of Dec., 2018

[redacted]
Notary Public in and for

El Paso County, Texas
(Note: Application Must Bear Signature & Seal of Notary Public)

[redacted]
Notary Public, State of Texas
My Commission Expires
December 10, 2018

[redacted]

Permit/Registration Modification with Public Notice

(See Instructions for P.E. seal requirements.)

Required Attachments	Attachment No.
Land Ownership Map	1
Land Ownership List	2
Marked (Redline/Strikeout) Pages	3
Unmarked Revised Pages	4

Additional Attachments as Applicable- Select all those apply and add as necessary

- ☐ Signatory Authority
- ☐ Fee Payment Receipt
- ☐ Confidential Documents

Permit/Registration Modification without Public Notice or TA

(See Instructions for P.E. seal requirements.)

Required Attachments (for Modifications only)	Attachment No.
Marked (Redline/Strikeout) Pages	
Unmarked Revised Pages	

Additional Attachments as Applicable- Select all those apply and add as necessary

- ☐ Signatory Authority
- ☐ Fee Payment Receipt
- ☐ Confidential Documents

Permit/Registration Name Change/Transfer Modification

(See Instructions for P.E. seal requirements.)

Required Attachments	Attachment No.
TCEQ Core Data Form(s)	
Property Legal Description	
Property Metes and Bounds Description	
Metes and Bounds Drawings	
On-Site Easements Drawing	
Land Ownership List	
Land Ownership Map	
Property Owner Affidavit	
Verification of Legal Status	
Evidence of Competency	

Additional Attachments as Applicable- Select all those apply and add as necessary

- ☐ Signatory Authority
- ☐ Fee Payment Receipt
- ☐ Confidential Documents
- ☐ Final Plat Record of Property, if platted
- ☐ Assumed Name Certificate

Permit Modification Application

Fort Bliss Municipal Solid Waste Landfill – Permit 1422

Matrix of Changes from the March 2008 Permit Application as Updated by the 2012 Permit Modification

Changes are noted below – No changes were made to permit documents not listed

Referenced Section	Section Description	Description of Change	Action to be Taken
	Permit Modification Application Text	Redline changes as noted below	Replace text and retain existing tables, figures and appendices unless otherwise noted
NA	TCEQ Core Data Form	This data has been updated to reflect this current permit modification application	Replace in its entirety – New Core Data Form has been provided
NA	Executive Summary	The executive summary has been updated to reflect the current permit modification application	Replace in its entirety – Executive summary has been revised for this permit modification application
1.1	Part I Permit Application	The TCEQ Part 1 form has been revised to reflect the current permit modification application. Minor edits to introduction text.	Replace in its entirety – New Part 1 Form has been provided.
2.1	Existing Conditions Summary	Minor edits	Redline changes noted in text
2.2.1.3	Landfill: Maximum Annual Acceptance Rate	Text revisions	Redline changes noted in text
2.2.2	Qualifications for Registration	Minor edits	Redline changes noted in text
2.3.4	Schools, Licensed Day-cares, Churches, Residential/Commercial/Recreational areas	Edits	Redline changes noted in text
2.4.1	Outline of Units	Minor edits	Redline changes noted in text
2.4.3	Monitoring Wells	Minor edits	Redline changes noted in text
2.4.5	Proposed Construction Sequence	Edit referenced drawing numbers	Redline changes noted in text
2.4.9.1	Sectors	Edit referenced drawing numbers	Redline changes noted in text
2.4.9.3	Dimensions of Cells or Trenches	Revisions made to reference Limit of Waste Investigation (LOWI)	Redline changes noted in text
2.4.9.4	Maximum Waste Elevations and Final Cover	Edit referenced drawing numbers	Redline changes noted in text

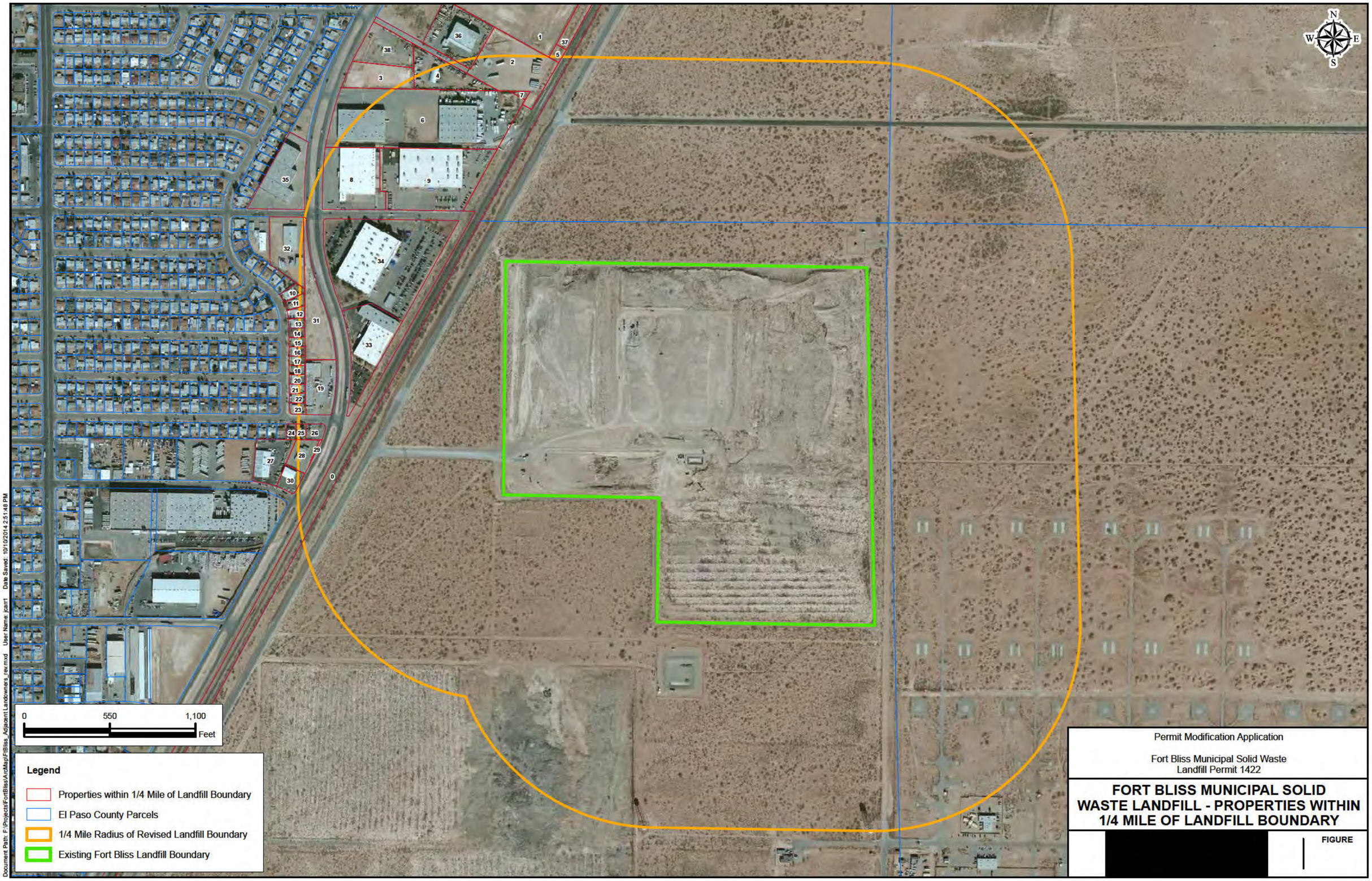
Referenced Section	Section Description	Description of Change	Action to be Taken
2.8.4	Proximity of Residences and Other Uses	Updated to reflect current conditions	Redline changes noted in text
2.16	Council of Governments and Local Government Review Request	Updated with current contact information	Redline changes noted in text
Table 2-1	Public Areas within One Mile	Table has been updated	Replace in its entirety
3.4	Waste Management Unit Design	Minor edits	Redline changes noted in text
3.4.4.4	Calculations of Estimated Solid Waste Deposition and Operating Life	Updated to recent airspace data	Redline changes noted in text
Appendix B	Landfill Modification and Closure Design Drawings	Replacement of previous permit application drawings detailing proposed monolithic ET cover system	Replace appendix in its entirety
Appendix I	Slope Stability & Settlement Analysis	Replacement of previous appendices in its entirety as analysis performed by ARCADIS	Replace appendix in its entirety
Appendix L	Facility Surface Water Drainage Report	Replacement of previous appendices in its entirety as analysis was revised based on revised grading plan and as prepared by ARCADIS	Replace appendix in its entirety
Appendix O	Closure Plan	Edits to incorporate new monolithic ET cover system	Redline changes noted in text
Appendix P	Post-Closure Plan	Edits to incorporate new monolithic ET cover system	Redline changes noted in text
Appendix Q	Evapotranspiration Cover Design Report	Replacement of previous appendices in its entirety as analysis for monolithic cover was performed by [redacted]	Replace appendix in its entirety
Appendix R	Post-Closure Use Report	New document to present potential future use of landfill area	Added as new appendix

Detailed Summary of Changes to Permit Drawings – Appendix B

New Permit Drawing Set Sheet Number	Previous Permit Drawing Set Sheet Number	Description of Change	Action to be Taken
G-1	G-1	Changes include update of Sheet Index and Engineer of Record	Replace sheet in its entirety
T-1	T-1	This sheet provides updated topography of the landfill and limits of waste as defined by the Limit of Waste Investigation effort completed during the Feasibility Alternatives Report	Replace sheet in its entirety
T-2	T-1	This sheet provides updated topography of the landfill and limits of waste as defined by the Limit of Waste Investigation effort completed during the Feasibility Alternatives Report	Replace sheet in its entirety
C-1	C-2	The new sheet C-1 provides an overview of the entire proposed landfill closure grades, the existing permit boundaries and the proposed limits of the expended permit boundary limits. Grading was changes to reflect current conditions and desire to maximize southern orientation for future potential PV development.	Replace sheet in its entirety
C-2	C-2	This sheet depicts the same data as shown on sheet C-1 but at a larger scale to make it more legible.	Replace sheet in its entirety
C-3	C-2	This sheet depicts the same data as shown on sheet C-1 but at a larger scale to make it more legible.	Replace sheet in its entirety
C-4	C-3	This sheet depicts the updated storm water flows and controls based on the updated grading, including the addition of perimeter swales that discharge to previously permitted discharge locations. The drainage areas and associated calculations for sizing of drainage features is contained in Appendix L – Facility Surface Water Drainage Report. This sheet has been provided an a larger scale to make to more legible.	Replace sheet in its entirety
C-5	C-3	This sheet depicts the updated storm water flows and controls based on the updated grading, including the addition of perimeter swales that discharge to previously permitted discharge locations. The drainage areas and associated calculations for sizing of drainage features is contained in Appendix L – Facility Surface Water Drainage Report. This sheet has been provided an a larger scale to make to more legible.	Replace sheet in its entirety
C-6	C-4	This new sheet contains only the landfill cross sections at a larger	Replace sheet in its entirety

New Permit Drawing Set Sheet Number	Previous Permit Drawing Set Sheet Number	Description of Change	Action to be Taken
		scale to make them more legible.	
C-7	C-4	This new sheet contains the optimized ET cover system details as well as details of on-cap and perimeter drainage swales	Replace sheet in its entirety
C-8	--	This new sheet contains additional details of new fencing, gravel roadway for access roadways on the final cover and construction details for the new gas probes where existing gas probes are being abandoned and replaced.	Replace sheet in its entirety
C-9	C-5	This sheet contains erosion and sediment control details. Sheets C-4 and C-5 depicted the location of the controls.	Replace sheet in its entirety

Part I Attachment
¼ Mile Landownership Information
(Figure 1)



Permit Modification Application

Fort Bliss Municipal Solid Waste
Landfill Permit 1422

FORT BLISS MUNICIPAL SOLID WASTE LANDFILL - PROPERTIES WITHIN 1/4 MILE OF LANDFILL BOUNDARY

FIGURE

Map ID	Parcel Size (acres)		City	State
1	60.000		NEW YORK	NY
2	3.608		EL PASO	TX
3	1.637		EL PASO	TX
4	2.000		EL PASO	TX
5	0.115		EL PASO	TX
6	9.490		EL PASO	TX
7	0.085		EL PASO	TX
8	3.826		ALBUQUERQUE	NM
9	5.899		AUSTIN	TX
10	0.229		EL PASO	TX
11	0.216		EL PASO	TX
12	0.173		EL PASO	TX
13	0.150		EL PASO	TX
14	0.144		EL PASO	TX
15	0.144		EL PASO	TX
16	0.144		EL PASO	TX
17	0.144		EL PASO	TX
18	0.144		EL PASO	TX
19	1.405		EL PASO	TX
20	0.144		EL PASO	TX
21	0.144		EL PASO	TX
22	0.144		EL PASO	TX
23	0.180		EL PASO	TX
24	0.142		EL PASO	TX
25	0.140		EL PASO	TX
26	0.238		EL PASO	TX
27	1.348		EL PASO	TX
28	0.761		EL PASO	TX
29	0.000		EL PASO	TX
30	0.453		EL PASO	TX
35	2.633		MIDLAND CITY	AL
31	1.662		EL PASO	TX
32	2.070		EL PASO	TX
33	2.677		AUSTIN	TX
34	8.883		AUSTIN	TX
36	2.743		EL PASO	TX
37	2.472		EL PASO	TX
38	1.639		MC ALLEN	TX

2. Part II of the Application

2.1. Existing Conditions Summary

§330.61(a)

The Fort Bliss military installation is located within the extraterritorial jurisdiction of the City of El Paso and extends into unincorporated portions of El Paso County, Texas, and the counties of Dona Ana and Otero in New Mexico. ~~-~~Currently the primary missions of the installation are: home of 1st ~~Army~~ Armored Division, senior noncommissioned officers training, administrative and logistical support of tenant activities, and provision of training facilities for reserve components.

The MSWLF is located northwest of Biggs Army Airfield and 300 feet east of the Southern Pacific Railroad tracks in El Paso County, Texas. -The MSWLF is about 1,200 feet east of the nearest occupied structure. Occupied structures include commercial and residential areas located on the west side of the MSWLF. ~~-~~An all-weather road is accessible to the MSWLF year~~-~~round. A 10-foot-high chain link fence with barbed wire outriggers surrounds the entire perimeter of the MSWLF. A 6-foot 4-inch by 12-foot 4-inch by 10-foot-high enclosed guard shack/scale house is located on the MSWLF near the entrance. No buried utilities are within the perimeter of the MSWLF.

The Fort Bliss MSWLF includes inactive Subtitle D Type I and Type IV landfill cells that ~~are currently~~were in use until 2015 to serve the United States Army Fort Bliss (USAFB). The landfill has been managed and operated by private contractors since January 1974. The landfill area comprises five distinct areas:

- 1970's-era inactive cells that cover 80-acres and are unlined and without leachate collection. The permit does not allow further placement of MSW in these cells. According to the March 1995 Final Closure Plan and Cost Estimate, these 80 acres are considered interim closed.
- A 3-acre Type 1 cell with final cover in place (non-Subtitle D) that complies with the 1995 closure plan and TCEQ closure requirements. TCEQ approval was received February 24, 1999.
- A 10.5-acre Type 1 inactive cell meeting Subtitle D requirements (Subtitle D cell). This cell is lined and has a leachate collection system.
- A 5-acre inactive Type IV construction and demolition (C&D) debris cell. This cell is unlined and without leachate collection.
- Approximately 7 acres designated for landfill roads, access areas, guard shack/scale house, etc.

This modification is for consideration of revisions to the approved optimized ET alternative final landfill cover design to alter the final grades to allow, to the extent practical, relocation of waste outside of the permitted cell boundaries identified in the 2021 Limits of Waste Investigation (LOWI); to revise the landfill closure contours; and to maintain a three-foot cover thickness. The corresponding modifications are provided in Appendix B (Modification and Closure Design Drawings), Appendix L (Facility Surface Water Drainage Report), and Appendix O (Closure Plan).~~This modification is for consideration of a 3-foot thick optimized Evapo-Transpiration (ET) alternative final landfill cover design, a revised landfill closure design, and the corresponding modifications to the landfill Closure Plan.~~ Existing conditions are not significantly affected by these changes, as demonstrated in the remaining sections of this application. Fort Bliss does not have any site-specific conditions that require special design consideration or possible mitigation of conditions identified in 30 TAC §330.61(h)-(o).

2.2. Waste Acceptance Plan

2.2.1. Sources and Characteristics of Wastes

2.2.1.1. Description of general sources and generation areas

§330.61(b)(1)(A)

The MSWLF serve~~d~~ds the military operations within the USAFB. Permitted types of solid wastes disposed of at the MSWLF we~~a~~re non-hazardous solid wastes from military operations, bulky items, grass and tree trimmings, refuse from litter cans, construction debris, classified waste (dry), dead animals, Regulated Asbestos Containing Material (RACM), and empty oil cans (1-quart and 5-gallon sizes). The MSWLF di~~d~~does not receive hazardous waste nor di~~d~~does it recover incoming waste.

2.2.1.2. Transfer Stations

§330.61(b)(1)(B)

This section is not applicable; the Fort Bliss MSWLF does not contain a transfer station.

2.2.1.3. Landfill: Maximum Annual Acceptance Rate

§330.61(b)(1)(C)

Based on the approved 1995 final landfill contours, the total permitted waste capacity of the Fort Bliss MSWLF is 5.9 million cubic yards. ~~-~~As of 2008, the current volume of in-place waste was about 5.1 million cubic yards. ~~-~~The 2008 permit modification for the 10-foot height increase in the Subtitle-D cell added an additional 180,000 cubic yards of landfill capacity. ~~-~~The approved optimized ET landfill cover final grading plan ~~does~~ did not significantly alter the final grades presented in the 2008 permit modification; rather, the optimized ET landfill cover final grading plan generally conforms to the grades

developed during filling operations (based on the 2010 topographic survey) to provide more easily constructible ridges, swales, and slopes. The approved grading ~~has been~~was further optimized to reduce the extent of waste relocation and to utilize existing soils covering the waste as part of the optimized cover system. The grades also optimize the southern and western orientation of the south and west facing landfill slopes to support potential future Photo-Voltaic (PV) development over the closed landfill. The potential future use for the facility is described in Appendix R. The proposed revisions to the grading plan will not significantly alter the final grades presented in the 2015 permit modification for the approved optimized ET landfill cover, and the design parameter for the maximum elevation in the Subtitle D cell is not changed.

2.2.2. Qualification for Registration

§330.61(b)(2)

The Fort Bliss MSWLF is authorized under a permit (MSW Permit No. 1422). The facility is seeking a modification requiring notice to its permit, pursuant to 30 TAC §305.70(k).

2.3. General Location Maps

2.3.1. Prevailing Wind Direction with a Wind Rose

§330.61(c)(1)

The prevailing wind direction at the MSWLF is from the north during the winter months and from the south during the summer months with an overall southeasterly prevailing wind. Dust storms and wind storms are frequent during the months of March and April. Wind speeds can occasionally reach up to 35 miles per hour (mph) during intense weather events. Figure 2-1 provides an annual wind rose map for the northern El Paso area.

El Paso experiences three prevailing wind change regimes with a dominant northerly wind flow in the cooler seasons of October through February (see Figure 2-2), a shift to west-southwest in the spring, March into early June (see Figure 2-3), and another distinct shift to prevailing southeast winds in July through mid-September (see Figure 2-4).

2.3.2. Known Water Wells

§330.61(c)(2)

Two groundwater production wells with the Texas Water Development Board well designation as "located wells" are located about 350 feet north of the MSWLF. The well location maps in the "*Geohydrologic Site Characterization of the Municipal Solid Waste Landfill Facility, U.S. Army Air Defense Artillery Center and Fort Bliss, El Paso County, Texas*" U.S. Geological Survey, Water-Resources Investigations Report 95-4217 (Abeyta, 1996, Appendix D) show the location of the two water wells within 500 feet (ft) of the permitted boundary. The first well, W-3, has been in existence for many years, while W-

3A was constructed circa 1995 and is located adjacent to the older well. These wells are used as groundwater production wells and are owned by the U.S. Army. The geohydrologic report also provides the location and description of both groundwater wells. Well W-3 is 826 feet deep, and well W-3A is 940 feet deep. The regional topographic gradient of the groundwater flow in the area is generally to the south and southwest towards the Rio Grande River. Precise groundwater flow direction at specific locations is difficult to determine due to City of El Paso and U.S. Army production well pumping and the geometric configuration of the groundwater aquifers.

2.3.3. Structures and Inhabitable Buildings

§330.61(c)(3)

A guard shack/scale house located in the southwest corner of the MSWLF at the entrance to the landfill facing west is the only inhabitable structure within 500 feet of the facility. A water tank located just west of the guard shack/scale house is the only other structure within 500 feet of this unit (see Figure 2-5)

2.3.4. Schools, Licensed Day-cares, Churches, Residential/ Commercial/ Recreational areas

§330.61(c)(4)

No hospitals, cemeteries, ponds or lakes exist within one mile of the facility. The General Location Map (Figure 2-6), provides locations of the schools, licensed day-care facilities, churches, and residential, commercial, and recreational areas within one mile of the MSWLF. A list of public areas located within the one-mile radius is provided in Table 2-1. The list of schools, churches, day care facilities, residential, commercial, and recreational areas are current as of June ~~2014~~ 2021 as provided determined by a Global Information System (GIS) search of tax parcel records

2.3.5. Roads Within One mile

§330.61(c)(5)

Roads within a one mile radius used for accessing the facility are shown on Figure 2-7. The access road to the landfill entrance is asphalt concrete. The internal access roads to the active fill areas are caliche-based roads. Roads used by the Fort Bliss MSWLF for entering or leaving the facility are located on, owned by and operated by the Fort Bliss military installation. The unlabeled roads are known as “tank trails” and are not named.

2.3.6. Latitude and Longitude

§330.61(c)(6)

The coordinates of the Fort Bliss MSWLF are as follows:

[redacted] [redacted] [redacted]

Longitude: [redacted]
Elevation: 3930 feet above mean sea level (msl)

2.3.7. Area Streams

§330.61(c)(7)

No perennial or ephemeral streams are on or in the vicinity of the Fort Bliss MSWLF.

Surface water flow occurs perennially in the Rio Grande River with occasional additional stream flows into the Rio Grande about two miles from the MSWLF during periods of intense precipitation. Surface outflow is negligible due to absence of surface streams.

2.3.8. Airports

§330.61(c)(8)

Airports located within 6 miles of the MSWLF are:

- Biggs Army Airfield, [redacted] (2.2 miles)
- El Paso International Airport, [redacted] (5.06 miles)

2.3.9. Property Boundary

§330.61(c)(9)

The Fort Bliss MSWLF property boundaries are outlined in red on Figure 2-5. The property boundaries defined in the legal description of the original permit application can be provided upon request.

As further shown in Appendix B, Permit Drawings, the limits of waste in Cell 3 and Cell 4 are within 50 feet of the northern permitted boundary. Rather than relocate waste as part of the final closure construction, the final cover will be extended over these areas. Since Fort Bliss owns the lands surrounding the landfill, the requirement ~~permit boundary will be modified~~ to maintain ~~the~~ a 50-foot buffer between the northern boundary and the limit of waste will be met through addition of notes to the Base Master Plan reserving this area for the landfill. Upon approval of the permit application, ~~the new permit boundary will be established and as part of the final closure construction,~~ the perimeter fence will be relocated to include this additional buffer area.~~the new permit boundary limit~~.

Additionally, the 2021 LOWI identified localized areas of waste which are outside of cell boundaries and within 50 feet of the permit boundary (see Appendix B, Permit Drawings). As part of closure activities, relocation of waste outside of cell boundaries will be performed, to the extent practical. However, if all wastes cannot be removed, these areas

may also require to addition the Base Master Plan notes, to reserve them as areas retained for the landfill.

2.3.10. Drainage, Pipeline, Utility Easements

§330.61(c)(10)

No drainage or pipelines are located within the MSWLF (See Figure 2-5). Three green bollards are location in the Northwest corner of the MSWLF (See Figure 2-5) indicating the location of the electric utility easement on the property. Utility easement holders are as follows:

El Paso Electric
P.O. Box 982
El Paso, TX 79960

El Paso Water Utilities
P.O. Box 511
El Paso, TX 79961-001

Texas Gas Service
7117 Florida Blvd
Baton Rouge, LA 70806

Union Pacific Railroad Company
1400 Douglas Street- Stop 1690
Omaha, NE 68179-1690

2.3.11. Facility Access Control Factors

§330.61(c)(11)

General public access is restricted since the landfill is on a military installation. Access to the actual landfill is also restricted through use of fencing, gates, and the guard shack. Only authorized vehicles have access beyond the guard shack or facility entrance. Authorized vehicles consist of:

- Any government-owned commercial or military vehicle
- Any government contractor whose truck is sent to the disposal area with disposal material and who has a valid landfill permit
- Contractor's vehicle used to collect solid waste from Fort Bliss, not including family housing, is also an authorized vehicle

Government vehicles must have government license plates. Signage provides direction to customers to the entrance to the landfill.

The Site Operating Plan (Appendix A, March 2008) describes the perimeter fencing, vehicle access procedures, and vehicle transport within the MSWLF. The perimeter fencing, guard shack, and vehicle access roads are shown on Figure 2-5.

2.3.12. Archaeological Sites, Historical Sites, Sites with Exceptional Aesthetic Qualities

§330.61(c)(12)

No archaeological sites, historical sites, or sites with exceptional aesthetic qualities are located adjacent to the MSWLF. The request for the Texas Historical Commission review letter is provided in Appendix E. Please note that the Fort Bliss MSWLF is a fully developed, permitted, operational site.

2.4. Facility Layout Maps

2.4.1. Outline of Units

§330.61(d)(1)

The Fort Bliss MSWLF includes inactive Subtitle D Type I and Type IV landfill cells ~~and is currently in~~in which were used to serve the USAFB. The landfill has been managed and operated by private contractors since January 1974. The landfill area is comprised of five distinct areas:

- 1970's-era inactive cells that cover 80-acres and are unlined and without leachate collection. The permit does not allow further placement of MSW in these cells. According to the March 1995 Final Closure Plan and Cost Estimate, these 80 acres are considered closed.
- A 3-acre Type 1 cell with final cover in place (non-Subtitle D) that complies with the 1995 closure plan and TCEQ closure requirements. TCEQ approval was received February 24, 1999.
- A 10.5-acre Type 1 inactive cell meeting Subtitle D requirements (Subtitle D). This cell is lined and has a leachate collection system. This cell wa~~i~~s nearing permitted capacity when taken out of use.
- A 5-acre inactive Type IV C&D debris cell. This cell is unlined and without leachate collection.
- Approximately 7 acres designated for landfill roads, access areas, guard shack/scale house, etc.

This modification is for consideration of changes to the approved~~an~~ optimized ET alternative final landfill cover design to alter the final grades and allow the relocation of waste to the extent practical, revise landfill closure contours, and maintain a three-foot cover thickness. The corresponding modifications are provided in Appendix B (Modification and Closure Design Drawings), Appendix L (Facility Surface Water Drainage Report), and Appendix O (Closure Plan).~~optimized alternative final landfill cover design, a revised landfill closure design, and the corresponding modifications to the landfill~~

~~Closure Plan~~. Existing conditions are not significantly affected by this change, as demonstrated in the remaining sections of this application. Fort Bliss does not have any site-specific conditions that require special design consideration or possible mitigation of conditions identified in 30 TAC §330.61(h)-(o).

Landfill units are marked on Sheet C-1of Appendix B.

2.4.2. Roadways

§330.61(d)(2)

Interior roadways are shown on Figure 2-5.

2.4.3. Monitoring Wells

§330.61(d)(3)

This section is not applicable. The TCEQ approved Fort Bliss' request for groundwater monitoring suspension on May 22, 1996 (see Appendix F). ~~-~~One existing monitoring well located on the west side of Cell 1 does exist and will be abandoned as part of the final cover construction activities.

2.4.4. Locations of Buildings

§330.61(d)(4)

The only inhabitable structure within 500 feet of the MSWLF is the guard shack/scale house shown on Figure 2-5. No other buildings are located within the MSWLF boundary.

2.4.5. Proposed Construction Sequence

§330.61(d)(5)

The MSWLF is already constructed. ~~Filled and active areas~~The constructed landfill cells are depicted on Sheet C-1 of Appendix B. The final grading plan is shown on Sheets C-2 and C-3 in Appendix B.

2.4.6. Fencing

§330.61(d)(6)

Perimeter fencing depicts the outline of the MSWLF as shown in red on Figure 2-5.

2.4.7. Wind Breaks

§330.61(d)(7)

This section is not applicable; there are no natural wind breaks located at the MSWLF nor plans for screening the facility from public view. The MSWLF is located entirely within the military installation and away from public view.

2.4.8. Entrance Roads

§330.61(d)(8)

All access roads to the MSWLF are located on the Fort Bliss military installation (See Figure 2-7), and are not public access roads. The access road to the landfill entrance is asphalt concrete and useable during wet weather conditions. The operator will maintain internal roads to promote drainage and limit ponding during wet weather conditions. Fort Bliss is located in an arid climate so that wet weather is not a major concern at the MSWLF.

2.4.9. Landfill Units

2.4.9.1. Sectors

§330.61(d)(9)(A)

The landfill area comprises five distinct areas (Refer to Sheet C-1 in Appendix B):

- 1970's-era inactive cells that cover 80-acres and are unlined and without leachate collection. The permit does not allow further placement of MSW in these cells. According to the March 1995 Final Closure Plan and Cost Estimate, these 80 acres are considered closed.
- A 3-acre Type 1 cell with final cover in place (non-Subtitle D) that complies with the 1995 closure plan and TCEQ closure requirements. TCEQ approval was received February 24, 1999.
- A 10.5-acre Type 1 inactive cell meeting Subtitle D requirements (Subtitle D cell). This cell is lined and has a leachate collection system. This cell ~~i~~was nearing permitted capacity when taken out of use.
- A 5-acre inactive Type IV construction and demolition (C&D) debris cell. This cell is unlined and without leachate collection.
- Approximately 7 acres designated for landfill roads, access areas, guard shack/scale house, etc.

2.4.9.2. Sequence of Filling Operations

§330.61(d)(9)(B)(c)

During the landfill's active life, t~~T~~he solid waste filling operations included the following~~currently used are fill methods. The solid waste will~~:

- ~~Be p~~Placement~~d~~ in a single two-foot layer each day
- ~~Be p~~Protection~~ed~~ with six inches of soil (daily cover)

- Continuation~~e~~ with a single two-foot layer throughout the cell from the edge of the previous day's activities. An additional two–foot layer ~~will be~~was started when the first layer ~~i~~was complete.

When solid waste is relocated for closure into the Subtitle D cell, the above procedures will be used or an alternative daily cover (e.g., tarping) will be substituted. Final cover will be applied during closure, and~~when~~ the landfill elevation ~~reaches~~ will not exceed the permitted elevation.

2.4.9.3. Dimensions of Cells or Trenches

§330.61(d)(9)(D)

The only requested modifications to the physical conditions of the facility are minor changes to the final grading plan of the landfill to allow, to the extent practical, relocation of waste identified in the 2021 LOWI outside of the permitted cell boundaries ~~based on the alternative cover design and to provide more easily constructible ridges, swales, and slopes based on the existing landfill grades at the site~~. ~~The permit modification is based on data obtained from a Limit of Waste Investigation (LOWI) that was performed as part of the feasibility analysis to evaluate and select the preferred cover method for which approval is being sought~~. Refer to Sheet C-1 in Appendix B for the existing limits of waste determined as part of the LOWI.

2.4.9.4. Maximum Waste Elevations and Final Cover

§330.61(d)(9)(E)

The proposed final contours for maximum waste elevations and cover are shown on Sheets C-2 and C-3 of Appendix B. The maximum waste elevations are shown on Sheet ~~5~~ C-8 of Appendix B. ~~These contours are tied into the MSWLF contours approved by the TCEQ in 1995.~~

2.5. General Topographic Maps

§330.61(e)

General topographic maps of the MSWLF are provided in Appendix B. Figure 2-8 provides the United States Geological Survey (USGS) 7 ½-minute quadrangle sheet or equivalent, at a scale of one inch equal to 2000 feet.

2.6. Aerial Photograph

2.6.1. General

§330.61(f)(1)

Aerial photographs that are approximately 9 inches by 9 inches with a scale within a range of one inch equals 1,667 feet to one inch equals 3,334 feet and showing proximity to at least a one-mile radius of the MSWLF site boundaries are provided as Figures 2-9 through 2-14.

2.6.2. Growth Trends

§330.61(f)(2)

A series of aerial photographs ranging from 1967 to 2003 are used to show growth trends of the one mile area around the MSWLF as shown on Figures 2-9 to 2-14. The photographs show rapid commercial and residential building growth in areas outside the Fort Bliss military installation including the area directly west of the MSWLF.

At this time, the land nearest the MSWLF beyond the Fort Bliss boundary is fully developed. The land adjacent to the MSWLF is owned by Fort Bliss with no current plans for development.

2.6.3. Historical Aerial Photographs

- **Historical Aerial Photograph for Northwest El Paso dated 1967**

The MSWLF does not exist in the 1967 photograph, Figure 2-9. The site of the MSWLF consists of undeveloped land owned by Fort Bliss. Limited commercial and residential development appears in the areas to the west and north of the present day landfill boundaries.

- **Historical Aerial Photograph for Northwest El Paso dated 1974**

The boundaries of the MSWLF are visible as outlined in the 1974 photograph, Figure 2-10. Commercial and residential development increases are evident in the area west of the landfill.

- **Historical Aerial Photograph for Northwest El Paso dated 1988**

The boundaries of the landfill facility are visible as outlined in the 1984 photograph, Figure 2-11. Significant residential and commercial development occurs west of the MSWLF. To the southeast, Biggs Army Airfield is visible.

- **Historical Aerial Photograph for Northwest El Paso dated 1991**

The MSWLF boundaries are shown in the 1991 photograph, Figure 2-12. Residential development dominates the photograph. All surrounding areas to the west of the facility show increased population as compared to the 1984 photograph.

- **Historical Aerial Photograph for Northwest El Paso dated 1996**

Increased development of multiple commercial and industrial buildings opposite the roadway directly bordering the MSWLF to the west is noted in the 1996 photograph Figure 2-13. No other significant changes from the 1991 aerial photograph exist.

- **Historical Aerial Photograph for Northwest El Paso dated 2003 (Appendix F)**

The development of the area to the west of the landfill appears to have stabilized as indicated by the 2003 photograph, Figure 2-14. There are no significant changes visible as compared to the 1996 aerial photograph.

2.7. Land-Use Map

§330.61(g)

Figure 2-6 shows the boundary of the MSWLF and the land uses surrounding the property and actual uses within one mile of the MSWLF. The map shows the location of residences, commercial establishments, schools, licensed day-care facilities, and recreational areas within one mile of the MSWLF boundary. No churches, cemeteries, ponds or lakes are located within one mile of the MSWLF boundary. Figure 2-5 shows that pipelines are located outside of the landfill and three green bollards in the Northwest corner of the MSWLF indicate the only electric utility easement. Figure 2-5 also depicts access roads serving the MSWLF.

2.8. Impact on Surrounding Area

2.8.1. Published Zoning Map

§330.61(h)(1)

Published zoning maps are not available for the MSWLF. The MSWLF does not have a nonconforming use nor does it require a special permit from the local government having jurisdiction.

2.8.2. Character of Surrounding Land

§330.61(h)(2)

The adjacent properties to the MSWLF within one mile are undeveloped lands within the military installation. The MSWLF is about 1,200 feet from the nearest commercial areas. Residential areas exist to the west of the MSWLF past the commercial section. Biggs Army Airfield is approximately two miles to the southeast of the MSWLF.

2.8.3. Growth Trends

§330.61(h)(3)

The land within five miles of the MSWLF beyond the military installation boundary is fully developed. A majority of the land within five miles of the MSWLF is owned by Fort Bliss. Construction activities due to BRAC are ongoing or planned for portions of the installation, but none will encroach upon the MSWLF footprint. A registered composting facility (Registration No. 42038), utilized for the biological composting of petroleum contaminated soils, is located immediately to the south of the MSWLF. Beyond the northeast corner of the MSWLF boundary is a set of railway tracks. Across the tracks are industrial buildings. Beyond the industrial buildings are residential housing, churches, and schools as shown in Figure 2-6.

2.8.4. Proximity of Residences and Other Uses

§330.61(h)(4)

The MSWLF is about 1,200 feet from the nearest commercial and residential areas. No cemeteries, historic structures and sites, archaeologically significant sites or sites having exceptional aesthetic quality are located within one mile of the facility. Schools located within one mile of the MSWLF are listed in Table 2-1.

- Approximate Number of Residences: 2,750~~500~~
- Approximate Number of Commercial Establishments: ~~50~~70

2.8.5. Wells

§330.61(h)(5)

The only known wells within 500 feet of the MSWLF are groundwater production wells W3 and W3a, located approximately 350 feet north of the MSWLF. A detailed description and discussion of these wells may be found in Appendix D.

2.9. Transportation

2.9.1. Entrance Roads

§330.61(i)(1)

All access roads to the MSWLF are located on the Fort Bliss property, owned by the U.S. Army. The access road to the landfill entrance is asphalt concrete and useable by military and government personnel during all weather. The internal access roads to the former active fill areas are caliche-based roads useable during wet weather conditions. The operator maintains these internal roads to promote drainage and limit ponding during wet weather conditions. Internal roads were used only during facility operating hours. When not in operation, the facility gate is closed and locked.

2.9.2. Vehicular Traffic Volume

§330.61(i)(2)

During active life of the landfill, tTraffic volume wasiswas minimal as only authorized vehicles were allowed to access the site. The current licensed vehicle use occuredoccurreds from delivery of MSW, construction and demolition debris, and RACM material to the MSWLF. BRAC-related activities will increased disposal of construction and demolition material and RACM; representing the only expected intermittent increase in vehicular volume.

2.9.3. Expected Vehicular Traffic Volume

§330.61(i)(3)

Due to BRAC activities during the active life of the landfill, a daily increase of two additional trucks from licensed Army vehicles or contractors' vehicles using the MSWLF may have occurred result. BRAC-related activities will included increased amounts of construction and demolition debris and RACM material. Traffic volume data are not maintained by Fort Bliss.

2.9.4. Proposed Public Roadway Improvements

§330.61(i)(3)

The MSWLF and the roadways accessing the MSWLF are located on the Fort Bliss military installation. No public roadways exist to the MSWLF. All roadways are owned and improved by the U.S. Army, Fort Bliss. The Army is not required to coordinate with the Texas Department of Transportation.

2.9.5. Airport

§330.61(i)(5)

The MSWLF demonstrates compliance related to landfill operations impact upon airports within six miles of the MSWLF in accordance with §330.545 (relating to Airport Safety) as discussed in sections 2.9.5.1 and 2.9.5.2 below.

2.9.5.1. Impact of Facility upon Airports

30 TAC §330.545(a), requires that MSWLF permit modifications demonstrate no bird hazards for airport runway end used by piston type aircraft located within 5,000 feet of the landfill and turbojet aircrafts within 10,000 feet. No piston-type aircraft runways within 5,000 feet (0.95 miles) of the MSWLF exist. A turbo aircraft runway end used by Biggs Army Airfield is located 10,929 feet from the MSWLF.

The MSWLF is designed and operated so the unit does not pose a bird hazard to aircraft. Construction and demolition debris comprises the majority of MSWLF refuse. Subsequently, minimal bird populations exist in the surrounding area.

2.9.5.2. Airport Review Letter

30 TAC §330.545(d) requires the MSWLF to notify general public or small general service airports within six miles of all modifications to the facility. The MSWLF must also notify all large general public airports within five miles. Airport review letters sent to Biggs Army Airfield, El Paso International Airport and the Federal Aviation Administration (FAA) as well as available response letters are located in Appendix G.

2.10. General Geology and Soils Statement

2.10.1. General

§330.61(j)(1)

The MSWLF is underlain by Hueco Bolson deposits of Tertiary age and typically are composed of unconsolidated to slightly consolidated interbedded sands, clay, list, gravel, and caliche. Individual beds are not well defined and range in thickness from a fraction of an inch to about 100 feet.

The general geology and soils details for the MSWLF site are located in Appendix D (Abeyta, 1996).

2.10.2. Fault Areas

§330.61(j)(2)

The MSWLF is not located within 200 feet of a fault. A Fault Area Map is provided as Figure 5 of the document "Evaluation of Location Restrictions for the Fort Bliss Municipal

Solid Waste Landfill (Permit #1422)" [redacted]. prepared for the U.S. Army Corps of Engineers, Fort Worth District, March 1995 (Appendix H).

2.10.3. Seismic Impact Zones

§330.61(j)(3)

According to the Seismic Zones Map from the United States Environmental Protection Agency (USEPA) "*Solid Waste Disposal Facility Criteria Technical Manual*;" EPA530-R93-017; November 1993, the MSWLF is located outside the seismic zones [redacted]

2.10.4. Unstable Areas

§330.61(j)(4)

Appendix H contains the 1995 certification by [redacted] stating that the Fort Bliss MSWLF is not located on unstable areas. In addition, slope stability and settlement analyses for the alternative final cover design are provided in Appendix I.

2.11. Groundwater and Surface Water

2.11.1. Groundwater Conditions

§330.61(k)(1)

The primary source of groundwater in the MSWLF area is the unconsolidated and semi-consolidated Hueco Bolson deposits. These deposits range between 600 and 1,200 feet below the surface and supply the City of El Paso, Ciudad Juarez (Chihuahua, Mexico) Fort Bliss Military Reservation, private industries, and agricultural areas. A thick, unsaturated layer approximately 300 ft deep lies above the Hueco Bolson deposits near the MSWLF. No known perched water tables in the vicinity of the MSWLF exist at present.

Groundwater monitoring requirements under 30 TAC §330.403 (relating to Groundwater Monitoring Systems), §330.405 (relating to Groundwater Sampling and Analysis Requirements), §330.407 (relating to Detection Monitoring Program for Type I Landfills), and §330.409 (relating to Assessment Monitoring Program) were suspended by the executive director on May 22, 1996, based on Fort Bliss' demonstrating that no potential exists for migration of hazardous constituents from the MSWLF unit to the uppermost aquifer as defined in 30 TAC §330.3 of this title (relating to Definitions) during the active life and the closure and post-closure care period of the unit. The groundwater monitoring suspension approval is located in Appendix F.

2.11.2. Surface Water

§330.61(k)(2)

No surface water bodies exist at or near the MSWLF as noted in the 2005 Storm Water Pollution Prevention Plan. The MSWLF is located in West Texas where desert conditions exist. Daytime summer temperatures range between 90 and 105 degrees Fahrenheit (°F) and winter temperatures range from 55 to 60 °F. The surrounding area receives less than 10 inches of rain per year and relative humidity is very low. Depending upon the intensity and duration of each precipitation event, the water delivered by the occurrence may infiltrate into the soil or become surface water runoff. The infiltrated water may percolate downward to the water table or return to the atmosphere via evapotranspiration. The surface water runoff may flow downstream to the stormwater retention basin located approximately two miles south of the landfill (Figure 2-15). This pond retains runoff temporarily and releases it slowly. As mentioned previously the MSWLF is located where desert conditions exist; therefore, surface water flow in the vicinity of the MSWLF is limited.

The Rio Grande is the only perennial water body in the vicinity of the MSWLF. Runoff from the Franklin Mountains flows into the Rio Grande Basin approximately two miles west of the MSWLF.

2.11.3. TPDES Storm Water Permit

2.11.3.1. Certification Statement

§330.61(k)(1)(A)

Fort Bliss complies with all applicable Texas Pollutant Discharge Elimination System (TPDES) storm water permitting and Clean Water Act requirements. The required certification statement is located in Appendix J.

2.11.3.2. Individual Wastewater Permit

§330.61(k)(1)(B)

The MSWLF does not require coverage under an individual wastewater permit.

2.12. Abandoned Oil and Water Wells

2.12.1. Location of Existing and Abandoned Water Wells

§330.61(l)(1)

Not Applicable. No existing or abandoned water wells are located within the facility boundary.

2.12.2. Location of Oil Wells

§330.61(l)(2)

Not Applicable. No existing or abandoned oil wells are located within the facility boundary.

2.13. Floodplains and Wetlands Statement

2.13.1. Data on Floodplains

§330.61(m)(1)

The Flood Insurance Rate Map (Figure 2 of Appendix H) shows that the MSWLF is located outside the 100-year floodplain but within the 500-year flood area.

2.13.2. Wetlands Determination

§330.61(m)(2)

Figure 3 in Appendix H, from [redacted] District Conservationist, United States Department of Agriculture (USDA) Soil Conservation Service dated August 1994 indicates no designated wetlands are located within the MSWLF and the surrounding area.

2.13.3. Wetlands Located Within the Facility

§330.61(m)(3)

No designated wetlands are located within the MSWLF and the surrounding area (see Section 13.2 Wetlands Determination above).

2.14. Endangered or Threatened Species

2.14.1. Impact Upon Endangered or Threatened Species

§330.61(n)(1)

No threatened or endangered species (federally listed) or critical habitat are located in the MSWLF area (*Fort Bliss Integrated Natural Resource Management Plan*, U.S. Army, 2001; *Fort Bliss Texas and New Mexico and Master Plan Draft Supplemental Environmental Impact Statement*, U.S. Army, 2006). The landfill is surrounded by mesquite coppice dune habitat. The MSWLF itself is disturbed during daily operations. The Texas horned lizard (*Phrynosoma cornuta*), a state threatened reptile in Texas, may re-populate the area over time. Cells capped approximately five years ago at this MSWLF show establishment of at least 20 species of plants. The soil has also been repopulated by several animal species such as the Chihuahua whiptail lizard (*Cnemidophorus exsanguis*), termites (a gallery ever 34 square meters), and a number of species of ants including the genus *Pogonomermix sp*. which is the primary food source for this reptile. However, no mounds were located during Fort Bliss's studies. According to Fort Bliss documents, it is

likely that upon closure the MSWLF area will gradually return to Texas horned lizard habitat.

2.14.2. Compliance Demonstrations

§330.61(n)(2)

Table 2-2 provides the specific data relating to endangered and threatened species in the El Paso region. There is no proposed height increase or proposed change that~~does not~~ affects the facility footprint or otherwise change previous compliance demonstrations.

2.15. Texas Historical Commission Review

§330.61(o)

Appendix E contains the request for a review letter from the Texas Historical Commission documenting compliance with the Natural Resources Code, Chapter 191, Texas Antiquities Code. The letter of review will be kept on file at Fort Bliss. Please note that the Fort Bliss MSWLF is a fully developed, permitted, operational site.

2.16. Council of Governments and Local Government Review Request

§330.61(p)

The contact information for the council of governments and local government agencies has been updated as follows:~~The following council of governments and local government agencies have received a copy of Part I and II of this permit modification package for their review for compliance with regional solid waste plans. Documentation that a review letter was requested from local government agencies is provided in Appendix K. The letters of review will be kept on file at Fort Bliss.~~

1. International Boundary and Water Commission, U.S. Section, 4197~~7~~1 N Mesa St~~ Ste C 310~~, El Paso, TX 79902-1423~~2~~
2. City of El Paso Department of Public Health~~ City County Health & Environmental District.~~, 5115 El Paso Dr, El Paso, TX 79905-2818
3. City of El Paso Environmental Services Department, 7968 San Paulo, El Paso, TX 79907
4. Rio Grande Council of Governments, 8037 Lockheed Drive, Suite 100

   El Paso, TX 79925
5. El Paso County Judge, ~~Suite 301,~~ 500 E San Antonio Ave., Suite 301, El Paso, TX 79901-2419

6. State Representative ~~Joe Pickett~~Art Fierro, Texas House of Representatives, District 79, Room E2.412, P.O. Box 2910, ~~(915) 590-4349,~~ Austin, TX 78768, (915) 629-9522
7. State Senator ~~Jose Rodriquez~~Cesar J. Blanco, Texas Senate District 29, P.O. Box 12068, Capital Station, Austin, TX 78711 (915) ~~351~~595-~~3500~~5955

Table 2-1
Public Areas within One Mile

~~Day Care Facilities~~		
~~Children's Academy~~	~~5529 Treadgill Ave~~	~~El Paso, TX~~
~~Kid's Corner Preschool~~	~~9797 Mc Combs St~~	~~El Paso, TX~~
~~Open Gate Church (Day Care)~~	~~9821 Mc Combs St~~	~~El Paso, TX~~
~~Wee Care Childcare Center~~	~~9821 Mc Combs St~~	~~El Paso, TX~~
~~Recreational~~		
~~Student Memorial Park~~	~~9425 Vicksburg~~	~~El Paso, TX~~
~~Dolphin Park~~	~~5900 Marlin~~	~~El Paso, TX~~
~~Boys and Girls Club~~	~~5628 Eisenhower~~	~~El Paso, TX~~
~~Northeast YMCA~~	~~5509 Will Ruth Ave~~	~~El Paso, TX~~
~~Schools~~		
~~Northeast Christian Academy~~	~~9899 Mc Combs St~~	~~El Paso, TX~~
~~Parkland Middle School~~	~~60 5 Nova Way~~	~~El Paso, TX~~
~~Irvin High School~~	~~9465 Roanoke Dr~~	~~El Paso, TX~~
~~Dolphin Terrace Elementary School~~	~~9070 Pickerel Dr~~	~~El Paso, TX~~
~~Schuster Elementary School~~	~~5515 Will Ruth Ave~~	~~El Paso, TX~~
~~Churches~~		
~~Sun Valley Baptist~~	~~9901 Mc Combs St~~	~~El Paso, TX~~
~~Centro Biblica La Luz~~	~~5733 Bagdad Way~~	~~El Paso, TX~~
~~Open Gate Worship Center~~	~~9821 Saluki St~~	~~El Paso, TX~~
~~Praise Temple Baptist~~	~~9609 Rutlage~~	~~El Paso, TX~~
~~Baptist Church~~	~~5521 Threadgill Ave~~	~~El Paso, TX~~
~~Pentecostal Church~~	~~5505 Threadgill Ave~~	~~El Paso, TX~~
~~New Beginning Missionary Church~~	~~9491 Railroad Dr~~	~~El Paso, TX~~
~~Tobin Park United Methodist~~	~~5501 Wren~~	~~El Paso, TX~~

Open Gate Worship Center	9821 Mc Combs St	El Paso, TX
Templo Christiano Shalom	9629 Mc Combs St	El Paso, TX
World Life Ministries	9613 Mc Combs St	El Paso, TX
Bread of Life Ministries	5735 Will Ruth Ave	El Paso, TX
Mision Apostolica	5631 Saluki Dr	El Paso, TX
Commercial		
Warehouse	5821 Lexington Rd	El Paso, TX
A&A Millwork	5904 Threadgill Ave	El Paso, TX
Toro Company	9445 and 9650 Railroad Dr	El Paso, TX
Boeing Company	9526 & 9566 Railroad Dr	El Paso, TX
Boeing Company	6055 Threadgill Ave	El Paso, TX
Realty Office	9620 Roanoke Dr	El Paso, TX
The Final Touch	5600 Will Ruth Ave	El Paso, TX
Independent Truck Co	5600 Will Ruth Ave	El Paso, TX
Gas Station	5710 Railroad	El Paso, TX
A+ Auto Repair	9200 Mc Combs	El Paso, TX
Veterinary Clinic	9204 Mc Combs St	El Paso, TX
Northeast Professional Center	9220 Mc Combs	El Paso, TX
Parking Lot	9220 Mc Combs	El Paso, TX
A1 Welding	9278 Mc Combs	El Paso, TX
EC Transmissions	9280 Mc Combs	El Paso, TX
Tow NE Mini Warehouse	5819 Lexington Rd	El Paso, TX
TA & V Tire & Auto Service	9300 Mc Combs St	El Paso, TX
Cardenas Grocery	9224 Mc Combs St	El Paso, TX
Dairy Queen	9332 Mc Combs St	El Paso, TX
Tony Lewis Auto Body Shop	9400 Mc Combs St	El Paso, TX
Chevron Station	9404 Mc Combs St	El Paso, TX
Perry Cleaners	9408 Mc Combs St	El Paso, TX
Auto Repair	9418 Mc Combs St	El Paso, TX
Skyline Shopping Center	9440 Mc Combs St	El Paso, TX
Galaxy In Print Inc	5939 Railroad	El Paso, TX
Peter W Dahl Co	5869 Waycross Ave	El Paso, TX
Autoparts Unlimited	5843 Waycross	El Paso, TX
Skyline Auto	5847 Waycross	El Paso, TX
El Paso Truss	9831 Railroad Dr	El Paso, TX
Daniels Moving	9700 Railroad Dr	El Paso, TX
Dust Tex	5906 Threadgill Ave	El Paso, TX
Gas Station	9635 Mc Combs St	El Paso, TX
Restaurant	9633 Mc Combs St	El Paso, TX
Beauty Salon	9613 Mc Combs St #B	El Paso, TX

~~Car Wash~~	~~9609 Mc Combs St~~	~~El Paso, TX~~
~~Bakery/Donut Shop~~	~~9601 Mc Combs St~~	~~El Paso, TX~~
~~Appliance Repair~~	~~5604 Will Ruth #A~~	~~El Paso, TX~~
~~Archery Shop~~	~~5604 Will Ruth #B~~	~~El Paso, TX~~
~~Professional Automated Controls~~	~~5604 Will Ruth #C~~	~~El Paso, TX~~
~~Colonial Storage Center~~	~~5717 Will Ruth~~	~~El Paso, TX~~
~~Doggie Day Care~~	~~9795 Mc Combs St~~	~~El Paso, TX~~
~~Goodtime Store~~	~~9787 Mc Combs St~~	~~El Paso, TX~~
~~Dutch Trading Company~~	~~9787 Mc Combs St~~	~~El Paso, TX~~
~~Jerry's Video~~	~~9787 Mc Combs St~~	~~El Paso, TX~~
~~Paola's Fashion~~	~~9787 Mc Combs St~~	~~El Paso, TX~~
~~Encore Thrift Store~~	~~9787 Mc Combs St~~	~~El Paso, TX~~
~~Cornerstone~~	~~9787 Mc Combs St~~	~~El Paso, TX~~
~~Safety Clean~~	~~9696 Railroad Dr~~	~~El Paso, TX~~
~~Skyline Shopping Center~~	~~9420 9440 Mc Combs St~~	~~El Paso, TX~~
~~Skyline Shopping Center~~	~~5837 Wayeross Ave~~	~~El Paso, TX~~
~~Tony Lewis Body Shop~~	~~Mc Combs St~~	~~El Paso, TX~~
~~Storage~~	~~5823 Lexington Rd~~	~~El Paso, TX~~

Name	Address	City	Zip Code
Day Care Facilities			
Kids Korner Child Care	9797 McCombs Street	El Paso	79924
Wee Care Center	9821 McCombs Street	El Paso	79924
Los Juguetones Daycare	5529 Threadgill Avenue	El Paso	79924
Cora's Day Care	9553 Verbena Drive	El Paso	79924
Recreational			
Student Memorial Park	9425 Vicksburg Drive	El Paso	79924
Dolphin Park	5900 Marlin Drive	El Paso	79924
Desert Downs BMX Track	8801 Railroad Drive	El Paso	79924
Nations Tobin Recreation Center	8831 Railroad Drive	El Paso	79924
Recreation Ranch Park (YMCA)	5509 Will Ruth Avenue	El Paso	79924
Schools			
Parkland Middle School	6045 Nova Way	El Paso	79924
Northeast Christian Academy	9901 McCombs Street	El Paso	79924
Dolphin Terrace Elementary	9790 Pickerel Drive	El Paso	79924
YWCA After School Programs	9790 Pickerel Drive	El Paso	79924
El Paso's Schuster Elementary School	5515 Will Ruth Avenue	El Paso	79924
Irving High School	9465 Roanoke Drive	El Paso	79904
Churches			
Sun Valley Baptist Church	9901 McCombs Street	El Paso	79924
Living Water Church	5735 Will Ruth Avenue	El Paso	79924
Alive Fellowship Church	5505 Will Ruth Avenue	El Paso	79924

Name	Address	City	Zip Code
New Hope Pentecostal Church	5709 Bagdad Way	El Paso	79924
Iglesia Filadelfia	5904 Threadgill Avenue	El Paso	79924
Trinity House of Worship/New Beginning Mission	9491 Railroad Drive	El Paso	79924
The Potter's House Christian Fellowship Church	9797 McCombs Street #1	El Paso	79924
Centro Cristiano Cielos Abiertos	9787 McCombs Street #10	El Paso	79924
Iglesia Cristiana El Evangelio	9700 McCombs Street	El Paso	79924
Mission Apostolica De La Fe	5631 Saluki Drive	El Paso	79924
Centro Biblico La Luz	9841 McCombs Street	El Paso	79924
North English Congregation of Jehovahs Witnesses	5700 Aladdin Avenue	El Paso	79924
Tobin Park Methodist Church	5501 Wren Avenue	El Paso	79924
Open Gate Church of the Nazare	5700 Bagdad Way	El Paso	79924
Open Gate Church	9821 McCombs Street	El Paso	79924
Commercial			
7-11 Gas Sta ion	5710 Hondo Pass Drive	El Paso	79924
A Plus Auto Mart	9200 McCombs Street	El Paso	79924
Business Complex	9420 McCombs Street	El Paso	79924
Patriot Plaza Car Wash	9611 McCombs Street	El Paso	79924
SecurCare Self Storage	5717 Will Ruth Avenue	El Paso	79924
Sun Valley Foods, LLC	9650 Railroad Drive	El Paso	79924
Parking Lot	9690 Railroad Drive	El Paso	79924
Daniels Moving and Storage	9700 Railroad Drive	El Paso	79924
Rocketline Carrier Services, LLC	9696 Railroad Drive	El Paso	79924
Captiva Group	9600 Railroad Drive	El Paso	79924
Friedman Recycling Co	5835 Wren Avenue	El Paso	79924
Mc Combs Veterinary Clinic	9204 McCombs Street	El Paso	79924
Coleman American Moving Services, Inc	5821 Lexington Drive	El Paso	79924
Marlo Building Services	9278 McCombs Street	El Paso	79924
Clovis Business Center	9220 McCombs Street	El Paso	79924
Restaurant - Dairy Queen	9332 McCombs Street	El Paso	79924
Tony Lewis Collision and Paint	9400 McCombs Street	El Paso	79924
Restaurant - Tortilleria Chantal	9438 McCombs Street	El Paso	79924
Toro Co	9455 Railroad Drive	El Paso	79924
Haaz Body Shop	9412 McCombs Street	El Paso	79924
Bagdon Diagnostic Center	9418 McCombs Street	El Paso	79924
Gandara's Auto Body	5853 Waycross Avenue	El Paso	79924
Mini Donut Depot LLC	9301 Albany Drive	El Paso	79924
FL Scrap Recycling	5939 Falcon Avenue	El Paso	79924
Empty Building	9526 Railroad Drive	El Paso	79924
A&A Millwork Inc	5908 Threadgill Avenue	El Paso	79924
El Paso Lamination LLC	9900 Railroad Drive	El Paso	79924

Name	Address	City	Zip Code
Mister Car Wash	9811 Dyer Street	El Paso	79924
7-11 Gas Sta ion	9787 McCombs Street	El Paso	79924
Han's TV Repari	9797 McCombs Street #2	El Paso	79924
Paola's Fashions	9787 McCombs Street #F	El Paso	79924
Amusement Games	9787 McCombs Street	El Paso	79924
Green Paws 2 Pet Grooming	9787 McCombs Street, Ste 9	El Paso	79924
Skyline Shopping Center	9420-9440 McCombs Street	El Paso	79924
Skyline Shopping Center	5837 Waycross Avenue	El Paso	79924
Best Wrecker and Towing	5843 Waycross Avenue	El Paso	79924
Storage Facility	5823 Lexington Drive	El Paso	79924
Empty Building	9620 Roanoke Drive	El Paso	79924
Kendrick Electric Corporation	5257 Gunter Avenue	El Paso	79924
E C Transmissions	9280 McCombs Street	El Paso	79924
G&A Monster Tire and Scrap Metal	9290 McCombs Street	El Paso	79924
Chevron Station (Abandoned)	9404 McCombs Street	El Paso	79924
Empty Building	9408 McCombs Street	El Paso	79924
El Paso Natural Gas Company	8645 Railroad Drive	El Paso	79924
Loomis Company	5869 Waycross Avenue	El Paso	79924
Mount Franklin Foods	9820 Railroad Drive	El Paso	79924
7-11 Gas Sta ion	9635 McCombs Street	El Paso	79924
Restaurant (Mexicanisimo)	9633 McCombs Street	El Paso	79924
Hair Concepts	9613 McCombs Street	El Paso	79924
Empty Lot - Casas Genesis	9024 Tammy Court	El Paso	79924
Greenbriar Manor LTD	9285 Railroad Drive	El Paso	79924
EP Newport LP	9430 McCombs Street	El Paso	79924
Empty Lot - The Toro Company	5857 Waycross Avenue	El Paso	79924
Skyline Automotive & Dependable Towing	5847 Waycross Avenue	El Paso	79924
Empty Lot - Mini Donut Depot LLC	9499 Railroad Drive	El Paso	79924
Eagle Leasing Inc	9601 Railroad Drive	El Paso	79924
Pulley Properties LP	9660 Railroad Drive	El Paso	79924
AZ Multifamily Investments LLC	5757 Will Ruth Avenue	El Paso	79924
Robin Hood MHC LLC	9716 Dyer Street	El Paso	79924
Amex Properties LLC	9740 Dyer Street	El Paso	79924
Emergence Health Network	5713 Bagdad Way	El Paso	79924
El Paso Truss	9931 Railroad Drive	El Paso	79924
Vertical 1 Communications LLC	9992 Cross Street	El Paso	79924
CARGAA Realty LLC	9521 Railroad Drive	El Paso	79924
NE Railroad 12 LLC	9950 Railroad Drive	El Paso	79924
Adonaj LLC	9924 Railroad Drive	El Paso	79924

Name	Address	City	Zip Code
We Buy Scrap Metal	9292 McCombs Street	El Paso	79924
Cardenas Produce and Groceries	9294 McCombs Street	El Paso	79924
Allied the Careful Movers	5819 Lexington Road	El Paso	79924
BF Builders Group Inc	9390 McCombs Street	El Paso	79924

Table 2-2
Endangered Species List

U.S. Fish & Wildlife Service

Endangered Species List

Back to Start

List of species by county for Texas:

Counties Selected: El Paso

Select one or more counties from the following list to view a county list:

Anderson
Andrews
Angelina
Aransas
Archer

View County List

El Paso County

Common Name	Scientific Name	Species Group	Listing Status	Species Image	Species Distribution Map	Critical Habitat	More Info
least tern	*Sterna antillarum*	Birds	E				
Mexican spotted owl	*Strix occidentalis lucida*	Birds	T				
northern aplomado falcon	*Falco femoralis septentrionalis*	Birds	E				
Sneed pincushion cactus	*Coryphantha sneedii var. sneedii*	Flowering Plants	E				
southwestern willow flycatcher	*Empidonax traillii extimus*	Birds	E				
yellow-billed Cuckoo	*Coccyzus americanus*	Birds	C				

N~~o~~ change to this Table

Figure 2-1: Wind Rose Yearly Average

No change to this Figure

Figure 2-2: Wind Rose December Average

No change to this Figure

Figure 2-3: Wind Rose May Average

No change to this Figure

Figure 2-4: Wind Rose September Average

No change to this Figure

Figure 2-5: Access Roads & Existing Structures

No change to this Figure

Figure 2-6: General Location Map

No change to this Figure

Figure 2-7: Roads Within One Mile

No change to this Figure

Figure 2-8: Topographic Map

No change to this Figure

Figure 2-9: 1967 USGS Aerial Photograph

No change to this Figure

Figure 2-10: 1974 USGS Aerial Photograph

No change to this Figure

Figure 2-11: 1988 USGS Aerial Photograph

No change to this Figure

Figure 2-12: 1991 USGS Aerial Photograph

No change to this Figure

Figure 2-13: 1996 USGS Aerial Photograph

No change to this Figure

Figure 2-14: 2003 USGS Aerial Photograph

No change to this Figure

3. Part III of the Application

3.1. Site Development Plan

§330.63(a)

The Site Development Plan provides for the safeguarding of the health, welfare, and physical property of the people and the environment through consideration of geology, soil conditions, drainage, land use, zoning, adequacy of access roads and highways, and other considerations as the specific facility dictates. The Site Development Plan encompasses the items listed in this Section. Please note that the Fort Bliss MSWLF is a fully developed, permitted, operational site. This permitting action is to request approval of an optimized ET Final Cover System as an alternative final cover system for closure of the Fort Bliss Landfill.

3.2. General Facility Design

3.2.1. Facility Access

§330.63(b)(1)

The MSWLF perimeter chain link fencing with barbed wire protects the public from exposure to potential health and safety hazards and discourages unauthorized entry or uncontrolled disposal of solid waste or hazardous materials by providing a physical barrier. Further discussions of facility access are provided in Part II of the Application.

3.2.2. Waste Movement

Only municipal solid waste, C&D debris, and RACM ~~a~~were accepted at the MSWLF. The five landfill cells ~~The two active cells~~ are shown on Sheet ~~2~~ C-1 of Appendix B.

3.2.2.1. Flow Diagrams

§330.63(b)(2)(A)

The storage, processing, and disposal sequences for the various types of wastes and feedstocks received are shown on Figure 3-1.

3.2.2.2. Schematic View Drawings

§330.63(b)(2)(B)

The various phases of collection, separation, processing, and disposal applicable for the types of wastes and feedstocks received at the facility are shown on Figure 3-2.

3.2.2.3. Ventilation and Odor Control

§330.63(b)(2)(C)

No ventilation or odor control measures are needed for the MSWLF. The wastes received are generally inert and conditions are arid. All operations are outside.

3.2.2.4. Construction Details of all Storage And Processing Units and Ancillary Equipment

§330.63(b)(2)(D)

Not Applicable. No storage and processing units or ancillary equipment for these processes are used at the MSWLF.

3.2.2.5. Slab and Subsurface of Storage and Processing Components

§330.63(b)(2)(E)

Not Applicable. No storage and processing units are used at the MSWLF.

3.2.2.6. Containment Dikes or Walls

§330.63(b)(2)(F)

Not Applicable. No storage and processing units or loading and unloading areas with containment dikes or walls are used at the Fort Bliss MSWLF.

3.2.2.7. Storage of Grease, Oil and Sludge

§330.63(b)(2)(G)

Not Applicable. No storage of grease, oil, or sludge is performed at the Fort Bliss MSWLF.

3.2.2.8. Disposition of Effluent from Processing Operations

§330.63(b)(2)(H)

Not Applicable. No effluent from processing operations is disposed of at the Fort Bliss MSWLF.

3.2.2.9. Transfer Stations

§330.63(b)(2)(I)

Not Applicable. No transfer stations are located at the Fort Bliss MSWLF.

3.2.3. Sanitation

§330.63(b)(3)

Not Applicable. Solid waste processing is not performed at the MSWLF.

3.2.4. Water Pollution Control from Processing

§330.63(b)(4)

Not Applicable. No processing units are located at the MSWLF, and liquids are not generated.

3.2.5. Endangered Species Protection

§330.63(b)(5)

Not applicable. No threatened or endangered species (federally listed) or critical habitat are located in the MSWLF area (see Part II of the Application, Section 2.14).

3.3. Facility Surface Water Drainage Report

3.3.1. Drainage Analysis

§330.63(c)(1)(A)

Appendix L provides the updated facility surface water drainage report which complies with 30 TAC §330.63 and §330.303. The following information is provided:

- Drawings and Calculations
- Design of Drainage Facilities
- Sample Calculations
- Description of Hydrologic Methods and Calculations

3.3.2. Flood Control and Analysis

§330.63(c)(2)

This section is not applicable; Appendix H provides a flood insurance rate map showing that the MSWLF is located outside the 100-year floodplain but within the 500-year flood plain.

3.4. Waste Management Unit Design

Previous approved permit modifications included a 10-foot height increase to the permitted maximum cover elevation (from~~of~~ 3945 to 3955 feet above mean sea level) for the Subtitle D landfill area as shown on the closure design drawings in Appendix B. Based on ~~T~~the revised landfill closure design presented in this application, the proposed maximum elevation of waste is ~~3951~~3950.~~4~~1 feet and the proposed maximum elevation of the final cover is 3955~~4.4~~ as ~~a result of the proposed 10-foot height increase~~ indicated on the cross-sections on Sheet ~~5~~ C-8 of the revised closure design drawings.

The landfill operations for this modification will remain consistent with the 2007 Site Operating Plan (Appendix A) and the proposed Closure Plan (Appendix O).

Site features such as existing perimeter gas monitoring points and~~,~~ passive vent wells~~ and locations of soil borings collected during a geotechnical investigation program (Anderson, 1993)~~ for the Subtitle D landfill cell construction are shown on Sheets C-2 and C-3 ~~2~~ in Appendix B.

The approved Soil Liner Quality Control Plan for the Subtitle D cell is provided in Appendix M for reference.

3.4.1. Storage and Transfer Units

§330.63 (d)(1)

Not Applicable. No storage or transfer units exist at the MSWLF.

3.4.2. Incineration Units

§330.63 (d)(2)

Not Applicable. No incineration units exist at the MSWLF.

3.4.3. Surface Impoundments

§330.63 (d)(3)

Two surface impoundments ~~are~~ were located within the MSWLF. The first impoundment wa~~i~~s the leachate pond. The leachate pond was designed to accept excess leachate from the leachate collection system and contaminated water from the bermed daily working area of the Subtitle D cell and allow it to evaporate. The leachate pond volume calculation is provided in Figure 3-3. A plan view and cross-section of the leachate pond are provided in Figure 3-4. In accordance with §330.63(d)(3)(A) and (B), the leachate pond include~~s~~:

- Minimum freeboard: approximately 3.5 feet as show below
    - The leachate pond was designed to contain the volume of leachate generated in a 5-year period and the contaminated water collected in the bermed daily working area from a 24-hr, 25-year storm event. This combined volume wa~~i~~s extremely liberal in that most of the leachate wa~~i~~s sprayed onto the face of the active landfill area over several days. The pumped volume ~~has~~ averaged 2,800 gallons per quarter for ~~the last~~ 17 quarters (over four years). According to the leachate pumping records, a total of 8,400 gallons of leachate were pumped into the leachate pond for evaporation during the period from January 26 through May 12, 1998. The records indicate that this was the only period during which leachate was pumped to the leachate pond. Any leachate pumped to the leachate pond would evaporate quickly.

- The contaminated water volume of 3,703 ft^3 as calculated in the 1995 Leachate and Contaminated Water Plan is for a contaminated area of 24,000 ft^2. The actual daily working area of 40' x 40' or 1,600 ft^2 would produce approximately 2,000 gallons or 272 ft^3 of contaminated water. This is considerably less than the original design volume of 27,697 gallons or 3703 ft^3.
- The operational records indicate that a more realistic design approach would be to combine the volume of leachate generated in one quarter (2,800 gallons) with the volume of water generated in the bermed daily working area from a 24-hr, 25-year storm event (2,000 gallons). This combined volume amounts to 4,800 gallons or approximately 640 ft^3. This volume is 5% of the available volume of the leachate pond and leaves a freeboard of more than 3.5 feet.

- Basis of design to prevent overtopping resulting from normal or abnormal operations: the leachate pond wa~~i~~s designed with excess volume
- Prevention of overfilling: the leachate pond wa~~i~~s designed with excess volume
- Description of wind and wave action: minimal, because the leachate pond had~~s~~ minimal inflows as described above
- Run-on: a berm around the perimeter of the leachate pond prevented~~s~~ run-on from entering the pond
- Malfunctions of level controllers, alarms, and other equipment: not applicable – no equipment
- Human error: the leachate pond wa~~i~~s designed with excess volume

The second impoundment wa~~i~~s the bermed daily working area. The bermed daily working area wa~~i~~s the 40' x 40' area that is used to dispose of and cover the waste that wa~~i~~s accepted in one day. It ~~is~~ was surrounded by a two-foot berm. The rainfall that fe~~a~~ll~~s~~ within this bermed area and collected~~s~~ in excessive quantities was~~is~~ considered contaminated water. The Leachate and Contaminated Water Plan (1995, Attachment 1), approved by the TCEQ on December 27, 1995, called~~s~~ for this contaminated water to be removed using a vacuum truck and transported to the leachate pond for evaporation. A typical plan view of the bermed daily working area is provided in Figure 3-5. In accordance with §330.63(d)(3)(A) and (B), the bermed daily working area included~~s~~:

- Minimum freeboard: approximately 1.4 feet. The depth of water within the bermed area resulting from a 24-hour 25-year storm would~~ill~~ be about to 0.6 ft, but the Leachate and Contaminated Water Plan called~~s~~ for a two-foot berm around the daily working area.

- Basis of design to prevent overtopping resulting from normal or abnormal operations: the bermed daily working area was~~is~~ designed to retain the runoff from the 24-hr, 25-year storm event
- Prevention of overfilling: the bermed daily working area was~~is~~ designed to retain the runoff from the 24-hr, 25-year storm event
- Description of wind and wave action: minimal due to size of daily working area (40' x 40')
- Malfunctions of level controllers, alarms, and other equipment: not applicable – no equipment
- Human error: the berm around the daily working area wa~~i~~s designed to provide excess volume

The original design inflow and volume computations for the leachate and contaminated water volumes and the leachate pond volume as provided in the Leachate and Contaminated Water Plan ~~are~~ were as follow:

- Leachate generated over a 5-year period = 55,000 gal x 0.1337 ft^3/gal = 7353.5 ft^3
- Contaminated water volume (based on 24-hr, 25-year storm event = 2.04 inches) = 27,697.25 gal x 0.1337 ft^3/gal = 3703.12 ft^3
- Leachate + contaminated water volume = 7353.5 ft^3 + 3703.12 ft^3 = 11,056.62 ft^3
- Leachate pond volume = 17,082 ft^3 (Figure 3-3)

The two surface impoundments were taken out of service in 2018. Documentation of the activities to remove the impoundments will be provided in the final closure report verifying that final closure has been completed in accordance with the approved final closure plan, in accordance with 30 TAC §330.457(f)(5).

3.4.4. Landfill Units

3.4.4.1. Provisions for All-Weather Operation

§330.63(d)(4)(A)

The access road to the landfill entrance is asphalt concrete and useable during all weather conditions. The internal access roads to the former active fill areas are caliche-based roads useable during wet weather conditions. The operator will maintain these internal roads to promote drainage and limit ponding during wet weather conditions.

The paved entrance road and caliche-based roads will provide mud control for the waste hauling vehicles prior to exiting the MSWLF and returning to public access roads. Site personnel will physically remove mud accumulations on roads.

3.4.4.2. Landfill Method Proposed

§330.63(d)(4)(B)

The below grade areas at the MSWLF were filled using a trench or area fill method. Older sections were trenched. The ~~currently~~ more recently active cells ~~will be~~were filled using area fill methods.

3.4.4.3. Elevations

§330.63(d)(4)(C)

Current and proposed landfill elevations are illustrated on the Appendix B drawings.

3.4.4.4. Calculations of Estimated Solid Waste Deposition and Operating Life

§330.63(d)(4)(D)

Calculations preformed in July 2021 ~~August of 2013~~ showed an estimated ~~51,800 cy~~ 17,800 cy of airspace remaining in the Subtitle D cell and 17,310 ~~8,160~~ cy of airspace remaining in the C&D cell. ~~In Fiscal Year 2013 (September 1, 2012 to August 31, 2013) there was very minor landfilling of MSW waste at the Subtitle D cell (reportedly 50.8 cy) and approximately 5,560 cy of C&D placed at the C&D cell.~~

~~AECOM Closure Report~~

3.4.4.5. Landfill Cross-Sections

§330.63(d)(4)(E)

Sheet ~~5~~ C-8 in Appendix B shows the landfill unit cross section.

3.4.4.6. Construction and Design Details

§330.63(d)(4)(F)

The MSWLF is a mature landfill. The MSWLF was permitted in 1982 and comprises 106 acres, of which approximately 80 acres are closed ~~or~~ and the rest are inactive. Construction and design details are shown on Sheet ~~5~~ C-8 of Appendix B.

3.4.4.7. Liner Quality Control Plan

§330.63(d)(4)(G)

Appendix M contains the approved Soil and Liner Quality Control Plan.

3.4.5. Arid Exemption Landfill Unit Criteria

§30 TAC 330.63 (d)(5)

Not applicable to the Fort Bliss MSWLF. Landfill units do not meet arid exemption criteria.

3.4.6. Type V Mobile Liquid Waste Processing Units

§30 TAC 330.63(d)(6)

Not applicable. No Type V mobile liquid waste processing units are located at the MSWLF.

3.4.7. Type IX Energy, Material, Gas Recovery, or Landfill Mining Waste Processing Units

§30 TAC 330.63(d)(7)

Not applicable. No Type IX waste processing units are located at the MSWLF.

3.4.8. Compost Units

§30 TAC 330.63(d)(8)

Not applicable. No compost units or operations occurred at the MSWLF. A composting facility has been constructed adjacent to the MSWLF, but is located outside the MSWLF permitted boundary.

3.4.9. Type VI Waste Processing Demonstration Facilities

§30 TAC 330.63(d)(9)

Not applicable. No Type VI waste processing demonstrations units or facilities are located at the MSWLF.

3.5. Geology Report

3.5.1. Regional Geology

3.5.1.1. Geologic Map with Text

§330.63(e)(1)(A)

The geologic map of the region with text describing the stratigraphy and lithology of the map unit is provided on Figure 9 of the Geohydrologic Site Characterization Report (Geohydrologic Report)(Abeyta, 1996) in Appendix D.

3.5.1.2. Stratigraphic Column in the Facility Area

§330.63(e)(1)(B)

The MSWLF is underlain by Hueco Bolson deposits of locally derived materials. The Hueco Bolson is a clastic-filled graben extending from a few miles north of the New Mexico-Texas border to several miles south into Mexico. Hueco Bolson deposits are of Tertiary age and primarily include fluvial and lacustrine deposits, but alluvial-fan material and Aeolian sediments also are present. Hueco Bolson deposits are reported to have a maximum thickness of about 9,000 feet within a deep structural trough paralleling the east base of the Franklin Mountains.

Hueco Bolson deposits typically are composed of fine- to medium-grained sand with interbedded lenses of clay, silt, gravel, and caliche. These deposits range from unconsolidated to slightly consolidated. Sand fragments are composed primarily of chert, granite, and porphyry. Individual beds are not well defined and range in thickness from a fraction of an inch to about 100 feet.

Consolidated igneous and sedimentary rocks ranging in age from Precambrian to Tertiary are exposed in the Franklin and Hueco mountains. Igneous rocks are predominately granitic and are composed of coarse grains of quartz and feldspar. These granitic rocks are easily weathered and are a primary source material of the bolson deposits.

(More detailed discussion is provided in Appendix D).

3.5.2. Geologic Processes Activity

§330.63(e)(2)

Discussions of fault areas, seismic impact zones and unstable areas (see Appendices D and H) provide the information about faulting and subsidence required by §330.555(b) and §330.559 (relating to fault areas and unstable areas).

3.5.3. Regional Aquifers

§330.63(e)

The regional aquifers are discussed in the Geohydrologic Report in Appendix D. This report contains the following information regarding regional aquifers:

- **Aquifer Name**

The Hueco Bolson aquifer exists in the Fort Bliss region.

- **Composition of the Aquifer**

A relatively thick vadose zone of approximately 300 feet overlies the aquifer of the Hueco Bolson deposits in the vicinity of the MSWLF. A deep water table prevails for all of the Fort Bliss area. Whether perched water zones exist below the MSWLF is unknown.

- **Hydraulic Properties of Aquifer**

Hydraulic characteristics of the Hueco Bolson vary significantly as a result of the nonuniform nature of the beds.

- **Water Table or Artesian Conditions**

The Hueco Bolson is an underground water table.

- **Hydraulically Connected Aquifers**

The Hueco Bolson intermontane valley was produced by numerous diverse faults and folds and is divided into two distinct parts. The northern extension of the Hueco Bolson is

referred to as the Tularosa Basin; the southern extension is referred to as the Hueco Bolson proper, thereafter referred to as the Hueco Bolson. The Tularosa Basin and Hueco Bolson are divided indefinitely a few miles north of the New Mexico-Texas border. The Tularosa Basin has no external drainage; the Hueco Bolson is partly drained by the Rio Grande.

- **Map of Aquifer**

A map of the Hueco Bolson aquifer is shown on Figure 5 of the Geohydrologic Report (Appendix D).

- **Rate of Groundwater Flow**

Transmissivities of Hueco Bolson deposits under water-table conditions in the El Paso area are estimated to range from 1,340 to 37,500 feet squared per day (10,000 to 280, 000 gallons-per-day per foot).

- **TDS Content of Groundwater**

Concentrations of dissolved solids in water from the Hueco Bolson fluvial deposits (Figure 11 of the Geohydrologic Report) range from 300 parts per million to more than 1,500 parts per million; concentrations of dissolved solids in water from underlying lake deposits are as much as 50,000 parts per million. El Paso Water Utilities reports that dissolved-solids concentrations in the MSWLF vicinity range from 297 to 625 milligrams per liter (wells JL-49-05-904 and JL-49-05-915 respectively) but concentrations have been measured as high as 1,312 milligrams per liter (well JL-49-05-914, April 7, 1992)(Table 5, Appendix D).

- **Aquifer Recharge**

The Hueco Bolson aquifer underlying the MSWLF is recharged primarily by inflow from mountainous areas to the north, west, and east. Recharge resulting from direct infiltration of precipitation is minor due to the high evaporation and low precipitation rates.

- **Groundwater Drawn from Aquifer**

The city-operated Sherman Well Field, located north of the MSWLF, is a primary source of ground water for the City of El Paso. The test-pumping rate of well JL-49-05-914 (the well nearest to the MSWLF having test-pumping data) was 1,972 gallons per minute on July 20, 1992; the static water level prior to pumping was 317.54 feet below land surface. El Paso Water Utilities reports that the pumping level after eight hours of pumping was 367.80 feet below land surface, resulting in a drawdown of 50.26 feet, transmissivity of 22, 200 feet squared per day (166,000 gallons-per-day per foot), and specific capacity of 39.2 gallons per minute per foot of drawdown. After the pump was shut off, the well recovered to a static water level of 317.46 feet below land surface on July 21, 1992.

3.5.4. Boring Log

§330.63(e)(4)

The geotechnical investigation along with subsurface soil exploration at the MSWLF is described in the 1993 report provided by Danny R. Anderson, P.E. Consultant, Inc. to Cardenas Salcedo and Associates, Inc. (see Appendix N). The report contains information for four borings; surface elevation location coordinates; columnar section with text showing the elevation of all contacts between soil and rock layers, description of each layer using the unified soil classification, color, degree of compaction, and moisture content. A key explaining the symbols used in the boring logs and the classification terminology for soil type, consistency, and structure are provided. The locations of the boring sites are provided in the report and are shown on Sheet 2 of Appendix B. The report provides information on the following:

- **Geotechnical Properties of the Soils and Rocks Beneath the MSWLF**

§330.63(e)(4)(H)

Four borings were drilled to establish subsurface stratigraphy and to determine geotechnical properties of the soils beneath the facility. Soil stratification analysis and consistencies were determined based on laboratory tests of the soils extracted and classified from the borings. Testing of soils was performed in the laboratory to determine penetration resistance, compressive strength, and soil type. Detailed numerical results of the laboratory testing are provided in Appendix N (Anderson, 1993).

- **Identification of the Uppermost Aquifer or any other Lower Level Aquifers Hydraulically Connected**

The primary groundwater in the El Paso area consist of the Hueco Bolson, Mesilla Bolson, and Rio Grande Alluvian Deposits. The un-consolidated and semi-unconsolidated sedimentary deposits of the Hueco Bolson comprise the only groundwater aquifers in the immediate vicinity of the MSWLF. The Hueco Bolson deposits are between 600 and 1200 feet deep, limiting the potential for seepage from the MSWLF to reach the aquifer. The extent to which underlying aquifers exist below the Hueco Bolson deposits is unknown.

Groundwater wells located near the MSWLF indicate that groundwater depth is much further below the landfill surface than the geotechnical boring sample depths. Groundwater wells within the vicinity are listed in the report provided in Appendix N. The majority of the wells indicate groundwater depth from the surface is over 300 feet. Geotechnical boring descended only 51.5 feet below the surface. No groundwater was encountered and no after-equilibrium measurements were made as a result of the depth to water (Anderson, 1993).

- **Field Exploration Method**

Subsurface soil strata and existing conditions at the MSWLF were visually inspected or taken from four test borings made with an 8.5 inch hollow stem auger drilled to 51.5 feet. Samples were field extracted, classified, and identified based on depth and boring number (see Appendix N).

- **Installation, Abandonment, and Plugging of the Borings**

Installation, abandonment and plugging of the boring was performed in accordance with rules of the commission (Anderson, 1993).

- **Number and Depth of Borings Modified**

The extent to which the number or depth borings were modified in 1993 is unknown. No additional boring information is available for the MSWLF. Previous number and depths of the borings at the MSWLF are discussed in Appendix N.

- **Electrical Resistivity**

Not applicable. Electrical resistivity was not utilized during soil boring operations at the MSWLF.

- **Cross-sections of the Borings**

Cross-sections were prepared from the borings depicting the generalized strata at the facility. See Appendix N (Anderson, 1993).

- **Investigator's Interpretations**

A narrative that describes the investigator's interpretations of the subsurface stratigraphy based upon the field investigation is provided in Appendix N.

3.5.5. Geotechnical Data

§330.63(e)(5)(A)-(F)

An investigation was conducted to assess the MSWLF soils for geotechnical characteristics linked to the use and operations of the MSWLF. Subsurface soil strata and existing conditions at the MSWLF were visually inspected or taken from the four borings. Soil samples were field extracted, classified, and identified based on depth and boring number (Appendix N, Anderson, 1993).

- **Laboratory Report of Soil Characteristics**

Soil stratification analysis and consistencies were determined based on laboratory tests of the soil samples. Testing of soils was performed in the laboratory to determine penetration resistance, compressive strength, and soil type. Detailed numerical results of the laboratory testing are provided in the report located in Appendix N (see Anderson, 1993).

- **Permeability Tests on Undisturbed Soil Samples**

Soil permeability tests were performed to determine the material best suited for a liner material for the Subtitle D section of the MSWLF. The stratified soil samples obtained from the boring holes were tested by a standard Flexible Wall Permeameter to determine acceptable Saturated Porous Material conductivity for MSWLF soils. Atterberg limits, Moisture-Density Relations, and Sieve Analysis tests were also performed on soil material. Hydraulic conductivities and physical properties are documented and tabulated in the report (see Appendix N).

- **Groundwater Depths and After-Equilibrium Measurements from Soil Boring Encounters**

Groundwater wells located near the MSWLF indicate that groundwater depth is much further below the ground surface than the boring depths. Groundwater wells within the MSWLF vicinity are listed in Appendix D. The majority of the wells indicate groundwater depth from the surface is over 300 feet. Geotechnical borings descended to 51.5 feet below the surface. No groundwater was encountered, and no after-equilibrium measurements were made as a result of the depth to water (Abeyta, 1996).

- **Records of Water-Level Measurements**

Relevant groundwater level depths from wells located near the MSWLF are recorded in the geohydrologic report located in Appendix D. The Texas well identification code, location, use, owner, well depth, and elevation of water level above MSL are provided. No other records than those provided in Appendix D exist for the areas surrounding the MSWLF. The files are compiled by the El Paso Water Utilities and USGS files (Abeyta, 1996).

- **Tabulation of All Relevant Groundwater Monitoring Data from Well on Site or Adjacent**

All relevant groundwater monitoring data are tabulated on Figure 5 of Appendix D.

- **Hydraulically Connected Aquifers**

The primary sources of ground water in the area consist of the Hueco Bolson, Mesilla Bolson, and Rio Grande Alluvian Deposits. The un-consolidated and semi-unconsolidated sedimentary deposits of the Hueco Bolson comprise the only groundwater aquifer in the immediate vicinity of the MSWLF. The Hueco Bolson deposits are between 600 and 1200 feet deep, limiting the potential for seepage from the MSWLF to reach the aquifer. The extent to which underlying aquifers exist below the Hueco Bolson deposits is unknown (Abeyta, 1996).

3.5.6. Arid Exemption

§330.63(e)(6)

Not applicable. Fort Bliss is not seeking an Arid Exemption for the MSWLF.

3.6. Groundwater Sampling and Analysis Plan

§330.63(f)

Groundwater monitoring requirements under 30 TAC §330.403 (relating to Groundwater Monitoring Systems), §330.405 (relating to Groundwater Sampling and Analysis Requirements), §330.407 (relating to Detection Monitoring Program for Type I Landfills), and §330.409 (relating to Assessment Monitoring Program) were suspended by the executive director on May 22, 1996. The TCEQ approved the groundwater monitoring suspension based on demonstration by Fort Bliss of no potential for migration of hazardous constituents from the MSWLF unit to the uppermost aquifer as defined in 30 TAC §330.3 (relating to Definitions). The suspension approval is provided in Appendix F.

3.7. Landfill Gas Management Plan

§330.63(g)

In accordance with Subchapter I of Chapter 330, all gases will be monitored at the MSWLF as described in its 1994 "*Workplan for Methane Monitoring at the Municipal Solid Waste Landfill Facility*, U.S. Army Air Defense Artillery Center and Fort Bliss, El Paso, Texas." This Workplan was approved by TCEQ on June 9, 1995. Quarterly methane monitoring provisions are in place. The required reports and other submittals to the TCEQ are retained by the Fort Bliss Directorate of Public Works – Environmental Division (DPW-ED) in the operating record.

Conventional landfill covers typically include a gas collection layer and passive gas vents to relieve landfill gas pressures on the overlying impermeable geomembrane and minimize slope stability concerns. The optimized ET landfill cover will only consist of course-grained permeable soil; therefore, no passive gas venting system is proposed as part of the final optimized ET landfill cover design. Rather, the ET cover soils will naturally and effectively vent landfill gas, similar to the existing conditions and the daily/intermediate cover soil at the site. Additionally, the microbes in the ET cover soil will oxidize some of the methane as it vents, creating more environmentally friendly emissions. While the venting of the landfill gas may impact vegetative growth on the landfill cover, the ET cover system was designed to be effective with only 10% vegetative coverage. Based on the operational and regulatory history of the landfill (83 acres of 1970's era waste), significant landfill gas generation is not expected. Should excessive methane concentrations be detected in perimeter landfill gas monitoring probes or ambient landfill air during routine landfill gas monitoring, corrective venting and reporting procedures are outlined in the Fort Bliss Guidance Document titled *Procedures Following a Methane Exceedance.*

3.8. Closure Plan

§330.63(h)

The approved ~~2008~~ Closure Plan has been updated to reflect the proposed changes to the final optimized ET cover design, cost estimates, and 30 TAC §330 requirements. The updated plan is located in Appendix O.

3.9. Post-Closure Plan

§330.63(i)

The ~~March 2008~~approved Post-Closure Care Plan ~~prepared by Malcolm Pirnie, Inc. has been updated and~~ meets the requirements of 30 TAC §330.463. No changes to the Post-Closure Plan are proposed in this application. The ~~updated~~ Post-Closure Care Plan is located in Appendix P.

3.10. Cost Estimate for Closure and Post-Closure Care

§330.63(j)

As an agency of the Federal Government, Fort Bliss is not required to complete financial assurance mechanism requirements. Therefore, a closure cost estimate is not required per 30 TAC §330.5.

Figure 3-1: Waste Flow Diagram

No change to this Figure

Figure 3-2: Disposal Schematic

No change to this Figure

4. Part IV of the Application

4.1. Site Operating Plan

§300.65(a)

A Site Operations Plan (SOP) has been previously submitted. The current permit application modification does not propose any changes to the SOP.

4.2. EMS and NEPT

§330.65(b)

This section is not applicable. The MSWLF does not participate in the National Environmental Performance Track program. The installation does have an Environmental Management System that meets ISO-14001 standards but has not received approval/certification under 30 TAC §90.32.

4.3. Procedures for Recirculating Leachate or Gas Condensate into a Landfill Unit

§330.65(c)

Methane gas is managed in accordance with the current Methane Gas Management Plan. Gas condensate recirculation does not apply to the MSWLF Landfill. The leachate will be monitored and measured through the leachate monitoring pipe at least quarterly during the landfill active period and annually during the landfill post closure care period. If the leachate is more than 12 inches (30 centimeters) deep in the landfill, it is pumped out through the leachate transfer pipe and spread back in the Subtitle D cell.

Commented [ASS1]: Request input from Fort Bliss on what is currently occurring with the leachate Is it currently being handled IAW Post Closure Care Plan procedures:

Leachate shall be measured at least once a year by a scaled dip stick into the existing on- site vertical leachate monitoring pipe located at the Sub-Title D cell. The watermark on the stick measures the depth of leachate that collected on the liner. If the leachate is more than 12 inches (30 centimeters) deep in the landfill, it will be pumped out through the leachate transfer pipe, containerized and transported to an off-site facility (or facilities) for treatment/disposal. Any off-site facility accepting leachate from the landfill for treatment/disposal will have the proper authorizations to accept this type of liquid waste.

4.4. Grease Trap Waste, Grit Trap Waste or Septage Processing Facilities

§330.65(d)

This section is not applicable. The MSWLF does not handle grease trap waste, grit trap waste, or septage.

Appendix B

Landfill Modification and Closure Design Drawings

List of Drawings