along the temporary soil berm is 3.0 ft/sec on the top dome and the flow velocity through the permanent swale along the top dome is 2.9 ft/sec. Thereafter, the velocity through the downchute is 7.9 ft/sec and the velocity through the swale off the landfill is ~~5.8~~ 6.1 ft/sec as calculated in Section 3 and presented in Tables 2-4 through 2-6 and Attachment 1.

Drainage and conveyance structures were designed and sized to withstand erosive forces of water and not to exceed the permissible non-erodible velocities presented in Section 3. 2.2 and summarized in Table 3-1.

Table 3-1
Comparison of Calculated Flow Velocities and Permissible Non-Erodible Velocities

Type	Velocity	Permissible Non-Erodible Velocity
Temp. Soil Berm – Subtitle D Top Dome	3.0 ft/sec	3 ft/sec (silty-loam)
Swale – Subtitle D Top Dome	2.9 ft/sec	9 to12 ft/sec (RECP or Recycled Rip-Rap)
Downchute – Off Subtitle D Top Dome	7.9 ft/sec	18 ft/sec (Gabion Mattress)
Swale – Off Landfill	6.1 ft/sec	9 to12 ft/sec (RECP or Recycled Rip-Rap)

To further reduce flow velocities and allow sediments and other pollutants to settle, rock check dams will be installed along the drainage swales as shown on Sheets C-4 and C-5 in Appendix B (Design Drawings).

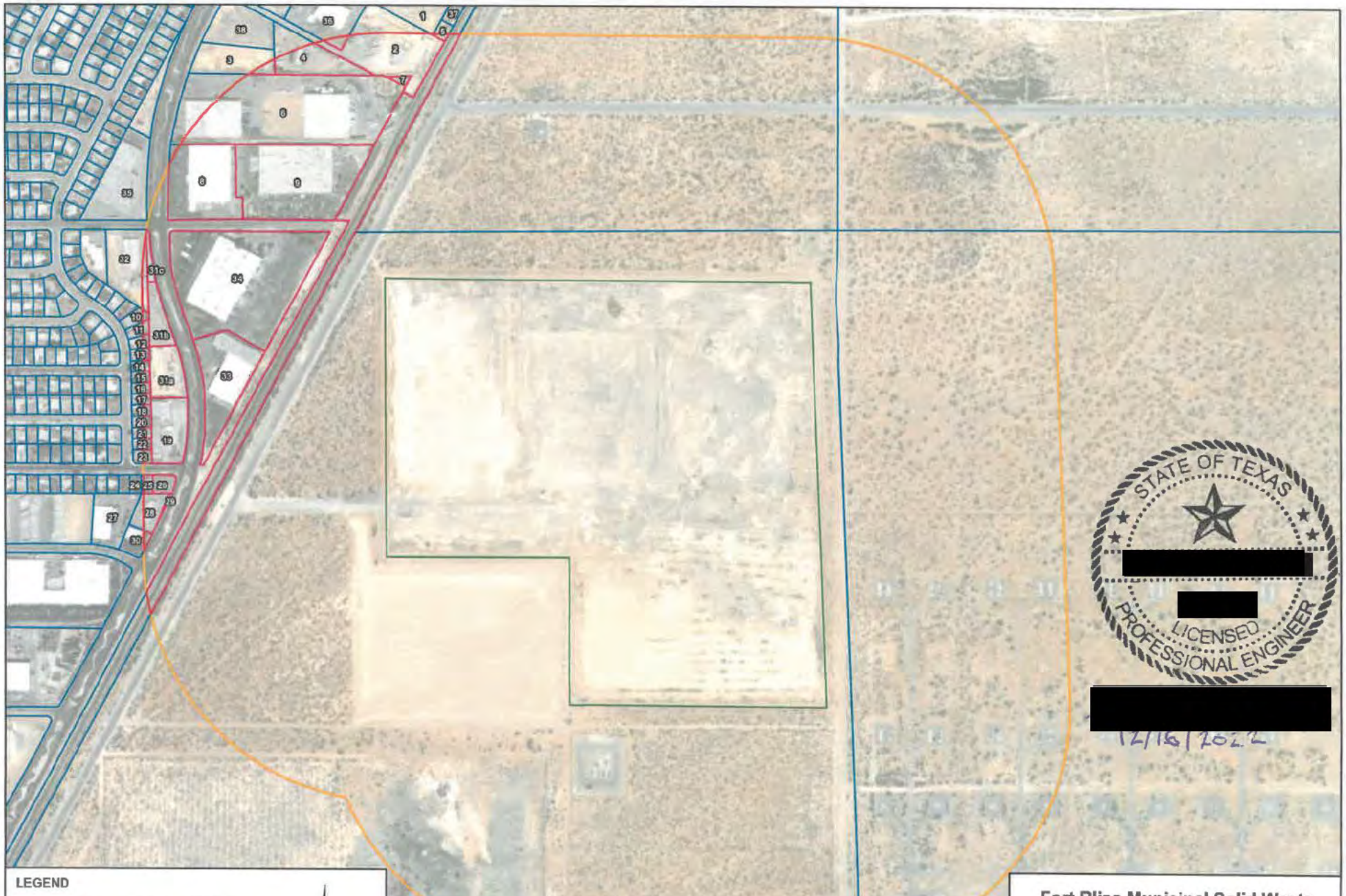
The hydraulic calculation supporting this design of the temporary soil berm is included in Attachment 2. The hydraulic calculation supporting the design of the permanent diversion drainage swales are included in Attachment 1.

Soil Loss Calculations

Soil erosion loss was estimated utilizing the Revised Universal Soil Loss Equation Version 2 (RUSLE2). RUSLE2 uses factors that represent the effects of climate (erosivity, precipitation, and temperature), soil erodibility, topography, cover management, and support practices to compute soil loss and erosion.

RUSLE2 is a mathematical model that uses a system of equations implemented in a computer program to estimate erosion rates. The other major component of RUSLE2 is a database containing an extensive array of site/county specific values (precipitation, R, EL, etc.) that are used by the RUSLE2 user to describe a site-specific condition so RUSLE2 can compute erosion values that directly reflect conditions at a particular site. The RUSLE2 computer program and its extensive database information were developed by the USDA-Agricultural Research Service (ARS), USDA-Natural Resources Conservation Service

5b Comment 3_ Part I Attachment: ¼ Mile Landownership Information, Figure 1



STATE OF TEXAS
[redacted]
LICENSED PROFESSIONAL ENGINEER
[redacted]
12/16/2022

Fort Bliss Municipal Solid Waste Landfill Permit 1422

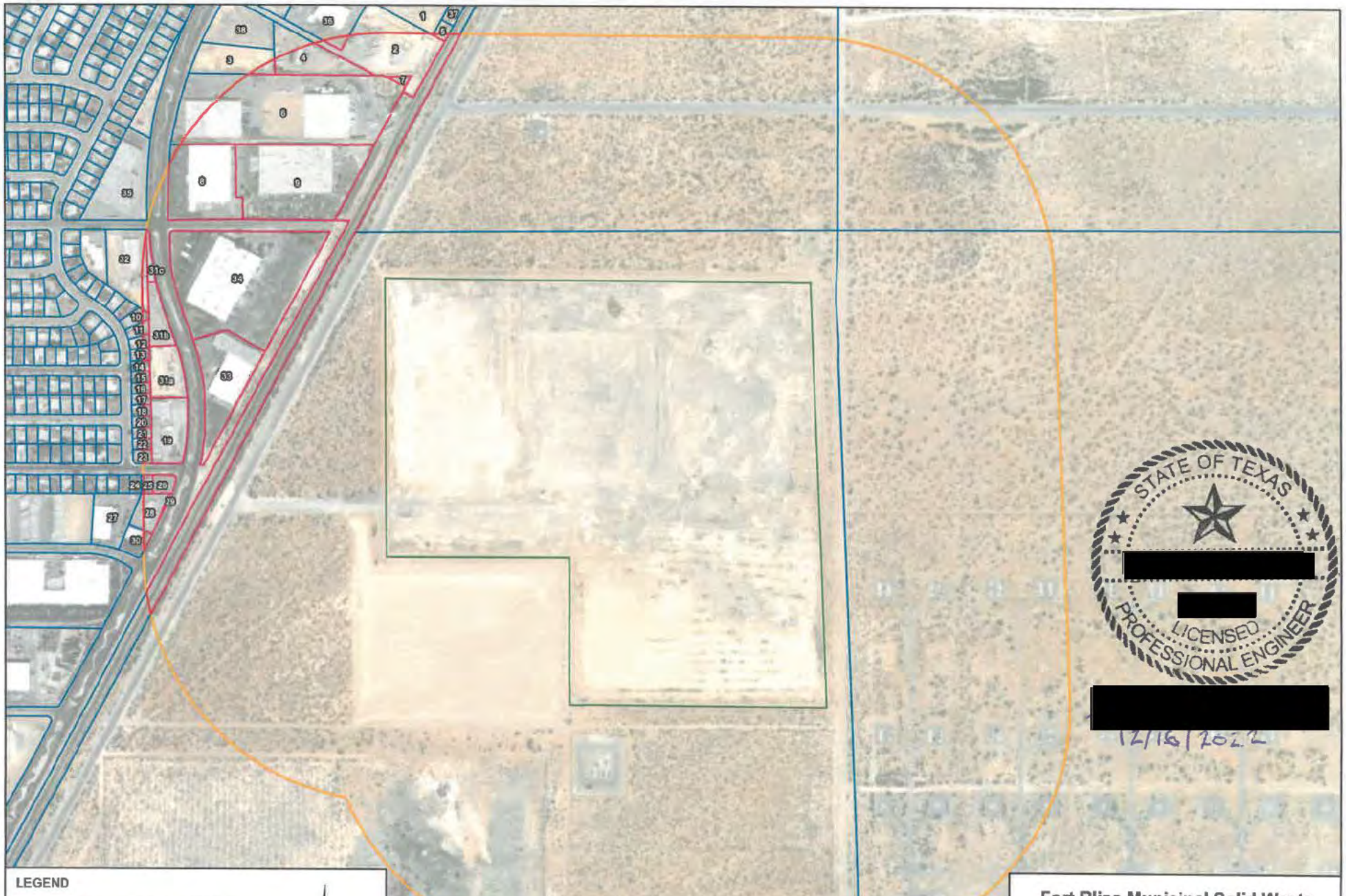
FORT BLISS MUNICIPAL SOLID WASTE LANDFILL - PROPERTIES WITHIN 1/4 MILE OF LANDFILL BOUNDARY

Permit Modification Application - Permit No. 1422
July 31, 2014
Revision 1: Oct 24, 2014; Revision 2: July 11, 2022; Revision 3: Nov 8, 2022

[redacted]

FIGURE 1

Project 30143880
City: (i.e. ATL, DAL, HOU) Div/Group: WATER Last saved by: [redacted] Last saved date: October 10, 2022 10:42 PM
File Location: \\



Fort Bliss Municipal Solid Waste Landfill Permit 1422

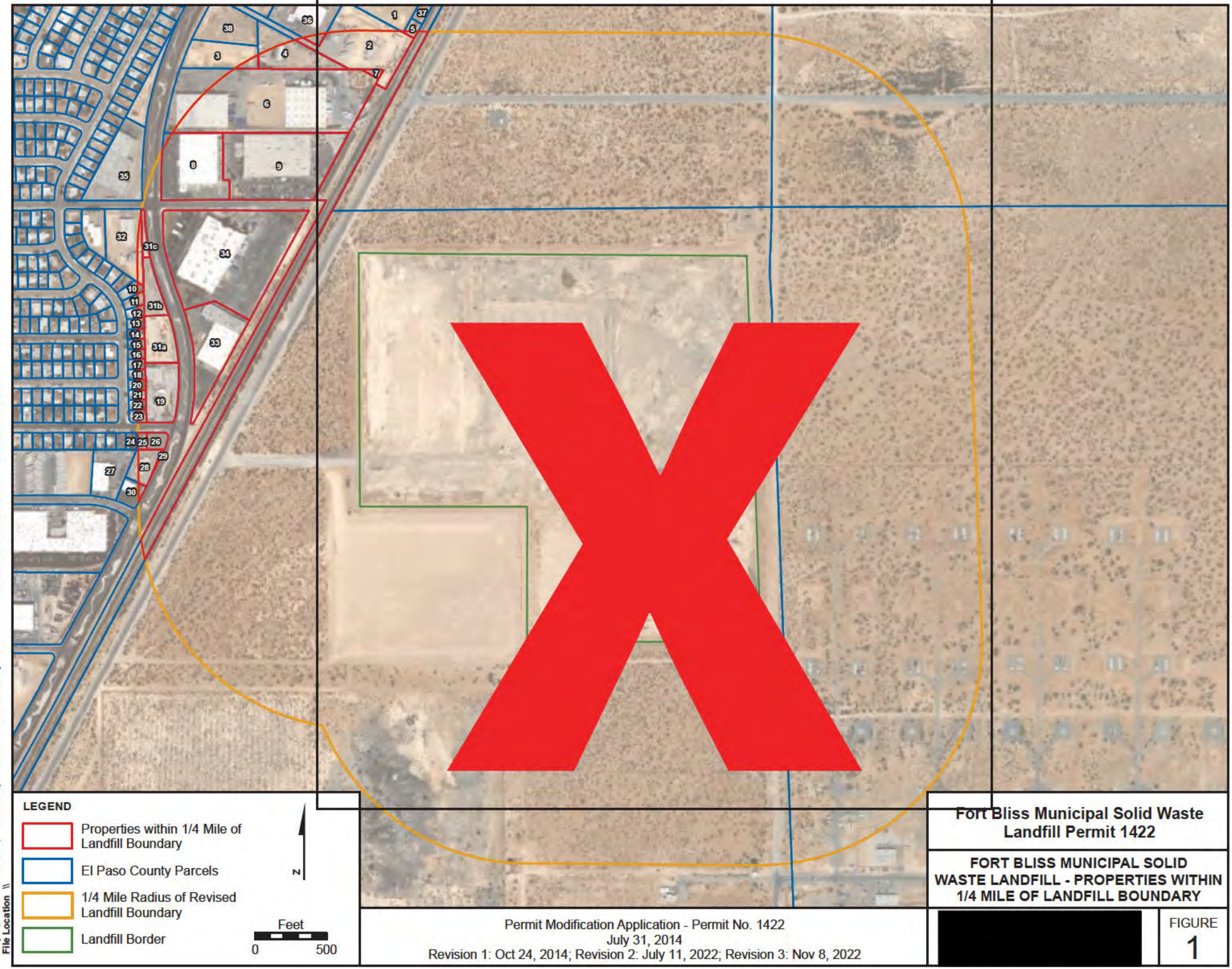
FORT BLISS MUNICIPAL SOLID WASTE LANDFILL - PROPERTIES WITHIN 1/4 MILE OF LANDFILL BOUNDARY

Permit Modification Application - Permit No. 1422
July 31, 2014
Revision 1: Oct 24, 2014; Revision 2: July 11, 2022; Revision 3: Nov 8, 2022

[redacted]

FIGURE 1

Project 30143880
City: (i.e. ATL, DAL, HOU) Div/Group: WATER Last saved by: [redacted] Last saved date: October 10, 2022 10:42 PM
File Location: \\



Project 30143880
City (i.e. ATL, DAL, HOU) Div/Group WATER Last saved by [redacted] Last saved date October 10, 2022 10:42 PM
File Location \\

Fort Bliss Municipal Solid Waste Landfill Permit 1422

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

Permit Modification Application - Permit No. 1422
July 31, 2014
Revision 1: Oct 24, 2014; Revision 2: July 11, 2022; Revision 3: Nov 8, 2022

[redacted]

FIGURE
1

5c Comment 4_ Appendix B Title Page and Table of Contents (List of Drawings)

Appendix B – Landfill Modification and Closure Design Drawings

Fort Bliss Municipal Solid Waste Landfill

Permit 1422

July 2014
Revised October 24, 2014 Rev. 1
Revised July 11, 2022 Rev. 2
Revised December 13, 2022 Rev. 3

STATE OF TEXAS
[redacted]
[redacted]
LICENSED
PROFESSIONAL ENGINEER

Prepared By:
[redacted]

[redacted] [redacted] [redacted] [redacted] TX Engineering License [redacted]

12/16/2022

List of Drawings

12/16/2022

Appendix B – Landfill Modification and Closure Design Drawings

Fort Bliss Municipal Solid Waste Landfill
Permit 1422

July 2014
Revised October 24, 2014 Rev. 1
Revised July 11, 2022 Rev. 2
Revised December 13, 2022 Rev. 3

Prepared By:

[redacted]

TX Engineering License [redacted]

12/16/2022

List of Drawings

Appendix B – Landfill Modification and Closure Design Drawings

Fort Bliss Municipal Solid Waste Landfill
Permit 1422

July 2014
Revised October 24, 2014 Rev. 1
Revised July 11, 2022 Rev. 2
Revised December 13, 2022 Rev. 3

[redacted]

[redacted]
TX Engineering License #[redacted]

List of Drawings

5d Comment 5_Appendix L Title Page

Appendix L – Final Facility Surface Water Drainage Report

Fort Bliss Municipal Solid Waste Landfill
Permit 1422

July 2014
Revised October 24, 2014 Rev. 1
Revised July 11, 2022 Rev. 2
Revised November 8, 2022 Rev. 3
Revised December 13, 2022 Rev. 4

[redacted]

12/16/2022

TX Engineering License [redacted]

Appendix L – Final Facility Surface Water Drainage Report

Fort Bliss Municipal Solid Waste Landfill
Permit 1422

July 2014
Revised October 24, 2014 Rev. 1
Revised July 11, 2022 Rev. 2
Revised November 8, 2022 Rev. 3
Revised December 13, 2022 Rev. 4

[redacted]

12/16/2022

TX Engineering License [redacted]

Appendix L – Final Facility Surface Water Drainage Report

Fort Bliss Municipal Solid Waste Landfill
Permit 1422

July 2014
Revised October 24, 2014 Rev. 1
Revised July 11, 2022 Rev. 2
Revised November 8, 2022 Rev. 3
Revised December 13, 2022 Rev. 4

[redacted]

5e Comment 6_Appendix L Table of Contents

[redacted]

12/15/2022

Contents

List of Tables

Attachments

[redacted]

[redacted]

12/15/2022

Contents

List of Tables

Attachments

Contents

List of Tables

Attachments

5f Comment 7_Appendix O Title Page

Appendix O – Final Closure Plan

Fort Bliss Municipal Solid Waste Landfill
Permit 1422

July 2014
Revised October 24, 2014 Rev. 1
Revised July 11, 2022 Rev. 2
Revised November 8, 2022 Rev. 3

[redacted]

[redacted]

12/16/2022

[redacted]

Appendix O – Final Closure Plan

Fort Bliss Municipal Solid Waste Landfill
Permit 1422

July 2014
Revised October 24, 2014 Rev. 1
Revised July 11, 2022 Rev. 2
Revised November 8, 2022 Rev. 3

[redacted]

[redacted]

12/16/2022

[redacted]

[redacted]

Appendix O – Final Closure Plan

Fort Bliss Municipal Solid Waste Landfill
Permit 1422

July 2014
Revised October 24, 2014 Rev. 1
Revised July 11, 2022 Rev. 2
Revised November 8, 2022 Rev. 3

Prepared By:

[redacted]