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December 19, 2023

Isabella Roman
Project Manager
DTSC Site Mitigation and Restoration Program
700 Heinz Avenue
Berkeley, CA 94102

Re: Final Five-Year Review Report
Lendrum Court

Presidio of San Francisco
San Francisco, California

Dear Ms. Roman:

On behalf of the San Francisco Presidio Trust (Trust), thank you for your letter dated August 25, 2023 from the Department of Toxic Substances Control (DTSC) regarding the *Draft Five-Year Review Report, Lendrum Court, Presidio of San Francisco* (Five-Year Review), dated December 6, 2022. Your letter provided comments to be incorporated into a revised final report.

This letter acts as a transmittal of the response to comments (RTC's), the final report dated December 12, 2023, and the redlined version of the final report. The RTCs and final report are attached to this letter, and the redlined report will be submitted as a separate electronic document.

Please do not hesitate to contact Nina Larssen of the Trust at (415) 561-5421 with any questions regarding this submittal.

Sincerely,

TRC Solutions, Inc.

Justin Hanzel-Durbin, P.E.
Principal Program Manager

A.J. Reed, QSD/QSP
Project Engineer

CC: Nina Larssen, Presidio Trust

Attachment: Lendrum Court Draft Five-Year Review Report Response to Comments
Final Lendrum Court Five-Year Review Report
Redlined Final Lendrum Court Five-Year Review Report (electronic only)

Lendrum Five Year Review - Response to Comments

DTSC Comments 8/25/23		Trust Response	Edit location in text
1	Rainfall events. Nina Larssen sent an email on March 22, 2023 requesting a modification to significant event inspections. Technical staff from ESPO have reviewed this email and need more information to support the requested modification (see attached ESPO email). Please add the modification request to the Report and provide sufficient justification addressing ESPO's comments. The Final Operations and Maintenance Plan dated November 2019 (O&M Plan) will need to be amended if this change is approved.	The modification request (to eliminate inspection after 0.5 inches of rain in 24-hours) will be added to the report. We have added a list of several of the most recent storm events and summaries of the inspection reporting to the report in support of the change to the monitoring frequency. We are also tying the request to the published NOAA storm classification table which details the rainfall required for each storm category. We understand the concerns of deep rooted vegetation in a Cap area and the Trust forestry department regularly inspects all trees within the Presidio and takes a proactive approach to forest management to reduce the risk of tree failure. To address DTSC's concern, we're proposing additional inspection requirements for 10-year storms with a National Weather Service issued "High Wind Advisory". A high wind advisory is typically issued when the wind threat level reaches "high", per the NOAA website "A High Threat to Life and Property from High Wind. "High wind" with sustained speeds of 40 to 57 mph." (https://www.weather.gov/mlb/seasonal_wind_threat).	Additional text to be added to Section 6.0 and NOAA table added as an attachment.
2	LUC Area B signage. The O&M Plan discusses requirements for signage posted around Land Use Covenant (LUC) Area B. The Report does not discuss this signage. Please discuss the status of this signage.	The inspection report will be amended to note the missing signage. The post and cable fence is functioning as intended and new signage has been ordered. Trust to provide an update to the DTSC once it has been installed.	Missing signage has be added to the inspection report. New signs were posted and details were added to section 2.4.
3	Site remedy conditions. The status of several elements of the remedy were not addressed in the Report. Some examples are provided below. In the text, please discuss the status of these remedy elements. In the future, it may be helpful to prepare a Site-specific inspection checklist in advance of the work. a. The O&M Plan notes that the cap inspection will include observation of excessive aggregate base (AB) erosion. This was not included in the Five Year Review (FYR) inspection checklist included with the FYR Work Plan, and a discussion was not included in a separate sheet or in the text. b. The O&M Plan notes that the cap inspection will include observation of excessive ponding of water. Page 45 (FYR Site Inspection checklist page D-13) does not provide an answer regarding ponding. This was also not discussed in a separate sheet or in the text. c. The O&M Plan notes that the cap inspection will include observation of obstructions in drain inlets or outlets. Page 47 (FYR Site Inspection checklist page D-15) is marked not applicable. This was not discussed in a separate sheet or in the text. d. The O&M Plan notes that erosion control blankets and fiber rolls would be monitored. Section 2.4.2 of the Report states that inspections include observation of erosion control blankets and fiber rolls, however the findings regarding erosion control blankets and fiber rolls were not included in the FYR Site Inspection checklist, on a separate sheet, or in the text. e. The O&M Plan notes that the irrigation system performance would be checked. Section 2.4.1 of the Report states that irrigation system performance is included in the inspection, however, irrigation system	The site-specific inspection form used for the quarterly O&M inspections from the O&M Plan was also completed during the 5YR inspection and included in the 2022 Annual O&M Report. The elements of the Cap identified by DTSC were reviewed and documented in that inspection form. This inspection form will be attached to the DTSC template 5YR form to provide more complete documentation of the inspection. Below is a summary of the condition of each of these Cap elements: •No eroded hardscape elements (including AB pads) were observed. •No ponding water was observed. •No drain inlets were observed to be clogged during the inspection. Although this is not currently called out on the inspection form, it is part of the inspection process and a place for documenting this observation will be added to the site-specific O&M inspection form. Vegetation growth within a drain inlet was observed and noted on the September 28, 2022 inspection report and was addressed by Trust maintenance crews. •Erosion control blankets and straw wattles across the site were observed to be in good repair. •No irrigation deficiencies were observed. Irrigation at Lendrum Court is monitored automatically by Calsense irrigation controllers, which produce daily station history, flow rates, and alerts for high or low flows, which would alert the Trust irrigation team to irrigation problems that need repair. We are checking for records of repairs over the past 5 years. The Calsense controllers are inspected every spring. The irrigation on the slope beneath 1257 & 1258 is at a very reduced level. The irrigation on the hillside beneath 1259, 1278, & 1279 is turned off now that the historic forest trees have been established. We would like to propose a revision/amendment to the O&M Plan to defer irrigation monitoring and repairs to Trust Irrigation, which is in the Utilities department. Remediation inspections will check for unusual plant die-off that would indicate a potential irrigation problem. •LUC Area B signage was missing during the 5YR inspection. New signs were installed on September 26, 2023.	We will attach O&M plan inspection checklist from June 2022 inspection to FYR inspection form. In Section 2.4.1 we will add discussion on the quarterly inspections specifically the review of the remedy elements. We will also discuss the addition of a location within the inspection form to document the status of the drainage system, inlets and outlets.
4	Section 1.3, Five-Year Review Summary Form, page 6. This section fills in the summary form table provided in the Five-Year Review Recommended Template, dated January 20, 20161. Some fields in the table are specific to United States Environmental Protection Agency (EPA) sites (e.g., EPA Identification (ID), National Priorities List (NPL) Status). Please modify these fields accordingly (i.e., Envirostor ID, Not listed as NPL site).	Section 1.3 has been reviewed for accuracy.	Section 1.3 will be modified by replacing "EPA ID" with "Envirostar ID".
5	Section 2.4, Operations & Maintenance, pages 11-12. This section discusses frequency of LUC inspections. The O&M Plan states that remote inspections for LUC Area C will be conducted monthly. This contradicts Section 2.4, which states that there were quarterly LUC inspections. Please discuss this.	The switch to quarterly inspections of the LUC sites within the Caltrans Highway Easement Area (HEA) which includes Lendrum Court LUC Area C was documented in the 2021 Annual O&M Report and this approach was also conveyed to DTSC in the quarterly meetings discussing this O&M Report.	No revisions needed
6	Section 3.0, Progress Since Last Review, page 12. This section states: "The site was certified by DTSC in a letter dated May 7, 2020." DTSC approved the Final Construction Completion Report dated November 2019 (CCR) in a letter dated May 7, 2020, but this letter did not certify the Site. Please correct this in the text.	The Trust will correct the language in the text by removing "The site was certified by DTSC" and replacing it with "DTSC approved the Final Construction Completion Report …". Question: Why was site certification never issued for Lendrum Court? Is it because cleanup was performed under a RAW vs a RAP?	Make applicable revisions to Section 3.0

7	Section 4.1, Community Notification, Involvement & Site Interviews, page 12-13. This section discusses a resident's concern. DTSC was not notified of this concern. In the future, please notify DTSC within 3 business days of any public questions or concerns regarding Site investigation, cleanup, or long-term stewardship.	This notification requirement is not included in the Lendrum Court LUCMRR documents, but as a courtesy the Trust will notify DTSC of public questions and concerns in a reasonable timeframe.	No revisions needed
8	Section 4.3, Site LUC FYR Inspection, page 13. This section states that the Photo View figure is included with the figures as Figure 4. This figure is contained within Appendix B and is not designated as Figure 4. Please correct this.	The reference will be revised to properly direct readers to Appendix B for this Figure.	Pg. 13 - Update ref. to photo view figure
9	Section 4.3, Site LUC FYR Inspection, pages 13-14. This section discusses observations made during the Site inspection. This section states: "TRC presented its observations to the Trust to facilitate necessary maintenance activities." In the text, please provide the status of these maintenance activities.	Section 4.3 will be updated to include a description of the maintenance activities that were performed to address items identified in this inspection.	Section 4.3 - Text to be updated to provide update on the status of maintenance activities
10	Section 8.0, Next Review, page 16. This section states: "The next FYR report for Lendrum Ct is required in 2027, five years from the completion date of this review." The language in this sentence is unclear as to whether it means five years from the approval of the Report or whether it means five years from the FYR period. The FYR is due five years after completion of the remedy (July 2017), and every five years thereafter. In this section, please specify that the first draft of the next FYR will be due July 2027 (i.e., ten years after completion of the remedy).	The Trust will revise the text to state that the initial draft of the next five year review report will be due by July 2027.	Section 8.0, Pg. 16 - Revise the dates to July 2027
11	Table 1, Chronology of Remedial Activities, page 24. This table includes the DTSC approval letter for the CCR. The table notes that this letter is dated March 8, 2020, however, the letter is dated May 7, 2020. Please correct this.	Noted	Pg. 11 - Change the letter is dated March 8, 2020 to the correct letter date of May 7, 2020
12	Appendix B, Five-Year Review Site Inspection Report and Photo Log, page 44. Page D-12 (PDF page 44) of the checklist contains contradictory information regarding cracking. The checklist notes that there are minor cracks, but also states that cracking is not evident. Please explain this discrepancy.	Minor cracking was observed but none of the cracks have resulted in a deficiency of the Cap. This observation is noted in the site specific inspection form. We will revise the document to fix this discrepancy.	Appendix B - (Pg. D-12/PDF pg. 44) Fix discrepancy
13	Typographical and formatting errors. While DTSC does not conduct a full editorial review, the following typographical and formatting errors were encountered during technical review. a. Section 2.3.1, Remedial Action History, page 9. "…through direct consultation giwht DTSC." b. Section 4.3, Site LUC FYR Inspection, page 13. Please spell out the date "6/23/2022." c. Table 3, Soil Cleanup Levels for Chemicals of Concern, page 27. i. "…through 2013)Development…" ii. "…September 2009Revised…" iii. "…2004Evaluation…"	Noted	a. Pg. 9 - fix typographical and formatting errors b. Pg. 13 - fix typographical and formatting errors c. Pg. 27 - fix typographical and formatting errors
14	Section 5.2 (Question B): The burden of the question is to verify if the underlying assumptions in the risk assessment and risk-based cleanup levels, which in turn inform the remedy, are still valid. Responding "NO" would indicate that the risk assessment and risk-based cleanup levels would need to be revisited to evaluate if the remedy is sufficiently protective. The Section text starts by stating that the exposure pathways are "no longer valid" and ends stating the goals for Site cleanup "are still valid" which can be confusing to a reviewer. For clarity, HERO recommends itemizing and addressing the validity of the four components of Question B (i.e., exposure assumptions, toxicity data, cleanup levels, remedial action objectives) individually in the Section to inform the overall response. If no change to the risk assessment and/or risk-based cleanup goals is needed, then "YES" (assumptions for all components still valid) is the appropriate response to Answer B.	After reviewing DTSC's guidance in this comment we will revise the response to Question B to present a response to each of the four components. It is our opinion that there does not need to be a change to the original risk assessment that informed the remedy for this site and therefore the answer for all four components will be "YES".	Section 5.2 will be revised as described.

15	ESPO - I have reviewed the Trust's request to modify the O&M inspections regarding storm definitions. The proposed modification would eliminate erosion control measures inspections after 0.5-inch rainfall in 24 hours. This change appears reasonable, however, the proposed modification including the definition of a 25-year rainfall/precipitation event appears to include relatively high precipitation levels, especially given the presence of localized areas of bare earth or sparse vegetation as note in the Five Year Review Report, in addition to the presence of steep slopes locally. Increasing the rainfall event from 0.5 inches in 24 hours to 2 inches in 24 hours appears to be more appropriate, however, the value should be based on both past experience, especially the storms experienced during the current rainfall season. A cursory review of the Five Year Report indicates that likely presence of small/young trees or other deep-rooted vegetation on the cap. Deep-rooted vegetation is usually discouraged on caps/covers. PRELIMINARY RECOMMENDATION The current modification request does not include enough supporting information, and should be revised to include more information including site-specific performance during past precipitation/rainfall storm events to support the selected rainfall levels/intensities. Also, given recent experience and the presence of trees on or near the cap, the inspection modifications should consider rainfall accompanied by high wind events, which may lead to downed trees and associated cap damage.	We have reviewed the Lendrum Court post rain inspection reports over the past few heavy rain seasons and there have been no documented Cap deficiencies or significant erosion events. We have added a list of several of the most recent storm events and summaries of the inspection reporting to the report in support of the change to the monitoring frequency. We are also tying the request to the published NOAA storm classification table which details the rainfall required for each storm category. Per the comment on deep rooting vegetation, the approved remedial design included the re-establishment of the historic forest at the site. We understand the concerns of deep rooted vegetation in a Cap area and the Trust forestry department regularly inspects all trees within the Presidio and takes a proactive approach to forest management to reduce the risk of tree failure. To address DTSC's concern, we're proposing additional inspection requirements for 10-year storms with a National Weather Service issued "High Wind Advisory". A high wind advisory is typically issued when the wind threat level reaches "high", per the NOAA website "A High Threat to Life and Property from High Wind. "High wind" with sustained speeds of 40 to 57 mph." (https://www.weather.gov/mlb/seasonal_wind_threat).	Additional text to be added to Section 6.0 and NOAA table added as an attachment.

FINAL FIVE-YEAR REVIEW REPORT
LENDRUM COURT
Presidio of San Francisco
San Francisco, California

December 12, 2023

This report has been prepared for:
The Presidio Trust
1750 Lincoln Boulevard
San Francisco, California 94129

Project No. 229649

A.J. Reed, QSD/QSP, CPESC, CESSWI
Project Engineer

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APPENDICES

ABBREVIATIONS

ARARs	Applicable or Relevant and Appropriate Requirements
CCR	Construction Completion Report
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQA	California Environmental Quality Act
COC	contaminant of concern
DTSC	Department of Toxic Substances Control
FYR	Five-Year Review
LUC	Land Use Control
LUCMRR	Land Use Control Master Reference Report
O&M	operation and maintenance
PAH	polycyclic aromatic hydrocarbon
RAO	remedial action objective
RAW	Removal Action Workplan
RDIP	Remedial Design and Implementation Plan
SWPPP	Storm Water Pollution Prevention Plan
TCDD TEQ	tetrachlorodibenzo-p-dioxin toxic equivalent
UU/UE	unlimited use and unrestricted exposure

1.0 INTRODUCTION

1.1. Site Overview

The purpose of a Five-Year Review (FYR) is to evaluate the performance of an implemented remedial action in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods used and findings of the review are documented in FYR reports such as this one. In addition, FYR reports present recommendations to address issues, if any, found during the review.

TRC Solutions, Inc. (TRC) has prepared this FYR on behalf of the Presidio Trust (Trust) in conformance with the *Final Operations and Maintenance Plan* (O&M Plan; TRC, 2019a) that was included as part of the California Department of Toxic Substances Control (DTSC)-approved *Final Construction Completion Report* (Final CCR; TRC, 2019b), requiring inspection and maintenance of the remedial cap. The current FYR period for the Site is July 2017 through July 2022.

This is the first FYR for the Lendrum Ct Site (Site) following remediation in accordance with the O&M Plan for the Site. The DTSC issued approval of the Final CCR and O&M Plan on May 7, 2020. This report considers not only the remedial action itself but also whether there have been changes to Site conditions and/or regulations over the period since the remedial activities were implemented. The triggering action for this statutory review is the completion of remedial activities in July 2017. The FYR has been prepared because hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

1.2. Site Background

The Presidio of San Francisco ("Presidio") is located at the northern tip of the San Francisco Peninsula. The Presidio occupies approximately 1,491 acres bounded by San Francisco Bay to the north and west, and residential neighborhoods of the City of San Francisco to the south and east. The Site is located within inland Area B of the Presidio (**Figure 1**), where the Trust has cleanup authority and administrative jurisdiction.

Prior to 1936, the Lendrum Ct area was generally open space. The US Army (Army) operated an incinerator prior to 1936 approximately 150 feet south of the Site, where present-day Presidio Parkway (formerly Doyle Drive) is located. Environmental investigations confirmed that Army-era debris and incinerator ash are present in the subsurface soils at the Site. Construction of the current residential buildings around Lendrum Ct began around 1970 and was complete by 1975. Currently, The Site includes the Lendrum Court residential neighborhood, Historic Forest area, and the former incinerator area located to the south of Lendrum Court between Highway 101 and

the hook ramp of northbound Highway 1 and within the California Department of Transportation (Caltrans) highway easement.

The site history and a chronology of remedial actions are described in **Section 2.0**.

1.3. Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Lendrum Court		
Envirostar ID: 60001846		
Region: 11	**State:** CA	**City/County:** Presidio, San Francisco
SITE STATUS		
NPL Status: Final		
Multiple OUs? No	**Has the site achieved construction completion?** Yes	
REVIEW STATUS		
Lead agency: DTSC		
Author name (Federal or State Project Manager): Justin Hanzel-Durbin PE (on behalf of Trust PM Nina Larssen)		
Author affiliation: TRC Solutions, Inc.		
Review period: 7/31/2017 - 7/31/2022		
Date of site inspection: 6/23/2022		
Type of review: Statutory		
Review number: 1		
Triggering action date: 7/31/2017		
Due date *(five years after triggering action date)*: 7/31/2022		

2.0 REMEDIAL ACTION SUMMARY

Key documents and events pertaining to the history of the Site, as well as the remedial actions that have been implemented, are summarized in **Table 1**.

2.1. Basis for Taking Action

The Lendrum Site contains subsurface soil mixed with Army-era debris and incinerator ash linked to the presence of an incinerator approximately 150 feet southeast of present-day Lendrum Court. Remedial investigations were conducted at the Site between 2010 and 2014:

- The Trust began conducting remedial investigations at Lendrum Court in 2010 that included collection of soil samples from three trenches. Results were documented in *Notice of Potential Waste Release Site – Lendrum Court, Presidio of San Francisco, California* (Trust, 2012).
- On behalf of the Trust, Erler & Kalinowski, Inc. (EKI) conducted additional environmental field investigations in 2012, 2013, and 2014. The investigations included vegetation clearing, excavation of potholes and trenches, the collection and chemical analysis of debris/ash and native soil around the debris layer, and a site topographic survey to delineate the extents of contamination. Results of EKI investigations are documented in the *Lendrum Court Investigation Summary Report and Screening Risk Evaluation* (EKI, 2014a) and the *Lendrum Court Remedial Investigation Summary Report and Screening Risk Evaluation* (EKI, 2015). The 2015 EKI report contains a comprehensive review of data collected by the Trust and EKI, including results of an additional September 2014 field investigation.

Chemicals of concern (COCs) at Lendrum Court that pose potential risk to human health and the environment were identified based on the findings of the remedial investigations. The COCs in the soil are primarily metals, polycyclic aromatic hydrocarbons (PAHs), and Dioxins and Furans as summarized below:

- Debris Fill Area
  - Metals – Arsenic, barium, copper, lead, and zinc
  - PAHs – benzo(a)pyrene, benzo(a)pyrene equivalents and dibenzo(a,h)anthracene
  - Dioxins and Furans –expressed as tetrachlorodibenzo-p-dioxin toxic equivalent (TCDD TEQ)
- Outside Debris Fill Area
  - Metals – Lead
  - Dioxins and Furans - TCDD TEQ

No impacts to groundwater from historical land uses have been identified at the Site.

2.2. Remedial Actions

2.2.1 Planning Actions and Remedial Action Objectives

Remedial alternatives were evaluated by the Trust in the *Final Removal Action Work Plan* (RAWP; TRC, 2015). The 2015 RAWP identified consolidation and capping of soil with land use controls (LUCs) and post-remediation monitoring as the preferred remedial alternative for the Site. The RAWP included, as an appendix, a California Environmental Quality Act (CEQA) Initial Study that was prepared collaboratively by the Trust and the DTSC. A proposed plan (fact sheet) describing the proposed remedial action for Lendrum Ct was prepared by the Trust and distributed to stakeholders as part of public outreach. The Draft RAWP was subject to public review and comment before final approval by DTSC.

2.2.1. Remedial Action Objectives and Cleanup Levels

The RAWP summarizes remedial investigation data, identified constituents of concern (COCs), and assessed remedial action objectives (RAOs) for the Site. The RAOs for Lendrum Court defined in the RAWP included:

- **Protection of human health and the environment consistent with the intended future land use.** As required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the remedial alternatives considered must be protective of human health and the environment. Protection of human health and the environment can be met in several ways, including cleanup of COCs to meet the applicable Site-specific Lendrum Court cleanup levels or using LUCs to prevent exposure to COCs.
- **Cost-effective cleanup of the site.** Cost-effectiveness is an objective addressed by identifying remedial alternatives that meet all remedial objectives for the least cost. In practice, not all remedial alternatives meet all remedial objectives equally; therefore, the most cost-effective alternative is not necessarily the least-cost alternative.
- **Compliance with applicable or relevant and appropriate requirements (ARARs).** Remedial alternatives are evaluated for their ability to meet chemical-, location-, and action-specific requirements that include specific regulations or advisories applicable to the Presidio. **Appendix A** includes ARARs

The RAOs are used in this and future FYRs to evaluate the effectiveness of the selected remedy.

2.2.3 Remedy Selection

Based on the RAOs, the RAWP identified and screened three remedial alternatives: (1) no action, (2) excavation, and (3) consolidation and capping with LUCs and post-remediation monitoring. Ultimately, Alternative 3, consolidation and capping with LUCs and post-remediation monitoring, was selected as the preferred alternative, due to its high level of protection of human health and the environment, meets ARARs, is compatible with the proposed future land use of the Site, and

has a lower cost than Alternative 2. Alternative 3 involved removing and consolidating the Army-era debris and incinerator ash from the shallow subsurface and then placement of an engineered soil cover layer. The remedial design also included implementation of LUCs and a post-remediation operation and maintenance (O&M) plan to monitor the capped portions of the Site.

The remedial design was prepared with DTSC oversight. The design details and implementation approach are presented in the *Revised Remedial Design and Implementation Plan* (RDIP; TRC, 2016). The primary design elements included excavation, disposal, consolidation and compaction of contaminated soil and debris, re-grading and compaction of waste soil, placement of gopher wire above sub-grade, placement of clean soil and hardscape cap, re-vegetation of soil cap, and placement of erosion controls.

2.3 Status of Implementation

2.3.1 Remedial Action History

Remedial alternatives and remedial action objectives (RAOs) were evaluated by the Trust in several documents including the *Final Removal Action Work Plan* (RAWP; TRC, 2015) and the subsequent *Revised Remedial Design and Implementation Plan* (RDIP; TRC, 2016). The selected remedial action for the Site as determined in the RAWP consisted of consolidation and capping with land use controls (LUCs) and post-remediation monitoring. Remedial activities within the incinerator area were completed by Caltrans in early 2015 through direct consultation with DTSC. Remedial activities within the incinerator area are documented in Appendix A of the RAWP. All other remedial activities at the Site began in February 2016 and were completed in July 2017. Comprehensive details of completed remedial actions at the Site are documented in the Final CCR dated November 2019.

2.3.2 Remedial Construction

Remedial construction at the incinerator was completed in early 2015 and included soil removal, disposal, and placement of a 2-foot clean soil cap and hardscape. Implementation of the preferred remedies at Lendrum Court began in February 2016 and was completed in July 2017. Implementation activities included excavation, disposal, consolidation of Army-era debris and incinerator ash, construction of engineered soil cover elements, installation of final construction elements, and the establishment of LUCs. Engineered soil cover elements and established LUCs are illustrated on **Figure 2 and Figure 3**, respectively.

- **Incinerator Area** – Caltrans excavated soil to meet design grade and stockpiled contaminated soil for offsite disposal. Following disposal of the soil, Caltrans constructed a 2-foot clean soil cap over all areas identified as having remaining contamination above screening levels. As part of the Doyle Drive Replacement Project, all areas with soil cap and adjacent landscaping areas had erosion control materials

installed and were planted with native plants. A portion of the incinerator site adjacent to the soil cap was paved as part of the new highway construction.

- **Soil Excavation and Consolidation** – The top 6 inches of organic material was removed across the Site in both landscaped and hardscape cap areas and disposed of offsite. Soil cap areas were graded to a uniform slope with 18 inches of vertical space below final grade to accommodate the placement of a clean soil cap. Areas designated for clean closure were excavated to the extent required based on confirmation sampling. Impacted soils were consolidated within areas designated for capping when possible and remaining material was disposed of off-site.

- **Engineered Soil and Hardscape Caps** – Engineered clean soil caps were constructed across most of the project area. After rough grading, gopher wire was extended across the areas designated for clean soil capping. Approximately 18 inches of clean import fill was placed in designated areas until final grade was achieved. Hardscape features were also constructed to serve as capping elements and included sidewalks, patios, stairs, paths, and asphalt pavement. The approximate limits of the engineered soil and hardscape caps are shown in **Figure 2**.

- **Final Construction Elements** – Final erosion control elements were installed across the site and included application of hydroseed, planting of trees and native plants, installation of erosion control blankets, and straw wattles. An irrigation system was also constructed within the clean soil cap to establish vegetation growth for cap stabilization. Land use controls were included as a component of the remedy to preserve the integrity of the engineered caps.

- **Establishment of the LUCs** – Three LUC Areas were established at the Site: The Lendrum Court Cap Area (LUC Area A), the North of Building 1255/1256 Forest Area (LUC Area B), and the Incinerator Area (LUC Area C). LUC Area descriptions, land use restrictions, inspection and maintenance requirements, and notification requirements are described in two separate addendums to the *Presidio Trust Land Use Controls Master Reference Report* (Trust, 2009). Land use control areas at the Site are shown in **Figure 3**.

Remedial construction activities were documented in the Final CCR. The final Site conditions are shown in **Figure 2**.

2.3.3 Land Use Control

Land use controls (LUCs) were included as a component of the selected remedy to preserve the integrity of the cover and restrict land uses on the Site. The LUC for Areas A and B was established in the *Lendrum Court Land Use Control Areas A and B Site-Specific Addendum to the Presidio Trust Land Use Controls Master Reference Report* (Areas A and B LUCMRR Addendum; TRC,

2022) which has been incorporated into the LUCMRR via addendum and was approved by the DTSC on June 22, 2022. The Lendrum Court LUC for Area C was established in the *Lendrum Court Incinerator Area Land Use Control (LUC Area C) Site-Specific Addendum to the Presidio Trust Land Use Controls Master Reference Report* (Area C LUCMRR Addendum; TRC, 2021) which has been incorporated into the LUCMRR via addendum and was approved by the DTSC on May 25, 2021. The LUCMRR addendums for the Lendrum Ct LUC Areas include the following:

- Restriction of construction of new facilities for housing or operation of schools, hospitals, and daycare centers.
- Personnel potentially exposed to soils in the LUC Areas shall follow a site-specific Health and Safety Plan, have the appropriate level of health and safety training, and use the appropriate level of personal protective equipment specified in a Health and Safety Plan.
- All soils excavated from the LUC Areas shall be managed and/or disposed of in accordance with Presidio policies and procedures and applicable federal, state, and local laws and regulations.
- Contaminated soil in the LUC Areas shall remain covered with a minimum of 18-inches of clean soil underlain with gopher wire (Area A), 24-inches of clean soil (Area C), concrete, asphalt, buildings, or another appropriate barrier.
- LUC Area B shall remain forested with understory vegetation that is comprised of dense vegetation acting as a barrier to exposure.
- Uncontrolled public access to LUC Area C is prohibited and enforced through right-of-way fencing surrounding Highway 101.
- Appropriate notice will be provided to DTSC of planned soil-disturbing activity that will penetrate or significantly disturb the protective cap.
- Disclosure of LUCs will be provided to residents living in the vicinity of Lendrum Court.

2.4 Operations & Maintenance

Subsequent to the remedial actions, the Trust implemented the Final O&M Plan, which was included as an appendix to the Final CCR and was approved by the DTSC on May 7, 2020.

In accordance with the O&M Plan, LUC inspections are conducted on a quarterly basis and after significant events including storm events, seismic events, fire events, flooding events, or a utility line breach. Results of LUC inspections and maintenance activities are documented and included in the Annual O&M Report.

The LUC inspections are ongoing and O&M records are maintained by the Trust. Post-construction inspections, events, and milestones are listed in **Table 2**. A summary of LUC inspections is provided below.

2.4.1 Quarterly LUC Inspections

The O&M Plan specifies quarterly inspections of the Lendrum LUC including the cap to identify potential signs of deterioration or damage. Quarterly LUC inspections began in June 2019, though the LUC was inspected regularly in 2018 during storm/erosion control inspections. During the inspection, the inspector assesses the condition of the soil cover, hardscape cover elements, storm water and erosion control measures, tree and plant health, condition of post and cable fence around Area B, status of Area C, and irrigation system performance and notes any deficiencies or issues. Action items for deficiencies requiring repair or replacement are noted. Photographs and site inspection reports are prepared.

The site-specific inspection form used for the quarterly O&M inspections from the O&M Plan was also completed during the 5YR inspection and included in the 2022 Annual O&M Report. The elements of the Cap identified by DTSC were reviewed and documented in that inspection form. This inspection form will be attached to the DTSC template 5YR form to provide more complete documentation of the inspection. Below is a summary of the condition of each of these Cap elements:

- No eroded hardscape elements (including AB pads) were observed.
- No ponding water was observed.
- No drain inlets were observed to be clogged during the inspection. Although this is not currently called out on the inspection form, it is part of the inspection process and a place for documenting this observation will be added to the site-specific O&M inspection form. Vegetation growth within a drain inlet was observed and noted on the September 28, 2022 inspection report and was addressed by Trust maintenance crews.
- Erosion control blankets and straw wattles across the site were observed to be in good repair.
- No irrigation deficiencies were observed. Irrigation at Lendrum Court is monitored automatically by Calsense irrigation controllers, which produce daily station history, flow rates, and alerts for high or low flows, which would alert the Trust irrigation team to irrigation problems that need repair. The Calsense controllers are inspected every spring. The irrigation on the slope beneath 1257 & 1258 is at a reduced level. The irrigation on the hillside beneath 1259, 1278, & 1279 is turned off now that the historic forest trees have been established. We would like to propose a revision/amendment to the O&M Plan to defer irrigation monitoring and repairs to Trust Irrigation, which is in the Utilities department. Remediation inspections will check for unusual plant die-off that would indicate a potential irrigation problem.
- LUC Area B signage was missing during the 5YR inspection. New signs were installed on September 26, 2023.

2.4.2 Storm/Erosion Control Measure Inspections

The O&M Plan specifies inspection of the erosion controls quarterly for the first year following construction, as well as following qualifying storm events of 0.5 inches in a 24-hour period. During 2018, erosion controls were inspected after each significant rain event and/or quarterly if no rain occurred during that period. During ongoing quarterly cap inspections after 2018, existing erosion control blankets and fiber rolls continue to be observed for signs of wear and deterioration. The inspector also notes bare areas in the vegetative cap that may require installation of additional erosion controls and/or vegetation. Photographs and site inspection reports are prepared and included in the Annual O&M Report.

3.0 PROGRESS SINCE LAST REVIEW

This document represents the first FYR for the Site. DTSC approved the Final Construction Completion Report (CCR) dated November 2019 in a letter dated May 7, 2020. LUC inspections continue as described in the O&M Plan.

4.0 FIVE-YEAR REVIEW PROCESS

4.1. Community Notification, Involvement & Site Interviews

A public notice of the FYR will be placed in the San Francisco Examiner by DTSC. The results of the review and a copy of the FYR Report will be made available online at the DTSC Envirostor website https://www.envirostor.dtsc.ca.gov, Site Code 60001846.

While conducting this FYR, TRC consulted with Site manager Nina Larssen of the Trust. In addition to what has been documented in Site inspection logs, annual reports, and maintenance logs, Ms. Larssen had the following information:

- Following discussion with DTSC, in an abundance of caution, the Trust removed the community raised planter boxes in January 2022. During the work, TRC was present to inspect the bottom of the boxes and soil beneath. There was no evidence of roots penetrating the fabric liner of the planter boxes. In June 2022, the Trust installed new plants and wood mulch throughout the area to support surface stabilization of the cap.
- In March 2021, a Lendrum Court resident expressed concerns regarding the progress of the LUCMRR documents and the status of the site's FYR. The Trust responded to the resident with the status of the LUC document and an estimated timeline for the FYR. The Trust has received no other inquiries from the Lendrum Court residents.

4.2. Data Review

As part of the FYR process, several documents were reviewed in order to evaluate the remedial actions at Lendrum Ct. These documents included the following:

- Remedial investigation documents;
- Remedial Design Implementation Plan;
- Construction Completion Report;
- LUCMRR and Site-Specific LUCMRR Addendums;
- O&M Plan;
- Annual reports and inspections; and,
- Correspondence with DTSC.

4.3. Site LUC FYR Inspection

The inspection of the Site was conducted on June 23, 2022. Daniel Parsons of TRC conducted the inspection to assess the protectiveness of the remedy under the oversight of Justin Hanzel-Durbin, P.E. The full inspection checklist is included in **Appendix B**. A Five-Year Inspection Photo View Map is illustrated in **Appendix B**.

During the inspection, TRC made observations of the cap, monitoring implements, and the surrounding area. Site photographs are included with the checklist in **Appendix B**. TRC made the following observations while conducting the inspection:

- Drainage channels to the north and south of Buildings 1259, 1278, and 1279 generally appear to be in good condition, though some sections contained dead leaves and twigs.
- Some seasonally distressed vegetation was present throughout the Site. There were no signs of abnormally distressed or struggling vegetation.
- Soil erosion was observed on the slope along the box steps to the east of Building 1258. The slope was secured with gravel bags.
    - Maintenance to recompact soil and replace gravel bags was performed on 10/28/2022.
- Burrowing activity was observed in the vegetative cap to the east of Building 1258 and the south of Building 1278. No evidence of damage to the cover, such as visible debris, was noted.
- Patches of bare earth were observed to the south of Building 1278 and correspond to the burrowing activity noted south of Building 1278.
    - Erosion control blanket and straw wattle was installed 10/28/2022 to address bare soil at various locations across the site.
- General soil cover across the Site is in good condition without visible cracking, erosion, or slope movement.

- Minor cracking is observed in the concrete sidewalk throughout the Site, none of which results in hardscape cap deficiencies.
- Soil cover and plant health within the former incinerator area appear in good condition. There are no signs of trespassing within the incinerator area.
- A tree was observed to have fallen onto the delineation post and cable fence around LUC Area B. No other overturned plantings were observed.
    - The delineation post and cable fence were repaired on 11/28/2022 and 11/30/2022.
- Garden planter boxes to the east of Building 1257 were removed and replaced by native plants.

TRC presented its observations to the Trust to facilitate necessary maintenance activities. Maintenance work was completed on October 28, 2022 and November 28 and 30, 2022. Overall, the condition of the cap and related features indicated that the remedy is still protective of human health and the environment.

5.0 TECHNICAL ASSESSMENT

The following section provides a technical assessment of the remedy's effectiveness, evaluating current Site conditions, assumptions, and reasoning made at the time of remedy selection, and any new information that may have come forward in the past five years.

5.1 QUESTION A: *Is the remedy functioning as intended by the decision documents?*

Answer A: YES

The Lendrum Ct cover is intact and provides an effective barrier between COCs and the surface. LUC inspection reports from 2019 to the present, including the inspection conducted for this FYR, indicate that minor maintenance issues, primarily related to burrowing activity, plant health, and minor erosion are observed and addressed on an as-needed basis. Moreover, vegetation is thriving in most areas of the clean soil cover providing slope stability and fortifying the cap.

5.2 QUESTION B: *Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?*

Answer B: YES

- Exposure Assumptions: The exposure pathways identified at the time of remedy selection are still valid. The exposure risks from direct contact, fugitive dust, and erosion of impacted fill materials have been mitigated through the construction of the soil and hardscape caps in LUC Areas A and C and the forest and understory vegetation in Area B has been restored. Quarterly LUC inspections and storm/erosion control inspections have validated

the integrity of this remedy and its ability to mitigate exposure of humans and the environment to the COCs identified in soil at Lendrum Ct.

- Toxicity Data and Cleanup Levels: The toxicity data and cleanup levels identified at the time of remedy selection are still valid. CULs were established in the Presidio-wide Cleanup Level Document (EKI, 2002; revised 2013) to develop a consistent approach to CUL determination across the Presidio. Appropriate CULs are selected based on Site lithology and future human and ecological land uses. CULs for PAHs and Dioxins and Furans were updated in a 2020 technical memorandum prepared by TRC as requested by the Trust (TRC, 2020) and approved by DTSC in April 2021. CULs for Selenium and Zinc were updated in an April 2021 technical memorandum prepared by TRC as requested by the Trust (TRC, 2021a) and approved by DTSC in April 2021 as well. The COCs for Lendrum Ct were reviewed against the updated CULs. Concentrations of the COCs observed during remedial investigation activities remain above the revised CULs and are therefore retained as COCs. The change in CULs does not affect the determination of the remedy at the Site. The Site criteria used in the development and evaluation of the selected remedy for Lendrum Ct, are still valid.

- Remedial Action Objectives (RAO): As part of the review process, Applicable or Relevant and Appropriate Requirements (ARARs) and RAOs are re-evaluated in terms of current Site conditions and updated regulatory information. This evaluation ensures the determination of protectiveness is done in consideration of the most current understanding of remediation technologies and insights. At the time of this review, the list of ARARs is still valid. The RAOs for Lendrum Ct (defined in Section 2.2.2) features both qualitative and quantitative goals for Site cleanup, and are still valid.

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5.3 QUESTION C: *Has any other information come to light that could call into question the protectiveness of the remedy?*

Answer C: NO

No other information regarding the protectiveness of the remedy at Lendrum Ct has come to light.

6.0 ISSUES/RECOMMENDATIONS

Based on a review of the quarterly LUC inspection reports, storm/erosion control inspections, and the inspection conducted as part of this FYR, the cap is functioning as intended, and no significant issues have been observed.

TRC has reviewed the Lendrum Court post rain inspection reports over the past few heavy rain seasons and there have been no documented Cap deficiencies or significant erosion events. We have added a list of several. Below are some of the most recent storm events and inspection summaries, which document the stable condition of the Cap and supports discontinuing erosion control inspections following a rain event of 0.5 inches in a 24-hour period as described in Section 2.2. of the O&M Plan. The Trust will continue relying on the published NOAA storm classification table to determine a 25-year rainfall event based on precipitation amounts and storm duration triggering an inspection as prescribed in the O&M Plan.

In response to DTSC's August 25, 2023 comment on deep rooted vegetation, it should be recognized that the approved remedial design included the re-establishment of the historic forest at the site. The trees are also helping to stabilize the soil Cap on the slope. We understand the concerns of deep rooted vegetation in a Cap area and potential damage to the Cap resulting from a fallen tree. The Trust forestry department conducts routine inspections of all trees within the park and takes a proactive approach to forest management to reduce the risk of tree failure. However, to address DTSC's concern, we're proposing additional inspection requirements for 10-year storms with a National Weather Service issued "High Wind Advisory". A high wind advisory is typically issued when the wind threat level reaches "high", per the NOAA website "A High Threat to Life and Property from High Wind. "High wind" with sustained speeds of 40 to 57 mph." (https://www.weather.gov/mlb/seasonal_wind_threat).

In summary, the Trust is proposing to perform post-rain event inspections following a 25 year storm or a 10 year storm accompanied with a National Weather Service issued "High Wind Advisory". Historical "High Wind Advisories" may be located by searching the NOAA website at the following links:

- https://alerts-v2.weather.gov/#/?history=1&start=2023-11-30T17%3A00%3A00-08%3A00&end=2023-12-05T11%3A30%3A00-08%3A00&zone=CAZ006
- https://forecast.weather.gov/product.php?site=MTR&issuedby=MTR&product=AFD&format=CI&version=1&glossary=1

TRC identified the following activities to continue maintaining the integrity of the cap while effectively managing ongoing O&M requirements:

- The Trust will continue to monitor burrowing activity, plant health, and erosion during quarterly and post-qualifying event inspections to maintain the integrity of the cap.
- The Trust will continue to monitor cracks and erosion observed in and around hardscape elements.
- The Trust will continue to address minor maintenance issues, mostly involving burrowing activity, plant health, and erosion control, as noted and addressed on an as-needed basis.
- The Trust proposes to eliminate the previous inspection trigger after a storm event (0.5 inches of rain in 24-hours) in place of a new trigger for inspections. The new trigger would

represent the 25-year storm event (4.88 in. / 24-hr.), or, a 10-year storm event (3.98 in. / 24-hr.) accompanied by a National Weather Service issued "High Wind Advisory". If approved, the O&M Plan will be updated. The values provided for storm events are per the NOAA table for San Francisco (**Appendix C**). This proposed change is based on the extent of observed established vegetation and the stability of the site following significant rain events over the past year, as discussed below.

- Previous post rain event inspections after heavy rains did not impact the soil cap and only minor maintenance fixes were recommended.
  - Qualifying post-rain inspection (rain event between 10/21/2021-10/24/2021) – Rain event (approx. 6.96 inches in total) reached the area's 10-yr, 24-hr storm, or 3.98 in. in a 24-hr period (4.02 in.) - Soil condition and vegetation throughout the cap and incinerator area are well maintained with no sign of deficiencies. Previously installed erosion blankets and straw wattle protected areas on the top of slopes. Minor erosion occurred near box steps, however, erosion did not result in any cap deficiency. Erosion control measures were addressed to the box steps after this storm.
  - Qualifying post-rain inspection (rain event between 12/26/2022-01/16/2023) – Rain event (approx. 17.64 inches in total) reached the area's 25-yr, 24-hr storm, or 4.88 in. in a 24-hr period (5.46 in.) - Soil condition and vegetation throughout the cap and incinerator area were well maintained with no sign of deficiencies. Erosion control blankets and straw wattle installed before the heavy rains helped prevent erosion and burrowing activity while maintaining the integrity of the clean soil cap.
  - Qualifying post-rain inspection (rain event between 03/19/2023-03/30/2023) – Rain event (approx. 3.68 inches in total), with up to 1.06 in . in a 24-hr period - Soil condition and vegetation throughout the cap and incinerator area are well maintained with no sign of deficiencies. TRC observed all soil and hardscape caps working effectively without deficiencies. A small rill formed north of Building 1257 potentially due to property resident diverting water around patio. TRC recommended filling in the rill and add additional plants/BMPs.

- The Trust proposes amending the O&M Plan to defer irrigation monitoring and repairs to Trust Irrigation (Utilities Department), with remediation inspections focusing on identifying unusual plant die-off indicative of potential irrigation problems.
  - Due to the remote operation of the irrigation control system, it is not feasible for the remediation inspectors to check the irrigation mechanical operation during their inspections. The Trust irrigation team manages the operation, inspection and adjustments to the irrigation system at Lendrum Court. The irrigation team has an established procedure for notifications and maintenance and is better suited to

monitor the operation of the irrigation system. It is sufficient to monitor plant health during inspections to confirm the integrity of the Cap.

7.0 PROTECTIVENESS STATEMENT

Sitewide Protectiveness Statement
Protectiveness Determination: Protective
Protectiveness Statement: Because the remedial actions at Lendrum Ct are functioning as intended, the Site is protective of human health and the environment.

8.0 NEXT REVIEW

The first draft of the next FYR for Lendrum Ct will be due July 2027, the second five-year period after the completion of the remedy in July 2017.

9.0 REFERENCES

Erler & Kalinowski (EKI), 2002. *Development of Presidio-Wide Cleanup Levels for Soil, Sediment, Groundwater, and Surface Water, Presidio of San Francisco, California*. Updates through 2013. October.

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Presidio Trust (Trust), 2001. *Presidio-Wide Quality Assurance Project Plan, Presidio of San Francisco, California*. April.

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TRC, 2016. *Revised Remedial Design and Implementation Plan, Lendrum Court, Presidio of San Francisco, California.* May.

TRC, 2019a. *Final Construction Completion Report, Lendrum Court, Presidio of San Francisco, California*. November.

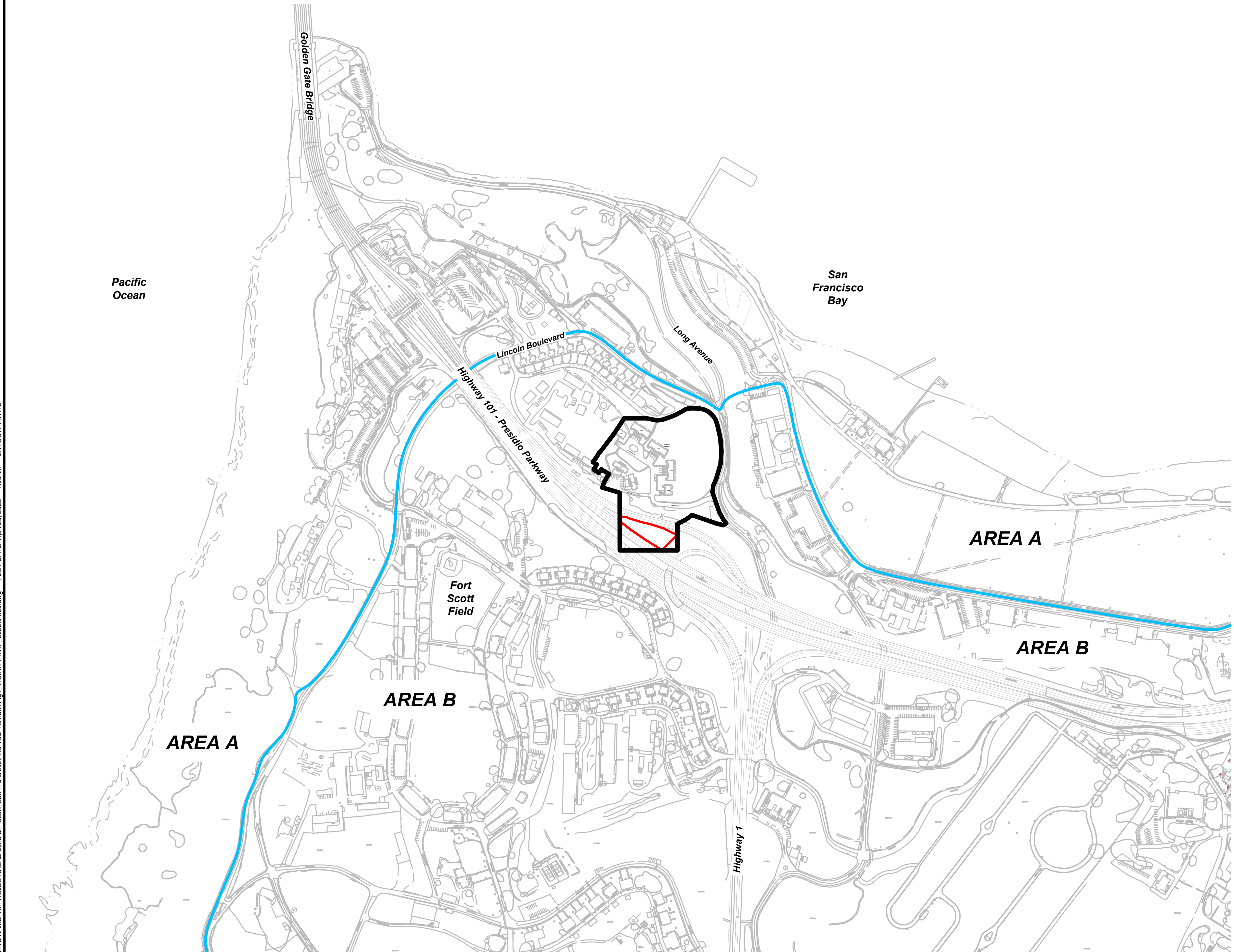
TRC, 2019b. *Final Operations and Maintenance Plan, Lendrum Court, Presidio of San Francisco, California*. November.

TRC, 2020. *Revised Cleanup Levels Technical Memorandum*, September 9.

TRC, 2021. *Lendrum Court Incinerator Area Land Use Control (LUC Area C) Site-Specific Addendum to the Presidio Trust Land Use Controls Master Reference Report, Presidio of San Francisco, California*. March.

TRC, 2021a. *Revised Cleanup Levels (CULs) Technical Memorandum*. April 13.
TRC, 2022. *Lendrum Court Land Use Control Areas A and B Site-Specific Addendum to the Presidio Trust Land Use Controls Master Reference Report, Presidio of San Francisco, California*. May.

FIGURES



LEGEND

- LENDRUM COURT AREA
- APPROXIMATE FORMER INCINERATOR AREA
- AREA A / B BOUNDARY

PROJECT:
THE PRESIDIO TRUST
LENDRUM COURT AREA
SAN FRANCISCO, CALIFORNIA

TITLE:
SITE LOCATION AND VICINITY MAP

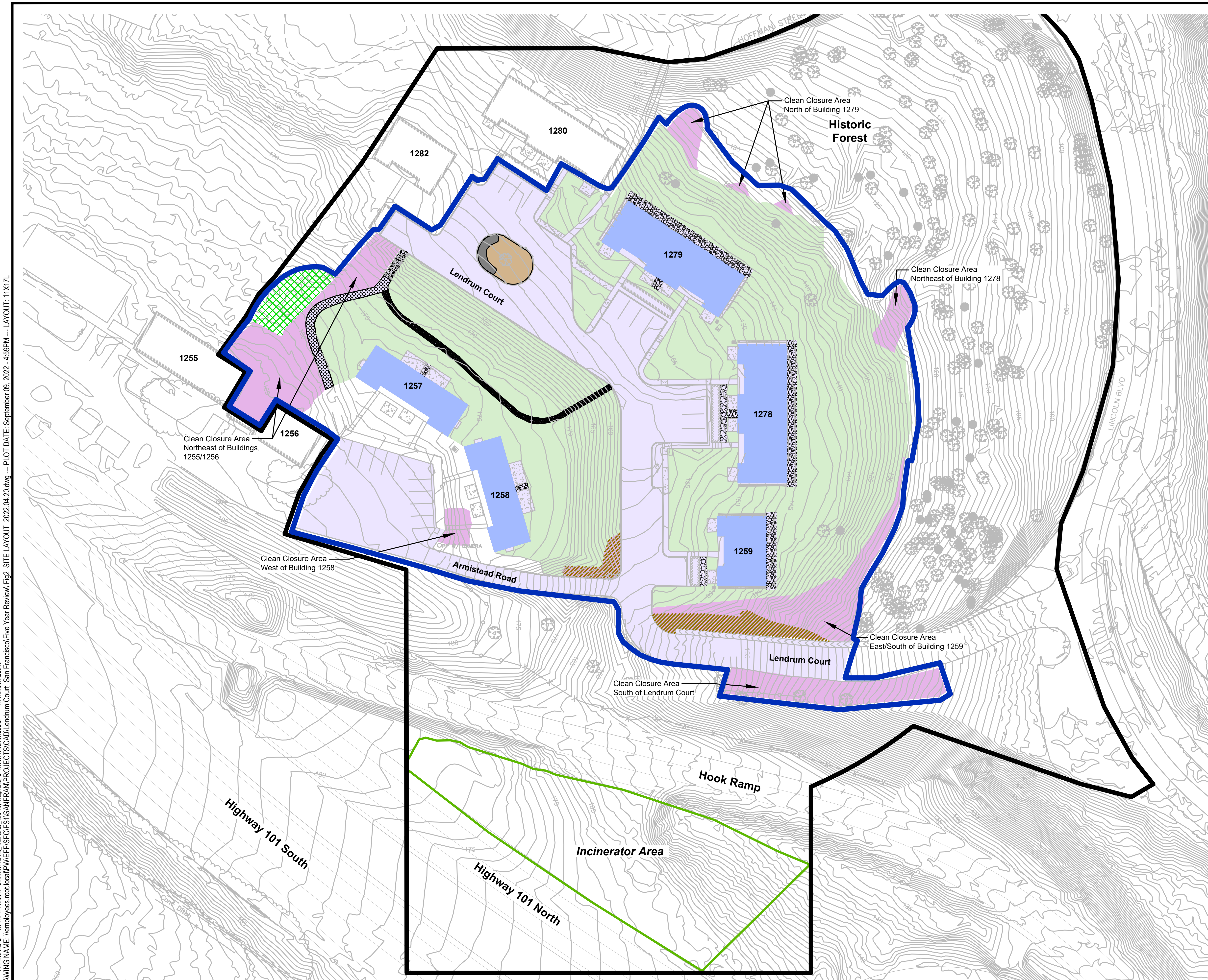
DRAWN BY:	D. PARSONS	PROJ NO.:	229649.000016.000001
CHECKED BY:	C. WANG	FIGURE 1	
APPROVED BY:	J. HANZEL-DURBIN		
DATE:	FEBRUARY 2022		

TRC
505 Sansome Street
Suite 1600
San Francisco, CA 94111
Phone: 415.434.2600

FILE NO.: Fig1_VICINITY MAP_2022.04.20.dwg

11x17 --- USER: DParsons --- ATTACHED XREF'S: MASTER Presidio_Planimetrics_New Doyle Alignment --- ATTACHED IMAGES:
DRAWING NAME: N:\PROJECTS\CAD\Lendrum Court_San Francisco\Five Year Review\ Fig1_VICINITY MAP_2022.04.20.dwg --- PLOT DATE: April 20, 2022 - 11:55AM --- LAYOUT: 11X17L

Version: 2017-10-21



LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE REMEDIAL ACTION AREA
- 140 SURFACE CONTOURS (OUTSIDE PROJECT AREA)
- 140 FINAL PROJECT SURFACE CONTOURS
- APPROXIMATE LIMITS OF VEGETATED SOIL CAP (LUC AREA A)
- APPROXIMATE AREAS OF BUILDING THAT SERVE AS CAP (LUC AREA A)
- AREAS OF ASPHALT, PAVEMENT, AB PADS, AND HARDSCAPE THAT SERVE AS CAP (LUC AREA A)
- APPROXIMATE AREAS EXCAVATED AND CLEAN CLOSED
- APPROXIMATE AREAS EXCAVATED TO EXPOSED BEDROCK (CLEAN CLOSURE AREA)
- TREE ISLAND CAP COMPACTED AGGREGATE BASE (LUC AREA A)
- TREE ISLAND CAP WOOD MULCH (LUC AREA A)
- NEW CONCRETE PATIOS, SIDEWALKS AND STAIRS
- RECYCLED CONCRETE AGGREGATE BASE PATH AND BOX STEPS
- NEW ASPHALT PATH
- NEW AGGREGATE BASE CAP
- VEGETATED LUC AREA B (NORTH 1255/1256 FOREST AREA)
- APPROXIMATE TREE LOCATION
- APPROXIMATE TOYON LOCATION
- DETAIL NUMBER
- FIGURE NUMBER WHERE DETAIL CAN BE FOUND

SOURCE: Base map by Towill, Oct.- Nov. 2015, Apr. 2016, May 2017, and Jan. 2018

PROJECT:
THE PRESIDIO TRUST
LENDRUM COURT AREA
SAN FRANCISCO, CALIFORNIA

TITLE:
SITE LAYOUT AND CAPPING AREAS

DRAWN BY:	D. PARSONS	PROJ NO.:	229649.000016.000001
CHECKED BY:	J. HANZEL-DURBIN		**FIGURE 2**
APPROVED BY:	J. HANZEL-DURBIN		
DATE:	FEBRUARY 2022		

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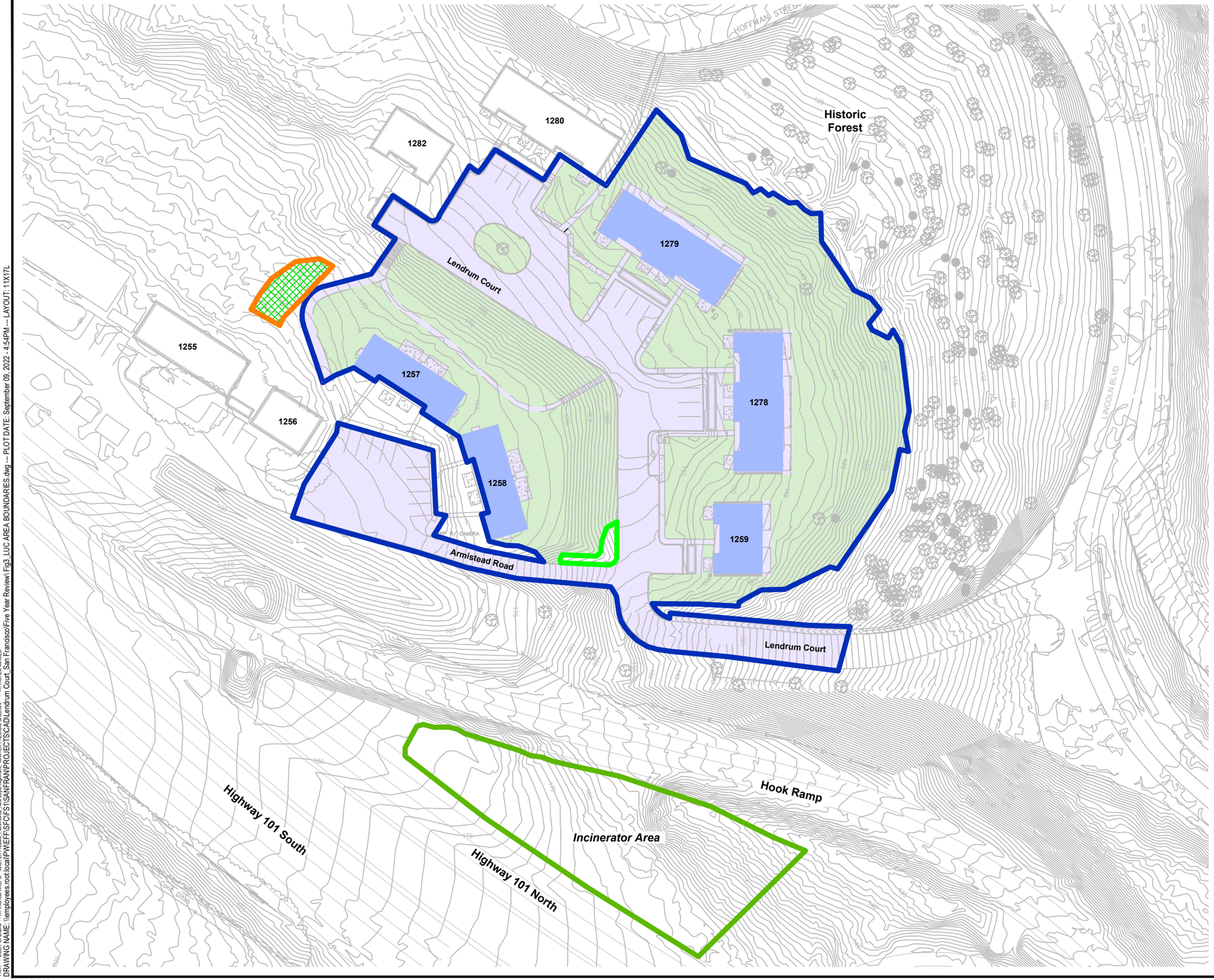
FILE NO.: Fig2_SITE LAYOUT_2022.04.20.dwg



LEGEND

- LENDRUM COURT CAP AREA (LUC AREA A)
- LENDRUM COURT FOREST AREA (LUC AREA B)
- INCINERATOR AREA (LUC AREA C) LIMIT OF CAP
- NON-LUC AREA
- 140 — SURFACE CONTOURS (OUTSIDE PROJECT AREA)
- 140 — FINAL SURFACE CONTOURS
- APPROXIMATE LIMITS OF VEGETATED CAP
- APPROXIMATE AREAS OF BUILDING THAT SERVE AS CAP
- AREAS OF ASPHALT, PAVEMENT AND HARDSCAPE THAT SERVE AS CAP
- VEGETATED LUC (NORTH 1255/1256 FOREST AREA)

NOTES

1. LUC - LAND USE CONTROL

N

0 70 140

SCALE IN FEET

SOURCE: Base map by Towill, Oct.- Nov. 2015, Apr. 2016, May 2017, and Jan. 2018

PROJECT:
THE PRESIDIO TRUST
LENDRUM COURT AREA
SAN FRANCISCO, CALIFORNIA

TITLE:
LAND USE CONTROL AREAS

DRAWN BY:	D. PARSONS	PROJ NO.:	229649.00005A.00000D
CHECKED BY:	J. HANZEL-DURBIN		
APPROVED BY:	J. HANZEL-DURBIN		**FIGURE 3**
DATE:	MARCH 2022		

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FILE NO.: Fig3_LUC AREA BOUNDARIES.dwg

TABLES

Table 1. Chronology of Remedial Activities
Lendrum Court – Five-Year Review
Presidio of San Francisco, California

Pre-Remediation Events	
Site consists of primarily open space	Prior to 1936
U.S. Army operation of the incinerator south of present day Lendrum Ct, under Highway 101.	Prior to 1936
Construction of Highway 101, the original Doyle Drive.	1936 - 1946
Construction of the North Fort Scott residential neighborhood.	1970 - 1971
The Trust becomes land management agency for Presidio.	1997
Notice from Trust to Army of unknown contamination at Lendrum Ct.	2010
Acknowledgment from Army to Trust that Lendrum Court is unknown site per Presidio MOA.	2011
Trust notice to DTSC (cc. Army) of potential contamination at Lendrum Ct.	2012
Trust contracts Erler & Kalinowski, Inc. (EKI) to conduct environmental investigations at Lendrum Ct.	2012-2014
Preliminary Endangerment Assessment Report prepared for DTSC.	2014
Results from environmental investigations are presented in the document – EKI, 2014. *Lendrum Court Investigation Summary Report and Screening Risk Evaluation, Presidio of San Francisco, California*. 28 February., prepared by EKI on behalf of the Trust.	2014
Results from environmental investigations are presented in the document – EKI, 2015. *Remedial Investigation Summary Report and Screening Risk Evaluation, Presidio of San Francisco*. May., prepared by EKI on behalf of the Trust.	2015
Communication protocols between the Trust and the public were established in the document – TRC, 2015. *Community Relations Plan for Lendrum Supplement to the Community Relations Plan for the Presidio of San Francisco, California*. May 19., prepared by TRC on behalf of the Trust.	2015
Remedial alternatives were evaluated and the preferred method selected in the document – TRC, 2015. *Final Removal Action Work Plan, Lendrum Court, Presidio of San Francisco, California*. July., prepared by TRC on behalf of the Trust.	2015
Preferred remedial action processes and procedures are described and the previously established RAOs reinterated in the document – TRC, 2015. *Final Phase 1 Remediation Design and Implementation Plan, Lendrum Court, Presidio of San Francisco, California*. July., prepared by TRC on behalf of the Trust.	2015
Remedial alternatives were evaluated in the document – TRC, 2016. *Final Remediation Design and Implementation Plan, Lendrum Court, Presidio of San Francisco, California*. May., prepared by TRC on behalf of the Trust.	2016
Remediation Events	
Trust contracts ERRG and M&H to perform remedial construction at the Site.	2016 - 2017
TRC prepared a *Construction Completion Report* (CCR) and *Operations and Maintenance Plan* (O&M Plan) for the remedial work completed at Lendrum Ct.	2017 – 2019*
Transmittal of the Final CCR and Final O&M Plan, prepared by TRC, to DTSC.	2019
DTSC approves the Final CCR and Final O&M Plan in a letter dated March 8, 2020.	2020
Post Remediation Events	
TRC prepares the Lendrum Ct LUCMRR Addendum for LUC Areas C.	2017 – 2021*
TRC prepares the Lendrum Ct LUCMRR Addendum for LUC Areas A and B.	2017 – 2022*

The Trust prepares the *Annual O&M Report*, which includes O&M activities performed at Lendrum Ct in the 2017 calendar year.	2018
The Trust prepares the *Annual O&M Report*, which includes O&M activities performed at Lendrum Ct in the 2018 calendar year.	2019
The Trust contracts TRC to perform quarterly O&M inspections in accordance with the O&M Plan.	2019 - Present
The Trust prepares the *Annual O&M Report*, which includes O&M activities performed at Lendrum Ct in the 2019 calendar year.	2020
The Trust prepares the *Annual O&M Report*, which includes O&M activities performed at Lendrum Ct in the 2020 calendar year.	2021
Transmittal of the Final Lendrum Ct LUCMRR Addendum for LUC Area C, prepared by TRC, to DTSC	2021
DTSC approves the Final Lendrum Ct LUCMRR Addendum for LUC Area C.	2021
The Trust prepares the *Annual O&M Report*, which includes O&M activities performed at Lendrum Ct in the 2021 calendar year.	2022
Transmittal of the Lendrum Ct LUCMRR Addendum for LUC Areas A and B, prepared by TRC, to DTSC.	2022
DTSC approves the Final Lendrum Ct LUCMRR Addendum for LUC Areas A and B.	2022
TRC prepared the Lendrum Ct Five-Year Review Workplan on behalf of the Trust	2022
DTSC approves the Lendrum Ct Five-Year Review Workplan.	2022

Note:

***** TRC finalized the documents after multiple rounds of DTSC comments and pauses during DTSC staff transitions.

Table 2. Post-Construction Inspections, Events, and Milestones
Lendrum Ct - Five Year Review
Presidio of San Francisco, California

Date	LUC Inspections	Post-Storm Event Inspections
Q1 2018		●●●●●●
Q2 2018		●●●
Q3 2018		●
Q4 2018		●
Q1 2019		
Q2 2019	●	
Q3 2019	●	
Q4 2019	●	●
Q1 2020	●	
Q2 2020	●	
Q3 2020	●	
Q4 2020	●	●
Q1 2021	●	●●
Q2 2021	●	
Q3 2021	●	
Q4 2021	●	●●●●
Q1 2022	●	
Q2 2022	●	

Table 3. Soil Cleanup Levels for Chemicals of Concern
Lendrum Court - Five-Year Review
Presidio of San Francisco, California

Chemicals of Concern	Chemical of Concern for Landscaped/ Residential Area?[a]	Chemical of Concern for Historic Forest/ Recreational Area?[a]	Applicable Cleanup Levels [b]				Background Level		Regional Background / Ambient Levels[c]	Site-Specific Cleanup Levels	
			Human Health Soil PRGs		Ecological PRGs					Landscaped / Residential Area[d]	Historic Forest / Recreational Area[e]
			Residential	Recreational	Buffer Zone	Special-Status	Serpentinite Lithology	Colma Formation			
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Metals											
Arsenic	Yes	No	0.36	0.88	64	10	5.4	6.2	11	6.2	--
Barium	Yes	No	5,000	12,000	500	320	230	180	1,500	500	--
Copper	Yes	No	--	--	120	30	85	49	76	120	--
Lead	Yes	Yes	80	500	300	160	66	7.5	48	80	160
Zinc	Yes	No	22,000	52,000	98.4	16.6	160	79	150	160	--
Polycyclic Aromatic Hydrocarbons (PAHs)											
Benzo(a)pyrene	Yes	No	0.11	0.27	40	30	--	--	0.92 to 1.5	0.11	--
Benzo(a)pyrene equivalent	Yes	No	0.11	0.27	40	30	--	--	0.92 to 1.5	0.11	--
Dibenzo(a)anthracene	Yes	No	0.028	0.07	40	30	--	--	0.92 to 1.5	0.028	--
Dioxin and Furans											
TCDD TEQ	Yes	Yes	0.000048	0.00011	--	--	--	--	7 to 20	0.000048	0.00011

Abbreviations:

PRGs = Preliminary Remediation Goals
-- = not available / applicable
mg/kg = milligrams per kilogram
TCDD TEQ = 2,3,7,8-tetrachlorodibenzo-p-dioxin toxic equivalency

Footnotes:

[a] Chemicals of Concern as listed in EKI's *Remedial Investigation Summary Report and Screening Risk Evaluation* .

[b] Applicable cleanup levels from the following sources:

Table 7-2 of EKI's 2002 (with updates through 2013) *Development of Presidio-Wide Cleanup Levels for Soil, Sediment, Groundwater, and Surface Water* . Presidio of San Francisco

Lead Residential: Office of Environmental Health Hazard Assessment's (OEHHA) September 2009 *Revised California Human Health Screening Levels for Lead* .

Lead Recreational: March 18, 2015 Personal Communication between Eileen Fanelli, TRC, and Department of Toxic Substances Control.

TCDD TEQ Human Health Soil PRGs: MACTEC's 2007 *Technical Memorandum, Human Health Soil Preliminary Remediation Goals and Toxic Equivalency Values for Dioxins and Furans Presidio of San Francisco, California.*

[c] Regional background and ambient levels from the following sources:

Arsenic: D.J. Duverge's 2011 *Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region,* Master of Science in Geosciences.

Metals: Upper Estimate Regional Background from Table 4-Comparison of Background Values to Other Background Estimates from Lawrence Berkeley National Laboratory (LBNL) 2009 *Analysis of Background Distributions of Metals in the Soil at Lawrence Berkeley National Laboratory*

PAHs: ENVIRON et. al. 2002 *Background Levels of Polycyclic Aromatic Hydrocarbons in Northern California Surface Soil* . D. Diamond, D. Baskin, D. Brown, L. Lund, J. Najita, and I Javandel, June 2002 Revised April 2009

TCDD TEQ: California Department of Food and Agriculture (CDFA) 2004 *Evaluation of Heavy Metals and Dioxin in Inorganic Commercial Fertilizers.*

[d] The cleanup levels for the landscaped/residential areas are the lower of the residential and ecological buffer zone. If the applicable residential human health or ecological buffer-zone cleanup level is less than the background level, the greater of the two background threshold levels was selected as the cleanup level.

[e] The cleanup levels for the Historic Forest/recreational area are the lower of the residential and ecological buffer zone. If the applicable recreational human health or ecological special-status cleanup level is less than the background level, the greater of the two background threshold levels was selected as the cleanup level.

APPENDIX A

Applicable or Relevant and Appropriate Requirements

Appendix A
Applicable or Relevant and Appropriate Requirements (ARARs)
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ARAR	Citation	Description	ARAR Determination [1]	Comments
CHEMICAL-SPECIFIC ARARs AND TBCs				
Federal Chemical-Specific ARARs and TBCs				
Residential Lead-Based Paint Hazard Reduction Act of 1992 (Title X of TSCA)	15 U.S.C. §2681, 2683, and 2688; 40 Code of Federal Regulations (CFR) Section 745.65(c) and 745.227(h)(4)	66 Fed. Reg. 1206, 1238 (5 January 2001) revised 40 CFR Part 745 to establish a hazard standard of 400 mg/kg for lead in bare soil in a play area at residential sites and child-occupied facility sites.	Relevant and appropriate	Lead from lead-based paint has been detected in soils at Lendrum Court. The human health residential lead cleanup level for the Presidio is based on this TSCA value (400 mg/kg), as well a maximum average concentration of 80 mg/kg in residential areas of the site and 180 in recreational areas of the site determined with the Department of Toxic Substances Control (DTSC) LeadSpread 8 model.
U.S. EPA Office of Solid Waste and Emergency Response (OSWER) Lead Guidance	OSWER Directive #9355.4-12 (Revised Interim Soil Lead Guidance for CERCLA sites and RCRA Corrective Action Facilities, July 1994); OSWER #9200.4-27P (Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities, August 27, 1998)	Outlines approach to determining protective levels for lead in soils at CERCLA sites and identifies 400 parts per million (ppm) as screening level for lead in soil for residential land use.	Relevant and appropriate	Lead is a primary COC in site soils. The land use in the area includes residential and recreational. The human health residential clean up value of 80 mg/kg in residential areas of the site and 180 in recreational areas of the site was determined with the DTSC LeadSpread 8 model.
U.S. EPA, Region 9, Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites	U.S. EPA (January, 2015) (http://www.epa.gov/region9/superfund/prg/index.html)	RSLs are risk-based concentrations which can be used to evaluate whether a chemical release may pose a risk that warrants further investigation. RSLs are not legally enforceable standards. They are used for site "screening" and should not be used as cleanup levels for a CERCLA site until the other remedy selections identified in the relevant portions of the National Contingency Plan (NCP), 40 CFR Part 300, have been evaluated and considered.	To be considered	The cleanup levels for Lendrum Court were developed using a risk-based approach similar to the development of RSLs.
State Chemical-Specific ARARs and TBCs				
Water Board Environmental Screening Levels (ESLs)	Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, December 2013 (http://www.swrcb.ca.gov/sanfranciscobay/esl.shtml)	ESLs can be used to evaluate whether a chemical release may pose a risk that warrants further investigation. ESLs are not legally enforceable standards. They are used for site "screening".	To be considered	The cleanup levels for Lendrum Court were developed using a risk-based approach similar to the development of ESLs.
Office of Environmental Health Hazard Assessment (OEHHA) California Human Health Screening Levels (CHHSLs) for Lead	*Revised California Human Health Screening Levels for Lead*, OEHHA, September 2009	The CHHSL document presents revised lead soil screening levels for residential and commercial/industrial worker receptors using a 1 microgram per deciliter (µg/dL) benchmark for source-specific incremental change in blood lead levels for protection of school children and fetuses. DTSC's LeadSpread model and U.S. EPA's adult lead model were used with default assumptions for residential and commercial/industrial worker receptors.	To be considered	The CHHSL for lead in soil is 80 mg/kg, which is the Presidio residential preliminary remediation goal. The exposure point concentrations for lead in soil under baseline conditions at Lendrum Court range from 75 to 82 mg/kg, which approximate the 80 mg/kg preliminary remediation goal.
Presidio-Wide Cleanup Levels	*Development of Presidio-Wide Cleanup Levels for Soil, Sediment, Groundwater, and Surface Water*, October 2002 (with updates through 2013)	The Cleanup Levels Document presents cleanup levels for soil, sediment, groundwater, and surface water that are protective of human health and ecological habitat at the Presidio. The cleanup levels were developed under DTSC guidance and are anticipated to be applied to new decision documents for the Presidio.	To be considered	The soil cleanup levels for Lendrum Court are based on the criteria established in the Cleanup Levels Document.

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ARAR	Citation	Description	ARAR Determination [1]	Comments
DTSC LeadSpread, Computer Model, Version 8.	LeadSpread 8, DTSC Lead Risk Assessment Spreadsheet (http://www.dtsc.ca.gov/AssessingRisk/Leadspread.cfn)	A State of California computer model which calculates preliminary remediation goals for lead in soil based on DTC default factors and exposure assumptions based on planned land use.	To be considered	Lead is a primary COC in site soils. The land use in the area includes residential and recreational. The human health residential clean up value of 80 mg/kg in residential areas of the site and 180 in recreational areas of the site was determined with the DTSC LeadSpread 8 model.
LOCATION-SPECIFIC ARARs AND TBCs				
Federal Location-Specific ARARs and TBCs				
National Historic Preservation Act (NHPA)	54 U.S.C. 300101 et seq.; 36 CFR §§ 800.1–.16, 60.2 (effect of listing in National Register), 65.2 (effect of designation as National Historic Landmark), 68.1–.4 (Dept. of Interior [DOI] standards for historic property projects assisted by the National Historic Preservation Fund)	This Act is applicable to the entire Presidio, since it is designated in the National Register as a historic landmark.	Applicable	
	The Trust Programmatic Agreement	The Programmatic Agreement between the Advisory Council on Historic Preservation, the State Historic Preservation Officer, the Trust and NPS, sets forth the procedures to implement the historic compliance process of Section 106 of the NHPA.	To be considered	
Archeological Resources Protection Act (ARPA)	16 USC §§ 470aa–470mm; 43 CFR §§ 7.1–.37 (DOI regulations for protection of archeological and historical resources)	ARPA prohibits excavation of, damage to, or destruction of archeological resources on public lands without a permit issued by the federal land manager.	Applicable	The procedural permit requirement is not applicable to on-site remedial action. However, the substantive requirements of ARPA apply to remedial actions affecting archeological resources, Native American resources, or artifacts at the Presidio.
Federal Endangered Species Act (ESA)	16 USC §§ 1531(c)(1); 1532; 1533(d); 1536(a)–(d), (g), (h); 1538(a)(1)(B), (a)(1)(G), (a)(2)(B), (a)(2)(E); 1539(a), (c), (d); 1540(a)–(c); 50 CFR §§ 11.1–11.26, 13.1–13.29, 402.01–402.16, 424.01–424.21	Under the ESA, federal agencies must make sure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or cause the destruction or adverse modification of critical habitat. Two federal endangered or threatened bird species have been recorded as casual visitors to the Presidio and vicinity: marbled murrelet, and snowy plover. Five federal threatened or endangered plant species have been identified at various locations at the Presidio: Raven's manzanita, Franciscan manzanita, Presidio clarkia, Marin dwarf flax, and San Francisco lessingia. Additionally, critical habitat for the Franciscan manzanita has been designated on the Presidio.	Applicable	Threatened or endangered species are not known to occur in the vicinity of Lendrum Court. The Lendrum Court site is not located in critical habitat for the Franciscan manzanita.
Archeological and Historic Preservation Act (AHPA)	16 USC §§ 469–469c-2; 43 CFR §§ 7.1-3.7 (DOI regulations for protection of archeological and historic resources)	AHPA requires federal agencies, prior to engaging in activities that could cause irreparable loss of scientific, prehistorical, historical, or archeological data, to notify the Secretary of the Interior of the threatened data and the proposed activities, and to preserve the data or request that the Secretary do so. The DOI must conduct a survey and recovery effort if it finds the data are significant and may be irrevocably lost without such action.	Applicable	
Native American Graves Protection and Repatriation Act (NAGPRA)	25 USC §§ 3001-3013; 43 CFR §§ 10.1-.17	NAGPRA establishes a system for determining ownership and proper disposal/removal of Native American cultural items discovered in federal lands and requires inventorying and identification of those items. Such items must be returned to the relevant tribe.	Applicable	

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ARAR	Citation	Description	ARAR Determination [1]	Comments
Migratory Bird Treaty Act	16 USC §§ 703–708; 50 CFR §§ 10.12, 10.13	The Act prohibits the taking of migratory birds, their nests and their eggs, unless permitted by the Secretary of the Interior. Migratory birds have been observed at the Presidio.	Applicable	
Golden Gate National Recreation Area (GGNRA) Act	16 USC § 460bb–460bb-5, purposes of Section 1	Among the purposes stated in Section 1 of the GGNRA Act are to preserve the recreation area, to the degree possible, in its natural setting, and protect it from development and uses that would destroy the scenic beauty and natural character of the area.	Applicable	
Presidio Trust Act	The Presidio Trust Act, 16 U.S.C §460bb appendix	The Trust shall manage the leasing, maintenance, rehabilitation, repair, and improvement of property within the Presidio under its administrative jurisdiction using the authorities provided in this section, which shall be exercised in accordance with the purposes set forth in Section 1 of the act, entitled "An Act to establish the Golden Gate National Recreation Area in the State of California, and for other purposes," approved 27 October 1972 (Public Law 92-589; 86 Stat. 1299; 16 USC 460bb), and in accordance with the general objectives of the General Management Plan for the Presidio. Resolution 99-11 of the Presidio Trust Board sets forth the general objectives which are not explicit in the General Management Plan Amendment.	Applicable	
Vegetation Management Plan (VMP)	*Presidio of San Francisco Vegetation Management Plan and Environmental Assessment*, December 2001	The VMP guides the management of vegetative resources within the Presidio, including enhancing, restoring, and rehabilitating native and planted vegetation at the Presidio. The VMP establishes the vegetative schemes for the Presidio.	To be considered	
Presidio Trust Management Plan (PTMP)	*Presidio Trust, Presidio Trust Management Plan, Land Use Policies for Area B of the Presidio of San Francisco,* May 2002	The PTMP provides guidelines for the management and improvement of Area B of the Presidio. The PTMP emphasizes preservation and enhancement of the Presidio's cultural, natural, scenic, and recreational resources for public use.	To be considered	
Clean Water Act (CWA)	33 USC §1344; 33 CFR §323, 320-330; 40 CFR 230, 232	Section 404 of the CWA regulates the placement of dredged and fill material into waters of the U.S., including wetlands. The Act authorizes the issuance of permits for such discharges as long as the proposed activity complies with environmental requirements specified in Section 404(b)(1) of the CWA. The U.S. Army Corps of Engineers (USACE) has primary responsibility for the permit program and issues Section 404 permits. Section 404 of the CWA requires that states certify compliance of federal permits or licenses with state water quality requirements and other applicable state laws. Under Section 401, states have authority to review any federal permit or license that may result in a discharge to wetlands and other waters under state jurisdiction.	Applicable	Wetland habitats have not been identified at Lendrum Court.
Federal wetlands regulations and state wetland policy	Executive Order 11990; 40 CFR § 6.302.(a), (d), (g); CA Fish & Game Commission's Wetlands Policy	Executive Order 11990 requires federal agencies conducting certain activities to avoid, to the extent practicable, adverse impacts associated with the destruction or loss of wetlands. The Cal. Dept. of Fish & Game Commission's wetlands policy instructs the Dept. of Fish & Wildlife to recommend protection, preservation, restoration, enhancement and expansion of wetlands when the Dept. of Fish & Wildlife acts in an advisory role.	Executive Order - Relevant and appropriate CA Wetlands Policy – To be considered	Wetland habitats have not been identified at Lendrum Court.

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Applicable or Relevant and Appropriate Requirements (ARARs)
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ARAR	Citation	Description	ARAR Determination [1]	Comments
State Location-Specific ARARs and TBCs				
Basin Plan, Wetlands Protection Management	Porter-Cologne Water Quality Control Act promulgated under California Water Code, § 13240-13241, Basin Plan, pp. 4-49 to 4-51	The Basin Plan reaffirms the goal of the California Wetlands Conservation Policy of ensuring no net loss of wetlands.	To be considered	Wetland habitats have not been identified at Lendrum Court.
California Regulations for Discovery of Human Remains	Cal. Health & Safety Code §§ 7050.5	The Cal. Health & Safety Code establishes intentional disturbance, mutilation, or removal of interred human remains as a misdemeanor. This Code requires that further excavation or disturbance of land, upon discovery of human remains outside of a dedicated cemetery, cease until a county coroner makes a report. This Code requires a county coroner to contact the Native American Heritage Commission within 24 hours if the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the remains to be those of a Native American.	To be considered	
California Endangered Species Act (CESA)	Cal. Fish & Game Code §§ 2053–2054, 2081, 2080.1, 2081.1; 14 CCR §§ 670.2, 670.5, 783.1-783.6; Cal. Fish & Game Code § 2014	The California ESA provides authority similar to the Federal ESA for the protection of threatened and endangered species listed by the State. Five California endangered or threatened plant species have been identified at the Presidio: Raven's manzanita, Franciscan manzanita, Presidio clarkia, Marin dwarf flax, and San Francisco lessingia. Four California endangered or threatened bird species have been recorded as casual visitors to the Presidio and vicinity: bald eagle, marbled murrelet, snowy plover, and willow flycatcher.	To be considered	Threatened or endangered species are not known to occur in the vicinity of Lendrum Court.
California Native Plant Protection Act	Cal. Fish & Game Code § 1908; 14 CCR §§ 783.1–783.6	The California Native Plant Protection Act prohibits the taking of endangered or rare native plants, unless authorized by an incidental take permit. The Presidio has a number of endangered or rare plants specified under the California Native Plant Protection Act.	To be considered	Endangered or rare native plant species are not known to occur in the vicinity of Lendrum Court.
California Fish & Game Code regarding protection of birds, mammals, reptiles, or amphibia	Cal. Fish & Game Code §§ 3503, 3503.5, 3511, 3513; 14 CCR § 747	The California Fish & Game Code prohibits taking, possessing, or destroying certain birds, their nests, and their eggs; mammals; reptiles; or amphibia. Migratory and other birds have been observed at the Presidio. Remedial actions that include removal of vegetation that may provide nests for migratory birds may require additional review.	To be considered	

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ARAR	Citation	Description	ARAR Determination [1]	Comments
ACTION-SPECIFIC ARARs AND TBCs				
Federal Action-Specific ARARs and TBCs				
Resource Conservation and Recovery Act (RCRA)	40 CFR §§260-299; Subtitle C (hazardous waste requirements); State of California citation: Cal. Health & Safety Code, Title 22	RCRA is the primary federal law governing the disposal of hazardous and non-hazardous or municipal solid waste passed by Congress in 1976 and amended in 1984 by Hazardous and Solid Waste Amendments (HSWA). RCRA Subtitle C sets standards for the classification of hazardous waste, and requirements governing handling, management, transportation, treatment, and off-site disposal of these wastes. As specified in the Consent Agreement, the Trust addresses releases of (1) hazardous substances and hazardous waste at the Presidio under its hazardous substances and hazardous waste program overseen by the DTSC; and (2) non-hazardous petroleum hydrocarbons at the Presidio under its petroleum program overseen by the Water Board.	Relevant and appropriate	
Toxic Substances Control Act (TSCA)	15 USC §§ 2602, 2605(e) (regulation of polychlorinated biphenyls [PCBs]); 40 CFR 761.1-761.3 (definitions) & Subparts C (§§ 761.40-.45)(marking of PCBs and PCB items), D (§§ 761.50-.79) (storage and disposal of PCBs), N-R (§§ 761.260-.359) (sampling and analysis of PCB waste	TSCA regulates the use and disposal of various chemicals, including PCBs. Subpart D of 40 CFR Part 761 outlines disposal and cleanup procedures for wastes with a PCB concentration of at least 50 ppm [40 CFR §§ 761.60-.61] and prohibits the unpermitted discharge of PCBs to navigable waters or a treatment works at more than 3 parts per billion (ppb) concentration [id. § 761.50(a)(3)]. Certain PCBs in soil must be cleaned up and disposed of in accordance with Section 761.61. Certain liquid PCBs must be incinerated or otherwise disposed of in accordance with Section 761.60(a) or (e) [id. § 761.61(b)]. TSCA also contains specified requirements for labeling of containers and equipment with PCB-containing materials, and of transport vehicles carrying a certain amount of liquid PCBs (id. § 761.40).	Relevant and appropriate	PCBs are not chemicals of concern at Lendrum Court.
Clean Water Act (CWA)	33 USC §1342	Section 402 of the CWA regulates discharges of pollutants under the National Pollutant Discharge Elimination System (NPDES). The storm water discharges program is regulated by the State Water Board for certain municipal, industrial, and construction storm water discharges through NPDES permits. NPDES permits include requirements to prevent or reduce discharges of pollutants that cause or contribute to violations of water quality objectives.	Relevant and appropriate	The procedural permit requirement is not applicable to on-site remedial action at Lendrum Court.
Fish and Wildlife Coordination Act	16 USC §§ 661-663(c)	If stream realignment or modification is proposed or authorized by a Federal agency in an area not under its land management authority, then 16 USC § 662(a) requires the Federal agency to consult with U.S. Fish and Wildlife Service and the DOI to prevent loss or damage to wildlife as a result of the project. Under 16 USC § 662(h), projects carried out by Federal agencies with respect to Federal lands under their jurisdiction are exempt from and not applicable to these provisions.	To be considered	

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ARAR	Citation	Description	ARAR Determination [1]	Comments
State Action-Specific ARARs and TBCs				
Voluntary Cleanup Agreement for the Lendrum Court Site	State of California Environmental Protection Agency Department of Toxic Substances Control Voluntary Cleanup Agreement Docket No. HSA-VCA 14/15-005	Voluntary Cleanup Agreement executed by the DTSC and Presidio Trust that provides DTSC oversight of the cleanup of the Lendrum Court site under CERCLA, July, 31, 2014.	Applicable	
Operations and Maintenance Agreement for the Presidio of San Francisco (O&M Agreement)	Operation and Maintenance Agreement Among the California Department of Toxic Substances Control, the Presidio Trust, and the U.S. Department of the Interior, National Park Service for the Presidio of San Francisco, Docket No. HSA-O&MEA 12/13-037 (12/3/2012)	The O&M Agreement establishes responsibilities and procedures among these parties for operation and maintenance of sites closed under CERCLA and RCRA, specifically governing sites closed with land use controls and regulatory reporting of newly discovered waste release sites or potential waste release sites. The Trust addresses releases of hazardous substances and hazardous waste at the Presidio under its hazardous substances and hazardous waste program overseen by the DTSC. The definition of hazardous substances governed under CERCLA excludes petroleum hydrocarbons, as specified in the NCP at 40 CFR, Part 300.5. Accordingly, the Trust addresses releases of petroleum hydrocarbons at the Presidio under its petroleum program overseen by the Water Board.	To be considered	A post-remediation Operations & Maintenance Plan is expected to be implemented at the Lendrum Court site following remedial construction,
Institutional controls on soil and groundwater	California Civil Code § 1471; Cal. Health & Safety Code § 25355.5(a)(1)(C); CCR tit. 22 § 67391.1(e)	Provides conditions under which land use restrictions will apply to successive owners of land. The substantive provision is the following general narrative standard: "to do or refrain from doing some act on his or her own land…where (c) each such act relates to the use of land and each such act is reasonably necessary to protect present or future human health or safety of the environment as a result of the presence of hazardous materials, as defined in § 25260 of the Cal. Health & Safety Code." This language provides authority for establishing a durable institutional control that will be implemented through incorporation of restrictive environmental covenants that run with the land in both the federal deed at the time of transfer of the property and in the Covenant to Restrict Use of Property with DTSC to be executed at the time of transfer. Whenever DTSC determines that it is not feasible to record a land use covenant for property owned by the federal government, such as transfers from one federal agency to another, DTSC and federal government shall use other mechanisms to ensure that future land use will be compatible with the levels of hazardous materials, hazardous wastes or constituents, or hazardous substances which remain on the property. Examples include: amendments to the federal government facility master plan, physical monuments, or agreements between the federal government facility and DTSC. The Presidio Trust's LUCMRR for Area B serves as the implementation and enforcement plan to meet the requirements of this Code. The LUCMRR describes the procedures used to implement LUCs at Area B sites at the Presidio.	Relevant and appropriate	LUCs are expected to be implemented following construction activities at Lendrum Court.
Basin Plan - Chapter 4: Effluent Limitations	Porter-Cologne Water Quality Control Act promulgated under California Water Code § 13240-13241, Basin Plan, pages 4-8 to 4-11	Limitations to construction-related storm water discharges are described in this provision.	To be considered	

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ARAR	Citation	Description	ARAR Determination [1]	Comments
Discharge of Treated Groundwater Table 4-1: Discharge Prohibitions	Porter-Cologne Water Quality Control Act promulgated under California Water Code § 13240-13241, Basin Plan, pp. 4-17 to 4-18; Table 4-1	Table 4-1 more broadly describes discharge prohibitions (e.g., with respect to toxic substances, solid wastes, silt, sediments, oil, and petroleum by-products). Page 4-17 of the Basin Plan refers to SWRCB Resolution No. 88-160, Disposal of Extracted Groundwater from Cleanup Projects, which urges dischargers of groundwater extracted from site clean-up projects to reclaim their effluent. It states that when reclamation is not feasible, discharges must be piped to a municipal treatment plant or discharged under a National Pollutant Discharge Elimination System (NPDES) permit authorizing the discharge from these sites.	To be considered	
Surface Water Protection	Porter-Cologne Water Quality Control Act promulgated under California Water Code, § 13240-13241, Basin Plan pp. 4-28, 4-32, 4-40 to 4-41	Surface Water Protection and Management through nonpoint source control is regulated by the Water Board. Under the Construction General Permit 99-08-DWQ, the Water Board requires a Notice of Intent (NOI) to be filed prior to construction, a Storm Water Pollution Prevent Plan (SWPPP) to be prepared and implemented, and a Notice of Termination to be filed upon construction completion for construction activities involving disturbance of one acre or greater total land. Permit conditions address pollutant and waste discharges occurring during construction activities and the discharge of pollutants in runoff after construction. The Erosion and Sediment Control program establishes guidelines for the regulation of erosion and sedimentation for the protection of beneficial uses of water due to the impairment by sediment.	To be considered	
Hazardous Waste Requirements - Generation, Transport, and Disposal Regulations	State of California citation: Cal. Health & Safety Code §§ 25100–25249, 25250–25250.26, 25260–25929; 22 CCR §§ 66260.1–68500.35. Federal citation: 42 USC §§ 6901–6991i; 40 CFR Parts 260–282. §§ 25100-25166.5, 25179.1–.12 (land disposal restrictions [LDRs]), 25244–25244.24 (waste reduction and recycling); 22 CCR §§ 66260.10–66262.41, 66264.1–.172, 66265.16–199; 66268.10–.44, .105–113 (LDRs + treatment standards); 49 CFR Parts 172, 173, 178, 179 (transportation) [incorporated by reference]	Pursuant to 42 USC § 7926, the State of California is authorized to implement the federal RCRA Program. Federal statutes may apply to areas not covered by the state program, or where incorporated by reference.	Relevant and appropriate	
Medical Waste Handling Requirements	Cal. Health and Safety Code 117600-118360; SF Municipal Health Code §§ 1501-1514	Medical waste is required to undergo certain treatment requirements prior to disposal so that it can be characterized as a "solid" waste. Without such treatment, land disposal of medical waste is not permitted.	Relevant and appropriate	Medical waste is not expected to be encountered at Lendrum Court.
Solid (Nonhazardous) Waste Requirements	Cal. Pub. Res. Code §40000-40201, 43000-44820; 27 CCR §§ 20005-20278	These requirements govern disposal of nonhazardous solid waste and closure and post closure of solid waste management units.	To be considered	
Clean Closure Requirements	27 CCR § 20380(d)(2); 27 CCR § 21090(f); CCR § 21410	For clean closure, all waste, waste residues, contaminated containment systems components, contaminated subsoil, and all other contaminated materials are removed or decontaminated at closure pursuant to the specific requirements for landfills, etc. Clean closure renders the landfill no longer a threat to water quality.	Relevant and appropriate	

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ARAR	Citation	Description	ARAR Determination [1]	Comments
Closure, Post-Closure Maintenance and Land Use Restrictions	Cal. Health and Safety Code §§ 25100-25124 (definitions), 25208-25208.17 (special rules for surface impoundments), 25209-25209.7 (land treatment units); 25245-25249 (financial responsibility and closure and maintenance of facilities), 25297.15, 25299.10-25299.99.3 (closure of/corrective action regarding USTs); 22 CCR §§ 66264.110-66264.120, 66265.110-66265.120; 67217 (post-closure care)	Provisions of the California Health and Safety Code and implementing regulations govern the method and timing of closure of certain types of locations with material above hazardous waste levels (e.g., landfills), and the required post-closure care of those facilities, including meeting associated financial requirements (H & S Code 25208-25208.17, 25245-25249 financial responsibility and closure and maintenance of facilities); 22 CCR 66264.110-66264.148, 66264.228 (surface impoundments); 22CCR 66264.258 (waste piles); H & S Code 25209-25209.7; 22CCR 66264.280 (land treatment units); 66264.310 (landfills); 66264.351 (incinerators).	To be considered	
Federal Clean Air Act (CAA), certain Bay Area Air Quality Management District (BAAQMD) Regulations	BAAQMD Regulations (see citations below)	Implementation of federal Clean Air Act requirements has been delegated, in part, to the State of California. The BAAQMD is the local implementing agency. Where BAAQMD requirements have been incorporated into the State Implementation Plan (SIP) and approved by EPA, they are federally-enforceable. Where BAAQMD requirements have not been incorporated into the SIP and approved by EPA, they are not federally enforceable.	Relevant and appropriate	
	Air Resources Board Executive Order G-02-026, Resolution 0128, Modification to Section 93105 of Title 17 of the CCR, Asbestos Air-borne Toxic Control Measures for Construction, Grading, Quarrying, and Surface Mining Operations	The Model Rule addresses potential asbestos releases that may occur during construction, grading, quarrying, and surface mining on areas that contain naturally occurring asbestos. Excavation in serpentine rock may result in the emission of naturally occurring asbestos. Such activities in areas larger than 1 acre will require a dust mitigation plan.	To be considered	Naturally-occurring asbestos is not expected to be encountered at Lendrum Court.
	BAAQMD Regulation 7; Regulation 8, Rule 40; and Regulation 9, Rule 2	These requirements regulate the emission of odorous substances, organic compounds, and hydrogen sulfide.	Relevant and appropriate	
	BAAQMD Regulation 8, Rule 15	BAAQMD Regulation 8, Rule 15 prohibits the use of certain types of liquid and emulsified asphalts (those that would emit large amounts of organic compounds). This rule was approved into the SIP on 22 March 1995, as amended by BAAQMD on 1 June 1994.	Relevant and appropriate	
California prohibitions on polluting waters of the State	Cal. Fish & Game Code § 5650	Cal. Fish & Game Code § 5650(a) prohibits depositing enumerated substances, including "any substance or material deleterious to fish, plant life, or bird life" into the waters of the state.	To be considered	
Underground Storage Tank (UST) Regulations	California Code of Regulations, Title 23, Chapter 16, Article 11	UST regulations protect waters of the state from discharges of hazardous substances from USTs.	Relevant and appropriate	No USTs are known to be present at Lendrum Court.

Appendix A
Applicable or Relevant and Appropriate Requirements (ARARs)
Lendrum Court – Five-Year Review
Presidio of San Francisco, California

ARAR	Citation	Description	ARAR Determination [1]	Comments
Site Cleanup Program (SCP) Recovery of Oversight Costs at the Presidio of San Francisco, San Francisco County, GeoTracker Global ID: SL0607548721	Porter-Cologne Water Quality Control Act promulgated under California Water Code Section 13304	In a May 20, 2014 letter to the Trust, the Water Board recognized the Trust's approved Petroleum Contingency Plan that established a process for reporting, investigating, and remediating previously unknown petroleum sites. Further, the Water Board letter stated that their oversight may be required in the event that previously unknown tanks or soil impacted with petroleum or related constituents are encountered as part of construction, maintenance, or other subsurface operations at the Presidio.	To be considered	While Water Board Order R2-2003-080 has been rescinded, the Petroleum Contingency Plan prepared in compliance with Task 16 remains in effect.
San Francisco Bay Water Board UST Program	California Health and Safety Code, Division 20, Chapters 6.7 and 6.75	The San Francisco Bay Water Board UST Program gives local agencies the authority to oversee investigation and cleanup of UST leak sites.	Relevant and appropriate	No USTs are known to be present at Lendrum Court.
City and County of San Francisco UST Regulations	San Francisco Health Code, Article 21	These regulations describe procedures that the San Francisco Department of Public Health requires UST owners and operators to follow in removing USTs.	To be considered	No USTs are known to be present at Lendrum Court.
City of San Francisco Noise Regulations	City of San Francisco Code, Article 29 § 2907 and 2908	These regulations describe provisions to regulate noise during operation of construction equipment and when performing construction work at night. Nighttime construction (between 8 p.m. to 7 a.m.) to erect, construct, demolish, excavate for, alter, or repair any building or structure if the noise level created thereby is in excess of the ambient noise level by 5 dBA requires a permit by the Director of Public Works.	To be considered	
San Francisco Public Utilities Commission, Permit No. 05-0246 Industrial User Class II Wastewater Permit, dated February 7, 2005	San Francisco Municipal Code: Public Works Code, Article 4.1	Permit No. 05-0246 from the San Francisco Public Utilities Commission authorizes the Trust to discharge wastewater into the City and County of San Francisco sewerage system, provided that such wastewater discharges are performed in accordance with the conditions set forth in this permit. Discharge to the sewer of groundwater from dewatering must meet these requirements.	To be considered	
Department of Fish and Game's Lake and Streambed Alteration Program	Cal. Fish & Game Code §§ 1600-1607	These regulations require a state or local agency who proposes a project that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any stream or use materials from a streambed to notify the Dept. of Fish & Game before beginning the project. If Dept. of Fish & Game determines that the proposed project may substantially adversely affect existing fish or wildlife resources, the project proponent would need to obtain a Lake or Streambed Alteration Agreement from the Dept. of Fish & Game and the proposed project, unless it is otherwise exempt, would have to be reviewed in accordance with the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.).	To be considered	

[1] Locations for remote staging areas will be identified prior to remedial activities. Remote staging areas will have similar action- and chemical-specific ARARs and TBCs as Lendrum Court. Location-specific ARARs and TBCs may be more or less stringent, depending on the location of the staging area.

APPENDIX B

Five-Year Review Site Inspection Report and Photo Log

Appendix B
Five-Year Review Site Inspection Checklist

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Five-Year Review Site Inspection Checklist

Purpose of the Checklist

The site inspection checklist provides a useful method for collecting important information during the site inspection portion of the five-year review. The checklist serves as a reminder of what information should to be gathered and provides the means of checking off information obtained and reviewed, or information not available or applicable. The checklist is divided into sections as follows:

I. Site Information
II. Interviews
III. On-site Documents & Records Verified
IV. O&M Costs
V. Access and Institutional Controls
VI. General Site Conditions
VII. Landfill Covers
VIII. Vertical Barrier Walls
IX. Groundwater/Surface Water Remedies
X. Other Remedies
XI. Overall Observations

Some data and information identified in the checklist may or may not be available at the site depending on how the site is managed. Sampling results, costs, and maintenance reports may be kept on site or may be kept in the offices of the contractor or at State offices. In cases where the information is not kept at the site, the item should not be checked as "not applicable," but rather it should be obtained from the office or agency where it is maintained. If this is known in advance, it may be possible to obtain the information before the site inspection.

This checklist was developed by EPA and the U.S. Army Corps of Engineers (USACE). It focuses on the two most common types of remedies that are subject to five-year reviews: landfill covers, and groundwater pump and treat remedies. Sections of the checklist are also provided for some other remedies. The sections on general site conditions would be applicable to a wider variety of remedies. The checklist should be modified to suit your needs when inspecting other types of remedies, as appropriate.

The checklist may be completed and attached to the Five-Year Review report to document site status. Please note that the checklist is not meant to be completely definitive or restrictive; additional information may be supplemented if the reviewer deems necessary. Also note that actual site conditions should be documented with photographs whenever possible.

Using the Checklist for Types of Remedies

The checklist has sections designed to capture information concerning the main types of remedies which are found at sites requiring five-year reviews. These remedies are landfill covers (Section VII of the checklist) and groundwater and surface water remedies (Section IX of the checklist). The primary elements and appurtenances for these remedies are listed in sections which can be checked off as the facility is inspected. The opportunity is also provided to note site conditions, write comments on the facilities, and attach any additional pertinent information. If a site includes remedies beyond these, such as soil vapor extraction or soil landfarming, the information should be gathered in a similar manner and attached to the checklist.

Considering Operation and Maintenance Costs

Unexpectedly widely varying or unexpectedly high O&M costs may be early indicators of remedy problems. For this reason, it is important to obtain a record of the original O&M cost estimate and of annual O&M costs during the years for which costs incurred are available. Section IV of the checklist provides a place for documenting annual costs and for commenting on unanticipated or unusually high O&M costs. A more detailed categorization of costs may be attached to the checklist if available. Examples of categories of O&M costs are listed below.

Operating Labor - This includes all wages, salaries, training, overhead, and fringe benefits associated with the labor needed for operation of the facilities and equipment associated with the remedial actions.

Maintenance Equipment and Materials - This includes the costs for equipment, parts, and other materials required to perform routine maintenance of facilities and equipment associated with a remedial action.

Maintenance Labor - This includes the costs for labor required to perform routine maintenance of facilities and for equipment associated with a remedial action.

Auxiliary Materials and Energy - This includes items such as chemicals and utilities which can include electricity, telephone, natural gas, water, and fuel. Auxiliary materials include other expendable materials such as chemicals used during plant operations.

Purchased Services - This includes items such as sampling costs, laboratory fees, and other professional services for which the need can be predicted.

Administrative Costs - This includes all costs associated with administration of O&M not included under other categories, such as labor overhead.

Insurance, Taxes and Licenses - This includes items such as liability and sudden and accidental insurance, real estate taxes on purchased land or right-of-way, licensing fees for certain technologies, and permit renewal and reporting costs.

Other Costs - This includes all other items which do not fit into any of the above categories.

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Please note that "O&M" is referred to throughout this checklist. At sites where Long-Term Response Actions are in progress, O&M activities may be referred to as "system operations" since these sites are not considered to be in the O&M phase while being remediated under the Superfund program.

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Lendrum Court	**Date of inspection**: 6/23/2022
Location and Region: Presidio of SF, California	**Envirostor ID:**60001846
Agency, office, or company leading the five-year review: TRC Companies	**Weather/temperature:** Partially cloudy, very dry ground, ~65°F

Remedy Includes: (Check all that apply)

- ☒ Landfill cover/containment
- ☒ Access controls
- ☐ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Other_____
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☒ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Justin Hanzel-Durbin (Name) | Sr. Engineer (Title) | 7/1/2022 (Date)
   Interviewed ☐ at site ☐ at office ☒ by phone Phone no. (415) 209-3326
   Problems, suggestions; ☐ Report attached _____

2. **O&M staff** _____ (Name) | _____ (Title) | _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

4. **Other interviews** (optional) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - ☒ O&M manual — ☒ Readily available — ☒ Up to date — ☐ N/A
   - ☒ As-built drawings — ☒ Readily available — ☒ Up to date — ☐ N/A
   - ☒ Maintenance logs — ☒ Readily available — ☒ Up to date — ☐ N/A

   Remarks_____

2. **Site-Specific Health and Safety Plan** — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Contingency plan/emergency response plan — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks_____

3. **O&M and OSHA Training Records** — ☒ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

4. **Permits and Service Agreements**
   - ☐ Air discharge permit — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Effluent discharge — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Waste disposal, POTW — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Other permits_____ — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks_____

5. **Gas Generation Records** — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks_____

6. **Settlement Monument Records** — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks_____

7. **Groundwater Monitoring Records** — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks_____

8. **Leachate Extraction Records** — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks_____

9. **Discharge Compliance Records**
   - ☐ Air — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Water (effluent) — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks_____

10. **Daily Access/Security Logs** — ☐ Readily available — ☐ Up to date — ☒ N/A

    Remarks_____

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☐ PRP in-house ☒ Contractor for PRP
☐ Federal Facility in-house ☐ Contractor for Federal Facility
☐ Other_____

2. **O&M Cost Records**

☐ Readily available ☒ Up to date
☒ Funding mechanism/agreement in place
Original O&M cost estimate_____ ☐ Breakdown attached

Total annual cost by year for review period if available

From__July 2017_ To__December 2017_____$1,159.57_____ ☐ Breakdown attached
Date Date Total cost
From__January 2018_ To__December 2018_____$9,064.18_____ ☐ Breakdown attached
Date Date Total cost
From__ January 2019_ To__December 2019_____$14,151.85_____ ☐ Breakdown attached
Date Date Total cost
From__ January 2020_ To__December 2020_____$17,681.55_____ ☐ Breakdown attached
Date Date Total cost
From__ January 2021_ To__December 2021_____$23,249.29_____ ☐ Breakdown attached
Date Date Total cost
From__ January 2022_ To__June 2022_____$24,454.52_____ ☐ Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: __None_____

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☒ Location shown on site map ☐ Gates secured ☐ N/A

Remarks___Fence damaged around LUC Area B (Historic Forest) by a fallen tree._____

B. Other Access Restrictions

1. **Signs and other security measures** ☒ Location shown on site map ☐ N/A

Remarks___ Missing signage around LUC Area B (Historic Forest): The post and cable fence is functioning as intended and new signage has been ordered. Trust to provide an update to the DTSC once it has been installed.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by): Site-walk inspection
Frequency: Quarterly
Responsible party/agency: Trust/ Trust Contractor
Contact: Daniel Parsons (Name) Project Engineer (Title) 9/1/2022 (Date) (757)288-4561 (Phone no.)

Reporting is up-to-date ☒ Yes ☐ No ☐ N/A
Reports are verified by the lead agency ☒ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ☒ Yes ☐ No ☐ N/A
Violations have been reported ☐ Yes ☒ No ☐ N/A
Other problems or suggestions: ☐ Report attached

2. **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☒ No vandalism evident
Remarks

2. **Land use changes on site** ☒ N/A
Remarks

3. **Land use changes off site** ☒ N/A
Remarks

VI. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map ☐ Roads adequate ☐ N/A
Remarks: Minor cracks in asphalt observed. No cracks have resulted in cap deficiency.

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

VII. LANDFILL COVERS ☒ Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☒ Settlement not evident
Areal extent_____ Depth_____
Remarks_____
_____

2. **Cracks** ☐ Location shown on site map ☒ Cracking not evident
Lengths_1in – 6in_____ Widths_<0.5in_____ Depths_____
Remarks: Minor cracking in hardscape was observed throughout the Site but none has resulted in a deficiency of the Cap._____

3. **Erosion** ☒ Location shown on site map ☐ Erosion not evident
Areal extent: South of box steps_____ Depth__8in_____
Remarks: Erosion observed along the southern edge of the box steps to the east of Building 1257. Area has been secured with gravel bags._____

4. **Holes** ☒ Location shown on site map ☐ Holes not evident
Areal extent: East of Building 1258, North of Building 1278_____ Depth:__6 in_____
Remarks: Holes related to burrowing activity observed east of Building 1258 and north of Building 1278. No soil debris observed in these areas. Holes do not appear to penetrate through clean soil cap.
_____

5. **Vegetative Cover** ☒ Grass ☐ Cover properly established ☐ No signs of stress
☒ Trees/Shrubs
Remarks: Vegetative cover appears generally well established across the Site. Small areas of bare earth are present to the east of Building 1258 and north of Building 1278 (shown on figure).
_____

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
Remarks: Concrete and hardscape appear to be acting appropriately as a protective cap.
_____

7. **Bulges** ☐ Location shown on site map ☒ Bulges not evident
Areal extent_____ Height_____
Remarks_____
_____

8. **Wet Areas/Water Damage** ☒ Wet areas/water damage not evident
☐ Wet areas ☐ Location shown on site map Areal extent_____
☐ Ponding ☐ Location shown on site map Areal extent_____
☐ Seeps ☐ Location shown on site map Areal extent_____
☐ Soft subgrade ☐ Location shown on site map Areal extent_____
Remarks_____
_____

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ☒ No evidence of slope instability
Areal extent_____
Remarks_____
_____

B. Benches ☐ Applicable ☒ N/A
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay
Remarks_____
_____

2. **Bench Breached** ☐ Location shown on site map ☐ N/A or okay
Remarks_____
_____

3. **Bench Overtopped** ☐ Location shown on site map ☐ N/A or okay
Remarks_____
_____

C. Letdown Channels ☐ Applicable ☒ N/A
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** ☐ Location shown on site map ☐ No evidence of settlement
Areal extent_____ Depth_____
Remarks_____
_____

2. **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
Material type_____ Areal extent_____
Remarks_____
_____

3. **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
Areal extent_____ Depth_____
Remarks_____
_____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____
_____

5. **Obstructions** Type_____ ☐ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____
_____

6. **Excessive Vegetative Growth** Type_____
☐ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____
_____

D. Cover Penetrations ☐ Applicable ☒ N/A

1. **Gas Vents** ☐ Active☐ Passive
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance
☐ N/A
Remarks_____
_____

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks_____
_____

E. Gas Collection and Treatment ☐ Applicable ☒ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____
   _____

2. **Gas Collection Wells, Manifolds and Piping**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____
   _____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks_____
   _____

F. Cover Drainage Layer ☐ Applicable ☒ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks_____
   _____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks_____
   _____

G. Detention/Sedimentation Ponds ☐ Applicable ☒ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
   ☐ Siltation not evident
   Remarks_____
   _____

2. **Erosion** Areal extent_____ Depth_____
   ☐ Erosion not evident
   Remarks_____
   _____

3. **Outlet Works** ☐ Functioning ☐ N/A
   Remarks_____
   _____

4. **Dam** ☐ Functioning ☐ N/A
   Remarks_____
   _____

H. Retaining Walls ☐ Applicable ☒ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____
   _____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____
   _____

I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☒ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
   ☐ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____
   _____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

4. **Discharge Structure** ☐ Functioning ☐ N/A
   Remarks_____
   _____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

2. **Performance Monitoring** Type of monitoring_____
   ☐ Performance not monitored
   Frequency_____☐ Evidence of breaching
   Head differential_____
   Remarks_____
   _____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ☒ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   ☐ Good condition☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A
   Remarks_____
   _____
   _____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition☐ Needs Maintenance
   Remarks_____
   _____

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition☐ Requires upgrade ☐ Needs to be provided
   Remarks_____
   _____

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☐ N/A

1. **Collection Structures, Pumps, and Electrical**
   ☐ Good condition☐ Needs Maintenance
   Remarks_____
   _____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition☐ Needs Maintenance
   Remarks_____
   _____

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition☐ Requires upgrade ☐ Needs to be provided
   Remarks_____
   _____

C. Treatment System ☐ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   ☐ Air stripping ☐ Carbon adsorbers
   ☐ Filters_____
   ☐ Additive (*e.g.*, chelation agent, flocculent)_____
   ☐ Others_____
   ☐ Good condition ☐ Needs Maintenance
   ☐ Sampling ports properly marked and functional
   ☐ Sampling/maintenance log displayed and up to date
   ☐ Equipment properly identified
   ☐ Quantity of groundwater treated annually_____
   ☐ Quantity of surface water treated annually_____
   Remarks_____
   _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☐ N/A ☐ Good condition☐ Needs Maintenance
   Remarks_____
   _____

3. **Tanks, Vaults, Storage Vessels**
   ☐ N/A ☐ Good condition☐ Proper secondary containment ☐ Needs Maintenance
   Remarks_____
   _____

4. **Discharge Structure and Appurtenances**
   ☐ N/A ☐ Good condition☐ Needs Maintenance
   Remarks_____
   _____

5. **Treatment Building(s)**
   ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
   ☐ Chemicals and equipment properly stored
   Remarks_____
   _____

6. **Monitoring Wells** (pump and treatment remedy)
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☐ N/A
   Remarks_____
   _____

D. Monitoring Data

1. Monitoring Data
   ☐ Is routinely submitted on time ☐ Is of acceptable quality

2. Monitoring data suggests:
   ☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks_____
_____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The goal of the remedy at Lendrum Court was to use vegetative and hardscape cover (caps) to create a barrier between debris in the soil and the ground surface to eliminate potential hazards to human health or the environment. Land use controls were also implemented to maintain the barrier between contaminated subsurface soil and the ground surface. The caps appear to be in good condition and are effectively preventing contact between underlying contaminated soil and humans, runoff water, etc. Minor ongoing maintenance of the cap has been needed, but overall the implementation of the remedy is successful.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

As of 2022, O&M procedures consist of quarterly cap inspections, combined with erosion control inspections during qualifying rain events when possible. Maintenance of the cap and erosion controls is conducted on an as-needed basis. Together these procedures result in an effective evaluation of remedy protectiveness. TRC recommends shifting the frequency of these inspections from quarterly to semiannually.

C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. Areas of bare earth were observed in some areas where vegetation should be acting as a protective cap. These areas should be monitored and re-planted if needed. Gopher/burrowing activity was observed in the areas of bare earth, although no debris was observed. These areas should continue to be monitored and addressed as needed. Erosion was observed along the box steps at the Site. These areas will need additional erosion controls to prevent further erosion that would jeopardize the integrity of the clean soil cap. There is no indication that the integrity of the cap has been affected at this time.

D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. Opportunity exists to optimize monitoring inspections by combining quarterly O&M and erosion control inspections when appropriate after qualifying storm events and before the quarterly O&M inspection has occurred.

Site Inspection Log
Lendrum Court Operations & Maintenance Plan
Presidio of San Francisco, California

Date: June 23, 2022 Weather: Partially cloudy, very dry ground, ~65°F

Inspector: Daniel Parsons Signature: Daniel Parsons

Inspection Type: Quarterly O&M Inspection for the second quarter of 2022

Instructions for Completing Site Inspection Log: Features listed in the inspection log at the Lendrum Court Site will be visually inspected for any deficiencies. Integrity of site features will be detailed in the Site Inspection Log. A photographic log of site features will be included as an attachment to the Site Inspection Log. A figure markup will be included as an attachment to the Site Inspection Log if any deficiencies are identified. Features locations and details are detailed on Figures C-114 and C-115 in Appendix D of the Construction Completion Report.

Due to the inaccessible nature of the incinerator area, this area will be inspected remotely every month by the Presidio Trust and on site quarterly inspections will be performed by the area user/operator (currently Caltrans).

Inspectors will be experienced in reviewing and inspecting caps, which include staff level geologists, engineers, or scientists working under the direction of a California licensed Professional Geologist or Engineer with experience in reviewing and inspecting caps.

Clean Soil Cap

- Landscaped Cap North/Northeast of Buildings 1257/1258
- Landscaped Cap South/West of Buildings 1259/1278/1279
- Historic Forest Cap North/East of Building 1259/1278/1279

General Soil Cover Condition (cracking, erosion, slope movement, etc.):

General soil cover across the Site is in good condition without visible cracking, erosion, or slope movement.

Surface Water Ponding:

No surface water ponding is observed.

Burrowing Animals:

There are signs of burrowing activity to the east of Building 1258 and to the north of Building 1278, between Buildings 1278 and 1279. There was no glass or debris visible, and the cap does not appear to have been compromised at this time. No other burrowing activity was observed at the Site.

Recommended Actions/Maintenance:

TRC recommends soil backfill and compaction of areas with observed burrowing activity to the east of Building 1258 and north of Building 1278. TRC does not have any additional recommended actions.

Hardscape Elements

- ✓ Concrete patios, sidewalks, and stairs
- ✓ Asphalt paths
- ✓ Aggregate base paths/caps
- ✓ Existing paved roadways/parking areas

General Hardscape Condition (cracking, erosion, etc.):

Minor cracking is observed in the concrete sidewalk throughout the Site. None of these cracks result in hardscape cap deficiencies.

Surface Water Ponding:

No surface water ponding is observed.

Erosion around Hardscape Edges:

The placement of temporary erosion controls (gravel bags) along the south edge of the box steps directly east of Buildings 1257 and 1258 continues to minimize additional erosion in the area. No other erosion around hardscape elements is observed.

Eroded Hardscape Elements:

No eroded hardscape elements are observed.

Recommended Actions/Maintenance:

TRC recommends that the area along the edge of the box steps with previously observed erosion be backfilled and hand compacted with clean soil to prevent additional erosion and cap deficiencies prior to the start of the next rainy season. TRC recommends the continued maintenance of temporary erosion controls (gravel bags) along the edge of the box steps to prevent erosion until the area can be backfilled and compacted. TRC does not have any additional recommendations.

Temporary Erosion Control Measures

Erosion Control Blankets:

Erosion control blankets throughout the Site remain secure and in good working condition. No additional blankets are necessary for erosion control at this time.

Fiber Rolls/Straw Wattles:

Straw wattles throughout the Site are in good working condition. No additional wattles are necessary for erosion control at this time.

Exposed Areas Potentially Requiring BMPs:

No exposed areas requiring BMPs are observed.

Recommended Actions/Maintenance:

TRC does not have any recommended actions.

Tree and Plant Health

- ✓ Landscaped areas around Lendrum Court
- ✓ Vegetated LUC Area
- ✓ Historic Forest behind Buildings 1279/1278/1259

Distressed Vegetation:

Seasonally distressed vegetation is present throughout the Site. There are no signs of abnormally distressed vegetation at the Site.

Areas of Slower/Struggling Growth:

No signs of struggling vegetation growth were observed.

Patches of Exposed Earth:

Vegetation was planted in the previously noted areas of bare exposed earth to the east/northeast of Buildings 1257 and 1258 and in the former planter box areas to the east of Building 1257. Exposed bare earth was observed to the east of Building 1258 and between Buildings 1278 and 1279.

Irrigation System:

No irrigation deficiencies observed.

Recommended Actions/Maintenance:

TRC recommends the planting of vegetation in areas of bare earth to the east of Building 1258 and between Buildings 1278 and 1279.

Incinerator Area
General Soil Cover Condition: Soil cover is in good condition within the Incinerator Area.
Site Accessibility/Signs of Trespassing: There are no signs of trespassing observed within the Incinerator Area.
Tree and Plant Health: Plant health within the Incinerator Area appears to be in good condition.
Overall Observations/Recommendations
General soil condition and vegetation throughout the cap and incinerator area are well maintained with no sign of deficiencies. TRC observed all soil and hardscape caps working effectively without deficiencies. Erosion control blankets and straw wattles across the Site are in good working conditions. An unprotected area of bare earth was observed to the east of Building 1258 and between Buildings 1278 and 1279. TRC recommends additional planting in bare areas to re-establish vegetation within the clean soil cap. A tree was observed in LUC Area B that had fallen onto the surrounding post and cable fence. No other overturned tree plantings were observed. Previously placed gravel bags along the box steps east of building 1258 are still successful in preventing further erosion in the area. TRC recommends this area be backfilled and hand compacted with clean soil to permanently secure the slope and to maintain cap integrity. No signage was added to LUC Area B around the cable fence. Please add the appropriate signage to this area.

Lendrum Court Five-Year Review Site Inspection

Lendrum Court, The Presidio of San Francisco, Photograph Log

Photo 1: **6/23/2022 –** View of intact hardscape and drainage from southwest corner of Building 1279.

Photo 2: **6/23/2022** – View of healthy vegetated cap to the northeast of Building 1279.

Photo 3: **6/23/2022** – View of vegetated cap between buildings 1278 and 1279. Evidence of burrowing activity is present in the foreground.

Photo 4: **6/23/2022** – Area of bare exposed earth where burrowing activity is present in the area between Buildings 1278 and 1279.

Photo 5: **6/23/2022** – View of the vegetated cap to the east of Building 1278.

Photo 6: **6/23/2022** – View of the healthy vegetated cap along the slope to the east of Building 1278.

TRC Job No.	Photographs Taken By:	Page No.	Client:	Site Name & Address:	
229649	Daniel Parsons	1 of 4	Presidio Trust	Lendrum Court, The Presidio San Francisco, California	TRC

Lendrum Court Five-Year Review Site Inspection

Lendrum Court, The Presidio of San Francisco, Photograph Log

Photo 7: **6/23/2022** – View of erosion protection between Buildings 1278 and 1259. Intact hardscape and drainage shown from the southeast corner of building 1278.

Photo 8: **6/23/2022 –** View of the vegetated slope and healthy vegetated cap to the east of Building 1259.

Photo 9: **6/23/2022 –** View of intact hardscape and vegetated slope to the south of Building 1259.

Photo 10: **6/23/2022 –** View of healthy vegetated cap to the west of Building 1278.

Photo 11: **6/23/2022** – View of intact concrete patio and soil cap to the west of Building 1278.

Photo 12: **6/23/2022 –** Hardscape and vegetated cap west of Buildings 1279 and 1278.

TRC Job No.	Photographs Taken By:	Page No.	Client:	Site Name & Address:	
229649	Daniel Parsons	2 of 4	Presidio Trust	Lendrum Court, The Presidio San Francisco, California	TRC

Lendrum Court Five-Year Review Site Inspection
Lendrum Court, The Presidio of San Francisco, Photograph Log

Photo 13: **6/23/2022** – View of intact hardscape and healthy vegetated cap to the west of Building 1279.

Photo 14: **6/23/2022** – View of the vegetated cap to the west of Building 1279.

Photo 15: **6/23/2022** – View of healthy vegetated cap to the northwest of Building 1257.

Photo 16: **6/23/2022** – View of undisturbed forest area in LUC Area B and the surrounding fence. A tree has fallen down on a portion of the fence.

Photo 17: **6/23/2022** – View of gravel path and healthy vegetated cap to the northwest of Building 1257

Photo 18: **6/23/2022** – View of vegetated slope, erosion blanket, and former planter box area to the northeast of Building 1257.

TRC Job No.	Photographs Taken By:	Page No.	Client:	Site Name & Address:	
229649	Daniel Parsons	3 of 4	Presidio Trust	Lendrum Court, The Presidio San Francisco, California	TRC

Lendrum Court Five-Year Review Site Inspection
Lendrum Court, The Presidio of San Francisco, Photograph Log

Photo 19: **6/23/2022** – View of healthy vegetated cap slope and east of Building 1258.

Photo 20: **6/23/2022** – Evidence of burrowing activity within the vegetated cap east of Building 1258.

Photo 21: **6/23/2022** – View of vegetative cap and box steps to the east of Building 1258. Gravel bags remain in place as an erosion control measure along the box steps.

Photo 22: **6/23/2022** – View of intact hardscape and healthy vegetated cap to the west of Building 1257.

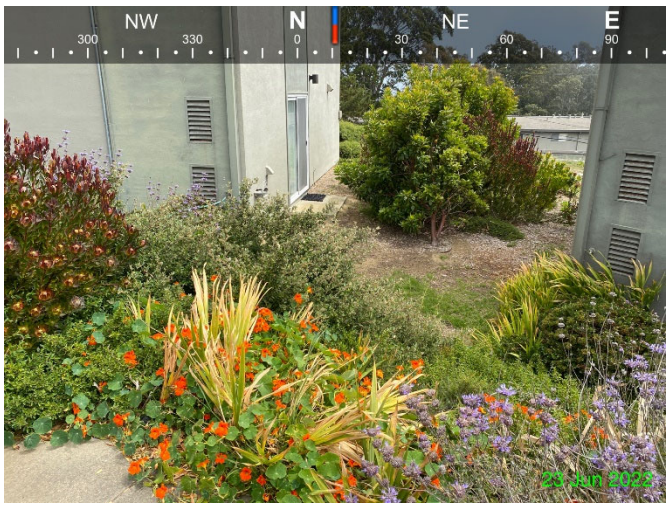

Photo 23: **6/23/2022** – View of healthy and intact vegetative cap between Buildings 1257 and 1258.

Photo 24: **6/23/2022** – View of the incinerator area with healthy vegetation and no signs of trespassing.

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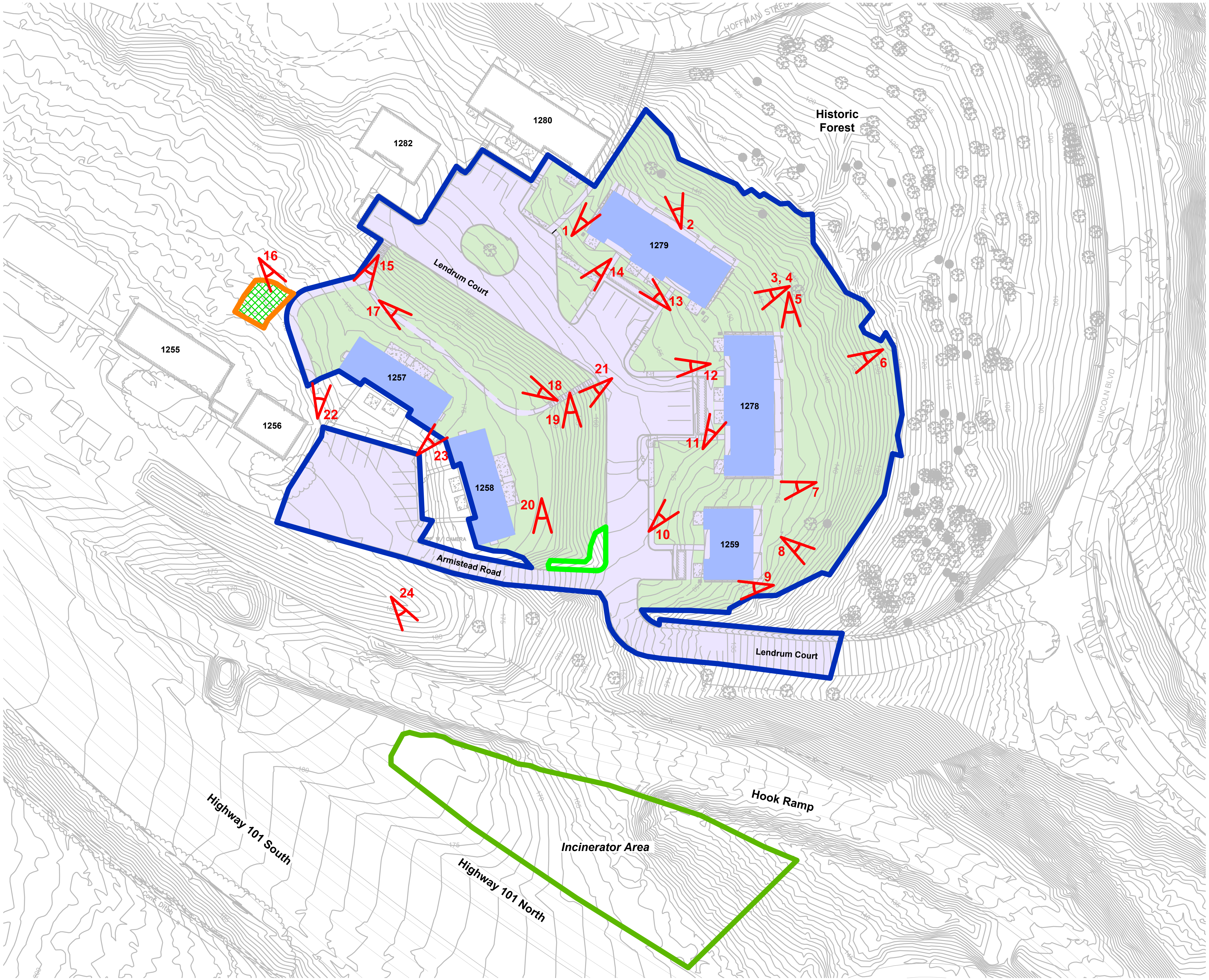
TRC Job No.	Photographs Taken By:	Page No.	Client:	Site Name & Address:	
229649	Daniel Parsons	4 of 4	Presidio Trust	Lendrum Court, The Presidio San Francisco, California	TRC



LEGEND

- LENDRUM COURT CAP AREA (LUC AREA A)
- LENDRUM COURT FOREST AREA (LUC AREA B)
- INCINERATOR AREA (LUC AREA C) LIMIT OF CAP
- NON-LUC AREA
- 140 — SURFACE CONTOURS (OUTSIDE PROJECT AREA)
- 140 — FINAL SURFACE CONTOURS
- APPROXIMATE LIMITS OF VEGETATED CAP
- APPROXIMATE AREAS OF BUILDING THAT SERVE AS CAP
- AREAS OF ASPHALT, PAVEMENT AND HARDSCAPE THAT SERVE AS CAP
- VEGETATED LUC (NORTH 1255/1256 FOREST AREA)
- 1 — PHOTO LOCATIONS AND VIEW DIRECTION

NOTES

1. LUC - LAND USE CONTROL

0 70 140

SCALE IN FEET

SOURCE: Base map by Towill, Oct.- Nov. 2015, Apr. 2016, May 2017, and Jan. 2018

PROJECT:

THE PRESIDIO TRUST
LENDRUM COURT AREA
SAN FRANCISCO, CALIFORNIA

TITLE:

FIVE-YEAR REVIEW
PHOTO LOCATIONS

DRAWN BY:	D. PARSONS	PROJ NO.:	229649.00005A.00000D
CHECKED BY:	J. HANZEL-DURBIN		**APPENDIX B**
APPROVED BY:	J. HANZEL-DURBIN		
DATE:	JUNE 2022		

TRC

505 Sansome Street
Suite 1600
San Francisco, CA 94111
Phone: 415.434.2600

FILE NO.: AppB_FYR Photo Locations.dwg

DRAWING NAME: \\employees.root.local\PW\EFFS\FS1\SANFRAN\PROJECTS\CAD\Lendrum Court_San Francisco\Five Year Review\ AppB_FYR Photo Locations.dwg --- PLOT DATE: August 09, 2022 - 4:23PM --- LAYOUT: 11X17L

Version: 2017-10-21

APPENDIX C

National Oceanic and Atmospheric Administration (NOAA) - Point Precipitation Frequency Estimates

NOAA Atlas 14, Volume 6, Version 2
Location name: San Francisco, California, USA*
Latitude: 37.8048°, Longitude: -122.4711°
Elevation: 155 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.143** (0.128-0.162)	**0.177** (0.157-0.201)	**0.222** (0.197-0.253)	**0.261** (0.229-0.300)	**0.316** (0.266-0.379)	**0.360** (0.296-0.442)	**0.406** (0.324-0.514)	**0.455** (0.351-0.596)	**0.525** (0.385-0.723)	**0.581** (0.409-0.834)
10-min	**0.205** (0.183-0.233)	**0.253** (0.225-0.288)	**0.319** (0.283-0.363)	**0.374** (0.329-0.430)	**0.453** (0.382-0.543)	**0.516** (0.424-0.634)	**0.582** (0.464-0.737)	**0.653** (0.503-0.855)	**0.753** (0.552-1.04)	**0.833** (0.587-1.20)
15-min	**0.248** (0.221-0.281)	**0.306** (0.273-0.348)	**0.386** (0.342-0.439)	**0.453** (0.398-0.521)	**0.548** (0.462-0.656)	**0.624** (0.513-0.767)	**0.704** (0.562-0.891)	**0.789** (0.609-1.03)	**0.910** (0.668-1.25)	**1.01** (0.709-1.44)
30-min	**0.343** (0.306-0.389)	**0.423** (0.377-0.480)	**0.533** (0.472-0.606)	**0.625** (0.549-0.719)	**0.756** (0.638-0.906)	**0.861** (0.708-1.06)	**0.972** (0.775-1.23)	**1.09** (0.841-1.43)	**1.26** (0.922-1.73)	**1.39** (0.980-2.00)
60-min	**0.485** (0.432-0.549)	**0.598** (0.532-0.678)	**0.752** (0.667-0.856)	**0.883** (0.775-1.02)	**1.07** (0.901-1.28)	**1.22** (1.00-1.50)	**1.37** (1.10-1.74)	**1.54** (1.19-2.02)	**1.78** (1.30-2.44)	**1.96** (1.38-2.82)
2-hr	**0.696** (0.620-0.789)	**0.852** (0.758-0.967)	**1.07** (0.945-1.21)	**1.25** (1.10-1.43)	**1.50** (1.27-1.80)	**1.71** (1.41-2.10)	**1.93** (1.54-2.44)	**2.16** (1.67-2.83)	**2.49** (1.83-3.43)	**2.76** (1.94-3.95)
3-hr	**0.871** (0.776-0.987)	**1.06** (0.947-1.21)	**1.33** (1.18-1.51)	**1.56** (1.36-1.79)	**1.88** (1.58-2.25)	**2.13** (1.75-2.62)	**2.40** (1.92-3.04)	**2.70** (2.08-3.53)	**3.11** (2.28-4.28)	**3.44** (2.42-4.93)
6-hr	**1.21** (1.08-1.37)	**1.48** (1.32-1.68)	**1.86** (1.64-2.11)	**2.17** (1.91-2.50)	**2.62** (2.21-3.14)	**2.98** (2.45-3.67)	**3.37** (2.69-4.26)	**3.78** (2.91-4.95)	**4.36** (3.20-6.00)	**4.83** (3.40-6.93)
12-hr	**1.59** (1.41-1.80)	**1.97** (1.76-2.24)	**2.51** (2.22-2.85)	**2.96** (2.60-3.40)	**3.60** (3.04-4.32)	**4.12** (3.39-5.06)	**4.67** (3.72-5.91)	**5.25** (4.05-6.88)	**6.08** (4.46-8.37)	**6.76** (4.76-9.69)
24-hr	**2.07** (1.86-2.34)	**2.61** (2.35-2.96)	**3.35** (3.01-3.81)	**3.98** (3.55-4.56)	**4.88** (4.22-5.76)	**5.60** (4.75-6.75)	**6.37** (5.28-7.84)	**7.19** (5.81-9.09)	**8.36** (6.50-11.0)	**9.31** (7.01-12.6)
2-day	**2.62** (2.36-2.97)	**3.29** (2.96-3.73)	**4.20** (3.77-4.78)	**4.98** (4.44-5.70)	**6.07** (5.25-7.17)	**6.95** (5.89-8.37)	**7.88** (6.53-9.70)	**8.87** (7.17-11.2)	**10.3** (7.99-13.5)	**11.4** (8.60-15.5)
3-day	**3.02** (2.72-3.42)	**3.76** (3.39-4.27)	**4.78** (4.29-5.44)	**5.64** (5.03-6.46)	**6.86** (5.93-8.10)	**7.83** (6.64-9.42)	**8.85** (7.34-10.9)	**9.94** (8.03-12.6)	**11.5** (8.92-15.1)	**12.7** (9.58-17.2)
4-day	**3.36** (3.03-3.81)	**4.19** (3.77-4.75)	**5.31** (4.77-6.04)	**6.26** (5.58-7.17)	**7.58** (6.56-8.96)	**8.64** (7.33-10.4)	**9.75** (8.08-12.0)	**10.9** (8.83-13.8)	**12.6** (9.78-16.5)	**13.9** (10.5-18.9)

7-day	**4.17** (3.76-4.72)	**5.21** (4.69-5.91)	**6.61** (5.93-7.51)	**7.76** (6.92-8.89)	**9.37** (8.10-11.1)	**10.6** (9.01-12.8)	**11.9** (9.88-14.7)	**13.3** (10.7-16.8)	**15.2** (11.8-19.9)	**16.7** (12.6-22.6)
10-day	**4.77** (4.30-5.41)	**6.00** (5.40-6.80)	**7.60** (6.83-8.64)	**8.92** (7.95-10.2)	**10.7** (9.27-12.7)	**12.1** (10.3-14.6)	**13.5** (11.2-16.7)	**15.0** (12.1-19.0)	**17.0** (13.2-22.4)	**18.6** (14.0-25.2)
20-day	**6.25** (5.63-7.08)	**7.93** (7.14-8.99)	**10.1** (9.05-11.5)	**11.8** (10.5-13.5)	**14.1** (12.2-16.6)	**15.8** (13.4-19.0)	**17.4** (14.5-21.5)	**19.1** (15.5-24.2)	**21.4** (16.6-28.1)	**23.1** (17.4-31.3)
30-day	**7.60** (6.85-8.60)	**9.69** (8.72-11.0)	**12.3** (11.1-14.0)	**14.4** (12.8-16.4)	**17.0** (14.7-20.1)	**19.0** (16.1-22.8)	**20.9** (17.3-25.7)	**22.8** (18.4-28.7)	**25.2** (19.6-33.1)	**27.0** (20.3-36.6)
45-day	**9.36** (8.43-10.6)	**12.0** (10.8-13.6)	**15.1** (13.6-17.2)	**17.6** (15.7-20.1)	**20.7** (17.9-24.4)	**22.9** (19.4-27.6)	**25.0** (20.8-30.8)	**27.1** (21.9-34.2)	**29.7** (23.1-39.0)	**31.6** (23.8-42.9)
60-day	**11.3** (10.1-12.7)	**14.4** (12.9-16.3)	**18.1** (16.3-20.6)	**20.9** (18.7-24.0)	**24.5** (21.2-28.9)	**27.0** (22.9-32.5)	**29.4** (24.4-36.2)	**31.7** (25.6-40.0)	**34.5** (26.8-45.3)	**36.5** (27.5-49.5)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

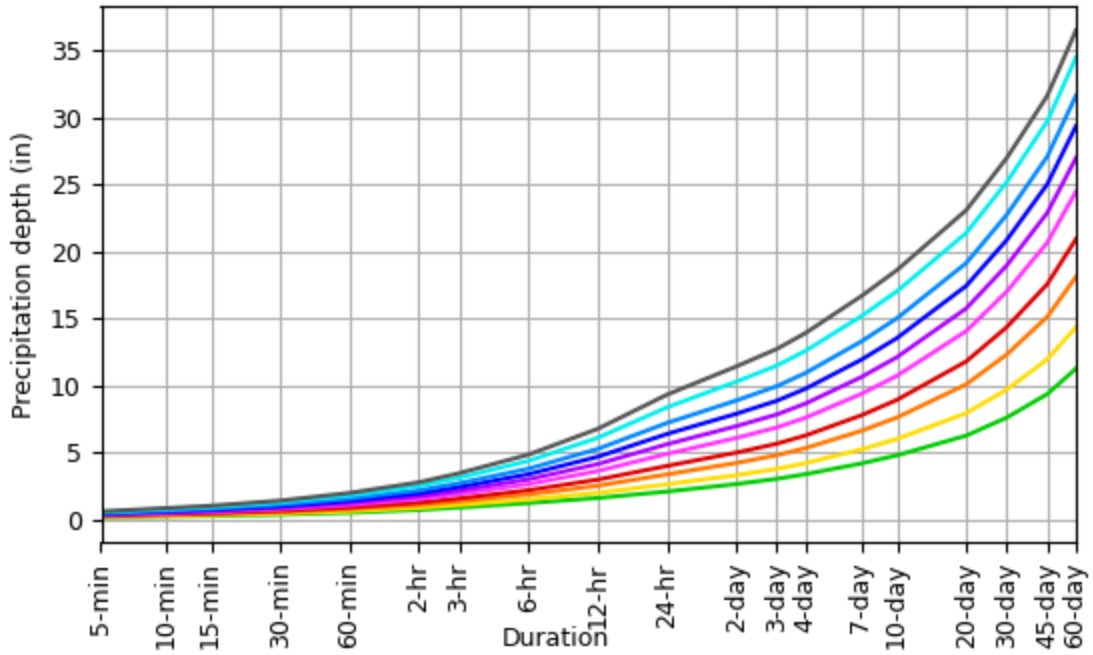
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

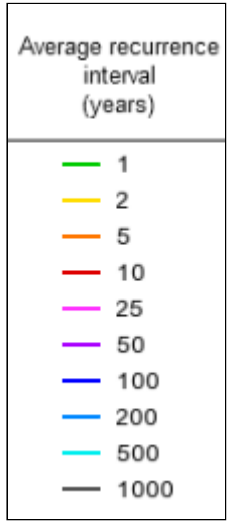
Please refer to NOAA Atlas 14 document for more information.

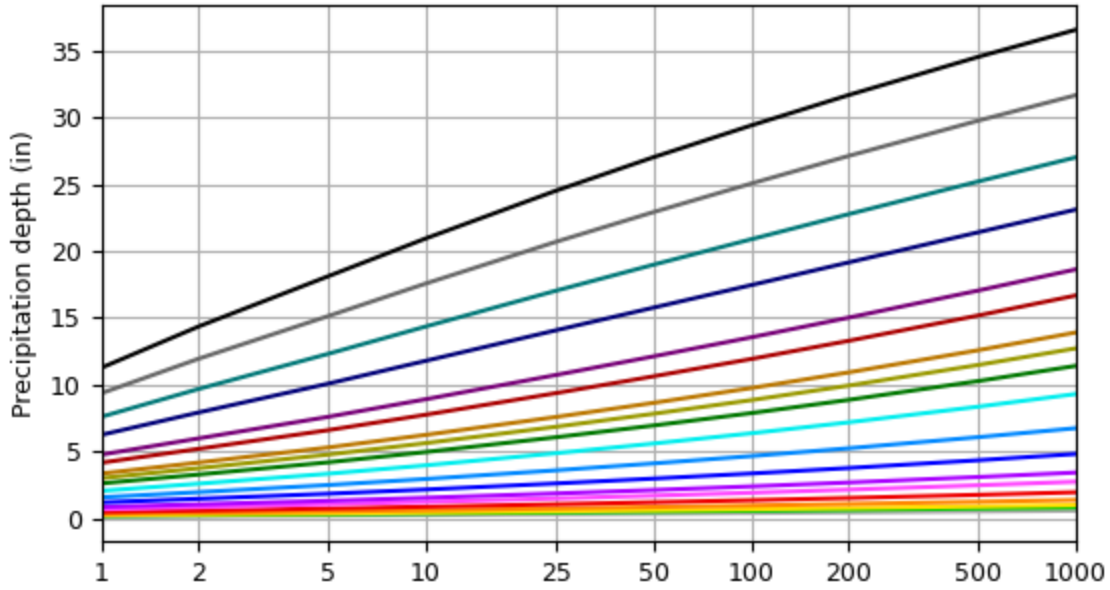
Back to Top

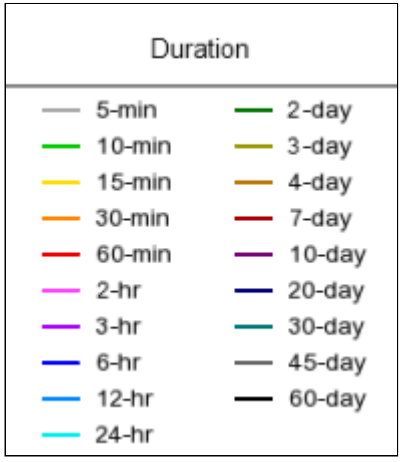
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 37.8048°, Longitude: -122.4711°









Average recurrence interval (years)

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