Diamond Springs Parkway Project
Final Remedial Action Plan
Diamond Springs, California

Project Number: 002832

July 2023

Prepared for:

El Dorado County
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July 24, 2023

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Acronyms and Abbreviations

APTIM	Aptim Environmental & Infrastructure, Inc.
bgs	below ground surface
Caltrans	California Department of Transportation
County	County of El Dorado, California
CY	cubic yard(s)
DLP	Diamond Lime Plant
DSP	Diamond Springs Parkway
EDCAQMD	El Dorado County Air Quality Management District
EPA	U.S. Environmental Protection Agency
FEIR	*Diamond Springs Parkway Project, Final Environmental Impact Report, State Clearinghouse No. 2007122033, El Dorado County Department of Transportation*
IC	institutional control
LUC	Land Use Covenant
PCI	PCI Holdings LLC
RAO	remedial action objective
RAP	Remedial Action Plan
R/W	right-of-way
RWQCB	Central Valley Regional Water Quality Control Board
SIR	*Diamond Springs Parkway Project Site Investigation Report, Diamond Springs, California*
SWPPP	Stormwater Pollution Prevention Plan
WC	Waste Connections CA, Inc.

1.0 INTRODUCTION

On behalf of the County of El Dorado, California (County), Aptim Environmental & Infrastructure, Inc. (APTIM) has prepared this Remedial Action Plan (RAP) to address environmental conditions identified at the former Diamond Lime Plant (DLP) located in Diamond Springs, California (Figure 1). This RAP addresses the land to be acquired by the County to construct a new roadway named Diamond Springs Parkway (DSP). The RAP was prepared for submittal to the Central Valley Regional Water Quality Control Board (RWQCB).

The County has obtained an Irrevocable Offer of Dedication for the portions of land needed for the DSP project that crosses the PCI property, El Dorado County Assessor's Parcel Number 051-250-54.

This RAP is related to RWQCB case No. T10000005927. The DSP will transect the DLP in areas where residual lime waste has historically impacted the soil, groundwater, and surface water resulting in elevated pH. The purpose of this RAP is to describe the planned mitigation to reduce the potential for residual lime waste to adversely impact surface and groundwater.

In accordance with the recommendations outlined in the *Phase II Environmental Site Assessment, Former Lime Plant Area, County of El Dorado, Community Development Agency, Transportation Division* (Youngdahl Consulting Group, Inc. 2017) and the *Diamond Springs Parkway Project, Final Environmental Impact Report, State Clearinghouse No. 2007122033, El Dorado County Department of Transportation* (Michael Brandman Associates 2011), the County retained APTIM to complete the site characterization work on the DLP area and prepare this RAP for lime waste mitigation within the DSP corridor prior to construction. The findings of the site characterization are documented in the *Diamond Springs Parkway Project Site Investigation Report, Diamond Springs, California* (SIR; APTIM 2020). The primary goal is to remediate the residual lime waste located within the footprint of the proposed DSP corridor with the potential to impact groundwater. To the extent practicable and as determined necessary, remediation work will extend beyond the County right-of-way (R/W) within slope easements to allow for adjacent property owners to implement future remediation without impacting the roadway embankment.

It is assumed the PCI and Abel Trust property owners will perform the work required within their properties to complete the lime waste remediation as requested by RWQCB. The Waste Connections CA, Inc. (WC) property owner completed their site characterization and is currently implementing their lime waste remediation in phases. This RAP addresses the remediation efforts necessary to mitigate the residual lime material known to exist within the proposed County R/W.

1.1 Public Participation

This RAP presents the basis for the recommendation for the remedial alternative for the DSP corridor. The County, as part of the California Environmental Quality Assessment requirements, identified that remediation of residual lime waste would be necessary within the vicinity of the DLP as part of implementation of the DSP project. The *Diamond Springs Parkway Final Environmental Impact Report*

(FEIR; Michael Brandman Associates 2011) provided the public an opportunity to comment on the remediation, with the County's responses included in the FEIR. In accordance with Section 13307.5 of the California Water Code, the County will notify property owners within 1,000 feet of the site via US Mail and provide a 30-day period to provide comments on the proposed remediation activity.

1.2 Report Organization

This RAP is organized as follows:

- Section 1.0, "Introduction"
- Section 2.0, "Site Background"
- Section 3.0, "Remedial Action Alternatives"
- Section 4.0, "Evaluation of Remedial Action Alternatives"
- Section 5.0, "Recommended Remedial Alternative"
- Section 6.0, "References"

2.0 SITE BACKGROUND

2.1 Site Background and Previous Site Activities

The historical DLP covered an area of approximately 30 acres. In 1927, the DLP began operations and produced lime from locally quarried limestone through two rotary lime kilns at the plant. Limestone was brought to the DLP where it was crushed and heated to form calcium hydroxide, a relatively strong base. Operations at the DLP ceased around the year 1977 (Youngdahl Consulting Group, Inc. 2018). During its operation, lime dust generated during the processing of limestone was transported to settling ponds located on the site. Historical aerial photographs identify these ponds where lime waste was stored on the DLP. Figure 2 illustrates the maximum extent of the DLP, as well as three impacted properties that have conducted site investigations: PCI property, Abel Trust property, and the WC property.

2.2 Previous Remedial Action

In 2012, the PCI property owner completed grading work in response to a 2011 Notice of Violation issued by the California Department of Fish and Game regarding the lime discharge into tributaries to Weber Creek. The grading work attempted to excavate lime waste and blend with imported soil to produce an engineered fill that would not impact local water quality. The work consisted of an over-excavation of lime waste and regrading of much of the PCI property. The resulting soil composition reportedly consisted of the lime-soil mixture covered with a 2-foot compacted soil cap (Holdrege & Kull 2012). Despite these efforts, subsurface investigations have revealed that many locations within the re-graded areas contain soil pH levels exceeding 8.5, which have the potential to impact water quality.

The ground surface was graded to drain to a stormwater de-siltation retention pond that drains into the Western Drainage. The ground slopes to the north and northwest with the highest elevations along the southern property boundary with WC property. The lowest elevations are at the northwest portion of the property at the end of the “Appendix.” The Appendix is a narrow section of the property that was not excavated and lies within the northern portion of a topographic low in the bedrock referred to as the Bedrock Trough (Figure 2). Uncompacted lime waste remains in the Appendix and, due to the depth to bedrock in the trough, groundwater contacts the lime waste increasing the pH in groundwater.

2.3 Site Investigation

The primary concern of the RWQCB is the seasonal seepage of high pH water to the North Pond located on the north side of the El Dorado Trail adjacent to the Appendix (Figure 2). The pH readings taken when surface water was present in the North Pond have continually exceeded the high range of the RWQCB pH Water Quality Goal of 8.5.

A series of investigations have been conducted at the DLP to identify the nature and extent of residual lime material and understand its impact to the soil, groundwater, and surface water. Previous investigations evaluated other potential contaminants, which included metals and petroleum

hydrocarbons (Youngdahl Consulting Group 2017). APTIM conducted a targeted investigation from December 2018 through September 2019 to collect supplementary data to assist in developing a remedial approach for impacted soil within the boundaries of the future DSP.

The residual lime waste, which produces the elevated pH conditions, is the primary contaminant of concern within the DSP corridor. The proposed DSP transects the Appendix, PCI property, and Bradley Corner (Figure 2). This section will focus on the site investigation results relevant to the DSP corridor. Figure 3 posts the soil pH. Figure 4 shows the historical pH readings for surface water and groundwater. Figure 5 shows the depth to bedrock contours. Figures 3, 4, and 5 summarize previous investigation results in areas outside the DSP, which are discussed in more detail in the SIR (APTIM 2020).

2.3.1 Lithology

Overburden depths ranged from 0 feet at bedrock outcrops and up to 28 feet below ground surface (bgs) in the southern portion of the Bedrock Trough (Figure 5). The overburden consisted of silty clay with gravels or sandy silt, which was largely fill material. Lime was typically associated with sandy silt or silt and sand that was mixed with the lime. Small continuous intervals of lime were characterized as distinctive blue gray or white in color.

The bedrock consists of a predominantly pale brown, highly weathered metavolcanic. Two bedrock troughs are located on the PCI property. The primary Bedrock Trough extends in a southeast to northwest orientation from the north extent of the WC property northwest to the Appendix. A smaller bedrock trough (East Trough) is located adjacent to the Bradley Corner and extends to the northwest roughly parallel to the primary Bedrock Trough (Figure 2).

Between the two bedrock troughs is a bedrock topographic high located in the eastern portion of the PCI property. Bedrock outcrops were noted on the southwestern portion and eastern portion of the PCI property, along Throwita Way, on Throwita Way north of Bradley Drive, and east of Bradley Corner. Figure 5 shows the bedrock topography.

2.3.2 Hydrogeology/Surface Water

Groundwater occurrence and flow appear to be influenced by the bedrock topography. The depth to groundwater ranged from 7.25 feet to 24.49 feet below top of casing. Groundwater flow was toward the northwest with a hydraulic gradient of 0.03. Figure 6 presents the July 2019 groundwater surface contours. The hydraulic conductivity in the vicinity of HKMW-16-6 was estimated at approximately 11 feet per day.

Groundwater recharge is seasonal based on the fluctuations in wells in response to seasonal precipitation and the influence of the variable bedrock topography. The nine groundwater monitoring wells were saturated in July 2019; however, in September 2019, wells YMW02 and HKMW 16-3 were dry.

Surface water is ephemeral within the DLP drainage features, the Western Drainage that runs along the western boundary of the PCI property, the Bradley Corner storm drain inlet area, and the North Pond. The North Pond appears to receive water through seeps from the Western Drainage and groundwater conveyed though the Bedrock Trough. The Bradley Corner area is a low area, which captures stormwater runoff but may also receive groundwater seepage during precipitation events that raise groundwater levels in the East Trough.

2.3.3 Diamond Springs Parkway pH Impacts

The DSP corridor will be oriented west-northwest to east-southeast transecting the Appendix area, the northern portion of the eastern bedrock high on the PCI property and the Bradley Corner area (Figure 2 and 5). This subsection discusses the site investigation results along the DSP corridor from west to east. The groundwater impacts as related to the DSP are briefly described as well. The SIR (APTIM 2020) provides additional information on the site investigations conducted in other areas.

2.3.3.1 Soil

Figure 3 plots the highest pH reading for soil samples collected from each soil boring. In addition, small red triangles note where uncompacted or compacted lime waste was encountered in borings, but no pH measurements were collected (Vestra Resources 2018a).

West of the PCI property, the measured soil pH was slightly above a neutral pH at 7.8 units (B-2) and 8.42 units (B-1). Moving east onto the PCI property, borings S-26 and S-39 are located west of the Western Drainage and did not encounter lime waste. The bedrock was shallow in these borings at 4.5 feet bgs and 2.2 feet bgs. These results suggest that the lime waste does not appear to extend west of the PCI property within the DSP.

Where the DSP transects the Appendix area and crosses the Bedrock Trough, elevated pH of 13.54 and 13.04 units were measured in soil samples collected from B-4 and S-7, respectively, which contained uncompacted lime waste. Four additional borings further east in the Bedrock Trough (S-31, S-32, S-34, and S-38) also contained loose uncompacted lime waste. The thickness of the waste ranged from 10.5 feet in S-32 to 16 feet in S-34, and the waste was found at or less than 2 feet above the bedrock. The depth to bedrock in these Bedrock Trough borings ranged from 14 feet bgs in B-4 to 19 feet bgs in S-34.

Four borings (S-33, S-35, S-36, and S-40) where pH was not measured reflect the shallowing of the bedrock moving east of the Bedrock Trough, which ranged from 3.4 feet bgs to 5.5 feet bgs. The lime waste thickness correspondingly increased from 1.6 feet in S-33 to 3.8 feet in S-40. Borings S-35, S-36, and S-40 were located to identify the edge of the previously installed soil cap. Based on the compacted lime waste found in S-35 and S-36, this area was considered the north extent of the cap near the Appendix (Holdrege & Kull 2017). It is understood that generally the areas to the south and west of these borings were excavated, mixed with soil, recompacted and capped during the 2012 grading work completed on the PCI property.

Farther east along the corridor, borings S-8 and B-6 contained compacted lime waste and soil at thicknesses of 5.5 and 2.5 feet, respectively. Bedrock depth also increased to 8.5 feet bgs and 6 feet bgs, respectively. The corridor encounters the bedrock high where bedrock is at or near surface for borings S-13, S-14, S-15, and HKMW-16-5. These borings did not contain lime waste, which is reflected in the relatively neutral pH measured in these locations.

In the vicinity of Bradley Corner, the East Trough is encountered along the DSP footprint at Throwita Way. The bedrock depth increases in AB-8, AB-9, AB-10, and YMW-1 ranging from 13 feet bgs to 20 feet bgs. AB-9 is located on the western edge of the East Trough on the PCI property and contained compacted lime mixed waste about 6 feet thick from the surface. The underlying soil samples had slightly elevated pH readings, up to 8.69 units.

Across Throwita Way in Bradley Corner where mixing and recompaction was not completed, soil pH increased to 12.76 (AB-10), 12.8 (YMW-1), and 12.62 (AB-8). The maximum uncompacted lime waste thickness was observed in YMW-1 to a depth of 16 feet bgs where the bedrock was also deepest. The pH distribution and logged soil material suggest that the East Trough was filled with lime-impacted soil and continues north to the vicinity of AB-34 at the Bradley Corner.

Soil pH approaches neutral north of Bradley Corner, based on borings AB-2, AB-3, and AB-4, ranging up to a pH of 8.68. At the eastern extent of the former DLP, shallow bedrock was encountered along the DSP corridor where pH measured in samples from borings AB-11 (7.92) through AB-14 (7.81) support an absence of lime waste (Figures 3). The historical DLP footprint does not appear to extend into the vegetated area north of the Abel Trust property in the vicinity of AB-11 through AB-16 (Figures 2 and 3).

2.3.3.2 Surface and Groundwater

Figure 4 shows the surface water and groundwater sample results for the PCI property. The historical surface water samples collected in the Western Drainage have been neutral, below a pH of 8, with the exception of sampling point HKSW17-3 in the Appendix area. The two (2) impacted surface water locations along the DSP occur at the Bradley Corner and the vicinity of HKSW17-3 within the Western Drainage. Bradley Corner contains a low area that flow into a culvert inlet that connects to the existing storm drain system. When water is flowing to the inlet the surface water pH is elevated (12.19) and reflects the lime waste present in the East Trough. This area will be addressed in the DSP project remediation.

The bedrock troughs have a strong influence on the groundwater flow direction across the PCI property. Groundwater pH ranged from 11.04 (HKMW16-6) in the Bedrock Trough, 12.18 (YMW-1) in the East Trough, and 7.22 (HKMW16-5) in the bedrock high between the two bedrock troughs.

Groundwater flow is to the northwest within the Bedrock Trough and follows the trough orientation. In July 2019, the pH of the groundwater near the northwest extent of the Appendix was 12.68 at well YMW-2. Borings completed within the Bedrock Trough noted saturated lime waste, which includes the area where the DSP corridor crosses the Appendix.

Based on historical groundwater monitoring data, groundwater flow near YMW-01 was shown to be toward the north-northwest (Vestra Resources, Inc. 2018b). The July 2019 groundwater surface contours show a similar trend (Figure 6). However, YMW-01 was installed within the narrow East Trough that trends to the north-northwest and also includes well AMW-1. The elevated pH readings from groundwater in these two wells and grab groundwater samples from AB-8 and AB-10 suggest the groundwater in this area is controlled by the East Trough and is impacted by lime waste. West of Throwita Way, the grab groundwater sample from AB-9 had a lower pH reading of 8.53 suggesting this boring was on the edge of the East Trough, which is also supported by the bedrock contours.

2.4 Risks and Remedial Areas

The contaminant of concern at the DLP is the lime waste material which can contain varying amounts of a corrosive base calcium hydroxide ($Ca[OH]_2$) and calcium carbonate. The lime waste was improperly disposed on the DLP site during plant operation and decommission. The interim remedial measure conducted by the PCI property owner did not completely resolve the lime waste within that property. Previous site investigations identified areas where elevated pH was measured in soil, groundwater, and surface water following this remedial effort.

The current receptors are limited to construction workers, trespassers, and ecological. The potential for human contact with residual lime material is low due to the limited activity and the 2-foot soil cap covering the majority of the PCI property. At the Bradley Corner low area/storm drain inlet, exposure to surface water with elevated pH when water is present is considered low due to the dense vegetation making access difficult. Ecological exposures may exist but have not been quantified as DSP construction will eliminate much of the available habitat at this location where high pH surface water is seasonally present.

The North Pond is a seasonal feature; therefore, potential exposure occurs during the rainy season when surface water is present. In November 2016, the County installed a split-rail fence along the El Dorado Trail at the North Pond. The fence provides a deterrent to trail users and their pets from accidently slipping down the hillside to the North Pond below. Therefore, the potential for human contact with high pH surface water at the El Dorado Trail area, immediately upgradient of the North Pond, and downgradient of the site is low.

The future DSP project construction will present an exposure risk for workers to the lime waste material. The primary exposure pathways are inhalation, ingestion, and dermal contact. The greatest concern will be the control of dust that could cause irritation of eyes and/or skin and impacts to the respiratory system. Dust control measures will be required to minimize exposure to employees, construction workers, and the general public in relation to the adjacent operating WC site. Excavation work conducted within the Bedrock Trough and Bradley Corner areas may expose workers to elevated pH in surface water and/or groundwater depending on the recent precipitation.

For the purposes of the DSP project, the targeted remedial areas are those with lime waste or elevated soil pH within the DSP corridor, in addition to areas outside the corridor that will be improved as a part of

the project. The areas with the highest lime waste concentrations are where the DSP corridor transects the Bedrock Trough and the East Trough.

3.0 REMEDIAL ACTION ALTERNATIVES

This section presents the remedial action objectives (RAOs) and introduces the proposed remedial action alternatives.

3.1 Remedial Action Objectives

The first step in identifying remedial alternatives is to establish RAOs. The contaminant of concern is the residual lime waste material. The County's responsibility for remediation of lime waste material will be within the limits of the proposed County R/W required for the DSP project. Therefore, the RAOs focus on remediating only the soil and lime waste material that lie within proposed County R/W. The primary goal will be to reduce the residual lime mass within the DSP corridor and redirect surface water drainage patterns in conjunction with the DSP project improvements to mitigate infiltration to the subsurface and exposure to lime waste that would elevate pH in groundwater. The remedial work will be conducted as part of the DSP project construction.

The RAO for elevated pH in the soil is to prevent exposure through ingestion, dermal contact, or inhalation. The County's action within its proposed R/W will reduce the overall residual lime waste mass, thereby reducing future impacts to the groundwater. However, completion of the remediation for the entire DLP site will be implemented by other property owners.

As part of the RAO development process, the applicable or relevant and appropriate requirements (ARARs) were identified that may pertain to the remedial alternative. The alternatives were evaluated for compliance with the identified ARARs, which are listed in Table 1.

The RAO will include the following:

- Reduce the lime waste mass within the County R/W. Reduce the potential impacts to the groundwater due to impacted soil along the County R/W.
- Reduce the volume of uncontrolled surface water to mitigate groundwater impact along the County R/W.
- Prevent the exposure of construction workers receptors to lime waste and dust through ingestion, dermal contact, or inhalation during DSP construction activities.
- Design the County's remediation scope as a "phased approach," to be compatible with future remedial efforts to be completed by other responsible parties/property owners within the former DLP area.

The County's responsibility will be focused on reducing the potential for groundwater impacts within the future R/W primarily at the Bedrock Trough and the East Trough.

3.2 Development of Alternatives and Screening Criteria

The County evaluated the DSP design to consider approaches to mitigate lime waste impacts within its proposed R/W. As the remediation will be integrated into the DSP construction contract, limited review of the remedial actions and technologies was necessary. Based on the County's technical evaluation, one alternative was put forward after discussions with the RWQCB. This alternative will satisfy the RAOs. In addition, a "no action" alternative is included as a baseline for comparison.

The remedial alternatives evaluated are as follows:

- Alternative 1: No Action
- Alternative 2: Excavation and Treatment with Source Removal

3.3 Alternative 1: No Action

Alternative 1 would entail no engineered measures, institutional controls (ICs) or monitoring of subsurface conditions to reduce or contain the contaminant in soil or groundwater. Alternative 1 has been included to provide a baseline for the evaluation and comparison of the costs and benefits of Alternative 2.

Under Alternative 1, the County would construct the DSP as designed. Some limited lime waste removal may be required to meet compaction standards for roadway embankment fill and the construction of drainage systems. The drainage improvements necessary for the DSP will provide improved stormwater control; however, the majority of the lime waste would remain in place and would continue to impact groundwater similar to current conditions.

3.4 Alternative 2: Excavation and Treatment with Source Removal

Alternative 2 includes lime waste removal and will address the saturated waste in the Bedrock Trough and the unconsolidated lime waste in the East Trough area. The County will excavate to bedrock and remove saturated lime and soil/lime material within targeted areas where groundwater occurs annually. Source removal of the lime waste within these specific areas will nearly eliminate the future potential of high-pH material within the County's R/W from impacting groundwater. Depending on the time of year and conditions encountered, dewatering during excavation in the troughs may be necessary. Based on the soil pH, the source removal excavation is planned for bedrock trough locations where saturated lime waste has been found to exist, as shown on Figure 7. Dewatering and discharge activities will be completed in accordance with the Caltrans *Field Guide for Construction Site Dewatering*.

The blended lime waste between the two troughs along the County R/W was measured above a pH of 8.5, primarily to the west. This area is located along the bedrock high, and groundwater was not encountered above the bedrock. As the blended lime waste/soil in this region is not in contact with groundwater and will be capped by the DSP, no removal is planned. A Land Use Covenant (LUC) will be executed between the County and RWQCB placing restrictions on the use over this land to mitigate potential for future impacts to public health or safety or the environment.

The County's remediation work performed in accordance with Alternative 2 will exclude approximately 3,085 cubic yards of lime waste within the footprint of Throwita Way at the East Trough. Removal of this lime waste mass is determined not practicable due to its location and the need for Throwita Way to remain open for access to the WC property. While the County possesses a permanent easement over Throwita Way and Bradley Drive, the underlying and adjacent property is privately-owned and technically outside of the R/W. Additionally, the need to maintain continuous access to both ends of Bradley Drive and to the WC Material Recovery Facility at 4100 Throwita Way restricts the County's ability to remove all the lime waste within the saturated zone of the East Trough.

An estimated 10,000 cubic yards (CY) of excavated soil/lime material will be segregated for use as engineered fill. Excavated dry residual lime material will be blended with imported clean soil at a maximum 1:1 ratio and compacted in place in accordance with California Department of Transportation (Caltrans) specifications as engineered fill. The fill will be placed to a maximum depth of 5 feet below original ground surface, ensuring it remains above the historical high groundwater elevations. Additionally, the engineered fill will only be placed at locations where finish grade will be asphalt or concrete surface.

An estimated 9,800 CY of excavated lime waste will be transported off site for disposal to a permitted facility or to an approved commercial agricultural facility that would process the material as a soil amendment. Prior to the start of the remediation work, the County and its contractor will submit the proposed disposal facilities to the RWQCB for approval. The excavated lime waste has the potential to be characterized as hazardous, solely due to the elevated pH. Lime waste with a pH greater than or equal to 12.5 would meet the characteristic of corrosivity under Title 22 CCR§ 66261.22, in which case the lime waste would be assigned the U.S. Environmental Protection Agency (EPA) Hazardous Waste Number of D002. The California Department of Toxic Substances Control does not allow hazardous waste such as this residual lime material to be treated on site to reduce the pH below 12.5 in order to haul the material as non-hazardous. None of the laboratory measurements have identified the residual lime materials or soil pH within the proposed County R/W at or greater than 12.5.

Stormwater conveyance systems constructed as part of the DSP project will help reduce groundwater recharge in the immediate area. Drainage system improvements will collect and redirect stormwater to reduce surface infiltration. A 60-inch culvert will be constructed along a segment of the Western Drainage in order to convey flow from the Western Drainage through the County R/W, below the DSP. At the Bradley Corner, the existing storm drain inlet low area will be excavated, and the lime waste will be removed and replaced with clean imported fill. The existing culvert will be abandoned, and a new inlet and culvert will be constructed approximately 100 feet north of this location at the southeast corner of the new intersection of Bradley Drive and Throwita Way. In order the mitigate the presence of lime waste remaining in the saturated zone of the East Trough, Alternative 2 will also include reconstruction of the storm drain system within Throwita Way. The new system will include fully sealed, watertight joints, encased in slurry cement to prevent infiltration of elevated pH water existing within the East Trough.

During the project, protecting receptors will be accomplished through the proper management of residual lime exposure during excavation and construction by implementing proper dust control, best management practices, and other site controls as required in appropriate health and safety project plans and design plans.

Alternative 2 will remediate the saturated lime waste within the County R/W and is designed to allow for the future completion of remediation of the DLP to the extent practicable, without threatening the constructed DSP.

4.0 EVALUATION OF REMEDIAL ACTION ALTERNATIVES

This section describes the criteria used to evaluate the identified remedial alternatives, provides an assessment of each alternative against the nine required criteria as specified in the EPA's National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and identifies the preferred remedial alternative.

4.1 Evaluation of Criteria

This subsection describes and evaluates the remedial action alternatives identified in Section 3.2. This information provides for a comparison of the alternatives and final selection. The following criteria were used to evaluate the remedial action alternatives:

- Overall protection of human health and the environment: determines if alternative provided adequate protection and describes how each risk posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering controls, or ICs.
- Compliance with federal and state requirements: determines whether the remedy will meet the appropriate federal, state, and local environmental laws and regulations.
- Long-term effectiveness and permanence: addresses the adequacy and reliability to maintain protection of human health and the environment over time following remedy implementation.
- Reduction in toxicity, mobility, and volume through treatment: evaluates the ability of the specific remedial technology to reduce the toxicity, mobility, and volume of the contaminant of concern.
- Cost to 30-year present worth: evaluates the capital costs and operations and maintenance costs are estimated for each alternative, including capital costs that are 10 percent above and below the initial estimate.
- Short-term effectiveness: evaluates whether the implementation of the alternative may have an adverse effect on human health and the environment and time until RAOs are achieved.
- Implementability: evaluates the technical and administrative feasibility of the alternative, which includes the availability of material and services and the time and effort to obtain appropriate approvals.
- Regulatory agency acceptance: assesses whether applicable regulatory agencies will accept the recommended alternative based on the information provided on the remedy.
- Community acceptance: assesses whether community concerns are addressed by the alternative and whether the community had a preferred alternative.

4.2 Alternative Evaluation

This subsection presents the comparative analysis of Alternative 1 (No Action) and the recommended Alternative 2. The performance of the recommended alternative is evaluated against each of the criterion.

4.2.1 Overall Protection of Human Health and the Environment

Although a No Action alternative typically is "no action," under Alternative 1, due to the construction scope of the DSP project, a portion of lime waste may be removed as part of the earthwork and grading work necessary to construct the new roadway embankment fill and associated drainage improvements. The constructed DSP will provide an effective cap along the corridor providing a greater protection to human exposure and reducing recharge to groundwater that may encounter lime waste and elevate groundwater pH. However, any lime waste removal as part of Alternative 1 would be limited in quantity and effectiveness and would not fully remediate the groundwater impacts resulting from lime waste within the proposed County R/W.

Alternative 2 would remove the lime waste within the proposed County R/W of the DSP corridor that has the potential to impact surface and/or groundwater. This removal action combined with the construction of the DSP would eliminate exposure to human or ecological receptors within the County R/W. The new roadway will reduce surface water recharge and act as a soil cap. The removal of elevated pH soil/lime waste from the DSP corridor will virtually eliminate impacts to groundwater that would have been contributed from material within the County R/W. In addition, the proposed drainage improvements will minimize contact with lime waste and infiltration of surface water into both the Bedrock and East Trough.

4.2.2 Compliance with Federal and State Requirements

Alternative 1 would not meet all ARARs as the majority of the lime waste would remain in the troughs and its contact with groundwater will continue to contribute to the elevated pH above the RWQCB's Water Quality Goals. However, some construction related ARARs would be met as they would be implemented as part of the DSP construction.

Alternative 2 would remove the lime waste existing within the targeted saturated trough areas within the proposed County R/W. Achieving this remedial goal will reduce the contribution to elevated pH in groundwater. In addition, the control of stormwater runoff to minimize contact with lime waste and infiltration will assist in reducing pH in groundwater to aid in achieving the RWQCB's Water Quality Goal.

During construction, the dust control requirements of the El Dorado County Air Quality Management District would be implemented to protect construction workers and exposures to human receptors in the surrounding area. A Remedial Project Implementation Plan (Section 6) will ensure measures to control dust, stormwater, and waste during construction. Therefore, this alternative would comply with the ARARs during the construction and in the future following the completion of the DSP.

4.2.3 Long-term Effectiveness and Permanence

Both alternatives would reduce surface infiltration as a result of the impervious surfaces constructed for the new roadway and sidewalks. In order to construct the DSP project under Alternative 1, a limited quantity of lime waste near the ground surface and within the limits of excavation for drainage facilities would be removed. However, under Alternative 1, the majority of the lime waste within the DSP corridor would remain in place, continuing to impact surface and groundwater in the Western Drainage and the North Pond.

Conversely, Alternative 2 would remove the remaining lime waste within the limits of the Bedrock and East Trough in the County R/W of the DSP corridor. The excavated areas within the saturated zones of the Bedrock and East Trough would be backfilled with clean imported soil, and the engineered fill above the groundwater elevations would consist of a blend of clean soil and residual lime material. Excavated pure lime waste that is saturated and without soil would be transported off site to an approved disposal facility or to an agricultural facility to be used as a soil amendment.

The DSP construction will reduce surface infiltration due to compaction of the engineered fill material and construction of the roadway, which will act as a cap. In addition, the surface water management system for drainage of the DSP will reduce surface infiltration and contact with lime waste within the DLP. Construction of a new inlet to the existing storm drain system at the relocated corner of Bradley Drive and Throwita Way will reduce surface water contact with residual lime waste.

4.2.4 Reduction in Toxicity, Mobility, and Volume

Alternative 1 would potentially remove a limited amount of lime waste, and the capping provided by the DSP will eliminate potential exposure to lime waste at the surface. Alternative 2 would remove the lime waste within the saturated trough zones to the extent practicable, which would reduce the mobility, toxicity, and volume of the contaminant and would also benefit from the capping by the DSP.

4.2.5 Cost

Alternative 1 is assumed to have no additional costs. The table below presents the Alternative 2 cost estimate which includes the incremental cost to address the lime removal. The drainage improvements (culverts, inlets, rock slope protection, etc.) constructed by the County are incidental to the DSP roadway work. The cost is present value of capital costs. There is no operation or maintenance costs associated with the remedy that would not be performed as part of the DSP maintenance.

Roadway Excavation, Blend with Import (10,000 CY):	$300,000
Roadway Excavation, Offhaul (9,800 CY):	$890,000
Imported Borrow (19,800 CY):	$200,000
25% Contingency:	$350,000
Total:	$1,725,000

4.2.6 Short-term Effectiveness

Alternative 1 will provide limited remedial action. Alternative 2 will include the excavation of residual lime waste. Some of the lime/soil mixture will be treated on site, which will pose a minimal risk to the community; however, it will pose a risk to construction workers. Lime waste material that is transported off site on public roads could pose a slight risk to the public.

As noted, the dust control requirement of the El Dorado Air Quality Management District would be followed to protect construction workers and the community. However, the greatest risks to construction workers would be minimized by adhering to standard Occupational Safety and Health Administration procedures and precautions. Additionally, the County will require a Material Transport Safety Plan for lime waste hauled off site, in order to identify and mitigate risks incurred in transporting the material.

4.2.7 Implementability

Alternative 1 is implementable. Alternative 2 consists of additional excavation, treatment or disposal of lime waste, backfilling and compaction of engineered and/or imported soil, and construction of storm drain systems—all of which are feasible and can be integrated into the DSP construction contract. The implementation of Alternative 2 requires additional resources; however, the equipment, labor, and materials necessary for implementation will be available as part of the DSP project.

4.2.8 Regulatory Acceptance

Alternative 2 removes lime waste within the County R/W of the DSP corridor and will aid in the reduction of groundwater pH, which will assist in achieving the RWQCB's Water Quality Goals for pH.

Work will be conducted using the dust control requirements in accordance with the El Dorado County Air Quality Management District. Excavated soil will be screened for pH to ensure it is not classified as hazardous for transportation, and Caltrans specifications will be used to place blended soils. These efforts will comply with regulatory requirements.

4.2.9 Community Acceptance

Community involvement occurred through the environmental impact review process. The need for remediation was discussed in the Draft Environmental Impact Report (Michael Brandman Associates 2010), and responses to public comments were provided in the FEIR (Michael Brandman Associates 2011). As previously discussed in Section 1.1, the County will notify property owners within 1,000 feet of the site via US Mail and provide a 30-day period to provide comments on the proposed remediation activity.

4.3 Land Use Covenant

While Alternative 2 removes lime waste within the County R/W that is likely to become saturated and impact water quality, elevated pH material will remain above the anticipated groundwater elevations within the DSP corridor. Due to presence of this material, the County agrees to execute a LUC with the RWQCB for the property to be acquired by the County within the PCI property, El Dorado County Assessor's Parcel Number 051-250-54. The LUC will record an environmental restriction on the property,

prohibiting development or activities which would present a risk to the public health or safety or the environment. The LUC will help satisfy the RAOs and Water Quality Objectives in perpetuity by ensuring that residual lime waste remaining within the County R/W will remain undisturbed under the capped areas (asphalt and concrete surfaces) and, if excavated for any reason, will be subject to RWQCB notification in combination with proper handling and disposal.

5.0 RECOMMENDED REMEDIAL ALTERNATIVE

Based on the evaluation summarized in this RAP, the recommended remedy is Alternative 2, Excavation and Treatment with Source Removal. Alternative 1 will not meet the RAOs, whereas Alternative 2 will remove the human health and ecological risks from the proposed County R/W, reduce the amount of lime waste mass available that could impact the groundwater pH, and allow future remediation to remove the remaining lime waste from the DLP area. Alternative 2 will meet the RAOs.

Alternative 2 includes the following remedial actions:

- As part of the DSP grading plan, residual lime waste will be excavated within the proposed County R/W. The County anticipates approximately 19,800 CY of residual lime and lime impacted soil will be excavated in total from the proposed County R/W.
- Pure residual lime waste and excess soil/lime material will be transported off site for possible use as agricultural amendments or disposed at an approved landfill facility as non-hazardous Special Waste.
- Clean imported (non-blended) soil will be used to backfill the excavations where the material would be in potential contact with groundwater, considered to be three (3) feet above the highest recorded groundwater elevation.
- The blend ratio of excavated lime material with imported soil will be determined based on the material pH and geotechnical properties, however, its ratio will not exceed 1:1.
- County will submit imported soil material test results to RWQCB for approval prior to placement of material on site.
- Engineered fill (blended) material will be placed within the excavated areas above the imported soil backfill and compacted in accordance with Caltrans specifications. This will reduce the permeability of the soil and migration of infiltrating water to groundwater.
- Blending will be completed on-site within the project limits of which the County's contractor will have access for temporary and permanent construction purposes. Depending on the degree of saturation encountered of the excavated lime material, it is anticipated the contractor will temporarily stockpile the material on site to dry the material sufficiently before blending with the imported soil.
- The asphalt and concrete surfaces of the DSP roadway and sidewalks will provide an impermeable cap over the proposed County R/W, significantly reducing surface water infiltration that might encounter minor potential pockets of mixed lime waste and soil.
- A 60-inch diameter culvert will be constructed within the Western Drainage to convey surface water through the DSP (Figure 8). The culvert will be encased in slurry cement or controlled

low strength material (CLSM) to eliminate the culvert trench from acting as a conduit for groundwater flow. The drainage improvements will collect surface water runoff from the DSP and surrounding areas, whereby reducing the volume of surface water infiltrating and recharging groundwater. A minimum cover of 2-feet will be placed above the culvert pipe to finish grade. Excavation for the culvert pipe trench section will be conducted in the same manner as the saturated lime waste areas.

- The Bradley Corner stormwater inlet low area (denoted as "Bradley corner drainage basin and inlet" on Figure 9) will be excavated, and the lime waste will be removed and replaced with clean imported fill. Currently, a 24-inch diameter culvert pipe drains this area. This culvert will be abandoned, and a new inlet and culvert will be constructed approximately 100 feet north of this location at the southeast corner of the new intersection of Bradley Drive and Throwita Way.

- The existing roadway section of Bradley Drive, measuring approximately 320 feet in length from Throwita Way eastward will be obliterated and will be graded with the adjacent parcels to drain in a northwest direction to the new inlet. At the new intersection of Bradley Drive and Throwita Way, the new culvert will connect with the existing storm drain system and tie into a new trunk line along the center of Throwita Way. This will replace the existing corrugated metal pipe system along the west shoulder of Throwita Way. Figure 9 depicts the locations of the existing and proposed storm drain systems.

- The storm drain systems, owned and maintained by the County, are operated under the National Pollutant Discharge Elimination System General Permit No. CAS000004 for Small Municipal Separate Storm Sewer Systems. Since this proposed remedy will remove the source material within the County R/W at the Bradley Corner and replace it with a clean soil cap, no modifications are necessary to the discharge permit, as the remedial activities will remove high pH material that is currently impacting the stormwater. The scope of remedial work will also include replacement of approximately 325 feet of the existing storm drain system along Throwita Way downgradient of the Bradley Corner, as shown on Figure 9.

- Human health risks from exposure to soil or groundwater with a high pH will be managed with engineering controls, administrative controls, and proper personal protective equipment.

6.0 REMEDIAL ACTION IMPLEMENTATION PLAN

The County anticipates completing the remediation work as part of the DSP project construction contract. The work may be completed concurrently with other excavation and grading operations as part of the roadway construction to maximize efficiency in the transport and placement of the materials. Depending on the County contractor's construction sequencing, remediation work at the Bedrock Trough may occur separately from the work at the Bradley Corner.

This section describes the specific tasks necessary to implement the RAP. Figure 7 and 8 provided the detailed plans for the remedial activities. The work will be completed under applicable permits issue by the state, local, or federal agencies.

6.1 Health & Safety Plan

A Health and Safety Plan will be prepared by the County's contractor and submitted to the County for approval prior to starting remediation work. The plan will be implemented to ensure that all remediation work is performed in accordance with applicable Occupational Safety and Health Administration regulations, in addition to other applicable federal, state, and local policies and regulations. The contractor will also designate a Health and Safety Officer responsible for ensuring compliance with the approved plan.

6.2 Stormwater Pollution Prevention Plan and Rain Event Action Plan

A Stormwater Pollution Prevention Plan (SWPPP) will be prepared in accordance with Caltrans specifications for projects disturbing 1 acre or more of soil. The SWPPP will be prepared by the contractor, reviewed by the County, and submitted to the RWQCB for approval. As part of the SWPPP requirements, a Rain Event Action Plan (REAP) will be submitted in advance of forecasted storm events.

6.3 Fugitive Dust Plan and Dust Monitoring

A Fugitive Dust Plan will be prepared and submitted to the El Dorado County Air Quality Management District (EDCAQMD) for approval. The plan will state the required site monitoring to meet the EDCAQMD rules to prevent, reduce, or mitigate fugitive dust emissions and will include a performance standard for visible dust emissions from leaving the DLP area.

6.4 Sampling and Analysis Plan

At least 60 days before initiating the excavation work, the County will provide an updated Sampling and Analysis Plan (SAP) to the RWQCB. The SAP will include collecting pre-remediation groundwater samples from YMW-1 and YMW-2 for dissolved hexavalent chromium analysis. The SAP will also include grab water sampling prior to excavating waste material in the Eastern Trough. The County will notify the RWQCB at least five working days ahead of excavation and sampling activities to allow for a site visit.

During excavation, routine material sampling will be performed to identify pH values greater than 8.5. Soil will be tested for elevated pH at a minimum frequency of one sample per 500 square feet of excavated area. White/gray lime waste material visually identified will not be tested and treated as high pH material.

Field pH measurements will be conducted as outlined in the Site Investigation Work Plan Section 3.3 (APTIM 2018). Duplicate samples will be taken at a rate of 5 percent and transported to a laboratory accredited by the State Water Resources Control Board's Environmental Laboratory Accreditation Program under chain of custody procedures. All samples and test readings will be documented and analyzed for pH in accordance with EPA Method 9045D.

6.5 Traffic and Waste Transport

The County's remediation work will be completed over a minimum of two stages. The first stage will include the remediation work at the Bradley Corner area, east of Throwita Way and south of Bradley Drive. Bradley Drive will be used for the County's contractor access in and out of the site, as well as the WC facility. The second stage will require the County's contractor to construct a segment of Diamond Springs Parkway between Throwita Way and State Route 49. This road will allow for remediation work to continue north of the existing Bradley Corner culvert inlet, along the eastern edge of Throwita Way, while maintaining access to the WC facility and other adjacent properties. The remediation work at the Western Drainage area can be completed independent of these stages.

A Material Transport Safety Plan will be prepared by the County's contractor and submitted to the County for approval prior to starting remediation work. The plan will identify methods for safely transporting lime waste off site to prevent spillage and release of airborne dust resulting from the lime material. The plan will identify the receiving facility, which will be approved by the RWQCB prior to offsite transport of lime waste.

6.6 Required Permits

The County anticipates issuance of, or compliance with the following permits prior to starting remediation work:

- Clean Water Act Section 401 Water Quality Certification and Order to be issued by the RWQCB
- General Permit for Discharges of Storm Water Associated with Construction Activity issued by the State Water Resources Control Board in accordance with Section 402 of the Clean Water Act
- Fish and Game Code Section 1600 Lake or Streambed Alteration Agreement to be issued by the California Department of Fish and Wildlife
- Authorization of Pre-Construction Notification under Nationwide Permit 14 to be issued by the U.S. Army Corps of Engineers
- County of El Dorado Environmental Management Department Application for Well Permit

6.7 Remedial Action Completion Report

Once the lime waste remediation work is completed, the County will submit a Remedial Action Completion Report to the RWQCB. The Report will include the following:

- Description of the work performed
- Photographs of the work chronology
- Material test results
- Field and laboratory pH analytical results and analytical reports
- Compaction test results
- Maps of excavation boundaries/extent and areas not excavated
- Disposal documentation
- Correspondence with the RWQCB
- Other relevant documentation

6.8 Post Construction Monitoring

Construction of the DSP project will require destruction of existing groundwater monitoring wells YMW-1 and HKMW 16-5. Destruction of these wells will be completed in accordance with the *California Well Standards* (Department of Water Resources), as well as El Dorado County Environmental Management Department requirements. Prior to completion of the remedial action, the County will prepare and submit a Post-Remediation Monitoring Plan to the RWQCB for approval. The Plan will include surface and groundwater monitoring to be conducted and submitted by County to RWQCB quarterly, for a period of at least two years following completion of DSP construction. Groundwater samples will be collected from remaining County-installed monitoring wells YMW-2 and AMW-1. Additionally, storm water samples will be collected from the proposed storm drain manhole located at the intersection of Throwita Way and Truck Street, which is located downgradient and north of the portion of the East Trough where lime waste is known to exist. The County will install two (2) new monitoring wells in the vicinity of the Western Drainage, north and south of the County R/W, within slope and drainage easement areas. The Post-Remediation Monitoring Plan will include sampling of the four (4) County-installed monitoring wells and the storm drain manhole located at the intersection of Throwita Way and Truck Street in order to evaluate effectiveness of the remediation work.

7.0 REFERENCES

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Figures

Figure 1 Site Location Map

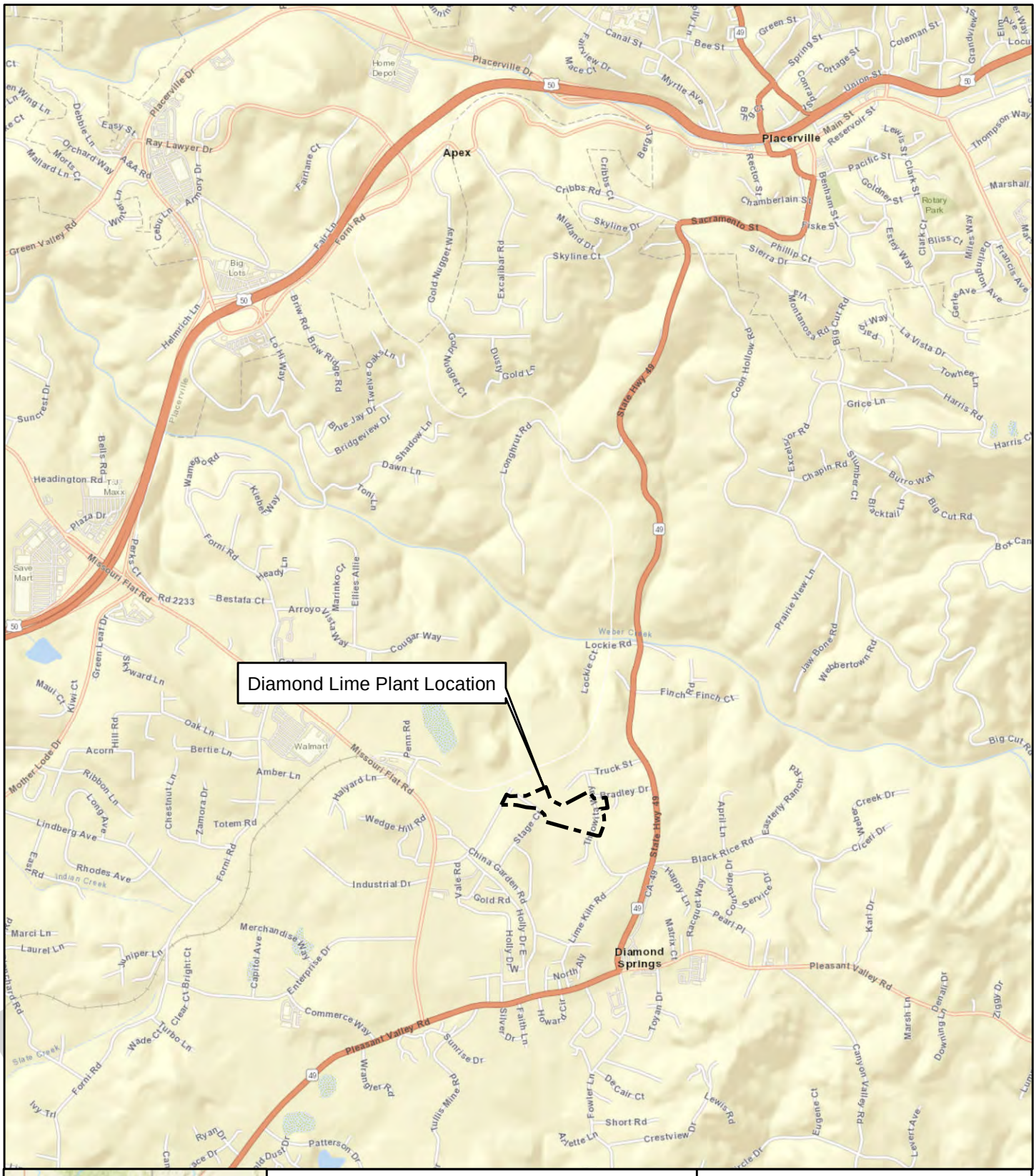

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Figure 2 Site Features

North Pond
El Dorado Trail
Appendix
East Trough
Throwita Way
Bradley Dr
Bradley Corner
Elisa Ct
PCI Holdings Property APN 051-250-54
Bedrock Trough
St Hwy 49
Abel Trust Property APN 051-250-61
PCI Holdings Property APN 051-250-51
Stage Ct
Chuckwagon Way
Western Drainage
Dimetrics Way
Lime Plant Rd
Old Fellows
Waste Connections CA INC APN 051-250-47
Holly Dr E
China Garden Rd
Hill St

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Historical Railroad
- El Dorado Trail
- Approximate Maximum Extent of the Lime Kiln Site (1962)
- Saturated Lime Waste within Trough
- Property Parcels

N

0 100 200 400 Feet

APTIM

Figure 2

Site Features

Diamond Springs Parkway Remedial Action Plan

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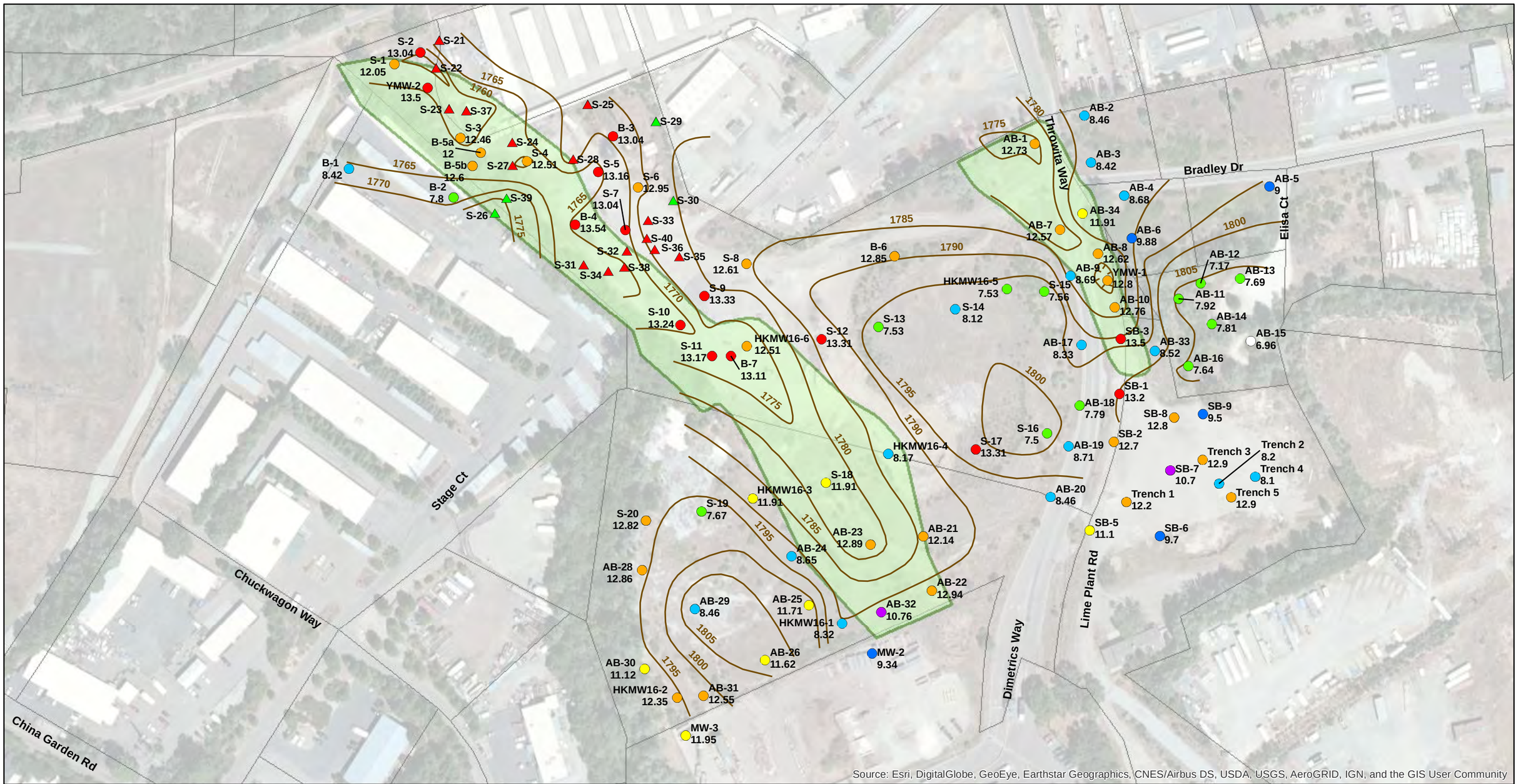
Figure 3 Maximum Soil pH Measured in Each Location



Legend

- Soil Boring or Monitoring Well Location
- No Lime Waste
- Lime Waste (pH not measured)
- Bedrock Surface Contour
- Saturated Lime Waste within Trough
- Property Parcels

Maximum Soil pH color key

- 6 to 7
- 7 to 8
- 8 to 9
- 9 to 10
- 10 to 11
- 11 to 12
- 12 to 13
- 13 to 14

N

0 75 150 300 Feet

APTIM

Figure 3

Maximum Soil pH Measured in Each Location

Diamond Springs Parkway Remedial Action Plan

Citrix: F:\Projects\Diamond_Springs_Pkwy\GIS_Documents\Project_Maps\DSPR_016a_Soil_pH_Data.mxd

Figure 4 Historical and Recent Groundwater and Surface Water pH Results

12.69
HKSW17-4
7.55
S-2
12.96
YMW-2
12.68
8.12
7.25
S-3
12.51
7.85
S-4
11.09
7.91
HKSW17-3
12.41
B-2
6.89
7.87
2B, 2C
7.66, 7.71
7.77
1B, 1C
7.46, 7.37
7.65
8.12
HKSW17-2
7.07
S-11
12.5
HKMW16-6
11.04
7.94
B-7
11.5
7.77
7.78
8.1
7.86
7.85
HKSW17-1
Dry
7.25
HKMW16-2
8.03
MW-3
7.79
7.76
7.68
7.92
8.13
7.77
7.78
8.11
7.75
7.84
7.95
7.76
AB-1
12.07
AMW-1
12.50
Bradley
Culvert
12.19
AB-8
12.4
AB-9
8.53
HKMW16-5
7.22
YMW-1
12.18
AB-10
11.71
HKMW16-4
6.71
S-18
11.85
HKMW16-3
11.96
AB-20
6.65
AB-21
8.37
AB-23
11.98
AB-32
8.12
HKMW16-1
7.36
MP-1
8.53
MW-2
7.33
DP-12
11.45
DP 10
8.71
MP-2
8.16
MW-5
7.4
MW-4
8.82
MP-3
13.53
MP-4
13.25
MP-6
7.75
MW-1
6.01
MP-5
11.6

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Groundwater Sample (December 2017 Waste Connection property; July 2019 Lindeman property)
- Surface Water Sample (2014-2018 March)
- Grab Groundwater Sample (2016 Waste Connection property; 2017-2018 Lindeman property)
- Saturated Lime Waste within Trough
- Property Parcels

pH color key

- 6 to 7
- 7 to 8
- 8 to 9
- 9 to10
- 10 to 11
- 11 to 12
- 12 to 13
- 13 to 14

N

0 62.5 125 250 Feet

APTIM

Figure 4

Historical and Recent Groundwater and Surface Water pH Results

Diamond Springs Parkway Remedial Action Plan

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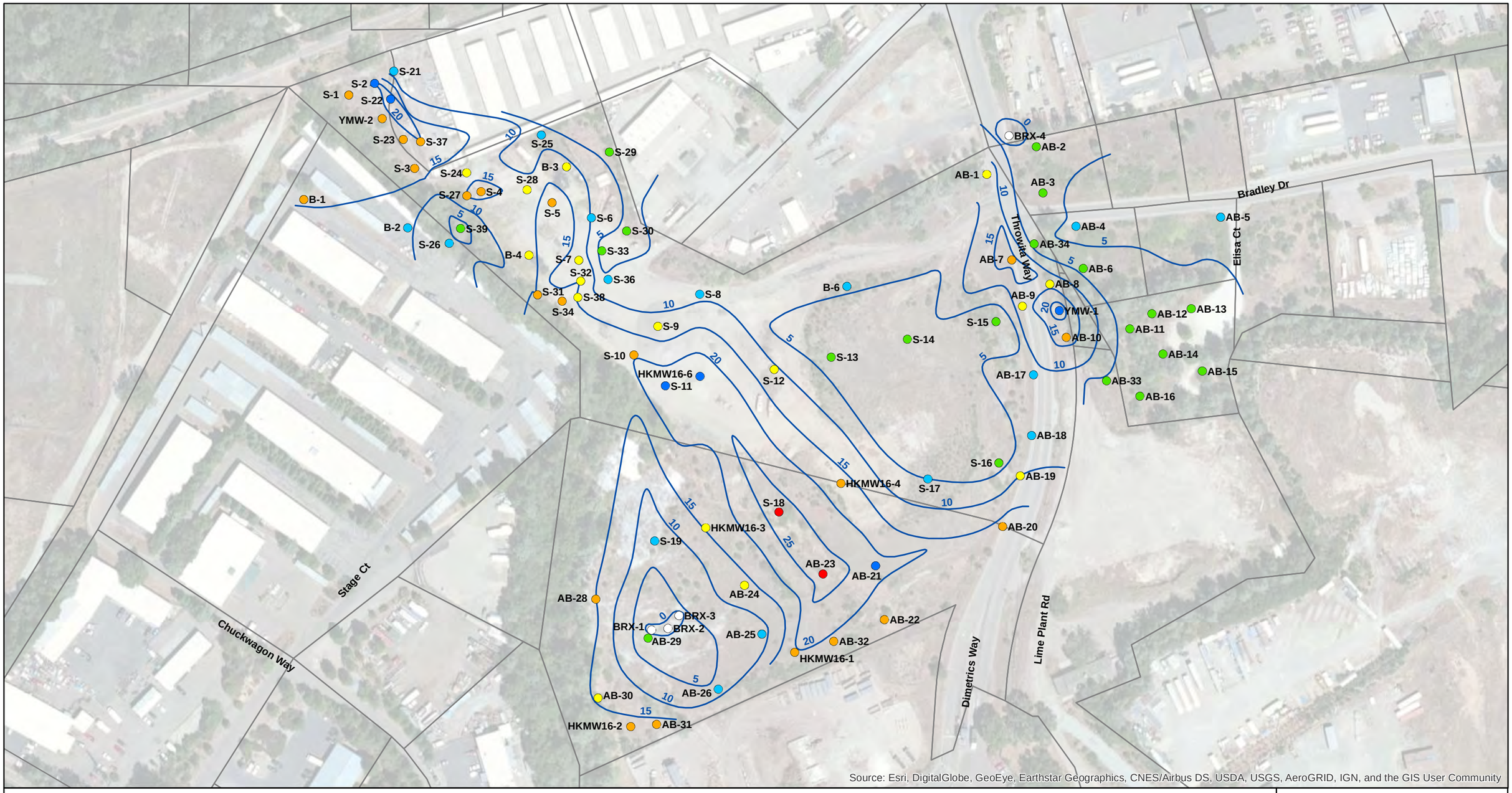
Figure 5 Depth to Bedrock Contours



Legend

Depth to Bedrock

- .01 to 4.9
- 5 to 9.9
- 10 to 14.9
- 15 to 19.9
- 20 to 24.9
- 25 to 28

- Surface Bedrock
- Depth to Bedrock Contour (feet bgs)
- Property Parcels

BRX - Bedrock Outcrop

N

0 75 150 300 Feet

APTIM

Figure 5

Depth to Bedrock Contours

Diamond Springs Parkway Remedial Action Plan

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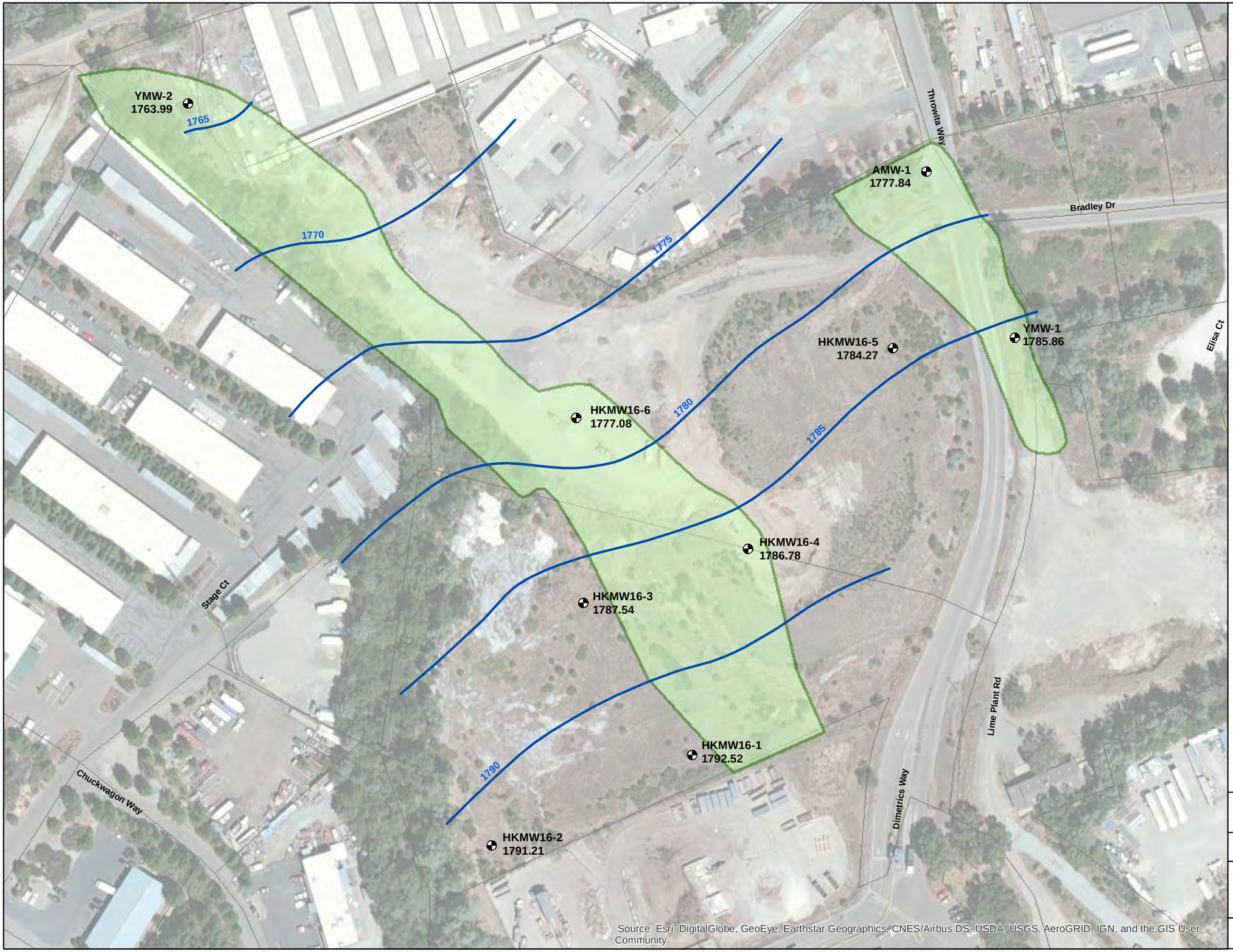
Figure 6 Groundwater Water Elevation Contours, July 2019



Legend

1784.27 - Groundwater Surface Elevation (July 2019)(feet mean sea level)

- Monitoring Well
- Groundwater Surface Contour
- Saturated Lime Waste within Trough
- Property Parcels

N

0 60 120 240 Feet

APTIM

Figure 6

Groundwater Water Elevation Contours
July 2019

Diamond Springs Parkway Remedial Action Plan

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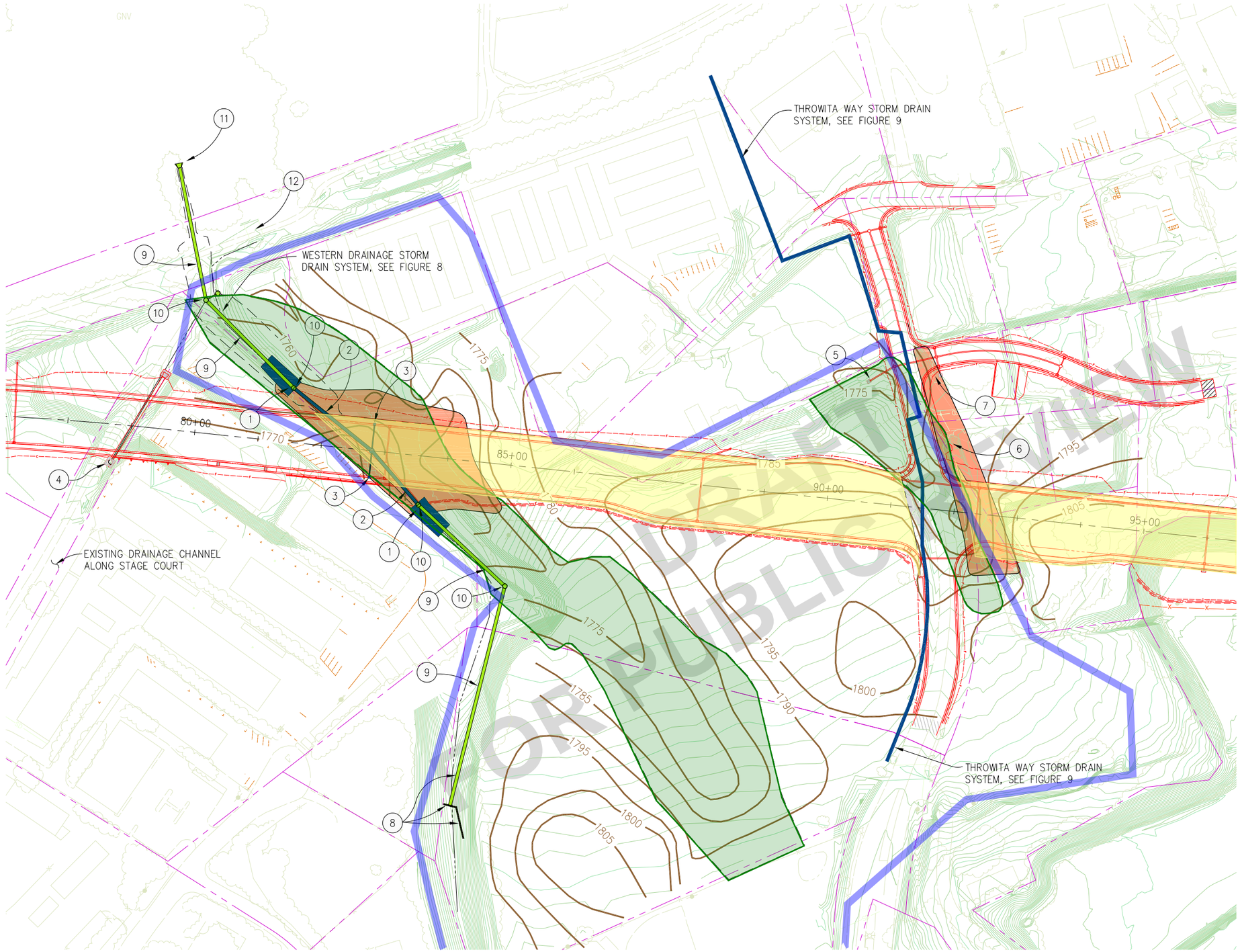
Figure 7 Diamond Springs Parkway Remediation Plan



LEGEND:

- — APPROXIMATE LIMITS OF SATURATED LIME WASTE AREAS
- — LIMITS OF LIME WASTE REMOVAL BY COUNTY
- — DRAINAGE IMPROVEMENTS BY COUNTY
- — DRAINAGE IMPROVEMENTS BY OTHERS
- — COUNTY RIGHT-OF-WAY
- — PROPERTY LINES
- — APPROXIMATE LIMITS OF DIAMOND LIME PLANT SITE (1962)
- — BEDROCK SURFACE CONTOUR

DRAINAGE IMPROVEMENTS BY COUNTY:

1. — NEW CULVERT OUTLET
2. — NEW CULVERT THROUGH WESTERN DRAINAGE ENCASED IN SLURRY CEMENT
3. — NEW ROADWAY DRAINAGE INLETS AND MANHOLE
4. — NEW CULVERT INLET AT STAGE COURT DITCH
5. — NEW SURFACE INLET INTO THROWITA WAY STORM DRAIN SYSTEM
6. — REMOVE EXISTING INLET AT BRADLEY CORNER
7. — NEW SURFACE INLET INTO THROWITA WAY STORM DRAIN SYSTEM

DRAINAGE IMPROVEMENTS BY OTHERS:

8. — PROPOSED HEADWALL AND WINGWALLS
9. — PROPOSED CULVERT SYSTEM
10. — PROPOSED MANHOLE
11. — PROPOSED NORTH POND RESTORATION AREA & CULVERT OUTLET
12. — PROPOSED REMOVAL / ABANDON EXISTING CULVERTS

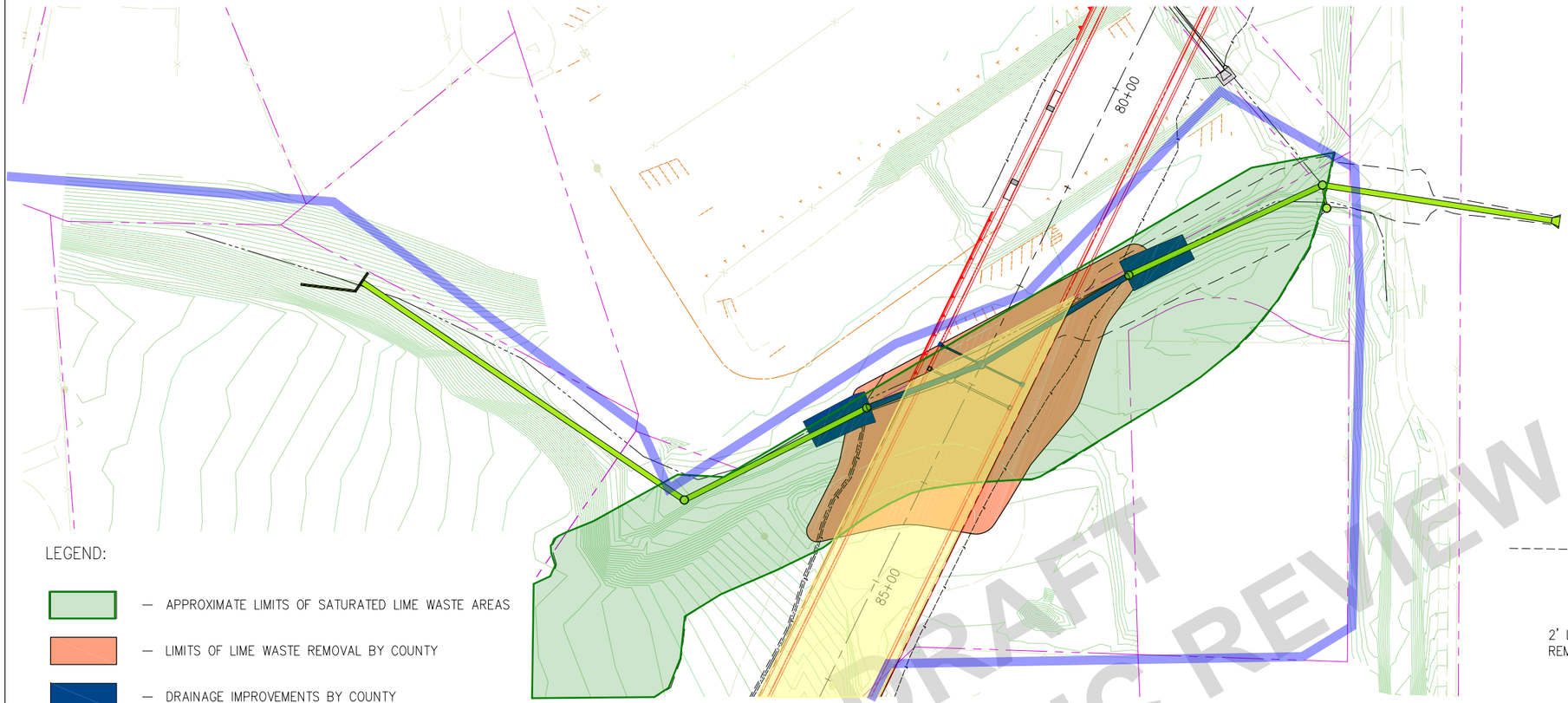
GENERAL NOTES:

1. PROPOSED DIAMOND SPRINGS PARKWAY IMPROVEMENTS SHOWN IN RED.

Scale: 1" = 80'

FIGURE 7:
DIAMOND SPRINGS PARKWAY REMEDIATION PLAN

Figure 8 Diamond Springs Parkway Western Drainage Remediation Plan



LEGEND:

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- LIMITS OF LIME WASTE REMOVAL BY COUNTY
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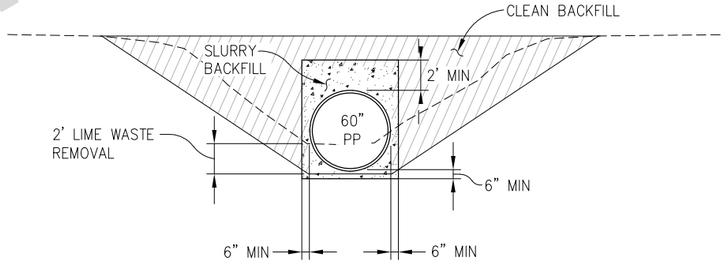
- DRAINAGE IMPROVEMENTS BY OTHERS
- COUNTY RIGHT-OF-WAY
- PROPERTY LINES
- APPROXIMATE LIMITS OF DIAMOND LIME PLANT SITE (1962)

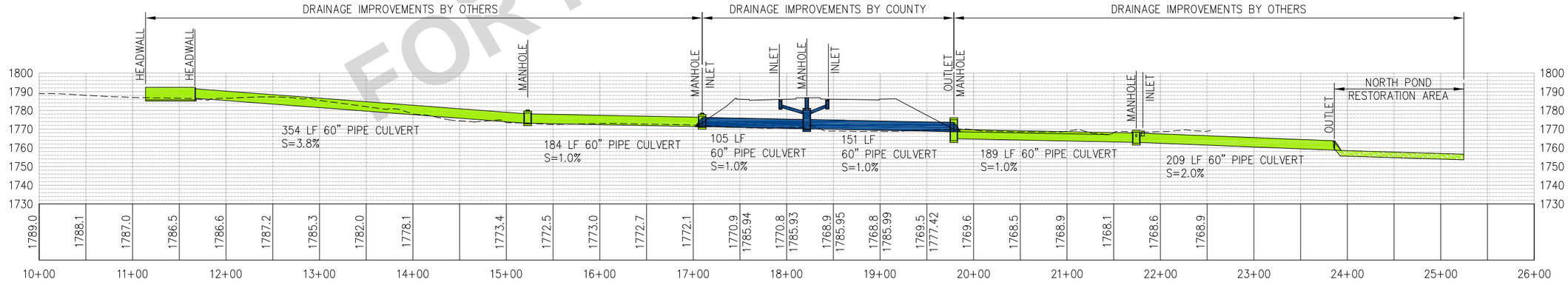
STORM DRAIN SYSTEM PLAN

SCALE: 1"=60'



60" CULVERT TRENCH SECTION

NO SCALE



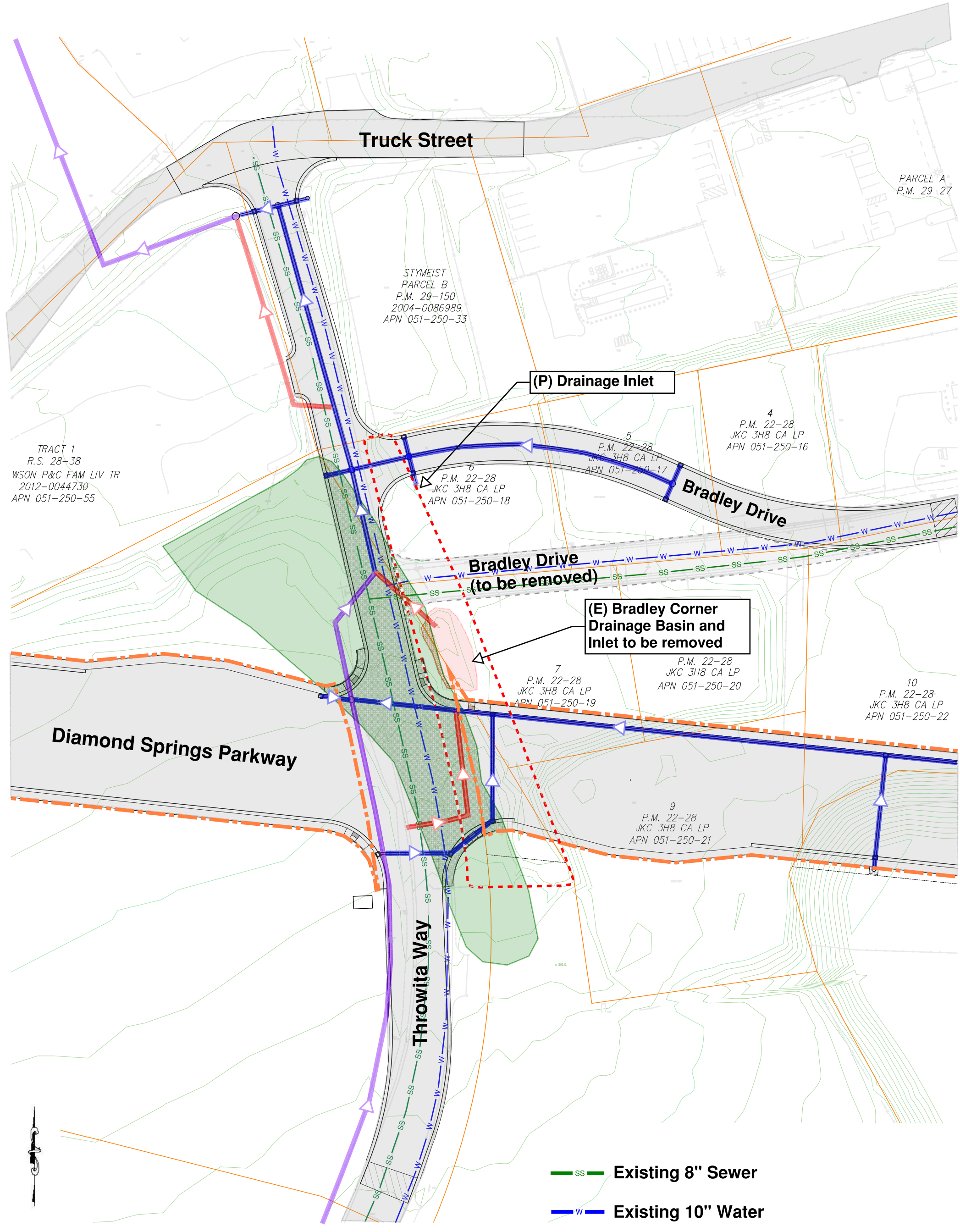
STORM DRAIN SYSTEM PROFILE

SCALE: 1"=60'H, 1"=30'V

FIGURE 8:
DIAMOND SPRINGS PARKWAY WESTERN DRAINAGE REMEDIATION PLAN

Figure 9 Diamond Springs Parkway Drainage System Improvements

FIGURE 9:
DIAMOND SPRINGS PARKWAY
DRAINAGE SYSTEM IMPROVEMENTS



Tables

Table 1
Applicable or Relevant and Appropriate Requirements

Table 1
Applicable or Relevant and Appropriate Requirements

Requirement	Description	Applicability
El Dorado County Ordinance Code Section 8.38.090 Hazardous Materials; Other Permits Required	Application for other permits under this chapter, including application for site remediation, underground storage tank construction, replacement, repair, removal or temporary closure, shall be filed on a form or forms provided by and containing such information as prescribed by the Director. These permits are not transferrable and any changes from the original application may be subject to additional fees.	Applicable only if the lime waste is determined to be classified as hazardous material.
El Dorado County Ordinance Code Section 8.42.560 Solid Waste Management; Construction/demolition projects	A. It shall be unlawful for the owner, agent or contractor in charge of any construction or demolition site to cause, maintain, permit, or allow to be caused, maintained, or permitted the accumulation of any solid waste and litter on the site before, during or after completion of the construction or demolitions project. B. It shall be the duty of the owner, agent or contractor to have adequate containers on site for the disposal of solid waste and litter and to make appropriate arrangements for the collection thereof or transportation by the owner, agent or contractor to an authorized facility for final disposal. While the container is on-site, substantial provisions shall be employed by the owner, agent or contractor so as to prevent the blowing	Applicable to projects involving construction.

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	or falling of solid waste from the container so as prevent a littering condition. C. The owner, agent, or contractor may be required at any time to show proof of appropriate collection, or if personally transported, of final disposal at an authorized facility.	
El Dorado County Ordinance Code Section 8.79.150 Reduction of pollutants in stormwater: best management practices	Activities that may result in pollutants entering a stormwater facility shall implement best management practices to the maximum extent practicable, or as determined by the Enforcement Agency to prevent such pollutants. ”BMP” is a broad term that refers to many of the actions that are required under or could be completed as part of the NPDES permit. Any person performing construction work within the County shall implement appropriate BMPs to prevent the discharge from the site of pollutants, soil, or construction wastes/debris, including contaminants from construction materials, tools, and equipment.	Applicable for projects that will require BMPs to control site runoff due to construction activities.
El Dorado County Air Quality Management District Rule 223-1 Construction Dust Rules	The purpose of this rule is to limit fugitive dust emissions from construction, and construction related activities.	Applicable for projects that could generate fugitive dusts during construction activities.
California Fish and Game Code Sections 1600-1616 Fish and Wildlife Protection and Conservation	Regulates activities that will substantially divert or obstruct the natural flow of, or substantially change or use any material from the	Applicable because the drainage system improvements will collect and redirect stormwater.

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	bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake in order to ensure the protection and conservation of the fish and wildlife resources of the state.	
EPA Clean Water Act Section 401 State Certification of Water Quality	Requires state certification of water quality for any activity that may result in any discharge into waters of the United States.	Applicable because of potential discharge of lime and high pH water and soil from the site into ponds and into tributaries of Weber Creek.
EPA Clean Water Act Section 404 Permitting Discharges of Dredge or Fill Material	Regulates the discharge of dredged and fill material into waters of the United States, including wetlands. Under Section 404(e), the U.S. Army Corps of Engineers can issue general permits to authorize activities that have only minimal individual and cumulative adverse environmental effects.	Applicable to projects involving potential discharge of fill material into nearby waterways.
California Water Code Division 7, Water Quality Sections 13050(h), 13241 Water Quality Objectives	Water quality objectives are presented in regional water control plans and are defined as limits of levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisances within a specific area. Section 13241 presents the factors considered in the development of these objectives.	Applicable due to high pH levels found in surface water and groundwater.

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California Water Code Division 7, Water Quality Section 13307.5 Notice and Public Participation for Specified Cleanup Proposals	Public participation in the cleanup decision making is required. At a minimum, a public notice will need to be prepared and mailed to stakeholders with 1,000 feet of the site and the public will be given a 30-day period to comment on the proposed remedy.	Applicable as part of the review and approval of a cleanup proposal.
The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region, May 2018 Chapter 3, Water Quality Objectives, Section 3.1, Objectives for Surface Waters	Narrative objectives present general descriptions of water quality that must be attained through pollutant control measures and watershed management. Numerical objectives typically describe pollutant concentrations, physical/chemical conditions of the water itself, and the toxicity of water to aquatic organisms.	Applicable to inland surface waters in the Sacramento and San Joaquin River Basins, or as noted.
California State Water Resources Control Board NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ	Requires a discharger to comply with the provisions contained in Division 7 of the California Water Code, the provisions of the federal Clean Water Act, and regulations and guidelines adopted thereunder. The General Permit is intended to address storm water discharges associated with typical construction projects and provide BMPs, Storm Water Pollutant Prevention Plans (SWPPPs), monitoring and sampling requirements, training, and effluent standards that would commonly be associated with such projects.	Applicable for management of stormwater discharges due to typical construction activities.

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8 CCR Section 5192 Hazardous Waste Operations and Emergency Response, Appendix C	This section covers the following operations, unless the employer can demonstrate that the operation does not involve employee exposure or the reasonable possibility for employee exposure to safety or health hazards: (A) Clean-up operations or hazardous substance removal work required by a governmental body, whether Federal, state, local or other involving hazardous substances that are conducted at uncontrolled hazardous waste sites (including, but not limited to, the Environmental Protection Agency's (EPA) National Priority Site List (NPL), state priority site lists, sites recommended for the EPA, NPL, and initial investigations of government identified sites which are conducted before the presence or absence of hazardous substances has been ascertained); (B) Corrective actions involving hazardous waste clean-up operations at sites covered by the Resource Conservation and Recovery Act of 1976 (RCRA) as amended (42 U.S.C. 6901. et seq.) and Chapters 6.5 and 6.8 of Division 20 of the California Health and Safety Code; (C) Voluntary clean-up operations at	Applicable

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	sites recognized by Federal, state, local or other governmental bodies as uncontrolled hazardous waste sites; (D) Operations involving hazardous wastes that are conducted at treatment, storage, and disposal (TSD) facilities regulated by 40 CFR Parts 264 and 265 pursuant to RCRA; or facilities regulated by Chapter 6.5 of Division 20 of the California Health and Safety Code; or by agencies under agreement with U.S.E.P.A. to implement RCRA regulations; and (E) Emergency response operations for releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazard.	
40 CFR Part 261.22 Characteristic of Corrosivity Standards	Identifies those wastes which are subject to regulation as hazardous wastes under RCRA.	Applicable for determining whether lime waste is subject to regulation as a hazardous waste.
22 CCR 66261.1 – 210 Purpose and Scope 22 CCR 66261.22 Characteristic of Corrosivity	Identifies those wastes which are subject to regulation as hazardous wastes under this division. Lime waste with a pH greater than or equal to 12.5 would meet the characteristic of corrosivity.	Applicable for determining whether lime waste is subject to regulation as a hazardous waste.
40 CFR Part 263 Standards Applicable to Transporters of Hazardous Waste	Establish standards which apply to persons transporting hazardous waste within the United States.	Applicable only if the lime waste is determined to be classified as hazardous material.

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40 CFR Part 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities	Establishes minimum national standards which define the acceptable management of hazardous waste. The standards apply to owners and operators of all facilities which treat, store, or dispose of hazardous waste.	Applicable only if the lime waste is determined to be classified as hazardous material.
California Water Code Sections 13000, 13140, 13263, 13304 Clean Water Act Regulations 40 C.F.R. Section 131.12 State Water Resources Control Board (State Water Board), Resolution No. 68-16 *Policy on Maintaining the High Quality of State Waters*	Resolution No. 68-16 (Anti-Degradation Policy) has been incorporated into all Regional Water Board Basin Plans. Requires that quality of waters of the State that is better than necessary to protect all beneficial uses shall be maintained unless certain findings are made. Discharges to high quality waters must be treated using best practicable treatment or control necessary to prevent pollution or nuisance and to maintain the highest quality water. Requires cleanup to background water quality or to lowest concentrations technically and economically feasible to achieve. Beneficial uses must, at least, be protected.	Applicable to discharges of waste to waters, including discharges to soil that may affect surface or ground waters. In-situ cleanup levels for contaminated ground waters must be set a background level, unless allowing continued degradation is consistent with the maximum benefit of the people of the state. If degradation of waters is allowed, or allowed to remain, the discharge must meet best practical treatment or controls standards, and result in the highest water quality possible that is consistent with the maximum benefit to the people of the state. In no case may water quality objectives be exceeded.
California Water Code Sections 13000, 13140, 13240 State Water Board, Resolution No. 88-63 *Sources of Drinking Water Policy*	Resolution No. 88-63 has been incorporated into all Regional Board Basin Plans. The policy designates all ground and surface waters of the state as drinking water except where the total dissolved solids (TDS) is greater than 3,000 ppm, the well yield is less than 200 gpd from a single well, the water is a geothermal resource or in a waste water conveyance facility, or the	Applicable in determining beneficial uses for waters that may be affected by discharges of waste.

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	water cannot reasonably be treated for domestic use using either the best management practices or best economically achievable treatment practices.	
California Water Code Sections 13000, 13140, 13240, 13260, 13263, 13267, 13300, 13304, 13307 State Water Board, Resolution No. 92-49 *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304*	Resolution 92-49 establishes policies and procedures for oversight of investigations and cleanup and abatement activities resulting from discharges of waste which affect or threaten water quality. It requires cleanup of all wastes discharged and restoration of affected water to background conditions (i.e., the water quality that existed before the discharge). Requires actions for cleanup and abatement to conform to Resolution 68-16, water quality control plans and policies, and applicable provisions of California Code of Regulations, title 23, division 3, chapter 15 (discharges of waste to land) as feasible.	Applicable to investigations, cleanups, and abatement of discharges of waste which affect or threaten water quality.