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POST CLOSURE LAND USE PLAN

MISSION CANYON 8 LANDFILL
LOS ANGELES, CALIFORNIA

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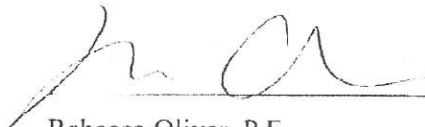
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Project Number SC0866

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**CERTIFICATION PAGE
POST CLOSURE LAND USE PLAN FOR
MISSION CANYON 8 LANDFILL
LOS ANGELES, CALIFORNIA**

This Post Closure Land Use Plan for Mission Canyon 8 Landfill in Los Angeles, California was prepared under the supervision and direction of the undersigned, whose seal as a registered Professional Engineer is affixed below.

 11/27/18

Rebecca Oliver, P.E.

Date

Principal



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1. INTRODUCTION

Geosyntec Consultants, Inc. (Geosyntec) has prepared this post-closure land use plan (PCLUP) on behalf of Monteverdi for the Mission Canyon 8 (MC8) Landfill located at 1801 North Sepulveda Boulevard Los Angeles, California. Monteverdi is proposing to subdivide approximately 449 acres into 31 lots, including 28 single family homes, and 424 acres of open space. The proposed open space includes the closed MC8 Landfill property. This PCLUP was prepared by Ms. Fabiana Arriaga, Ph.D., and reviewed by Mr. Cory Russell, P.E., Ms. Rebecca Oliver, P.E., both of Geosyntec in accordance with the peer and senior review policies of the firm.

1.1 Background

From 1965 through 1982, the Los Angeles County (County) Sanitation Districts conducted sanitary landfill operations in a series of canyons, referred to as Mission Canyons 4 through 8 located in the Santa Monica Mountains, immediately west of North Sepulveda Boulevard in the City of Los Angeles as indicated in the Vicinity Map (Figure 1). The landfills served residential, commercial, and industrial refuse disposal needs. The County Sanitation Districts operated the MC8 Landfill from 1978 until closure in 1982 [Impact Science, 2003]. Limited records documenting the MC8 Landfill design, closure activities, post-closure maintenance, and monitoring exist or were available for review at the time of preparation of this PCLUP.

1.2 Proposed Project

The proposed project will be located in a 449-acre site (Site) in the Brentwood-Pacific Palisades area of the City of Los Angeles. The proposed project includes subdivision of approximately 449 acres into 31 lots (Project), including 28 single-family homes, private streets, and open space parcels as presented in the Site Plan (Figure 2). The 28 single-family lots (lots 2 through 29) and associated private streets would be constructed on approximately 25 acres along the existing Stoney Hill and Canyonback ridges. The remaining approximately 424 acres (lots 30 through 32) will be preserved as permanent open space with no additional development planned. The proposed open space includes the closed MC8 Landfill (lot 32) and the existing Serpentine and Promontory Roads. Serpentine Road traverses the MC8 Landfill and intersects with Promontory Road north of the MC8 landfill. Promontory Road continues to North Sepulveda Boulevard to provide emergency access to the Site (Figure 1). The Project will include improvements to Serpentine and Promontory Roads to serve as secondary emergency access road.

1.3 Purpose

This PCLUP has been prepared to satisfy the California Environmental Quality Act (CEQA) modified conditions and California Code of Regulations, Title 27 (27 CCR). These requirements are described below.

1.3.1 California Environmental Quality Act

The Project was the subject of an Environmental Impact Report (EIR) (EIR No. 1999-3251-SUB; SCH No. 2003071197), which was prepared by Castle & Cooke California, Inc. and approved by the City of Los Angeles in 2006.

In accordance with provisions of Section 17.03 and 17.11 of the Los Angeles Municipal Code (LAMC), the Advisory Agency approved EIR No. 1999-3251-SUB that was certified by Los Angeles City Council on 2 August 2006 as the Environmental Clearance and the modification of Vesting Tentative Tract (VTT) No. 53072-2A located at the Project site. The Advisory Agency's approval is subject to a list of modified conditions, including:

Prior to recordation of the final map for the 28-home project, a Post Closure Plan for Mission Canyon 8 Landfill (lot 32) shall be submitted for review and approval by the Responsible Agencies, including the Local Enforcement Agency/Environmental Affairs Department, as the Post Closure Plan may be revised by approval of VTT 53072 and City Plan case (CPC) 2000-2276-VZC-GPA.

To provide compliance with the above condition, this PCLUP describes the impacts of the Project to the MC8 Landfill to demonstrate that post-closure activities will not jeopardize the integrity of the MC8 Landfill, including the existing environmental control systems, or pose a threat to public health and safety or to the environment.

1.3.2 California Code of Regulations, Title 27

California Code of Regulations Title 27 (27 CCR) Section 21100 states closure and post-closure requirements apply to disposal sites that: (1) were not closed prior to 18 November 1990; and (2) new post-closure activities which may jeopardize the integrity of previously closed disposal sites or pose a threat to public health and safety or to the environment.

The MC8 Landfill was closed in January 1982, which is prior to post-closure requirements outlined in 27 CCR 21100. However, based on communication with the Local Enforcement Agency (LEA), the proposed Project qualifies as a new post-closure activity which could potentially jeopardize the integrity of the MC8 Landfill or pose a threat to public health and safety or to the environment. Therefore, a PCLUP that

describes Project-specific impacts and mitigation measures related to the final cover, groundwater, surface water, drainage, erosion, and landfill gas monitoring, collection, and mitigations systems is provided herein.

1.4 Plan Organization

The PCLUP is organized as follows:

- Section 2 summarizes characteristics of the MC8 Landfill including permits, closure, post-closure requirements and oversight, setting, operation and waste composition, final cover, and groundwater, surface water, landfill gas monitoring and landfill gas collection systems, as well as the Serpentine Road;
- Section 3 describes the proposed land use changes including the residential component of the Project and the Serpentine Road improvements;
- Section 4 identifies the potential post-closure impacts resulting from implementation of the Project. Potential impacts to final cover, groundwater, surface water, and landfill gas monitoring, collection, and mitigation systems are discussed;
- Section 5 present conclusions; and
- Section 6 provides references.

2. MISSION CANYON 8 LANDFILL

This section discusses the MC8 Landfill permits, closure and post-closure requirements and oversight. This section also presents a description of the MC8 Landfill which includes the landfill setting, waste composition, final cover, and existing landfill gas monitoring and collection systems. Lastly, this section presents current characteristics of the Serpentine Road.

2.1 Permits

The landfill was operated under permits issued by the Los Angeles Regional Water Quality Control Board (LARWQCB) and other agencies. The LARWQCB permit limited the County Sanitation Districts to disposing ordinary residential and commercial refuse and/or rubbish, other decomposable organic refuse, and scrap metal. This permit prohibited the landfill from accepting hazardous wastes, liquids, oils, waxes, tars, soaps, solvents, salts, borax, lye, caustics, acids, sewage sludge, or toxics such as insecticides, poison, or radioactive materials [Impact Sciences, 2003].

2.2 Closure

The MC8 Landfill stopped receiving waste in 1981 [Air Resources Board, 1984], and was closed by the County Sanitation Districts in January 1982. The closure was reportedly consistent with the Site Closure and Maintenance Report, which was approved by the LARWQCB [Impact Sciences, 2003]. However, LARWQCB indicated that a copy of the Site Closure and Maintenance Report was not available for review at the time of preparation of this PCLUP.

2.3 Post-Closure Requirements and Oversight

Landfills are subject to government agency oversight and post-closure monitoring to preserve landfill integrity and to mitigate threats to public health and safety or to the environment. Three regulatory agencies are primarily responsible for overseeing the MC8 Landfill maintenance and monitoring:

- The City of Los Angeles Department of Building and Safety (LADBS) is the Local Enforcement Agency (LEA) for CalRecycle, which oversees compliance with applicable state regulations governing public health, safety, and the environment as it relates to landfills, including closed landfills.
- The LARWQCB is responsible for administering regulatory programs to protect surface water and groundwater, including the landfill maintenance and monitoring that is required under the permit issued to the landfill by the LARWQCB. The

LARWQCB is also the agency that oversees compliance with the stormwater permit.

- The South Coast Air Quality Management District (SCAQMD) has oversight for compliance with applicable regulations on air emissions. The landfill is subject to SCAQMD Rule 1150.1, which has detailed requirements for monitoring landfill gas and flare emissions and, if necessary, implementing corrective actions.

Based on the EIR, the MC8 Landfill is presently subject to a post-closure monitoring and maintenance program and a stormwater pollution prevention plan (SWPPP), both approved by the LARWQCB in 1989. Annual monitoring reports are submitted to the LARWQCB [Impact Sciences, 2003]. The LARWQCB indicated the annual monitoring reports, post-closure monitoring and maintenance program, and SWPPP approved in 1989, were not available for review at the time of preparation of this PCLUP.

2.4 Setting

The MC8 Landfill is an approximately 50-acre undeveloped site consisting of an east-west trending canyon tributary to the larger Sepulveda Canyon, and varies in elevation from approximately 800 feet near Sepulveda Boulevard to 1,580 feet on Stoney Hill ridge. The Santa Monica Slate formation and Recent Alluvium are the two main geologic units present in and adjacent to the MC8 Landfill. The Site Plan (Figure 2) shows the Project is bounded by the MountainGate golf course built over the Mission Canyon 4 through 7 landfills, and residential community to the north, North Sepulveda Boulevard/I-405 (San Diego Freeway) to the east, residential neighborhoods to the south (Brentwood District of Los Angeles) and Mount (Mt.) Saint Mary's Fire Road to the west (future extension of Stoney Hill Road).

Canyonback and Stoney Hill ridges define the higher elevation points of the Site, which is generally undeveloped, with areas of former disturbance, substantial native and non-native vegetation, limited infrastructure, and fire access roads. The MC8 Landfill site presently consists of terraced slopes covered with vegetation. Access to the MC8 landfill site is proposed from southern extensions of Canyonback and Stoney Hill Roads as shown in the Site Plan (Figure 2) [Impact Science, 2003].

2.5 Operation and Waste Composition

The County Sanitation Districts operated the MC8 Landfill from 1978 until 1982, during which time approximately 5.2 million tons of municipal solid waste was disposed at the site [Impact Science, 2003]. Accepted waste sources at the MC8 Landfill were approximately 37 percent residential, 23 percent commercial, 34 percent demolition, and

6 percent other. No liquids or hazardous waste greater than household amounts were accepted at MC8 Landfill [Air Resource Board, 1984].

2.6 Final Cover

Based on the EIR, the MC8 Landfill closure requirements included placement of a minimum 3-foot (ft) thick compacted soil cover and post-closure monitoring [Impact Sciences, 2003]. Later reports indicate the existing MC8 Landfill final cover is on average approximately 15-ft thick and is composed of relatively impermeable soil (weathered shale) with a surficial vegetated layer [Air Resource Board, 1984; AMEC Foster Wheeler, 2017].

According to the EIR, the MC8 Landfill Post-Closure Maintenance Plan includes the following requirements [Impact Sciences, 2003]:

- Regularly monitor the landfill surface for any cracks, ponded water, erosion, obstruction in drainage and stressed vegetation; recommend appropriate corrective action and document that such action is implemented.
- Maintain the site's landscaping, including trimming or clearing of brush and trees, and fertilizing and replanting.

Additionally, the landfill surface is visually inspected immediately following unusual occurrences (e.g., heavy rainstorms or earthquakes), which have the potential to affect the landfill's integrity, and final cover repairs are performed as needed [Impact Sciences, 2003].

Landfill gas emissions are monitored by instantaneous, and integrated landfill surface monitoring with laboratory analysis for Total Organic Compounds (TOC) and Total Aromatic Compounds (TAC) [SCS Engineers, 2013a, 2013b, 2014a, 2014b, 2014c, 2015a, 2015b, 2015c, 2016a, 2016b, 2016c, 2016d, 2017a and 2017b].

Available MC8 Landfill Quarterly Rule 1150.1 Emissions Monitoring Reports for years 2013 through 2017 indicate no surface grids exceeded the TOC regulatory limit during the instantaneous landfill surface monitoring. In addition, the integrated surface sampling rendered no TOC or TAC exceedances [SCS Engineers, 2013a, 2013b, 2014a, 2014b, 2014c, 2015a, 2015b, 2015c, 2016a, 2016b, 2016c, 2016d, 2017a and 2017b].

2.7 Surface Water

Surrounding areas are graded away from the landfill to minimize run-on. The final cover is graded to prevent ponding of surface water, resist erosion as a result of precipitation, and promote drainage to a center concrete storm water channel, which flows to a storm

drain beneath North Sepulveda Boulevard. Closure requirements included landscaping the cover with vegetation to reduce cover erosion and surface runoff.

According to the EIR, the MC8 Landfill Post-Closure Maintenance Plan includes requirements for monitoring and maintaining the drainage structures to be in good repair and free of debris. Additionally, the landfill surface is re-graded as needed to maintain proper drainage, and annually, before the rainy season, the various drainage benches and facilities are cleared of debris and re-graded as needed [Impact Sciences, 2003].

2.8 Groundwater

The MC8 Landfill is located in the Santa Monica Mountains at elevations higher than established groundwater basins in the region [DWR, 2003]. Regional groundwater was not encountered above elevation of approximately 1,280 feet during field investigations performed along Stoney Hill and Canyonback ridges, with the exception of one borehole¹ [G. A. Nicoll, 1987 and Leighton, 2003]. Although the slate and sedimentary bedrock are generally not water bearing, localized minor seepage was observed along fractures and joints in current and prior explorations at the site [Amec Foster Wheeler, 2017]. The Waste Discharge Requirements (WDR) references a geohydrology investigation performed by Robert Stone and Associated in 1977, during which no groundwater was encountered in the MC8 Landfill site [LARWQCB, 1978].

The WDR also indicates observation/monitoring wells were reportedly installed in the MC8 Landfill. The WDR reporting requirements included monthly observations of static water levels [LARWQCB, 1978]. One groundwater monitoring well is included in the MC8 Landfill plot plan provided by LADBS in May 2017 and its approximate location is shown in Figure 2. Groundwater level monitoring data and details of current groundwater monitoring requirements were not available for review at the time of preparation of this PCLUP.

Based on telephone communications on 26 March 2004 and 16 April 2004, the LARWQCB indicated the WDR were rescinded in 2000, resulting in groundwater monitoring no longer being required at the site. The LARWQCB indicated the WDR were rescinded because groundwater quality monitoring indicated there were no perceived potential impacts and groundwater chemistry was consistent over time.

¹ One borehole located along the existing terminus of Stoney Hill Road located groundwater at approximately 1,425 feet [Leighton, 2003].

2.9 Leachate

Review of the WDR for the MC8 Landfill indicates a leachate control barrier is present across the east end of the canyon. The leachate control barrier reportedly extends vertically from the surface, through the alluvium and weathered bedrock, and is keyed into the unweathered bedrock formation. The leachate control barrier was reportedly built with core materials with maximum permeability of 1×10^{-6} cm/sec and according to construction compaction requirements [LARWQCB, 1978]. Approximate location of the leachate control barrier is included in the MC8 Landfill plot plan provided by LADBS in May 2017 and it is shown in Figure 2. Records of construction and/or as-built documents for the leachate control barrier were not available for review at the time of preparation of this PCLUP.

2.10 Landfill Gas

2.10.1 Landfill Gas Monitoring System

The MC8 Landfill closure requirements included installation of a landfill gas probes to monitor landfill gas migration at the property boundary [Impact Sciences, 2003]. Based on a Probe Location Map provided by SCS Engineers dated August 2007, the gas monitoring system consists of twenty-six (26) perimeter gas monitoring probes located along Stoney Hill ridge (Figure 3). However, the MC8 Landfill Emissions Monitoring Report for the first quarter of 2017 [SCS Engineers, 2017], states the landfill gas monitoring systems consists of twenty-four (24) perimeter monitoring probes. Site reconnaissance will be performed to verify the exact number and location of landfill gas perimeter monitoring probes prior to Project construction.

Gas monitoring probes at the MC8 Landfill consist of minimum 6-inch diameter boreholes containing 1-inch diameter schedule 40 polyvinyl chloride (PVC) with ¼-inch diameter polyethylene tubing and sampling insert inside placed within 12-inch screen intervals at depths of 10 feet and 20 feet. The screened segments are located within 12-inch thick filter packs at depths of 10 and 20 feet, which are sealed by bentonite [Geomatrix, 2007] (Figure 4).

The MC8 Landfill gas monitoring plan includes monthly monitoring of perimeter gas probes, and annual laboratory analysis for TAC compounds [SCS Engineers, 2017]. The MC8 Landfill Quarterly Emissions Monitoring Reports for years 2013 through 2017, prepared according to SCAQMD Rule 1150.1 requirements, indicate no detection of methane above regulatory limits in any of the probes [SCS Engineers, 2013, 2014, 2015, 2016 and 2017].

2.10.2 Landfill Gas Collection System

After the closure of the MC8 Landfill, a landfill gas collection system was implemented for commercial recovery of landfill gas, and to provide protection of public health and safety and the environment. Commercial landfill gas recovery took place from 1984 until 2018. The MC8 Landfill gas collection system currently consists of interior vertical gas collection wells installed within the waste, and associated piping, collection headers, and a blower flare station [SCS Engineers, 2017]. The depth of the interior gas collection wells reportedly varies with the depth of the waste. Based on telephone communication with the SCAQMD on 31 March 2004, perimeter vertical gas control wells shared with the Mission Canyon 7 landfill were installed outside the waste limits of the MC8 Landfill. Based on a the MC8 Landfill As-Built Gas Recovery System Map dated 1984 provided by LADBS, approximately eighty-five (85) interior gas extraction wells have been installed in the MC8 Landfill, however, additional gas collection wells may have been installed as necessary to reduce landfill gas emissions [Impact Sciences, 2003] (Figure 5). Construction details for the vertical gas collection wells were not available for review at the time of preparation of this PCLUP.

The MC8 Landfill monitoring plan includes annual laboratory analysis for TOC and TAC of landfill gas sample from gas collection system, and annual flare emission testing. The MC8 Landfill Quarterly Emissions Monitoring Reports for years 2013 through 2017, prepared according to SCAQMD Rule 1150.1 requirements, indicated flare destruction efficiency was in compliance [SCS Engineers, 2013, 2014, 2015, 2016 and 2017].

2.11 Serpentine Road

The MC8 Landfill currently includes a paved maintenance road, Serpentine Road, which is accessible at the top of the landfill through Mt. St. Mary's Fire road along Stoney Hill ridge and traverses the MC8 Landfill east to Promontory Road, which continues to North Sepulveda Boulevard. The length of Serpentine Road from Mt. St. Mary's Fire road at the crest of the hill to Promontory Road is approximately 5,400 feet, of which approximately 4,400 feet are constructed over the MC8 Landfill. The portion of Serpentine Road located over the MC8 Landfill ranges in elevation from approximately 1,500 feet to 1,080 feet and varies in grade from approximately 2 to 20 percent. Existing grading for Serpentine Road is presented in Attachment 1.

3. POST-CLOSURE LAND USE CHANGES

3.1 Residential Project

The 28 single-family lots and accompanying private streets will be constructed on approximately 25 acres within the 449-acre Site. The 28 homes would be built on lots varying in size from approximately 0.4 to 1.3 acres. A total of 22 residential lots would be developed along the Stoney Hill Road extension with 11 lots on the eastern side of the street and 11 lots on the western side. The remaining 6 residential lots would be located on Canyonback Road extension along Canyonback ridge. A Site Map is presented in Figure 2.

Development of the Project will require grading and placement of fill for the extension Stoney Hill Road and Canyonback Road and construction of pads for the single-family homes. Grading to form the pads/lots for the area along Stoney Hill and Canyonback ridges would create approximately 1,055,000 cubic yards of excess cut earth material.

As reported in the EIR, the anticipated impacts to the MC8 Landfill resulting from the residential component of the Project are:

- Possible use of approximately 20,000 cubic yards of balance cut earth material from the Stoney Hill ridge as fill material for the improvements of Serpentine Road; and
- Proposed on-site stockpiling and/or spreading of approximately 20,000 cubic yards of the remaining cut earth material at a fill location southwest of the northern edge of the MC8 Landfill (Figure 2). The remaining balance of the cut earth material is planned to be disposed in an area between Stoney Hill and Canyonback ridges [Impact Science, 2003].

3.2 Serpentine Road

The Serpentine Road will be improved to meet Los Angeles Fire Department (LAFD) emergency roadway access requirements. The improved road will be used as a secondary emergency access; however, it will not be an accessible thoroughfare. The Serpentine Road will be improved to have a minimum roadway width of 20 feet, a maximum grade of 18 percent, and be subject to the approval of the LAFD. The roads will be asphalt paved to provide a suitable all-weather surface.

The proposed grading for the portion of Serpentine Road over the MC8 Landfill includes placement of approximately 20,000 cubic yards of fill to create a 20-foot wide road with 2H:1V side slopes with maximum heights of 10 feet. Fill material could consist of balance on-site cut earth material generated from grading of the residential component of the

Project or imported fill. The proposed Serpentine Road grading includes construction of an approximately 95 feet long, maximum 2.5-ft tall retaining wall. Design of the retaining wall will consider waste settlement, minimize cover disturbance, and provide positive runoff drainage towards the drainage features of the MC8 Landfill. Proposed grading for Serpentine Road is presented in Attachment 1.

4. POST CLOSURE IMPACTS

4.1 Final Cover

As discussed in Section 2.6, the existing MC8 Landfill final cover consists of relatively impermeable soil with a reported average thickness of up to approximately 15 feet, overlain by a vegetated soil layer [Air Resource Board, 1984; AMEC Foster Wheeler, 2017]. The proposed improvements of the Serpentine Road will result in disturbance of approximately 5.3 acres of the 50-acre landfill site through placement of approximately 20,000 cubic yards of additional fill material up to 10-feet high over the existing final cover. The addition of soil over the final cover is not needed to protect public health and/or provide safety based on the current condition and understanding of the conditions of the final cover.

Fill material for the MC8 Landfill final cover was generated from grading along Stoney Hill ridge [Leighton, 2003]; therefore, fill generated from cuts or overexcavations at the site is likely to have the same properties as the existing final cover. On-site or import fill material will be free from trash, debris, rocks larger in size than 8 inches, and any other deleterious materials and should be approved by the project geotechnical consultant prior to placement [Leighton, 2003].

Fill placement will be conducted in a manner that minimizes disturbance and maintains the integrity of the final cover. Appropriate fill placement techniques will be utilized such as scarification and compaction of the existing subgrade and moisture conditioning, lift thickness consistency, and compaction of the fill. The existing final cover will not be removed or reduced except as necessary for clearing and grubbing prior to fill placement.

Potential settlement of the final cover due to the placement of fill material associated with the Serpentine Road improvements should be visually inspected and evaluated during construction to monitor the integrity of the final cover is maintained. If there is potential for significant settlement, methods for monitoring and repair shall be implemented.

4.2 Groundwater

Groundwater quality monitoring results presented in Section 2.8, indicate there are minimal perceived potential groundwater impacts from the MC8 Landfill. Consequently, continued implementation of adequate post-closure monitoring and maintenance procedures should preserve the absence of groundwater impacts. Nonetheless, perched groundwater may be encountered during excavations within bedrock such as cut slopes or road grading. Mitigation measures would be needed if perched water were encountered [Amec Foster Wheeler, 2017].

4.3 Surface Water

The Project includes approximately 9 acres of undisturbed land that will become impervious surfaces comprised of building structures, paved roadways, and concrete walkways. The proposed Project will also alter the characteristics of the existing surface water flows in the tributary drainage areas. The runoff generated from the development along Stoney Hill and Canyonback Roads will flow into Bundy Canyon located west of the MC8 Landfill. Runoff from areas to remain as open space is not expected to be impacted by the Project and will continue to flow into Kenter and Mandeville Canyons, which are located south and west of the MC8 Landfill, respectively. A detention basin will be installed in Bundy Canyon to collect and release runoff downstream at less than or equal to pre-development flow conditions [Impact Sciences, 2003]. Consequently, little to no change in surface water flow into the MC8 Landfill parcel is expected as a result of the residential component of the Project.

The MC8 Landfill is subject to the National Pollutant Discharge Elimination System (NPDES) state stormwater permit program. A stormwater pollution prevention plan (SWPPP) was prepared for the MC8 Landfill and its provisions were implemented, and an annual report is submitted to the LARWQCB [Impact Sciences, 2003]. However, the SWPPP was not available for review at the time of preparation of this PCLUP.

Construction activities associated with the Project will be implemented under the California Construction General Permit (CGP, Order 2010-0014-DWQ). Examples of Best Management Practices (BMPs) that may be implemented during site grading and construction as part of the SWPPP could include the following [Impact Sciences, 2003]:

- Covering excavated and graded areas where loose, bare soil might otherwise be subject to wind and water erosion.
- Disallowing the placement of any soil material in the path of known drainage areas.
- Providing temporary de-silting basins to ensure that surface water flow do not carry significant amounts of on-site soils and contaminants downstream.
- Requiring that any construction vehicle maintenance be conducted in staging areas where appropriate controls have been established to ensure that fuels, motor oil, coolant, and other hazardous materials are not deposited into areas where they may enter surface water and groundwater.
- Restricting the use of chemicals that may be transferred to surface waters by storm-water flows or leach to groundwater basins through water percolation into the soil.

- Requiring that permanent slopes and embankments be vegetated as soon as possible following final grading.
- Pad drainage should be designed to collect and direct surface water away from structures to approved drainage facilities. A minimum downward gradient of approximately 2 percent should be maintained, and drainage should be directed toward approved swales or drainage facilities.
- Positive drainage should be maintained in the areas and/or slopes adjacent to mapped landslides (if not removed) on top of natural slopes. The potential surface water collected should be directed away from the areas and into proper drainage gutters or inlets.

4.4 Landfill Gas Monitoring System Impacts

As described in Section 2.10.1, the MC8 Landfill gas monitoring system currently consists of between twenty-four (24) and twenty-six (26) perimeter gas monitoring probes located along Stoney Hill ridge. Existing landfill gas monitoring probes will be impacted by proposed grading activities. Prior to grading, a site reconnaissance will be conducted to identify the actual number and location of existing gas monitoring probes. The existing probes shall then be removed and/or abandoned in accordance with applicable regulatory requirements.

New gas monitoring probes are proposed along the northwest perimeter of the MC8 Landfill to allow for evaluation of landfill gas migration impacts to the proposed 28 residential lots. Per 27 CCR 20925(b), the lateral spacing between adjacent monitoring wells will not exceed 1,000 feet. The proposed gas monitoring probes shall meet the requirements of 27 CCR 20925(c) as follows:

The depth of the wellbore of all monitoring wells shall equal the maximum depth of waste. The number and depths of monitoring probes within the wellbore shall include: (i) a shallow probe installed 5 to 10 feet below the surface; (ii) an intermediate probe installed at or near half the depth of the waste; and (iii) a deep probe set at or near the depth of the waste. However, the specified depths of monitoring probes within the wellbore shall be adjusted based on geologic data obtained during drilling, low seasonal water table levels, and presence of perched ground water.

To satisfy 27 CCR 20925(d), gas monitoring probes will be drilled by a licensed drilling contractor or by a drilling crew under the supervision of the design engineer or engineering geologist. Probes will be logged during drilling by a geologist or geotechnical engineer. Soils will be described using the ASTM Designation D2488 method for visual

classification, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Rock units, if encountered, shall be described in a manner appropriate for geologic investigation. A record of each gas monitoring probe will be maintained by the operator and submitted to the LEA upon request. The depth of waste will be inferred based on pre-disturbance topographic maps and/or landfill gas well logs, if available. New borings through waste will not be performed.

4.5 Landfill Gas Collection System Impacts

As discussed in Section 2.10.2, the MC8 Landfill gas collection system consists of approximately eighty-five (85) vertical wells installed in the waste. Proposed grading of Serpentine Road will potentially impact some existing gas collection wells. The design and layout of the existing landfill gas collection well network was based on landfill gas harvesting rather than migration control; therefore, it is proposed that MC8 gas collection wells impacted by grading along Serpentine Road be abandoned in accordance with applicable regulatory requirements in lieu of relocation.

Prior to grading, a site reconnaissance will be conducted to identify the actual number and location of existing gas collection wells that will be impacted by grading. Based on the available gas collection wells information, a preliminary estimate of twelve (12) wells are proposed to be abandoned as shown in Figure 5.

To date, the SCAQMD gas emissions Rule 1150.1 has been satisfied with the landfill gas management practices implemented at the MC8 Landfill. Consequently, potential impact resulting from landfill gas emissions can be considered to be insignificant.

Landfill gas will continue to be extracted from existing gas collection wells that are not abandoned and will continued to be flare on-site.

4.6 Landfill Gas Mitigation System

Per 27 CCR § 21190, construction within 1,000 feet of the boundary of any disposal area shall be designed and constructed to include a landfill gas mitigation system. For this Project, homes constructed on residential lots 2 through 22 along Stoney Hill Road will require installation of a landfill gas mitigation system due to their proximities to the Mission Canyon 7 and MC8 landfills. To comply with 27 CCR § 21190, the landfill gas mitigation system will include:

- a geomembrane or equivalent system with low permeability to landfill gas installed between the concrete floor slab of the building and subgrade;

- a permeable layer of open graded material of clean aggregate with a minimum thickness of 12 inches installed between the geomembrane and the subgrade or slab;
- a geotextile filter to prevent the migration of fines into the permeable layer;
- perforated venting pipes installed within the permeable layer, designed to operate without clogging;
- venting pipe constructed with the ability to be connected to an induced draft exhaust system;
- automatic methane gas sensors installed within the permeable gas layer, and inside the building to trigger an audible alarm when methane gas concentrations are detected; and
- periodic methane gas monitoring shall be conducted inside all buildings and underground utilities in accordance with 27 CCR §20920 et seq.

5. CONCLUSION

The proposed Project includes subdivision of approximately 449 acres into 31 lots including 28 single-family homes, private streets, and open space parcels as presented in the Site Plan (Figure 2). The proposed open space includes the closed MC8 Landfill (lot 32) and the existing Serpentine and Promontory Roads, which provide access to the site from Sepulveda Boulevard traversing the MC8 Landfill. The Project will also include improvements to the Serpentine and Promontory Roads to serve as a secondary emergency access road.

Potential impacts to the MC8 Landfill resulting from the residential component of the Project are: possible use of balance cut earth material from Stoney Hill ridge as fill material for the improvements of Serpentine Road; proposed on-site disposal of remaining cut earth material at a fill location southwest of the northern edge of the MC8 Landfill, and abandonment of existing landfill gas probes in concurrence with installation of new landfill gas monitoring probes.

Possible impacts to the final cover due to the use of on-site fill material will be minimized by requiring approval by the project geotechnical consultant prior to placement to ensure compliance with project specifications. Possible impacts associated with the on-site fill material stockpiling and/or spreading will be reduced by limiting fill placement to areas outside the MC8 Landfill.

The MC8 Landfill elements that could potentially be impacted by the proposed Serpentine Road improvements include final cover, groundwater, surface water, and landfill gas collection systems. Pad grading and resident construction will impact landfill gas monitoring probes. Nonetheless, corresponding mitigation measures, relocation of probes, and continued implementation of adequate post-closure monitoring and maintenance procedures will minimize these potential impacts.

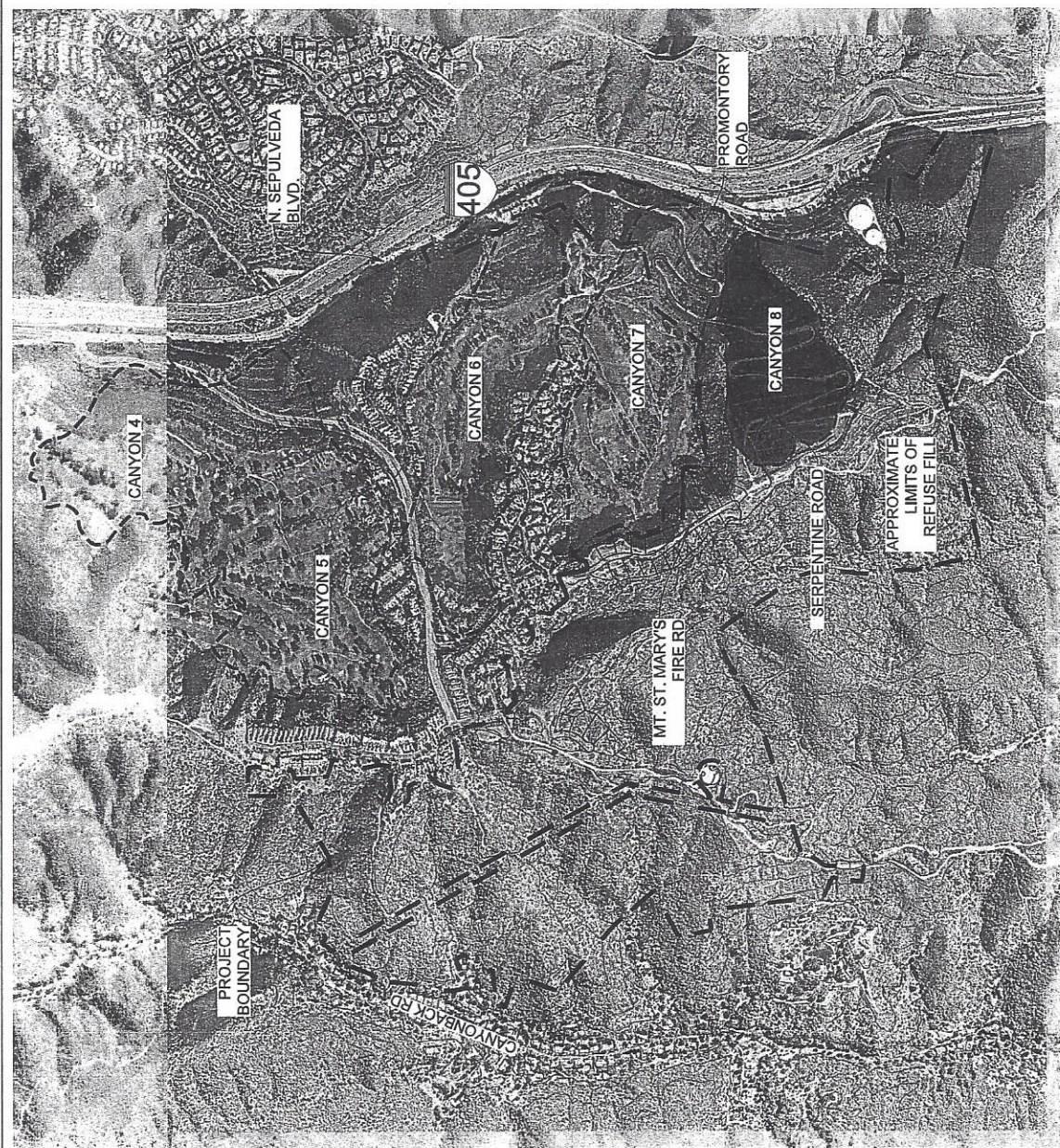
Additionally, due to the proximity to the Mission Canyon 7 and MC8 Landfills (i.e. less than 1,000 feet), proposed homes located on residential lots along Stoney Hill Road will be designed and constructed to include a landfill gas mitigation system in accordance with 27 CCR § 21190.

6. REFERENCES

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- SCS Engineers (2014b). "First Quarter 2014 Rule 1150.1 Emissions Monitoring Report, Mission Canyon 8 (MountainGate) Los Angeles, California". May 2014.

- SCS Engineers (2014c). "Third Quarter 2014 Rule 1150.1 Emissions Monitoring Report, Mission Canyon 8 (MountainGate) Los Angeles, California". November 2014.
- SCS Engineers (2015a). "First Quarter 2015 Rule 1150.1 Emissions Monitoring Report, Mission Canyon 8 (MountainGate) Los Angeles, California". May 2015.
- SCS Engineers (2015b). "Second Quarter 2015 Rule 1150.1 Emissions Monitoring Report, Mission Canyon 8 (MountainGate) Los Angeles, California". August 2015.
- SCS Engineers (2015c). "Third Quarter 2015 Rule 1150.1 Emissions Monitoring Report, Mission Canyon 8 (MountainGate) Los Angeles, California". November 2015.
- SCS Engineers (2016a). "Fourth Quarter 2015 Rule 1150.1 Emissions Monitoring Report, Mission Canyon 8 (MountainGate) Los Angeles, California". February 2016.
- SCS Engineers (2016b). "First Quarter 2016 Rule 1150.1 Emissions Monitoring Report, Mission Canyon 8 (MountainGate) Los Angeles, California". May 2016.
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- SCS Engineers (2016d). "Third Quarter 2016 Rule 1150.1 Emissions Monitoring Report, Mission Canyon 8 (MountainGate) Los Angeles, California". November 2016.
- SCS Engineers (2017a). "Fourth Quarter 2016 Rule 1150.1 Emissions Monitoring Report, Mission Canyon 8 (MountainGate) Los Angeles, California". February 2017.
- SCS Engineers (2017b). "First Quarter 2017 Rule 1150.1 Emissions Monitoring Report, Mission Canyon 8 (MountainGate) Los Angeles, California". May 2017.

FIGURES



LEGEND

- 1300 ——— EXISTING GROUND MAJOR CONTOUR
- - - - - PROJECT BOUNDARY
- PROPOSED GRADING LIMIT



POST CLOSURE LAND USE PLAN
MISSION CANYON 8 LANDFILL
LOS ANGELES, CALIFORNIA

VICINITY MAP

Geosyntec
consultants

FIGURE
1

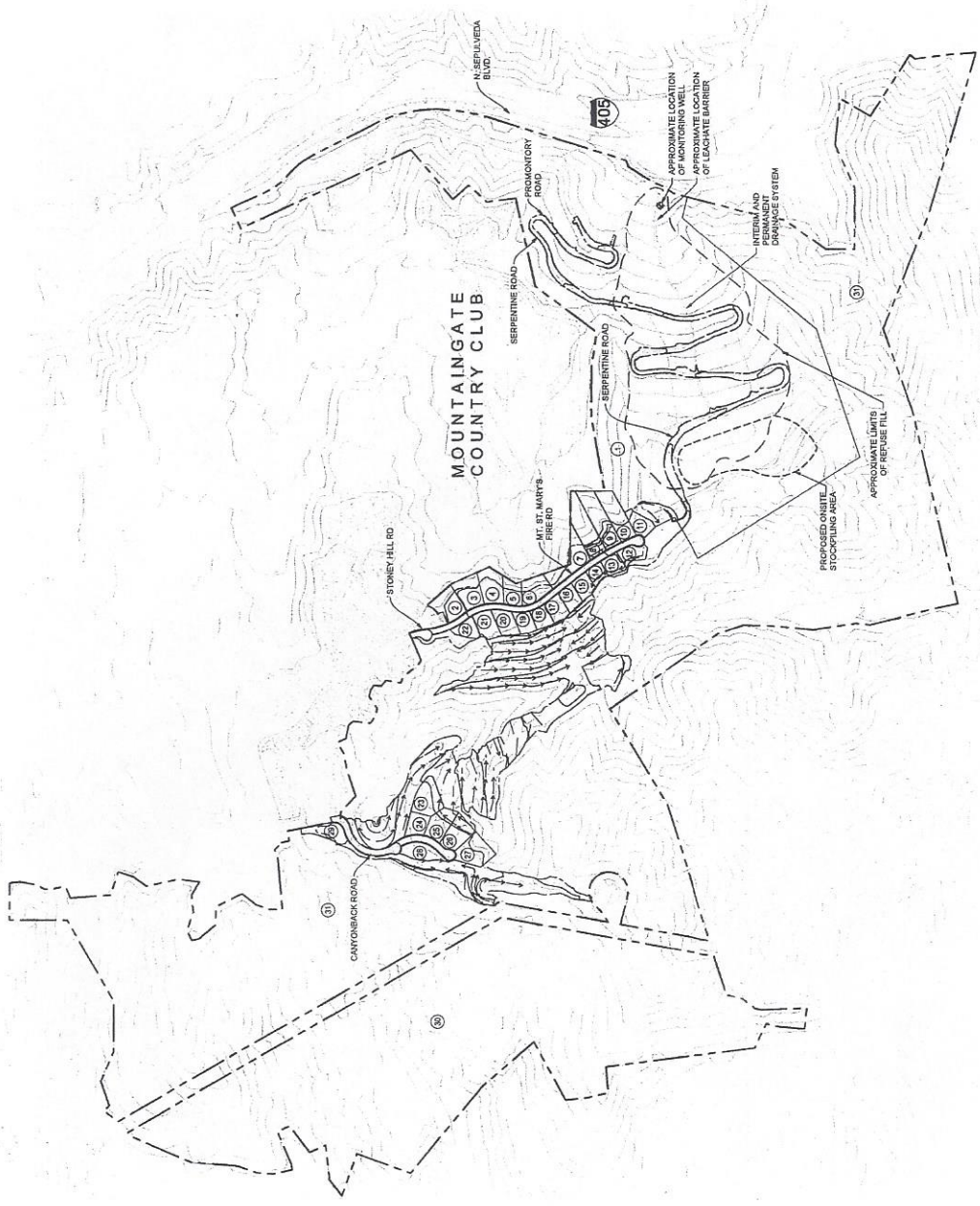
PROJECT NO.: SC0866 NOVEMBER 2018

LEGEND

- PROJECT BOUNDARY
- - - EXISTING GROUND MAJOR CONTOUR (5')
- - - PROPOSED GROUND MAJOR CONTOUR (5')
- - - PROPOSED LIMIT OF GRAZING
- ② LOT NUMBERS

NOTE

1. SEE LIST OF FEATURES AND GRADING PROVIDED BY KPTFF AND DATED 02/20/21



POST CLOSURE AND USE PLAN CONSTRUCTION LOS ANGELES, CALIFORNIA	
SITE PLAN	
Geotrac [®] CONSTRUCTION	FIGURE
PROJECT NO. 2021-001	2

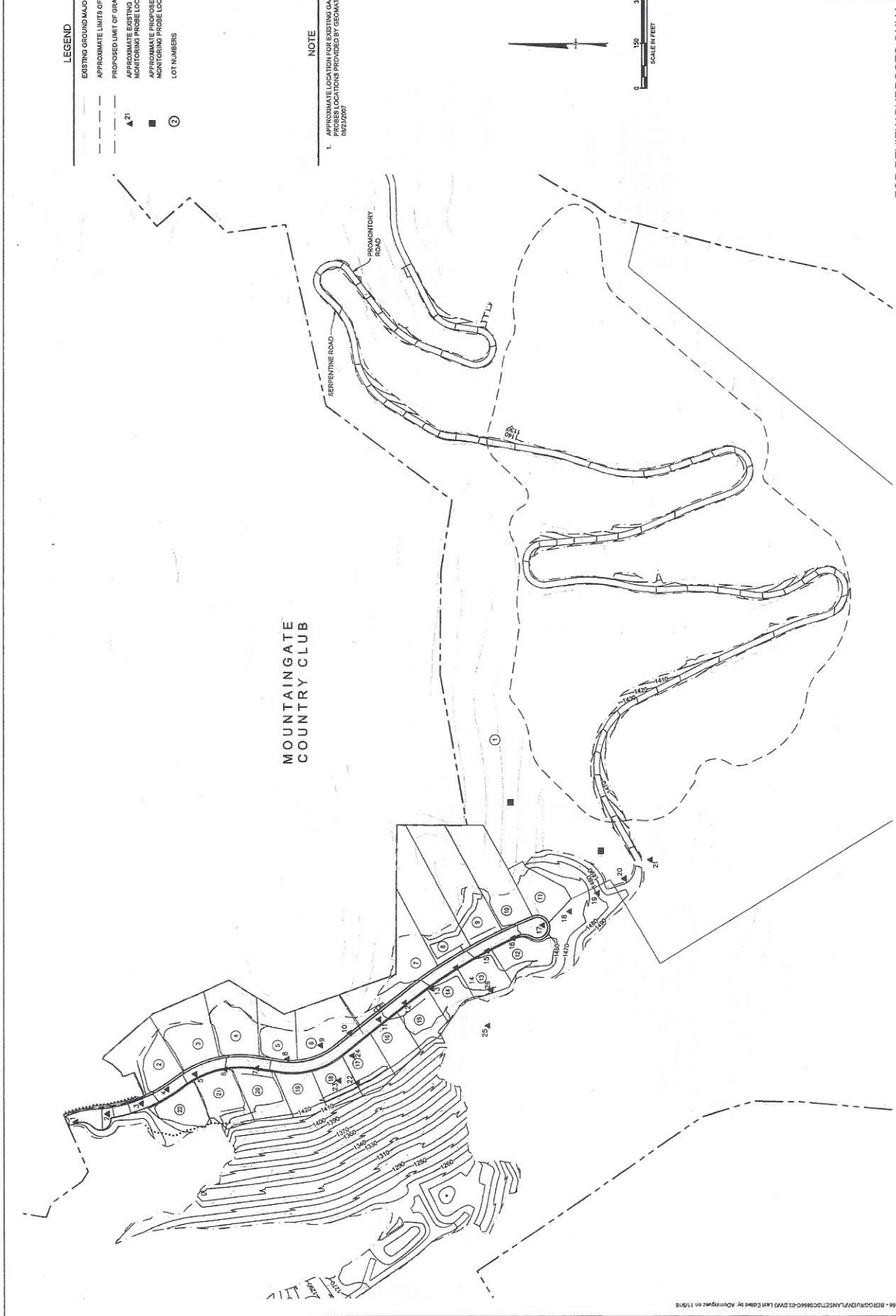
FOR REVIEW PURPOSES ONLY
DRAFT DESIGN DRAWINGS - NOT FOR CONSTRUCTION

LEGEND

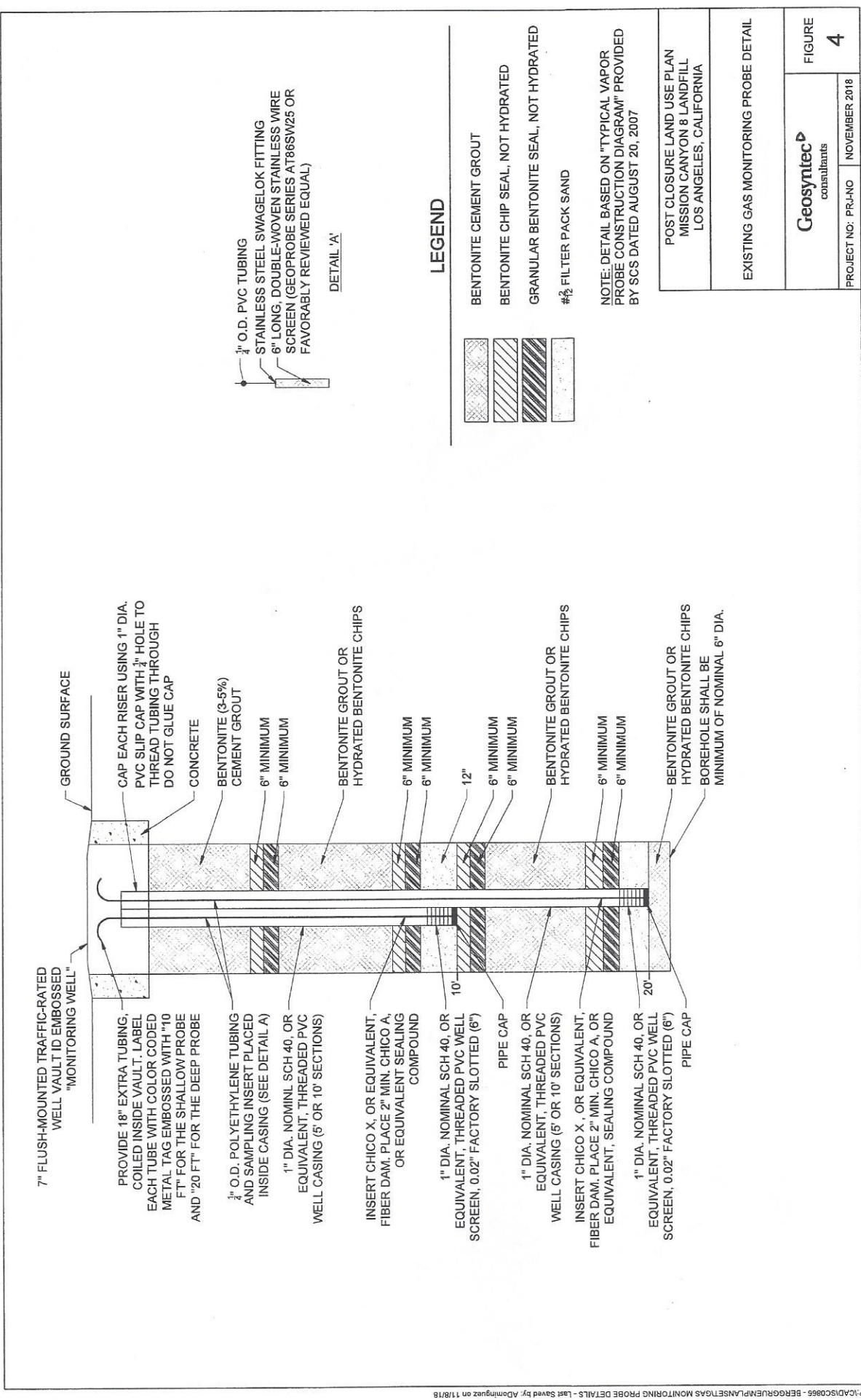
- - - - - EXISTING GROUND MAJOR CONTOUR (97)
- - - - - APPROXIMATE LIMITS OF REFUSE FILL
- - - - - PROPOSED LIMIT OF GRADING
- ▲ 21 APPROXIMATE EXISTING METHANE MONITORING PROBE LOCATION
- APPROXIMATE PROPOSED METHANE MONITORING PROBE LOCATION
- ② LOT NUMBERS

NOTE

1. APPROXIMATE LOCATION FOR EXISTING GAS MONITORING PROBES LOCATIONS PROVIDED BY GEOSYNTEC DATED 09/21/2007.



FOR REVIEW PURPOSES ONLY
DRAFT DESIGN DRAWINGS - NOT FOR CONSTRUCTION



7" FLUSH-MOUNTED TRAFFIC-RATED WELL VAULT ID EMBOSSED "MONITORING WELL"

PROVIDE 18" EXTRA TUBING, COILED INSIDE VAULT. LABEL EACH TUBE WITH COLOR CODED METAL TAG EMBOSSED WITH "10 FT" FOR THE SHALLOW PROBE AND "20 FT" FOR THE DEEP PROBE

3/4" O.D. POLYETHYLENE TUBING AND SAMPLING INSERT PLACED INSIDE CASING (SEE DETAIL A)

1" DIA. NOMINL SCH 40, OR EQUIVALENT, THREADED PVC WELL CASING (5' OR 10' SECTIONS)

INSERT CHICO X, OR EQUIVALENT, FIBER DAM, PLACE 2" MIN. CHICO A, OR EQUIVALENT SEALING COMPOUND

1" DIA. NOMINAL SCH 40, OR EQUIVALENT, THREADED PVC WELL SCREEN, 0.02" FACTORY SLOTTED (6")

PIPE CAP

1" DIA. NOMINAL SCH 40, OR EQUIVALENT, THREADED PVC WELL CASING (5' OR 10' SECTIONS)

INSERT CHICO X, OR EQUIVALENT, FIBER DAM, PLACE 2" MIN. CHICO A, OR EQUIVALENT, SEALING COMPOUND

1" DIA. NOMINAL SCH 40, OR EQUIVALENT, THREADED PVC WELL SCREEN, 0.02" FACTORY SLOTTED (6")

PIPE CAP

GROUND SURFACE

CAP EACH RISER USING 1" DIA. PVC SLIP CAP WITH 3/4" HOLE TO THREAD TUBING THROUGH DO NOT GLUE CAP

CONCRETE

BENTONITE (3-5%) CEMENT GROUT

6" MINIMUM

6" MINIMUM

BENTONITE GROUT OR HYDRATED BENTONITE CHIPS

6" MINIMUM

6" MINIMUM

12"

6" MINIMUM

6" MINIMUM

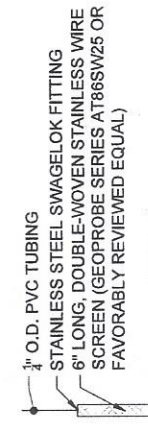
BENTONITE GROUT OR HYDRATED BENTONITE CHIPS

6" MINIMUM

6" MINIMUM

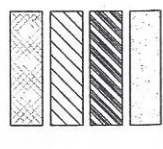
BENTONITE GROUT OR HYDRATED BENTONITE CHIPS

BENTONITE GROUT OR HYDRATED BENTONITE CHIPS BOREHOLE SHALL BE MINIMUM OF NOMINAL 6" DIA.



DETAIL 'A'

LEGEND



- BENTONITE CEMENT GROUT
- BENTONITE CHIP SEAL, NOT HYDRATED
- GRANULAR BENTONITE SEAL, NOT HYDRATED
- #2 FILTER PACK SAND

NOTE: DETAIL BASED ON "TYPICAL VAPOR PROBE CONSTRUCTION DIAGRAM" PROVIDED BY SCS DATED AUGUST 20, 2007

POST CLOSURE LAND USE PLAN
MISSION CANYON 8 LANDFILL
LOS ANGELES, CALIFORNIA

EXISTING GAS MONITORING PROBE DETAIL

Geosyntec
consultants

PROJECT NO: PRJ-NO NOVEMBER 2018

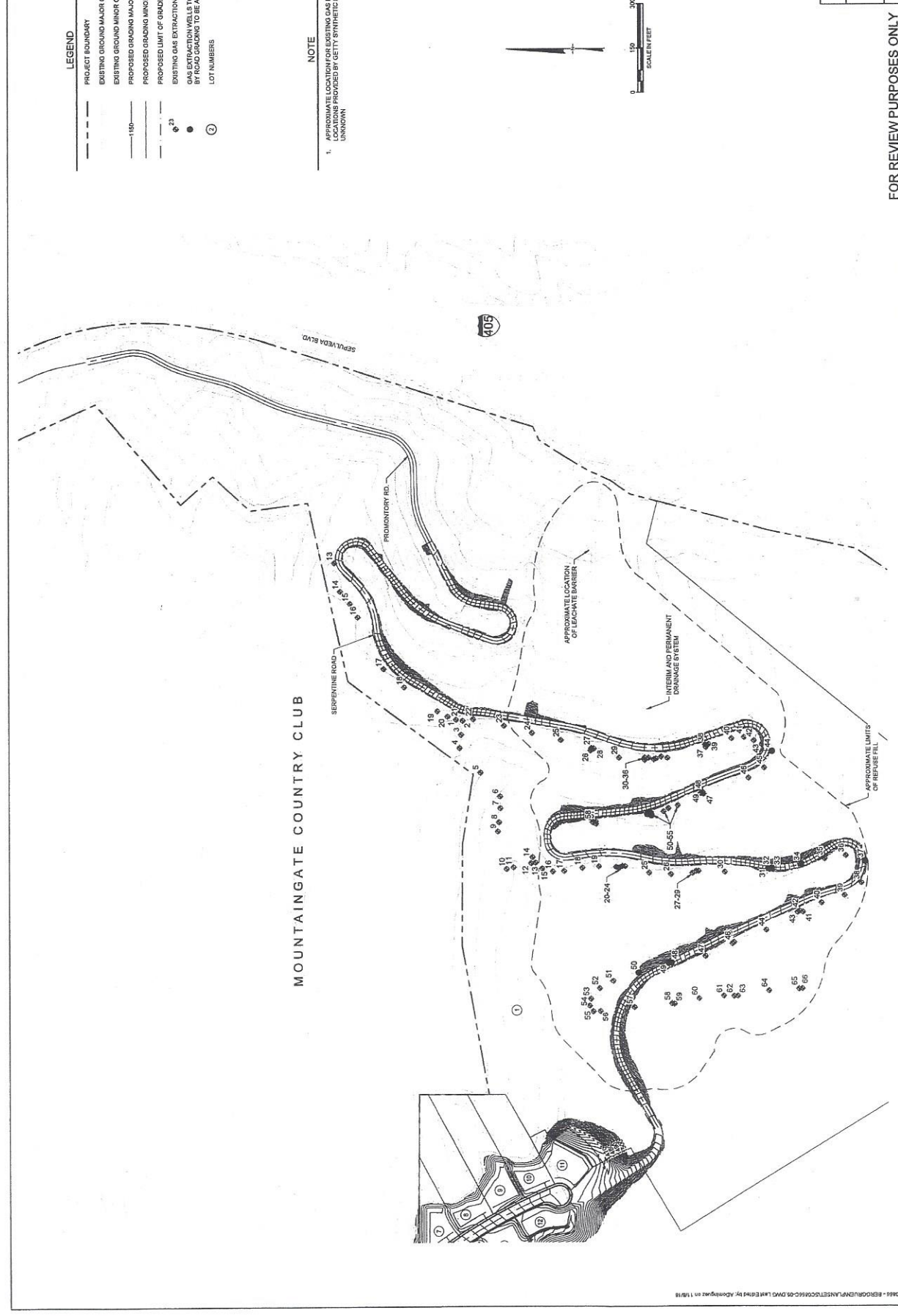
FIGURE
4

LEGEND

---	PROJECT BOUNDARY
---	EXISTING GROUND MAJOR CONTOUR (97)
---	EXISTING GROUND MINOR CONTOUR (10)
---	PROPOSED GRADING MAJOR CONTOUR (97)
---	PROPOSED GRADING MINOR CONTOUR (10)
---	PROPOSED LIMIT OF GRADING
○	EXISTING GAS EXTRACTION WELL
●	GAS EXTRACTION WELLS TO BE IMPACTED BY THIS GRADING TO BE REMOVED
①	LOT NUMBERS

NOTE

1. APPROXIMATE LOCATIONS OF EXISTING GAS EXTRACTION WELLS LOCATIONS PROVIDED BY GETTY SYNTHETIC FUELS, INC DATED UNKNOWN



MOUNTAINGATE COUNTRY CLUB

POST CLOSURE LAND USE PLAN MOUNTAINGATE COUNTRY CLUB LOS ANGELES, CALIFORNIA	
GAS COLLECTION AND CONTROL WELL LOCATION MAP	
Caegytac CORPORATION	FIGURE 5
PROJECT NO. 22399	NOVEMBER 2015

FOR REVIEW PURPOSES ONLY
DRAFT DESIGN DRAWINGS - NOT FOR CONSTRUCTION

ATTACHMENT A
Existing and Proposed Serpentine Road Grading

November 2018



PROJECT: VTM 53072
 DATE: 01/13/2018
 DRAWN BY: [Redacted]
 CHECKED BY: [Redacted]
 SCALE: AS SHOWN
 SHEET NO: C1.300

DATE	01/13/18
PROJECT NUMBER	1000024
DRAWN BY	[Redacted]
CHECKED BY	[Redacted]
SCALE	AS SPECIFIED
SHEET NO.	12/006

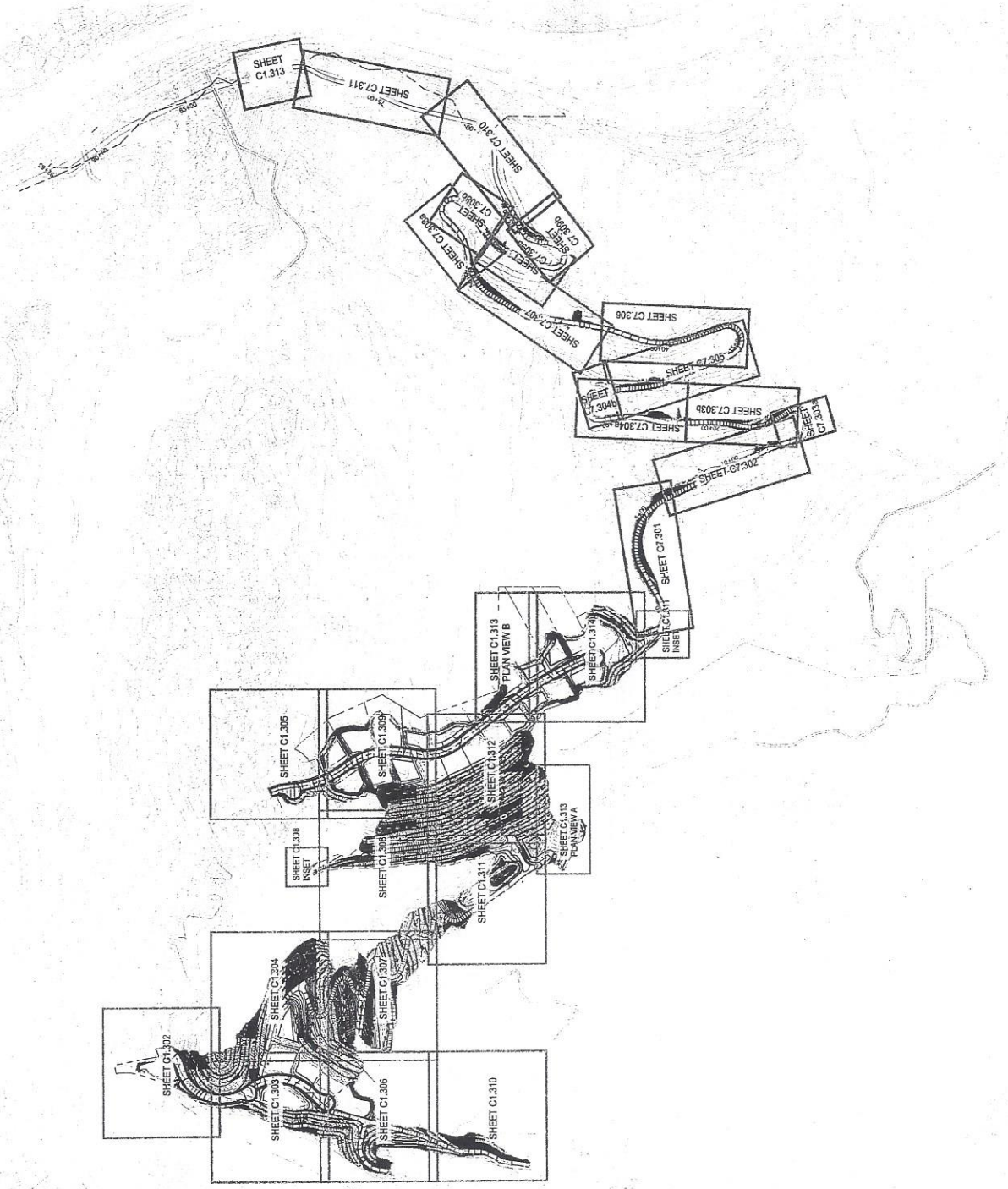
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 PROJECT TITLE: [Redacted]
 DRAWN BY: [Redacted]
 CHECKED BY: [Redacted]
 SCALE: AS SPECIFIED
 SHEET NO: C1.300

GRADING PLAN INDEX
 SCALE: 1" = 300'
 SHEET C1.300

- LEGEND**
- LIMIT OF WORK
 - PROPERTY LINE
 - FLOW LINE
 - LOT NUMBER
 - GRADE BREAK
 - ROAD LINE
 - ROAD CROSS
 - STORM DRAIN, SIZE AND SLOPE PER PLAN
 - CATCH BASIN, SIZE PER PLAN
 - CONCRETE OPEN STRUCTURE
 - MANHOLE
 - SPECTRUM AND JOIN
 - EXISTING CONTOUR
 - PROPOSED MAJOR CONTOUR
 - PROPOSED MINOR CONTOUR
 - 10'-0" UNDERDRAIN
 - 12" SQUARE CATCH BASIN PER CITY OF LOS ANGELES BUILDING CODE DIVISION 73, SECTION 91.015.
 - 12" SQUARE CATCH BASIN PER CITY OF LOS ANGELES BUILDING CODE DIVISION 73, SECTION 91.015.
 - ALL WEATHER ACCESS ROAD
 - ASPHALT PAVEMENT
 - SLOPE BENCH
 - INTERCEPTOR TRENCH

STORM DRAIN CONSTRUCTION NOTES:

- 1. STORM DRAIN PER LOCAL, SEC. AND SLOPE PER PLAN.
- 2. CATCH BASIN PER CITY OF LOS ANGELES BUILDING CODE DIVISION 73, SECTION 91.015.
- 3. GULLET TERMINATE PER CITY OF LOS ANGELES BUILDING CODE DIVISION 73, SECTION 91.015.
- 4. 12" SQUARE CATCH BASIN PER CITY OF LOS ANGELES BUILDING CODE DIVISION 73, SECTION 91.015.
- 5. 12" SQUARE CATCH BASIN PER CITY OF LOS ANGELES BUILDING CODE DIVISION 73, SECTION 91.015.



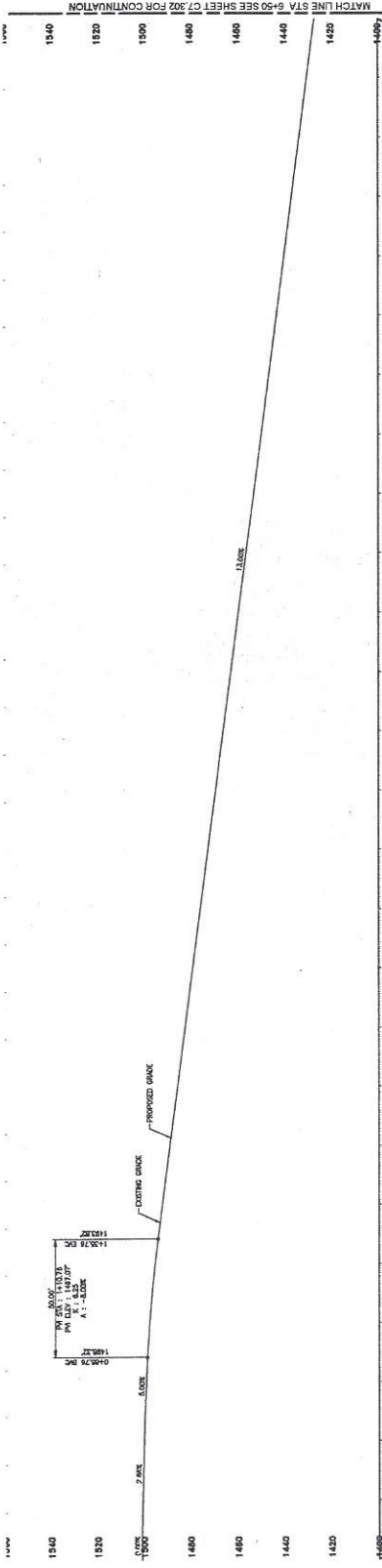


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 DATE: 08/21/13
 DRAWN BY: [Signature]

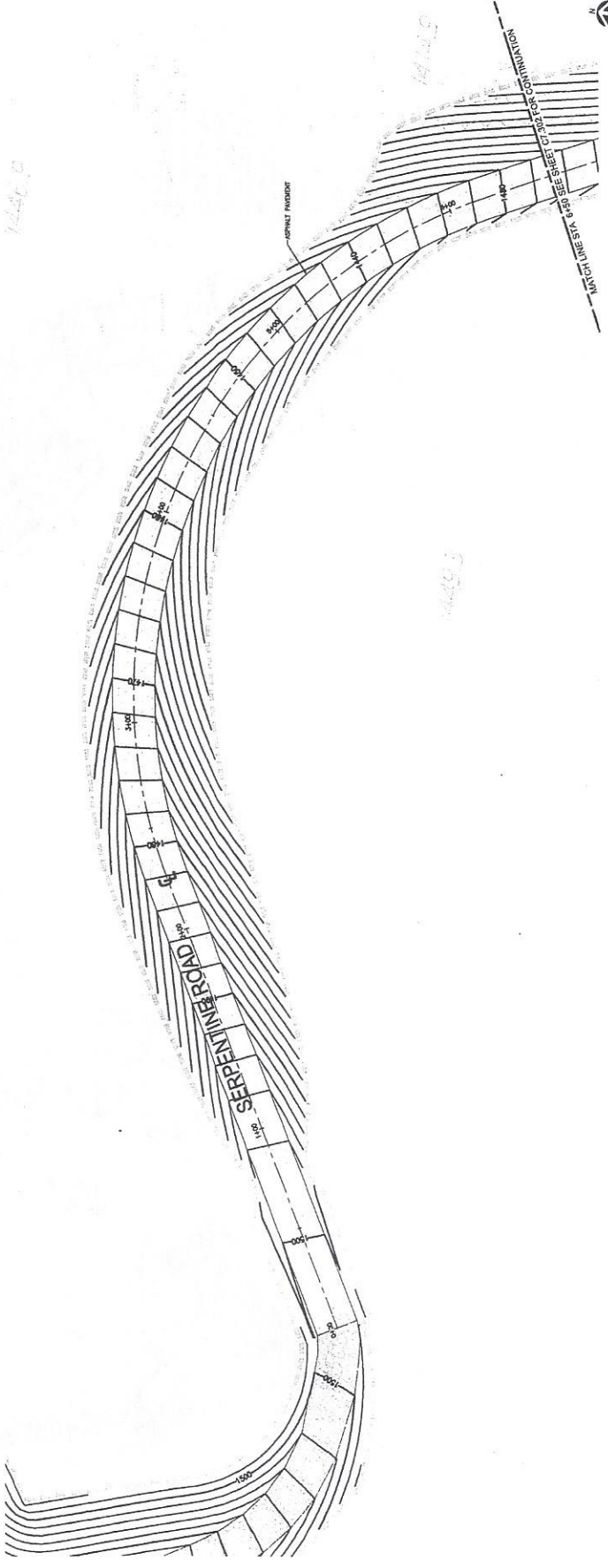
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PROJECT NUMBER	10000
PROJECT NAME	SERPENTINE RD
PROJECT LOCATION	SERPENTINE RD
PROJECT DESCRIPTION	AS SHOWN
PROJECT STATUS	AS SHOWN

PROJECT NUMBER: VTR 15072
 PROJECT LOCATION: 2500 EDENWAY RD, LOS ANGELES, CA 90008
 PROJECT DESCRIPTION: SERPENTINE ROAD

C7.301



SERPENTINE RD - CL 0+00 TO 6+50
 HORIZONTAL SCALE: 1"=20'
 VERTICAL SCALE: 1"=20'



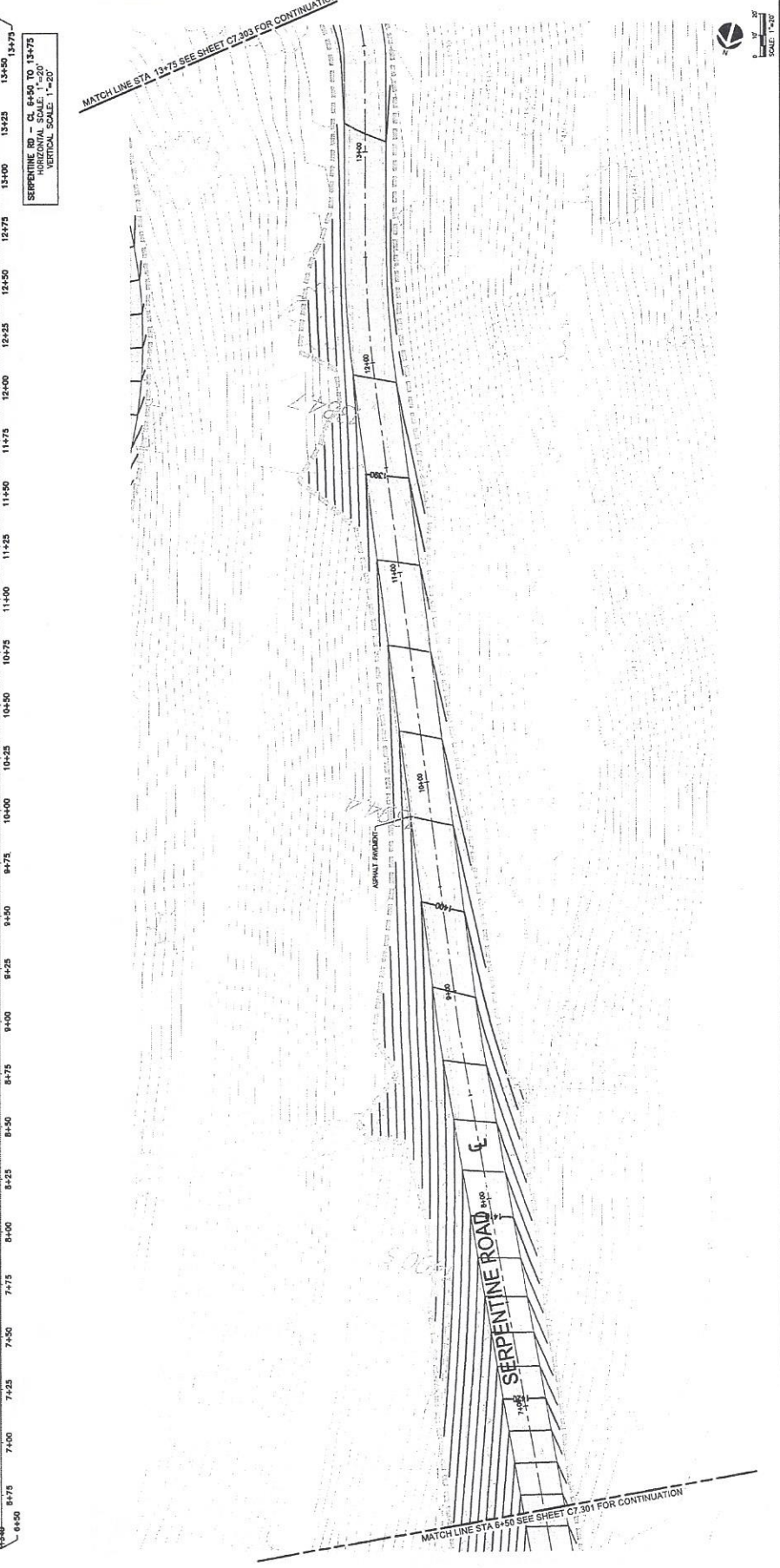
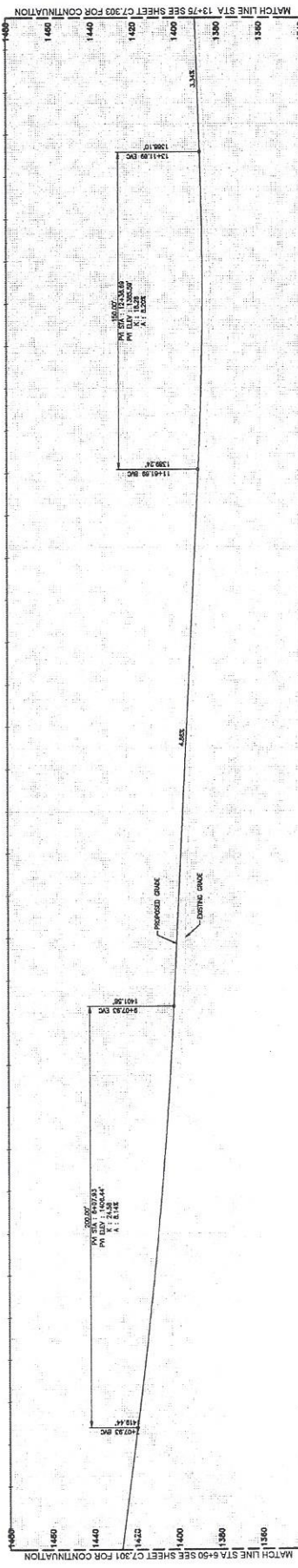


REVISION	DATE	BY	DESCRIPTION

DATE	10/27/2015
PROJECT NUMBER	VTM 58072
DESIGNER	
DRAWN BY	
CHECKED BY	
SCALE	AS SHOWN

PROJECT DESCRIPTION
 VTM 58072
 200' WIDENING OF ROAD
 LOS ANGELES, CA 90008
 PROJECT TITLE
 SERPENTINE ROAD
 SHEET NUMBER (OWNER NUMBER)

C7.302





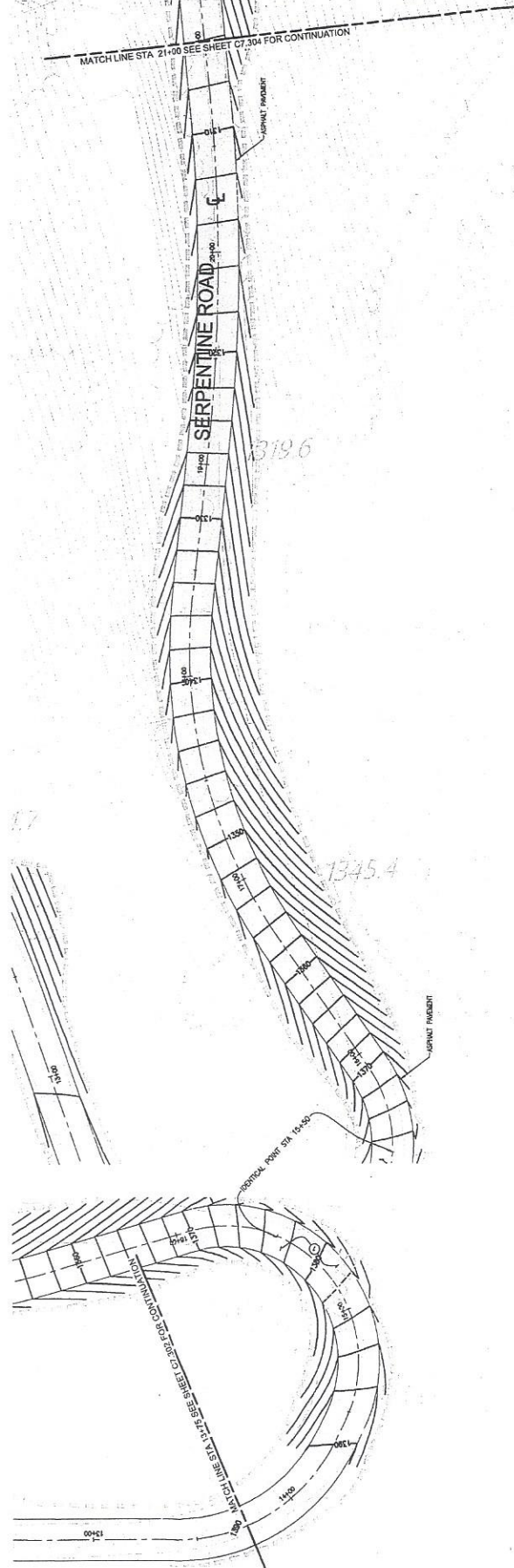
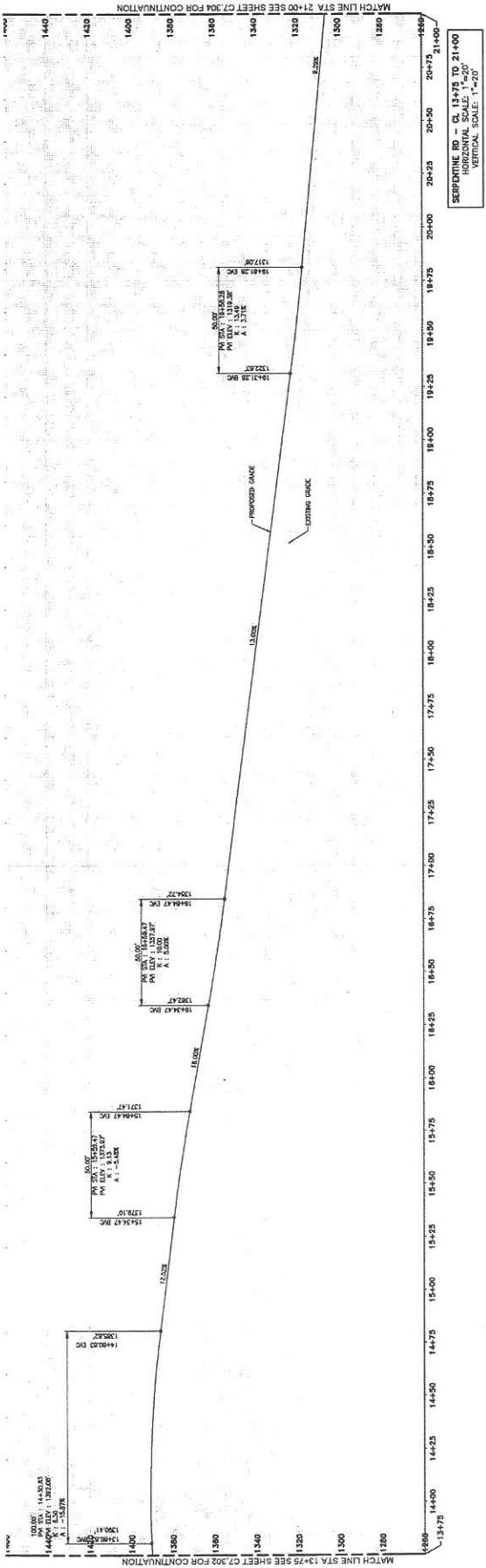
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DATE:	10/22/13
DESIGNED BY:	YTTM
CHECKED BY:	YTTM
SCALE:	AS SHOWN

YTTM 63972

360 STONEY HILL ROAD
COP WHEELER CEMETERY
SERPENTINE ROAD



C7.303





PROJECT NO. 100000
 SHEET NO. 100000
 DATE 10/1/10

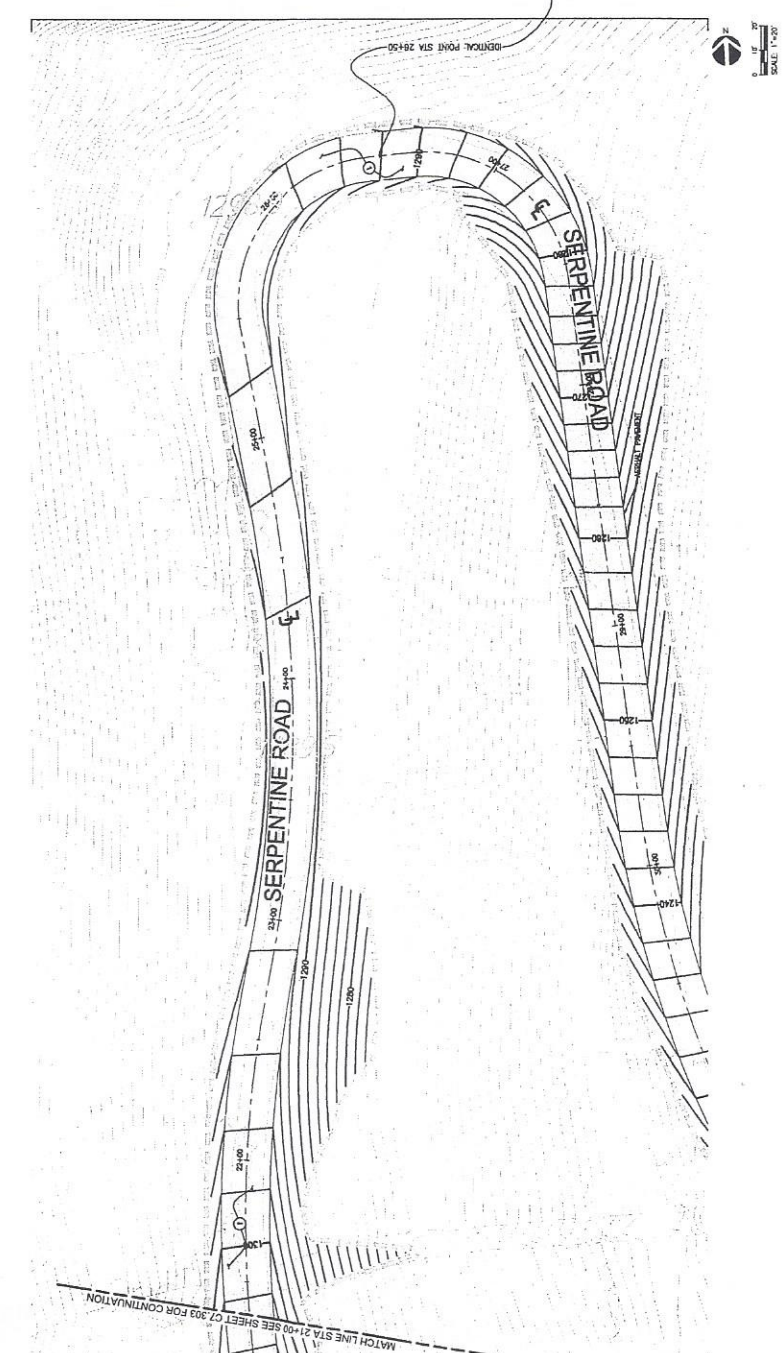
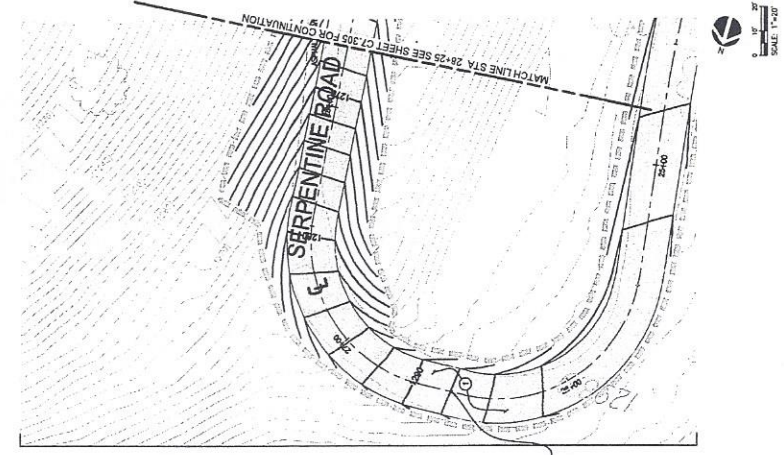
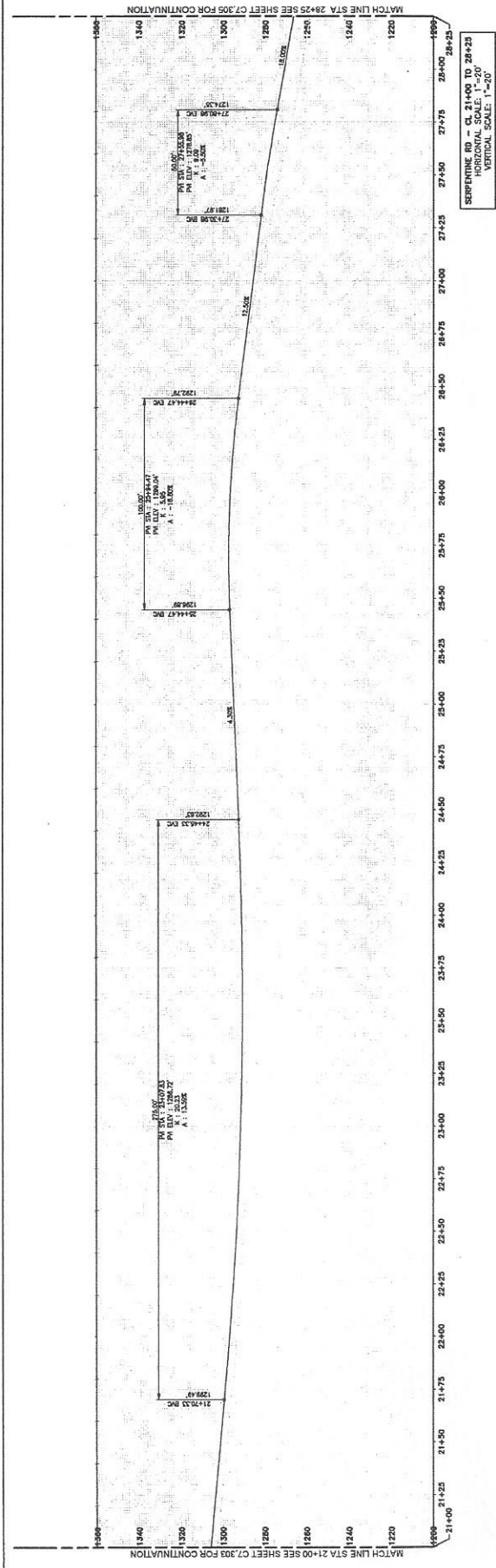
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 VTTM 53072

DATE	01/11/10
PROJECT NUMBER	100000
DESIGNED BY	SS
DRAWN BY	SS
CHECKED BY	SS
SCALE	AS SPECIFIED
DATE	10/1/10

PROJECT LOCATION
 VTTM 53072
 SERPENTINE ROAD

PROJECT LOCATION
 VTTM 53072
 SERPENTINE ROAD

PROJECT LOCATION
 VTTM 53072
 SERPENTINE ROAD





DATE: 01/15/13
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 CHECKED BY: [Signature]
 DRAWN BY: [Signature]
 CADD: [Signature]
 MAKE: AS SPECIFIED
 NOTES:

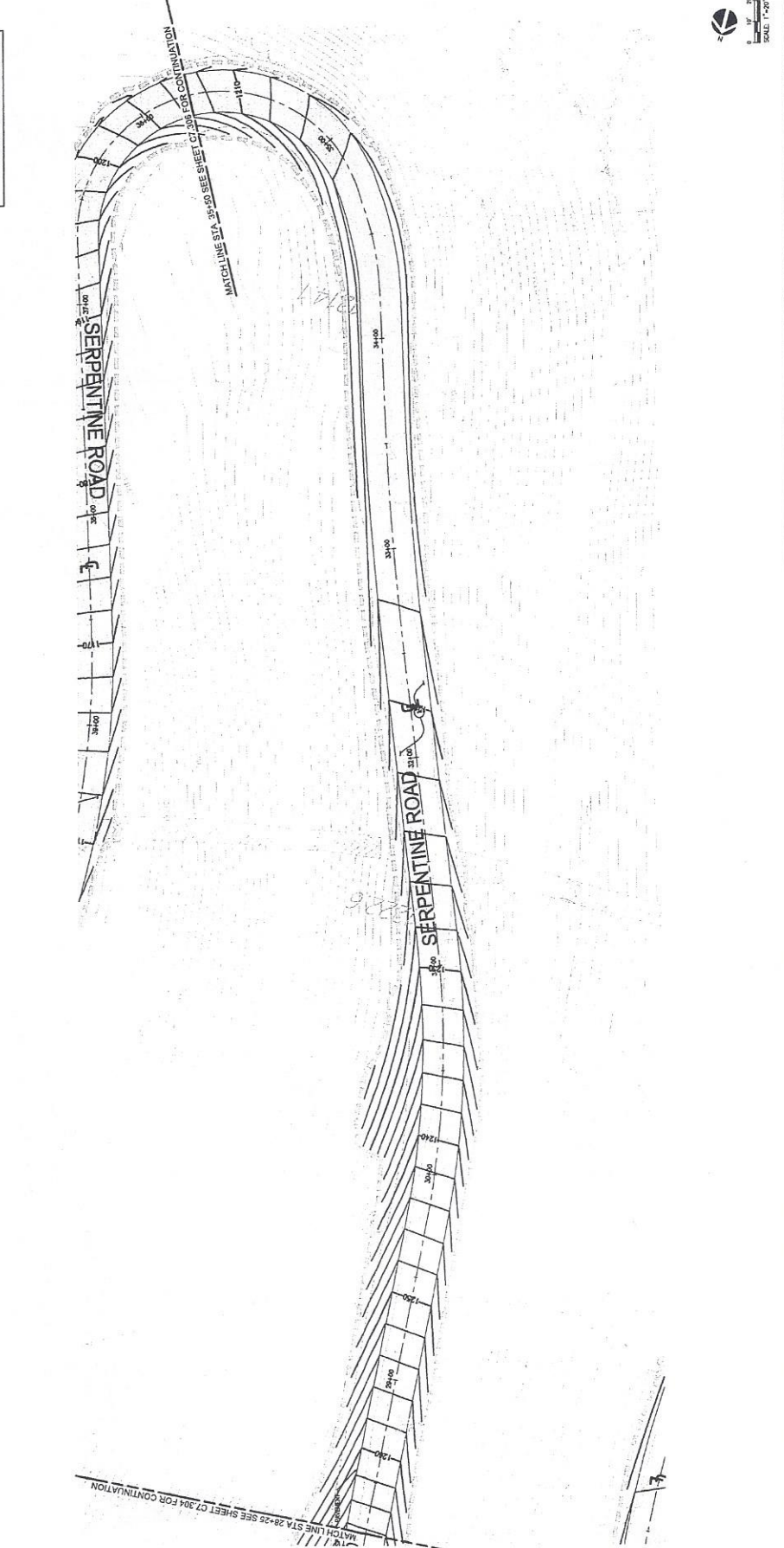
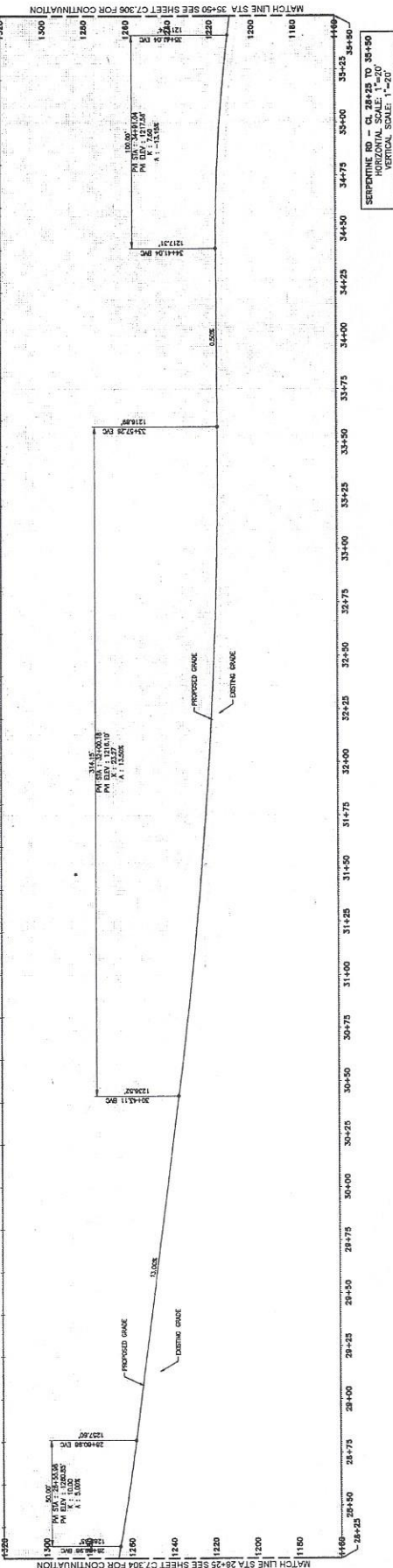
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 VTM 53072

300 SOUTH MAIN STREET
 LOS ANGELES, CA 90012

SHEET NUMBER:
 SERPENTINE ROAD

SHEET NUMBER OF SHEET NUMBER:

C7.305



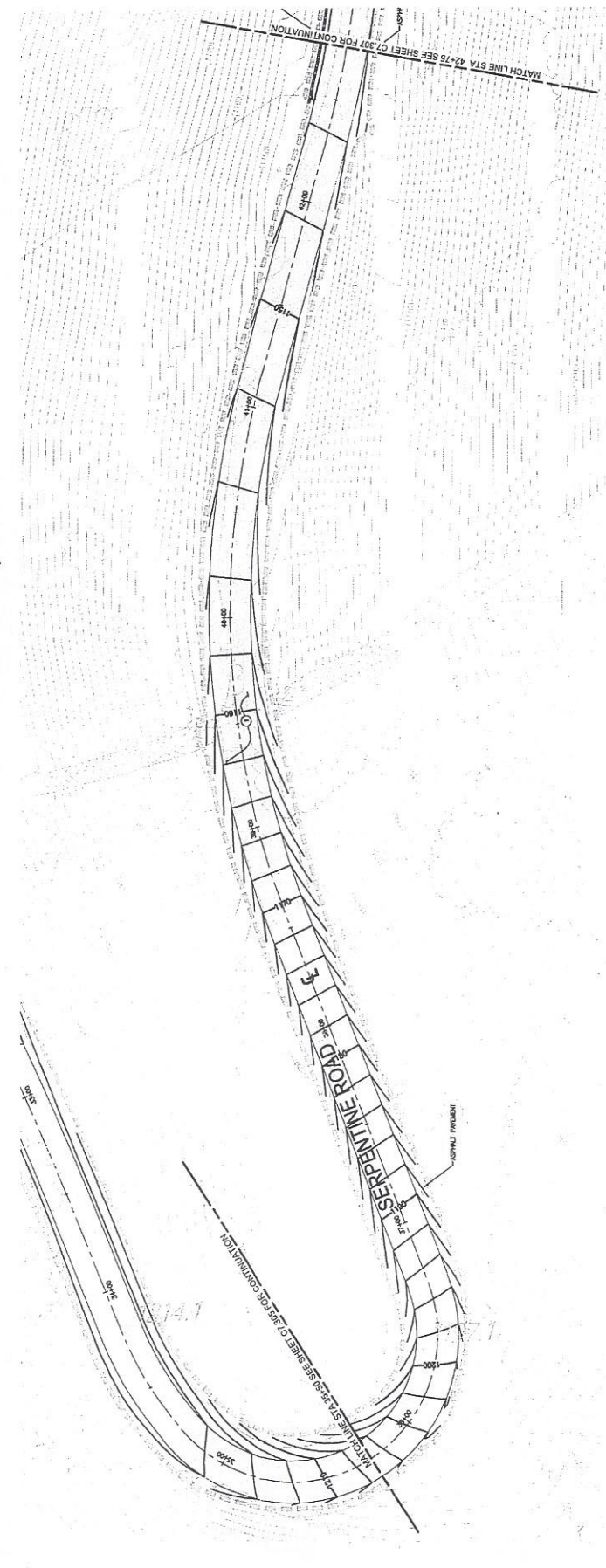
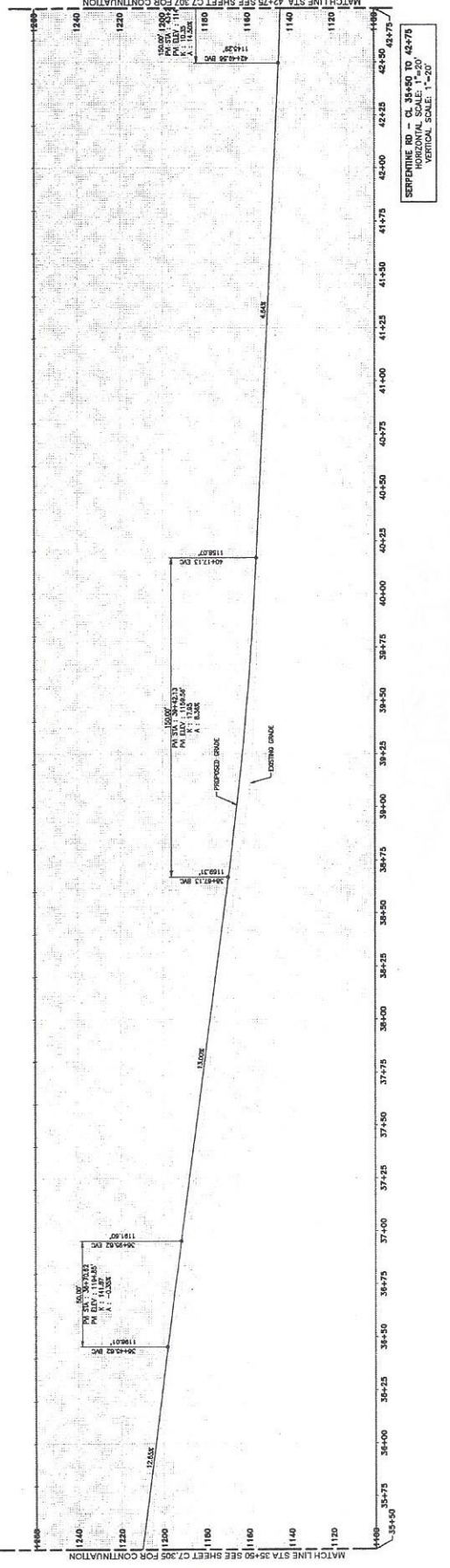


DATE	07/11/11
PROJECT NUMBER	VTM 53072
DRAWN BY	SV
CHECKED BY	SV
SCALE	AS SHOWN
NET WEIGHT	

PROJECT DESCRIPTION	
VTM 53072	
260 RESERVATION ROAD	
LOS ANGELES, CA 90008	
SERPENTINE ROAD	
SHEET NUMBER SHEET 400001	



C7.306





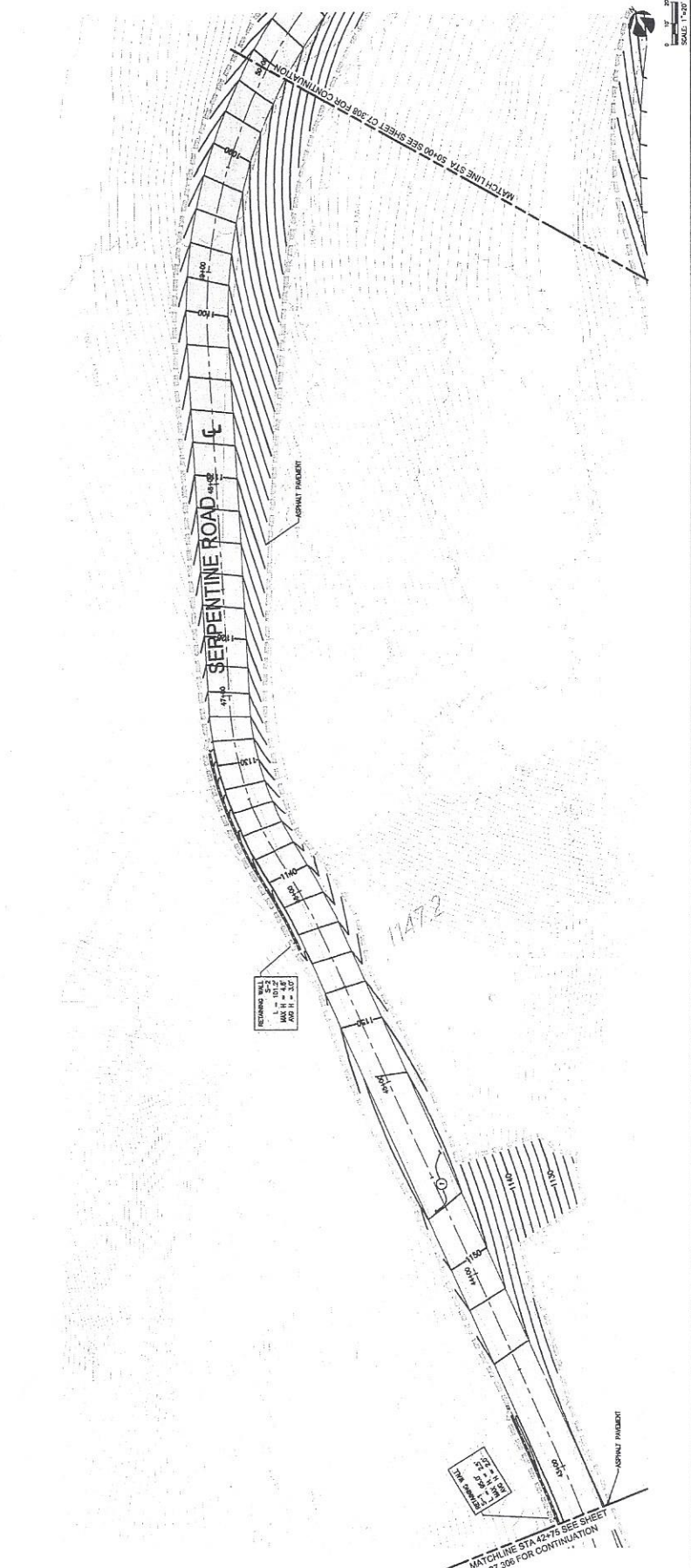
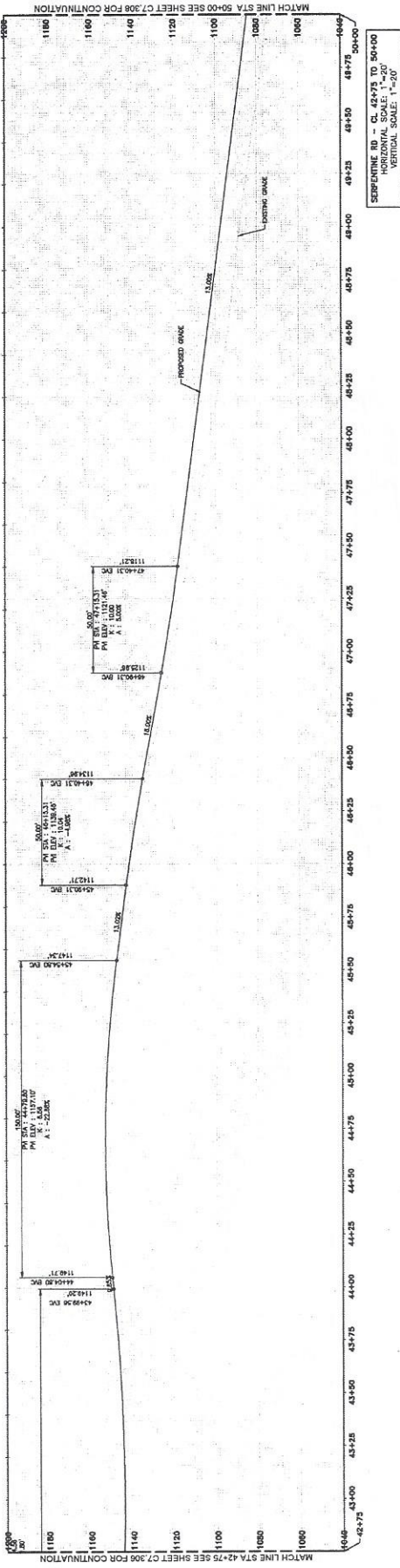
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 SHEET: 06/24/14

DATE	07/14/14
PROJECT NAME	TRUCKEE
DESIGNER	BL
DRAWN	SL
CHECKED	BP
SCALE	AS SHOWN
PROJECT	14700

PROJECT NO: VTM 53072

200 EMPIRE BLVD
 SUITE 100
 LOS ANGELES, CA 90007
 SERPENTINE ROAD

C7.307



SCALE: 1"=50'

DATE PLOT

PROJECT NO: VTM 53072

200 EMPIRE BLVD
 SUITE 100
 LOS ANGELES, CA 90007
 SERPENTINE ROAD

C7.307

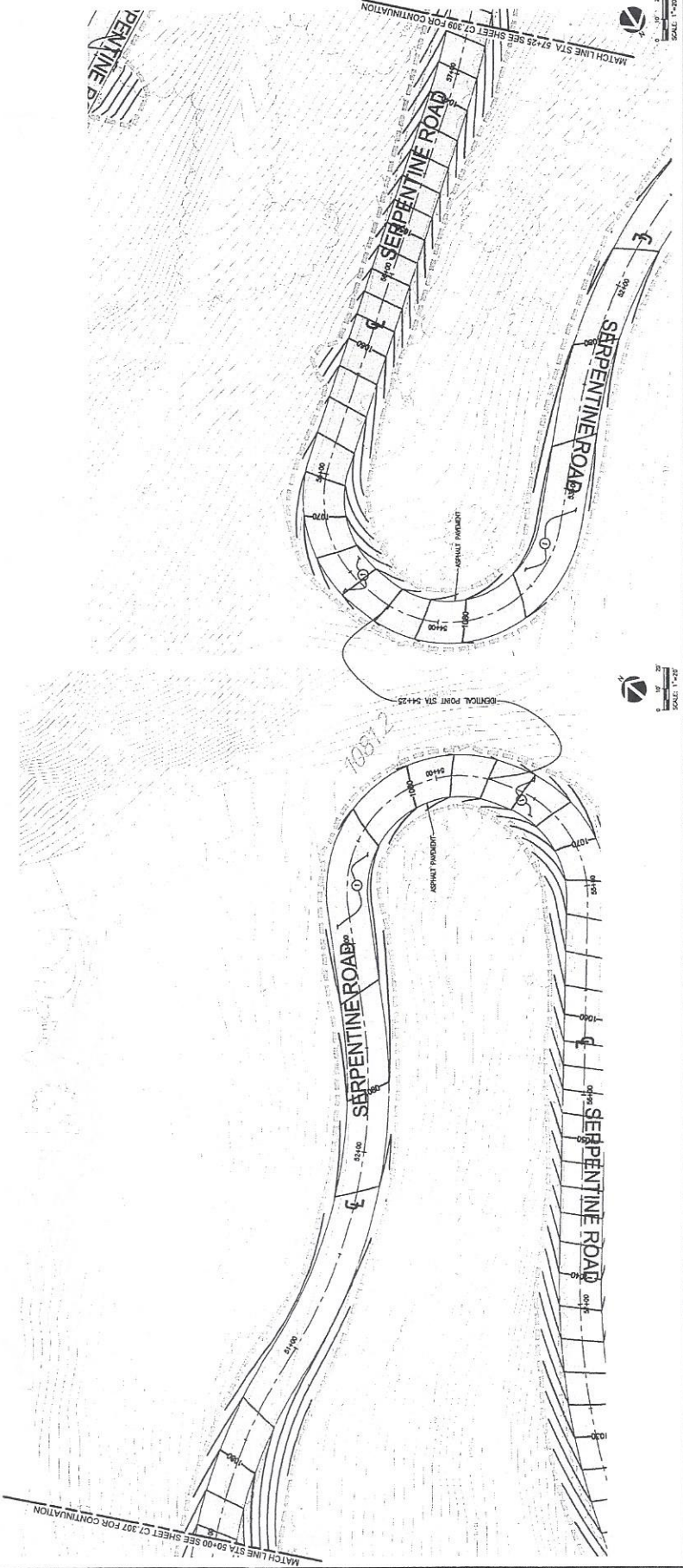
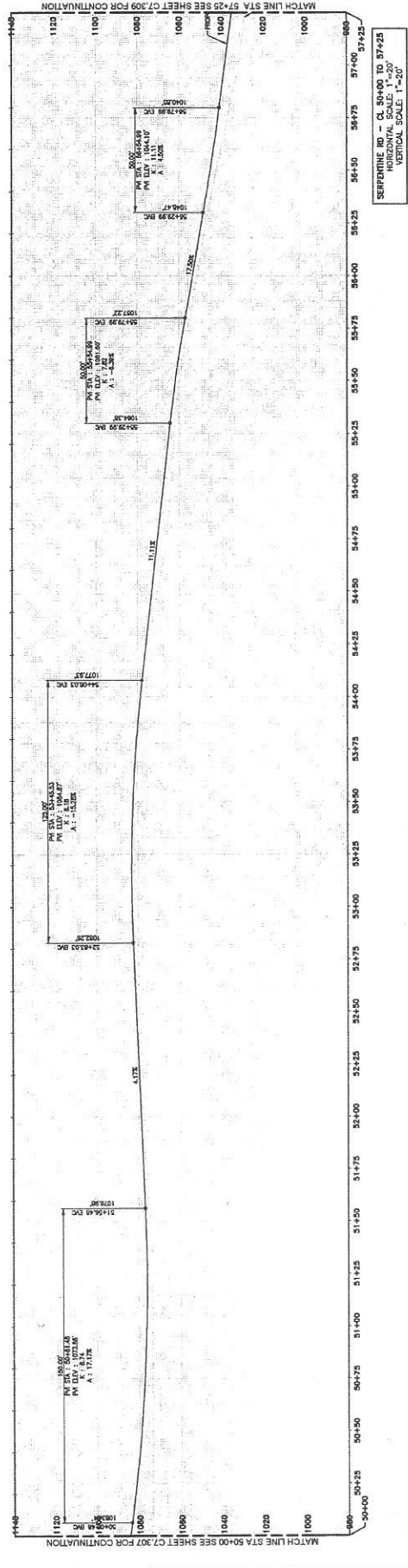


DATE	08/14/2018
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DESIGNED BY	BP
CHECKED BY	BP
SCALE	AS SHOWN
STATUS	AS SHOWN

DATE	08/14/2018
PROJECT	VTM 53872
DESIGNED BY	BP
CHECKED BY	BP
SCALE	AS SHOWN
STATUS	AS SHOWN

PROJECT: VTM 53872
 VTM 53872
 300 WEST 10TH STREET
 LOS ANGELES, CA 90015
 SERPENTINE ROAD

C7.308

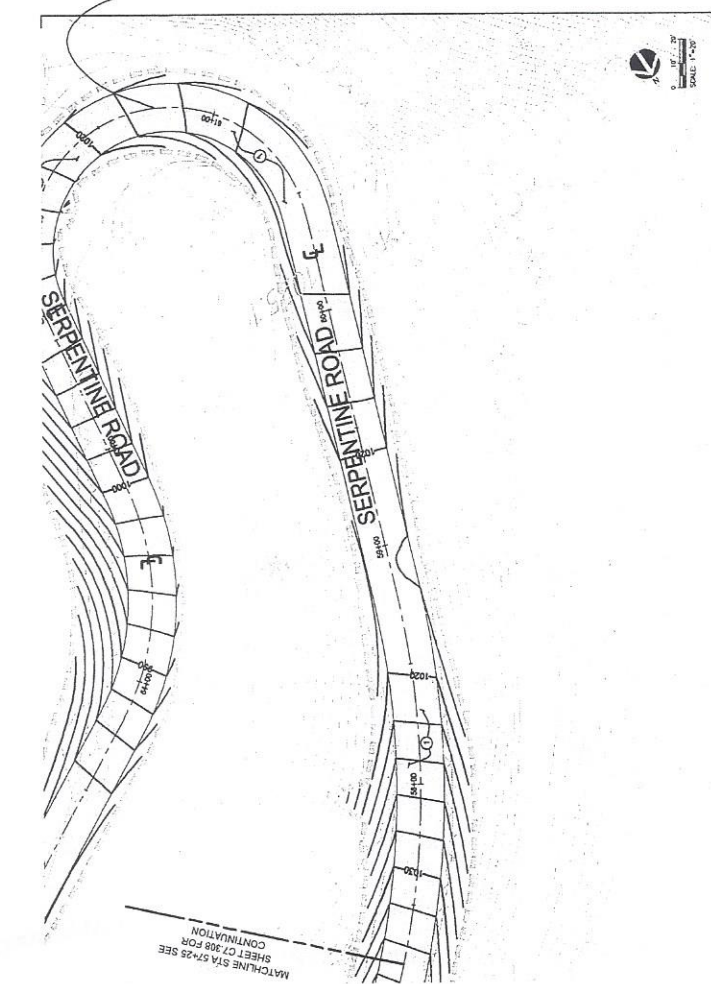
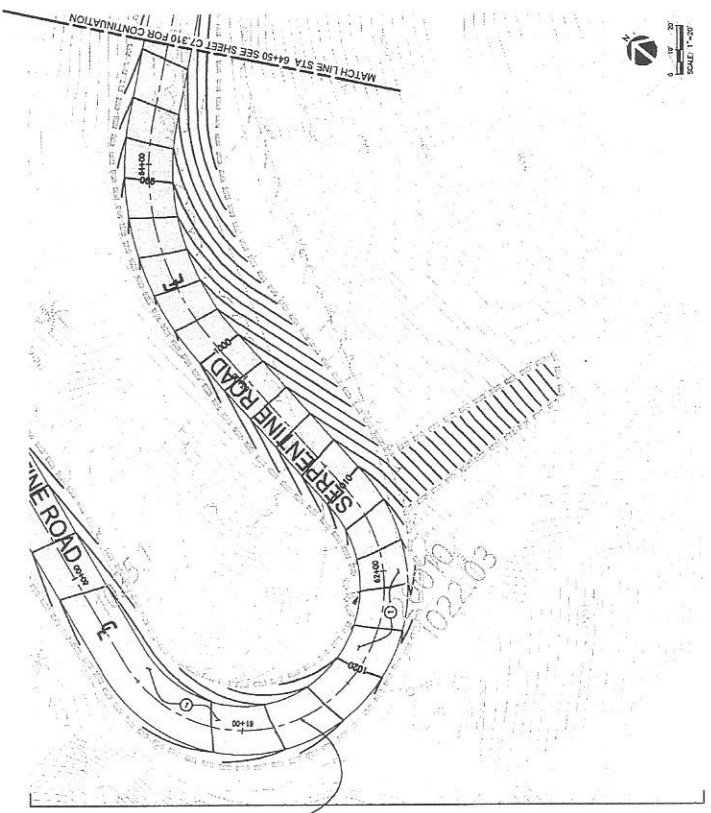
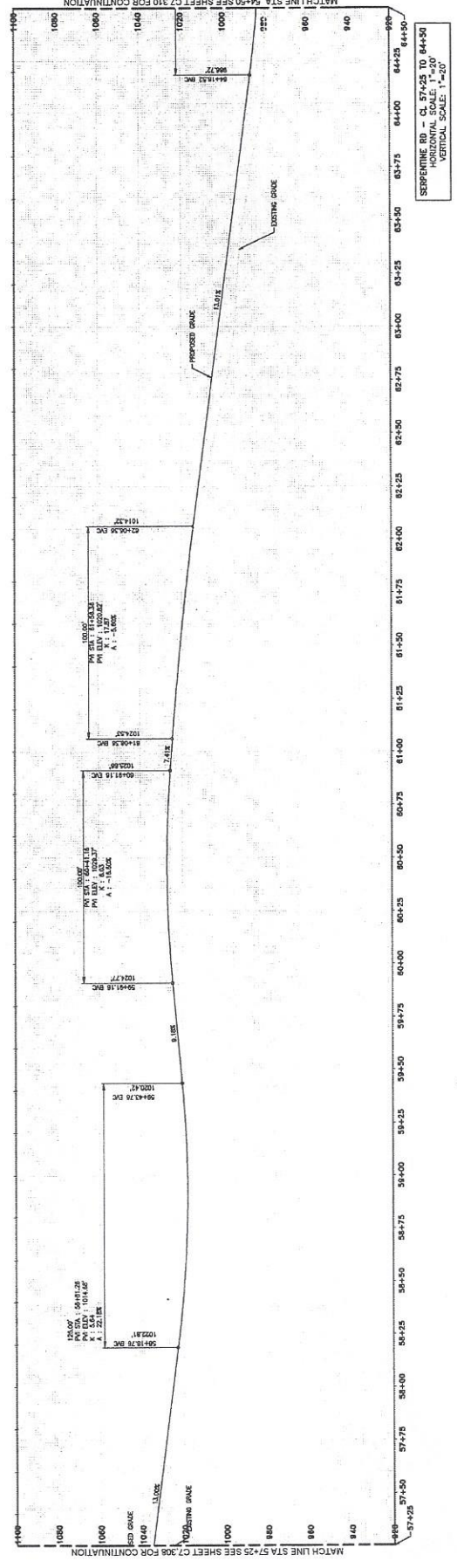




PROJECT NO.	VTM 53072
PROJECT NAME	3000 BONEY HILL ROAD LOS ANGELES, CA 90048
DATE	10/20/07
BY	AS SPECIFIED
CHECKED	
APPROVED	
SCALE	AS SPECIFIED
DATE	

PROJECT NO. VTM 53072
 PROJECT NAME 3000 BONEY HILL ROAD
 LOS ANGELES, CA 90048

SHEET NUMBER 02 OF 04
C7.309





EXPIRES: _____
 DATE: _____
 REGISTERED IN: _____

PROJECT NAME: _____
 SHEET NO.: _____

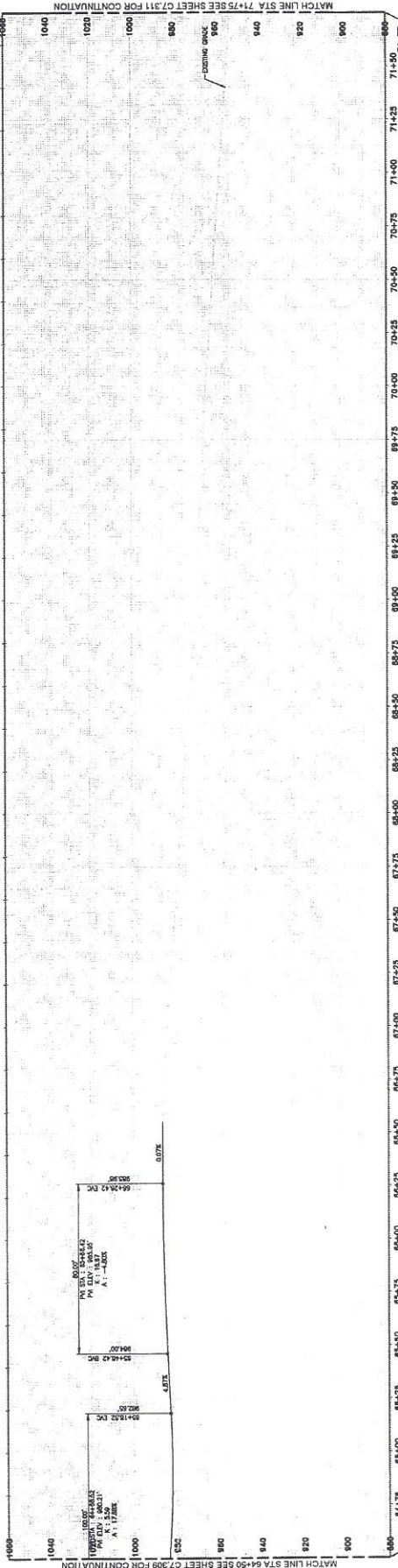
DATE	DESIGNED BY	CHECKED BY	DATE
PROJECT NAME	BY	DATE	BY
DESIGNED BY	BY	DATE	BY
CHECKED BY	BY	DATE	BY
SCALE	AS SHOWN	DATE	BY
DATE	BY	DATE	BY

PROJECT NO. 11-0001
 VTM 53072

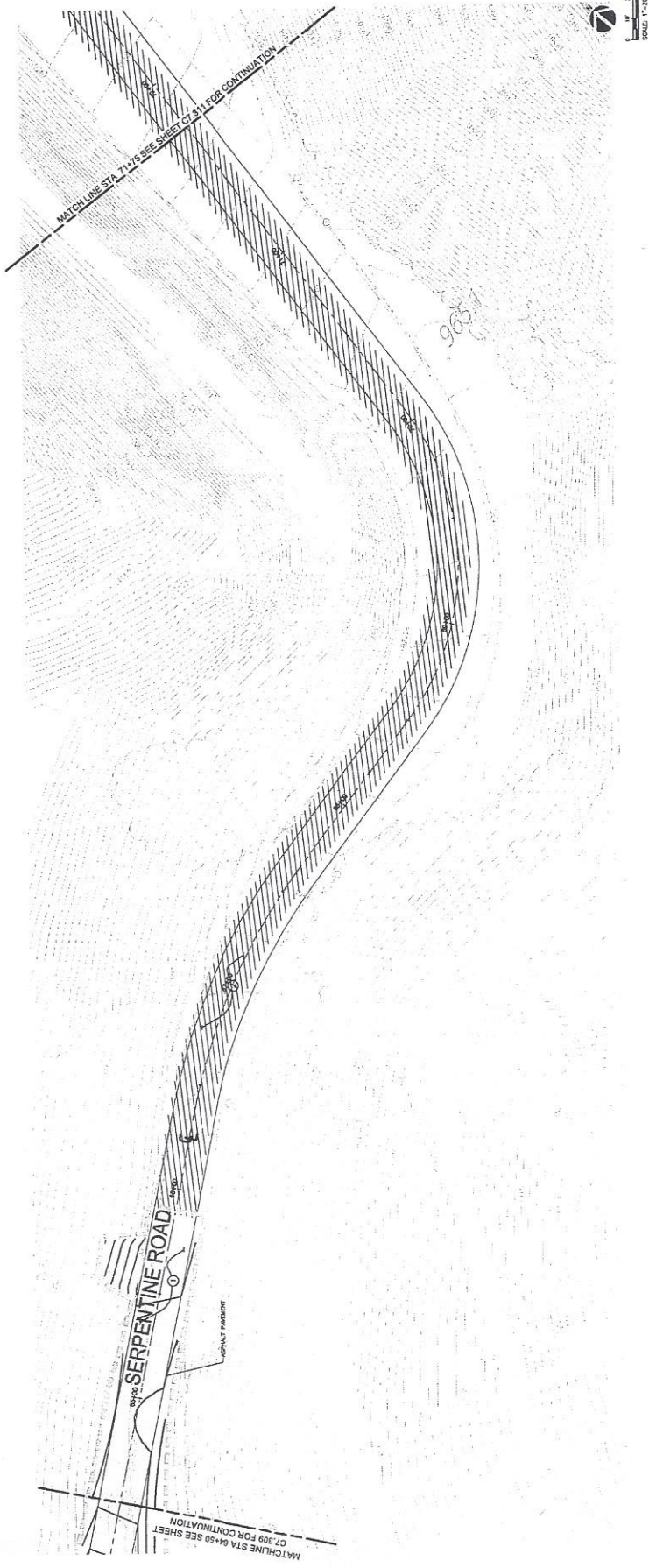
1000 WEST 10TH STREET
 LOS ANGELES, CA 90015
 SERPENTINE ROAD

SHEET NUMBER OF SHEET NUMBER

C7.310



SERPENTINE RD - CL 64+50 TO 71+75
 VERTICAL SCALE: 1"=20'



SCALE: 1"=40'

PAGE 1 OF 1



PROJECT NO. 103000000
 DATE 08/20/2018

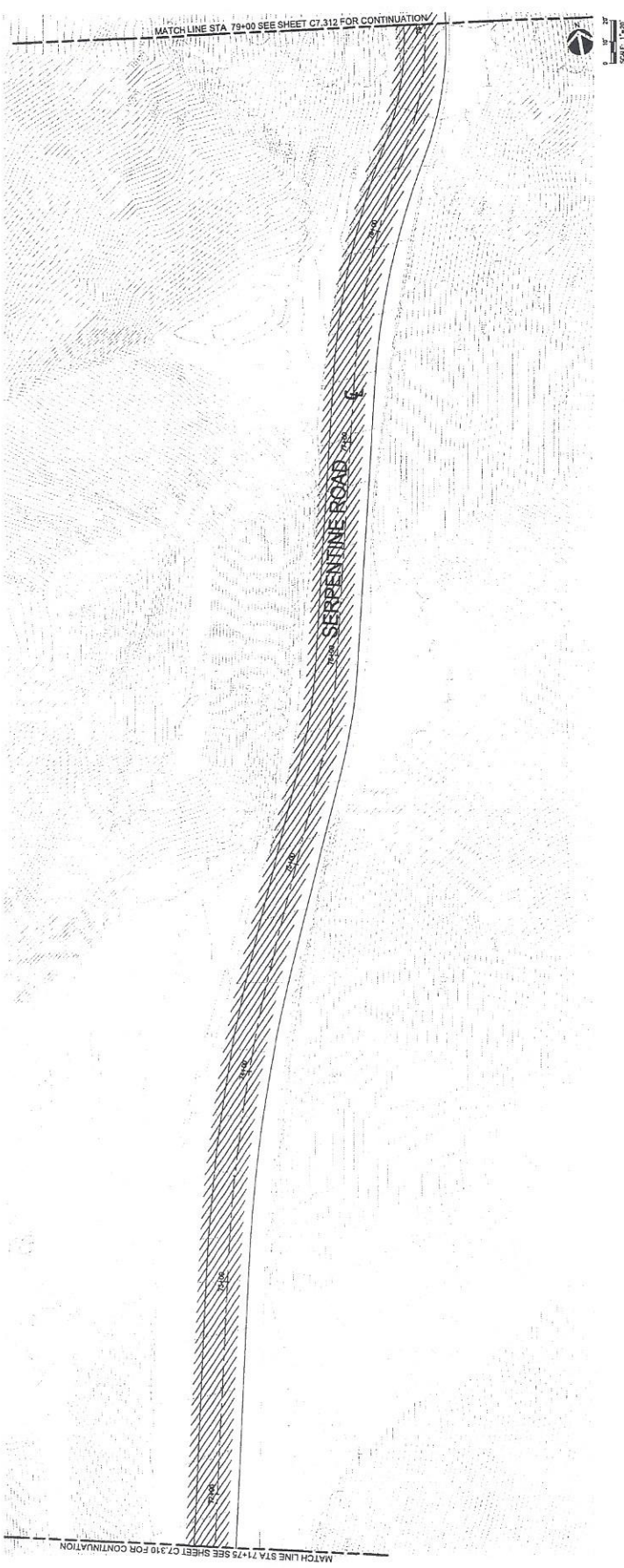
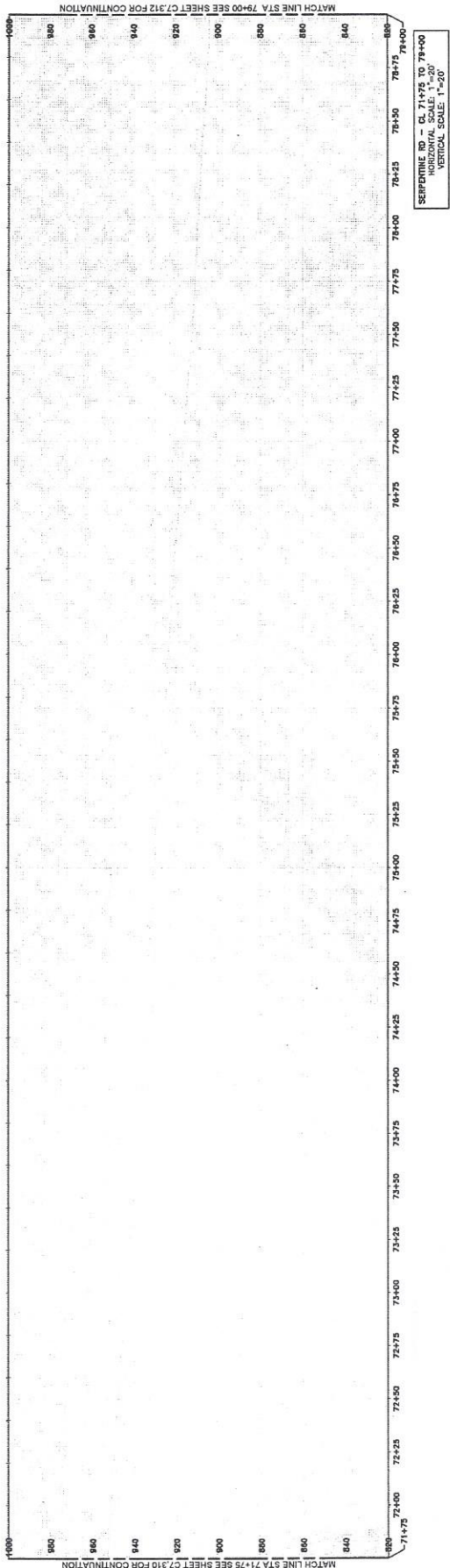
DATE	08/20/18
PROJECT NUMBER	103000000
DESIGNED BY	BP
DRAWN BY	BP
CHECKED BY	BP
SCALE	AS SHOWN
STATUS	AS SHOWN

PROJECT DESCRIPTION
 VTM 65072

3000 TRENKLE ROAD
 LOS ANGELES, CA 90004
 SERPENTINE ROAD

SHEET NUMBER 7 OF 10 SHEETS

C7.311





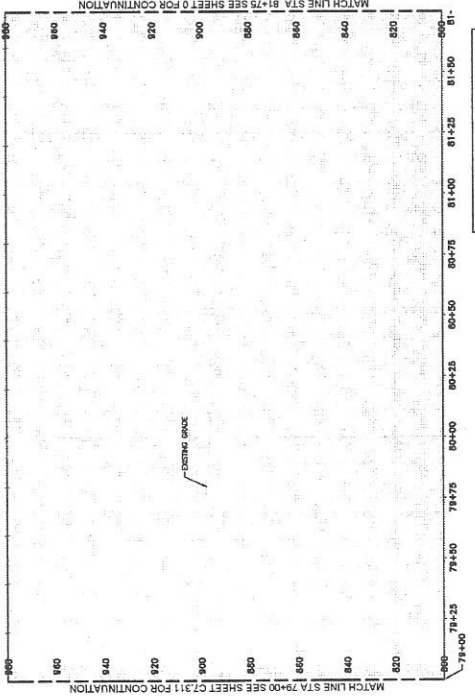
1000 W. 10th Street, Suite 1000
 Los Angeles, CA 90015
 (213) 488-1000
 www.kpff.com



DATE: 07/25/2014
 PROJECT: VTM 53072
 SHEET NO.: 100001
 SHEET TITLE: SERPENTINE ROAD
 SCALE: AS SHOWN
 DRAWN BY: [Redacted]
 CHECKED BY: [Redacted]

PROJECT: VTM 53072
 VTM 53072
 3000 SERRANO AVENUE
 LOS ANGELES, CA 90008
 SERPENTINE ROAD

C7.312



SERPENTINE RD - CL 78+00 TO 81+75
 HORIZONTAL SCALE: 1"=20'
 VERTICAL SCALE: 1"=20'

