COUNTY OF SAN MATEO, PLANNING AND BUILDING DEPARTMENT

NOTICE OF INTENT TO ADOPT
MITIGATED NEGATIVE DECLARATION

A notice, pursuant to the California Environmental Quality Act of 1970, as amended (Public Resources Code 21,000, et seq.), that the following project: *Landscape and Grading*, when adopted and implemented, will not have a significant impact on the environment.

FILE NO.: PLN 2020-00130

OWNER: Sanjeet Dutta

APPLICANT: Sanjeet Dutta

NAME OF PERSON UNDERTAKING THE PROJECT OR RECEIVING THE PROJECT APPROVAL (IF DIFFERENT FROM APPLICANT): Same as applicant

ASSESSOR'S PARCEL NO.: 080-060-570

LOCATION: 250 Bonita Road, Portola Valley

PROJECT DESCRIPTION

Grading Permit for 728 cubic yards of grading (544 cy cut and 187 cy fill) related to landscape improvements (including retaining walls). Nine significant trees are proposed for removal (two Madrones ranging from 12-inch-18-inch diameter at breast height (dbh)); five California bays ranging from 14.5-inch-21-inch dbh; two Black oaks 15.9-inch-16.9-inch dbh). Existing leach lines and expansion lines will be abandoned and replaced with new primary and expansion lines.

FINDINGS AND BASIS FOR A NEGATIVE DECLARATION

The Current Planning Section has reviewed the initial study for the project and, based upon substantial evidence in the record, finds that:

1. The project will not adversely affect water or air quality or increase noise levels substantially.

2. The project will not have adverse impacts on the flora or fauna of the area.

3. The project will not degrade the aesthetic quality of the area.

4. The project will not have adverse impacts on traffic or land use.

5. In addition, the project will not:

    a. Create impacts which have the potential to degrade the quality of the environment.

b. Create impacts which achieve short-term to the disadvantage of long-term environmental goals.

c. Create impacts for a project which are individually limited, but cumulatively considerable.

d. Create environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly.

The County of San Mateo has, therefore, determined that the environmental impact of the project is insignificant.

MITIGATION MEASURES included in the project to avoid potentially significant effects:

Mitigation Measure 1: The applicant shall implement the following basic construction measures at all times:

a. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxic Control Measure Title13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

b. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.

c. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person, or his/her designee, shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure 2: The applicant shall implement the following dust control measures during grading and construction activities:

a. Water all active construction and grading areas at least twice daily.

b. Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.

c. Apply water two times daily or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at the project site.

d. Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets/roads.

e. Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.)

Mitigation Measure 3: All trees proposed for removal shall be replaced at a 1:1 ratio, minimum 15-gallon size stock. All proposed replacement trees shall be shown on a Tree Replanting Plan or Landscape Plan and shall include species, size, and location. The Plan shall be submitted to the County Planning and Building Department for review and approval as part of the building permit plan sets.

Mitigation Measure 4: The applicant shall submit a detailed Tree Protection Plan incorporating measures from a certified arborist as part of the building permit plan sets.

Mitigation Measure 5: In the event that cultural, paleontological, or archaeological resources are encountered during site grading or other site work, such work shall immediately be halted in the area of discovery and the project sponsor shall immediately notify the Community Development Director of the discovery. The applicant shall be required to retain the services of a qualified archaeologist for the purpose of recording, protecting, or curating the discovery as appropriate. The cost of the qualified archaeologist and of any recording, protecting, or curating shall be borne solely by the project sponsor. The archaeologist shall be required to submit to the Community Development Director for review and approval a report of the findings and methods of curation or protection of the resources. In addition, an archaeological report meeting the Secretary of the Interior's Standards detailing the findings of the monitoring will be submitted to the Northwest Information Center after monitoring has ceased. No further grading or site work within the area of discovery shall be allowed until the preceding has occurred.

Mitigation Measure 6: In the event of discovery or recognition of any human remains during project construction, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains. The applicant shall then immediately notify the County Coroner's Office and possibly the State Native American Heritage Commission to seek recommendations from a Most Likely Descendant (Tribal Contact) before any further action at the location of the find can proceed. All contractors and sub-contractors shall be made aware of these requirements and shall adhere to all applicable laws including State Cultural Preservation laws. Disposition of Native American remains shall comply with CEQA Guidelines Section 15064.5(e).

Mitigation Measure 7: The applicant shall submit an erosion control plan in compliance with the County's General Erosion and Sediment Control Plan Guidelines Checklist for review and approval as part of the building permit plans submittal.

Mitigation Measure 8: No grading shall be allowed during the wet weather season (October 1 through April 30) to avoid increased potential soil erosion, unless the applicant applies for an Exception to the Winter Grading Moratorium and the Community Development Director grants the exception. Exceptions will only be granted if dry weather is forecasted during scheduled grading operations, and the erosion control plan includes adequate winterization measures (amongst other determining factors).

Mitigation Measure 9: An Erosion Control and Tree Protection Pre-Site Inspection shall be conducted prior to the issuance of a grading permit "hard card" and building permit to ensure the approved erosion control.

Mitigation Measure 10: In the event that cultural, paleontological, or archaeological resources be encountered during site grading or other site work, such work shall immediately be halted in the area of discovery and the project sponsor shall immediately notify the Community Development Director of the discovery. The applicant shall be required to retain the services of a qualified archaeologist for the purpose of recording, protecting, or curating the discovery as appropriate. The cost of the qualified archaeologist and of any recording, protecting, or curating shall be borne solely by the project sponsor. The archaeologist shall be required to submit to the Community Development Director for review and approval a report of the findings and methods of curation or protection of the resources. No further grading or site work within the area of discovery shall be allowed until the preceding has occurred. Disposition of Native American remains shall comply with CEQA Guidelines Section 15064.5(e).

Mitigation Measure 11: Noise sources associated with demolition, construction, repair, remodeling, or grading of any real property shall be limited to the hours from 7:00 a.m. to 6:00 p.m. weekdays and 9:00 a.m. to 5:00 p.m. Saturdays. Said activities are prohibited on Sundays, Thanksgiving and Christmas (San Mateo Ordinance Code Section 4.88.360).

Mitigation Measure 12: Should any traditionally or culturally affiliated Native American tribe respond to the County's issued notification for consultation, such process shall be completed and any resulting agreed upon measures for avoidance and preservation of identified resources be taken prior to implementation of the project.

Mitigation Measure 13: In the event that tribal cultural resources are inadvertently discovered during project implementation, all work shall stop until a qualified professional can evaluate the find and recommend appropriate measures to avoid and preserve the resource in place, or minimize adverse impacts to the resource, and those measures shall be approved by the Current Planning Section prior to implementation and continuing any work associated with the project.

Mitigation Measure 14: Any inadvertently discovered tribal cultural resources shall be treated with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, protecting the cultural character and integrity of the resource, protecting the traditional use of the resource, and protecting the confidentiality of the resource.

RESPONSIBLE AGENCY CONSULTATION

None

INITIAL STUDY

The San Mateo County Current Planning Section has reviewed the Environmental Evaluation of this project and has found that the probable environmental impacts are insignificant. A copy of the initial study is attached.

REVIEW PERIOD: April 26, 2021 – May 17, 2021

All comments regarding the correctness, completeness, or adequacy of this Negative Declaration must be received by the County Planning and Building Department, 455 County Center, Second Floor, Redwood City, no later than **5:00 p.m., May 17, 2021**.

CONTACT PERSON

Melissa Ross, Planning Services Manager
mross@smcgov.org

Melissa Ross, Planning Services Manager

County of San Mateo
Planning and Building Department

INITIAL STUDY
ENVIRONMENTAL EVALUATION CHECKLIST
(To Be Completed by Planning Department)

1. **Project Title:** Landscaping and Grading

2. **County File Number:** PLN 2020-00130

3. **Lead Agency Name and Address:** San Mateo County Planning; 455 County Center, 2nd Floor, Redwood City, CA

4. **Contact Person and Phone Number:** Melissa Ross, Planning Services Manager, mross@smcgov.org

5. **Project Location:** 250 Bonita Road, Portola Valley

6. **Assessor's Parcel Number and Size of Parcel:** 080-060-570

7. **Project Sponsor's Name and Address:** Sanjeet Dutta; 250 Bonita Road, Portola Valley, CA 94028

8. **Name of Person Undertaking the Project or Receiving the Project Approval (if different from Project Sponsor):** Same as Project Sponsor

9. **General Plan Designation:** Low Density Residential

10. **Zoning:** R-1/S-108

11. **Description of the Project:** Grading Permit for 728 cubic yards of grading (544 cy cut and 187 cy fill) related to landscape improvements (including retaining walls). Nine significant trees are proposed for removal (two Madrones ranging from 12-inch-18-inch diameter at breast height (dbh)); five California bays ranging from 14.5-inch-21-inch dbh; two Black oaks 15.9-inch-16.9-inch dbh). Existing leach lines and expansion lines will be abandoned and replaced with new primary and expansion lines.

12. **Surrounding Land Uses and Setting:** The parcel is located in a heavily vegetated and steeply sloped residential neighborhood.

13. **Other Public Agencies Whose Approval is Required:** None.

14. **Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?:** *(NOTE: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural*

resources, and reduce the potential for delay and conflict in the environmental review process (see Public Resources Code Section 21080.3.2.). Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality). No California Native American tribes have requested consultation.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" or "Significant Unless Mitigated" as indicated by the checklist on the following pages.

	Aesthetics		Energy		Public Services
	Agricultural and Forest Resources		Hazards and Hazardous Materials		Recreation
X	Air Quality		Hydrology/Water Quality		Transportation
X	Biological Resources		Land Use/Planning	X	Tribal Cultural Resources
	Climate Change		Mineral Resources		Utilities/Service Systems
X	Cultural Resources	X	Noise		Wildfire
X	Geology/Soils		Population/Housing		Mandatory Findings of Significance

EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.

4. "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in 5. below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other California Environmental Quality Act (CEQA) process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063(c)(3)(D)). In this case, a brief discussion should identify the following:

   a. Earlier Analysis Used. Identify and state where they are available for review.

   b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c. Mitigation Measures. For effects that are "Less Than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources. Sources used or individuals contacted should be cited in the discussion.

1. AESTHETICS. Except as provided in Public Resources Code Section 21099, would the project:

		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
1.a.	Have a substantial adverse effect on a scenic vista, views from existing residential areas, public lands, water bodies, or roads?				X

Discussion: This property is not within a County or State Scenic corridor. The project does not consist of the construction of any structures. Given the heavily forested nature of this and the surrounding properties, it is unlikely that the landscaping would be visible from existing residential areas. The landscaping would not be visible from public lands, water bodies, or roads.

Source: Project Location; Aerial Photos.

1.b.	Substantially damage or destroy scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
Discussion: This project would not damage or destroy scenic resources, as it is not within a scenic corridor and will not be visible from other properties. **Source:** Project Location; Aerial Photos.					
1.c.	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings, such as significant change in topography or ground surface relief features, and/or development on a ridgeline? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?				X
Discussion: This project will not be visible from a publicly accessible vantage point. **Source:** Project Location; Aerial Photos.					
1.d.	Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?			X	
Discussion: This project includes the installation of outdoor lighting, however all lighting proposed is downward facing and close to grade. As such, this project will not create new sources of substantial light or glare. **Source:** Project Plans.					
1.e.	Be adjacent to a designated Scenic Highway or within a State or County Scenic Corridor?				X
Discussion: This project is not within a designated Scenic Highway, or State or County Scenic corridor. **Source:** Project Location.					
1.f.	If within a Design Review District, conflict with applicable General Plan or Zoning Ordinance provisions?				X
Discussion: This project is not within a Design Review District. **Source:** Project Location.					

1.g.	Visually intrude into an area having natural scenic qualities?				X

Discussion: This project consists of grading and landscaping associated with a single-family dwelling. The project will not visually intrude into natural scenic qualities.

Source: Project Location; Project Plans.

2. AGRICULTURAL AND FOREST RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
2.a.	For lands outside the Coastal Zone, convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X

Discussion: According to the California Department of Conservation Farmland Mapping and Monitoring Program, the project site is designated "Other Land" and therefore is not Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

Source: California Department of Conservation Farmland Mapping and Monitoring Program (2017)

2.b.	Conflict with existing zoning for agricultural use, an existing Open Space Easement, or a Williamson Act contract?				X

Discussion: The project site is zone R-1/S-108. The R-1 zone allows limited agricultural uses, however this property does not have any agricultural uses present and is not subject to an Open Space Easement or Williamson Act contract.

Source: San Mateo County Zoning Regulations.

2.c.	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forestland to non-forest use?				X
Discussion: The project site is not located in an area identified as Farmland or suitable for agricultural activities. Bonita Road is developed with rural residential properties, and this site is currently used for residential purposes. The removal of nine significant trees would not constitute the conversion of forestland to non-forest use. **Source**: California Department of Conservation, Farmland Mapping and Monitoring Program Map (2017); Project Location.					
2.d.	For lands within the Coastal Zone, convert or divide lands identified as Class I or Class II Agriculture Soils and Class III Soils rated good or very good for artichokes or Brussels sprouts?				X
Discussion: The project site is not located within the Coastal Zone. **Source:** Project Location.					
2.e.	Result in damage to soil capability or loss of agricultural land?				X
Discussion: According to the California Department of Conservation Farmland Mapping and Monitoring Program, the project site is designated “Other Land” and therefore there would be no damage to soil capability or loss of agricultural land in this project. **Source:** California Department of Conservation Farmland Mapping and Monitoring Program (2017)					
2.f.	Conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? *Note to reader: This question seeks to address the economic impact of converting forestland to a non-timber harvesting use.*				X
Discussion: The property is zoned One Family Residential (R-1). Residential uses are the primary use in the R-1 Zoning District. While tree farming is a permitted used in the R-1 zone, it is not an existing use on this residential property, and no changes are proposed to the existing use. No proposed zoning changes are included as part of this project. **Source**: Project Plans; San Mateo County Zoning Regulations.					

3. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

		Potentially Significant Impacts	*Significant Unless Mitigated*	*Less Than Significant Impact*	*No Impact*
3.a.	Conflict with or obstruct implementation of the applicable air quality plan?			X	

Discussion: The Bay Area 2017 Clean Air Plan (CAP), developed by the Bay Area Air Quality Management District (BAAQMD), is the current regulating air quality plan for San Mateo County. The CAP was created to improve Bay Area air quality and to protect public health and the climate.

The project will not conflict with or obstruct the implementation of the BAAQMD's 2017 CAP. During project implementation, air emissions would be generated from site grading, equipment, and work vehicles; however, any such grading-related emissions would be temporary and localized. Once completed, use of the landscaped backyard in association with the existing single-family residence would have minimal impacts to the air quality standards set forth for the region by the Bay Area Air Quality Management District.

Source: BAAQMD 2017 Clean Air Plan; Project Plans.

3.b.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?		X		

Discussion: The San Francisco Bay Area is in non-attainment for ozone and particulate matter (PM), including PM 10 (State status) and PM 2.5 (State status), including the 24-hour PM 2.5 national standard. Therefore, any increase in these criteria pollutants is significant.

Implementation of the project will generate temporary increases in these criteria pollutants due to construction vehicle emissions and dust generated from earthwork activities. Mitigation Measure 1 will minimize increases in non-attainment criteria pollutants generated from project construction to a less than significant level. Furthermore, the California Air Resources Board (CARB) provides regulation over vehicles of residents in the State of California, including the operation of any vehicles that would be associated with the proposed single-family residence, to ensure vehicle operating emissions are minimized in the effort towards reaching attainment for Ozone, among other goals. The current project is not expected to generate a significant change to this conclusion.

Mitigation Measure 1: The applicant shall implement the following basic construction measures at all times:

a. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxic Control Measure Title13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

b. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.

c. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person, or his/her designee, shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Source: Project Plans; Bay Area Air Quality Management District.

3.c.	Expose sensitive receptors to substantial pollutant concentrations, as defined by the Bay Area Air Quality Management District?		X		

Discussion: Any pollutant emissions generated from the project will primarily be temporary in nature. The project site is in a rural area with few sensitive receptors (i.e., single-family residences) located within the nearby project vicinity. Additionally, the surrounding tree canopy and vegetation will help to insulate the project area from nearby sensitive receptors. Furthermore, Mitigation Measure 2 will minimize any potential significant exposure to nearby sensitive receptors to a less than significant level.

Mitigation Measure 2: The applicant shall implement the following dust control measures during grading and construction activities:

a. Water all active construction and grading areas at least twice daily.

b. Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.

c. Apply water two times daily or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at the project site.

d. Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets/roads.

e. Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.)

Source: Project Plans, Project Location.

3.d.	Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?		X		

Discussion: This work is expected to generate a temporary increase in dust, motor vehicle and diesel particulate matter in the area. With Mitigation Measures 1 and 2, this temporary increase is not expected to violate existing standards of on-site air quality given required vehicle emission standards required by the State of California for vehicle operations. This work is not expected to lead to the creation of odors that would affect a substantial number of people.

Source: Project Plans, Bay Area Air Quality Management, California Environmental Protection Agency Air Resources Board.

4.	**BIOLOGICAL RESOURCES**. Would the project:				
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
4.a.	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service or National Marine Fisheries Service?				X
Discussion: The proposed project is in the area of the parcel where the existing single-family residence backyard is located. This area has experienced prior disturbances and according to a review of the California Natural Diversity Database (CNDDB), there are no special-status plant or animal species identified on the project site or within the immediate vicinity of the project site. **Source:** Project Location, California Natural Diversity Database.					
4.b.	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service or National Marine Fisheries Service?				X
Discussion: According to the National Wetlands Inventory there are no creeks or riparian habitats on or near this property. **Source:** Project Location, U.S. Fish and Wildlife Service Wetland Mapper.					
4.c.	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X
Discussion: According to the National Wetlands Inventory there are no state or federally protected wetlands on or near this property. **Source:** Project Location, U.S. Fish and Wildlife Service Wetland Mapper.					

4.d.	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?				X

Discussion: According to review of the California Natural Diversity Database (CNDDB), there are no special-status plant or animal species identified on the project site or within the immediate vicinity of the project site. No migratory species have been identified.

Source: Project Plans; California Natural Diversity Database.

4.e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (including the County Heritage and Significant Tree Ordinances)?		X		

Discussion: The nine trees proposed for removal are the minimum necessary to accommodate the proposed landscape design and ensure tree health. These trees will be replaced as indicated in Mitigation Measure 3. The application will also provide a detailed tree protection plan at the building permit stage to ensure that the remaining trees are protected during construction.

Mitigation Measure 3: All trees proposed for removal shall be replaced at a 1:1 ratio, minimum 15-gallon size stock. All proposed replacement trees shall be shown on a Tree Replanting Plan or Landscape Plan and shall include species, size, and location. The Plan shall be submitted to the County Planning and Building Department for review and approval as part of the building permit plan sets.

Mitigation Measure 4: The applicant shall submit a detailed Tree Protection Plan incorporating measures from a certified arborist as part of the building permit plan sets.

Source: Project Plans, San Mateo County Zoning Regulations, San Mateo County Significant Tree Ordinance.

4.f.	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, other approved local, regional, or state habitat conservation plan?				X

Discussion: There are no adopted Habitat Conservation Plans, Natural Conservation Community Plans or other approved local, regional, or State habitat conservation plans for the project site.

Source: Project Location, California Department of Fish and Wildlife, Habitat Conservation Planning, California Regional Conservation Plans Map.

4.g.	Be located inside or within 200 feet of a marine or wildlife reserve?				X

Discussion: The project site is not located inside or within 200 feet of a marine or wildlife reserve.

Source: Project Location; U.S. Fish and Wildlife Services, National Wildlife Refuge System Locator.

4.h.	Result in loss of oak woodlands or other non-timber woodlands?			X	

Discussion: This parcel is a mix of native California Bay and Black Oaks. The project proposes to remove nine trees.

See staff's discussion in Section 4.e above.

Source: Advanced Tree Care, June 2020.

5. CULTURAL RESOURCES. Would the project:

		Potentially Significant Impacts	*Significant Unless Mitigated*	*Less Than Significant Impact*	*No Impact*
5.a.	Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?				X

Discussion: According to the office of Historic Preservation, building or structures 45 years or older may be of historical value. The project site does not contain any historic listed buildings nor is any work being performed on the residence that was constructed in 2006.

Source: Northwest Information Center California Historical Resources Information System

5.b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Section 15064.5?		X		

Discussion: A project referral was sent to the California Historical Resources Information System who determined that the project area has a low possibility of containing unrecorded archaeological sites. No further study for archaeological resources was recommended. The following mitigation measure is recommended in the unlikely event archaeological resources are encountered during construction.

Mitigation Measure 5: In the event that cultural, paleontological, or archaeological resources are encountered during site grading or other site work, such work shall immediately be halted in the area of discovery and the project sponsor shall immediately notify the Community Development Director of the discovery. The applicant shall be required to retain the services of a qualified archaeologist for the purpose of recording, protecting, or curating the discovery as appropriate. The cost of the qualified archaeologist and of any recording, protecting, or curating shall be borne solely by the project sponsor. The archaeologist shall be required to submit to the Community Development Director for review and approval a report of the findings and methods of curation or protection of the resources. In addition, an archaeological report meeting the Secretary of the Interior's Standards detailing the findings of the monitoring will be submitted to the Northwest Information Center after monitoring has ceased. No further grading or site work within the area of discovery shall be allowed until the preceding has occurred.

Source: California Historical Resources Information System.

5.c.	Disturb any human remains, including those interred outside of formal cemeteries?		X		

Discussion: In the unlikely event human remains are encountered during project work, the following mitigation measure is recommended.

Mitigation Measure 6: In the event of discovery or recognition of any human remains during project construction, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains. The applicant shall then immediately notify the County Coroner's Office and possibly the State Native American Heritage Commission to seek recommendations from a Most Likely Descendant (Tribal Contact) before any further action at the location of the find can proceed. All contractors and sub-contractors shall be made aware of these requirements and shall adhere to all applicable laws including State Cultural Preservation laws. Disposition of Native American remains shall comply with CEQA Guidelines Section 15064.5(e).

Source: Project Plans.

6.	**ENERGY**. Would the project:				
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
6.a.	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	

Discussion: Energy consumption associated with project construction is minimal and temporary (i.e., construction vehicles). Long-term energy consumption consists of path and wall lighting utilizing energy efficient LED bulbs.

Source: Project Plans.

6.b.	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.			X	

Discussion: The project does not entail any structural development or use that would cause demand for energy resources that would conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Source: Project Plans.

7. **GEOLOGY AND SOILS**. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
7.a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving the following, or create a situation that results in:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? *Note: Refer to Division of Mines and Geology Special Publication 42 and the County Geotechnical Hazards Synthesis Map.*			X	
Discussion: The project site is located within the Alquist-Priolo Earthquake Fault Zone. The project is not expected to rupture the mapped fault. A Geotechnical Report, completed by C2Earth, Inc., among others, has determined the project to be in general conformance provided the identified recommendations are implemented. All development is subject to the issuance of a building permit and all work will be completed in accordance with the California Building Code to ensure the health and safety of occupants. **Source:** Department of Conservation California Geological Survey Earthquake Zones of Required Investigation GIS.				
ii. Strong seismic ground shaking?			X	
Discussion: The project site is subject to violent shaking from the San Andreas fault. A geotechnical investigation was submitted as part of the project's review and received conditional approval by the County's Geotechnical Section. All development will be subject to the issuance of a building permit and all work shall be completed in accordance with the California Building Code and subject to recommendations made by the applicant's engineer to ensure the health and safety of occupants. **Source:** MTC/ABAG Hazard Viewer Map.				
iii. Seismic-related ground failure, including liquefaction and differential settling?			X	
Discussion: This site is within a low earthquake liquefaction susceptibility zone; therefore the likelihood of liquefaction and differential compaction is low. **Source:** MTC/ABAG Hazard Viewer Map.				

iv. Landslides?			X	

Discussion: This project is in a high landslide hazard area. While this area is susceptible to landslides, the proposed project is not likely to pose a risk to the stability of the immediate site or increase the potential for landslides to affect adjacent properties. See additional discussion under Question 7.c.

Source: Department of Conservation California Geological Survey Earthquake Zones of Required Investigation GIS.

v. Coastal cliff/bluff instability or erosion? *Note to reader: This question is looking at instability under current conditions. Future, potential instability is looked at in Section 7 (Climate Change).*				X

Discussion: The project site is not located near a coastal cliff or bluff.

Source: Project Location.

7.b. Result in substantial soil erosion or the loss of topsoil?		X		

Discussion: The project includes 728 cubic yards (c.y.) of grading, including 544 c.y. of cut and 187 c.y. of fill. Given the topography of the project site, there is a potential for erosion to occur if proper erosion control measures are not implemented. The applicant has developed an erosion control plan that includes fiber rolls, silt fencing, and stockpile and materials storage areas, as well as other best management erosion control practices. Furthermore, staff is recommending the following mitigation measures to further minimize erosion and runoff from the project area and to ensure that grading and erosion control measures are implemented appropriately:

Mitigation Measure 7: The applicant shall submit an erosion control plan in compliance with the County's General Erosion and Sediment Control Plan Guidelines Checklist for review and approval as part of the building permit plans submittal.

Mitigation Measure 8: No grading shall be allowed during the wet weather season (October 1 through April 30) to avoid increased potential soil erosion, unless the applicant applies for an Exception to the Winter Grading Moratorium and the Community Development Director grants the exception. Exceptions will only be granted if dry weather is forecasted during scheduled grading operations, and the erosion control plan includes adequate winterization measures (amongst other determining factors).

Mitigation Measure 9: An Erosion Control and Tree Protection Pre-Site Inspection shall be conducted prior to the issuance of a grading permit "hard card" and building permit to ensure the approved erosion control.

Source: Project Plans; County of San Mateo Grading Ordinance; San Mateo County Wide Stormwater Pollution Prevention Program.

7.c.	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, severe erosion, liquefaction or collapse?			X	

Discussion: A supplemental geotechnical/geologic evaluation, prepared by C2Earth, Inc., was submitted to address the potential impacts of the development on a possible landslide deposit. The consultant utilized Lidar imagery and stereo-paired aerial photographs and concurred with the County's assessment that the development may be within a landslide deposit. Photographs and test pit logs completed at the time the residence was constructed were also reviewed. The report noted that a comparative quantitative slope stability analysis was performed to evaluate to the influence of the proposed project on slope stability and probability of failure using the generated factor of safety. In general, a slope with a factor of safety below 1.00 indicates a potential failure though it will not necessarily fail. A factor of safety greater than 1.00 may fail but the probability of stability is higher than that for a slope with a lower factor of safety. Slope geometry and soil strength parameters were also evaluated using existing and proposed surface profiles and subsurface/surficial materials, including wet and saturated weights.

The slope stability analysis resulted in an existing conditions factor of safety of 2.19 and with a post-development factor of safety of 2.25. With implementation of the project, there is increased slope stability due to the removal of material on the slope and relocation to a slope lower retained by walls.

The report also reviewed the proposed septic system modifications, noting a leach field percolation rate of "A" at 7.35 inches per hour resulting in good downward migration and percolation. Based on the results of the slope stability and percolation rates, the report concluded that the project may proceed as planned. Since the project will increase slope stability, no mitigation is required.

Source: Project Plans, C2Earth Geotechnical/Geology Report (June 2020, including prior report dates).

7.d.	Be located on expansive soil, as defined in Table 18-1-B of Uniform Building Code, creating substantial direct or indirect risks to life or property?				X

Discussion: The project site was not identified as being located on expansive soils.

Source: Project Plans, C2Earth Geotechnical/Geology Report (June 2020, including prior report dates).

7.e.	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?			X	

Discussion: The project has been preliminarily reviewed by the County of San Mateo Environmental Health Services and has received conditional approval for the improvement of a septic system capable to serve the existing residential development. Further, the geotechnical/geologic report evaluated the proposed septic system modifications and concluded that the project can be constructed as proposed.

Source: Project Plans; County of San Mateo Environmental Health Services, C2Earth Geotechnical/Geology Report (June 2020, including prior report dates).					
7.f.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		
Discussion: In the unlikely event such resources are encountered, the following mitigation measure is proposed. **<u>Mitigation Measure 10</u>:** In the event that cultural, paleontological, or archaeological resources be encountered during site grading or other site work, such work shall immediately be halted in the area of discovery and the project sponsor shall immediately notify the Community Development Director of the discovery. The applicant shall be required to retain the services of a qualified archaeologist for the purpose of recording, protecting, or curating the discovery as appropriate. The cost of the qualified archaeologist and of any recording, protecting, or curating shall be borne solely by the project sponsor. The archaeologist shall be required to submit to the Community Development Director for review and approval a report of the findings and methods of curation or protection of the resources. No further grading or site work within the area of discovery shall be allowed until the preceding has occurred. Disposition of Native American remains shall comply with CEQA Guidelines Section 15064.5(e). **Source:** Project plans.					

8.	**CLIMATE CHANGE**. Would the project:				
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
8.a.	Generate greenhouse gas (GHG) emissions (including methane), either directly or indirectly, that may have a significant impact on the environment?		X		
Discussion: The project includes the removal of nine significant trees to accommodate the proposed development. In context to the surrounding forested area, the removal of trees will not release significant amounts of GHG emissions or significantly reduce GHG sequestering in the area. Furthermore, new trees will be planted to replace the regulated trees proposed for removal. Grading activities will result in the temporary generation of GHG emissions primarily from construction-related vehicles and equipment. Any such potential increase in GHG emission levels will be minimal and temporary. The County has identified Energy Efficient Climate Action Plan (EECAP) goals which can be implemented in new development projects. Per Mitigation Measure 1, the project is required to incorporate applicable measures from the County's Energy Efficiency Climate Action Plan (EECAP) Development Checklist and BAAQMD Best Management Practices (BMPs) that, once implemented, will reduce project impact on climate change.				

Source: California Air Resources Board, San Mateo County Energy Efficiency Climate Action Plan.					
8.b.	Conflict with an applicable plan (including a local climate action plan), policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?		X		
Discussion: The project does not conflict with the San Mateo County Energy Efficiency Climate Action Plan provided that the Mitigation Measure 1, is implemented. **Source**: San Mateo County Energy Efficiency Climate Action Plan.					
8.c.	Result in the loss of forestland or conversion of forestland to non-forest use, such that it would release significant amounts of GHG emissions, or significantly reduce GHG sequestering?		X		
Discussion: As defined by Public Resources Code Section 12220(g), forestland is land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. The project site contains more than 10 percent native tree cover in its current natural condition, and while a total of nine trees are proposed for removal, the tree loss is insignificant when compared to the tree coverage of the parcel and surrounding vicinity. Thus, the proposed tree removals will not release significant amounts of GHG emissions or significantly reduce GHG sequestering in the area. Furthermore, new trees will be planted to replace the trees proposed for removal per Mitigation Measure 3. **Source**: Project Plans; Public Resources Code, Section 12220(g); San Mateo County Energy Efficiency Climate Action Plan (EECAP).					
8.d.	Expose new or existing structures and/or infrastructure (e.g., leach fields) to accelerated coastal cliff/bluff erosion due to rising sea levels?				X
Discussion: The project is not located on or adjacent to a coastal cliff or bluff. **Source:** Project Location.					
8.e.	Expose people or structures to a significant risk of loss, injury or death involving sea level rise?				X
Discussion: The project is not located on or adjacent to the San Francisco Bay or Pacific Ocean. **Source:** Project location.					

8.f.	Place structures within an anticipated 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
Discussion: The subject parcel is located in Flood Zone X (Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level), per FEMA Panel No. 06081C0402E, effective October 16, 2012. **Source:** FEMA Panel No. 06081C0402E, effective October 16, 2012.					
8.g.	Place within an anticipated 100-year flood hazard area structures that would impede or redirect flood flows?				X
Discussion: The subject parcel is located in Flood Zone X (Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level), per FEMA Panel No. 06081C0402E, effective October 16, 2012. **Source:** FEMA Panel No. 06081C0402E, effective October 16, 2012.					

9.	**HAZARDS AND HAZARDOUS MATERIALS**. Would the project:				
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
9.a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (e.g., pesticides, herbicides, other toxic substances, or radioactive material)?				X
Discussion: The project proposes grading for landscaping purposes. Neither the landscaping nor associated grading would result in a significant impact involving the transport, use, or dispersal of hazardous material or toxic substances. **Source**: Project Scope.					
9.b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				X
Discussion: No significant use of hazardous materials is proposed. The project involves earthwork and landscaping related to residential uses. **Source**: Project Scope.					

9.c.	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
Discussion: No use involving significant emission of or handling of hazardous materials or waste is proposed. The project involves earthwork and landscaping related to residential uses. **Source**: Project Scope.					
9.d.	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
Discussion: The project site is not a listed hazardous materials site. **Source**: California Department of Toxic Substances Control, Hazardous Waste and Substances Site List (2019).					
9.e.	For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area?				X
Discussion: The site is not located within an area regulated by an airport land use plan nor is it located within two miles of a public airport or public use airport. **Source:** San Mateo County Maps.					
9.f.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
Discussion: The project involves grading and landscaping within a residential property and would not permanently or significantly impede access on existing public roads. **Source:** San Mateo County Maps.					
9.g.	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			X	
Discussion: The project site is located within a High Fire Hazard Severity Zone, State Responsibility Area. The project was reviewed by County Fire and received conditional approval subject to compliance with Chapter 7A of the California Building Code for ignition resistant					

construction and materials and acceptable slope and material for the driveway, among other fire prevention requirements. No further mitigation, beyond compliance with the standards and requirements of the County Fire, is necessary. **Source**: County Fire, Fire Hazard Severity Zones Maps.				
9.h. Place housing within an existing 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
Discussion: The subject parcel is located in Flood Zone X (Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level), per FEMA Panel No. 06081C0402E, effective October 16, 2012. **Source:** FEMA Panel No. 06081C0402E, effective October 16, 2012.				
9.i. Place within an existing 100-year flood hazard area structures that would impede or redirect flood flows?				X
Discussion: The subject parcel is located in Flood Zone X (Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level), per FEMA Panel No. 06081C0402E, effective October 16, 2012. **Source:** FEMA Panel No. 06081C0402E, effective October 16, 2012.				
9.j. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
Discussion: The subject parcel is located in Flood Zone X (Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level), per FEMA Panel No. 06081C0402E, effective October 16, 2012. **Source:** FEMA Panel No. 06081C0402E, effective October 16, 2012.				
9.k. Inundation by seiche, tsunami, or mudflow?				X
Discussion: Risk of inundation by seiche, tsunami, or mudflow is considered nil, as the project site is not located near any large bodies of water. **Source:** Project Scope, San Mateo County Maps.				

10. HYDROLOGY AND WATER QUALITY. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
10.a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality (consider water quality parameters such as temperature, dissolved oxygen, turbidity and other typical stormwater pollutants (e.g., heavy metals, pathogens, petroleum derivatives, synthetic organics, sediment, nutrients, oxygen-demanding substances, and trash))?		X		
Discussion: The project has the potential to generate polluted stormwater runoff during site grading activities. However, these impacts would be reduced to a less than significant level with the implementation of Mitigation Measures 7 - 9. The proposed septic system changes have been preliminarily reviewed and conditionally approved by the County Environmental Health Services. **Source:** Project Plans, County of San Mateo Drainage Policy, County of San Mateo Environmental Health Services.				
10.b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?				X
Discussion: The project is not expected to deplete any groundwater supplies or interfere with groundwater recharge. **Source:** Project Scope.				
10.c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:				
i. Result in substantial erosion or siltation on- or off-site;			X	

Discussion: The project does not involve the alteration of the course of a stream or river. Existing drainage patterns will be altered by proposed grading and an erosion and sediment control plan has been prepared to reduce stormwater-related erosion and sediment from the project site during grading. Additionally, the project has been preliminarily reviewed by the drainage section for drainage compliance and conditionally approved. Furthermore, see staff's discussion in Section 10.a above. **Source**: Project Plans.				
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;				X
Discussion: The project will not introduce a significant amount of new impervious surface to the site. Furthermore, see staff's discussion in Section 10.a. and 10.c. above. **Source:** Project Plans.				
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or				X
Discussion: The project will not introduce a significant amount of new impervious surface to the site. Furthermore, see staff's discussion in Section 10.a. and 10.c. above. **Source:** Project Plans.				
iv. Impede or redirect flood flows?				X
Discussion: The subject parcel is located in Flood Zone X (Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level), per FEMA Panel No. 06081C0402E, effective October 16, 2012. The proposed development will not impede or redirect floor flows. **Source:** FEMA Panel No. 06081C0402E, effective October 16, 2012.				
10.d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				X
Discussion: The subject parcel is not located in a flood hazard, tsunami, or seiche zone. **Source:** Project Location.				

10.e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X
Discussion: The proposed project is in a rural area of the County and will not obstruct implementation of a water control plan or sustainable groundwater management plan. **Source:** Project Location.				
10.f. Significantly degrade surface or ground-water water quality?				X
Discussion: The project is not expected to degrade surface or ground water quality. **Source:** Project Plans.				
10.g. Result in increased impervious surfaces and associated increased runoff?				X
Discussion: The project will result in 254 sq. ft. on new impervious surfaces, which will not result in significant associated increased runoff. **Source:** Project Plans; C. 3 and C. 6 Development Review Checklist.				

11. LAND USE AND PLANNING. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
11.a. Physically divide an established community?				X
Discussion: The project does not involve a land division or development that would result in the division of an established community. The project proposes new landscaping on a parcel located in a rural area of the County that will be among other single-family developments on similarly sized rural parcels. **Source**: Project Plans; Project Location.				
11.b. Cause a significant environmental impact due to a conflict with any land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect?				X
Discussion: There are no changes under the project that will conflict with any land use plan, policy, or regulations. **Source**: Project Plans, San Mateo County Zoning Ordinance, San Mateo County General Plan.				

11.c.	Serve to encourage off-site development of presently undeveloped areas or increase development intensity of already developed areas (examples include the introduction of new or expanded public utilities, new industry, commercial facilities or recreation activities)?				X

Discussion: The project proposes improvements to serve only the subject property. These improvements are completely within the parcel boundaries of the subject property and do not serve to encourage off-site development of undeveloped areas or increase the development intensity of surrounding developed areas.

Source: Project Plans.

12. MINERAL RESOURCES. Would the project:

		Potentially Significant Impacts	*Significant Unless Mitigated*	*Less Than Significant Impact*	*No Impact*
12.a.	Result in the loss of availability of a known mineral resource that would be of value to the region or the residents of the State?				X

Discussion: There are no known mineral resources identified on the project parcel.

Source: Project Location, San Mateo County General Plan.

12.b.	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

Discussion: There are no identified locally important mineral resource recovery sites delineated on the County's General Plan, any specific plan, or any other land use plan.

Source: Project Location; San Mateo County General Plan; San Mateo County Zoning Regulations

13.	**NOISE**. Would the project result in:				
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
13.a.	Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
Discussion: During project grading excessive noise could be generated. The following Mitigation Measure, as described below, is proposed to reduce the construction noise impact to a less than significant level. Once grading is complete, the project is not expected to generate significant amounts of noise. **Mitigation Measure 11:** Noise sources associated with demolition, construction, repair, remodeling, or grading of any real property shall be limited to the hours from 7:00 a.m. to 6:00 p.m. weekdays and 9:00 a.m. to 5:00 p.m. Saturdays. Said activities are prohibited on Sundays, Thanksgiving and Christmas (San Mateo Ordinance Code Section 4.88.360). **Source**: Project Plans, San Mateo County Noise Ordinance.				
13.b.	Generation of excessive ground-borne vibration or ground-borne noise levels?				X
Discussion: There are no aspects of the project that would include generation of excessive ground-borne vibration or ground-borne noise levels. **Source**: Project Plans.					
13.c.	For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, exposure to people residing or working in the project area to excessive noise levels?				X
Discussion: The project is not located within an area regulated by an airport land use plan or within 2 miles of a public airport. **Source:** Project Location.					

14.	**POPULATION AND HOUSING**. Would the project:				
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
14.a.	Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
Discussion: All improvements associated with the proposed project are completely within the subject parcel's boundaries and are only sufficient to serve the existing single-family residence. **Source:** Project Plans.					
14.b.	Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X
Discussion: The project does not propose to displace existing housing as the proposes grading and landscaping related to an existing single-family dwelling. **Source:** Project Scope.					

15.	**PUBLIC SERVICES**. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
15.a.	Fire protection?				X
15.b.	Police protection?				X
15.c.	Schools?				X
15.d.	Parks?				X
15.e.	Other public facilities or utilities (e.g., hospitals, or electrical/natural gas supply systems)?				X

Discussion: The project is limited to the existing single-family residential use and, therefore, will not involve new or physically altered government facilities or increase the need for new or physically altered government facilities. Additionally, the project will not affect service ratios, response times, or other performance objectives for any of the public services in the area.

Source: Project Plans.

16. RECREATION. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
16.a. Increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
Discussion: The project will not increase the use of existing neighborhood or regional parks or other recreational facilities such that significant physical deterioration of the facility will occur or be accelerated. **Source:** Project Plans.				
16.b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X
Discussion: The project does not include any recreational facilities as proposed development is limited to a single-family residential use. **Source:** Project Plans.				

17. TRANSPORTATION. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
17.a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities, and parking?				X

Discussion: This project does not include any development related the circulation system, including transit, roadways, parking, or private driveways. **Source:** Project Plans.					
17.b.	Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b) *Criteria for Analyzing Transportation Impacts*? *Note to reader: Section 15064.3 refers to land use and transportation projects, qualitative analysis, and methodology.*				X
Discussion: The project does not involve a change or intensification in use, and therefore will not have an impact on vehicle miles travelled. Any traffic related to the existing residence is expected to be minimal. **Source:** Project Plans.					
17.c.	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
Discussion: No new public right of way improvements are proposed. Uses proposed are accessory to the existing residential use. **Source:** Project Scope.					
17.d.	Result in inadequate emergency access?				X
Discussion: No new public right of way improvements are proposed. Uses proposed are accessory to the existing residential use and would not change existing emergency access. **Source:** Project Scope.					

18.	**TRIBAL CULTURAL RESOURCES**. Would the project:	***Potentially Significant Impacts***	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
18.a.	Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a				

California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)				X
Discussion: The project site does not contain any historic listed buildings nor is any work being performed on the residence that was constructed in 2006. **Source:** Northwest Information Center California Historical Resources Information System.				
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Subdivision (c) of Public Resources Code Section 5024.1. (In applying the criteria set forth in Subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.)		X		
Discussion: Staff requested a Sacred Lands file search of the project vicinity, which was conducted by the Native American Heritage Council (NAHC) and resulted in no found records. Previous development in the project vicinity did not encounter any resources which could be considered significant to a California Native American tribe. Therefore, the project is not expected to cause a substantial adverse change to any potential tribal cultural resources. The project is not subject to Assembly Bill 52 for California Native American tribal consultation requirements, as no traditionally or culturally affiliated tribe has requested, in writing, to the County to be informed of proposed projects in the geographic project area. However, in following the NAHC's recommended best practices, the following mitigation measures are recommended to minimize any potential significant impacts to unknown tribal cultural resources. **Mitigation Measure 12:** Should any traditionally or culturally affiliated Native American tribe respond to the County's issued notification for consultation, such process shall be completed and any resulting agreed upon measures for avoidance and preservation of identified resources be taken prior to implementation of the project.				

Mitigation Measure 13: In the event that tribal cultural resources are inadvertently discovered during project implementation, all work shall stop until a qualified professional can evaluate the find and recommend appropriate measures to avoid and preserve the resource in place, or minimize adverse impacts to the resource, and those measures shall be approved by the Current Planning Section prior to implementation and continuing any work associated with the project.

Mitigation Measure 14: Any inadvertently discovered tribal cultural resources shall be treated with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, protecting the cultural character and integrity of the resource, protecting the traditional use of the resource, and protecting the confidentiality of the resource.

Source: Project Plans; Project Location; Native American Heritage Council, California Assembly Bill 52.

19. UTILITIES AND SERVICE SYSTEMS. Would the project:

		Potentially Significant Impacts	*Significant Unless Mitigated*	*Less Than Significant Impact*	*No Impact*
19.a.	Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			X	

Discussion: Pre- and post-construction stormwater will be retained on-site and the on-site wastewater treatment system is sized to accommodate the existing and proposed development runoff. Both have been reviewed by the Building Drainage Section and Environmental Health Services, respectively. No additional utilities are proposed.

Source: Project Plans.

19.b.	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	

Discussion: Plans were referred to California Water Service Company who granted conditional approval indicating that any water system improvements would be at the owner's expense. Further, the project was reviewed and granted conditional approval for compliance with the Water Efficient Landscape Ordinance.

Source: Project Plans, California Water Service Company.

19.c. Result in a determination by the waste-water treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X
Discussion: No wastewater treatment is available in this area. The project relies on a private septic system for wastewater treatment. **Source:** Project Plans.				
19.d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?				X
Discussion: No significant increase in waste will result from this project. Solid waste generation for this project is typical of a residential parcel. **Source:** Project Plans.				
19.e. Comply with Federal, State, and local management and reduction statutes and regulations related to solid waste?				X
Discussion: The project requires compliance with the County's waste reduction/waste management for construction and demolition at the building permit stage. **Source:** Project Plans.				

20. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
20.a. Substantially impair an adopted emergency response plan or emergency evacuation plan?				X
Discussion: This section is applicable to projects located in or adjacent to State Responsibility Very High Fire Severity Zones. The project is located in a High fire severity zone; thus, this question is not applicable. **Source:** Project Location.				

20.b.	Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				X
Discussion: This section is applicable to projects located in or adjacent to State Responsibility Very High Fire Severity Zones. The project is located in a High fire severity zone; thus this question is not applicable. **Source:** Project Location.					
20.c.	Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				X
Discussion: This section is applicable to projects located in or adjacent to State Responsibility Very High Fire Severity Zones. The project is located in a High fire severity zone; thus this question is not applicable. **Source:** Project Location.					
20.d.	Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				X
Discussion: This section is applicable to projects located in or adjacent to State Responsibility Very High Fire Severity Zones. The project is located in a High fire severity zone; thus this question is not applicable. **Source:** Project Location.					

21.	**MANDATORY FINDINGS OF SIGNIFICANCE**.	***Potentially Significant Impacts***	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
21.a.	Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community,			X	

substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?				
Discussion: No mapped fish or wildlife species are within the project area. The project, however, includes tree removal and potential impacts will be less than significant with implementation of mitigation measures. **Source:** Project plans, California Natural Diversity Database, U.S. Fish and Wildlife Service Wetland Mapper.				
21.b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)			X	
Discussion: The majority of projects within this community are typical of residential projects that must meet residential development and construction standards. As mitigated, this project will not result in cumulatively considerable impacts given other construction that may be undertaken by other landowners in the community. **Source:** Planning and Building Department Permits Search.				
21.c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	
Discussion: No substantial adverse effects will result from this project with implementation of the recommended mitigation measures. **Source:** Project Plans.				

RESPONSIBLE AGENCIES. Check what agency has permit authority or other approval for the project.

AGENCY	YES	NO	TYPE OF APPROVAL
Bay Area Air Quality Management District		X	
Caltrans		X	
City		X	
California Coastal Commission		X	

AGENCY	YES	NO	TYPE OF APPROVAL
County Airport Land Use Commission (ALUC)		X	
Other: _____			
National Marine Fisheries Service		X	
Regional Water Quality Control Board		X	
San Francisco Bay Conservation and Development Commission (BCDC)		X	
Sewer/Water District:	X		Environmental Health Services for septic systems
State Department of Fish and Wildlife		X	
State Department of Public Health		X	
State Water Resources Control Board		X	
U.S. Army Corps of Engineers (CE)		X	
U.S. Environmental Protection Agency (EPA)		X	
U.S. Fish and Wildlife Service		X	

MITIGATION MEASURES

	Yes	No
Mitigation measures have been proposed in project application.		X
Other mitigation measures are needed.	X	

The following measures are included in the project plans or proposals pursuant to Section 15070(b)(1) of the State CEQA Guidelines:

Mitigation Measure 1: The applicant shall implement the following basic construction measures at all times:

a. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxic Control Measure Title13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

b. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.

c. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person, or his/her designee, shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure 2: The applicant shall implement the following dust control measures during grading and construction activities:

a. Water all active construction and grading areas at least twice daily.

b. Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.

c. Apply water two times daily or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at the project site.

d. Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets/roads.

e. Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.)

Mitigation Measure 3: All trees proposed for removal shall be replaced at a 1:1 ratio, minimum 15-gallon size stock. All proposed replacement trees shall be shown on a Tree Replanting Plan or Landscape Plan and shall include species, size, and location. The Plan shall be submitted to the County Planning and Building Department for review and approval as part of the building permit plan sets.

Mitigation Measure 4: The applicant shall submit a detailed Tree Protection Plan incorporating measures from a certified arborist as part of the building permit plan sets.

Mitigation Measure 5: In the event that cultural, paleontological, or archaeological resources are encountered during site grading or other site work, such work shall immediately be halted in the area of discovery and the project sponsor shall immediately notify the Community Development Director of the discovery. The applicant shall be required to retain the services of a qualified archaeologist for the purpose of recording, protecting, or curating the discovery as appropriate. The cost of the qualified archaeologist and of any recording, protecting, or curating shall be borne solely by the project sponsor. The archaeologist shall be required to submit to the Community Development Director for review and approval a report of the findings and methods of curation or protection of the resources. In addition, an archaeological report meeting the Secretary of the Interior's Standards detailing the findings of the monitoring will be submitted to the Northwest Information Center after monitoring has ceased. No further grading or site work within the area of discovery shall be allowed until the preceding has occurred.

Mitigation Measure 6: In the event of discovery or recognition of any human remains during project construction, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains. The applicant shall then immediately notify the County Coroner's Office and possibly the State Native American Heritage Commission to seek recommendations from a Most Likely Descendant (Tribal Contact) before any further action at the location of the find can proceed. All contractors and sub-contractors shall be made aware of these requirements and shall adhere to all applicable laws including State Cultural Preservation laws. Disposition of Native American remains shall comply with CEQA Guidelines Section 15064.5(e).

Mitigation Measure 7: The applicant shall submit an erosion control plan in compliance with the County's General Erosion and Sediment Control Plan Guidelines Checklist for review and approval as part of the building permit plans submittal.

Mitigation Measure 8: No grading shall be allowed during the wet weather season (October 1 through April 30) to avoid increased potential soil erosion, unless the applicant applies for an Exception to the Winter Grading Moratorium and the Community Development Director grants the exception. Exceptions will only be granted if dry weather is forecasted during scheduled grading

operations, and the erosion control plan includes adequate winterization measures (amongst other determining factors).

Mitigation Measure 9: An Erosion Control and Tree Protection Pre-Site Inspection shall be conducted prior to the issuance of a grading permit "hard card" and building permit to ensure the approved erosion control.

Mitigation Measure 10: In the event that cultural, paleontological, or archaeological resources be encountered during site grading or other site work, such work shall immediately be halted in the area of discovery and the project sponsor shall immediately notify the Community Development Director of the discovery. The applicant shall be required to retain the services of a qualified archaeologist for the purpose of recording, protecting, or curating the discovery as appropriate. The cost of the qualified archaeologist and of any recording, protecting, or curating shall be borne solely by the project sponsor. The archaeologist shall be required to submit to the Community Development Director for review and approval a report of the findings and methods of curation or protection of the resources. No further grading or site work within the area of discovery shall be allowed until the preceding has occurred. Disposition of Native American remains shall comply with CEQA Guidelines Section 15064.5(e).

Mitigation Measure 11: Noise sources associated with demolition, construction, repair, remodeling, or grading of any real property shall be limited to the hours from 7:00 a.m. to 6:00 p.m. weekdays and 9:00 a.m. to 5:00 p.m. Saturdays. Said activities are prohibited on Sundays, Thanksgiving and Christmas (San Mateo Ordinance Code Section 4.88.360).

Mitigation Measure 12: Should any traditionally or culturally affiliated Native American tribe respond to the County's issued notification for consultation, such process shall be completed and any resulting agreed upon measures for avoidance and preservation of identified resources be taken prior to implementation of the project.

Mitigation Measure 13: In the event that tribal cultural resources are inadvertently discovered during project implementation, all work shall stop until a qualified professional can evaluate the find and recommend appropriate measures to avoid and preserve the resource in place, or minimize adverse impacts to the resource, and those measures shall be approved by the Current Planning Section prior to implementation and continuing any work associated with the project.

Mitigation Measure 14: Any inadvertently discovered tribal cultural resources shall be treated with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, protecting the cultural character and integrity of the resource, protecting the traditional use of the resource, and protecting the confidentiality of the resource.

DETERMINATION (to be completed by the Lead Agency).

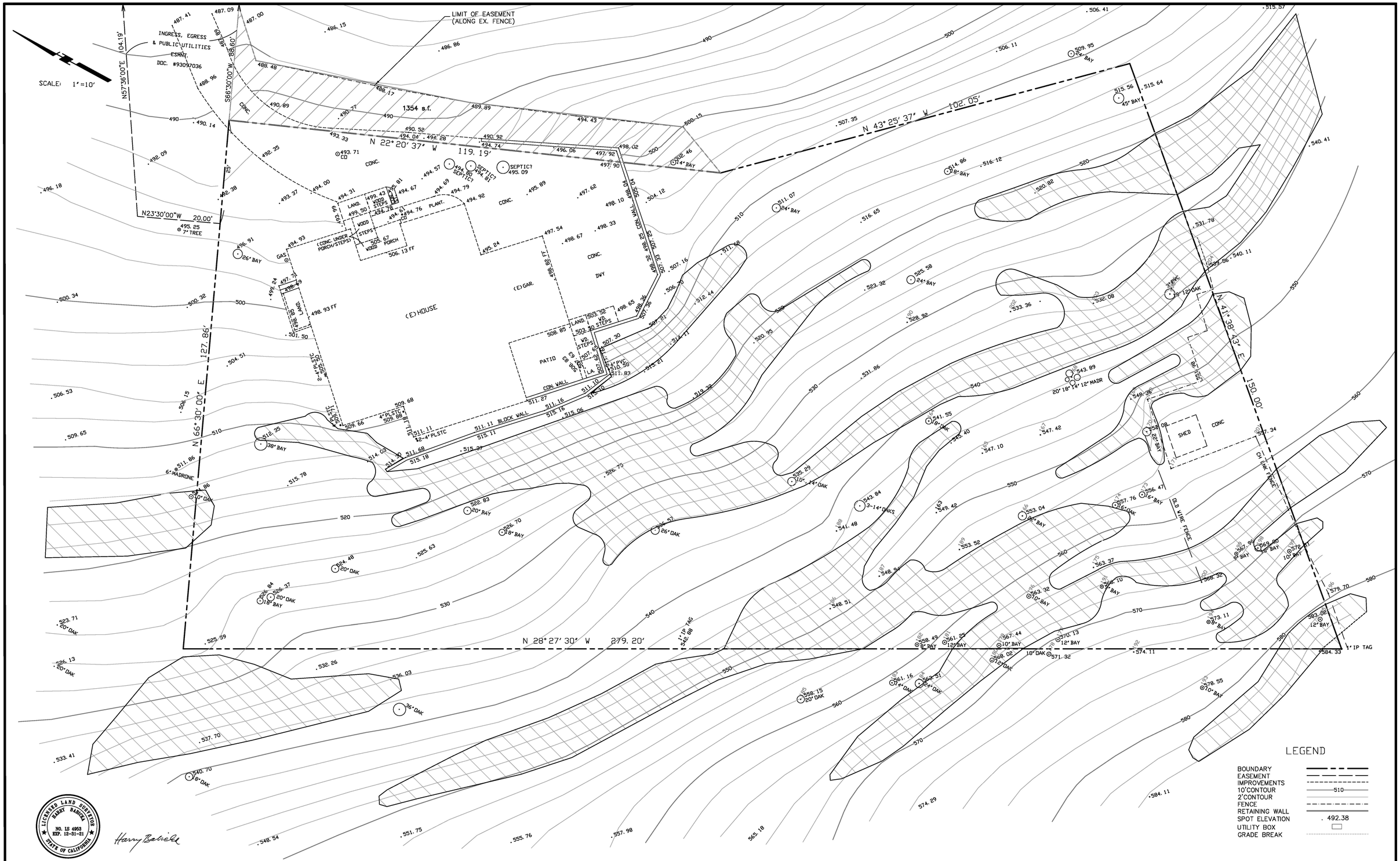
On the basis of this initial evaluation:

	I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared by the Planning Department.
X	I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because of the mitigation measures in the discussion have been included as part of the proposed project. A MITIGATED NEGATIVE DECLARATION will be prepared.

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

	(Signature)
4/22/2021	Planning Services Manager
Date	(Title)

MAR:cmc – MARFF0607_WCH.DOCX



LICENSED LAND SURVEYOR HARRY BABICKA NO. LS 4953 EXP. 12-31-21 STATE OF CALIFORNIA

Harry Babicka

NO.	BY	DATE	REVISION	BY	DATE
		6/19	ADDITIONAL TOPOGRAPHIC SURVEY		
		9/19	ADDITIONAL TOPOGRAPHIC SURVEY		

DATE: MARCH, 2018
SCALE: HOR. 1"=10' VERT.
DESIGNED:
DRAWN: JK
PROJ. ENGR:

BY: HARRY BABICKA L. S. 4953
DATE:

WESTFALL ENGINEERS, INC.
14583 BIG BASIN WAY, SARATOGA, CA 95070 (408)867-0244

TOPOGRAPHIC MAP

250 BONITA ROAD, PORTOLA VALLEY

JOB NO. 2018-002

SHEET 1 OF 1

CALLOUT LEGEND

FINISH SCHEDULE — (X) DESIGN ELEMENT DESCRIPTION — DETAIL PAGE XX / DETAIL # X

FINISH SCHEDULE

SYMBOL	ITEM	MANUFACTURER / SUPPLIER	DESCRIPTION OR MODEL #	COLOR/FINISH	DIMENSIONS
A	DECOMPOSED GRANITE	PBM (408.246.0550)	D.G. PAVING	GOLD FINES	-
B	COLOR CONCRETE	SCOFIELD SYSTEMS (800.8009900)	PAD & STEPS	TBD	-
C	BATU WOOD	T&H BUILDING SUPPLY(650.366.3732)	BATU, FOR ENTRANCE FLOATING STEPS	OILED	-
D	PAVER	CALSTONE (408.246.0550)	QUARRY STONE	CAMERON CREAM	PATTERN: HERRINGBONE 45
F	PAVER	STEPSTONE INC (408.246.0550)	SIDE PATH UPTO NEW LAWN AREA	CAL ARCH PAVER AGAVE #1812	RUNNING BOND, 8"X16"
G	STEEL	-	-	TBD	-
H	PT WOOD	T&H BUILDING SUPPLY(650.366.3732)		BROWN	-
H	KEY STONE	TBD	TBD	TBD	

PLEASE NOTE: ALL THE MATERIALS SELECTED MEETING NEED TO BE CONFIRMED IN THE CD MEETING

LCD1 2 (D) PAVER ON SAND

FLOATING WOOD STEPS W/ LIGHTS SEE STRUCTURAL DRAWINGS

LCD2 3 (H) HANDRAIL STEEL

KEYSTONE WALL, SEE STRUCTURAL DRAWINGS

APPROXIMATE LOCATION OF EXPANSION LEACH LINE

LCD2 4 WOOD SAFETY RAILING H.T. TBD

(B) P.I.P. COL. CONCRETE PAD — LCD1 3

(A) PATHWAY DECOMPOSED GRANITE — LCD1 4

(A) PATHWAY DECOMPOSED GRANITE — LCD1 4

(A,C) P.T. TIMBER STEPS D.G PAVING BETWEEN — LCD1 1

P.I.P. CNCRETE WALL, SEE STRUCTURAL PLANS

(F) PATHWAY PAVER ON SAND — LCD1 2

(C) STAIRS BATU WOOD — LCD2 1

EXISTING KEYSTONE WALL TO BE REMOVED

(H) STEEL RAILING ON TOP OF WALL — LCD2 3

(E) KEYSTONE WALL TO REMAIN

LCD1 4 (A) PATHWAY DECOMPOSED GRANITE

SUBDRAIN (TYP.)

APPROXIMATE LOCATION OF EX. LEACH LINE

KEYSTONE WALL, SEE STRUCTURAL DRAWINGS

P.I.P. CONCRETE WALL, SEE STRUCTURAL DRAWINGS

PROPOSED PRIMARY LEACH LINE (TYPICAL)

EXPANSION LEACH FIELD

NORTH

REGISTERED LANDSCAPE ARCHITECT LOUIS J. MARINKOVICH No. 2270 Signature 12/16/2020 Date STATE OF CALIFORNIA EXP 1/31/2021

landsystems
LANDSCAPE ARCHITECTS AND CONTRACTORS
C27 474943
RLA 3220
1064 Cherry Street, San Carlos, CA 94070
650.851.2793
www.landsystemslandscapes.com

JOB
DUTTA RES.

CONSTRUCTION PLAN

DESIGNER
AC

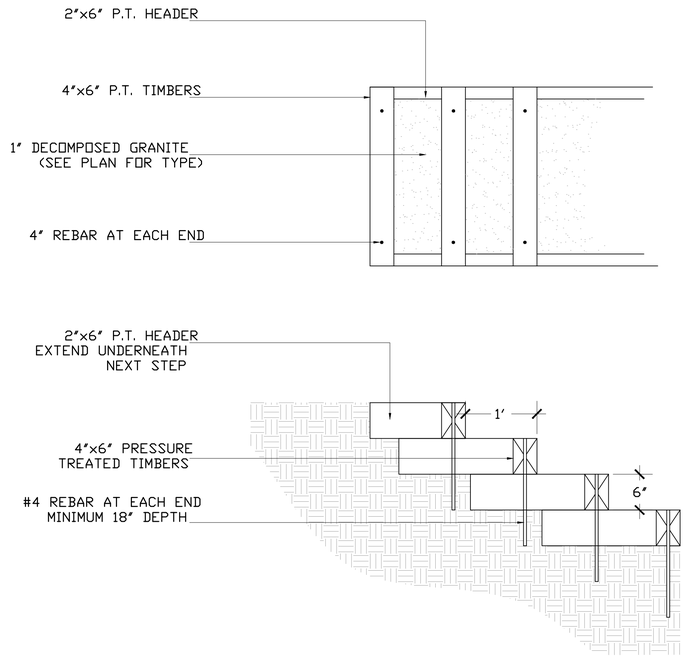
PC
TV

DUTTA RESIDENCE
250 BONITA ROAD,
PORTOLA VALLEY, CA 94028

DATE
02.25.2020
REVISIONS
08.04.2020 1

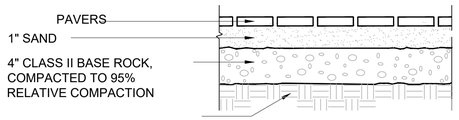
SCALE
1/8" = 1'-0"

SHEET
LCP
CONSTRUCTION PLAN



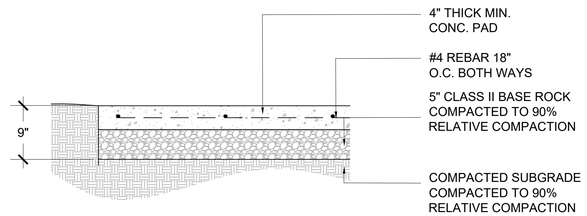
1 D.G. STEPS W/4"x6" PT TIMBERS

SCALE: 1" = 1'- 0"



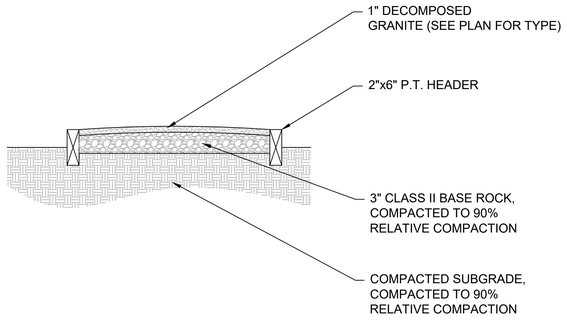
2 PAVER ON SAND

SCALE: 1" = 1'- 0"



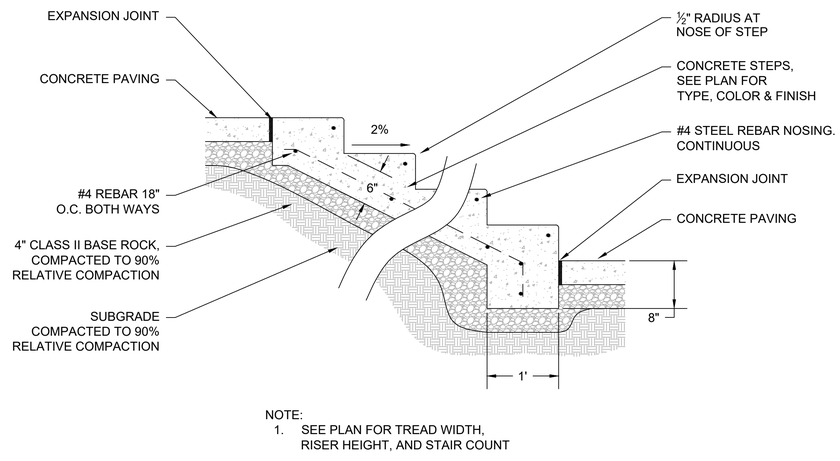
3 CONCRETE PAD

SCALE: 1" = 1'- 0"



4 D.G. PAVING

SCALE: 1" = 1'- 0"



NOTE:
1. SEE PLAN FOR TREAD WIDTH, RISER HEIGHT, AND STAIR COUNT

5 CONC. STEPS

SCALE: 1" = 1'- 0"

landsystems
LANDSCAPE ARCHITECTS AND CONTRACTORS
C27 474943
RLA 3220
3113 Middlefield Road
Redwood City, CA. 94063-3731
650.851.2793
www.landsystemslandscapes.com

JOB
DUTTA RES.

CONSTRUCTION DETAILS

DESIGNER
AC

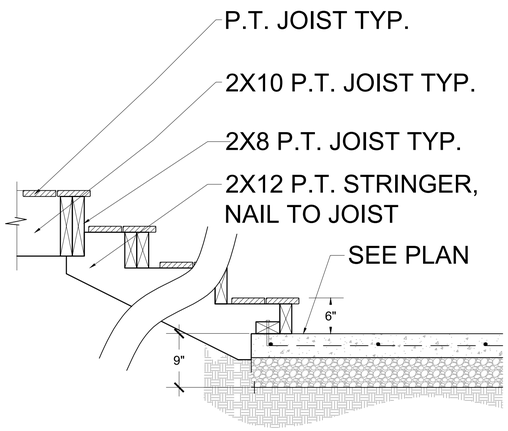
PC
TV

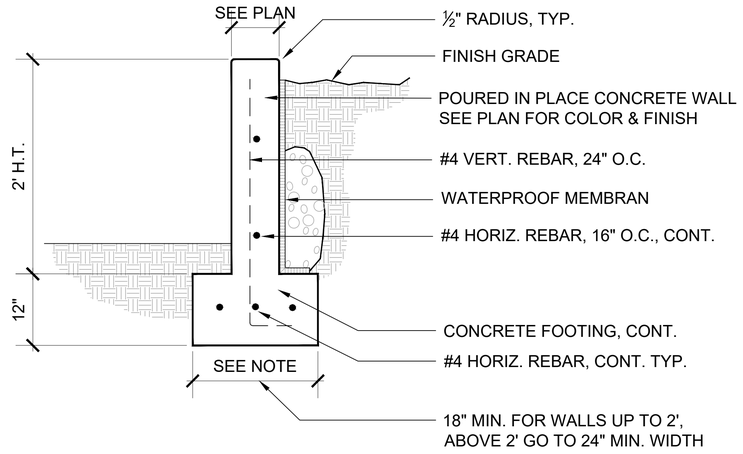
DUTTA RESIDENCE
250 BONITA ROAD
PORTOLA VALLEY, CA 94028

DATE
12.14.17
REVISIONS
2.6.18
2.14.18

SCALE
AS SHOWN

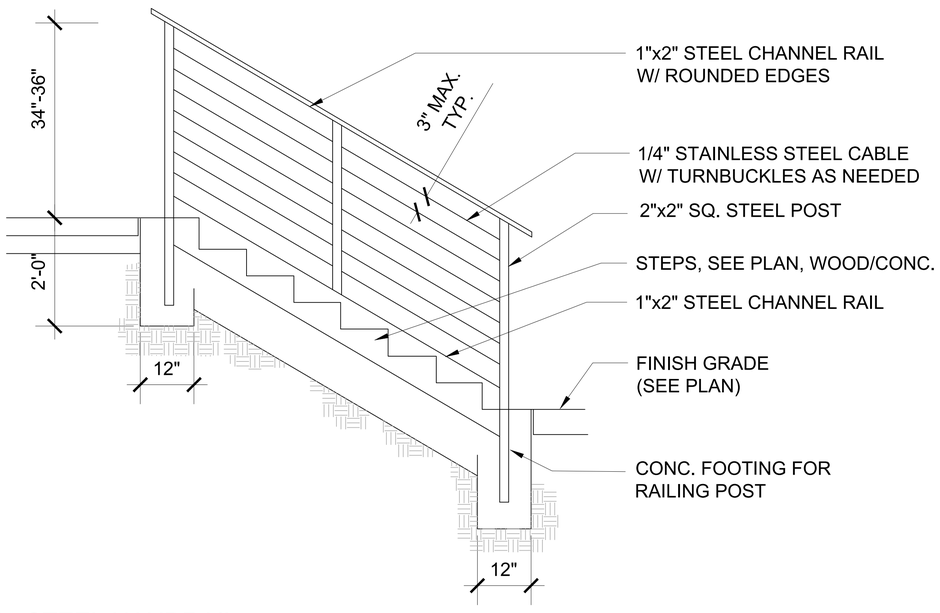
SHEET
LCD1





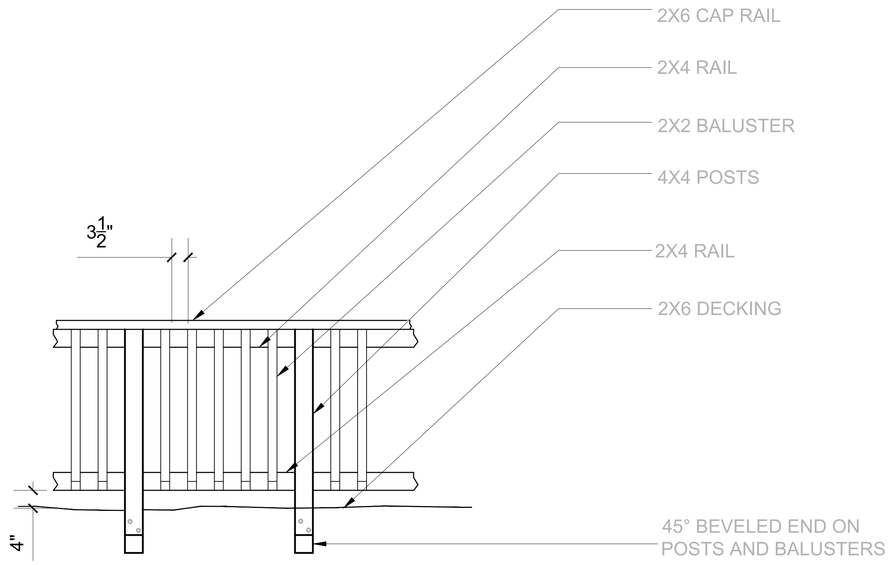
1 WOOD STEPS

SCALE: 1" = 1'- 0"



2 CONC. PLANTER WALL

SCALE: 1/2" = 1'- 0"



3 STEEL HANDRAIL

SCALE: 3/4" = 1'- 0"

4 WOOD SAFETY RAILING

SCALE: 3/4" = 1'- 0"

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250 BONITA ROAD,
PORTOLA VALLEY, CA 94028

DATE
12.14.17
REVISIONS
2.6.18
2.14.18
6.8.18
7.26.18

SCALE
AS SHOWN

SHEET
LCD2

1. THESE DRAWINGS AND THE ASSOCIATED STRUCTURAL CALCULATIONS ENTITLED "STRUCTURAL CALCULATIONS FOR RETAINING WALLS & EXTERIOR STAIRS" HAVE BEEN PREPARED BY SCHNEIDER ENGINEERING AS A PRODUCT OF SERVICE FOR THE EXCLUSIVE USE OF SANJEET DUTTA (CLIENT) FOR THE PROJECT DESCRIBED HEREIN. THEY MUST NOT BE USED BY OTHER PARTIES OR FOR OTHER PURPOSES WITHOUT THE MUTUAL PRIOR WRITTEN CONSENT OF SCHNEIDER ENGINEERING AND THE CLIENT.

2. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE CALIFORNIA BUILDING CODE, 2019 EDITION, ASCE 7 - 16 ("MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES") AND ALL APPLICABLE LOCAL CODES AND ORDINANCES. NOTES AND SPECIFICATIONS ON THESE DRAWINGS SHALL TAKE PRECEDENCE OVER THESE STRUCTURAL NOTES.

3. THE CONTRACTOR SHALL CHECK ALL DRAWINGS IMMEDIATELY UPON THEIR RECEIPT AND SHALL FIELD VERIFY ALL EXISTING DIMENSIONS, STRUCTURAL CONFIGURATIONS AND SITE CONDITIONS BEFORE STARTING WORK. THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED OF ANY DISCREPANCIES BETWEEN THE ACTUAL CONDITIONS AND THOSE SHOWN ON THESE DRAWINGS WHICH MIGHT IMPACT THE STRUCTURAL DESIGN.

4. FOUNDATION DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SOILS REPORTS PREPARED BY UFP GEOTECHNOLOGY, A DIVISION OF C2 EARTH, INC. ENTITLED "GEOTECHNICAL RECOMMENDATIONS, PROPOSED RETAINING WALLS AND LANDSCAPE IMPROVEMENTS, DUTTA PROPERTY, 250 BONITA ROAD, SAN MATEO COUNTY, CALIFORNIA" (THEIR DOCUMENT Id. 0284IU-02LI, SERIAL NO. 18250), DATED 7 NOVEMBER, 2017, AND FEBRUARY 2020 REVIEW LETTER w/ DESIGN RECOMMENDATIONS FOR UN-DRAINED RETAINING WALLS. BOTH OF WHICH SHALL BE INCORPORATED THEREIN BY REFERENCE.

5. THE DEPTH, DIMENSIONS AND LOCATION OF NEW STAIR AND WALL CAISSONS, RETAINING WALL LEVELLING PAD AND GRADING BENCH EARTH EXCAVATIONS SHALL BE INDIVIDUALLY FIELD VERIFIED BY THE PROJECT SOILS ENGINEER IN ACCORDANCE WITH THESE DRAWINGS AND THE SOILS REPORT REFERENCED IN NOTE 4 (ABOVE).

6. ALL EARTHWORK AND SITE DRAINAGE, INCLUDING PREPARATION OF SUB-GRADE, INSTALLATION OF RETAINING WALL BACK-DRAINS AND BACKFILL, GEO-GRID INSTALLATION AND SOIL COMPACTION, AND SURFACE DRAINAGE SHOULD BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT BY UFP GEOTECHNOLOGY (C2EARTH) REFERENCED IN NOTE 4 (6 LEFT).

7. THE SOILS ENGINEER(S) SHOULD BE PROVIDED SUFFICIENT ADVANCE NOTIFICATION (408-866-5436) OF ANY EARTHWORK OPERATIONS AS PROVIDED FOR IN THEIR REPORT, AND SHOULD BE PRESENT TO OBSERVE AND/OR TEST AS NECESSARY THE EARTHWORK AND FOUNDATION INSTALLATION PHASES OF THE PROJECT.

8. ALL AREAS DISTURBED AS A RESULT OF CONSTRUCTION SHALL BE PROTECTED AGAINST EROSION AS APPROPRIATE BY INSTALLING SILT FENCES AND STRAW WATTLES DURING CONSTRUCTION, FOLLOWED BY SEEDING AND THE INSTALLATION OF EROSION CONTROL BLANKETS. ALL SUCH MEASURES SHALL BE PERFORMED IN ACCORDANCE WITH THE EROSION CONTROL DRAWING BY WESTFALL ENGINEERS, INC., AS WELL AS THE EROSION CONTROL REQUIREMENTS AND BEST MANAGEMENT PRACTICES OF THE COUNTY OF SAN MATEO, CALIFORNIA. ADDITIONAL SILT FENCES AND STRAWS WATTLES MAY BE NECESSARY TO PROTECT THE AREA FOLLOWING THE COMPLETION OF CONSTRUCTION.

9. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL TEMPORARY SHORING, CONCRETE FORMS, FORM TIES AND BRACING, STOCKPILES, CONSTRUCTION ROADS AND RAMPS, SCAFFOLDING, BRACING AND ALL CONSTRUCTION MEANS AND METHODS, AS WELL AS FOR ALL TEMPORARY SAFETY AND ACCESS FEATURES REQUIRED TO FACILITATE CONSTRUCTION AND MAINTAIN A SAFE, SECURE JOB SITE ENVIRONMENT.

10. ALL CONSTRUCTION DEBRIS AND EXCAVATION SPOILS SHALL BE REMOVED FROM THE JOB SITE AND HAULED TO AN APPROPRIATE DISPOSAL SITE. EXCAVATION SPOILS MAY BE DISPERSED ON SITE AND/OR USED AS BACKFILL ONLY AS APPROVED BY THE SOILS ENGINEER. SPOILS MAY ALSO BE USED AS LANDSCAPE FILL IF AND AS APPROVED BY THE LANDSCAPE ARCHITECT.

GENERAL & EARTHWORK NOTES

REFER TO STRUCTURAL DRAWINGS SHEETS2 FOR "KEYSTONE" WALLS TYPICAL DETAILS, NOTES AND ADDITIONAL INFORMATION

VICINITY MAP

NO SCALE

REFERENCE: THE BASE FOR THIS "SITE PLAN" IS THE "GRADING AND DRAINAGE PLAN" PREPARED BY WESTFALL ENGINEERS, INC., DATED JULY, 2018 (THEIR JOB NO. 18-002)

SITE PLAN

SCALE: 1"=10'

DATE	REVISION
2/20	WALL DRAIN
7/20	LEACH PLAN
10/20	SEPTIC FIG.

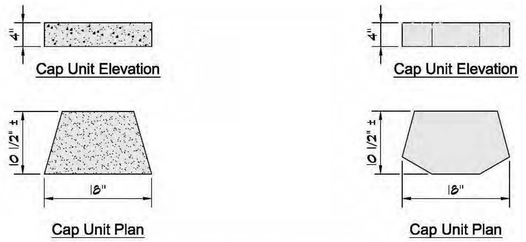
Client:
Sanjeet Dutta
250 Bonita Road
Portola Valley, California 94028
(408) 644-4064

REGISTERED PROFESSIONAL ENGINEER R. A. SCHNEIDER No. C28734 FEB 28, 1992 CIVIL STATE OF CALIFORNIA

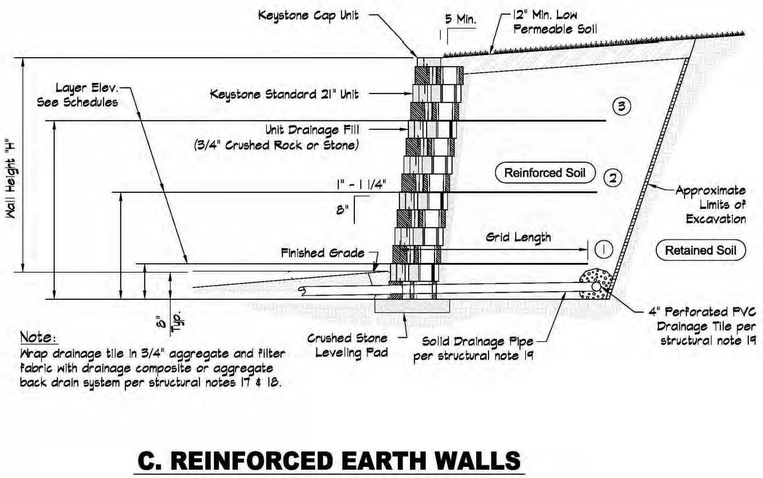
SCHNEIDER ENGINEERING
CIVIL / STRUCTURAL ENGINEERING
2150 TRADE ZONE BLVD., SUITE #105G
SAN JOSE, CALIFORNIA 95131-1730
Phone:(408)275-6482, E-mail:fasengineer@sbcglobal.net

LANDSCAPE WALL & STAIRS
DUTTA RESIDENCE
250 BONITA ROAD
PORTOLA VALLEY, CALIFORNIA

DATE: DECEMBER 2018
DRAWN: F.A.S./R.S.C.
SHEET
S1
OF (4) SHEETS

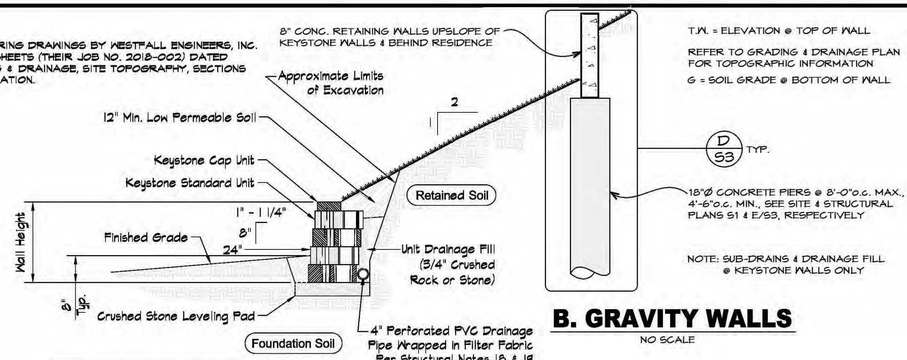


A. CAP UNIT OPTIONS



Note:
Wrap drainage tile in 3/4" aggregate and filter fabric with drainage composite or aggregate back drain system per structural notes 17 & 18.

REFER TO CIVIL ENGINEERING DRAWINGS BY WESTFALL ENGINEERS, INC. CONSISTING OF TWO (2) SHEETS (THEIR JOB NO. 2018-002) DATED JULY, 2018 FOR GRADING & DRAINAGE, SITE TOPOGRAPHY, SECTIONS AND ADDITIONAL INFORMATION.



B. GRAVITY WALLS

NO SCALE

WALL HEIGHT	GRID LAYER	LAYER ELEV.	GRID LENGTH
≤ 4'-0"	NONE	SEE GRAVITY WALL SECTION	
4'-8"	2	3.33'	6.0'
	1	0.67'	4.0'
5'-4"	2	4.0'	6.0'
	1	1.33'	5.0'
6'-0"	2	4.67'	6.5'
	1	2.0'	6.0'
6'-8"	2	5.33'	7.0'
	1	2.67'	7.0'
7'-4"	3	6.0'	7.0'
	2	3.33'	6.0'
	1	0.67'	5.5'
8'-0"	3	6.67'	7.5'
	2	4.0'	6.0'
	1	1.33'	6.0'

KEYSTONE (M.S.E.) WALLS:
AS OUTLINED IN THE GEOTECHNICAL RECOMMENDATIONS (SOILS REPORT, NOTE 4/S1), THE FOLLOWING MATERIAL PARAMETERS MAY BE USED FOR THE M.S.E. WALL DESIGNS FOR THE SANTA CLARA FORMATION (FOUNDATION MATERIALS):

- WEIGHT, Y = 125 PCF
- INTERNAL ANGLE OF FRICTION, Φ = 30 DEGREES
- NEGLIGIBLE COHESION, C = 0
- ALLOWABLE BEARING CAPACITY, FB = 2,000 PSF

FOR ENGINEERED FILL OR ON-SITE SOIL OR COLLUVIUM (BACKFILL MATERIAL), INCLUDING REINFORCED FILL AND RETAINED ZONE, USE:

- UNIT WEIGHT, Y = 120 PCF
- INTERNAL ANGLE OF FRICTION, Φ = 25 DEGREES*
- NEGLIGIBLE COHESION, C = 0

SITE WALLS ARE NOT SUBJECT TO ADDITIONAL EARTHQUAKE LOADING REQUIREMENTS. CALCULATE THE WALL HEIGHT FROM THE BOTTOM OF THE LOWEST BLOCK TO THE TOP OF THE UPPER BLOCK.

* EVALUATE BACKFILL IN RETAINED ZONE COMPRISED OF NATIVE MATERIALS AND/OR DRAIN-ROCK USING A PHI ANGLE OF Φ = 30° , TO BE CONFIRMED BY THE PROJECT SOILS ENGINEER PRIOR TO CONSTRUCTION.

THESE DRAWINGS ARE FOR THE STRUCTURAL DESIGN AND CONSTRUCTION OF A SERIES OF "KEYSTONE" MECHANICALLY STABILIZED EARTH (M.S.E.) GRAVITY RETAINING WALLS CONSTRUCTED ABOVE A LANDSCAPED AREA CREATING A SERIES OF TERRACES, AND REINFORCED-EARTH WALLS OF VARYING HEIGHT AND REINFORCEMENT GEOGRIDS BELOW THE LANDSCAPED LAWN AREA. GRAVITY WALLS ABOVE THE LAWN, REFERRED TO AS "UPHILL WALLS", SHALL BE DESIGNED FOR BACKFILL SLOPES OF 46.6% (Θ = 25.00) MAXIMUM AND NO ADDITIONAL SURCHARGE. THE REINFORCED-EARTH "DOWNHILL WALLS" BACKFILLS SHALL BE GRADED, OR SLOPED-TO-DRAIN, TO APPROXIMATELY 2% (1.50) BEHIND THE WALL, WITH A RESIDENTIAL FLOOR LIVE LOAD SURCHARGE OF 40PSF FOR A MAXIMUM WIDTH OF 32-FEET.

"KEYSTONE" M.S.E. WALLS ARE DESIGNED USING THE RANKINE METHOD AND SHALL BE CONSTRUCTED OF STANDARD 21" UNITS W/ AN 80 FACE BATTER. WALLS W/ GEOGRID SHALL USE MIRAFI 3XT. WALLS NOT REQUIRING GEOGRID ARE "GRAVITY WALLS". ALL M.S.E. WALLS SHALL BE EMBEDDED A MINIMUM OF 8" (ONE BLOCK MODULE) BELOW GRADE ON A MINIMUM 6" THICK BASE OF CRUSHED, COMPACTED STONE, OR BETTER.

THESE CALCULATIONS ALSO ADDRESS THE STRUCTURAL ANALYSIS AND DESIGN OF TWO NEW EXTERIOR STAIRWAYS, ONE LEADING TO THE EXISTING FRONT PORCH AND THE OTHER TO AN EXISTING REAR DECK. THE NEW FRONT STAIRS AND HANDRAILS WILL BE CONSTRUCTED OF STRUCTURAL STEEL WITH WOODEN STAIR TREADS, SUPPORTED ON REINFORCED CONCRETE FOUNDATIONS AT THEIR DOWN-GRADIENT ENDS. THEY WILL BE BOLTED TO AND SUPPORTED BY THE EXISTING WOOD-FRAMED WALLS OF THE RESIDENCE AT THEIR UP-GRADIENT ENDS, WHICH WILL BE REINFORCED AS NEEDED TO RECEIVE THE NEW STAIR CONNECTIONS. THE NEW REAR STAIRS WILL CONSIST OF STEEL-REINFORCED, POURED-IN-PLACE SLABS/STEPS-ON-GRADE STRADDLED BY NEW RETAINING WALLS SUPPORTED ON CONCRETE DRILLED PIERS FOUNDED IN THE UNDERLYING SUPPORTIVE CONGLOMERATE (BEDROCK). NO OTHER CONSTRUCTION IS INCLUDED IN THIS SCOPE OF WORK.

SCOPE OF WORK

11. CONCRETE SHALL BE NORMAL WEIGHT AND DEVELOP A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 2,500 PSI WITHIN 28 DAYS. CONCRETE COARSE AGGREGATE SHALL HAVE A MAXIMUM DIMENSION OF 1½", ¾" MAXIMUM FOR SLABS. FOR CONCRETE TO BE PUMPED, ⅜" PEA GRAVEL COARSE AGGREGATE WITH 6 SACKS OF CEMENT PER CUBIC YARD IS RECOMMENDED. FOR SHALLOW FOOTINGS, NO SPECIAL INSPECTION OF CONCRETE PLACEMENT OR CONCRETE TESTING IS REQUIRED UNLESS SPECIFICALLY MANDATED BY THE LOCAL BUILDING AUTHORITY.

12. REINFORCING STEEL SHALL BE NEW DEFORMED BILLET STEEL MEETING ALL APPLICABLE ASTM STANDARDS AND ACI-318. STEEL REINFORCEMENT SHALL BE GRADE 60 FOR #5 BARS AND LARGER, GRADE 40 FOR #4 BARS AND SMALLER. LAP ALL REINFORCING STEEL CONTACT SPLICES A MINIMUM OF 40 BAR DIAMETERS, UNLESS NOTED OTHERWISE ON THESE DRAWINGS.

13. REINFORCING STEEL SHALL BE TIED TOGETHER AND HELD FIRMLY IN PLACE TO PREVENT AGAINST DISPLACEMENT DURING CONCRETE PLACEMENT. PLACE STEEL REINFORCEMENT ON MORTAR BLOCKS, STEEL CHAIRS OR OTHER DEVICES TO MAINTAIN A MINIMUM CLEARANCE OF 3-INCHES WHERE CONCRETE IS DEPOSITED AGAINST EARTH, 2-INCHES WHERE DEPOSITED AGAINST FORMED SURFACES.

14. MECHANICALLY STABILIZED EARTH RETAINING WALL UNITS SHALL BE KEYSTONE STANDARD 21.5" TRI-PLANE OF COLOR AND TEXTURE TO BE SELECTED BY THE OWNER, PLACED IN RUNNING BOND CONFIGURATION WITH FACE BATTER AS INDICATED ON THESE DRAWINGS. KEYSTONE CONCRETE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS. STANDARD UNIT DIMENSIONS SHALL BE 8"(H) X 18" (W) X 21.5" (D) INTERLOCKED WITH 2 SHEAR CONNECTOR PINS PER UNIT, UNLESS NOTED OTHERWISE ON THESE DRAWINGS.

15. MECHANICALLY STABILIZED EARTH (SEGMENTAL) RETAINING WALL SHEAR CONNECTOR PINS SHALL BE ½" DIAMETER THERMO-SET ISOPHTHALIC POLYESTER RESIN-PULTRUDED FIBERGLASS REINFORCEMENT RODS CAPABLE OF HOLDING THE GEO-GRID IN THE PROPER DESIGN POSITION DURING GRID PRE-TENSIONING AND BACKFILLING.

16. GEO-GRIDS SHALL CONSIST OF GEO-SYNTHETIC REINFORCEMENT MANUFACTURED SPECIFICALLY FOR SOIL REINFORCEMENT APPLICATIONS KNITTED FROM HIGH TENACITY POLYESTER FILAMENT YARN OR HIGH DENSITY POLYETHYLENE AND COATED WITH AN IMPREGNATED PVC COATING. ALL GEO-GRID MATERIAL SHALL BE MIRAFI 3XTG OR EQUAL APPROVED BY THE ENGINEER AND SHALL BE WRAPPED AROUND SHEAR PIN CONNECTORS AT THE ELEVATIONS SHOWN ON THE "KEYSTONE WALL REINFORCING SCHEDULE", SHEET S2. OMIT BOTTOM LAYER OF GEO-GRID IF INTERRUPTED AT WALL STEPS FOR INTERMEDIATE WALL HEIGHTS BETWEEN THOSE GIVEN IN THE SCHEDULE.

17. RETAINING WALL BACKFILL DRAINAGE AND RETAINING WALL UNIT FILL SHALL CONSIST OF CLEAN COARSE GRAVEL ("DRAIN ROCK") OR CLASS 2 "PERMEABLE MATERIAL" CONFORMING TO STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, LATEST EDITION, SECTION 68-1.025 EXTENDING THE FULL WIDTH OF THE WALL. THE ROCK SHOULD CONTINUE FULL-HEIGHT OF WALLS, TO WITHIN 12-INCHES BELOW THE FINISHED SURFACE GRADE.

18. DRAIN ROCK SHALL BE ENVELOPED BY FILTER FABRIC, SUCH AS MIRAFI 140N OR EQUAL, AND CAPPED WITH A 12-INCH THICKNESS OF IMPERVIOUS CLAY SOIL OR CONCRETE SWALE PER NOTE 20 (BELOW). ALL BACKFILL DRAINAGE MATERIALS, FILTER FABRIC AND THEIR INSTALLATION SHALL BE APPROVED BY THE PROJECT SOILS ENGINEER(S).

19. COLLECTOR PIPES SHALL BE PLACED BEHIND RETAINING WALL WHERE INDICATED ON THESE PLANS, AND SHALL BE PERFORATED ON THE BOTTOM AND SOLID ELSEWHERE FOR DRAINAGE. ALL PIPES SHALL BE P.V.C. OR A.B.S., SCHEDULE 40, S.D.R.35 OR BETTER. NO CORRUGATED DRAINAGE PIPES SHALL BE PERMITTED. DRAINAGE PIPES SHALL HAVE A MINIMUM 2% SLOPE TO DRAIN AS INDICATED ON THESE PLANS, AND SHALL BE DIRECTED TO A SUITABLE DISCHARGE LOCATION WITH ENERGY DISSIPATION AS RECOMMENDED BY THE PROJECT SOILS ENGINEER.

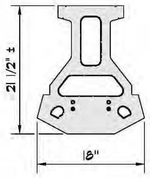
20. WATER SHOULD NOT BE ALLOWED TO FLOW OVER THE TOP OF RETAINING WALLS. A CONCRETE-LINED "V"-DITCH OR IMPERVIOUS SOIL SWALE SHOULD BE CONSTRUCTED ADJACENT TO AND ALONG THE TOP OF WALLS TO COLLECT SURFACE RUN-OFF FROM THE UPHILL SLOPE. THE "V"-DITCH OR SWALE SHOULD TRANSPORT THE COLLECTED WATER TO A NATURAL DRAINAGE SWALE, DRAINAGE CATCH BASIN OR OTHER DISCHARGE LOCATION VIA AN APPROPRIATE DRAINAGE CONVEYANCE AND AWAY FROM FOUNDATIONS AS DEEMED SUITABLE BY THE PROJECT SOILS ENGINEER.

FOUNDATION & WALL NOTES

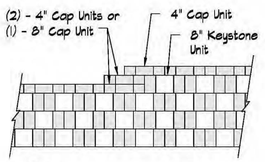
KEYSTONE RETAINING WALL SYSTEMS

RETAINING WALL ANALYSIS & DESIGN PERFORMED USING
RETAINING WALL DESIGN
KeyWall_2012 Version 3.7.2 Build 10
SOFTWARE PROVIDED BY THE MANUFACTURER

C. REINFORCED EARTH WALLS

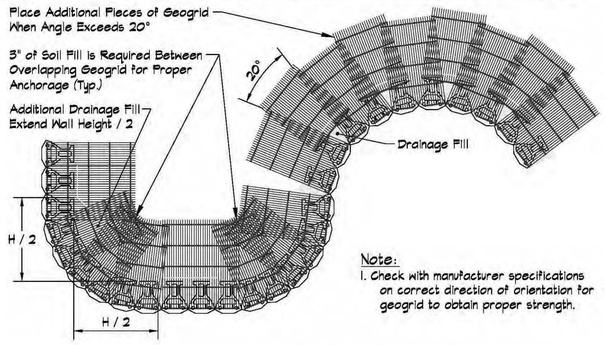


D. GEOGRID SCHEDULE



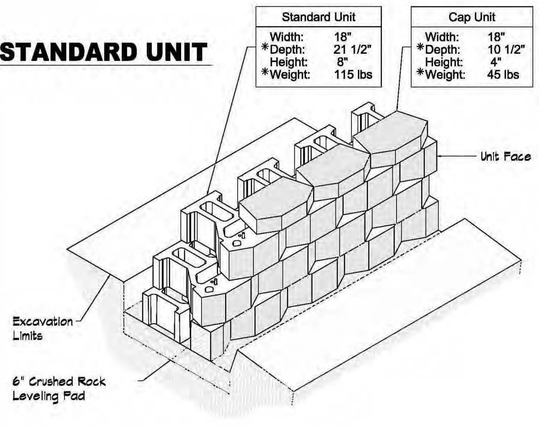
Note:
1. Secure all cap units with Keystone Kapseal or equal.

E. WALL DESIGN CRITERIA

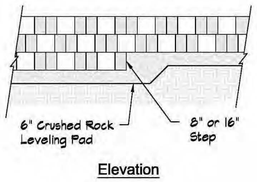


Note:
1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.

F. STANDARD UNIT



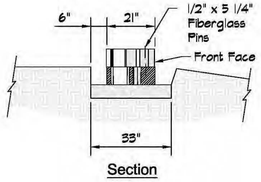
G. TOP OF WALL STEPS



Elevation

H. GEOGRID ON CURVES

Base Leveling Pad Notes:
1. The leveling pad is to be constructed of crushed stone
2. The base foundation is to be approved by the site geotechnical engineer prior to placement of the leveling pad.



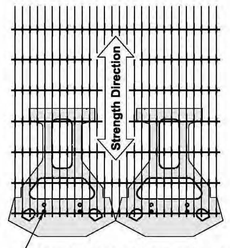
Section

I. BASE PAD ISOMETRIC

J. BOTTOM OF WALLS TEPS

K. LEVELING PAD

L. GRID & PIN CONNECTION



Geogrid is to be Placed on Level Backfill and Extended Over the Fiberglass Pins. Place Next Unit. Pull Grid Taught and Backfill. Stake as required.

DATE	REVISION
2/20	WALL DRAIN
7/20	LEACH PLAN
10/20	SEPTIC FTG.

Client:
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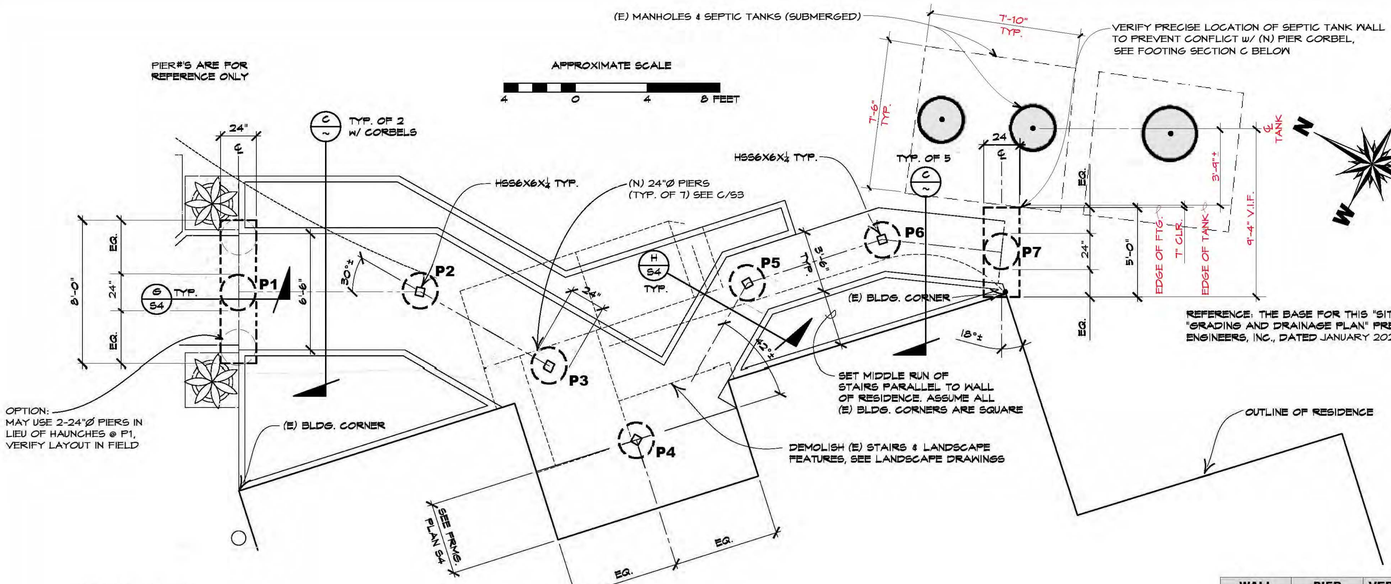
SCHNEIDER ENGINEERING
CIVIL / STRUCTURAL ENGINEERING
2150 TRADE ZONE BLVD., SUITE #105G
SAN JOSE, CALIFORNIA 95131-1730
Phone:(408)275-6482, E-mail:fasengineer@sbcglobal.net

LANDSCAPE WALL & STAIRS
DUTTA RESIDENCE
250 BONITA ROAD
PORTOLA VALLEY, CALIFORNIA

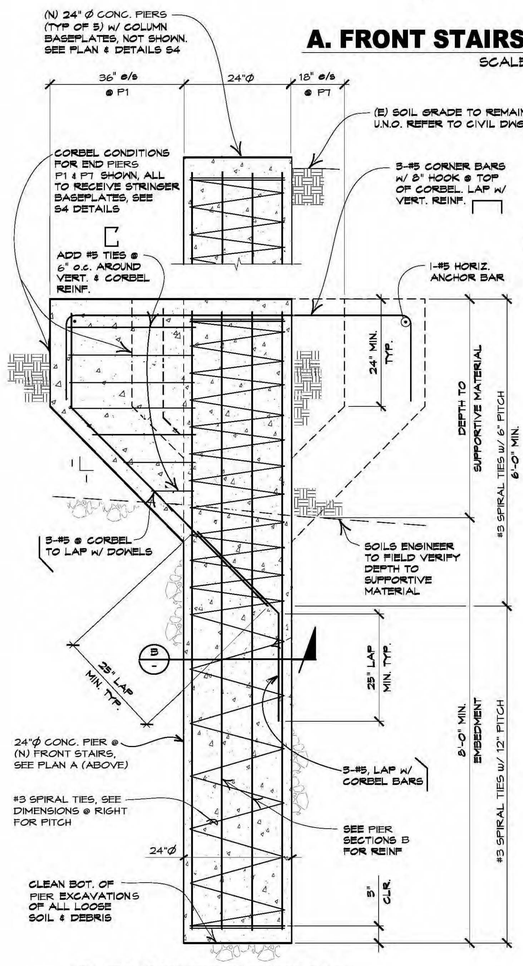
DATE: DECEMBER 2018
DRAWN: F.A.S./R.S.C.
SHEET **S2**
OF (4) SHEETS



REFERENCE: THE BASE FOR THIS "SITE PLAN" IS THE "GRADING AND DRAINAGE PLAN" PREPARED BY WESTFALL ENGINEERS, INC., DATED JANUARY 2020 (THEIR JOB NO. 2018-002)

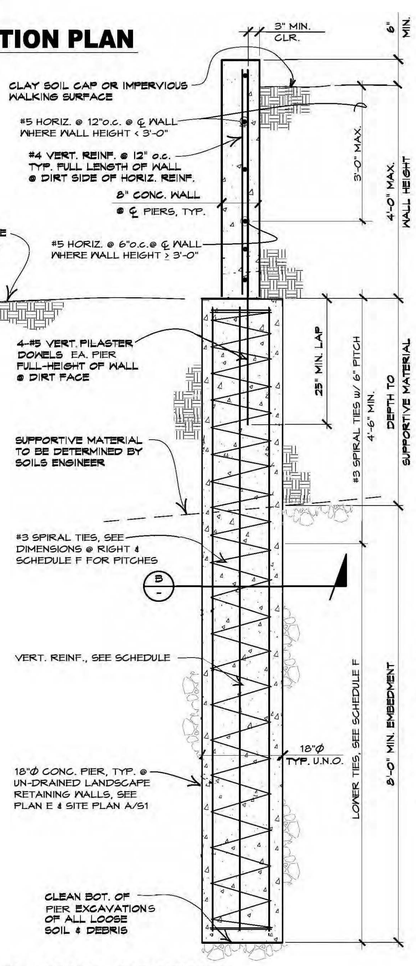
A. FRONT STAIRS FOUNDATION PLAN

SCALE: 1/4"=1'-0"



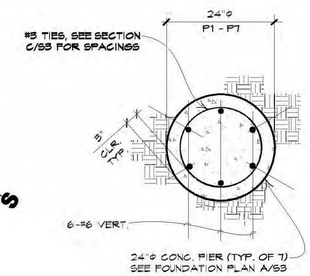
C. FOOTING SECTION

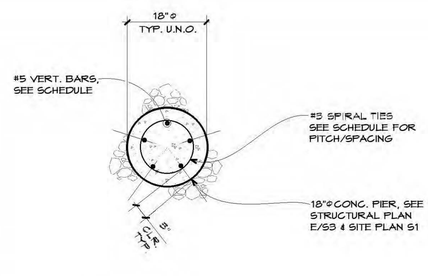
SCALE: 3/4"=1'-0"



D. WALL SECTION

SCALE: 3/4"=1'-0"





B. PIER SECTIONS

SCALE: 3/4"=1'-0"

WALL HEIGHT	PIER DEPTH	VERTICAL REINF.	LOWER TIES
≤ 2'-0"	8'-0"	4 - #6	#3 @ 9"o.c.
3'-0"	10'-0"	5 - #6	#3 @ 9"o.c.
4'-0"	12'-0"	9 - #6	#3 @ 8"o.c.

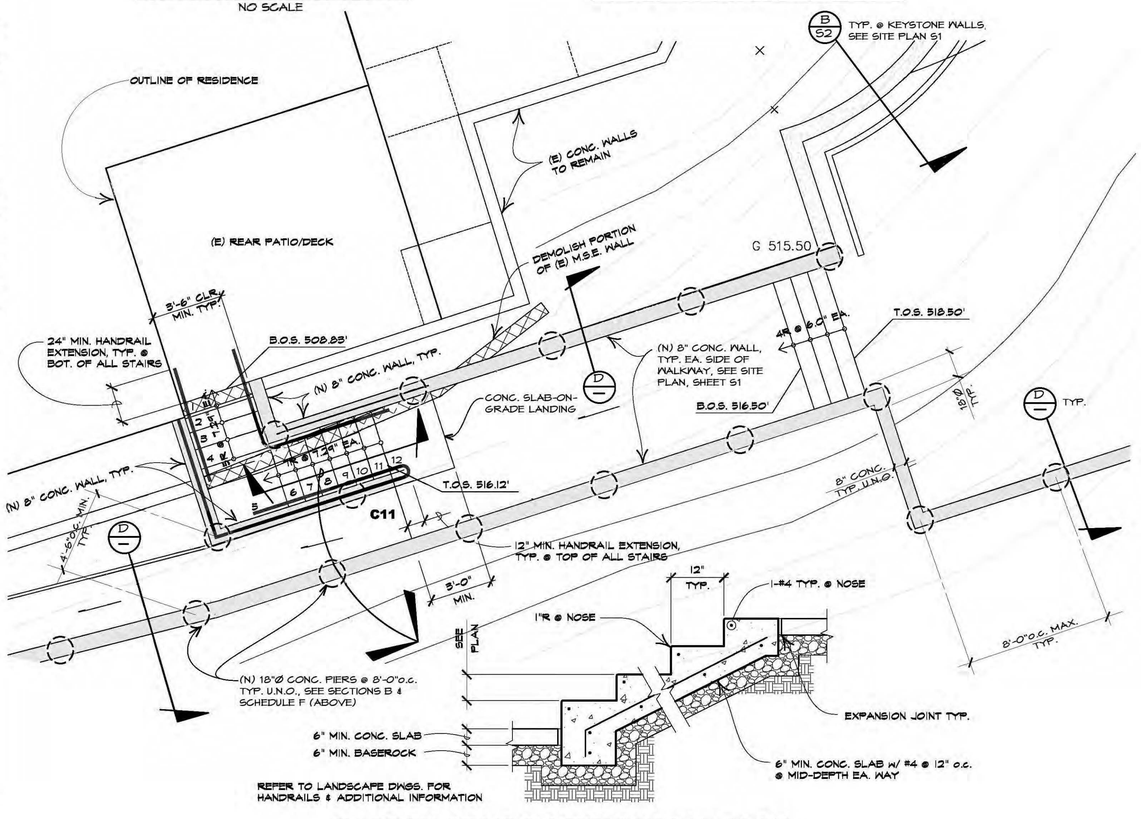
F. PIER SCHEDULE

NO SCALE

THE FOLLOWING DESIGN PARAMETERS ARE SUPPLEMENTAL DESIGN RECOMMENDATIONS FOR PIER-AND-GRADE-BEAM SUPPORTED RETAINING, WITH UN-DRAINED BACKFILL DUE TO CONCERNS OVER THEIR PROXIMITY TO POTENTIAL FUTURE LEACH FIELD EXPANSION AREA. THEY ARE THEREFORE NOT RELIEVED OF HYDROSTATIC PRESSURE, WHICH WILL BE DOCUMENTED BY GEARTH IN THEIR PLAN REVIEW LETTER:

- PIERS SHALL HAVE A MINIMUM DIAMETER OF 16-INCHES.
- ACTIVE PRESSURE, E.F./FT. = 90PCF FOR WALLS W/O BACK-DRAINS TO RESIST LEACHATE INTRUSION
- ADD 12PCF SURCHARGE FOR WALLS W/ SLOPING BACKFILL ≤ 2H:1V (HORIZONTAL: VERTICAL).
- ANY PORTION OF THE PIERS IN THE NON-SUPPORTIVE TOPSOIL/COLLUVIUM, AND ANY POINT-BEARING RESISTANCE SHOULD BE NEGLECTED FOR SUPPORT.
- FOOTINGS SUPPORTING GRAVITY WALLS AND GRADE BEAMS BENEATH PIER-SUPPORTED WALLS SHALL BEAR ON OR BE EMBEDDED IN THE SANTA CLARA FORMATION BEDROCK. APPLY ACTIVE LOADS TO 2-FEET OF UPHILL FACES OF GRADE BEAMS DUE TO DOWNWARD SLOPE ON THEIR DOWNHILL SIDES.
- PASSIVE PRESSURE RESISTANCE TO LATERAL LOADS SHALL BE TAKEN AS AN EQUIVALENT FLUID PRESSURE OF 400PCF OVER 1½ PIER DIAMETERS, TO A MAXIMUM OF 3,000PSF IN THE UNDERLYING SUPPORTIVE MATERIAL.
- FOR WALLS SUPPORTED ON CONVENTIONAL FOOTINGS (IF ANY) BEARING ON THE SANTA CLARA FORMATION, USE AN ALLOWABLE BEARING PRESSURE OF 2,000PSF.
- USE A FRICTIONAL COEFFICIENT, M_F = 0.35 IN ADDITION TO PASSIVE PRESSURE TO RESIST SLIDING.

WALL DESIGN CRITERIA



TYP. @ KEYSTONE WALLS, SEE SITE PLAN S1

E. REAR STAIRS STRUCTURAL PLAN

SCALES: 1/4"=1'-0" & 3/4"=1'-0"

DATE	REVISION
2/20	WALL DRAIN
7/20	LEACH PLAN
10/20	SEPTIC FTG.

Client:
Sanjeet Dutta
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Portola Valley, California 94028
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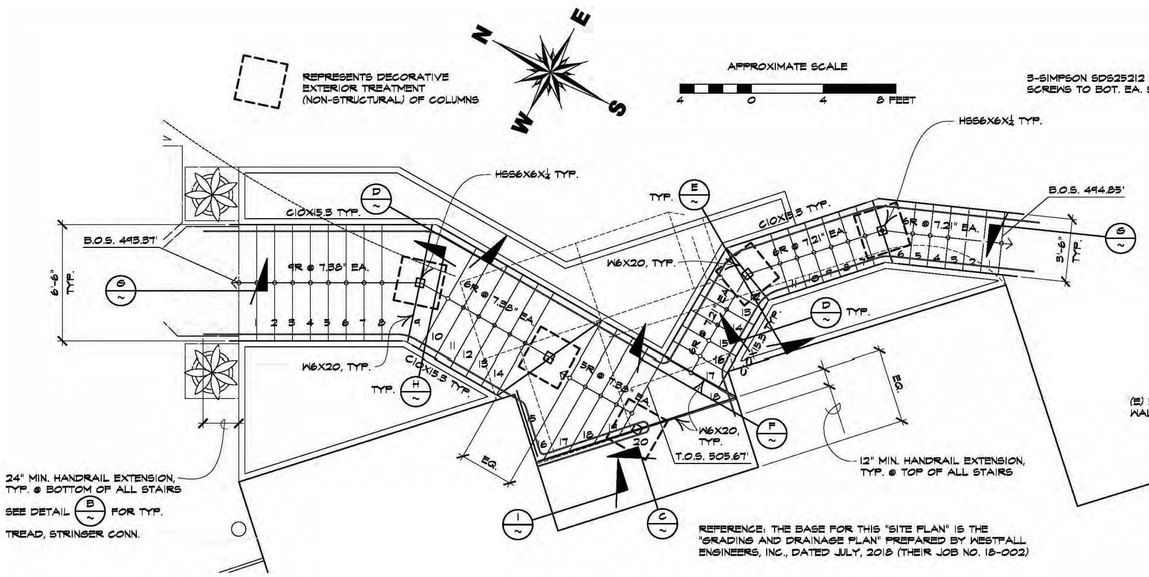
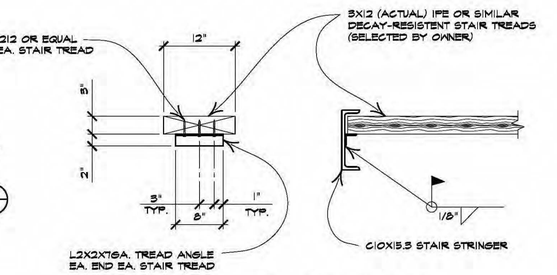
LANDSCAPE WALL & STAIRS
DUTTA RESIDENCE
250 BONITA ROAD
PORTOLA VALLEY, CALIFORNIA

DATE: DECEMBER 2018
DRAWN: F.A.S./R.S.C.
SHEET
S3
OF (4) SHEETS



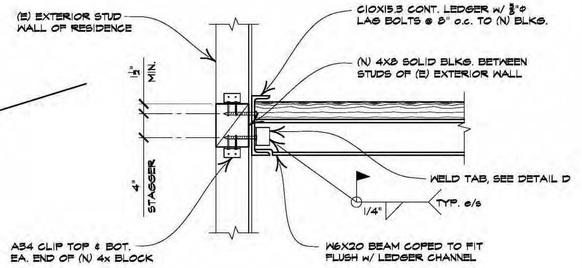
A. FRONT STAIRS FRAMING PLAN

SCALE: 1/4"=1'-0"



B. TYPICAL TREAD ANGLE

SCALE: 1"=1'-0"



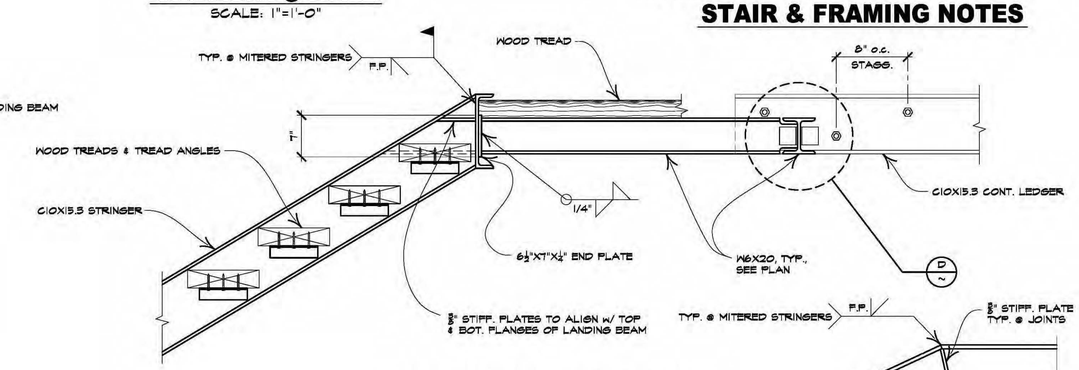
21. ALL WOOD IN CONTACT WITH CONCRETE OR MASONRY, INCLUDING, BUT NOT NECESSARILY LIMITED TO, MUDSILLS AND LEDGERS, SHALL BE PRESSURE-TREATED DOUGLAS FIR OR FOUNDATION GRADE REDWOOD. THEIR ATTACHMENTS TO WALLS AND FOUNDATIONS SHALL CONSIST OF MINIMUM ⅝" DIAMETER ANCHOR BOLTS AT NO MORE THAN 48" ON CENTER (MINIMUM 2 PER PIECE) OR OTHER CONNECTORS AS SPECIFIED ON THESE DRAWINGS.
22. METAL FRAMING CONNECTION DEVICES SPECIFIED ON THESE PLANS SHALL BE AS MANUFACTURED BY SIMPSON COMPANY. ALL CLIPS AND BRACKETS ATTACHED TO OR IN CONTACT WITH PRESSURE TREATED WOOD SHALL BE GALVANIZED OR COATED WITH OTHER CORROSION RESISTANT MATERIAL. OTHER FRAMING DEVICES MAY BE USED IF DEEMED TO BE OF EQUAL OR BETTER QUALITY AND APPROVED BY SCHNEIDER ENGINEERING.
23. STRUCTURAL STEEL MEMBERS SHALL BE FY = 36KSI, CONFORMING TO A.S.T.M. STANDARD A-36 AND A500, GRADE B, OR BETTER FOR HSS STEEL TUBES. ALL SHALL BE SHOP OR FIELD-COATED WITH MINIMUM 2 COATS OF HEAVY DUTY RUST INHIBITIVE PRIMER, SUCH AS RUSTOLEUM OR APPROVED EQUAL. ALL FABRICATION, INCLUDING HOLES, WELDS AND CUTS SHALL BE DONE IN THE FABRICATION SHOP. NO FIELD WELDING OR TORCH CUTTING SHALL BE PERMITTED UNLESS SPECIFICALLY CALLED FOR ON THESE DRAWINGS, OR OTHERWISE APPROVED BY SCHNEIDER ENGINEERING.
24. ALL WELDING TO BE DONE IN AN APPROVED SHOP BY CERTIFIED WELDER(S) W/ E70-XX ELECTRODES. FIELD WELDING AND TORCH-CUTTING SHALL NOT BE PERMITTED UNLESS APPROVED BY SCHNEIDER ENGINEERING W/ SPECIAL INSPECTION PER C.B.C. SECTION 1701.
25. ALL NAILS AND SCREWS SHALL BE COMMON WIRE SIZES AS SPECIFIED ON THESE PLANS, UNLESS SPECIFIED OTHERWISE. ALL NAILS ATTACHED TO OR IN CONTACT WITH PRESSURE-TREATED WOOD SHALL BE GALVANIZED, STAINLESS STEEL OR COATED WITH OTHER CORROSION RESISTANT MATERIAL.
26. BOLTS SHALL BE A-307 WITH HEAVY HEX NUTS AND NO THREADS IN THE SHEAR PLANE. ALL BOLTS ATTACHED TO OR IN CONTACT WITH PRESSURE TREATED WOOD SHALL BE GALVANIZED, STAINLESS STEEL OR COATED WITH OTHER CORROSION RESISTANT MATERIAL. THREADED RODS SHALL NOT BE USED IN PLACE OF BOLTS UNLESS SPECIFICALLY APPROVED BY SCHNEIDER ENGINEERING.
27. MALLEABLE IRON WASHERS OR STEEL PLATE WASHERS, AS NOTED BELOW, SHALL BE USED WHEREVER BOLTS BEAR AGAINST WOOD.

    ⅝"ø BOLTS: 2½" X 2½" X 0.25" (¼") PLATE ¾"ø BOLTS: 3" X 3" X 0.315" (⅝") PLATE
    ⅝"ø BOLTS: 2¾" X 2¾" X 0.315" (⅝") PLATE 1"ø BOLTS: 3½" X 3½" X 0.34" (⅜") PLATE
28. STEEL REINFORCING DOWELS INSTALLED IN EXISTING CONCRETE FOUNDATIONS SHALL BE SET IN AN APPROVED TWO-PART EPOXY ADHESIVE, SUCH AS SIMPSON SET-XP (ICC REPORT ESR-2508) OR OTHER APPROVED EPOXY PRODUCT, INSTALLED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS NEW AND EXISTING CONCRETE CONTACT SURFACES SHALL BE CONNECTED WITH #5 REINFORCING DOWELS SET IN ⅝" DIAMETER BY 6-INCH DEEP HOLES WITH EPOXY AT 12-INCH INTERVALS, U.N.O.
29. GUARDRAILS, SLEEVES, GROUT, ETC. SHALL BE SELECTED BY THE OWNER. GUARDRAIL SHALL HAVE A MINIMUM NET HEIGHT OF 42-INCHES AND CAPABLE OF RESISTING LATERAL DESIGN LOADS AS SPECIFIED IN CALIFORNIA BUILDING CODE, CHAPTER 16. SCHNEIDER ENGINEERING IS AVAILABLE TO PROVIDE ADDITIONAL DESIGN RECOMMENDATIONS FOR SUCH MISCELLANEOUS ITEMS AT THE OWNER'S REQUEST.
30. ALL SURFACE TREATMENTS, COATINGS, SEALANTS AND OTHER PROTECTIVE FINISHES SHALL BE SELECTED AND INSTALLED BY THE OWNER OR THE CONTRACTOR(S), UNLESS SPECIFIED OTHERWISE ON THESE PLANS.

STAIR & FRAMING NOTES

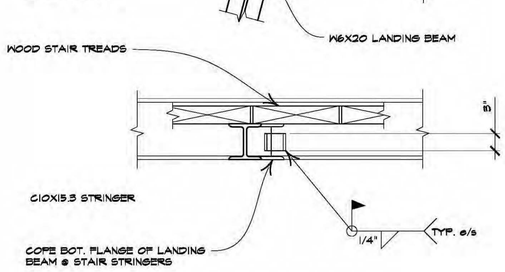
C. PORCH @ WALL

SCALE: 1"=1'-0"



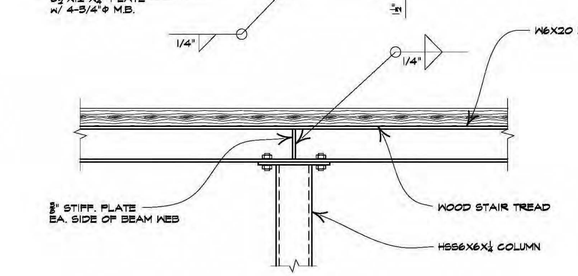
D. STRINGER @ LANDINGS

SCALE: 1"=1'-0"



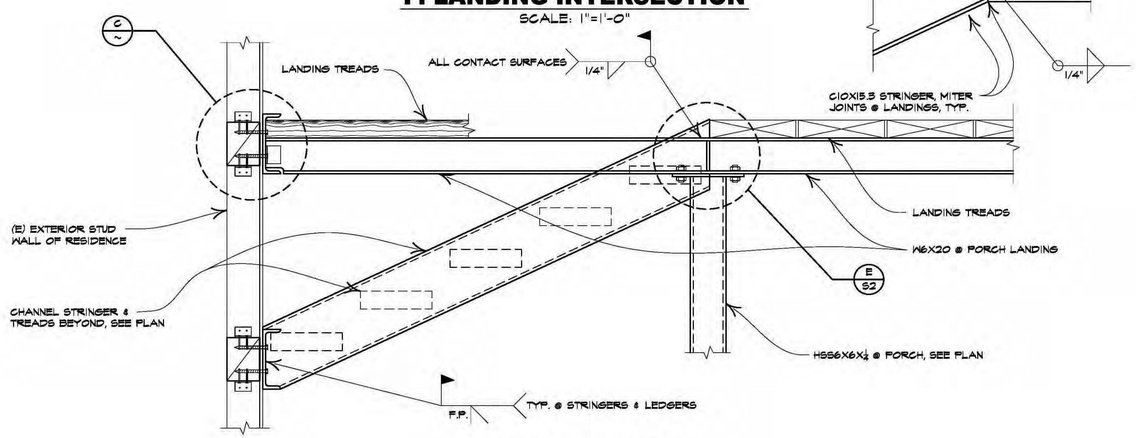
E. LANDING BEAM @ COLUMN

SCALE: 1"=1'-0"



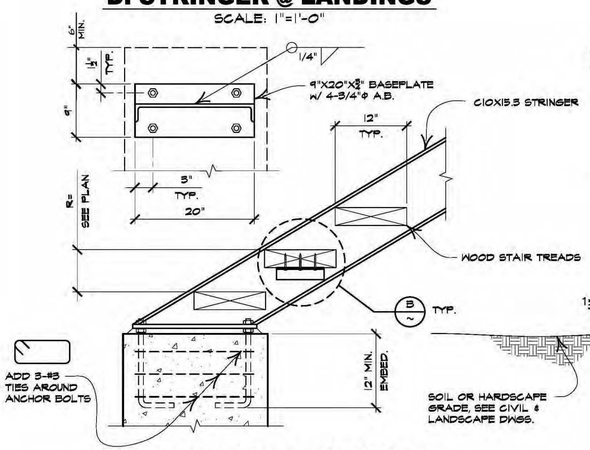
F. LANDING INTERSECTION

SCALE: 1"=1'-0"



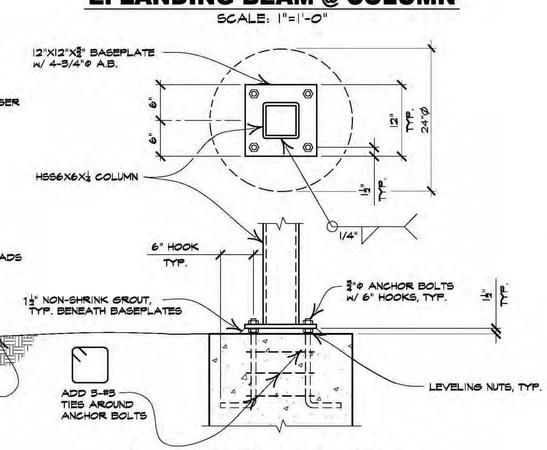
G. STRINGER BASEPLATE

SCALE: 1"=1'-0"



H. COLUMN BASEPLATE

SCALE: 1"=1'-0"



I. PORCH LANDING

SCALE: 1"=1'-0"

DATE	REVISION
2/20	WALL DRAIN
7/20	LEACH PLAN
10/20	SEPTIC FTG.

Client:
Sanjeet Dutta
250 Bonita Road
Portola Valley, California 94028
(408) 644-4064

SCHNEIDER ENGINEERING
CIVIL / STRUCTURAL ENGINEERING
2150 TRADE ZONE BLVD., SUITE #105G
SAN JOSE, CALIFORNIA 95131-1730
Phone:(408)275-6482, E-mail:fasengineer@sbcglobal.net

LANDSCAPE WALL & STAIRS
DUTTA RESIDENCE
250 BONITA ROAD
PORTOLA VALLEY, CALIFORNIA

DATE: DECEMBER 2018
DRAWN: F.A.S./R.S.C.
SHEET
S4
OF (4) SHEETS

LIGHTING SCHEDULE
MANUFACTURE: FX LUMINAIRE

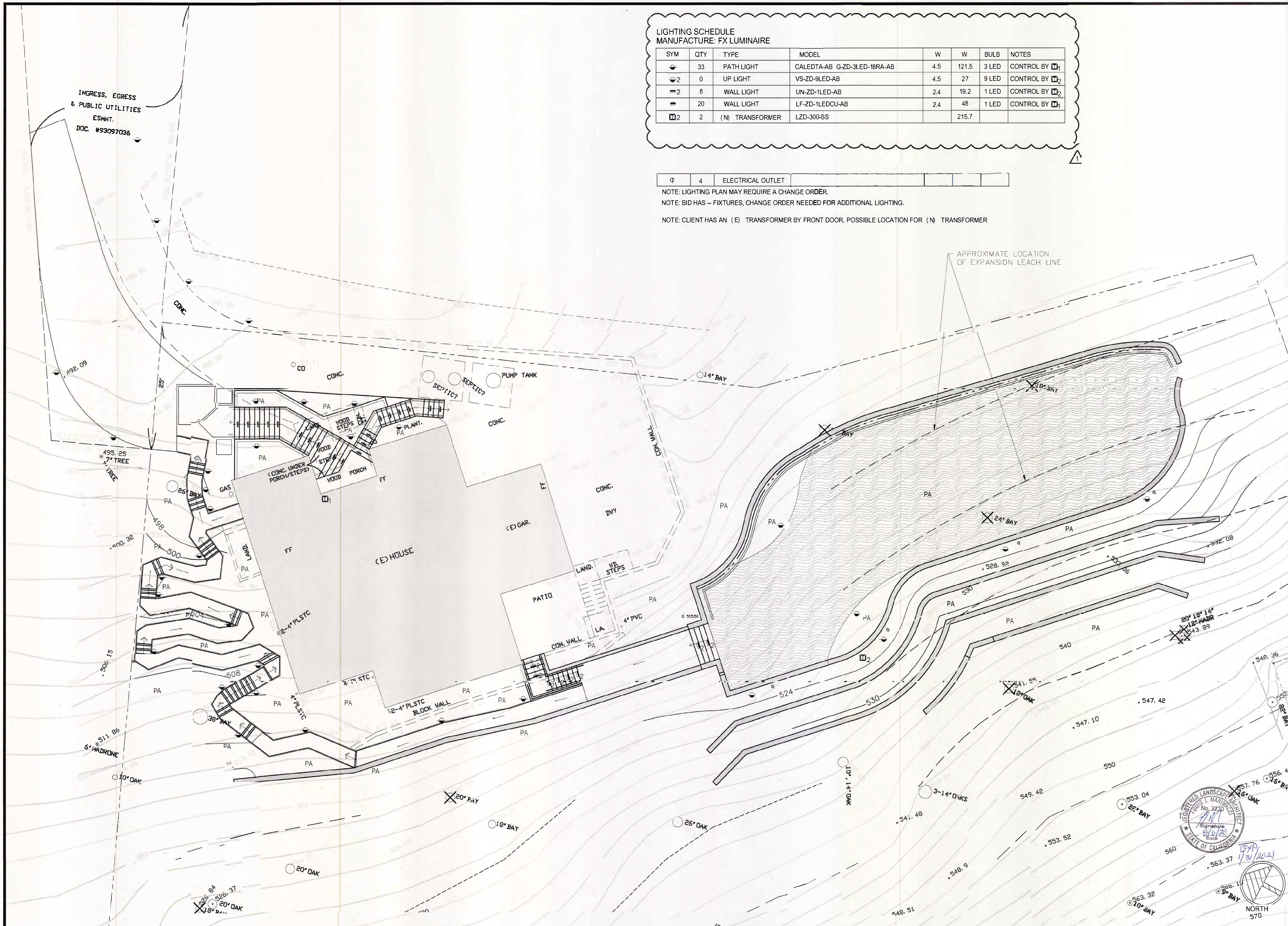
SYM	QTY	TYPE	MODEL	W	W	BULB	NOTES
(path light symbol)	33	PATH LIGHT	CALEDTA-AB G-ZD-3LED-18RA-AB	4.5	121.5	3 LED	CONTROL BY (transformer symbol) 1
(up light symbol) 2	0	UP LIGHT	VS-ZD-9LED-AB	4.5	27	9 LED	CONTROL BY (transformer symbol) 2
(wall light symbol) 2	8	WALL LIGHT	UN-ZD-1LED-AB	2.4	19.2	1 LED	CONTROL BY (transformer symbol) 2
(wall light symbol)	20	WALL LIGHT	LF-ZD-1LEDCU-AB	2.4	48	1 LED	CONTROL BY (transformer symbol) 1
(transformer symbol) 2	2	(N) TRANSFORMER	LZD-300-SS		215.7		

(outlet symbol)	4	ELECTRICAL OUTLET				

NOTE: LIGHTING PLAN MAY REQUIRE A CHANGE ORDER.

NOTE: BID HAS -- FIXTURES, CHANGE ORDER NEEDED FOR ADDITIONAL LIGHTING.

NOTE: CLIENT HAS AN (E) TRANSFORMER BY FRONT DOOR, POSSIBLE LOCATION FOR (N) TRANSFORMER



landsystems
LANDSCAPE ARCHITECTS AND CONTRACTORS
1064 Cherry Street, San Carlos, CA 94070
650.851.2793
C27 474943

JOB
DUTTA RES.

LIGHTING PLAN

DESIGNER
AC
PC
TV

DUTTA RESIDENCE
250 BONITA ROAD,
PORTOLA VALLEY, CA 94028

DATE
02.25.2020
REVISIONS
08.04.2020 (1)

SCALE
1/8"=1'-0"

SHEET
LP
LIGHTING PLAN

SYMBOL	PLANT	SIZE	COUNT	WATER USE
AB	Agave 'Frosty Blue'	1g	15	LW
AC	Phormium 'Dusky Chief'	1g	8	LW
AD	Asparagus Densiflorus Myers	1g	19	MW
AR	Anigozanthos 'Big Red'	5g	14	LW
AS	Artemisia 'Seafoam'	1g	36	LW
AJ	Albizia Julibrissin STD	24" box	3	LW
AM	Alchemilla mollis	1g	20	MW
BM	Briza media	1g	31	LW
BH	Bulbine Hallmark	1g	12	LW
CB	Ceanthus gloriosus' Anchor Boy'	1g	37	LW
CE	Carex oshimensis 'Evergold'	1g	14	MW
CI	Correa 'Ivory Bells'	5g	38	LW
CR	Coprosma repens 'County Park Red'	5g	5	MW
CL	Chitalpa STD	15g	12	LW
CK	Calamagrostis acutiflora 'Karl Foerster'	5g	17	MW
DT	Dianella tasmanica	1g	12	MW
EC	Erica carnea 'Springwood White'	1g	116	MW
ES	Elegia capensis	5g	19	MW
GV	Grevillea victoriae 'Marshall's Seedling'	5g	18	LW
LP	Lavandula angustifolia 'Provence'	1g	37	LW
LH	Leptospermum horizontalis	1g	15	LW
MB	Muhlenbergia dubia	1g	32	LW
MC	Mahonia aquifolium 'Compacta'	1g	8	MW
RI	Rosmarinus officianalis 'Ingramii'	1g	15	LW
PH	Pennisetum alopecuroides 'Hameln'	1g	15	LW
PL	Prostanthera linearis	5g	17	MW
SB	Sedum spec 'Brilliant'	1g	12	LW
Lawn Area	Agrostis pallens		2878.2 sq.ft	LW
		Total:	597	

PLEASE NOTE:
CONTRACTOR TO FOLLOW ALL RECOMMENDATIONS
OF THE LAB FOR SOIL PREPARATION

Native Bentgrass
Agrostis pallens, Mowed

landsystems
LANDSCAPE ARCHITECTS AND CONTRACTORS
C27 474943
RLA 3220
1064 Cherry Street, San Carlos, CA 94070
650.851.2793
www.landsystemslandscapes.com

JOB
DUTTA RES.

PLANTING PLAN

DESIGNER
QL

PC
TV

DUTTA RESIDENCE
250 BONITA ROAD,
PORTOLA VALLEY, CA 94028

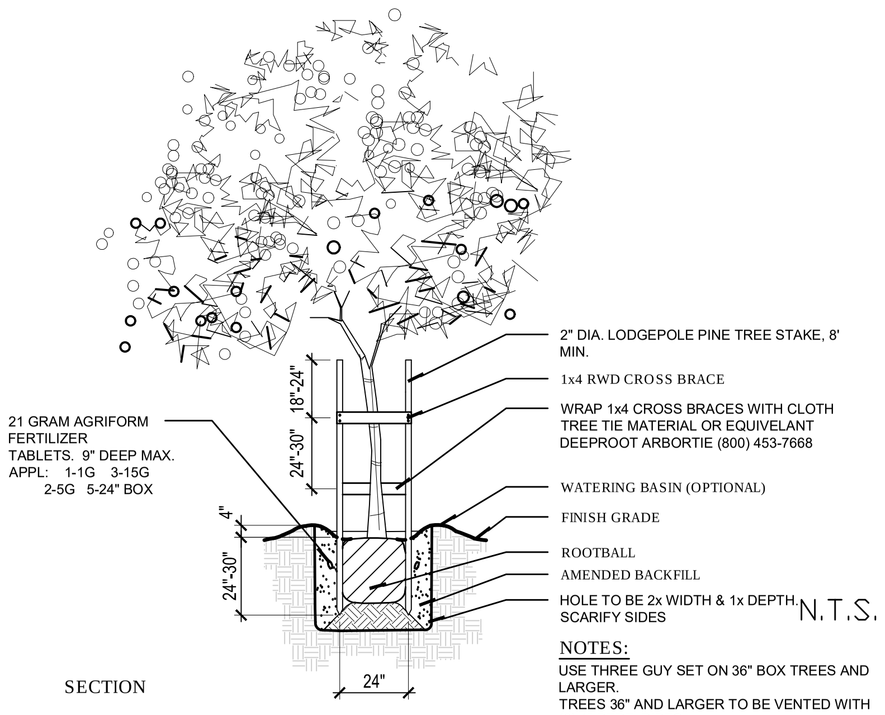
DATE
02.25.2020
REVISIONS
07.30.2020
10.30.2020 2

SCALE
2/32" = 1'-0"

SHEET
LPP
PLANTING PLAN

REGISTERED LANDSCAPE ARCHITECT
LOUIS T. MARINACCIO
No. 3220
Signature
11/30/2020
Date
STATE OF CALIFORNIA

GVP
1/31/2021



SECTION

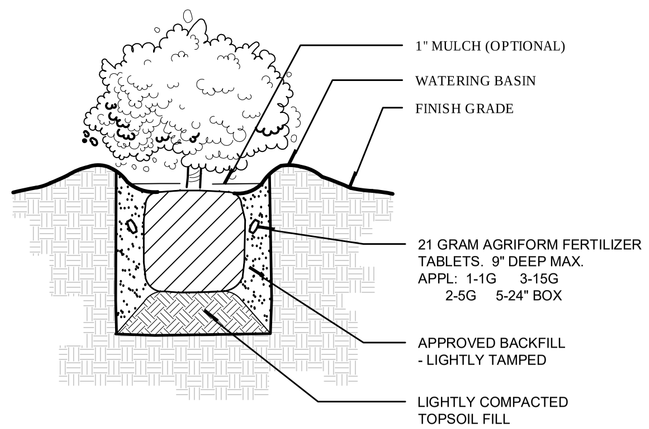
NOTES:
USE THREE GUY SET ON 36" BOX TREES AND LARGER.
TREES 36" AND LARGER TO BE VENTED WITH (2) 4" PERF. PIPES

N.T.S.

1 TREE STAKING

SCALE: NOT TO SCALE

TRE-ST1

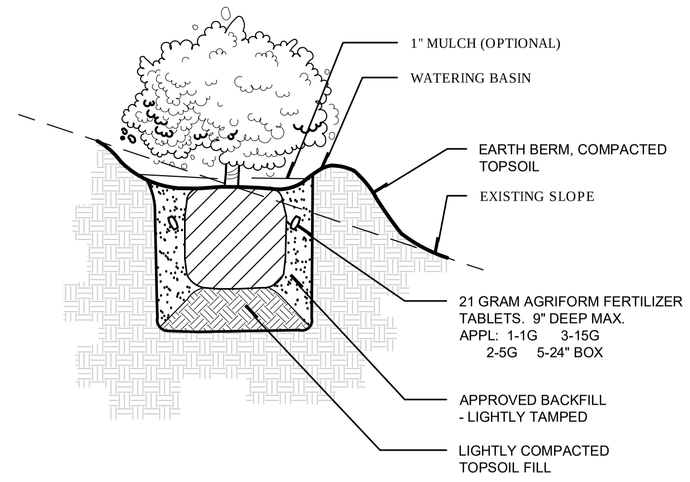


SECTION

2 SHRUB PLANTING

SCALE: NOT TO SCALE

SHB-PT1

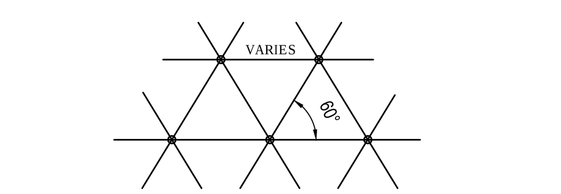


SECTION

3 SHRUB PLANTING (ON SLOPE)

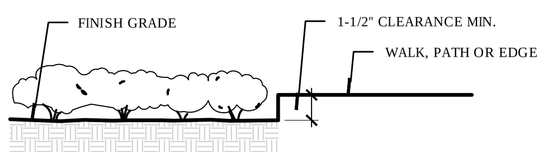
SCALE: NOT TO SCALE

SHB-PT2

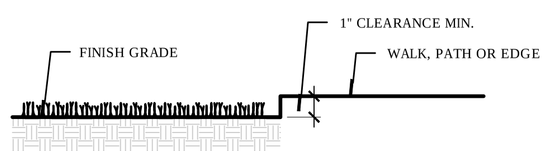


GROUNDCOVER SHALL BE PLANTED TRIANGULARLY AS SHOWN, REFER TO PLANTING PLAN FOR SPACING

GROUNDCOVER SPACING



GROUNDCOVER EDGE



TURF EDGE

SECTION

4 GROUND COVER PLANTING

SCALE: NOT TO SCALE

GRD-CV1

landsystems
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C27 474943
RLA 3220
3113 Middlefield Road
Redwood City, CA, 94063-3731
650.851.2793
www.landsystemslandscapes.com

JOB
DUTTA RES.

LANDSCAPE PLANTING DETAILS

DESIGNER
AC

PC
TV

DUTTA RESIDENCE
250 BONITA ROAD,
PORTOLA VALLEY, CA 94028

DATE
12.15.17
REVISIONS
8.2.18

SCALE
NTS

SHEET
LPD1
PLANTING DETAILS

WALLACE LABS
365 Coral Circle
El Segundo, CA 90245
(310) 615-0116

SOILS REPORT | Print Date: Jun. 23, 2020

Location: 250 Bonita Road
Requester: Sanjeet Dutta

graphic interpretation: * very low, ** low, *** moderate, **** high, ***** very high

ammonium bicarbonate/DTPA
extractable - mg/kg soil

Interpretation of data: low	medium	high	Sample ID Number	20-175-23	
			Sample Description	4"	
			elements		graphic
0 - 7	8-15	over 15	**phosphorus**	29.45	*****
0-60	60 -120	121-180	**potassium**	402.73	*****
0 - 4	4 - 10	over 10	**iron**	87.32	*****
0- 0.5	0.6- 1	over 1	**manganese**	6.68	****
0 - 1	1 - 1.5	over 1.5	**zinc**	6.78	****
0- 0.2	0.3- 0.5	over 0.5	**copper**	2.72	****
0- 0.2	0.2- 0.5	over 1	**boron**	0.26	* * *
			calcium	514.27	****
			magnesium	129.01	****
			sodium	12.29	*
			sulfur	7.01	*
			molybdenum	n d	*
			nickel	1.34	**
The following trace elements may be toxic			**aluminum**	4.56	****
			arsenic	0.05	*
The degree of toxicity depends upon the pH of the soil, soil texture, organic matter, and the concentrations of the individual elements as well as to their interactions.			**barium**	1.41	*
			cadmium	0.16	*
			chromium	n d	*
			cobalt	0.03	*
			lead	2.11	**
			lithium	0.25	*
			mercury	n d	*
			selenium	n d	*
The pH optimum depends upon soil organic for clay and loam soils: under 5.2 is too acidic 6.5 to 7 is ideal over 9 is too alkaline			**silver**	n d	*
			strontium	2.03	*
			vanadium	0.45	*
			Saturation Extract		
			pH value	6.46	***
The ECe is a measure of the soil salinity: 1-2 affects a few plants, 2-4 affects some plants, > 4 affects many plants.			**ECe (milli-mho/cm)**	0.22	*
					millieq/l
			calcium	22.4	1.1
			magnesium	7.3	0.6
			sodium	6.4	0.3
			potassium	16.9	0.4
			cation sum		2.4
problems over 150 ppm			**chloride**	8	0.2
good 20 - 30 ppm			**nitrate as N**	17	1.2
			phosphorus as P	1.2	0.0
toxic over 800			**sulfate as S**	4.0	0.2
			anion sum		1.7
toxic over 1 for many plants			**boron as B**	0.15	*
increasing problems start at 3			**SAR**	0.3	*
est. gypsum requirement-lbs./1,000 square feet				2	
			calculated percolation rate inches/hour	1.22	
			soil texture	gravelly loam	gravel > 2 mm
			sand	47.2%	24.9%
			silt	34.0%	gravel > 1/4 inch
			clay	18.8%	7.4%
			lime (calcium carbonate)	no	gravel > 1/2 inch
			Total nitrogen	0.417%	0.0%
			Total organic carbon	7.287%	
			carbon:nitrogen ratio	17.5	
			organic matter based on carbon	14.57%	
			moisture content of soil	15.3%	
			half saturation percentage	36.8%	

Elements are expressed as mg/kg dry soil or mg/l for saturation extract.
pH and ECe are measured in a saturation paste extract. nd means not detected.

WALLACE LABORATORIES, LLC

365 Coral Circle
El Segundo, CA 90245
phone (310) 615-0116 fax (310) 640-6863

June 24, 2020

Sanjeet Dutta, SanjeetDutta@yahoo.com
250 Bonita Road
Portola Valley, CA 94028

RE: Soil Management Report
Sample received June 22, 2020, Our ID No. 20-175-23, 4"

Dear Sanjeet,

The pH is modestly acidic at 6.46. The salinity is low at 0.22 millimho/cm.

Nitrogen and boron are moderate. Sulfur is low. Phosphorus, potassium, iron, manganese, zinc, copper and magnesium are high. The concentrations of common non-essential heavy metals are low. Aluminum is high.

Aluminum restricts growth by interfering with the metabolism of phosphorus and calcium. It causes stunting and discoloration. Foliage may turn a dull gray green. Aluminum is high in poorly aerated soil and in overly acidic soils. Soluble calcium helps to reduce the toxicity of aluminum.

Available sodium is low. SAR (sodium adsorption ratio) is 0.3.

The texture is gravelly loam. Based on the non-gravel fraction, it contains 47.2% sand, 47.4% silt and 18.8% clay. The gravel content is 24.9%.

Soil organic matter is high at 14.6% on a dry weight basis. The carbon:nitrogen ratio is 17.5.

The estimated rate of water percolation based on Soil Water Characteristics version 6.02.74 model developed by Keith Saxton of the USDA is moderate at 1.22 inches per hour for normal soil compaction. The model is based on the soil texture, percent gravel and percent soil organic matter.

Recommendations

The soil has sufficient soil organic matter. Apply gypsum at 10 pounds per 1,000 square feet and work it into the soil. On a volume basis, incorporate gypsum into the soil at the rate of ½ pound per cubic yard.

For maintenance fertilization, apply calcium nitrate (15.5-0-0) at 6 pounds per 1,000 square feet about once per quarter. Nitrate helps to increase soil aeration and decrease aluminum. If not over applied, calcium nitrate (15.5-0-0) will slowly increase the pH.

Soil Analyses Plant Analyses Water Analyses

Continuation, June 24, 2020, page 2

Monitor the site with periodic soil and leaf tissue testing. Adjust the fertility and irrigation programs as needed.

Sincerely,

Garn A. Wallace, Ph. D.
GAW:n

PLEASE NOTE:
CONTRACTOR TO FOLLOW ALL RECOMMENDATIONS
OF THE LAB FOR SOIL PREPARATION

REGISTERED LANDSCAPE ARCHITECT
LOUIS J. MARINACCI
No. 3270
Signature
Date 6/6/20
STATE OF CALIFORNIA

GAP
1/31/2021

landsystems
LANDSCAPE ARCHITECTS AND CONTRACTORS
C27 474943
RLA 3220
1064 Cherry Street, San Carlos, CA 94070
650.851.2793
www.landsystemslandscapes.com

JOB
DUTTA RES.

SOIL MANAGEMENT REPORT

DESIGNER
PC

DUTTA RESIDENCE
250 BONITA ROAD,
PORTOLA VALLEY, CA 94028

DATE
08.01.2020
REVISIONS

SCALE
N/A

SHEET
REPORT

ENLARGEMENT PLAN

IRRIGATION LEGEND

SYMBOL	ITEM	MANUFACTURER/REMARKS
W	EX. WATER METER	2"
C	CONTROLLER	RACHIO 3, 16 -ZONE
M	MOISTURE SENSOR	ACURITE 5-IN-1 MOISTURE SENSOR
POC	POINT OF CONNECTION	POINT OF CONNECTION TO DOMESTIC WATER LINE
	BACKFLOW PREVENTION DEVICE	REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY. 1" FEBCO 825-Y, BRASS
	GATE (MANUAL SHUT OFF) VALVE	EVERBILT BRASS, 170-2-1-EB
	AUTOMATIC CONTROL VALVE	RAINBIRD-DVF-100, 1"
	ADJUSTABLE ROTARY NOZZLE	RAIN BIRD R-VAN18 RAIN BIRD R-VAN-18-360
	MAIN LINE	PVC, SCH 40, 1", JM-EAGLE
	DRIP LINE	1/2" POLY TUBE, LANDSCAPE PRODUCTS
HB	HOSE BIB	1", BUCKNER-SUPERIOR, BRASS
	3" SLEEVE PIPE	PVC, SDR 35, 3" MIN, JM-EAGLE
	LATERAL LINE	PVC, SCH 40, 1", JM-EAGLE
	PRESSURE REGULATING FILTER	RAIN BIRD, PRF-100-RBY, PLASTIC
SM	SUB WATER METER	NETAFIM, 1"

VALVE#	HYDRPZONE	VALVE#	GPM	APPLICATION RATE	OPERATING PRESSURE
1	HZ1(LOW)	DRIP	0.77	0.13 in/h	25 P.S.I.
2	HZ2(MODERATE)	DRIP	1.18	0.50 in/h	25 P.S.I.
3	HZ3(MODERATE)	DRIP	1.05	0.31 in/h	25 P.S.I.
4	HZ4(LOW)	DRIP	1.30	0.12 in/h	25 P.S.I.
5	HZ5(MODERATE)	DRIP	0.99	0.25 in/h	25 P.S.I.
~~5~~	~~HZ5(MODERATE)~~	~~DRIP~~	~~0.82~~	~~0.44 in/h~~	~~25 P.S.I.~~
6	HZ6(LOW)	DRIP	0.36	0.07 in/h	25 P.S.I.
7	HZ7(MODERATE)	DRIP	0.32	0.28 in/h	25 P.S.I.
8	HZ8(LOW)	DRIP	0.91	0.15 in/h	25 P.S.I.
9	HZ9(LOW)	DRIP	0.87	0.09 in/h	25 P.S.I.
10	HZ10(MODERATE)	DRIP	0.97	0.17 in/h	25 P.S.I.
11	HZ11(LOW)	DRIP	0.92	0.16 in/h	25 P.S.I.
12	HZ12(LOW)	DRIP	0.69	0.22 in/h	25 P.S.I.
13	HZ13(MODERATE)	DRIP	0.67	0.11 in/h	25 P.S.I.
14	HZ14(LOW)	ROTARY NOZZLE	13.72	0.63 in/h	65 P.S.I.
15	HZ14(LOW)	ROTARY NOZZLE	19.8	0.60 in/h	65 P.S.I.
16	HZ14(LOW)	ROTARY NOZZLE	13.72	0.63 in/h	65 P.S.I.

NOTE:

ALL EXISTING PLANTS WILL BE IRRIGATED USING SEPARATE EMITTER, WATER USE DEPENDS ON THE PLANT SPECIES EXCEPT NATIVE OAK AND NATIVE PLANT NO ADDITIONAL IRRIGATION. LOW WATER USE TO USE 0.5-1 GALLON/HR EMITTER, MODERATE WATER USE TO USE 1-1.5 GALLON/HR EMITTER DEPENDING ON THE SIZE OF THE PLANTS

WATER SUPPLY TYPE: CALWATER

NOTE: DOUBLE SLEEVE 1" WATER LINE 10' IN EACH DIRECTION WHERE IT CROSSES SEPTIC TRANSPORT LINE 2

AT THE TIME OF FINAL INSPECTION, THE PERMIT APPLICANT MUST PROVIDE THE OWNER OF THE PROPERTY WITH A CERTIFICATE OF COMPLETION, CERTIFICATE OF INSTALLATION, IRRIGATION SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE.

AN IRRIGATION AUDIT REPORT SHALL BE COMPLETED BY A CERTIFIED IRRIGATION AUDITOR AT THE TIME OF FINAL INSPECTION. SUBMIT THIS REPORT TO SAN MATEO COUNTY PLANNING FOR REVIEW AND ACCEPTANCE IN 8-1/2"X11" FORMAT.

I HAVE COMPLIED WITH THE CRITERIA OF THE ORDINANCE AND APPLIED THEM FOR THE EFFICIENT USE OF WATER IN THE LANDSCAPE DESIGN PLAN

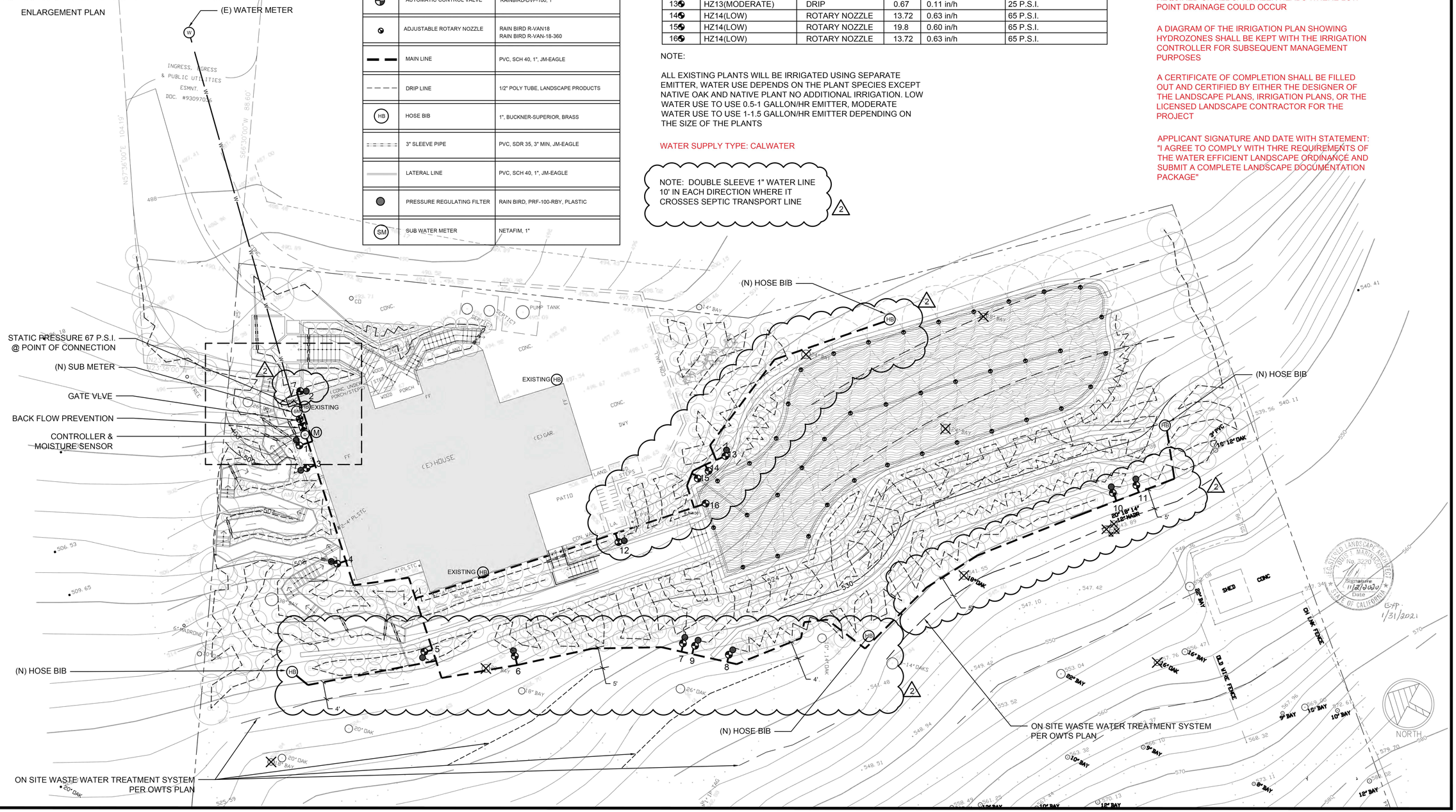
PRESSURE REGULATING DEVICES ARE REQUIRED IF WATER PRESSURE IS BELOW OR EXCEEDS THE RECOMMENDED PRESSURE OF THE SPECIFIED IRRIGATION DEVICES

CHECK VALVES OR ANTI-DRAIN VALVES ARE REQUIRED ON ALL SPRINKLER HEADS WHERE LOW POINT DRAINAGE COULD OCCUR

A DIAGRAM OF THE IRRIGATION PLAN SHOWING HYDROZONES SHALL BE KEPT WITH THE IRRIGATION CONTROLLER FOR SUBSEQUENT MANAGEMENT PURPOSES

A CERTIFICATE OF COMPLETION SHALL BE FILLED OUT AND CERTIFIED BY EITHER THE DESIGNER OF THE LANDSCAPE PLANS, IRRIGATION PLANS, OR THE LICENSED LANDSCAPE CONTRACTOR FOR THE PROJECT

APPLICANT SIGNATURE AND DATE WITH STATEMENT: "I AGREE TO COMPLY WITH THRE REQUIREMENTS OF THE WATER EFFICIENT LANDSCAPE ORDINANCE AND SUBMIT A COMPLETE LANDSCAPE DOCUMENTATION PACKAGE"



landsystems
LANDSCAPE ARCHITECTS AND CONTRACTORS
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RLA 3220
1064 Cherry Street, San Carlos, CA 94070
650.851.2793
www.landsystemslandscapes.com

JOB
DUTTA RES.

IRRIGATION PLAN

DESIGNER
QL

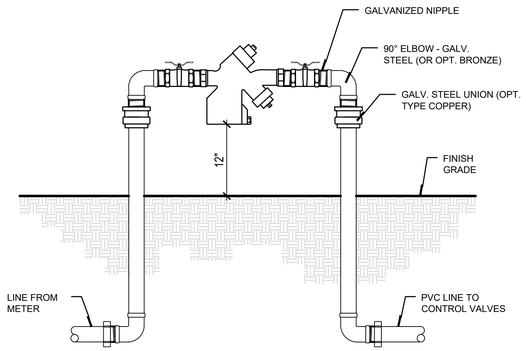
PC
TV

DUTTA RESIDENCE
250 BONITA ROAD.
PORTOLA VALLEY, CA 94028

DATE
02.25.2020
REVISIONS
08.04.2020
11.02.2020 2

SCALE
3/32" = 1'-0"

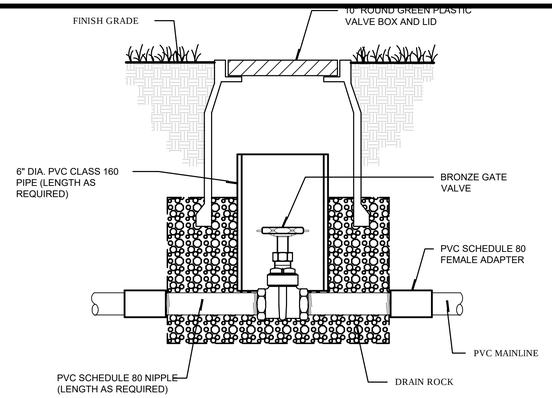
SHEET
IRR
IRR PLAN



SECTION

A RP BACKFLOW PREVENTER

SCALE: NOT TO SCALE PRE-RP1

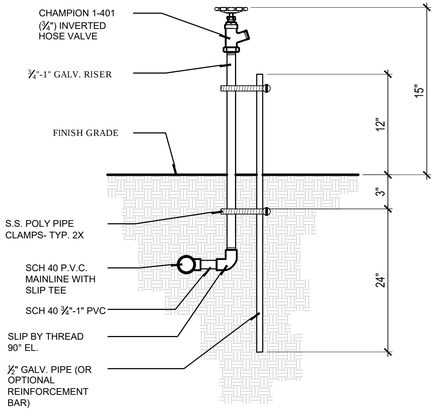


SECTION

NOTE:
SET TOP OF BOX EVEN WITH FINISH GRADE IN TURF AREAS.

B GATE VALVE

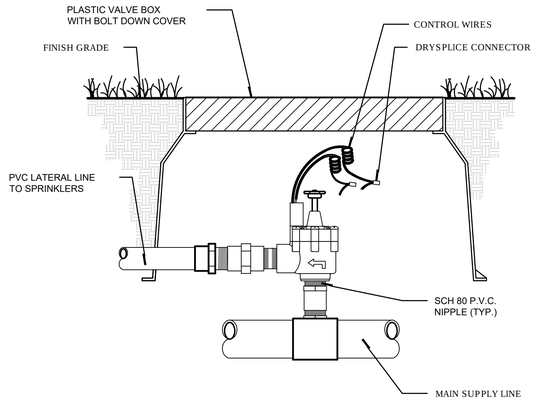
SCALE: NOT TO SCALE VAL-GA1



SECTION

C HOSE BIBB

SCALE: NOT TO SCALE HOS-BI1



SECTION

D REMOTE CONTROL VALVE

SCALE: NOT TO SCALE VAL-RE1

NOTES:

1. PLACE WYE STRAINER TO ONE SIDE OF BOX FOR MAINTENANCE.
2. ROTATE WYE STRAINER 30 DOWNWARD FROM HORIZONTAL.

SECTION

E DRIP IRRIG. & PRESSURE REG.

SCALE: NOT TO SCALE PRE-RE1

SECTION

F POP-UP SPRAY & RTR. HEADS

SCALE: NOT TO SCALE SPR-HE1

SECTION

G SHB HEAD & RISER ASSEMBLY

SCALE: NOT TO SCALE SHR-HE1

NOTE:

H. BUBBLER OPTION A

SCALE: NOT TO SCALE

NOTE:

I. BUBBLER OPTION B

SCALE: NOT TO SCALE

J. DRIPLINE IRRIGATION

SCALE: NOT TO SCALE

K. DRIPLINE CONNECTIONS

SCALE: NOT TO SCALE

landsystems
LANDSCAPE ARCHITECTS AND CONTRACTORS
C27 474943
RLA 3220
3113 Middlefield Road
Redwood City, CA, 94063-3731
650.851.2793
www.landsystemslandscapes.com

JOB
DUTTA RES.

LANDSCAPE IRRIGATION DETAILS

DESIGNER
AC

PC
TV

DUTTA RESIDENCE
250 BONITA ROAD,
PORTOLA VALLEY, CA 94028

DATE
12.15.17
REVISIONS
8.2.18

SCALE
NTS

SHEET
LID1
IRRIGATION DETAILS

California Water Efficient Landscape Worksheet

Reference Evapotranspiration (ETo): 42.8 | Project Type: Residential | 0.55

Hydrozone # / Planting Descriptiona	Plant Factor (PF)	Irrigation Methodb	Irrigation Efficiency (IE)c	ETAF (PF/IE)	Landscape Area (Sq. Ft.)	ETAF x Area	Estimated Total Water Use (ETWU)d
Regular Landscape Areas							
HZ1	0.2	DRIP	0.81	0.25	552.8	138	1479
HZ2	0.5	DRIP	0.81	0.62	219.6	136	3613
HZ3	0.5	DRIP	0.81	0.62	277.2	172	4561
HZ4	0.2	DRIP	0.81	0.25	882.5	221	5855
HZ5	0.5	DRIP	0.81	0.62	333.1	207	5480
HZ6	0.2	DRIP	0.81	0.25	389	97	2581
HZ7	0.5	DRIP	0.81	0.62	77.4	48	1273
HZ8	0.2	DRIP	0.81	0.25	527	132	3496
HZ9	0.2	DRIP	0.81	0.25	721.3	180	4785
HZ10	0.5	DRIP	0.81	0.62	505	313	8308
HZ11	0.2	DRIP	0.81	0.25	499	125	3310
HZ12	0.2	DRIP	0.81	0.25	234	59	1552
HZ13	0.5	Drip	0.81	0.62	378	234	6219
HZ14	0.2	Overhead	0.75	0.27	2878.2	777	20621
				Totals	8474	2839	73134
Special Landscape Areas							
				Totals	0		
						ETWU Total	73134
						Maximum Allowed Water Allowance (MAWA)e	123678

All Landscape Areas	
Total ETAF x Area	2839
Total Area	8474
Average ETAF	0.33

Average ETAF for Regular Landscape Areas must be .55 or below for residentail areas, and .45 or below for non-residential areas.

Hydrozone Category	PF-Plant Factor
Very Low Water Use	0.0 - 0.1
Low Water Use*	0.1 - 0.3
Moderate Water Use	0.4 - 0.6
High Water Use	0.7 - 1.0

Irrigation Method	IE- Irrigation Efficiency
Overhead Spray	0.75
Drip	0.81

HZ1 LOW
HZ2 MODERATE
HZ3 MODERATE
HZ4 LOW
HZ5 MODERATE
HZ6 LOW
HZ7 MODERATE
HZ8 LOW
HZ9 LOW
HZ10 MODERATE
HZ11 LOW
HZ12 LOW
HZ13 MODERATE
HZ14 LOW

LOW WATER USE

MODERATE WATER USE

WATER SUPPLY TYPE: CALWATER

NOTES:

RE-CIRCULATING WATER SYSTEMS SHALL BE USED FOR WATER FEATURES.

A MINIMUM 3-INCH LAYER OF MULCH SHALL BE APPLIED ON ALL EXPOSED SOIL SURFACES OF PLANTING AREAS EXCEPT TURF AREAS, CREEPING OR ROOTING GROUNDCOVER, OR DIRECT SEEDING APPLICATIONS WHERE MULCH IS CONTRAINDICATED.

FOR SOILS LESS THAN 6% ORGANIC MATTER IN THE TOP 6 INCHES OF SOIL, COMPOST AT A RATE OF A MINIMUM OF FOUR CUBIC YARDS PER 1,000 SQUARE FEET OF PERMEABLE AREA SHALL BE INCORPORATED TO A DEPTH OF SIX INCHES INTO THE SOIL.

AT THE TIME OF FINAL INSPECTION, THE PERMIT APPLICANT MUST PROVIDE THE OWNER OF THE PROPERTY WITH A CERTIFICATE OF COMPLETION, CERTIFICATE OF INSTALLATION, IRRIGATION SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE.

AN IRRIGATION AUDIT REPORT SHALL BE COMPLETED BY A CERTIFIED IRRIGATION AUDITOR AT THE TIME OF FINAL INSPECTION. SUBMIT THIS REPORT TO SAN MATEO COUNTY PLANNING FOR REVIEW AND ACCEPTANCE IN 8-1/2"X11" FORMAT.

I HAVE COMPLIED WITH THE CRITERIA OF THE ORDINANCE AND APPLIED THEM FOR THE EFFICIENT USE OF WATER IN THE LANDSCAPE DESIGN PLAN

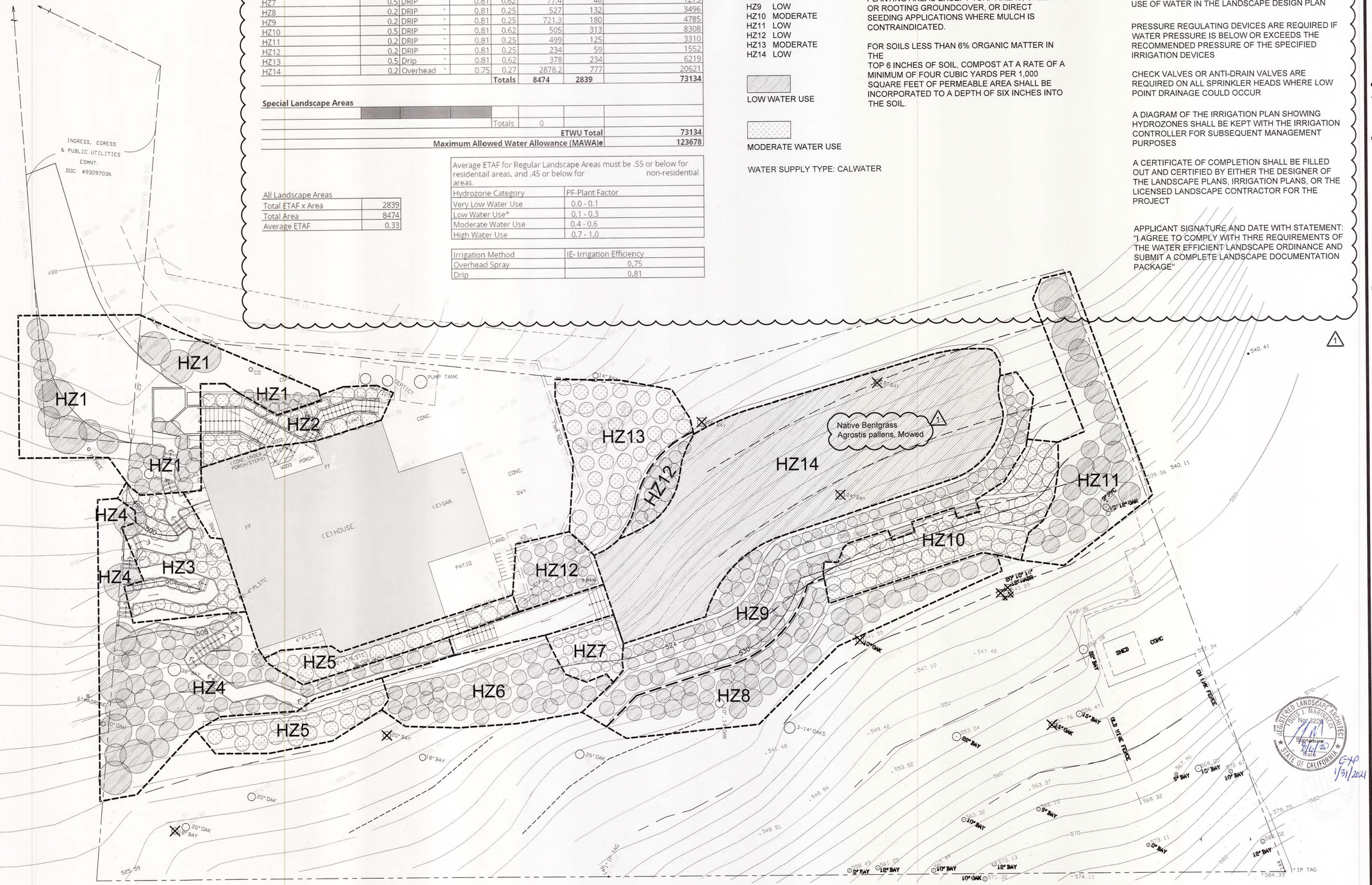
PRESSURE REGULATING DEVICES ARE REQUIRED IF WATER PRESSURE IS BELOW OR EXCEEDS THE RECOMMENDED PRESSURE OF THE SPECIFIED IRRIGATION DEVICES

CHECK VALVES OR ANTI-DRAIN VALVES ARE REQUIRED ON ALL SPRINKLER HEADS WHERE LOW POINT DRAINAGE COULD OCCUR

A DIAGRAM OF THE IRRIGATION PLAN SHOWING HYDROZONES SHALL BE KEPT WITH THE IRRIGATION CONTROLLER FOR SUBSEQUENT MANAGEMENT PURPOSES

A CERTIFICATE OF COMPLETION SHALL BE FILLED OUT AND CERTIFIED BY EITHER THE DESIGNER OF THE LANDSCAPE PLANS, IRRIGATION PLANS, OR THE LICENSED LANDSCAPE CONTRACTOR FOR THE PROJECT

APPLICANT SIGNATURE AND DATE WITH STATEMENT: "I AGREE TO COMPLY WITH THRE REQUIREMENTS OF THE WATER EFFICIENT LANDSCAPE ORDINANCE AND SUBMIT A COMPLETE LANDSCAPE DOCUMENTATION PACKAGE"



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CLT 474843
RLA 3220

JOB
DUTTA RES.

WELO PLAN

DESIGNER
AC

PC
TV

DUTTA RESIDENCE
250 BONITA ROAD,
PORTOLA VALLEY, CA 94028

DATE
02.25.2020
REVISIONS
07.30.2020 1

SCALE
3/32" = 1'-0"

SHEET
WELO
WELO PLAN

LOUIS T. MARTINCICH
No. 2228
Signature
Date
STATE OF CALIFORNIA
1/31/2021

LEGEND

EXISTING		PROPOSED
▭	BULDING	▭
⊕	MONUMENT	
□	CURB INLET	
○	AREA DRAIN	
•	POLE	•
◎	SANITARY SEWER MANHOLE	◉
◎	STORM DRAIN MANHOLE	◉
⊗	FIRE HYDRANT	⊗
⊗	WATER VALVE	⊗
○	STREET LIGHT	•
○	CLEANOUT	•
———	BOUNDARY	———
———	LOT LINE	———
— · —	CENTERLINE	— · —
— — —	LIMIT OF EASEMENT	— — —
———	CURB	———
———	CURB AND GUTTER	———
———	EDGE OF PAVEMENT	———
———	CONTOUR	———
— — —	FENCE	— — —
— · —	FLOW LINE	— · —
SS — SS	SANITARY SEWER	SS — SS
SD — SD	STORM DRAIN	SD — SD
E — E	ELECTRICAL	
G — G	GAS	G — G
W — W	WATER	W — W
———	FIBER ROLLS	———
———	LEACH LINE	
———	SUBDRAIN	———

SCALE: 1"=10'

EARTHWORK QUANTITIES

			CUT	FILL	DEPTH OF CUT	DEPTH OF FILL
			C.Y.	C.Y.	FEET	FEET
YARD			544	187	11	8.5
EXPORT			357			

NOTES:
THE PROJECT GEOTECHNICAL ENGINEER AND/OR CIVIL ENGINEER WILL CONDUCT SITE REVIEWS OF THE DRAINAGE SYSTEM DURING CONSTRUCTION AND PROVIDE THE COUNTY WITH LETTERS DOCUMENTING THAT THE DRAINAGE SYSTEM(S) HAVE BEEN COMPLETED PER PLAN.

ALL STORM DRAIN PIPE WILL BE SOLID 6" PVC PIPES.

S01°51'09"E 38.86'
INGRESS, EGRESS & PUBLIC UTILITIES ESMNT. DOC. #93097036
N57°36'00"E 104.19'
S68°30'00"W 88.60'
N23°30'00"W 495.20.00'
N 22° 20' 37" W 119.19'
N 43° 25' 37" W 102.05'
N 41° 39' 43" E 150.00'
N 66° 30' 00" E 127.86'
N 28° 27' 30" W 279.20'
EXISTING SEPTIC FORCE MAINS TO BE ABANDONED IN PLACE. NEW MAINS TO BE CONSTRUCTED AT LEAST 12" FROM THE DISSIPATER
APPROXIMATE LOCATION OF EXPANSION LEACH LINE
ENERGY DISSIPATER INV 505.00
EXTEND SUBDRAIN TO ENERGY DISSIPATER
A.D. GR. 518.50 INV OUT 509.10
GRASSY SWALE
A.D. GR. 515.00 INV IN 508.05 INV OUT 506.00
4'-6"PVC S=0.01
6'-6"PVC S=0.01
A.D.GR. 512.47 INV 508.32
A.D.GR. 514.80 INV 508.38
7'-6"PVC S=0.02
29'-6"PVC S=0.01
23'-6"PVC S=0.01
REMOVE EX. WALL
A.D.GR.511.00 INV 508.28
A.D.GR.517.00 INV 512.14
SUBDRAIN (TYP.)
APPROXIMATE LOCATION OF EX. LEACH LINE
EXPANSION LEACH FIELD
PROPOSED PRIMARY LEACH LINE (TYPICAL)
(E) HOUSE
(E) GAR.
PATIO
SHED
CONC
BLOCK WALL
CHAIN LINK FENCE
OLD WIRE FENCE

REGISTERED PROFESSIONAL ENGINEER KAREL CYMBAL NO. C 34534 EXP. 09-30-2021 CIVIL STATE OF CALIFORNIA

NO.	BY	DATE	REVISION	BY	DATE

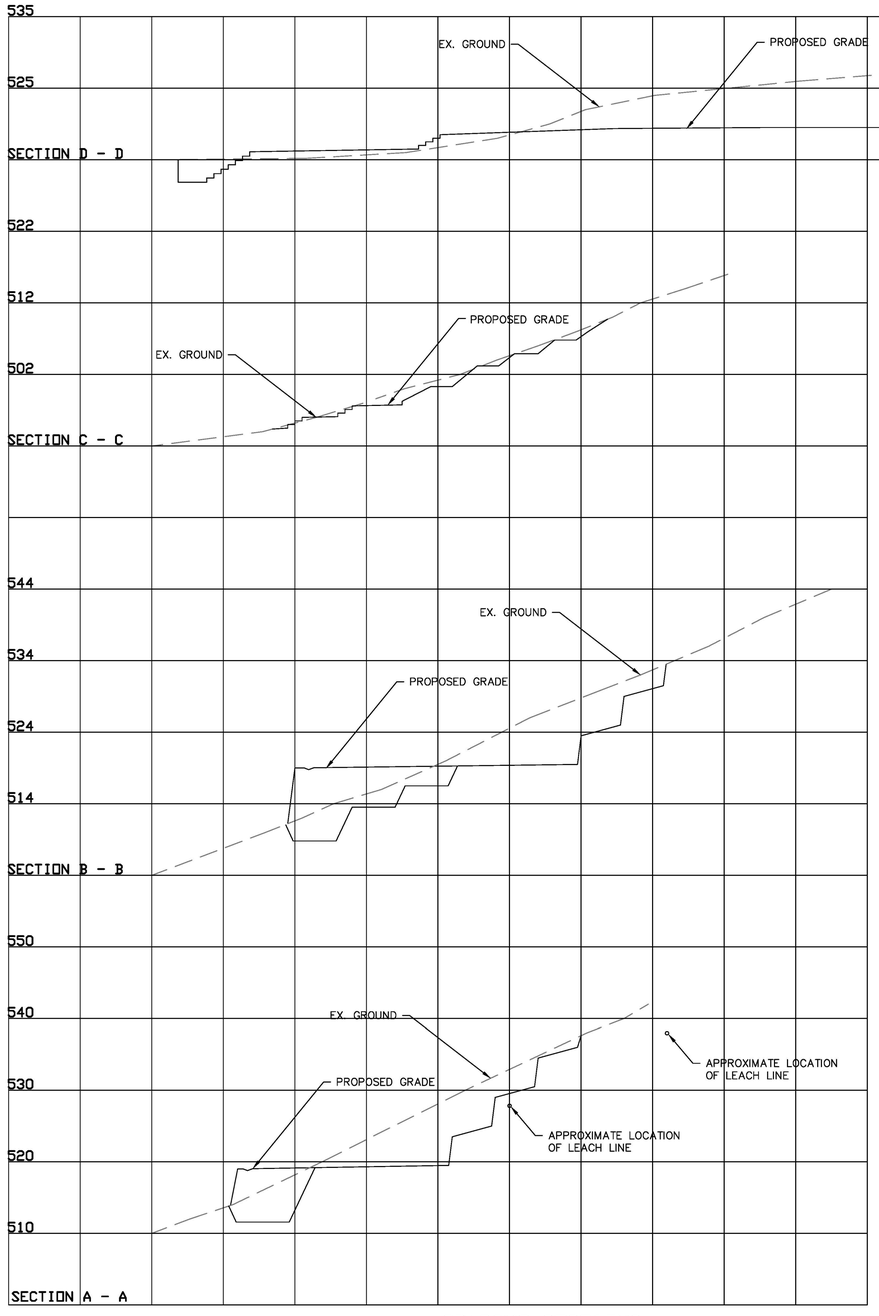
DATE: JUNE 30, 2020
SCALE: HOR. 1"=10' VERT.
DESIGNED: JC
CHECKED: KC
PROJ. ENGR: JC

BY: KAREL CYMBAL, RCE 34534
DATE:

WESTFALL ENGINEERS, INC.
14583 BIG BASIN WAY, SARATOGA, CA 95070 (408)867-0244

GRADING AND DRAINAGE PLAN
250 BONITA ROAD, PORTOLA VALLEY

JOB NO. 2018-002
SHEET 1 OF 4

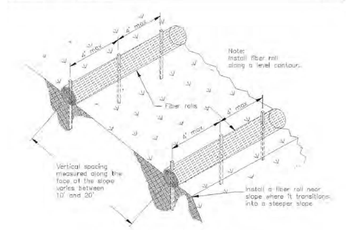


GRADING SECTIONS

VERTICAL SCALE: 1 inch = 10 feet

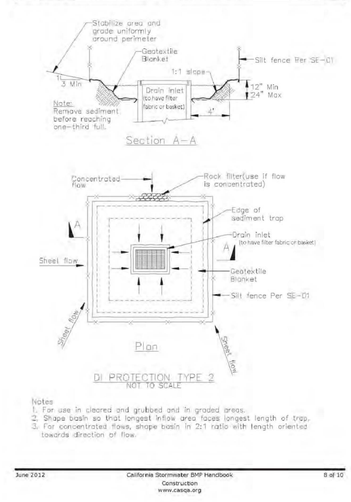
HORIZONTAL SCALE: 1 inch = 10 feet

Fiber Rolls **SE-5**

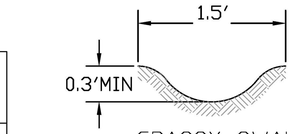


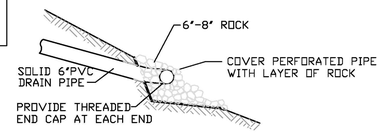
NOTES:
If more than one fiber roll is placed in a row, the rolls must be overlapped, not abutted.
Turn the ends of the fiber roll up-slope to prevent runoff from going around the roll.

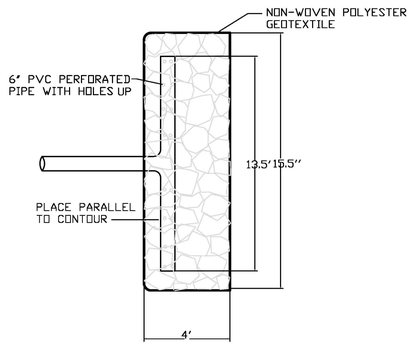
Storm Drain Inlet Protection **SE-10**



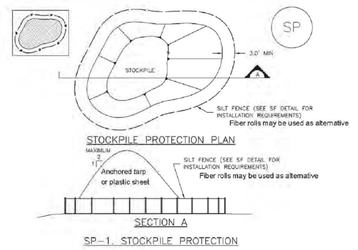
Notes
1. For use in cleared and grubbed and fri graded areas.
2. Shape basin so that longest inflow area faces longest length of trap.
3. For concentrated flows, shape basin in 2:1 ratio with length oriented towards direction of flow.







Stockpile Management (SP)



AIR QUALITY, LANDSCAPING & EROSION CONTROL

1. WATER ALL ACTIVE CONSTRUCTION AREAS AT LEAST TWICE DAILY.
2. COVER ALL TRUCKS HAULING SOIL, SAND, AND OTHER LOOSE MATERIALS OR REQUIRE ALL TRUCKS TO MAINTAIN AT LEAST TWO FEET OF FREEBOARD.
3. PAVE, APPLY WATER THREE TIMES DAILY, OR APPLY (NON-TOXIC) SOIL STABILIZERS ON ALL UNPAVED ACCESS ROADS, PARKING AREAS AND STAGING AREAS AT CONSTRUCTION SITES.
4. ALL CONSTRUCTION VEHICLES, EQUIPMENT AND DELIVERY TRUCKS SHALL HAVE A MAXIMUM IDLING TIME OF 5 MINUTES (AS REQUIRED BY THE CALIFORNIA AIRBORNE TOXIC CONTROL MEASURE TITLE 13, SECTION 2485 OF CALIFORNIA CODE OF REGULATIONS (CCR)). ENGINES SHALL BE SHUT OFF IF CONSTRUCTION REQUIRES LONGER IDLING TIME UNLESS NECESSARY FOR PROPER OPERATION OF THE VEHICLE.
5. ALL CONSTRUCTION EQUIPMENT SHALL BE MAINTAINED AND PROPERLY TUNED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. ALL EQUIPMENT SHALL BE CHECKED BY A CERTIFIED MECHANIC AND DETERMINED TO BE RUNNING IN PROPER CONDITION PRIOR TO OPERATION.
6. ALL FILL SLOPES SHALL BE COMPACTED AND LEFT IN A SMOOTH AND FIRM CONDITION CAPABLE OF WITHSTANDING WEATHERING.
7. ALL EXPOSED DISTURBED AREAS SHALL BE SEEDED WITH BROME SEED SPREAD AT THE RATE OF 5 LB. PER 1000 SQUARE FEET (OR APPROVED EQUAL). SEEDING AND WATERING SHALL BE MAINTAINED AS REQUIRED TO ENSURE GROWTH.
8. THE OWNER, CONTRACTOR, AND ANY PERSON PERFORMING CONSTRUCTION ACTIVITIES SHALL INSTALL AND MAINTAIN CONSTRUCTION BEST MANAGEMENT PRACTICES (BMPS) ON THE PROJECT SITE AND WITHIN THE SAN MATEO COUNTY ROAD RIGHT-OF-WAY THROUGHOUT THE DURATION OF THE CONSTRUCTION AND UNTIL THE ESTABLISHMENT OF PERMANENT STABILIZATION AND SEDIMENT CONTROL TO PREVENT THE DISCHARGE OF POLLUTANTS INCLUDING SEDIMENT, CONSTRUCTION MATERIALS, EXCAVATED MATERIALS, AND WASTE INTO THE SANTA CLARA COUNTY RIGHT-OF-WAY, STORM SEWER WATERWAYS, ROADWAY INFRASTRUCTURE. BMPS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING;
   A. PREVENTION OF POLLUTANTS IN STORM WATER DISCHARGES FROM THE CONSTRUCTION SITE AND THE CONTRACTOR'S MATERIAL AND EQUIPMENT LAYDOWN / STAGING AREAS.
   B. PREVENTION OF TRACKING OF MUD, DIRT, AND CONSTRUCTION MATERIALS ONTO THE PUBLIC ROAD RIGHT-OF-WAY.
   C. PREVENTION OF DISCHARGE OF WATER RUN-OFF DURING DRY AND WET WEATHER CONDITIONS ONTO THE PUBLIC ROAD RIGHT-OF-WAY.
9. THE OWNER, CONTRACTOR, AND ANY PERSON PERFORMING CONSTRUCTION ACTIVITIES SHALL ENSURE THAT ALL TEMPORARY CONSTRUCTION FACILITIES, INCLUDING BUT NOT LIMITED TO CONSTRUCTION MATERIALS, DELIVERIES, HAZARDOUS AND NON-HAZARDOUS MATERIAL STORAGE, EQUIPMENT, TOOLS, PORTABLE TOILETS, CONCRETE WASHOUT, GARBAGE CONTAINERS, LAYDOWN YARDS, SECONDARY CONTAINMENT AREAS, ETC. ARE LOCATED OUTSIDE THE SANTA CLARA COUNTY ROAD RIGHT-OF-WAY.
10. EROSION CONTROL PLAN IS A GUIDE AND SHALL BE AMENDED AS NECESSARY TO PREVENT EROSION AND ILLICIT DISCHARGES ON A YEAR AROUND BASIS, DEPENDING ON THE SEASON, WEATHER, AND FIELD CONDITIONS. EROSION CONTROL MEASURES IN ADDITION TO THOSE NOTED IN THE PERMITTED PLANS MAY BE NECESSARY. FAILURE TO INSTALL SITE SITE AND SITUATIONALY APPROPRIATE EROSION CONTROL MEASURES MAY RESULT IN VIOLATIONS, FINES, AND A STOPPAGE OF WORK.
11. WATER ALL ACTIVE CONSTRUCTION AREAS AT LEAST TWICE DAILY.
12. COVER ALL TRUCKS HAULING SOIL, SAND, AND OTHER LOOSE MATERIALS OR REQUIRE ALL TRUCKS TO MAINTAIN AT LEAST TWO FEET OF FREEBOARD.
13. PAVE, APPLY WATER THREE TIMES DAILY, OR APPLY (NON-TOXIC) SOIL STABILIZERS ON ALL UNPAVED ACCESS ROADS, PARKING AREAS AND STAGING AREAS AT CONSTRUCTION SITES.
14. SWEEP DAILY (WITH WATER SWEEPERS) ALL PAVED ACCESS ROADS, PARKING AREAS AND STAGING AREAS AT CONSTRUCTION SITES. THE USE OF DRY POWDER SWEEPING IS PROHIBITED.
15. SWEEP STREETS DAILY (WITH WATER SWEEPERS) IF VISIBLE SOIL MATERIAL IS CARRIED ONTO ADJACENT PUBLIC STREETS. THE USE OF DRY POWDER SWEEPING IS PROHIBITED.

REGISTERED PROFESSIONAL ENGINEER KAREL CYMBAL NO. C 34534 EXP. 09-30-2021 CIVIL STATE OF CALIFORNIA

NO.	BY	DATE	REVISION	BY	DATE

DATE: SEPTEMBER 2020
SCALE: HOR. 1"=10' VERT. 1'=10'
DESIGNED: JC
CHECKED: KC
PROJ. ENGR: JC

BY: KAREL CYMBAL, RCE 34534
DATE:

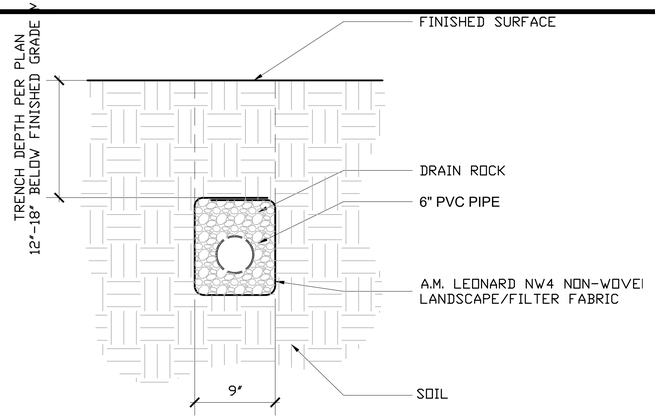
WESTFALL ENGINEERS, INC.
14583 BIG BASIN WAY, SARATOGA, CA 95070 (408)867-0244

GRADING AND DRAINAGE PLAN

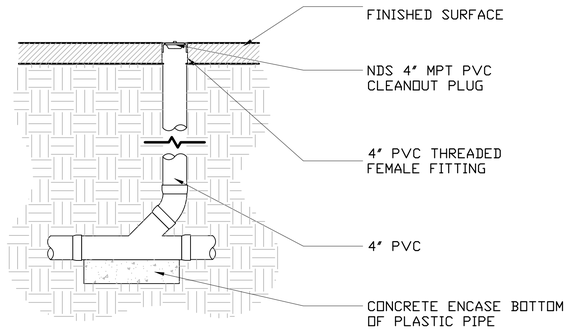
250 BONITA ROAD, PORTOLA VALLEY

JOB NO. 2018-002

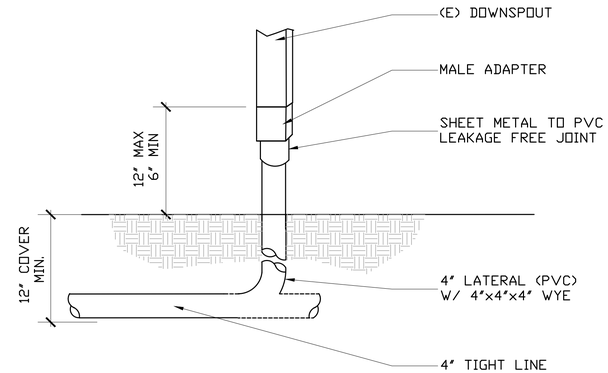
SHEET 2 OF 4



1. DRAIN PIPE
SCALE: 1-1/2" = 1' -0"



2. DRAIN CLEANOUT
SCALE: 1" = 1' -0"



3. DOWNSPOUT TIE-IN
SCALE: 1" = 1' -0"

4. ATRIUM DRAIN
SCALE: 1" = 1' -0"

5. TRENCH DRAIN
SCALE: 3" = 1' -0"

landsystems
LANDSCAPE ARCHITECTS AND CONTRACTORS
C27 474943
RLA 5220
3113 Middlefield Road
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www.landsystemsdesign.com

JOB
DUTTA RES.

DRAINAGE DETAILS

AC

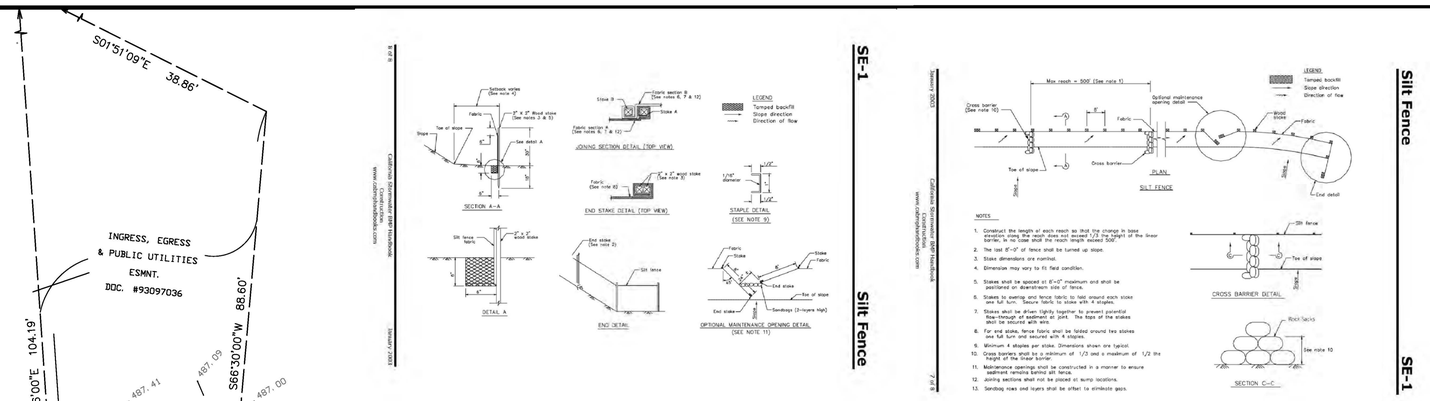
TV

DUTTA RESIDENCE
250 BONITA ROAD,
PORTOLA VALLEY, CA 94028

DATE
12.14.17
REVISIONS
8.2.18

SCALE
NTS

SHEET
LDD
DRAINAGE DETAILS



BMP Notes
Erosion Control Point of Contact: Sanjeet Dutta, 250 Bonita Road, Portola Valley, sanjeetdutta@yahoo.com <mailto:sanjeetdutta@yahoo.com>, 408-644-4064.
Perform clearing and earth-moving activities only during dry weather. Measures to ensure adequate erosion and sediment control shall be installed prior to earth-moving activities and construction.
Measures to ensure adequate erosion and sediment control are required year-round. Stabilize all denuded area and maintain erosion control measures continuously between October 1 and April 30.
Store, handle, and dispose of construction materials and wastes properly, so as to prevent their contact with stormwater.
Control and prevent the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, wash water or sediments, and non-stormwater discharges to storm drains and watercourses.
Use sediment control or filtration to remove sediment when dewatering site and obtain Regional Water Quality Control Board (RWQCB) permit(s) as necessary.
Avoid cleaning, fueling, or maintaining vehicles on-site, except in a designated area where wash water is contained and treated.
Limit and time applications of pesticides and fertilizers to prevent polluted runoff.
Limit construction access routes to stabilized, designated access points.
Avoid tracking dirt or other materials off-site; clean off-site paved areas and sidewalks using dry sweeping methods.
Train and provide instruction to all employees and subcontractors regarding the Watershed protection Maintenance Standards and Construction Best Management Practices.
Placements of erosion materials at these locations are required on weekends and during rain events.
The areas delineated on the plans for parking, grubbing, storage, etc., shall not be enlarged or "run over".
Construction sites are required to have erosion control materials on-site during the "off-season".
Dust control is required year-around.
Erosion control materials shall be stored on-site.
Use of plastic sheeting between October 1 and April 30 is not acceptable, unless for used on stockpiles where the stockpile is also protected with fiber rolls containing the base of the stockpile.
Tree protection shall be in place before any demolition, grading, excavating or grubbing is started.

NO.	BY	DATE	REVISION	BY	DATE

DATE: SEPTEMBER 2020
SCALE: HOR. 1"=10' VERT.
DESIGNED: JC
CHECKED: KC
PROJ. ENGR: JC

BY: KAREL CYMBAL, RCE 34534
DATE:

WESTFALL ENGINEERS, INC.
14583 BIG BASIN WAY, SARATOGA, CA 95070 (408)867-0244

EROSION CONTROL PLAN
250 BONITA ROAD, PORTOLA VALLEY

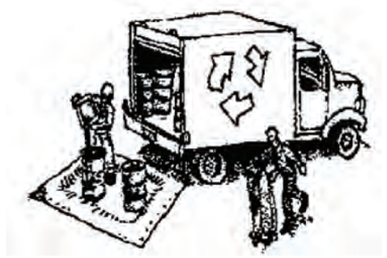
JOB NO. 2018-002
SHEET 3
OF 4

SAN MATEO COUNTYWIDE
Water Pollution Prevention Program
Clean Water. Healthy Community.

Construction Best Management Practices (BMPs)

Construction projects are required to implement the stormwater best management practices (BMP) on this page, as they apply to your project, all year long.

Materials & Waste Management



Non-Hazardous Materials

- ❑ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or if not actively being used within 14 days.
- ❑ Use (but don't overuse) reclaimed water for dust control.

Hazardous Materials

- ❑ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.
- ❑ Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.
- ❑ Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- ❑ Arrange for appropriate disposal of all hazardous wastes.

Waste Management

- ❑ Cover waste disposal containers securely with tarps at the end of every work day and during wet weather.
- ❑ Check waste disposal containers frequently for leaks and to make sure they are not overfilled. Never hose down a dumpster on the construction site.
- ❑ Clean or replace portable toilets, and inspect them frequently for leaks and spills.
- ❑ Dispose of all wastes and debris properly. Recycle materials and wastes that can be recycled (such as asphalt, concrete, aggregate base materials, wood, gyp board, pipe, etc.)
- ❑ Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.

Construction Entrances and Perimeter

- ❑ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.
- ❑ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

Equipment Management & Spill Control

Maintenance and Parking

- ❑ Designate an area, fitted with appropriate BMPs, for vehicle and equipment parking and storage.
- ❑ Perform major maintenance, repair jobs, and vehicle and equipment washing off site.
- ❑ If refueling or vehicle maintenance must be done onsite, work in a bermed area away from storm drains and over a drip pan or drop cloths big enough to collect fluids. Recycle or dispose of fluids as hazardous waste.
- ❑ If vehicle or equipment cleaning must be done onsite, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.
- ❑ Do not clean vehicle or equipment onsite using soaps, solvents, degreasers, or steam cleaning equipment.

Spill Prevention and Control

- ❑ Keep spill cleanup materials (e.g., rags, absorbents and cat litter) available at the construction site at all times.
- ❑ Inspect vehicles and equipment frequently for and repair leaks promptly. Use drip pans to catch leaks until repairs are made.
- ❑ Clean up spills or leaks immediately and dispose of cleanup materials properly.
- ❑ Do not hose down surfaces where fluids have spilled. Use dry cleanup methods (absorbent materials, cat litter, and/or rags).
- ❑ Sweep up spilled dry materials immediately. Do not try to wash them away with water, or bury them.
- ❑ Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
- ❑ Report significant spills immediately. You are required by law to report all significant releases of hazardous materials, including oil. To report a spill: 1) Dial 911 or your local emergency response number, 2) Call the Governor's Office of Emergency Services Warning Center, (800) 852-7550 (24 hours).

Earthmoving

- ❑ Schedule grading and excavation work during dry weather.
- ❑ Stabilize all denuded areas, install and maintain temporary erosion controls (such as erosion control fabric or bonded fiber matrix) until vegetation is established.
- ❑ Remove existing vegetation only when absolutely necessary, and seed or plant vegetation for erosion control on slopes or where construction is not immediately planned.
- ❑ Prevent sediment from migrating offsite and protect storm drain inlets, gutters, ditches, and drainage courses by installing and maintaining appropriate BMPs, such as fiber rolls, silt fences, sediment basins, gravel bags, berms, etc.
- ❑ Keep excavated soil on site and transfer it to dump trucks on site, not in the streets.

Contaminated Soils

- ❑ If any of the following conditions are observed, test for contamination and contact the Regional Water Quality Control Board:
  - Unusual soil conditions, discoloration, or odor.
  - Abandoned underground tanks.
  - Abandoned wells
  - Buried barrels, debris, or trash.

Paving/Asphalt Work

- ❑ Avoid paving and seal coating in wet weather or when rain is forecast, to prevent materials that have not cured from contacting stormwater runoff.
- ❑ Cover storm drain inlets and manholes when applying seal coat, tack coat, slurry seal, fog seal, etc.
- ❑ Collect and recycle or appropriately dispose of excess abrasive gravel or sand. Do NOT sweep or wash it into gutters.
- ❑ Do not use water to wash down fresh asphalt concrete pavement.

Sawcutting & Asphalt/Concrete Removal

- ❑ Protect nearby storm drain inlets when saw cutting. Use filter fabric, catch basin inlet filters, or gravel bags to keep slurry out of the storm drain system.
- ❑ Shovel, abosorb, or vacuum saw-cut slurry and dispose of all waste as soon as you are finished in one location or at the end of each work day (whichever is sooner!).
- ❑ If sawcut slurry enters a catch basin, clean it up immediately.

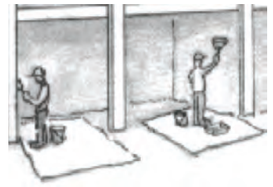
Concrete, Grout & Mortar Application

- ❑ Store concrete, grout, and mortar away from storm drains or waterways, and on pallets under cover to protect them from rain, runoff, and wind.
- ❑ Wash out concrete equipment/trucks offsite or in a designated washout area, where the water will flow into a temporary waste pit, and in a manner that will prevent leaching into the underlying soil or onto surrounding areas. Let concrete harden and dispose of as garbage.
- ❑ When washing exposed aggregate, prevent washwater from entering storm drains. Block any inlets and vacuum gutters, hose washwater onto dirt areas, or drain onto a bermed surface to be pumped and disposed of properly.

Landscaping

- ❑ Protect stockpiled landscaping materials from wind and rain by storing them under tarps all year-round.
- ❑ Stack bagged material on pallets and under cover.
- ❑ Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.

Painting & Paint Removal



Painting Cleanup and Removal

- ❑ Never clean brushes or rinse paint containers into a street, gutter, storm drain, or stream.
- ❑ For water-based paints, paint out brushes to the extent possible, and rinse into a drain that goes to the sanitary sewer. Never pour paint down a storm drain.
- ❑ For oil-based paints, paint out brushes to the extent possible and clean with thinner or solvent in a proper container. Filter and reuse thinners and solvents. Dispose of excess liquids as hazardous waste.
- ❑ Paint chips and dust from non-hazardous dry stripping and sand blasting may be swept up or collected in plastic drop cloths and disposed of as trash.
- ❑ Chemical paint stripping residue and chips and dust from marine paints or paints containing lead, mercury, or tributyltin must be disposed of as hazardous waste. Lead based paint removal requires a state-certified contractor.

Dewatering

- ❑ Discharges of groundwater or captured runoff from dewatering operations must be properly managed and disposed. When possible send dewatering discharge to landscaped area or sanitary sewer. If discharging to the sanitary sewer call your local wastewater treatment plant.
- ❑ Divert run-on water from offsite away from all disturbed areas.
- ❑ When dewatering, notify and obtain approval from the local municipality before discharging water to a street gutter or storm drain. Filtration or diversion through a basin, tank, or sediment trap may be required.
- ❑ In areas of known or suspected contamination, call your local agency to determine whether the ground water must be tested. Pumped groundwater may need to be collected and hauled off-site for treatment and proper disposal.

Storm drain polluters may be liable for fines of up to $10,000 per day!

NORTH
1" = 10'
P1 - P6, SP1 =
PERC TEST & SOIL PROFILE conducted in January 2020.
Test holes for tests done in 2001 are circled and labeled w/ year.
SP1 = DEEP HOLE
11 FT DEPTH on 12/27/20
(SOIL LOG shown on OWTS 2)
ELECTRICAL BUILDNG PERMIT is REQUIRED
ALL PVC is Sch. 40, solvent-welded, and 150 PSI rated
(E) STORM WATER PIPE AND DISCHARGE
(E) SEPTIC TANK 1,500 GAL, CONCRETE TRAFFIC-RATED
(E) PUMP TANK 1,500 GAL, CONCRETE TRAFFIC-RATED
(E) 1 1/2" PVC DISCHARGE LINE
(E) 1 1/4" PVC TRANSPORT LINES (2) (abandoned in place)
ABANDON (E) DF (3) TOTAL 270 LINEAR FT
(N) PRESSURE-RATED DIVERTER VALVE 2" BRASS BALL VALVE (150 PSI RATED)
ALARM/CONTROL PANEL (Orenco MVP-S1) (audible/visual alarms) inside garage
2" PVC SUPPLY LINES
(E) 4 BR HOUSE
EDGE OF PAVEMENT
CONTOUR
FENCE
FLOW LINE
SANITARY SEWER
STORM DRAIN
ELECTRICAL
GAS
WATER
FIBER ROLLS
LEACH LINE
SUBDRAIN
Christopher Day
Digitally signed by Christopher Day
Date: 2020.07.09 07:10:58 -07'00'
NOTES:
THE PROJECT GEOTECHNICAL ENGINEER AND/OR CIVIL ENGINEER WILL CONDUCT SITE REVIEWS OF THE DRAINAGE SYSTEM DURING CONSTRUCTION AND PROVIDE THE COUNTY WITH LETTERS DOCUMENTING THAT THE DRAINAGE SYSTEM(S) HAVE BEEN COMPLETED PER PLAN.
ALL STORM DRAIN PIPE WILL BE SOLID 6" PVC PIPES.
DOTTED LINE INDICATES WALL SUBDRAIN.
ALL WALLS WITHIN 25 FT of DRAINFIELDS ARE DESIGNED TO HAVE NO DRAIN, NO STORM WATER CONVEYANCE.
THE WALLS SHOULD BE CONSIDERED GRADING CUTS. SETBACK TO THE WALLS IS ADDRESSED IN GEOTECH REPORT.
APPROXIMATE LOCATION OF EXPANSION LEACH LINE
1997 11 FT HOLE
EXP
PRIMARY
THESE AREAS NOT SHADED ARE LESS THAN 50% SLOPE.
Remove tree & cut to level grade (when installed)
APPROXIMATE LOCATION OF EX. LEACH LINE
no foundation under shed
PRIMARY 1 - 90 linear ft
PRIMARY 2 - 40 linear ft
PRIMARY 2 - 50 linear ft
EXP 1 - 40 linear ft
EXP 2 - 65 linear ft
EXP 1 - 50 linear ft
EXP 2 - 25 linear ft
EXPANSION LEACH FIELD
PROPOSED PRIMARY LEACH LINE (TYPICAL)
SP1 (11 FT)
P1
P2
P3
P4
P5
P6
2001
N 28° 27' 30" W 279. 20'
EXISTING DF 90 ft
8 ft trench depth, 6 ft drainrock
Replace 3" perf drainpipe w/ 1 1/2" PVC for pressure-dosed distribution.
Replace drainrock if needed.
INSPECTION WELL DETAIL: (5)
shown as:
(NOT TO SCALE)
GRADE
THREADED WRENCH TIGHT CAP
12" concrete annular seal
HACKSAW SLOTS (1" vertical spacing below 18")
sand pack
4" PVC PIPE
BOTTOM CAP
TOTAL DEPTH: 11 ft

PROJECT SCOPE & RATIONALE:

The scope of this project is to create a lawn area at the property with new retaining walls, grading & drainage. This will result in abandonment of all expansion and one primary drainfields currently serving the 4 BR house. One existing drainfield (90 ft length) will remain and be converted to pressure-dosed dispersal. New pressure-dosed drainfields (primary and expansion) are proposed to replace the abandoned drainfields. A new pump and diverter valve are proposed, along with new supply piping after the diverter, adjusting and purge valves, and performance wells to monitor groundwater conditions around the installation.

The existing drainfield to be retained was excavated to expose the drainpipe in a small section in the location shown and found to have drainrock and pipe in good condition. The pipe was observed to be 3" perforated PVC, which appears to show that the existing system is not actually pressure-dosed.

A percolation test was conducted in 2020 resulting in an "A" rating as shown. Soil profile analysis was also conducted for an 11 ft hole demonstrating soil depth & separation of proposed trench bottoms to potential high groundwater level meeting the requirement of 3 ft for pressure-dosed trenches. Pressure-dosing is required due to slope exceeding 35% in most of the areas proposed.

C2Earth, Inc. is retained for this project and has indicated that the setback of drainfields to steep slopes and retaining walls as shown are acceptable based on their geological engineering investigation and evaluation of the proposed septic area. The risk of slope instability is low according to the report being submitted.

Retaining walls proposed within 25 ft of the proposed and existing drainfields are designed with no sub-drain adjacent to the walls' edges. Grading and drainage improvements within 25 ft of the drainfields are designed for sheet flow only of storm runoff w/ no drainage conveyances such as swales that would be a concern.

Env. Health issued a construction permit in 2005 for the existing system including 1,500 gal septic tank, 180 ft of standard drainfield trench in 2 lines, and a pump. The design plan by Steve Brooks on file appears to accurately show the as-built system based on recent field observations including a 1,500 gal traffic-rated pump tank separate from the septic tank, a diversion valve and 100% expansion area drainfields.

The existing system may have been installed w/o benefit of inspection as per available records. If so, this will be rectified to the extent possible during construction.

ANNUAL SEPTIC & PUMP TANKS INSPECTION REQUIRED:
1) Access risers & lids in good condition. 2) Structural Integrity - probe interior walls/baffles, inlet/outlet T-pipes. 3) Check Tuf-Tite effluent filter and clean if needed. 4) Septic tank liquid level - should be at outlet invert in tank. 5) Pump tank electrical & signal wires in good condition. 6) Pump tank proper operation of float switches.
SEPTIC TANK SHALL BE PUMPED OUT WHENEVER SOLIDS or FLOATING MATERIAL EXCEED 30% OF TANK VOLUME OR ENCROACH ON INLET/OUTLET T's.
MINIMUM SEPTIC TANK PUMPING FREQUENCY IS 3 TO 5 YEARS.
PUMP TANK to be pumped out when debris may encroach on pump intake.

ONGOING MONTORING & REPORTING REQUIREMENTS:
(must be performed by licensed professional or service provider)
YEARS 1 - 4: Semi-annually // YEARS 5+ of operation: Annually
1) Record wastewater flow based on water meter readings or other method 2) Measurement and recording of water levels in inspection wells. 3) Inspection of pump and valves operation, including squirt test. 4) Inspection of dispersal fields for seepage, erosion, etc.
MONITORING REPORT SHALL BE SIGNED BY LICENSED PROFESSIONAL AND SUBMITTED TO EH IN ACCORDANCE WITH THE SYSTEM OPERATING PERMIT.

ON-SITE WATER TIGHTNESS TESTING
(REQUIRED PRIOR TO SEPTIC TANK & PUMP TANK USE)
1. FILL TANK TO TOP OF RISER 1 INCH FROM LID (or to at least 1" in riser) 2. LET TANK SIT FOR 1 HOUR 3. OBSERVE WATER LEVEL IN RISER BEFORE AND AFTER 1 HR PERIOD 4. IF LEVEL HAS FALLEN , INSPECT FOR LEAKS 5. REPAIR ANY LEAKS AND REPEAT TEST

Construction Inspections Required w/ Designer & EH:
1. Layout Inspection - All components staked or painted
2. Open Trench Inspection - Components in & not covered
3. Pump Test - Pumps, squirt test, and alarms operational.
4. Septic & Pump Tank Water Tightness Testing.
5. Final inspection - All components covered.

Owner Reponsiblity for Alternative Type Septic System:
Owner will acknowledge that the property is served by an alternative pressure-dosed trench type septic system requiring an ongoing service contract, maintenance, and an annual EH operating permit.

PRESSURE-DOSED TRENCH MANAGEMENT REQUIREMENTS:

	Work	Minimum Frequency
Inspection	• Conduct routine visual observations of disposal field and downslope area and surroundings for wet areas, pipe leaks or damage, soil erosion, drainage issues, abnormal vegetation, or other problems. • Perform all inspections of pump and appurtenances (per system O&M manual, and Performance Evaluation Guidelines in Section 5.3 of this Manual).	• Every 6 to 12 months.
Maintenance	• Purge laterals, squirt and balance. • Exercise valves to ensure functionality. • Perform all maintenance work as recommended by equipment manufacturer for any special valves or other components. • Investigate and repair erosion, drainage or other disposal field problems, as needed. • Investigate and perform distribution system corrective work, as required. • Record work done.	• Distribution system maintenance annually. • Other maintenance as required.
Water Monitoring & Sampling	• Measure and record water levels in trench observation wells. • Measure and record water levels in dispersal field monitoring wells, as applicable, per permit requirements. • Obtain and analyze water samples from monitoring wells, as applicable, per permit requirements.	• Measure trench water levels annually. • Other monitoring according to permit conditions, as applicable.
Reporting	• Report findings to Environmental Health per permit requirements. • Standard report to include dates, observation well and monitoring well readings and other data collected, work performed, corrective actions taken, and performance summary. • Report public health/water quality emergency to Environmental Health staff immediately.	• According to permit conditions, typically every year, depending on system size, usage, history, location.

LEGEND

BOUNDARY
EASEMENT
IMPROVEMENTS
10'CONTOUR
2'CONTOUR
FENCE
RETAINING WALL
SPOT ELEVATION 492.38
UTILITY BOX
GRADE BREAK

LEGEND:
● = end standpipe(3)
AV = adjusting valve (3)
PV = purge valve (3)
▷ = inspection well (5)
T = concrete thrust block (9)

ORIG 3/6/2020
REV 1: 9 JULY 2020
REV 2:
PLAN BY: Christopher Day, R.E.H.S.
P.O. Box 26, Redwood City, CA 94064
Tel. 650-293-1045
Email: christopherdayr@aol.com
OWNER:
Sanjeet Dutta
Tel. 408-644-4064
Email: sanjeetdutta@yahoo.com

250 Bonita Rd., Portola Valley, CA 94028
APN 080-060-570

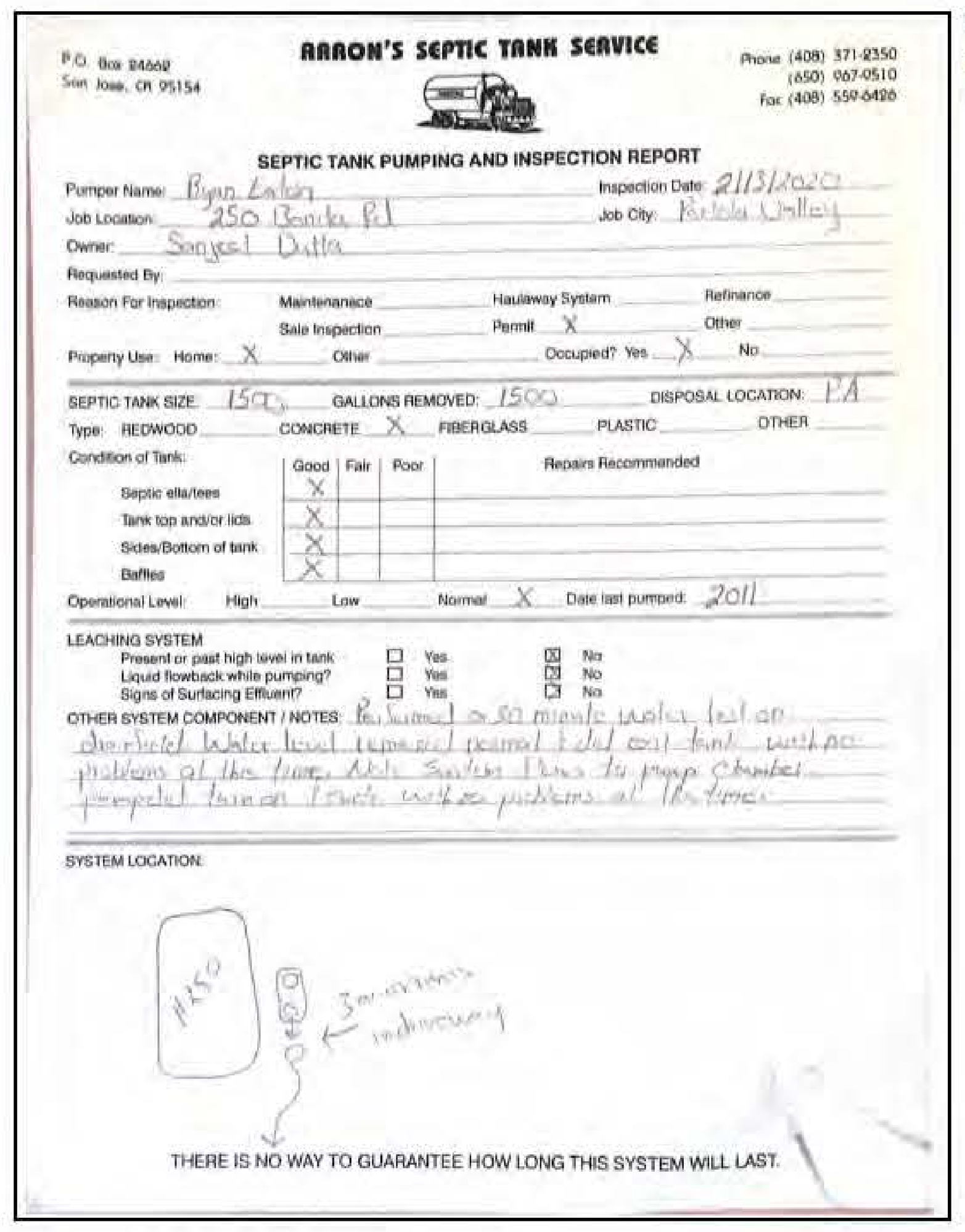
SITE PLAN

NEW PRESSURE-DOSED SEPTIC SYSTEM
(To Serve Existing 4 BR House & Allow Proposed Grading)

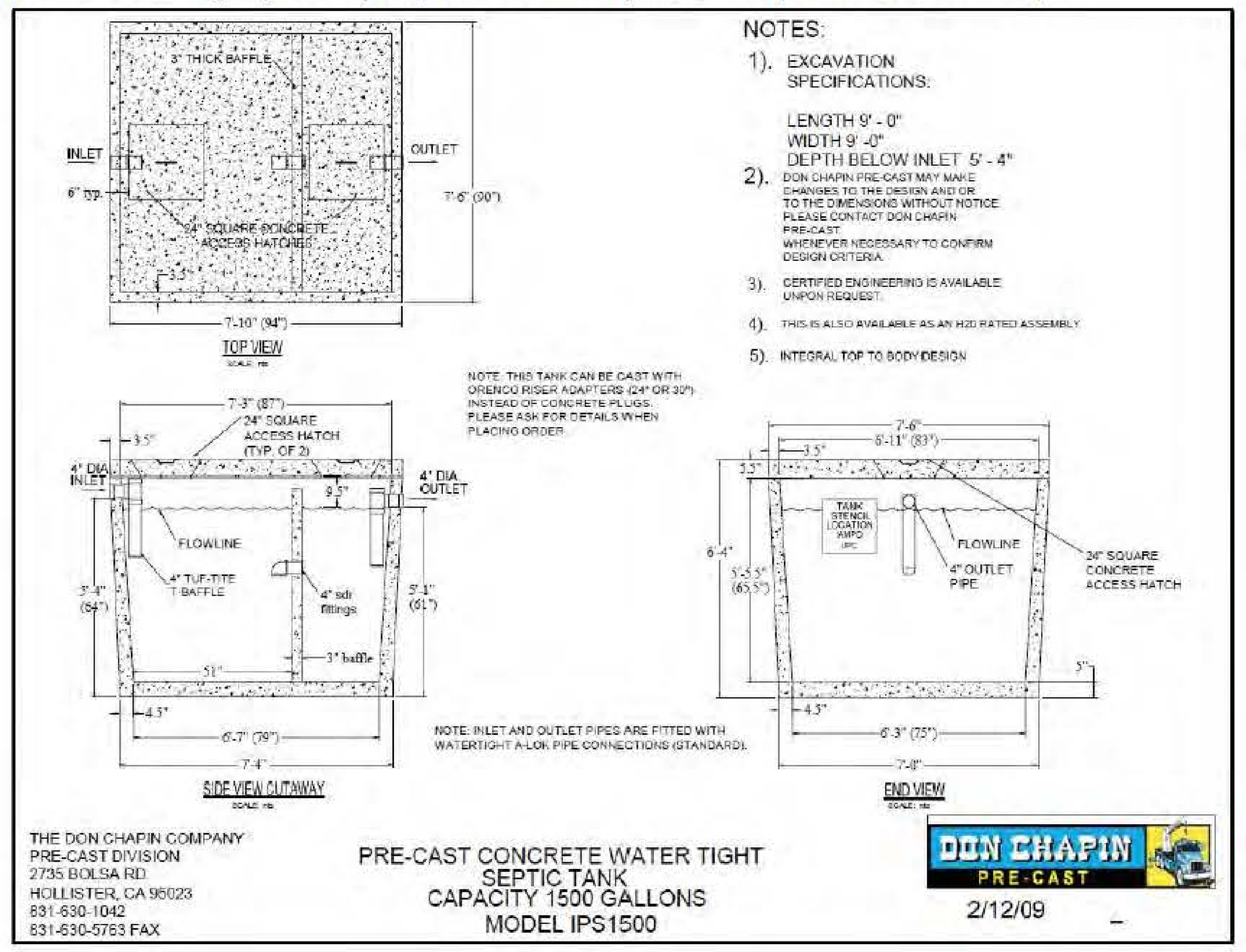
OWTS 1

JOB NO. 2018-002
SHEET 1 OF 1

(E) SEPTIC TANK & PUMP TANK:



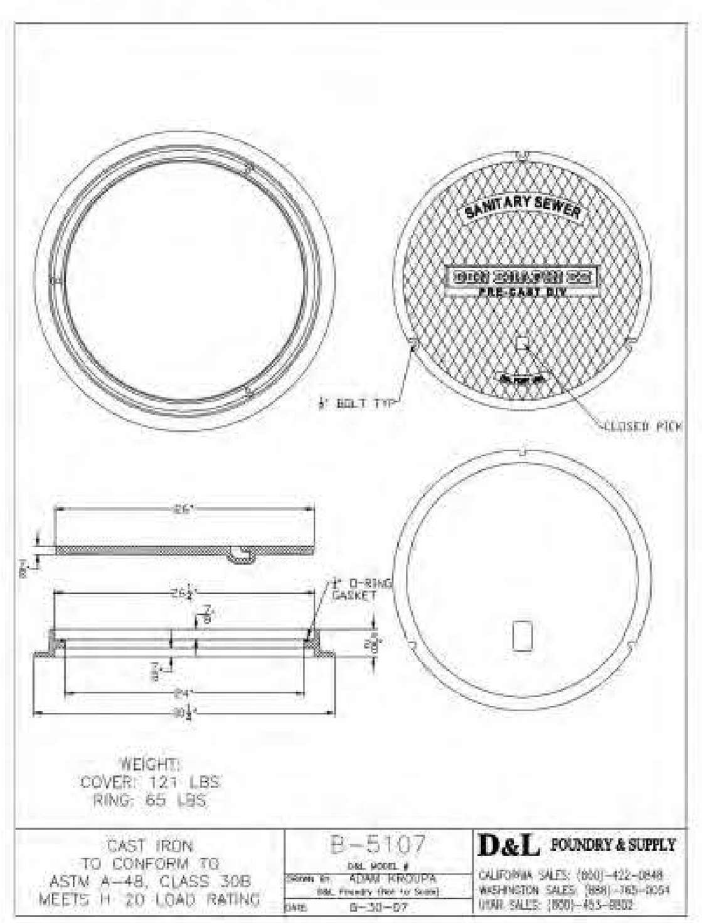
Based on available information and field observation, the presumed model of both the existing septic and pump tank is Don Chapin IPS1500 (traffic-rated, concrete)



NEW SEPTIC TANK EFFLUENT FILTER:

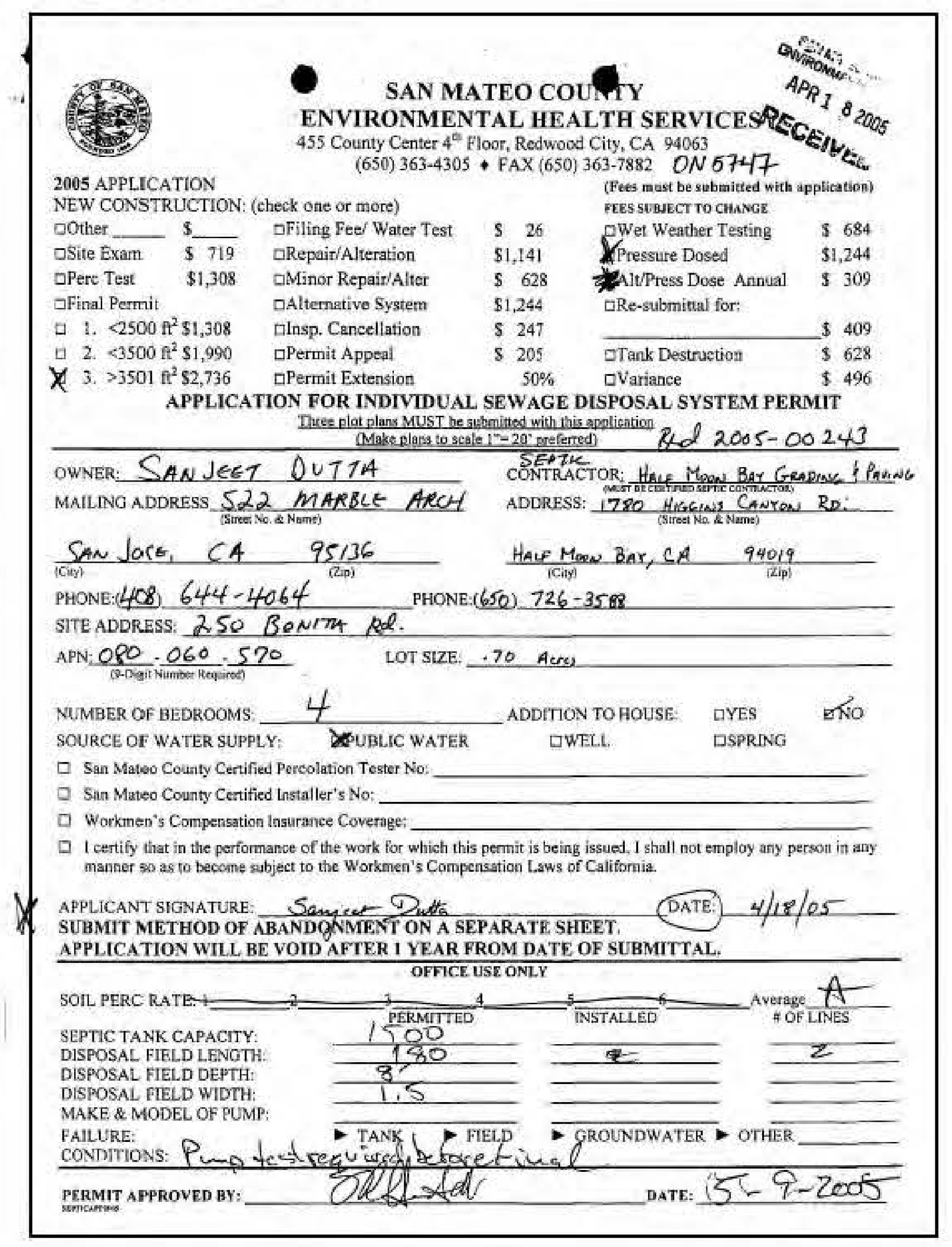
Pump Tank Outlet invert elevation = 491.09 ft.
(36' Burial Depth)

(E) TANK LIDS:

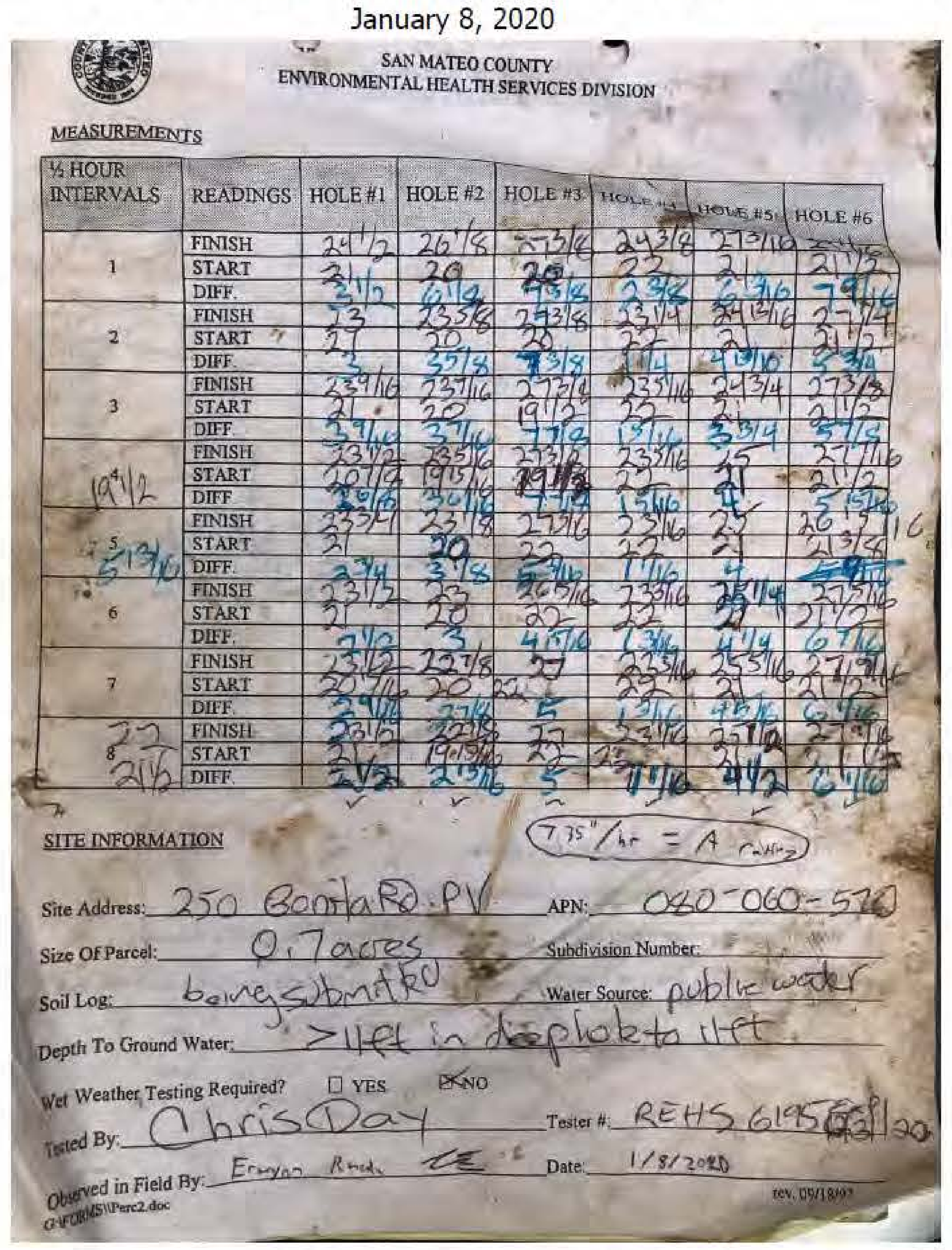


(E)TANK RISERS:

2005 PERMIT:



"A" PERC TEST RATING - 7.35 IN/HR
January 8, 2020



SOIL LOG:

Soil Analysis Test Data

APN 080-060-570 250 Bonita Rd., Portola Valley, CA Owner: Sanjeet Dutta	Test Conducted on 12/27/2019 By Chris Day, R.E.H.S. Tel. 650-293-1045 Witnessed by Allison Fang, R.E.H.S.

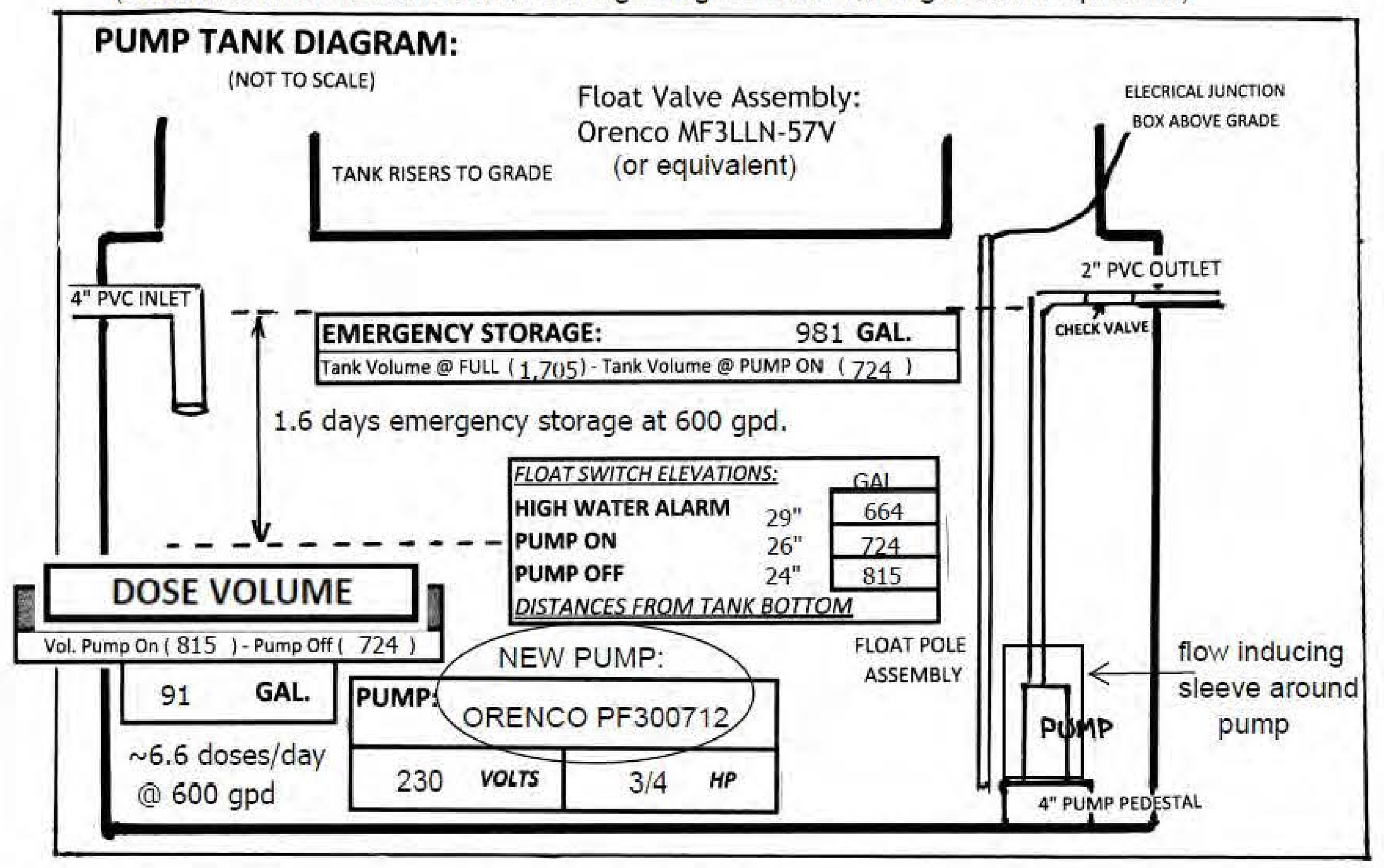
Soil Profile Test Hole #1	Depth: 11 ft.	
0 to 2 1/2 ft	Clay Loam Roots Coarse & Common Pores Medium & Common Weak Subangular Structure Less Than 15% Rock Dry Condition of Soil Color Black No Mottling	Not Restrictive
2 1/2 to 5 ft	Sandy Clay Roots Coarse & Medium Pores Fine & Few Weak Subangular Structure About 30% Rock Dry Condition of Soil Color Medium Brown No Mottling	Not Restrictive
5 to 11 ft	Sandy Clay Roots None Pores Fine & Common Weak Subangular Structure About 50% Rock Dry Condition of Soil Color Medium Brown No Mottling	Not Restrictive

TABULATION of PERC TEST RESULTS:

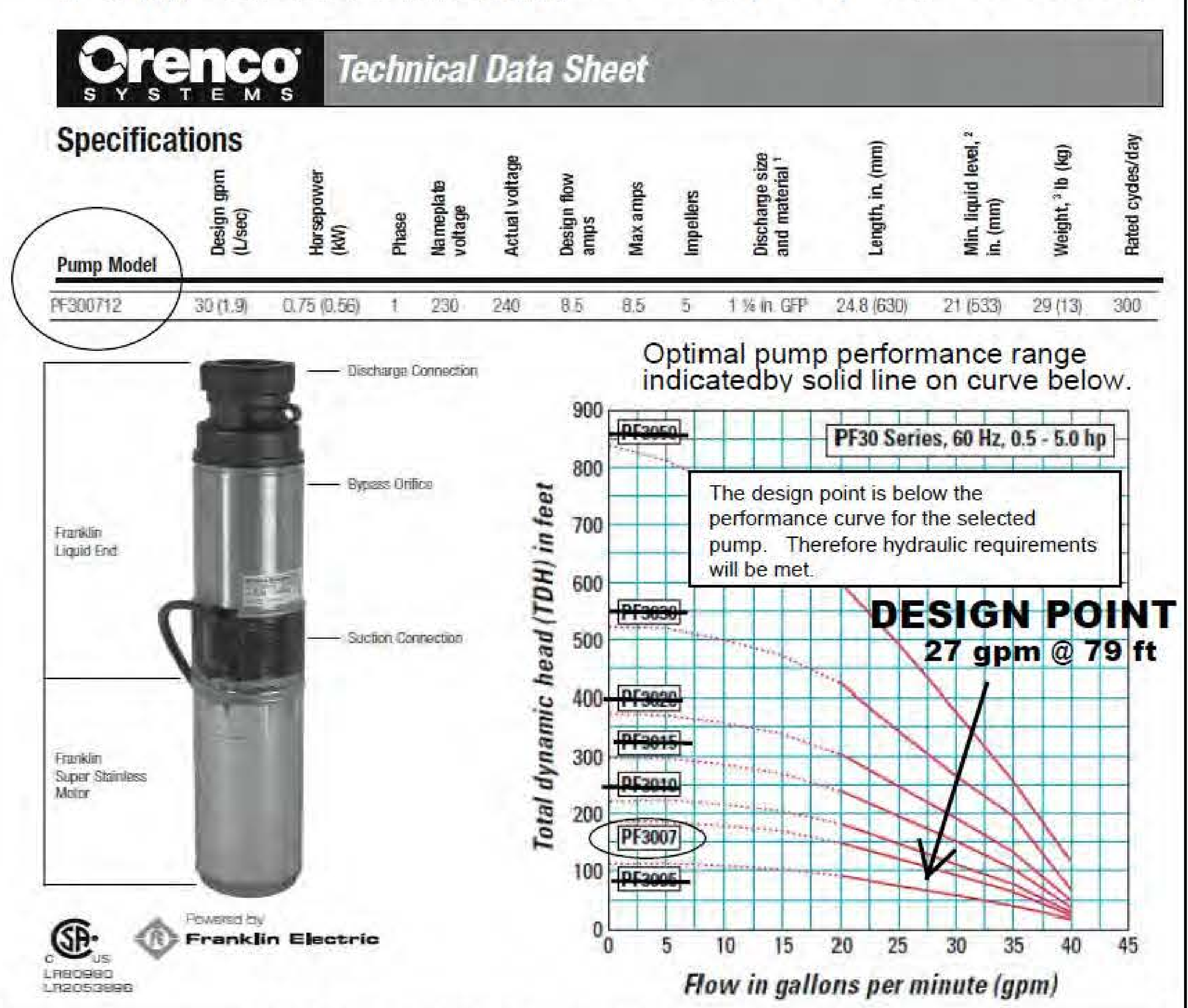
Hole #	1	2	3	4	5	6
Rate (in/hr)	5	5 7/8	10	2 1/8	9	12 1/8
Average			7.35 in/hr			

PUMP TANK DIAGRAM & EMERGENCY STORAGE:

(elevations from nominal volume chart ignoring baffle for 1,500 gal Don Chapin tank)


PUMP TANK DIAGRAM:
(NOT TO SCALE)
TANK RISERS TO GRADE
Float Valve Assembly: Orenco MF3LLN-57V (or equivalent)
ELECRICAL JUNCTION BOX ABOVE GRADE
4" PVC INLET
2" PVC OUTLET
CHECK VALVE
EMERGENCY STORAGE: 981 GAL.
Tank Volume @ FULL (1,705) - Tank Volume @ PUMP ON (724)
1.6 days emergency storage at 600 gpd.
FLOAT SWITCH ELEVATIONS:
HIGH WATER ALARM 29" 664
PUMP ON 26" 724
PUMP OFF 24" 815
DISTANCES FROM TANK BOTTOM
DOSE VOLUME
Vol. Pump On (815) - Pump Off (724)
91 GAL.
~6.6 doses/day @ 600 gpd
NEW PUMP:
ORENCO PF300712
PUMP: 230 VOLTS 3/4 HP
FLOAT POLE ASSEMBLY
flow inducing sleeve around pump
PUMP
4" PUMP PEDESTAL

PUMP SELECTION: (existing pump replacement)


Orenco Systems
Technical Data Sheet
Specifications
Pump Model
PF300712
Optimal pump performance range indicatedby solid line on curve below.
PF30 Series, 60 Hz, 0.5 - 5.0 hp
The design point is below the performance curve for the selected pump. Therefore hydraulic requirements will be met.
DESIGN POINT
27 gpm @ 79 ft
Total dynamic head (TDH) in feet
Flow in gallons per minute (gpm)
Powered by Franklin Electric

PUMP HYDRAULICS REQUIREMENTS CALCULATION:

Calculaton of pressure loss for Primary 1 side of diverter is sufficient to ensure that hydraulic requirements are also met for Primary 2 side of diverter due to longer pipe run and higher elevation lift to supply Primary 1. The slightly higher flow rate for Primary 2 laterals was used in the calculations for conservative determination of total dynamic head.

FLOW RATE - The orifice discharge rate for 3/16" diameter at 5 ft residual head is 0.93 gpm (SOURCE: COWA PD Design Manual, p. 153)

1. 28 & 29 orifices (Primary 1 & 2 respectively each side of diverter) x 0.93 gpm/orifice = **26 & 27 GPM**

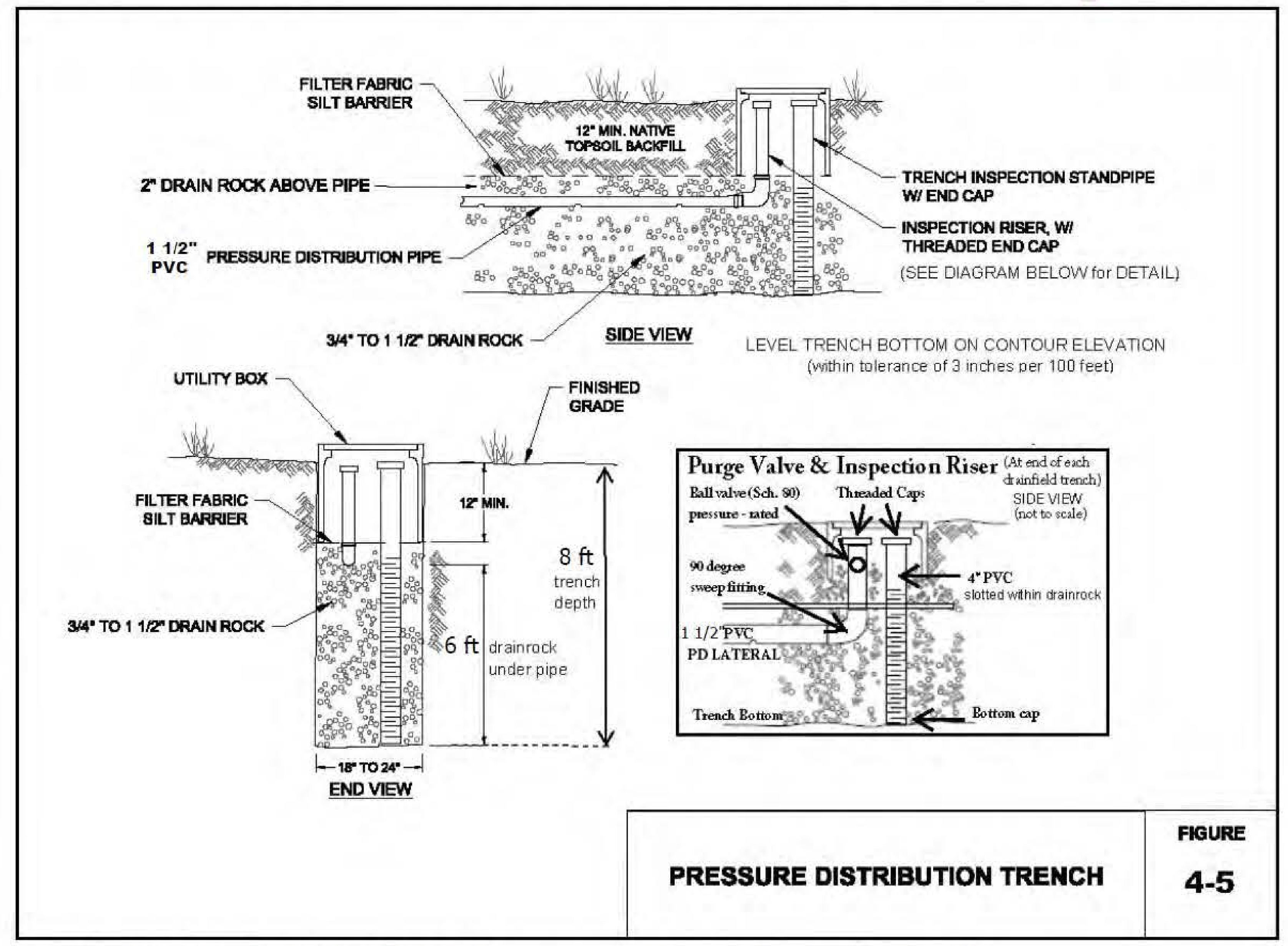
PRESSURE - Note: All PVC is Schedule 40. $f = L(Q/K)^{1.85}$ (SOURCE: COWA Manual, p. 154) NOTE THAT SOME LENGTHS AND ELEVATIONS ARE EXAGGERATED FOR CONSERVATIVE

1.	Lift in pump tank from pump discharge to outlet:		5.0 ft
2.	Elevation lift to uppermost PD lateral (542 - 491):		51.0 ft
3.	Existing 1 1/4" PVC Discharge Line From Pump Tank to Diverter: 40 ft pipe length + 1xCheck valve (12 ft) + 3x90o(11 ft) + 1 1/4"-2" pipe fitting(21 ft)	$84\ ft\ (27\ gpm/98.3)^{1.85} =$	7.7 ft
4.	2"PVC Supply Length & Fittings from DV to DF: 140 ft pipe length + T-Branch(12 ft) + Ball Valve(55 ft) + 6x90o(17 ft) + gate valve(3 ft)	$227\ ft\ (27\ gpm/284.5)^{1.85} =$	2.9 ft
5.	Pipe size reduction at PD lateral (2" to 1 1/2" coupler fitting) equivalent length is 50 ft.	$50\ ft\ (27\ gpm/284.5)^{1.85} =$	0.6 ft
6.	1 1/2" PVC PD Lateral: 90 ft Pipe + 67 ft fittings (90 degree sweep 12 ft + ball valve 55 ft)	$157\ ft\ (27\ gpm/147.5)^{1.85} =$	6.8 ft
7.	Residual Head		5.0 ft
		TOTAL:	**79.0 ft**

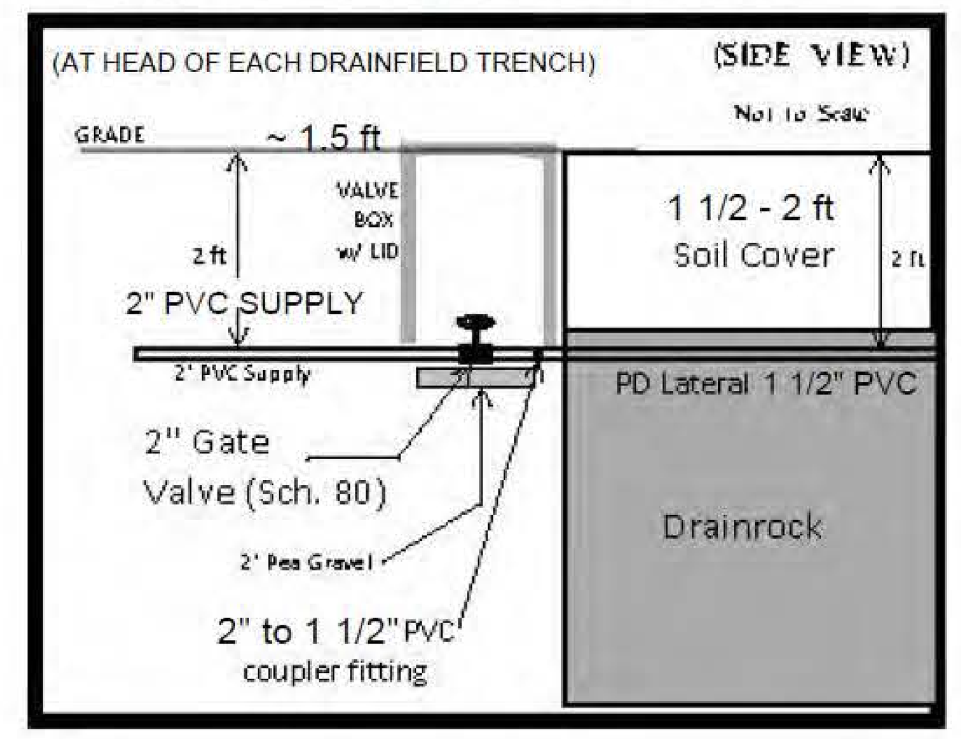
These design points (**27 gpm@ 79 ft**) are labeled on the pump performance curve for the selected pump.

ORENCO HIGH HEAD EFFLUENT PUMP MODEL PF300712

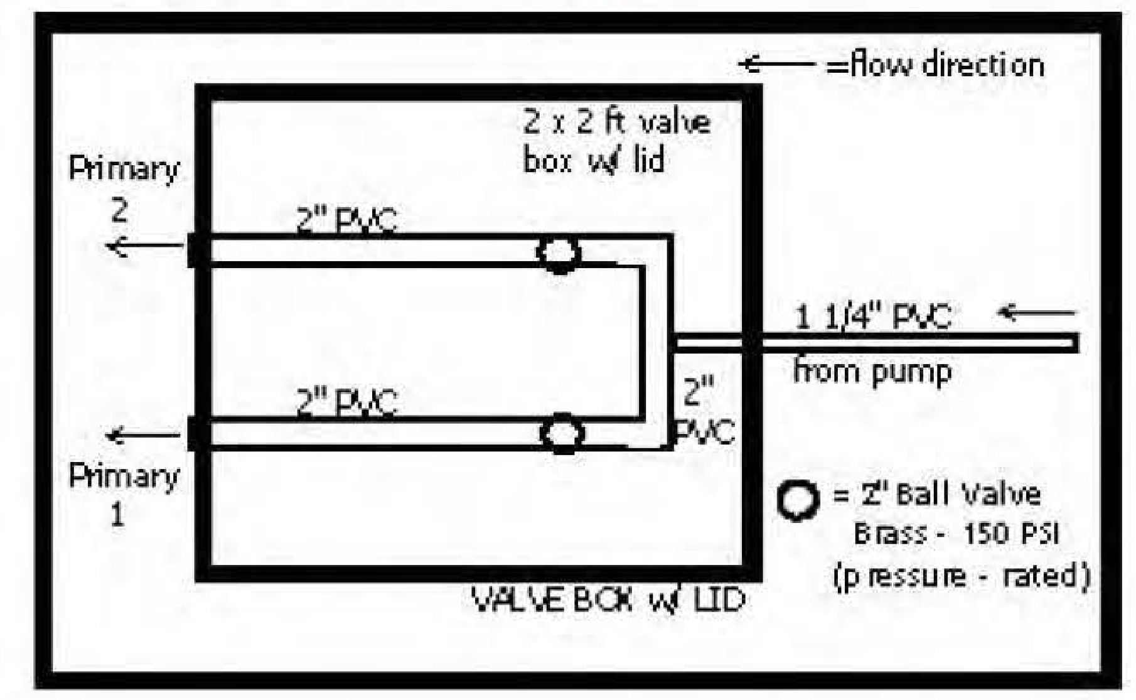
PRESSURE-DOSED TRENCH & LATERALS:


FILTER FABRIC SILT BARRIER
12" MIN. NATIVE TOPSOIL BACKFILL
2" DRAIN ROCK ABOVE PIPE
TRENCH INSPECTION STANDPIPE W/ END CAP
INSPECTION RISER, W/ THREADED END CAP
(SEE DIAGRAM BELOW for DETAIL)
1 1/2" PVC PRESSURE DISTRIBUTION PIPE
3/4" TO 1 1/2" DRAIN ROCK
SIDE VIEW
LEVEL TRENCH BOTTOM ON CONTOUR ELEVATION
(within tolerance of 3 inches per 100 feet)
UTILITY BOX
FINISHED GRADE
FILTER FABRIC SILT BARRIER
12" MIN.
8 ft trench depth
6 ft drainrock under pipe
3/4" TO 1 1/2" DRAIN ROCK
18" TO 24"
END VIEW
Purge Valve & Inspection Riser (At end of each drainfield trench)
Ball valve (Sch. 80) pressure - rated
Threaded Caps
SIDE VIEW (not to scale)
90 degree sweep fitting
4" PVC slotted within drainrock
1 1/2"PVC PD LATERAL
Trench Bottom
Bottom cap
PRESSURE DISTRIBUTION TRENCH
FIGURE 4-5

ADJUSTING VALVE DETAIL:



HEADWORKS DETAIL:



PRESSURE-DOSED LATERAL DETAIL:

Pipe: **1 1/2 inch PVC**	Orifice Size: 3/16"	Orifice Spacing: **36"** o.c.
	Orifice Orientation: **12 O'Clock**, except **last orifice on each line at 6 O'Clock**	

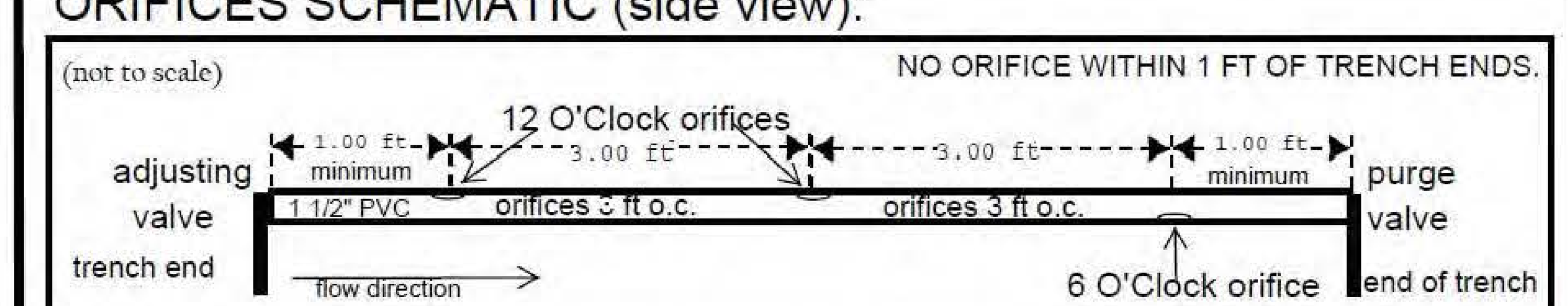
12:00 orientation to minimize clogging // 6:00 orifice allows lateral to drain .

Note: ORIFICES MUST BE DE-BURRED AFTER THEY ARE DRILLED

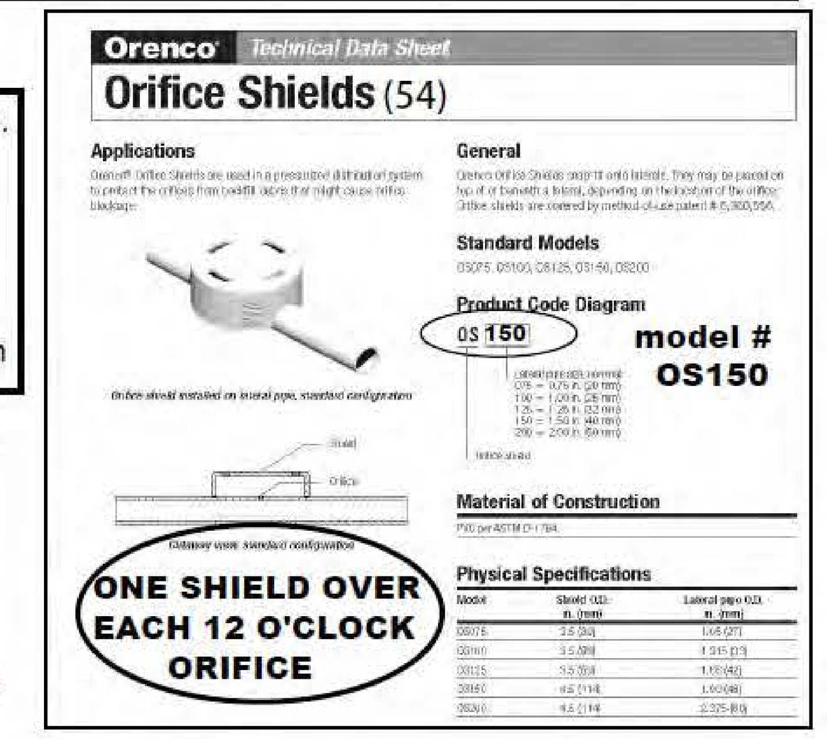
6:00 orifice position (end of line) is least prone to clog.

ORIFICES per LATERAL:		12 O'Clock	6 O'Clock (last orifice)	1st / Last Distance to Trench/Lateral Ends	Total Orifices
1st side of diverter	**90 ft DF TRENCH:**	27	1	36"	28
2nd side of diverter	**50 ft DF TRENCH:**	16	1	24"	17
	40 ft DF TRENCH:	11	1	24"	12
					29

ORIFICES SCHEMATIC (side view):



EXISTING 90 FT DRAINFIELD TRENCH CURRENTLY WAS OBSERVED TO HAVE 3" PERFORATED PVC. THE TRENCH WILL BE EXCAVATED TO REMOVE THE EXISTING PIPE TAKING CARE TO MINIMIZE DIRT THAT MAY FALL INTO THE DRAINROCK BELOW. IF DRAINROCK IS FOUND TO BE DIRTY, FULL OF ROOTS, OR COMPROMISED BY SLUDGE THEN THE ROCK WILL BE EXCAVATED IN ANY SECTION WHERE SUCH CONDITIONS ARE FOUND AND REPLACED WITH NEW CLEAN ROCK. TOP OF DRAINROCK WILL BE LEVELED BEFORE PLACING NEW PRESSURE DOSED PIPE. THE PIPE WILL THEN BE COVERED WITH DRAINROCK AND FILTER FABRIC BEFORE BACKFILLING OF TRENCH.



ORIG	3/7/2020
REV 1:	7/09/2020
REV 2:	

PLAN BY: Christopher Day, R.E.H.S.
P.O. Box 26, Redwood City, CA 94064
Tel. 650-293-1045
Email: christopherdayr@aol.com

OWNER:
Sanjeet Dutta
Tel. 408-644-4064
Email: sanjeetdutta@yahoo.com

250 Bonita Rd., Portola Valley, CA 94028
APN 080-060-570

DETAIL

NEW PRESSURE-DOSED SEPTIC SYSTEM
(To Serve Existing 4 BR House & Allow Proposed Grading)

OWTS 2

C2EARTH, INC.
GEOLOGIC & GEOTECHNICAL ENGINEERING SERVICES

26 June 2020
Document Id. 02891U-02L4
Serial No. 19363

Mr. Sanjeet Dutta
250 Bonita Road
Portola Valley, CA 94028

SUBJECT: SUPPLEMENTAL EVALUATION
PROPOSED SITE RETAINING WALLS AND
LANDSCAPING IMPROVEMENTS
DUTTA PROPERTY
250 BONITA ROAD
SAN MATEO COUNTY, CALIFORNIA

Dear Mr. Dutta:

INTRODUCTION

As requested, we have performed supplemental evaluations of localized slope stability in the areas of the proposed improvements, and have re-reviewed the latest septic plans for the landscaping and retaining wall project to be constructed on your property at 250 Bonita Road in the Los Trancos Woods community of unincorporated San Mateo County, California.

Upp Geotechnology Inc. performed a geotechnical study for the development of the site for a prior owner of the property, and submitted the results of that study in a Geotechnical Investigation report dated 8 February 2001 (Serial No. 10370). Subsequently, you purchased the property and completed the site development. Upp Geotechnology Inc. provided updated recommendations, reviewed project plans, responded to county peer review comments, and observed and tested the geotechnical elements of the site development between 2005 and 2006. Effective 1 January 2012, Upp Geotechnology Inc. closed. C2Earth Inc. acquired the assets of Upp Geotechnology Inc. and continued to provide services for Upp Geotechnology Inc.'s clients under the trade name Upp Geotechnology.

The Upp Geotechnology Inc. 2001 report presented recommendations for structural piers, caissons, and concrete retaining walls, which were utilized in the current design for new walls and stairs to be built on the front and rear of the home. We developed additional recommendations for the project, including recommendations for Keystone block retaining walls which will be used to create a lawn area southeast of your home, and presented those recommendations in our Geotechnical Recommendations letter dated 7 November 2017 (Document Id. 02891U-02L1, published under our trade name, Upp Geotechnology).

We understand from our conversations with you and your septic consultant, that portions of the existing leachfield in the area of the proposed improvements will be removed, and new primary and expansion leachfield areas will be built uphill of the areas of the proposed improvements. The newly configured primary and expansion fields will use pressure-dosed dispersal methods. Because of the proximity of site retaining walls to some of the new drain fields, we developed supplemental recommendations for undrained poured concrete retaining walls, and presented those recommendations in our Supplemental Recommendations and Plan Review letter dated 12 March 2020 (Document Id. 02891U-02L3).

SUPPLEMENTAL SLOPE STABILITY EVALUATION

We understand that the County's Geologic and Geotechnical Peer Review consultant has identified a possible landslide deposit in the area of the proposed improvements from the review of Lidar imagery. Based on our review of stereo-paired aerial photographs and Lidar imagery, we concur that the area may be within a landslide deposit (see Figure 1, Landslide Interpretation Map).

Although geomorphology suggests a landslide in the area of the proposed improvements, prior subsurface observations during the study and construction observations phases for the residence revealed the site to be underlain at shallow depths by dense, indurated Santa Clara formation conglomerate comprised of hard, large boulders in a silty sand matrix. Photographs of exposures of the Santa Clara formation taken during the construction of the residence and driveway retaining walls are presented as Photos 1 through 10. In addition, logs of the prior test pits performed during the study for the residence are also attached. For reference, the locations of the test pits are provided on Figure 2, Updated Site Plan.

Consequently, it is our opinion that, if a landslide exists in the area of the proposed improvements, it is a sufficiently deep feature to have displaced a mass of intact conglomerate. To assess the influence the proposed project has on the overall slope stability, we performed a comparative, static, quantitative slope stability evaluation of the existing and proposed slope configurations as follows:

Overview

The following paragraphs describe the methodology and results of a comparative quantitative slope stability analyses that we performed to evaluate the influence of the proposed project on the slope stability at the subject property. We performed the analyses using the computer program Slide Version 2018 8.029 by Rocscience, Inc., utilizing the GLE/Morgenstern-Price methodology with non-circular Cuckoo slip surface search and surface altering optimization to calculate failure surfaces and the factor of safety against sliding. The analyses were performed in general accordance with the guidelines presented in the Special Publication 117A by the California Geological Survey (2008).

You should note that computer-aided slope stability analyses are mathematical models of the slopes and soil and they contain many assumptions. Slope stability analyses and the generated factors of safety only indicate general slope stability trends. In general, factors of safety below 1.00 indicate a potential failure. However, a slope with a factor of safety of less than 1.00 will not necessarily fail, but the probability of failure will be greater than that for a slope with a higher factor of safety. Conversely, a slope with a factor of safety greater than 1.00 may fail but the probability of stability is higher than that for a slope with a lower factor of safety.

Slope Geometry

We performed the slope stability analyses utilizing the existing and proposed surface profiles depicted on Figure 3, Updated Cross-Section A-A'. We generated this profile using topographic information and proposed retaining wall configurations presented on the project Structural Plan Sheet S1 by Schneider Engineering (Revision 1 dated 10 February 2020). Subsurface information was applied based upon our experience and existing available test pit and construction observations data.

C2EARTH

Soil Strength Parameters

We obtained soil strength parameters for the subsurface materials from the from the published values provided in the Seismic Hazard Zone Report for the Mindego Hill 7½-Minute Quadrangle, Santa Clara County, California (California Geologic Survey, 2002). For the Santa Clara formation (potentially displaced mass of Santa Clara conglomerate) (QTsc), we used the median cohesion along with the recommended phi angle. For the surficial materials (topsoil, colluvium, and fill), we utilized the median cohesion and recommended phi angle for Holocene (Qhc) deposits. In addition, we assigned wet and saturated unit weights based upon prior laboratory testing and our experience in the area. A table of the soil and rock parameters is presented below.

Unit	Phi Angle (degrees)	Cohesion (psf)	Wet Unit Weight (pcf)
Fill/Soil/Colluvium	25	610	120
Santa Clara formation	30	500	125

Soil and Rock Parameters

Slope Stability Analysis Results

Each analysis that we ran searched thousands of potential failure surfaces. The following is a summary of pertinent slope stability analysis results.

Slope Stability Analysis No. 1 and 2 evaluated the potential for global, deep-seated landsliding to occur under static conditions for the current and proposed site conditions, respectively. The lowest factors of safety for each analysis is presented in the following table and graphical illustrations of potential failure surfaces are shown on Figures 4 and 5, Slope Stability Analysis No. 1 and 2).

Analysis No.	Slope	Seismic	Factor of Safety
1	Cross-Section A-A' (Existing)	Static	2.19
2	Cross-Section A-A' (Proposed)	Static	2.25

Slope Stability Analyses and Results

SLOPE STABILITY FINDINGS

Our comparative evaluation revealed the proposed project has no negative influence on the overall stability of the site. Rather, the proposed grading configuration, removing material from on the slope and placing it lower on the slope retained by walls, will yield a slightly increased level of slope stability. Consequently we judge from geologic and geotechnical perspectives, that the proposed project may proceed as planned.

PROPOSED SEPTIC SYSTEM FINDINGS

The proposed on-site wastewater treatment system (OWTS) includes removing two expansion leachfield lines and one primary line in the areas of the proposed improvements, and constructing replacement lines elsewhere on the slope above the proposed improvements and residence. New leachfield lines will be comprised of trenches about 8 feet deep, filled with 6 feet of crushed drainrock, with 1½-inch diameter pressure dosed distribution pipes atop the drainrock. Existing primary leachlines to remain will have the conventional 3-inch drip distribution pipes replaced with 1½-inch diameter pressure dosed distribution pipes.

Based upon the thin layer of soil and colluvium mantling the Santa Clara formation materials on-site, we judge that proposed septic field lines will discharge effluent into the Santa Clara formation conglomerate (see Figure 3). The percolation test rating "A" with a rate of 7.35 inches per hour will result in good downward migration and percolation through the Santa Clara formation conglomerate.

Based on the results of the slope stability evaluation and the above percolation rates, it remains our opinion that the proposed upgraded OWTS will not have a significant impact on the stability of the slopes on the subject property, even though leachlines are within 50 feet of slopes greater than 50 percent. It also remains our opinion that the proposed upgraded OWTS should not degrade the quality of the local groundwater, and it is unlikely that effluent from the leachfield will surface. Furthermore, it is unlikely that effluent introduced into the subsurface soil will present a threat to the public health and safety or create a public nuisance.

The majority of the planned site retaining walls are greater than 10 feet from the nearest proposed primary or expansion leachfield lines, however, short returns at the ends of the walls encroach to within about 5 feet of the leachlines. Where close, the retaining wall heights are less than 1½ feet tall, whereas the start of the nearby leachfield drainrock begins at 2 feet below grade. The retaining walls within 25 feet of the proposed leachfield lines (upper 3 walls) will be poured concrete, pier-supported walls designed and constructed without backdrain systems.

Based upon the above, from geologic and geotechnical engineering perspectives, the proposed upgrades to the OWTS may proceed as planned.

It has been our pleasure to continue to assist you with this project.

Sincerely,
C2Earth, Inc.

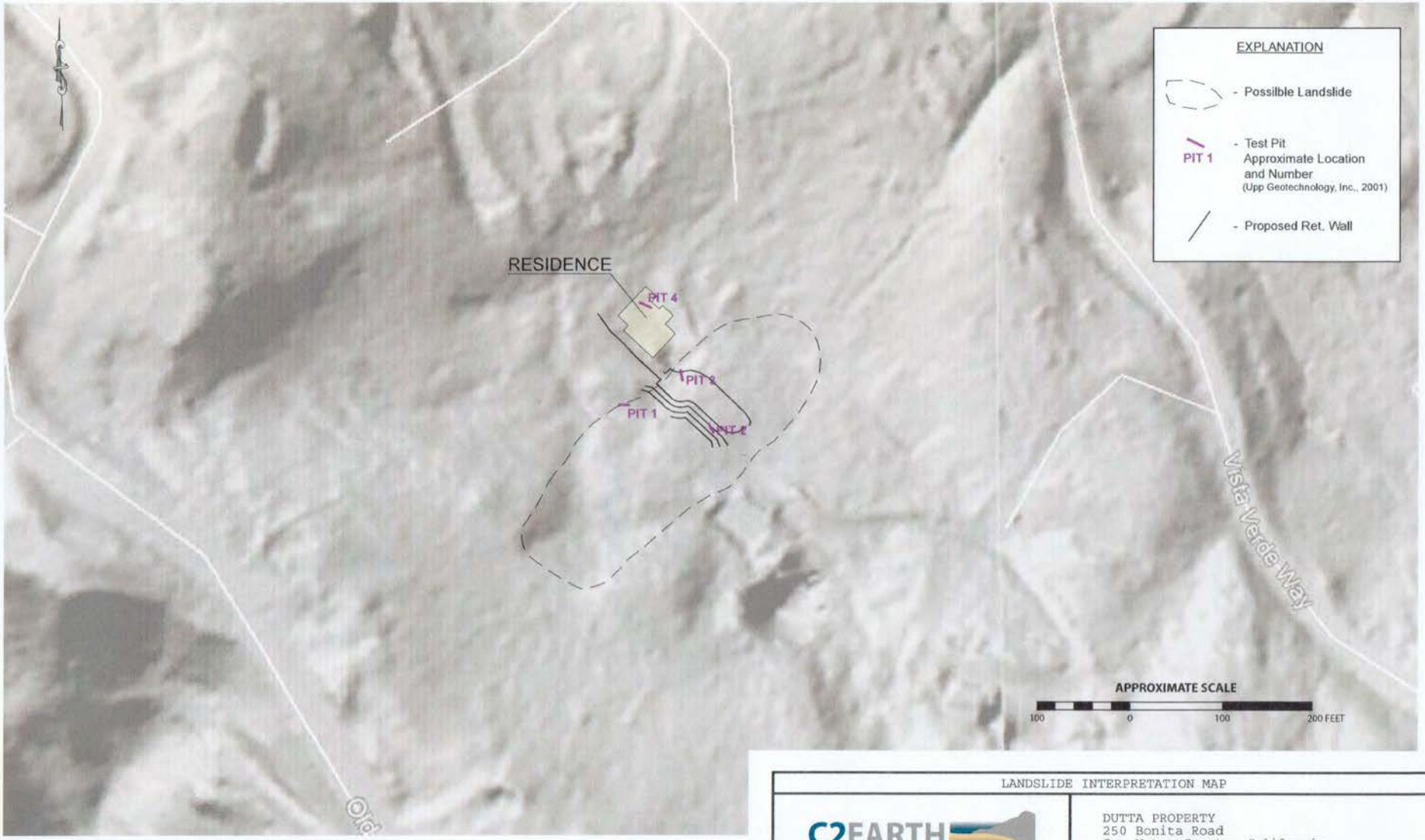
6-26-2020

Christopher R. Hundemer, Principal
Certified Engineering Geologist 2314
Certified Hydrogeologist 882
Registered Civil Engineer 87149

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER R. HUNDEMER
87149
CIVIL
STATE OF CALIFORNIA

Distribution: Addressee (3 via mail and via e-mail to sanjeetdutta@yahoo.com)
Mr. Fred Schneider (via e-mail to fasengineer@sbcglobal.net)
Mr. Christopher Day (via e-mail to christopherdayr@aol.com)

Inclusions: Figure 1: Landslide Interpretation Map
Figure 2: Updated Site Plan
Figure 3: Updated Cross-Section A-A'
Figures 4-5: Slope Stability Results 1 and 2
Photos 1 through 10
Logs of Prior Test Pits 1 through 4 (Upp Geotechnology, Inc., 2001)



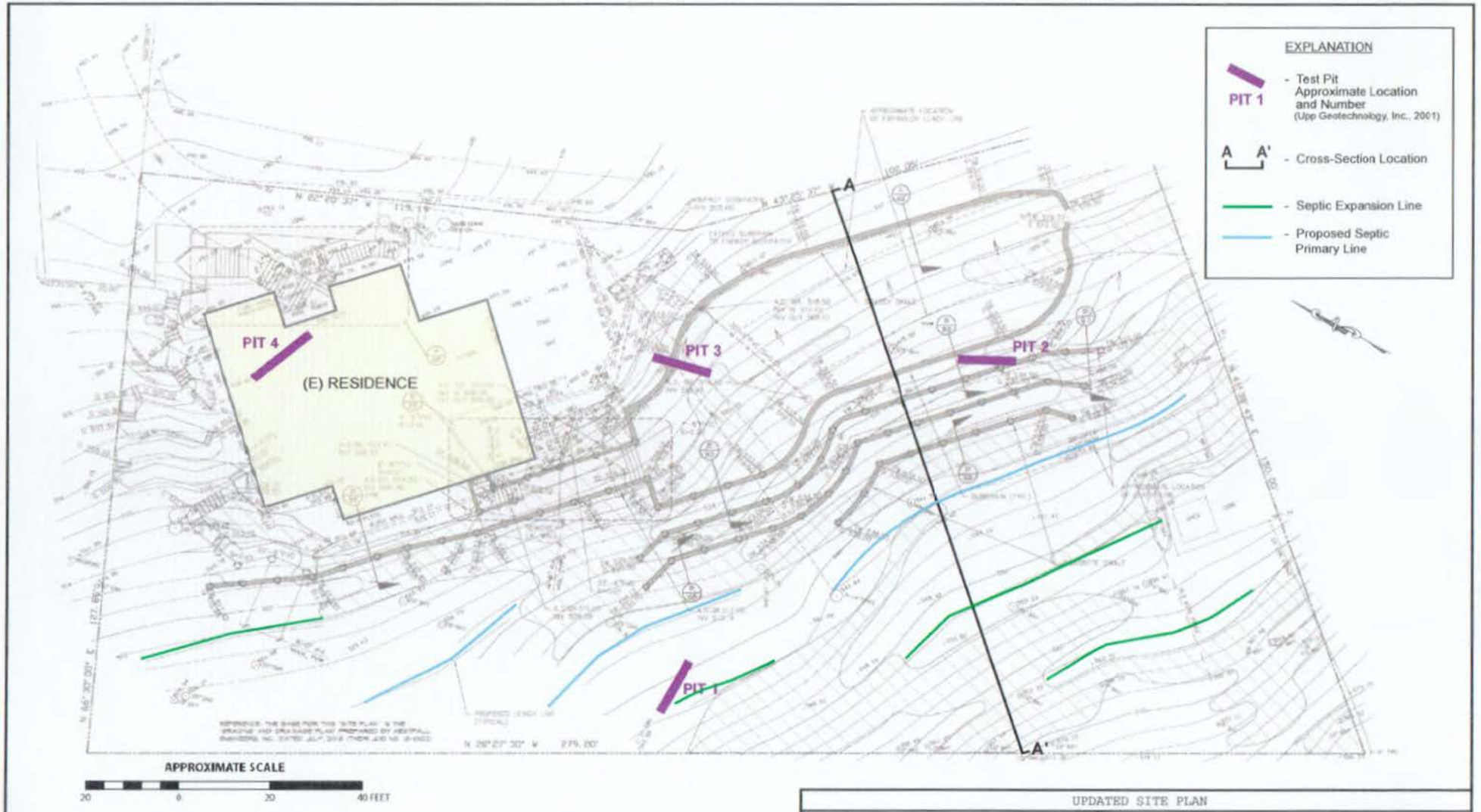
BASE: LiDAR imagery acquired from Earthscope Northern California LiDAR Project; Accessed via Google Earth 22 June 2020

LANDSLIDE INTERPRETATION MAP

C2EARTH

DUTTA PROPERTY
250 Bonita Road
San Mateo County, California

DRAFTED/REVIEWED	SCALE	DOCUMENT ID.	DATE	
KK/CH	As Shown	02891U-02L4	June 2020	Figure 1



NOTE: This plan is a conceptual illustation of observed geotechnical features and should not be used for any other purpose.

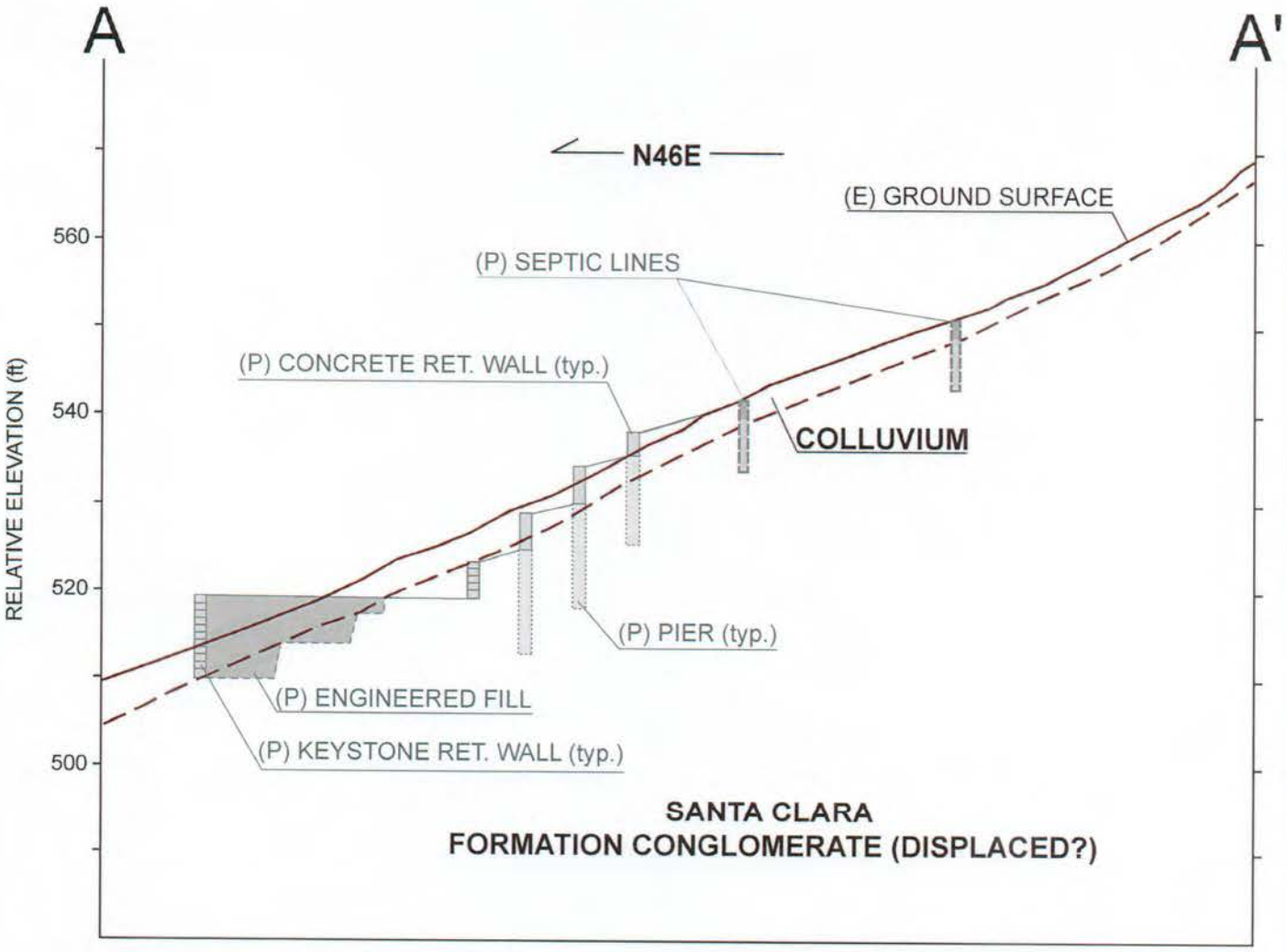
BASE: Site Plan; Sheet S1; SCHNEIDER ENGINEERING; Revision 1 dated 10 February 2020

UPDATED SITE PLAN

C2EARTH

DUTTA PROPERTY
250 Bonita Road
San Mateo County, California

DRAFTED/REVIEWED	SCALE	DOCUMENT ID:	DATE	
KK/CH	As Shown	02891U-02L4	June 2020	Figure 2



NOTE: This cross-section is a conceptual illustration of general subsurface relationships and should not be used for any other purpose.

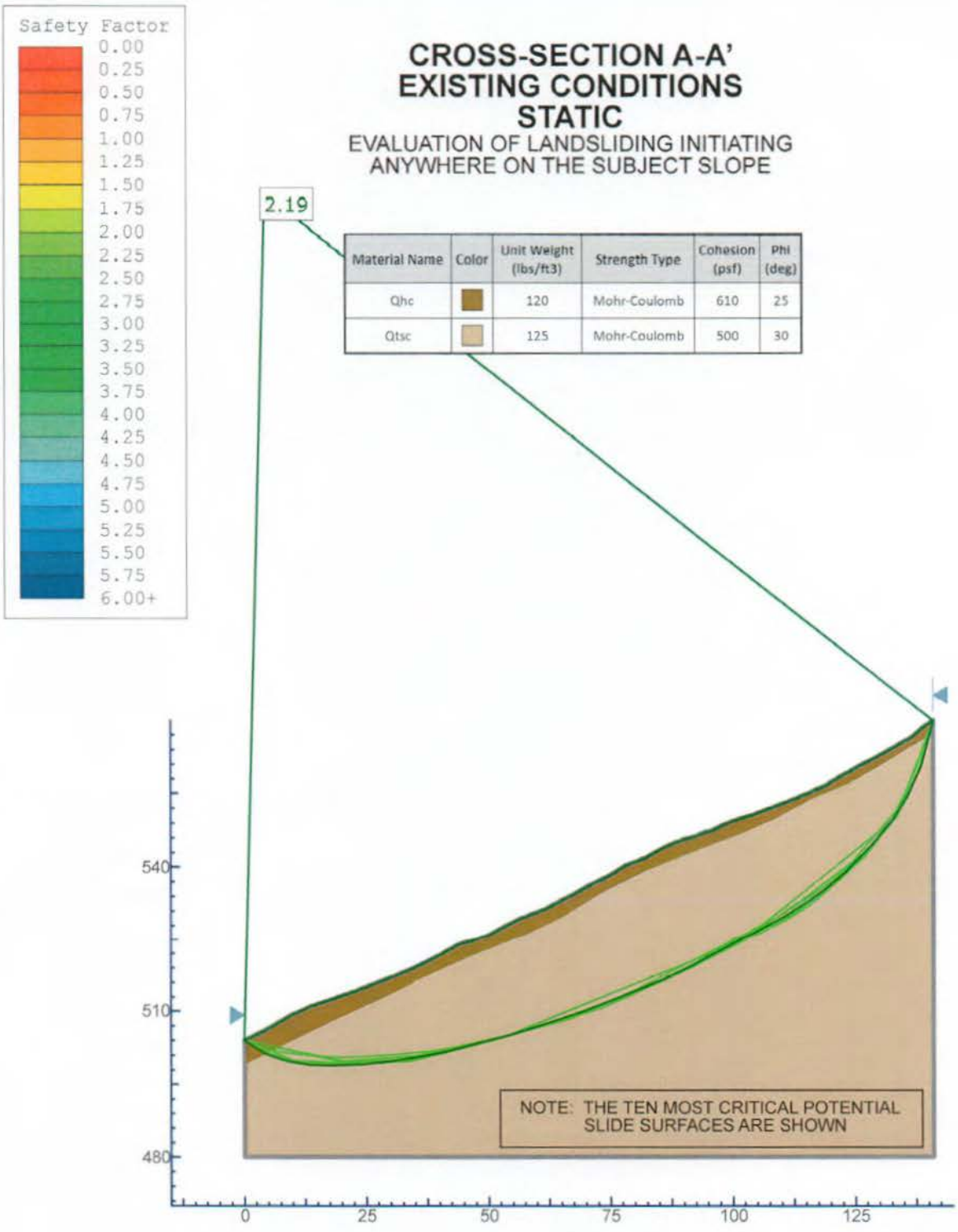
BASE: Site Plan; Sheet S1; SCHNEIDER ENGINEERING; Revision 1 dated 10 February 2020

UPDATED CROSS SECTION A-A'

C2EARTH

DUTTA PROPERTY
250 Bonita Road
San Mateo County, California

DRAFTED/REVIEWED	SCALE	DOCUMENT ID.	DATE	
KK/CH	1" = 20'	02891U-02L4	June 2020	Figure 3



BASE: Slide 2018; ROCSCIENCE, INC.; Version 8.029

SLOPE STABILITY ANALYSIS NO. 1

C2EARTH

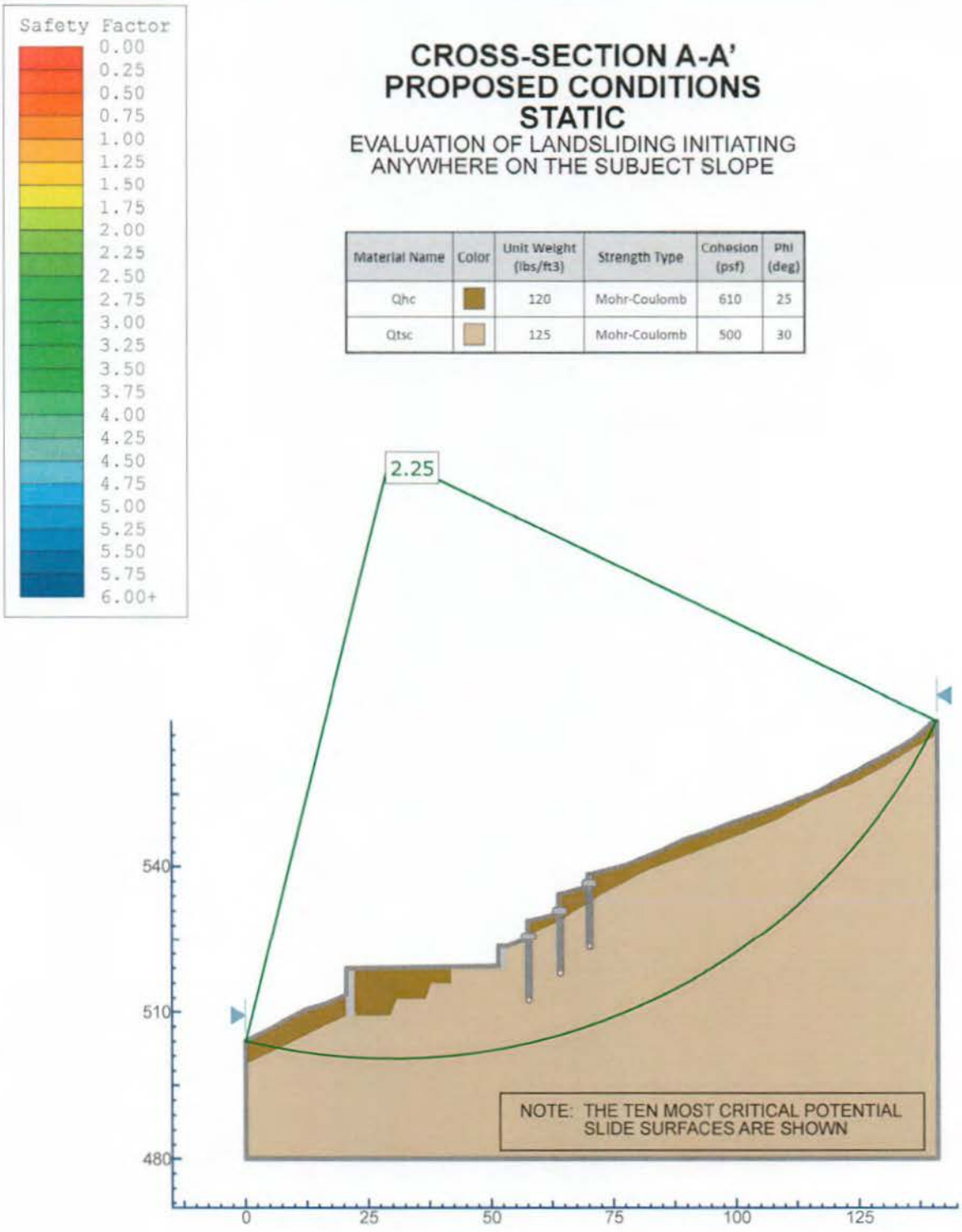
DUTTA PROPERTY
250 Bonita Road
San Mateo County, California

DRAFTED/REVIEWED	SCALE	DOCUMENT ID.	DATE	
KK/CH	As Shown	02891U-02L4	June 2020	Figure 4

CROSS-SECTION A-A'
PROPOSED CONDITIONS
STATIC

EVALUATION OF LANDSLIDING INITIATING
ANYWHERE ON THE SUBJECT SLOPE

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
Qhc		120	Mohr-Coulomb	610	25
Qtsc		125	Mohr-Coulomb	500	30



BASE: Slide 2018; ROCSCIENCE, INC.; Version 8.029

SLOPE STABILITY ANALYSIS NO. 2

C2EARTH

DUTTA PROPERTY
250 Bonita Road
San Mateo County, California

DRAFTED/REVIEWED	SCALE	DOCUMENT ID.	DATE	
KK/CH	As Shown	02891U-02L4	June 2020	Figure 5

PHOTO 1

PHOTO 2

PHOTO 3

PHOTO 4

PHOTO 5

PHOTO 6

PHOTO 7

PHOTO 8

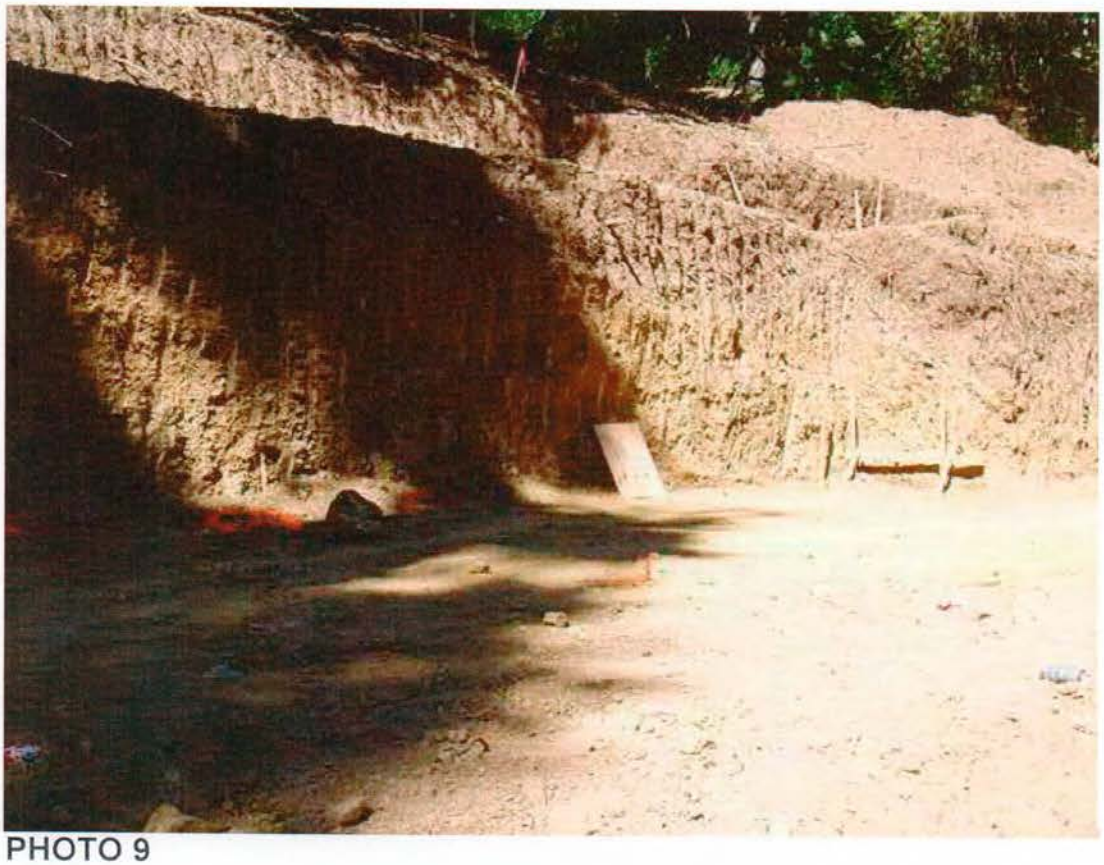
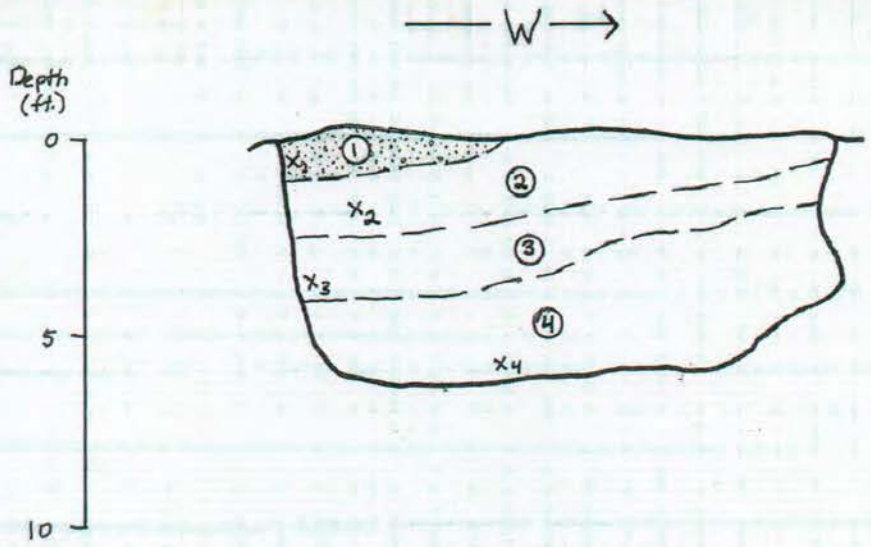


PHOTO 9

PHOTO 10



1. **SILTY SAND to SANDY SILT (ML)**; dark brown; heterogeneous with 10-20% rounded to angular rock fragments to 1½-inch diameter; fine- to coarse-grained; slightly plastic; moist; abundant rootlets (Fill)

2. **SANDY SILT (ML)**; very dark brown; homogeneous; <5% small rock fragments; fine- to medium-grained; subrounded; plastic; moist; abundant organics (Buried Topsoil)

3. **SANDY SILT (ML)**; very dark grayish brown; heterogeneous with 10-20% small, subrounded to angular rock fragments to 1-inch diameter; fine- to medium-grained; moist; trace roots and organics (Colluvium)

4. **CONGLOMERATE**; variegated color; rounded to subrounded rock fragments in a dark yellowish brown silty sand matrix; heterogeneous; very fine- to medium grained; rocks to 4-inch diameter; moist; trace organics (Santa Clara Formation)

SUMMARY OF LABORATORY TEST RESULTS

SAMPLE NUMBER	DEPTH (ft)	MOISTURE CONTENT (%)
1	1	17
2	2	16
3	4	13
4	6	7

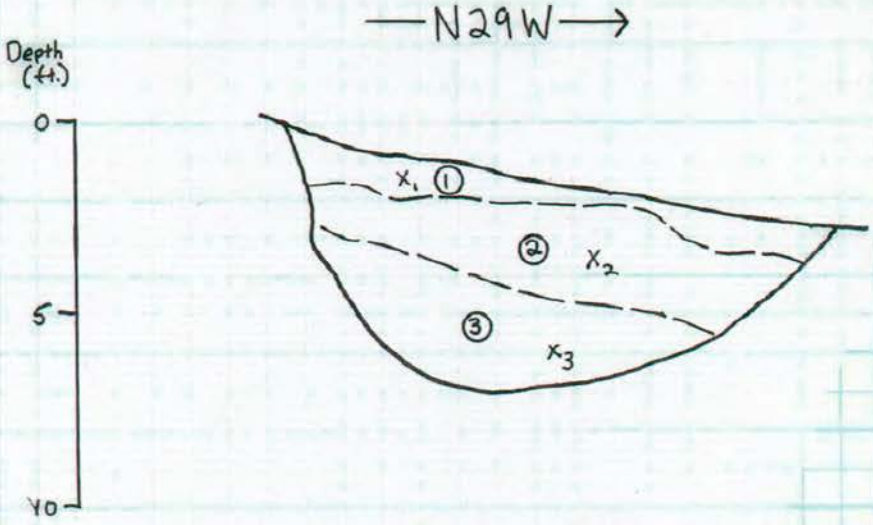
LOGGED BY: C. Hundemer; UPP GEOTECHNOLOGY, INC.; 1-5-01

LOG OF EXPLORATION PIT 1

UPP GEOTECHNOLOGY, INC.
Engineering Geology • Geotechnical Engineering

LANDS OF LATIMER
247 Bonita Road
San Mateo County, California

APPROVED BY	SCALE	PROJECT NO.	DATE	
PH.	1" = 5'	2054.2R1	February 2001	Figure 8



1. **SANDY SILT (ML)**; very dark grayish brown; heterogeneous with 10-20% rounded to subrounded rock fragments to 1-inch diameter; slightly plastic; fine- to medium-grained; subrounded; moist; abundant organics (Topsoil)

2. **SANDY SILT (ML)**; very dark brown; heterogeneous with 10-20% small, angular to subrounded rock fragments; moist; moderately plastic; trace organics (Colluvium)

3. **CONGLOMERATE**; variegated color; rounded to subrounded rock fragments in a dark yellowish brown to dark brown silty sand matrix; heterogeneous; very fine- to medium grained; rocks to 4-inch diameter; moist; trace organics (Santa Clara Formation)

SUMMARY OF LABORATORY TEST RESULTS

SAMPLE NUMBER	DEPTH (ft)	MOISTURE CONTENT (%)
1	1	16
2	2	16
3	4½	9

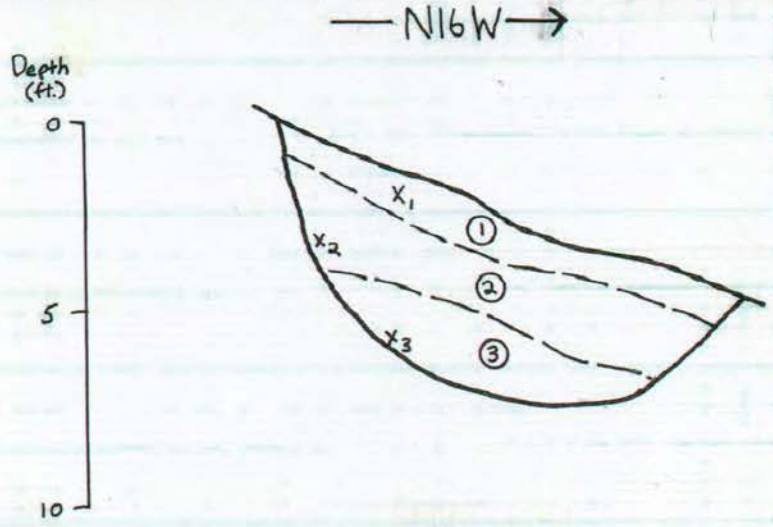
LOGGED BY: C. Hundemer; UPP GEOTECHNOLOGY, INC.; 1-5-01

LOG OF EXPLORATION PIT 2

UPP GEOTECHNOLOGY, INC.
Engineering Geology • Geotechnical Engineering

LANDS OF LATIMER
247 Bonita Road
San Mateo County, California

APPROVED BY	SCALE	PROJECT NO.	DATE	
CH	1" = 5'	2054.2R1	February 2001	Figure 9



1. **SANDY SILT (ML)**; very dark grayish brown to black; heterogeneous with 10-15% subrounded to subangular rock fragments to 1-inch diameter; slightly plastic; fine- to medium-grained; subrounded; moist; abundant organics (Topsoil)

2. **SANDY SILT to SILTY SAND (ML/SM)**; dark grayish brown; heterogeneous with 10-20% small, angular to subrounded rock fragments; moist; moderately plastic; trace organics (Colluvium)

3. **CONGLOMERATE**; variegated color; rounded to angular rock fragments to 3-inch diameter in a brown to yellowish brown silty sand matrix; indurated; very fine- to fine-grained; subrounded to subangular; dry to slightly moist (Santa Clara Formation)

SUMMARY OF LABORATORY TEST RESULTS

SAMPLE NUMBER	DEPTH (ft)	MOISTURE CONTENT (%)
1	1	17
2	3	10
3	5	8

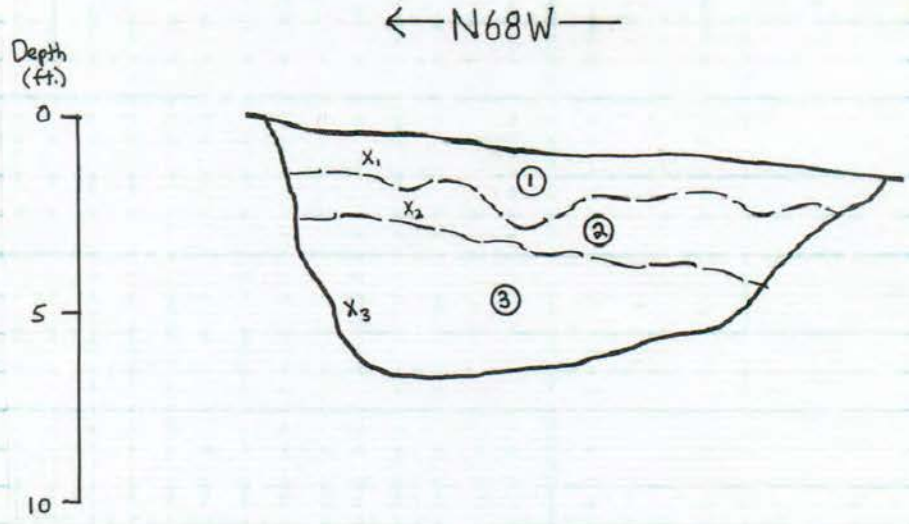
LOGGED BY: C. Hundemer; UPP GEOTECHNOLOGY, INC.; 1-5-01

LOG OF EXPLORATION PIT 3

UPP GEOTECHNOLOGY, INC.
Engineering Geology • Geotechnical Engineering

LANDS OF LATIMER
247 Bonita Road
San Mateo County, California

APPROVED BY	SCALE	PROJECT NO.	DATE	
CJH.	1" = 5'	2054.2R1	February 2001	Figure 10



1. **SILT (ML)**; black; heterogeneous with 5-10% angular to subrounded sand and rock frgments; moist; abundant roots and decaying organics (Topsoil)

2. **CLAYEY SAND to SILTY SAND (SC/SM)**; dark yellowish brown; heterogeneous with 10-20% small, angular to subrounded rock fragments; moist; moderately plastic; trace organics (Colluvium)

3. **CONGLOMERATE**; variegated color; rounded to angular rock fragments to 8-inch diameter in a yellowish brown silty sand matrix; indurated; very fine- to fine-grained; subrounded to subangular; dry to slightly moist (Santa Clara Formation)

SUMMARY OF LABORATORY TEST RESULTS

SAMPLE NUMBER	DEPTH (ft)	MOISTURE CONTENT (%)
1	½	32
2	2	12
3	4½	7

LOGGED BY: C. Hundemer; UPP GEOTECHNOLOGY, INC.; 1-5-01

LOG OF EXPLORATION PIT 4

UPP GEOTECHNOLOGY, INC.
Engineering Geology • Geotechnical Engineering

LANDS OF LATIMER
247 Bonita Road
San Mateo County, California

APPROVED BY	SCALE	PROJECT NO.	DATE	
CH	1" = 5'	2054.2R1	February 2001	Figure 11

C2EARTH, INC.
GEOLOGIC & GEOTECHNICAL ENGINEERING SERVICES

12 March 2020
Document Id. 02891U-02L3
Serial No. 19275

Mr. Sanjeet Dutta
250 Bonita Road
Portola Valley, CA 94028

SUBJECT: SUPPLEMENTAL RECOMMENDATIONS AND PLAN REVIEW
PROPOSED SITE RETAINING WALLS AND
LANDSCAPING IMPROVEMENTS
DUTTA PROPERTY
250 BONITA ROAD
SAN MATEO COUNTY, CALIFORNIA

Dear Mr. Dutta:

INTRODUCTION

As requested, we have developed supplemental recommendations and have reviewed project septic and structural plans and calculations for the proposed site retaining walls and landscaping improvements to be constructed on your property at 250 Bonita Road in the Los Trancos Woods community of unincorporated San Mateo County, California. Upp Geotechnology Inc. performed the geotechnical study for the development of the site for a prior owner of the property, and submitted the results of that study in a Geotechnical Investigation report dated 8 February 2001 (Serial No. 10370). Subsequently, you purchased the property and completed the site development. Upp Geotechnology Inc. provided updated recommendations, reviewed project plans, responded to county peer review comments, and observed and tested the geotechnical elements of the site development between 2005 and 2006.

The Upp Geotechnology Inc. 2001 report presented recommendations for structural piers, caissons, and concrete retaining walls, which were utilized in the current design for new walls and stairs to be built on the front and rear of the home. Effective 1 January 2012, Upp Geotechnology Inc. closed. C2Earth Inc. acquired the assets of Upp Geotechnology Inc. and continued to provide services for Upp Geotechnology Inc.'s clients under the trade name Upp Geotechnology. At your request, we also developed supplemental recommendations for the project, including recommendations for Keystone block retaining walls which will be used to create a lawn area southeast of your home, and presented those recommendations in our Geotechnical Recommendations letter dated 7 November 2017 (Document Id. 02891U-02L1, published under our trade name, Upp Geotechnology). We understand from our conversations with you and with your septic consultant, that portions of the existing leachfield in the area of the proposed improvements will be removed, and new primary and expansion leachfield areas will be built uphill of the areas of the proposed improvements. The newly configured primary and expansion fields will use pressure-dosed dispersal methods.

SUPPLEMENTAL RECOMMENDATIONS

The location of the leachfield requires that site retaining walls immediately downslope of the leachfield area be designed as undrained, poured concrete walls. Additionally, we understand that you are planning to support new front entry stairs on drilled piers. Consequently, we have developed the following supplemental recommendations for pier-supported undrained poured concrete retaining walls and entry stair piers:

- Drill piers with a minimum diameter of 16 inches and embed them a minimum of 8 feet into the underlying Santa Clara formation materials.
- Design and construct drilled piers no closer than 3 pier diameters apart (measured center of pier to center of pier).

- Design the portion of the piers in the supportive bedrock using a skin friction value of 450 psf for dead plus live loads, with a 1/3 increase for transient loads, including wind and seismic.
- Neglect any portion of the piers in fill and/or non-supportive colluvium and any point-bearing resistance for support.
- Design for resistance to lateral loads using a passive pressure equal to an equivalent fluid weight of 400 pcf to a maximum of 3,000 psf taken over **1½ times** the pier diameter for the length of the piers in the Santa Clara formation.
- Design undrained, (active condition) site retaining walls to resist an equivalent fluid pressure of 90 pcf. Add an additional equivalent fluid pressure increment to the active and at-rest condition for backfill steeper than 4:1 (horizontal to vertical), in accordance with the following:

  + 8 pcf for slopes between 3:1 and 4:1
  + 12 pcf for slopes between 2:1 and 3:1
  + Contact us for slopes steeper than 2:1

- Site walls less than 6 feet tall are not subject to additional earthquake loading requirements.

PLAN REVIEW

We have reviewed the following structural plans and calculations for the proposed improvements to your property, along with the following new septic plans for the property:

- Plan Sheets S1 through S4 (Revision 1 dated 10 February 2020) by Schneider Engineering;
- Structural Calculations (dated 10 February 2020) by Schneider Engineering.
- Septic Plan Sheets OWTS 1 and OWTS 2 (dated 7 March 2020) by Christopher Day, R.E.H.S.

Our plan review was made from a soil and foundation engineering viewpoint; no review was made of other aspects of the project design, such as project structural engineering. Based on our review, it is our opinion, the above referenced plans and calculations appear to be in general conformance with the recommendations of our reports. However, we make no representation as to the accuracy of dimensions, measurements, calculations or any portion of the design, other than that covered by our recommendations.

Sincerely,
C2Earth, Inc.

5-13-2020

Christopher R. Hundemer, Principal
Certified Engineering Geologist 2314
Certified Hydrogeologist 882
Registered Civil Engineer 87149

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER R. HUNDEMER
87149
CIVIL
STATE OF CALIFORNIA

Distribution: Addressee (3 via mail and via e-mail to sanjeetdutta@yahoo.com)
Mr. Fred Schneider (via e-mail to fasengineer@sbcglobal.net)
Mr. Christopher Day (via e-mail to christopherdayr@aol.com)

11 January 2019
Document Id. 02891U-02L2
Serial No. 18771

Mr. Sanjeet Dutta
250 Bonita Road
Portola Valley, CA 94028

SUBJECT: PLAN REVIEW
PROPOSED SITE RETAINING WALLS AND
LANDSCAPING IMPROVEMENTS
DUTTA PROPERTY
250 BONITA ROAD
SAN MATEO COUNTY, CALIFORNIA

Dear Mr. Dutta:

As you requested, we have reviewed the following plans and calculations for the proposed site retaining walls and landscaping improvements to be constructed on your property at 250 Bonita Road in the Los Trancos Woods community of unincorporated San Mateo County, California:

- Structural Plan Sheets S1 through S4 by Schneider Engineering dated December 2018
- Structural Calculations by Schneider Engineering dated 10 December 2018

We previously performed the geotechnical study for the development of the site for a prior owner of the property, and submitted the results of that study in a Geotechnical Investigation report dated 8 February 2001 (Serial No. 10370). Subsequently, you purchased the property and completed the site development. We provided updated recommendations, reviewed project plans, responded to county peer review comments, and observed and tested the geotechnical elements of the site development between 2005 and 2006.

Our 2001 report presented recommendations for structural piers, caissons, and concrete retaining walls, which were utilized in the current design for new walls and stairs to be built on the front and rear of the home. At your request, we also developed supplemental recommendations for the project, including recommendations for Keystone block retaining walls which will be used to create a lawn area southeast of your home, and presented those recommendations in our Geotechnical Recommendations letter dated 7 November 2017 (Document Id. 02891U-02L1).

Our plan review was made from a geotechnical engineering viewpoint; no review was made of other aspects of the project design, such as project structural engineering. Based on our review, we find the plans and calculations to be in general conformance with the recommendations of our 2001 report and 2017 letter. However, we make no representation as to the accuracy of dimensions, measurements, calculations or any portion of the design, other than that covered by our recommendations.

We appreciate the opportunity to continue to assist you with your project.

Sincerely yours,
Upp Geotechnology
a division of C2Earth, Inc.

1-11-19

Christopher R. Hundemer, Principal
Certified Engineering Geologist 2314
Certified Hydrogeologist 882
Registered Civil Engineer 87149

Distribution: Addressee (3 via mail and via e-mail to sanjeetdutta@yahoo.com)
Mr. Fred Schneider (via e-mail to fasengineer@sbcglobal.net)

UPP GEOTECHNOLOGY
Engineering Geology • Geotechnical Engineering
a division of C2EARTH, INC.

7 November 2017
Document Id. 02891U-02L1
Serial No. 18250

Mr. Sanjeet Dutta
250 Bonita Road
Portola Valley, CA 94028

SUBJECT: GEOTECHNICAL RECOMMENDATIONS
PROPOSED SITE RETAINING WALLS AND
LANDSCAPING IMPROVEMENTS
DUTTA PROPERTY
250 BONITA ROAD
SAN MATEO COUNTY, CALIFORNIA

Dear Mr. Dutta:

INTRODUCTION

As requested, we are pleased to have developed updated geotechnical recommendations for the proposed landscaping improvements to your property at 250 Bonita Road in the Los Trancos Woods community of unincorporated San Mateo County, California.

The current project involves constructing a generally flat lawn area on the hillside southeast of your home. Segmented block retaining walls (SRWs) will be constructed on both the uphill and downhill sides of the lawn area to support cuts and fills to create the flat pad. We also anticipate that a paver-covered path will be constructed leading from the backdoor of your residence to the lawn area. An unpaved landscaping path is also planned to lead from the driveway to the area behind the home on the slope on the northwest side of the home, and new wooden stairs are planned to lead from the driveway to the home's front entry. The approximate locations of the proposed improvements are provided on Figure 1, Partial Site Plan.

We previously performed the geotechnical study for the development of the site for a prior owner of the property, and submitted the results of that study in a report dated 8 February 2001. Subsequently, you purchased the property and completed the site development. We provided updated recommendations, reviewed project plans, responded to county peer review comments, and observed and tested the geotechnical elements of the site development between 2005 and 2006.

The purpose of this supplemental evaluation was to develop updated geotechnical engineering recommendations for the currently proposed improvements. Although information from our prior study and construction observations was used to develop these updated recommendations, this letter serves as a stand-alone document for the currently proposed project.

SCOPE OF SERVICES

We conducted this study in accordance with the scope and conditions presented in our proposal dated 29 September 2017 (Document Id. 02891U-02P1). We make no other warranty, either expressed or implied. Our scope of services for this study included:

- reviewing of selected geologic literature and our previous report and construction observations data of the subject property to evaluate the prevailing geologic and geotechnical engineering conditions;
- updating a partial site plan and preparing a slope profiles (based upon a proposed improvements plan that was provided to us);
- consulting with your project designer;
- analyzing geotechnical engineering properties from collected data; and
- preparing this letter.

We have prepared this letter as a product of our service for your exclusive use for the proposed landscaping improvements to the subject property. Other parties may not use this report, nor may the report be used for other purposes without prior written authorization from Upp Geotechnology, a division of C2Earth, Inc (C2).

SITE CONDITIONS

Our principal engineer/geologist visited the site on 21 September 2017 to meet with you to discuss the project and observe the site conditions in the area of the proposed lawn. The proposed lawn and associated retaining walls are planned for the gentle to moderately steep slope southeast of the residence. The proposed lawn is planned to be at a relative elevation of about 518 to 519, which will require constructing a wall up to about 5 feet tall on the downslope side of the yard area, and a series of terraced walls 2 ½ to 4 feet tall on the uphill side. The ground surface between the terraced walls will have a gradient of about 2:1 (horizontal to vertical). Based on our prior subsurface exploration and observations of drilled piers and excavations for the residence, driveway, and existing retaining walls, we anticipate up to about 3 feet of non-supportive soil and colluvium mantling the supportive Santa Clara formation materials in the area of the proposed improvements. Our interpretation of the subsurface conditions in the area of the improvements is presented on Figure 2, Cross-Section A-A'.

RECOMMENDATIONS

Because the project is still in a relatively early phase of development, it is conceivable that changes and additions will be made to the proposed development concept following submission of this letter. We recommend that as various changes and additions are made, we be consulted to evaluate the geotechnical aspects of these modifications.

The following recommendations must be incorporated into all aspects of the proposed landscaping improvements.

Seismic Design Criteria

We recommend that the project design engineer provide appropriate seismic design criteria for proposed foundations and associated improvements. The following information is intended to aid the project structural design engineer to this end and is based on criteria set forth in the 2016 California Building Code (CBC). The mapped spectral accelerations and site coefficients were computed using the Beta version of the USGS Seismic Design Maps application with the 2015 NEHRP Recommended Seismic Provision, which are being incorporated into the 2016 ASCE 7 Standard.

Design Parameters

Latitude = 37.3443°
Longitude = -122.1995°
Site Class = C
$S_s = 2.453$
$S_1 = 1.028$
$F_a = 1.2$
$F_v = 1.4$

Experience has shown that earthquake-related distress to structures can be substantially mitigated by quality construction. We recommend that a qualified and reputable contractor and skilled craftsmen build the associated improvements. We also recommend that the project structural design engineer and project architect monitor the construction to make sure that their designs and recommendations are properly interpreted and constructed.

Earthwork

At the time of this study, the full extent of any proposed earthwork had not been finalized. We anticipate that a moderate amount of grading will be required to construct the proposed landscaping improvements. Any proposed earthwork should be performed in accordance with the recommendations provided below.

Clearing and Site Preparation

- Clear all obstructions, including brush, trees not designated to remain, and debris on any areas to be graded.
- Clear and backfill any holes or depressions resulting from the removal of underground obstructions below proposed finished subgrade levels with suitable material compacted to the requirements for engineered fill given below.
- After clearing, strip the site to a sufficient depth to remove all surface vegetation and organic-laden topsoil. We estimate that a stripping depth of approximately 3 inches would be required on natural slope areas. This material must not be used as engineered fill; however, it may be used for landscaping purposes.

Fill Material

- Based on our prior study and prior construction observations, it is our opinion that on-site colluvial and Santa Clara formation materials should be suitable for use as fill. On-site or imported materials must meet the requirements specified below to be used as engineered fill.
- Materials used for engineered fill must meet the following requirements:
  - have an organic content less than 3% by volume,
  - no rocks or lumps greater than 6 inches in maximum dimension, and
  - no more than 15% of the fill may be greater than 2½ inches in maximum dimension.
- If on-site materials do not meet the requirements given above, they may be off-hauled or used for landscaping purposes only.
- In addition to the requirements above, any import fill must have a plasticity index (PI) of 15% or less.
- **Contact C2 with samples of proposed fill materials at least four days prior to fill placement for laboratory testing and evaluation.**

Keyways and Benches

- Fill placed on slopes in excess of 5:1 must be benched into the underlying Santa Clara formation to provide a firm, stable surface for support of the fill.
- Where not supported by retaining walls, the toe of proposed fill must be supported by a keyway excavated a minimum of 3 feet into the supportive Santa Clara formation, as measured on the downhill side of the keyway. We anticipate that the top of the supportive material / bedrock will be about 3 to 4 feet below existing grade.
- Benches generally must be a minimum of 5 feet wide and must be excavated entirely into the supportive material.
- Temporary back slopes may be vertically excavated provided they are constructed in the dry season and meet Cal OSHA requirements.
- Both the keyway and any required benches must be excavated near level in the direction parallel to the natural slope and must be provided with an approximately 2% gradient sloping into the hillside to provide resistance to lateral movement.
- **Contact C2 to evaluate the actual location, size, and depth of the required keyway and benches at the time of construction.**

Compaction Procedures

- Prior to fill placement, scarify the surface to receive the fill to a depth of 6 inches.
- Moisture condition the imported fill to the materials' approximate optimum moisture content.
- Spread and compact the fill in lifts not exceeding 8 inches in loose thickness.
- Compact the fill to at least 90% relative compaction by the Modified Proctor Test method, in general accordance with the ASTM Test Designation D1557 (latest revision).
- **Contact C2 to observe the placement and test the compaction of engineered fill.** Provide at least two working days notice prior to placing fill.

Permanent Slopes

- Construct the gradients of cut or fill slopes to no steeper than 2:1.
- Re-vegetate all graded surfaces or areas of disturbed ground prior to the onset of the rainy season following construction to control soil erosion.
- Install other erosion control provisions if vegetation is not established by the rainy season.
- Maintain ground cover vegetation once it is established to provide long-term erosion control.

Trench Backfill

- Backfill any utility trench with compacted engineered fill.
- Place suitable on-site soil into the trenches in lifts not exceeding 8 inches in uncompacted thickness, and compact it to at least 90% relative compaction by mechanical means only.
- If imported sand is used, compact it to at least 90% relative compaction. Do not use water jetting to obtain the minimum degree of compaction in imported sand backfill. If the trench is greater than 50 feet long, located on sloping ground greater than 5:1 (horizontal to vertical), and is backfilled with sand, check dams should be installed to reduce the potential of the sand washing out.
- **Contact C2 to observe and test compaction of the fill.**

Segmented Block Retaining Walls

- We anticipate that the proposed retaining walls uphill and downhill of the proposed lawn area will be constructed as flexible segmented block retaining walls (SRW). Based on proposed wall heights, we anticipate that the uphill walls will be designed and constructed as gravity walls, while the taller lower wall will be designed and constructed using geogrid reinforcement.

- We recommend that the SRWs be designed and constructed in general accordance with the manufacturer's recommendations, including being provided with geogrid reinforcement, if necessary.
- The following material parameters may be used for the SRW design. For the Santa Clara formation (foundation materials), use a unit weight of 125 pcf, an internal angle of friction of 30 degrees, and negligible cohesion with an allowable bearing capacity of 2,000 psf. For engineered fill or on-site soil or colluvial materials (backfill materials), use a unit weight of 120 pcf, an internal angle of friction of 25 degrees, and negligible cohesion.
- Site walls are not subject to additional earthquake loading requirements.
- Construct the SRWs so that a minimum of one layer of blocks is keyed into the underlying Santa Clara formation materials below any soil or colluvium.
- Calculate the wall height from the bottom of the lowest block to the top of the upper block.
- Apply appropriate surcharge loading for sloping ground at the top of the retaining wall in accordance with the manufacturer's recommendations.
- Provide drainage provisions to prevent the build up of hydrostatic pressure in accordance with the manufacturer's recommendations and the recommendations presented in the preceding section for basement retaining walls.
- **Contact C2 to observe the excavation prior to placement of the SRW blocks** to evaluate if the blocks are founded in material of sufficient supporting capacity.
- **Contact C2 to observe the placement of geogrid and test the compaction of backfill.**

Flatwork

We anticipate that flatwork leading from the house to the lawn will be comprised of flexible pavers. Because of the potential for differential fill or soil thickness beneath the pavers, we judge that there is a risk of minor ongoing cosmetic damage to the flatwork. It should be anticipated that periodic maintenance to level or repair pavers may be necessary. To mitigate (but not eliminate) the risk from differential movement to the pavers, we recommend that, where practical, you remove and recompact fill and soil to be a uniform thickness of engineered fill beneath the walkway.

Other Elements

Other elements that are planned, such as the decomposed gravel pathway, low landscaping walls less than 2 feet tall, and the new wooden entry steps do not require geotechnical input, and are outside of our scope of evaluation. If you would like us to provide specific geotechnical recommendations for these elements, please contact us.

PLAN REVIEW AND CONSTRUCTION OBSERVATION

We must be retained to review the final grading, retaining wall, and drainage control plans, in order to verify that our recommendations have been properly incorporated into the proposed project. In addition, we must also observe and document the geotechnical construction aspects of the project.

Sincerely yours,
Upp Geotechnology
a division of C2Earth, Inc.

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER R. HUNDEMER
87149
CIVIL
STATE OF CALIFORNIA

Christopher R. Hundemer, Principal
Certified Engineering Geologist 2314
Certified Hydrogeologist 882
Registered Civil Engineer 87149

THIS DOCUMENT HAS BEEN DIGITALLY SIGNED

Distribution: Addressee (2 via mail and via e-mail to sanjeetdutta@yahoo.com)
Ms. Adriana Carias (via e-mail to acarias@lsls.net)

Inclusions: Figure 1, Partial Site Plan
Figure 2, Cross-Section A-A'

NOTE: This plan is a conceptual illustration of observed geotechnical features and should not be used for any other purpose.

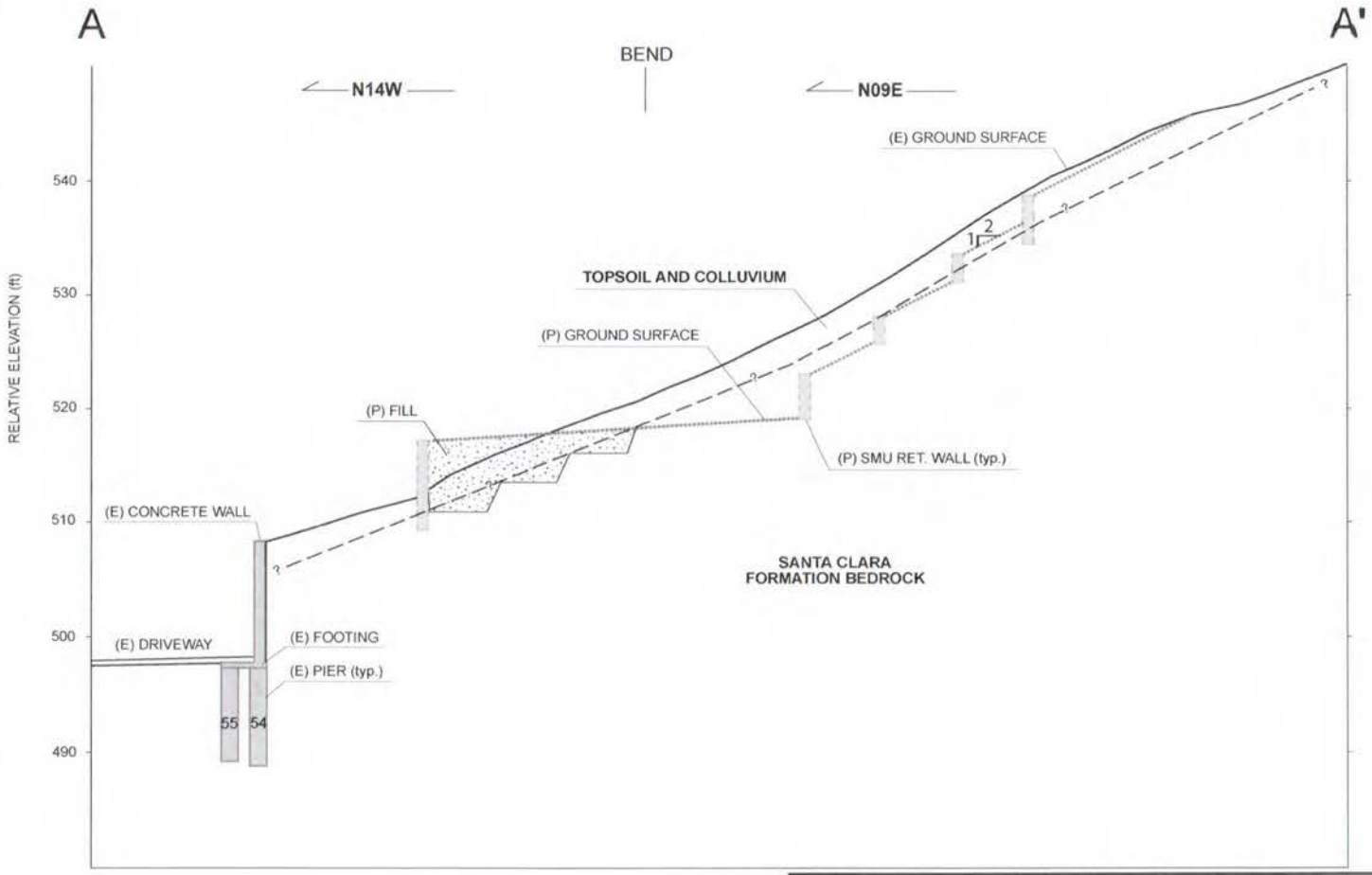
BASE: Conceptual Plan; Sheets LC.1, LC.2, and LC.3; LANDSYSTEMS LANDSCAPE ARCHITECTS AND CONTRACTORS; 27 October 2017

PARTIAL SITE PLAN

UPP GEOTECHNOLOGY
a division of C2EARTH, INC.

DUTTA PROPERTY
250 Bonita Road
San Mateo County, California

DRAFTED/REVIEWED	SCALE	DOCUMENT ID.	DATE	
RW/CH	As Shown	02891U-02L1	November 2017	Figure 1



NOTE: This cross-section is a conceptual illustration of general subsurface relationships and should not be used for any other purpose.

BASE: Conceptual Plan; Sheets LC.1, LC.2, and LC.3; LANDSYSTEMS LANDSCAPE ARCHITECTS AND CONTRACTORS; 27 October 2017

CROSS-SECTION A-A'

UPP GEOTECHNOLOGY
a division of C2EARTH, INC.

DUTTA PROPERTY
250 Bonita Road
San Mateo County, California

DRAFTED/REVIEWED	SCALE	DOCUMENT ID.	DATE	
KK/CH	1"= 10'	02891U-02L1	November 2017	Figure 2

Advanced Tree Care
965 East San Carlos Ave, San Carlos, CA 94070

250 Bonita Rd, Portola Valley
June 9, 2020

Sanjeet Dutta
250 Bonita Rd
Portola Valley, CA 94028

Site: 250 Bonita Rd., Portola Valley

Dear Sanjeet,

At your request I visited the above site for the purpose of inspecting and commenting on the regulated trees around the property. A new landscape is planned, prompting the need for this tree protection report.

Method:
San Mateo County regulates Significant Trees whereby a "SIGNIFICANT TREE" shall mean any live woody plant rising above the ground with a single stem or trunk of a circumference of 38" (Diameter 12.1") or more measured at 4 1/2' vertically above the ground or immediately below the lowest branch, whichever is lower, and having the inherent capacity of naturally producing one main axis continuing to grow more vigorously than the lateral axes.
The location of the Significant trees on this site can be found on the plan provided by you. Each tree is given an identification number. The trees are measured at 54 inches above ground level (DBH or Diameter at Breast Height). A condition rating of 1 to 100 is assigned to each tree representing form and vitality on the following scale:

1 to 29	Very Poor
30 to 49	Poor
50 to 69	Fair
70 to 89	Good
90 to 100	Excellent

The height and spread of each tree is estimated. A Comments section is provided for any significant observations affecting the condition rating of the tree.

A Summary and Tree Protection Plan are at the end of the survey providing recommendations for maintaining the health and condition of the trees during and after construction.

If you have any questions, please don't hesitate to call.

Sincerely

Robert Weatherill
Certified Arborist WE 1936A

Advanced Tree Care
965 East San Carlos Ave, San Carlos, CA 94070

250 Bonita Rd, Portola Valley
June 9, 2020

Tree Survey

Tree#	Species	DBH	Ht/Sp	Con Rating	Comments
1	California bay *Umbellularia californica*	30.3”	90/40	60	Good health, fair condition, pockets of decay @base, **Significant**
2	California bay *Umbellularia californica*	37.5”	70/50	70	Good health and condition **Significant**
3	Black oak *Quercus kelloggii*	20.2”	50/30	65	Good health and condition, some large deadwood, **Significant**
4	Madrone *Arbutus menziesii*	17.3”	30/20	10	Almost dead, significant lean **Significant**
5	Black oak *Quercus kelloggii*	18.2”	40/25	50	Fair health and condition, significant lean **Significant**
6	California bay *Umbellularia californica*	18.0”	50/25	50	Good health, fair condition, topped and resprouted@35’, significant lean, **Significant**
7	California bay *Umbellularia californica*	14.8”	15/18	40	Good health, poor condition, topped and resprouted @10’, **Significant**
8	California bay *Umbellularia californica*	16.5”	50/20	50	Good health, fair condition, leaning towards house, **Significant**
9	Black oak *Quercus kelloggii*	22.7”	80/40	65	Good health and condition, one sided canopy. **Significant**
10	Black oak *Quercus kelloggii*	13.1/8.2”	40/20	50	Fair health and condition, significant lean **Significant**
11	Black oak *Quercus kelloggii*	12.2/12.9/18.6”	40/60	40	Good health, poor form, multi trunk @grade, **Significant**
12	California bay *Umbellularia californica*	24.1”	40/20	50	Fair health and condition **Significant**
13	California bay *Umbellularia californica*	14.5”	40/20	50	Fair health and condition, leaning **Significant**
14	California bay *Umbellularia californica*	14.5”	40/40	50	Fair health and condition, leaning **Significant**
15	California bay *Umbellularia californica*	30.3”	70/20	70	Good health and condition, neighbors, cavities, **Significant**
16	Black oak *Quercus kelloggii*	16.1”	25/20	25	Poor health and condition, neighbors **Significant**
17	Black oak *Quercus kelloggii*	15.9”	20/5	0	Dead **Significant**
18	Madrone *Arbutus menziesii*	18.2/10.6/14.0/12.4/5”	60/50	40	Poor health and condition, trunk failures **Significant**

Advanced Tree Care
965 East San Carlos Ave, San Carlos, CA 94070

250 Bonita Rd, Portola Valley
June 9, 2020

Tree#	Species	DBH	Ht/Sp	Con Rating	Comments
19	California bay *Umbellularia californica*	21.1”	70/30	45	Fair health, poor condition, Decay at base, **Significant**
20	California bay *Umbellularia californica*	21.7”	70/30	55	Fair health and condition Decay at base **Significant**
21	Black oak *Quercus kelloggii*	16.9”	60/20	10	Very poor health and condition, Decay at base **Significant**
22	California bay *Umbellularia californica*	15,3”	60/25	55	Fair health and condition, thinning canopy **Significant**
23	California bay *Umbellularia californica*	19.6”	65/30	60	Fair health and condition, leaning, **Significant**
24	California bay *Umbellularia californica*	15.3/10.7”	55/30	60	Fair health and condition, leaning **Significant**

Summary:
The trees on the site are a variety of natives in varying health and condition

Tree #s 1 and 2 are large bays in good health and condition. There are pockets of decay at the base of Tree #1. Both trees should be reduced and thinned to prevent future failure. Both trees should be protected during construction.

Tree # 4 is a madrone in very poor health and condition and should be removed.

Tree # 6 is a bay in good health but fair condition. The tree has previously been topped at 35 feet and the new growth is all sucker growth. The tree leans precariously towards the house. I recommend this tree be removed.

Tree #s 12, 13 and 14 are smaller bays in fair health and condition. They are located in the location of the proposed new construction and have been requested for removal.

Tree #s 15 and 16 are on the property line and should be protected during construction.

Tree #s 17, 18, 19 and 21 are all in poor condition with significant decay and should be removed.

Tree #s 3, 5, 7, 8, 9, 10, 11, 20, 22, 23 and 24 all require some maintenance to prevent failure. All should be protected during construction.

Advanced Tree Care
965 East San Carlos Ave, San Carlos, CA 94070

250 Bonita Rd, Portola Valley
June 9, 2020

Tree Protection Plan

1. The Tree Protection Zone (TPZ) should be defined with protective fencing. This should be cyclone or chain link fencing on 11/2" or 2" posts driven at least 2 feet in to the ground standing at least 6 feet tall. Normally a TPZ is defined by the dripline of the tree. I recommend the TPZ's as follows, they are marked in a dotted red line on the drawing:-

Tree #s 7 and 16: TPZ should be at 10 feet from the trunk closing on the fence line in accordance with Type I Tree Protection as outlined and illustrated in image 2.15-1 and 2 [(6)] .

Tree #s 3, 5, 8, 9, 10, 11, 20, 22, 23 and 24: TPZ should be at 15 feet from the trunk closing on the fence line in accordance with Type I Tree Protection as outlined and illustrated in image 2.15-1 and 2 [(6)] .

Tree #s 1, 2 and 15: TPZ should be at 20 feet from the trunk closing on the fence line in accordance with Type I Tree Protection as outlined and illustrated in image 2.15-1 and 2 [(6)] .

If the fencing were installed, the new landscape improvements would be unbuildable. The solid red line on the drawing shows a possible location of the fencing and areas shaded in blue where construction would be in conflict with the TPZs.

A pathway is proposed within the TPZs of 1 and 2. The pathway will consist of compacted crushed gravel. Excavation depth should not exceed 6" in depth. If roots greater than 2" in diameter are encountered, they should be worked around and not cut. All recommendations should be followed when working in areas shaded in blue.

The proposed leach field lines are highlighted in yellow on the first drawing. The lines weave through the TPZs of Tree #s 3 and 5, 7 and 8, 9 and 10, 11 and 24, 20, 22 and 23. The leach field lines are located as best possible through the trees. The lines will be dug with small machinery going through the TPZs. The pathway for the small machinery is marked on the second drawing in purple. Machinery should not track any closer than 3 feet from the trunks of the trees. The machinery should track on plywood and wood chip to the location of excavation to avoid compaction of the roots within the TPZs. If the TPZ fencing is to be removed to access the trenching, trees close to the pathway for small machinery should be wrapped with 4 layers of snow fencing and wooden slats as shown in the photograph for Type III tree protection fencing. This will prevent any accidental damage to the trunks of the trees.

No roots greater than 2 inches should be cut. All roots should be worked around where possible. If roots are encountered that need to be cut, the Site Arborist should inspect and determine the best approach.

From the Septic Plan (OWTS1) the existing 90 ft septic trench, the pipe will be replaced. The existing trench will be excavated to about 2 ft depth. The excavation will be done by small machine, no roots 2 inches or greater in diameter should be cut or damaged.

From OWTS1 the reserve drain fields will not be constructed now. If, in the future these drains are to be constructed, a new arborist inspection and report will be generated

The proposed leech lines will be of future benefit to the surrounding trees.

IMAGE 2.15-1
Tree Protection Fence at the Dripline

IMAGE 2.15-2
Tree Protection Fence at the Dripline

• **Type I Tree Protection**
The fences shall enclose the entire area under the **canopy dripline or TPZ** of the tree(s) to be saved throughout the life of the project, or until final improvement work within the area is required, typically near the end of the project (*see Images 2.15-1 and 2.15-2*). Parking Areas: If the fencing must be located on paving or sidewalk that will not be demolished, the posts may be supported by an appropriate grade level concrete base.

IMAGE 2.15-4
Trunk Wrap Protection

• **Type III Tree Protection**
Trees situated in a small tree well or **sidewalk planter pit**, shall be wrapped with 2-inches of orange plastic fencing as padding from the ground to the first branch with 2-inch thick wooden slats bound securely on the outside. During installation of the wood slats, caution shall be used to avoid damaging any bark or branches. Major scaffold limbs may also require plastic fencing as directed by the *City Arborist*. (*see Image 2.15-4*)

2. Any pruning and maintenance of the trees shall be carried out before construction begins. This should allow for any clearance requirements for both the new structure and any construction machinery. This will eliminate the possibility of damage during construction. **The pruning should be carried out by an arborist, not by construction personnel**. No limbs greater than 4" in diameter shall be removed.

3. Any excavation in ground where there is a potential to damage roots of 1" or more in diameter should be carefully hand dug. Where possible, roots should be dug around rather than cut.[(2)]

4. If roots are broken, every effort should be made to remove the damaged area and cut it back to its closest lateral root. A clean cut should be made with a saw or pruners. This will prevent any infection from damaged roots spreading throughout the root system and into the tree.[(2)]

5. Compaction of the soil within the dripline shall be kept to a minimum.[(2)] If access is required to go through the TPZ of a protected tree, the area within the TPZ should be protected from compaction either with steel plates or with 4" of wood chip overlaid with plywood.

6. **Do Not**:.[(4)]
   a. Allow run off or spillage of damaging materials into the area below any tree canopy.
   b. Store materials, stockpile soil, park or drive vehicles within the TPZ of the tree.
   c. Cut, break, skin or bruise roots, branches or trunk without first obtaining permission from the city arborist.
   d. Allow fires under any adjacent trees.
   e. Discharge exhaust into foliage.
   f. Secure cable, chain or rope to trees or shrubs.
   g. Apply soil sterilants under pavement near existing trees.

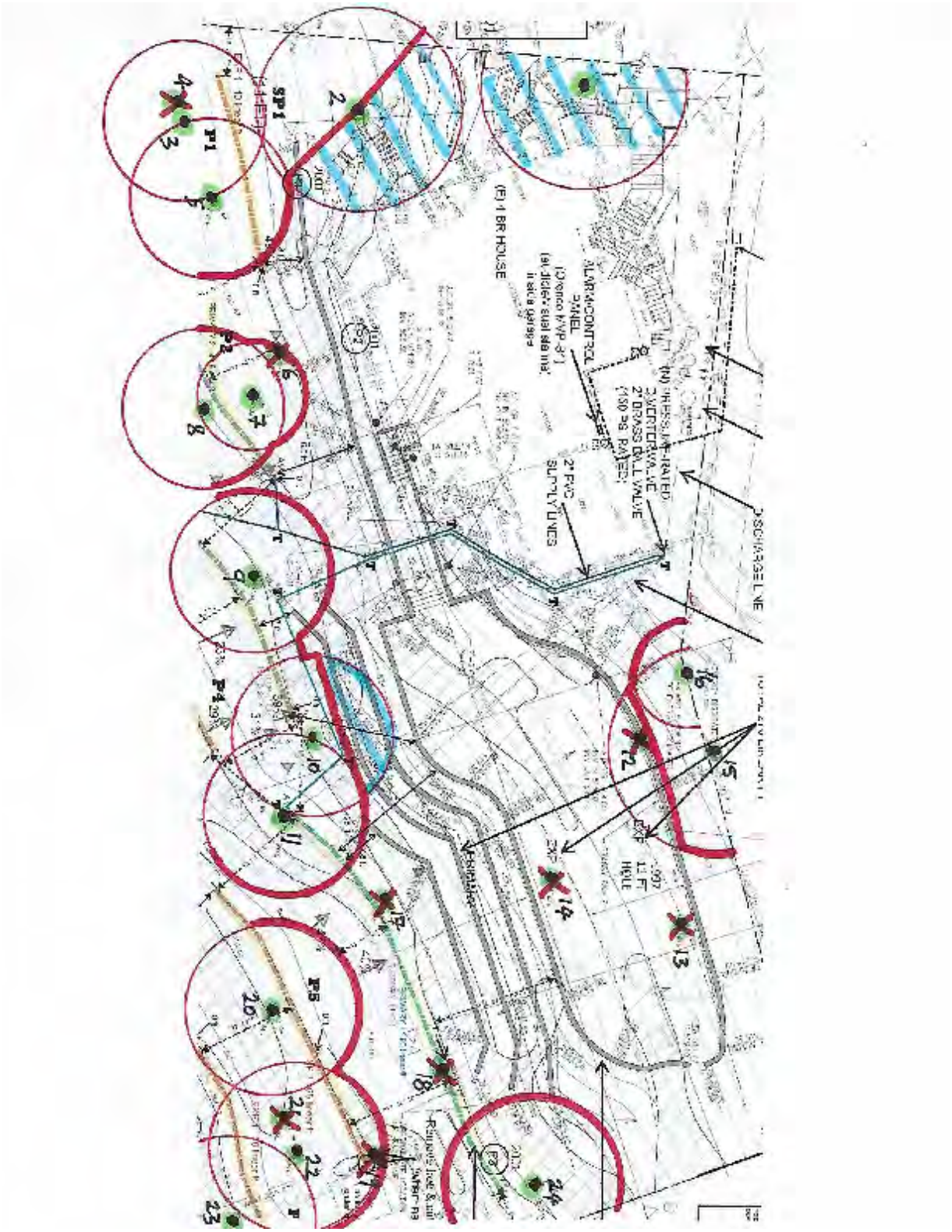
7. Where roots are exposed, they should be kept covered with the native soil or four layers of wetted, untreated burlap. Roots will dry out and die if left exposed to the air for too long.[(4)]

8. Route pipes into alternate locations to avoid conflict with roots.[(4)]

9. Where it is not possible to reroute pipes or trenches, the contractor is to bore beneath the dripline of the tree. The boring shall take place no less than 3 feet below the surface of the soil in order to avoid encountering "feeder" roots.[(4)]

10. Any damage due to construction activities shall be reported to the project arborist or city arborist within 6 hours so that remedial action can be taken.

11. Ensure upon completion of the project that the original ground level is restored



Location of proposed new landscape, protected trees and their Tree Protection Zones

Proposed location for small machinery to track within the TPZs

Glossary

Canopy The part of the crown composed of leaves and small twigs.(2)

Cavities An open wound, characterized by the presence of extensive decay and resulting in a hollow.(1)

Decay Process of degradation of woody tissues by fungi and bacteria through the decomposition of cellulose and lignin(1)

Dripline The width of the crown as measured by the lateral extent of the foliage.(1)

Genus A classification of plants showing similar characteristics.

Root crown The point at which the trunk flares out at the base of the tree to become the root system.

Species A Classification that identifies a particular plant.

Standard height Height at which the girth of the tree is measured. Typically 4 1/2 feet above ground level

References

(1) Matheny, N.P., and Clark, J.P. Evaluation of Hazard Trees in Urban Areas. International Society of Arboriculture,1994.

(2) Harris, R.W., Matheny, N.P. and Clark, J.R.. Arboriculture: Integrated Management of Landscape Trees, Shrubs and Vines. Prentice Hall, 1999.

(3) Carlson, Russell E. Paulownia on The Green: An Assessment of Tree Health and Structural Condition. Tree Tech Consulting, 1998.

(4) Extracted from a copy of Tree Protection guidelines. Anon

(5) T. D. Sydnor, Arboricultural Glossary. School of Natural Resources, 2000

(6) D Dockter, Tree Technical Manual. City of Palo Alto, June, 2001

Advanced Tree Care
965 East San Carlos Ave, San Carlos, CA 94070

250 Bonita Rd, Portola Valley
June 9, 2020

Certification of Performance [3]

I, Robert Weatherill certify:

* That I have personally inspected the tree(s) and/or the property referred to in this report, and have stated my findings accurately. The extent of the evaluation and appraisal is stated in the attached report and the Terms and Conditions;

* That I have no current or prospective interest in the vegetation or the property that is the subject of this report, and I have no personal interest or bias with respect to the parties involved;

* That the analysis, opinions and conclusions stated herein are my own, and are based on current scientific procedures and facts;

* That my compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party, nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events;

* That my analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted Arboricultural practices;

* That no one provided significant professional assistance to the consultant, except as indicated within the report.

I further certify that I am a member of the International Society of Arboriculture and a Certified Arborist. I have been involved in the practice of arboriculture and the care and study of trees for over 20 years.

Signed

Robert Weatherill
Certified Arborist WE 1936a
Date: 6/9/20

Terms and Conditions(3)

The following terms and conditions apply to all oral and written reports and correspondence pertaining to consultations, inspections and activities of Advanced Tree Care :

1. All property lines and ownership of property, trees, and landscape plants and fixtures are assumed to be accurate and reliable as presented and described to the consultant, either verbally or in writing. The consultant assumes no responsibility for verification of ownership or locations of property lines, or for results of any actions or recommendations based on inaccurate information.
2. It is assumed that any property referred to in any report or in conjunction with any services performed by Advanced Tree Care, is not in violation of any applicable codes, ordinances, statutes, or other governmental regulations, and that any titles and ownership to any property are assumed to be good and marketable. Any existing liens and encumbrances have been disregarded.
3. All reports and other correspondence are confidential, and are the property of Advanced Tree Care and it's named clients and their assignees or agents. Possession of this report or a copy thereof does not imply any right of publication or use for any purpose, without the express permission of the consultant and the client to whom the report was issued. Loss, removal or alteration of any part of a report invalidates the entire appraisal/evaluation.
4. The scope of any report or other correspondence is limited to the trees and conditions specifically mentioned in those reports and correspondence. Advanced Tree Care and the consultant assume no liability for the failure of trees or parts of trees, either inspected or otherwise. The consultant assumes no responsibility to report on the condition of any tree or landscape feature not specifically requested by the named client.
5. All inspections are limited to visual examination of accessible parts, without dissection, excavation, probing, boring or other invasive procedures, unless otherwise noted in the report. No warrantee or guarantee is made, expressed or implied, that problems or deficiencies of the plants or the property will not occur in the future, from any cause. The consultant shall not be responsible for damages caused by any tree defects, and assumes no responsibility for the correction of defects or tree related problems.
6. The consultant shall not be required to provide further documentation, give testimony, be deposed, or attend court by reason of this appraisal/report unless subsequent contractual arrangements are made, including payment of additional fees for such services as described by the consultant or in the fee schedules or contract.
7. Advanced Tree Care has no warrantee, either expressed or implied, as to the suitability of the information contained in the reports for any purpose. It remains the responsibility of the client to determine applicability to his/her particular case.
8. Any report and the values, observations, and recommendations expressed therein represent the professional opinion of the consultants, and the fee for services is in no manner contingent upon the reporting of a specified value nor upon any particular finding to be reported.
9. Any photographs, diagrams, graphs, sketches, or other graphic material included in any report, being intended solely as visual aids, are not necessarily to scale and should not be construed as engineering reports or surveys, unless otherwise noted in the report. Any reproductions of graphs material or the work product of any other persons is intended solely for the purpose of clarification and ease of reference. Inclusion of said information does not constitute a representation by Advanced Tree Care or the consultant as to the sufficiency or accuracy of that information.