FOR CONTRACT NO.: 01-477704

INFORMATION HANDOUT

WATER QUALITY

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION

401 CERTIFICATION

PERMITS

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND GAME

NOTIFICATION NO. 1600-2010-0138-R1

UNITED STATES ARMY CORPS OF ENGINEERS

NON-REPORTING NATIONWIDE PERMIT #14

MATERIALS INFORMATION

FOUNDATION REPORT RETAINING WALL NO. 10E0019

ADL AND NOA SITE INVESTIGATION REPORT

ROUTE: 01-MEN-101-VAR (PM 83.82)

FOR CONTRACT NO.: 01-47770**4**

INFORMATION HANDOUT

WATER QUALITY

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION

401 CERTIFICATION

ROUTE: 01-MEN-101-VAR

California Regional Water Quality Control Board
North Coast Region
Geoffrey M. Hales, Chairman

Linda S. Adams
Secretary for Environmental Protection

www.waterboards.ca.gov/northcoast
5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403
Phone: (877) 721-9203 (toll free) • Office: (707) 576-2220 • FAX: (707) 523-0135

Arnold Schwarzenegger
Governor

December 14, 2010

In the Matter of

Water Quality Certification

For the

California Department of Transportation
Highway 101 - Rattlesnake Wall Storm Damage Project
WDID No. 1B10051WNME

APPLICANT:	California Department of Transportation
RECEIVING WATER:	Rattlesnake Creek
HYDROLOGIC AREA:	Eel River Hydrologic Unit (HU) No.111.00 South Fork Eel River Sub-Area 111.32
COUNTY:	Mendocino
FILE NAME:	CDOT - Hwy 101, Rattlesnake Wall Storm Damage Project

BY THE EXECUTIVE OFFICER:

1. On May 11, 2010, the North Coast Regional Water Quality Control Board (Regional Water Board) received an application from the California Department of Transportation (Caltrans), requesting Federal Clean Water Act (CWA), section 401, Water Quality Certification for activities related to the proposed Rattlesnake Wall Storm Damage Project between Post Miles (PM) 80.75 and 85.30 on Highway 101 in Mendocino County. The proposed project will cause disturbances to waters of the United States (U.S.) and waters of the State associated with Rattlesnake Creek within the Eel River Hydrologic Unit (HU) No.111.00 (South Fork Eel River Sub-Area 111.32). The Regional Water Board provided public notice of the application pursuant to title 23, California Code of Regulations, section 3858 on November 15, 2010, and posted information describing the project on the Regional Water Board's website. No comments were received.

2. This is a storm damage repair project to reduce maintenance needs along a section of Highway 101 which is prone to failure. The purpose of the project is to stabilize several slide areas along the highway by either reducing the weight of the road base or stabilizing the highway through walls at three locations on Highway 101. A summary of the proposed work at each location is described below.

3. At location 1 (PM 82.00) Caltrans proposes to: excavate the fill section of the two northbound lanes 15 feet to 25 feet below the shoulder and replace with lightweight fill (LWF); repave the roadway; and replace metal beam guard rail (MBGR). The LWF will be expanded polystyrene blocks encapsulated in a rubber membrane, overlain by embankment material. Access to the work area will be from existing highway. On the cut slope side of the road Caltrans proposes to construct a 20 foot deep under drain; repair a breach in the cut slope bench above the roadway and regrade the existing ditch; and replace the cross culverts and drain inlets (DIs) at PM 81.98 and 82.07. Construction work at PM 81.98 will likely require a temporary clear water diversion for a spring that flows through the culvert.

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7. Caltrans has determined that impacts to waters of the U.S. and State would total 866 square feet (396 linear ft.) of temporary impacts. The nature and extent of impacts are relatively minor; therefore, compensatory mitigation is not required. Caltrans will utilize BMPs to provide erosion control and pollution prevention throughout the project area during construction. In addition, all graded areas within the project

affected by the construction activities will be appropriately stabilized and BMPs will be implemented to ensure erosion is minimized and controlled.

8. Caltrans has applied for authorization from the Unites States Army Corps of Engineers to perform the project under their Nationwide Permits No. 14 (linear transportation projects) pursuant to Clean Water Act, section 404. Caltrans will also be applying for a California Department of Fish and Game 1602 Streambed Alteration. California Department of Transportation has determined that this project is Categorically Exempt from California Environmental Quality Act (Class 2 Categorical Exemption). In addition, Regional Water Board staff also determined that this project is categorically exempt from CEQA review (Class 2 Categorical Exemption) and anticipates filling a Notice of Exemption.

9. The South Fork Eel River watershed is listed on the Clean Water Act section 303(d) list as impaired for sediment and temperature. In 1999, the U.S. EPA established sediment and temperature total maximum daily loads (TMDLs) for the South Fork Eel River Watershed. Roads are a significant source of sediment in the watershed (directly, from surface erosion, and, indirectly, by triggering landslides). In addition, activities that impact the riparian zone and reduce riparian vegetation are identified as sources contributing to increased stream temperatures. A focus on measures to reduce sediment discharges to surface waters from roads in the watershed, and measures to avoid, minimize, and mitigate impacts on riparian zones is essential for achieving TMDL compliance. In accordance with the conditions of this Water Quality Certification Caltrans will be required to conduct surface water monitoring and erosion and sediment control monitoring and reporting. Accordingly, this Water Quality Certification is consistent with, and implements the South Fork Eel River TMDLs.

10. Pursuant to Regional Water Board Resolution R1-2004-0087, *Total Maximum Daily Load Implementation Policy Statement for Sediment-Impaired Receiving Waters within the North Coast Region* (Sediment TMDL Implementation Policy), the Executive Officer is directed to “rely on the use of all available authorities, including existing regulatory standards, and permitting and enforcement tools to more effectively and efficaciously pursue compliance with sediment-related standards by all dischargers of sediment waste.”

11. To ensure compliance with sediment, temperature and other related Water Quality Objectives within the Basin Plan, and consistent with the U.S. EPA-established TMDLs, adequate wetland and riparian protection and stringent requirements to avoid, minimize, and mitigate the sediment and temperature impacts associated with the proposed project will be incorporated as enforceable conditions this Water Quality Certification. In addition, Caltrans will be required to conduct surface water monitoring, sampling, and analysis in accordance with the conditions of the Water Quality Certification. Additionally, storm water runoff monitoring, sampling, and analysis will be conducted as required by the State Water Resources Control Board

(SWRCB) National Pollutant Discharge Elimination System (NPDES) Permit for Storm Water Discharges from the State of California, Department of Transportation (Caltrans) Properties, Facilities and Activities Order No. 99 – 06 - DWQ. The surface water data collected will be utilized to assess the adequacy of BMPs during construction as well as site specific mitigation measures proposed to minimize impacts to the environment, including sediment and temperature impacts.

12. The federal antidegradation policy requires that state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. This Order is consistent with applicable federal and State antidegradation policies, as it does not authorize the discharge of increased concentrations of pollutants or increased volumes of treated wastewater, and does not otherwise authorize degradation of the waters affected by this project.

Receiving Water:	Rattlesnake Creek Eel River Hydrologic Unit (HU) No.111.00 South Fork Eel River Sub-Area 111.32
Filled or Excavated Area:	Temporary - streams 866 feet^2
Total Linear Impacts:	Temporary - streams 396 linear ft
Dredge Volume:	None
Fill Volume:	None
Latitude/Longitude:	39.8292 N / 123.6016 W

ACCORDINGLY, BASED ON ITS INDEPENDENT REVIEW OF THE RECORD, THE REGIONAL WATER BOARD CERTIFIES THAT THE Caltrans – Highway 101 – Rattlesnake Wall Storm Damage Project, WDID No. 1B10051WNME as described in the application will comply with sections 301, 302, 303, 306 and 307 of the Clean Water Act, and with applicable provisions of state law, provided that Caltrans complies with the following terms and conditions:

1. All conditions of this order apply to Caltrans (and all its employees) and all contractors (and their employees), sub-contractors (and their employees), and any other entity or agency that performs activities or work on the project as related to this Water Quality Certification.

2. This certification action is subject to modification or revocation upon administrative or judicial review; including review and amendment pursuant to Water Code section 13330 and title 23, California Code of Regulations, section 3867.

3. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to title 23, California Code of Regulations, section 3855, subdivision (b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

4. The validity this certification is conditioned upon total payment of any fee required under title 23, California Code of Regulations, section 3833, and owed by the application.

5. Except as may be modified by any preceding conditions, all certification actions are contingent on: a) the discharge being limited, and all proposed revegetation and mitigation being completed, in strict compliance with the applicant's project description, as approved herein, and b) compliance with all applicable water quality requirements and water quality control plans including the requirements of the Basin Plan, and amendments thereto.

6. All conditions required by this Order shall be included in the Plans and Specifications prepared by Caltrans for the Contractor. In addition, Caltrans shall require compliance with all conditions included in this Order in the bid contract for this project.

7. Caltrans shall construct the project in accordance with the project described in the application and the findings above, and shall comply with all applicable water quality requirements and Water Quality Standards as detailed in the Basin Plan.

8. Any change in the design or implementation of the project that would have a significant or material effect on the findings, conclusions, or conditions of this Order must be submitted to the Executive Officer of the Regional Water Board for prior review, consideration, and concurrence.

9. Caltrans shall provide a copy of this Order and State Water Resources Control Board (SWRCB) Order No. 2003-0017-DWQ to the contractor, all subcontractors, and all utility companies conducting the work, and require that copies remain in their possession at the work site. Caltrans shall be responsible for work conducted by its employees, contractors, subcontractors, and utility companies.

10. The Regional Water Board shall be notified in writing each year at least five working days (working days are Monday – Friday) prior to the commencement of ground disturbing activities, major concrete pours, dewatering activities, or water diversion activities with details regarding the construction schedule, in order to allow Regional Water Board staff to be present on-site during installation and removal activities, and to answer any public inquiries that may arise regarding the project. Caltrans shall provide Regional Water Board staff access to the project site to document compliance with this order.

11. The Resident Engineer (or appropriately authorized agent) shall hold on-site water quality permit compliance meetings (similar to tailgate safety meetings) to discuss permit compliance, including instructions on how to avoid violations and procedures for reporting violations. The meetings shall be held at least every other week, before forecasted storm events, and when a new contractor or subcontractor arrives to begin work at the site. The contractors, subcontractors and their employees, as well as any inspectors or monitors assigned to the project, shall be present at the meetings. Caltrans shall maintain dated sign-in sheets for attendees at these meetings, and shall make them available to the Regional Water Board on request.

12. All activities and best management practices (BMPs) shall be implemented according to the submitted application and the conditions in this Order. BMPs for erosion, sediment, turbidity and pollutant control shall be implemented and in place at commencement of, during, and after any ground clearing activities, construction activities, or any other project activities that could result in erosion, sediment, or other pollutant discharges to waters of the State. The BMPs shall be implemented in accordance with the Caltrans Construction Site Best Management Practice Manual (CCSBMPM) and all contractors and subcontractors shall comply with the CCSBMPM. In addition, BMPs for erosion and sediment control shall be utilized year round, regardless of season or time of year. Caltrans shall stage erosion and sediment control materials at the work site. All BMPs shall be installed properly and in accordance with the manufacturer's specifications. If the project Resident Engineer elects to install alternative BMPs for use on the project, Caltrans shall submit a proposal to Regional Water Board staff for review and concurrence.

13. Caltrans shall prioritize the use of wildlife-friendly biodegradable (not photo-degradable) erosion control products wherever feasible. Caltrans shall not use or allow the use of erosion control products that contain synthetic netting for permanent erosion control (i.e. erosion control materials to be left in place for two years or after the completion date of the project). If Caltrans finds that erosion control netting or products have entrapped or harmed wildlife, personnel shall remove the netting or product and replace it with wildlife-friendly biodegradable products. Caltrans shall not use or allow the use of erosion control products that contain synthetic materials within waters of the United States or waters of the State at any time. Caltrans shall request approval from the Regional Water Board if an exception from this requirement is needed for a specific location.

14. Work in flowing or standing surface waters, unless otherwise proposed in the project description and approved by the Regional Water Board, is prohibited. If construction dewatering of groundwater is found to be necessary, Caltrans shall use a method of water disposal other than disposal to surface waters (such as land disposal) or Caltrans shall apply for coverage under the Low Threat Discharge Permit or an individual National Pollutant Discharge Elimination System (NPDES) Permit and receive notification of coverage to discharge to surface waters, prior to the discharge.

15. Caltrans shall submit, subject to approval by the Regional Water Board staff, a dewatering and/or diversion plan that appropriately describe the dewatered or diverted areas and how those areas will be handled during construction. The diversion/dewatering plans shall be submitted no later than 30 days prior to conducting the proposed activity. Information submitted shall include the area or work to be diverted or dewatered and method of the proposed activity. All diversion or dewatering activities shall be designed to minimize the impact to waters of the State and maintain natural flows upstream and downstream. All dewatering or diversion structures shall be installed in a manner that does not cause sedimentation, siltation or erosion upstream or downstream. All dewatering or diversion structures shall be removed immediately upon completion of project activities.

16. Surface water monitoring shall be conducted whenever a project activity is conducted within waters of the State (e.g. installing and operating stream diversions, RSP placement, discharges from project activities). Surface water monitoring shall be conducted when any project activity has, or has the potential to, mobilize sediment and/or alter background conditions within waters of the State. In order to demonstrate compliance with receiving water limitations and applicable water quality standards, field measurements shall be collected whenever a project activity may alter background conditions.

17. Caltrans shall establish effluent, upstream (background) and downstream monitoring locations to demonstrate compliance with all applicable water quality objectives as detailed in the Basin Plan. The downstream location shall be no more than 50 feet from the effluent location. Field measurements shall be taken from each location four times daily for flow, pH, temperature, dissolved oxygen, total dissolved solids, turbidity and specific conductance. In addition, visual observations shall be made four times daily and include the appearance of the discharge including color, turbidity, floating or suspended matter or debris, appearance of the receiving water at the point of discharge (occurrence of erosion and scouring, turbidity, solids deposition, unusual aquatic growth, etc), and observations about the receiving water, such as the presence of aquatic life. Measurements shall be collected from each sampling location four times daily while work is being conducted within waters of the State.

18. Whenever, as a result of project activities, downstream measurements exceed the following water quality objectives, appropriate measurements shall be collected from all monitoring locations every hour during the period of increase, and shall continue until measurements demonstrate compliance with receiving water limitations and the water quality parameters are no longer increasing as a result of project activities.

pH	<6.5 or >8.5 (any changes >0.5 units)
temperature	>0.5^{o}F above background
dissolved oxygen	<7 milligrams per liter (mg/L)
total dissolved solids	200 mg/L
turbidity	20% above natural background
specific conductance	>350 micromhos @ 77°F

If any measurements are beyond the water quality objectives 50 feet downstream of the source(s), all necessary steps shall be taken to install, repair, and/or modify BMPs to control the source(s). In addition, the overall distance from the source(s) to the downstream extent of the exceedance shall be measured.

Monitoring results shall be reported to appropriate Regional Water Board staff person by telephone within one hour of taking any measurements that exceed the limits detailed above (turbidity only if it is higher than 20 NTU as well). Upstream and downstream pictures within the working and/or disturbed area shall be taken and submitted to the appropriate Regional Water Board staff via e-mail or fax within 24 hours of the incident. All other monitoring data shall be reported on a monthly basis and is due to the Regional Water Board by the 15th of the following month.

19. Caltrans is prohibited from discharging waste to waters of the State, unless explicitly authorized by this Order. For example, no debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or concrete washings, welding slag, oil or petroleum products, or other organic or earthen material from any construction or associated activity of whatever nature, other than that authorized by this Order, shall be allowed to enter into waters of the State. In addition, none of the materials listed above shall be placed within 150 linear feet of waters of the State or where the materials may be washed by rainfall into waters of the State.

20. Herbicides and pesticides shall not be used on the project. If Caltrans has a compelling case as to why herbicides and pesticides should be used, they may submit a request along with a BMP plan to the Executive Officer of the Regional Water Board for review, consideration, and concurrence.

21. Fueling, lubrication, maintenance, storage and staging of vehicles and equipment shall be outside of waters of the U.S. and the State. Fueling, lubrication, maintenance, storage and staging of vehicles and equipment shall not result in a discharge or a threatened discharge to any waters of the State or the U.S. At no

time shall Caltrans use any vehicle or equipment which leaks any substance that may impact water quality.

22. If, at any time, an unauthorized discharge to surface water (including wetlands, rivers or streams) occurs, or any water quality problem arises, the associated project activities shall cease immediately until adequate BMPs are implemented. The Regional Water Board shall be notified promptly and in no case more than 24 hours after the unauthorized discharge or water quality problem arises.

23. Caltrans shall implement appropriate BMPs to prevent the discharge of equipment fluids to the stream channel. The minimum requirements will include: storing hazardous materials at least 150 linear feet outside of the stream banks; checking equipment for leaks; and preventing the use of equipment with leaks in a manner that does not result in a discharge to Waters of the State.

24. Caltrans and their contractor are not authorized to discharge wastewater (e.g., water that has contacted uncured concrete or cement, or asphalt) to surface waters, ground waters, or land. Wastewater may only be disposed of to a sanitary waste water collection system/facility (with authorization from the facility's owner or operator) or a properly-licensed disposal or reuse facility. If Caltrans or their contractor proposes an alternate disposal method, Caltrans or their contractor shall apply for a permit from the Regional Water Board. Plans to reuse or recycle wastewater require written approval from Regional Water Board staff.

25. Any potentially hazardous waste(s) (solids, liquids, or slurries) derived or encountered in this project shall undergo the appropriate characterization to demonstrate compliance will all applicable waste disposal laws and regulations. If unanticipated or anticipated waste are encountered or created during the project, Caltrans shall notify the Regional Water Board immediately and at least within 24 hours. Caltrans or their contractor shall prepare applicable work plans for handling, treating, transporting, and disposing of waste. The work plans shall be prepared and signed by an engineer or geologist with the appropriate and valid California licenses.

26. Caltrans shall provide analysis and verification that placing non-hazardous waste or inert materials (which may include discarded product or recycled materials) will not result in degradation of water quality, human health, or the environment. All project-generated waste shall be handled, transported, and disposed in strict compliance with all applicable State and Federal laws and regulations. When operations are complete, any excess material or debris shall be removed from the work area and disposed of properly and in accordance with the Special Provisions for the project and/or Standard Specification 7-1.13, Disposal of Material Outside the Highway Right of Way. Caltrans shall submit to the Regional Water Board the satisfactory evidence provided to the Caltrans Engineer by the Contractor referenced in Standard Specification 7-1.13. In accordance with State and Federal laws and

regulations, Caltrans is liable and responsible for the proper disposal of waste generated by their project.

27. All imported fill material shall be clean and free of pollutants. All fill material shall be imported from a source that has the appropriate environmental clearances and permits. The reuse of low-level contaminated solids as fill on-site shall be performed in accordance with all State and Federal policies and established guidelines and must be submitted to the Regional Water Board for review and concurrence.

28. Only clean washed spawning gravel (0.5" – 4") with a cleanliness value of at least 85, using the Cleanness Value Test Method for California Test No. 227 will be placed in the streams. Gravel bag fabric shall be nonwoven polypropylene geotextile (or comparable polymer) and shall conform to the following requirements:

    - Mass per unit area, grams per square meter, min ASTM Designation: D 5261 – 270
    - Grab tensile strength (25-mm grip), kilonewtons, min. ASTM Designation: D4632* 0.89
    - Ultraviolet stability, percent tensile strength retained after 500 hours, ASTM Designation: D4355, xenon arc lamp method 70 or appropriate test method for specific polymer
    - Gravel bags shall be between 600 mm and 800 mm in length, and between 400 mm and 500 mm in width.
    - Yarn used in construction of the gravel bags shall be as recommended by the manufacturer or bag supplier and shall be of a contrasting color. Gravel shall be between 0.5" – 4" in diameter, and shall be clean and free from clay balls, organic matter, and other deleterious materials. The opening of gravel-filled bags shall be secured to prevent gravel from escaping. Gravel-filled bags shall be between 13 kg and 22 kg in mass.

29. Rainy Day Reports: Caltrans shall take photos of all areas disturbed by project activities, including all excess materials disposal areas, after rainfall events that generate visible runoff from these areas in order to demonstrate that erosion control and revegetation measures are present and have been installed appropriately and successfully. A brief report containing these photos shall be submitted within 30 days of the rainfall event that generated runoff from the disturbed areas. Once the site has demonstrated appropriate and effective erosion and sediment control, Caltrans may request a reprieve from this condition from the Regional Water Board.

30. In the event of any violation or threatened violation of the conditions of this Order, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under applicable state or federal law. For the purposes of section 401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process or sanctions for the violation or threatened

violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Order. In response to a suspected violation of any condition of this certification, the State Water Board may require the holder of any federal permit or license subject to this Order to furnish, under penalty of perjury, any technical or monitoring reports the State Water Board deems appropriate, provided that the burden, including costs, of the reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In response to any violation of the conditions of this Order, the Regional Water Board may add to or modify the conditions of this Order as appropriate to ensure compliance.

31. The Regional Water Board may add to or modify the conditions of this Order, as appropriate, and to implement any new or revised Water Quality Standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act or section 303 of the Clean Water Act.

32. This Order is not transferable. In the event of any change in control of ownership of land presently owned or controlled by Caltrans, Caltrans shall notify the successor-in-interest of the existence of this Order by letter and shall forward a copy of the letter to the Regional Water Board. The successor-in-interest must send to the Regional Water Board Executive Officer a written request for transfer of this Order to discharge dredged or fill material under this Order. The request must contain the following:

    a. requesting entity's full legal name
    b. the state of incorporation, if a corporation
    c. address and phone number of contact person
    d. description of any changes to the project or confirmation that the successor-in-interest intends to implement the project as described in this Order.

33. The authorization of this certification for any dredge and fill activities expires on December 14, 2015. Conditions and monitoring requirements outlined in this Order are not subject to the expiration date outlined above, and remain in full effect and are enforceable.

34. Please contact our staff Environmental Specialist / Caltrans Liaison Jeremiah Puget of at (707) 576-2835 or jpuget@waterboards.ca.gov if you have any questions.

_____
Catherine Kuhlman
Executive Officer

101214_JJP_CDOT_Hwy101_RattlesnakeWall _401Cert

Web link: State Water Resources Control Board Order No. 2003-0017 -DWQ, General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification can be found at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0017.pdf

Original sent to: Ms. Kendall Schinke, Caltrans North Region Environmental, P. O. Box 911, Marysville, CA 95901-0911

Copies sent to: Ms. Jane Hicks, U.S. Army Corps of Engineers, Regulatory Functions, 1455 Market Street, San Francisco, CA 94103-1398

Mr. Michael Cane, Caltrans North Region Environmental, P. O. Box 911, Marysville, CA 95901-0911

California Regional Water Quality Control Board
North Coast Region
Geoffrey M. Hales, Chairman

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WDID No. 1B10051WNME

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affected by the construction activities will be appropriately stabilized and BMPs will be implemented to ensure erosion is minimized and controlled.

8. Caltrans has applied for authorization from the Unites States Army Corps of Engineers to perform the project under their Nationwide Permits No. 14 (linear transportation projects) pursuant to Clean Water Act, section 404. Caltrans will also be applying for a California Department of Fish and Game 1602 Streambed Alteration. California Department of Transportation has determined that this project is Categorically Exempt from California Environmental Quality Act (Class 2 Categorical Exemption). In addition, Regional Water Board staff also determined that this project is categorically exempt from CEQA review (Class 2 Categorical Exemption) and anticipates filling a Notice of Exemption.

9. The South Fork Eel River watershed is listed on the Clean Water Act section 303(d) list as impaired for sediment and temperature. In 1999, the U.S. EPA established sediment and temperature total maximum daily loads (TMDLs) for the South Fork Eel River Watershed. Roads are a significant source of sediment in the watershed (directly, from surface erosion, and, indirectly, by triggering landslides). In addition, activities that impact the riparian zone and reduce riparian vegetation are identified as sources contributing to increased stream temperatures. A focus on measures to reduce sediment discharges to surface waters from roads in the watershed, and measures to avoid, minimize, and mitigate impacts on riparian zones is essential for achieving TMDL compliance. In accordance with the conditions of this Water Quality Certification Caltrans will be required to conduct surface water monitoring and erosion and sediment control monitoring and reporting. Accordingly, this Water Quality Certification is consistent with, and implements the South Fork Eel River TMDLs.

10. Pursuant to Regional Water Board Resolution R1-2004-0087, *Total Maximum Daily Load Implementation Policy Statement for Sediment-Impaired Receiving Waters within the North Coast Region* (Sediment TMDL Implementation Policy), the Executive Officer is directed to "rely on the use of all available authorities, including existing regulatory standards, and permitting and enforcement tools to more effectively and efficaciously pursue compliance with sediment-related standards by all dischargers of sediment waste."

11. To ensure compliance with sediment, temperature and other related Water Quality Objectives within the Basin Plan, and consistent with the U.S. EPA-established TMDLs, adequate wetland and riparian protection and stringent requirements to avoid, minimize, and mitigate the sediment and temperature impacts associated with the proposed project will be incorporated as enforceable conditions this Water Quality Certification. In addition, Caltrans will be required to conduct surface water monitoring, sampling, and analysis in accordance with the conditions of the Water Quality Certification. Additionally, storm water runoff monitoring, sampling, and analysis will be conducted as required by the State Water Resources Control Board

(SWRCB) National Pollutant Discharge Elimination System (NPDES) Permit for Storm Water Discharges from the State of California, Department of Transportation (Caltrans) Properties, Facilities and Activities Order No. 99 – 06 - DWQ. The surface water data collected will be utilized to assess the adequacy of BMPs during construction as well as site specific mitigation measures proposed to minimize impacts to the environment, including sediment and temperature impacts.

12. The federal antidegradation policy requires that state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. This Order is consistent with applicable federal and State antidegradation policies, as it does not authorize the discharge of increased concentrations of pollutants or increased volumes of treated wastewater, and does not otherwise authorize degradation of the waters affected by this project.

Receiving Water:	Rattlesnake Creek Eel River Hydrologic Unit (HU) No.111.00 South Fork Eel River Sub-Area 111.32
Filled or Excavated Area:	Temporary - streams 866 feet^2
Total Linear Impacts:	Temporary - streams 396 linear ft
Dredge Volume:	None
Fill Volume:	None
Latitude/Longitude:	39.8292 N / 123.6016 W

ACCORDINGLY, BASED ON ITS INDEPENDENT REVIEW OF THE RECORD, THE REGIONAL WATER BOARD CERTIFIES THAT THE Caltrans – Highway 101 – Rattlesnake Wall Storm Damage Project, WDID No. 1B10051WNME as described in the application will comply with sections 301, 302, 303, 306 and 307 of the Clean Water Act, and with applicable provisions of state law, provided that Caltrans complies with the following terms and conditions:

1. All conditions of this order apply to Caltrans (and all its employees) and all contractors (and their employees), sub-contractors (and their employees), and any other entity or agency that performs activities or work on the project as related to this Water Quality Certification.

2. This certification action is subject to modification or revocation upon administrative or judicial review; including review and amendment pursuant to Water Code section 13330 and title 23, California Code of Regulations, section 3867.

3. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to title 23, California Code of Regulations, section 3855, subdivision (b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

4. The validity this certification is conditioned upon total payment of any fee required under title 23, California Code of Regulations, section 3833, and owed by the application.

5. Except as may be modified by any preceding conditions, all certification actions are contingent on: a) the discharge being limited, and all proposed revegetation and mitigation being completed, in strict compliance with the applicant's project description, as approved herein, and b) compliance with all applicable water quality requirements and water quality control plans including the requirements of the Basin Plan, and amendments thereto.

6. All conditions required by this Order shall be included in the Plans and Specifications prepared by Caltrans for the Contractor. In addition, Caltrans shall require compliance with all conditions included in this Order in the bid contract for this project.

7. Caltrans shall construct the project in accordance with the project described in the application and the findings above, and shall comply with all applicable water quality requirements and Water Quality Standards as detailed in the Basin Plan.

8. Any change in the design or implementation of the project that would have a significant or material effect on the findings, conclusions, or conditions of this Order must be submitted to the Executive Officer of the Regional Water Board for prior review, consideration, and concurrence.

9. Caltrans shall provide a copy of this Order and State Water Resources Control Board (SWRCB) Order No. 2003-0017-DWQ to the contractor, all subcontractors, and all utility companies conducting the work, and require that copies remain in their possession at the work site. Caltrans shall be responsible for work conducted by its employees, contractors, subcontractors, and utility companies.

10. The Regional Water Board shall be notified in writing each year at least five working days (working days are Monday – Friday) prior to the commencement of ground disturbing activities, major concrete pours, dewatering activities, or water diversion activities with details regarding the construction schedule, in order to allow Regional Water Board staff to be present on-site during installation and removal activities, and to answer any public inquiries that may arise regarding the project. Caltrans shall provide Regional Water Board staff access to the project site to document compliance with this order.

11. The Resident Engineer (or appropriately authorized agent) shall hold on-site water quality permit compliance meetings (similar to tailgate safety meetings) to discuss permit compliance, including instructions on how to avoid violations and procedures for reporting violations. The meetings shall be held at least every other week, before forecasted storm events, and when a new contractor or subcontractor arrives to begin work at the site. The contractors, subcontractors and their employees, as well as any inspectors or monitors assigned to the project, shall be present at the meetings. Caltrans shall maintain dated sign-in sheets for attendees at these meetings, and shall make them available to the Regional Water Board on request.

12. All activities and best management practices (BMPs) shall be implemented according to the submitted application and the conditions in this Order. BMPs for erosion, sediment, turbidity and pollutant control shall be implemented and in place at commencement of, during, and after any ground clearing activities, construction activities, or any other project activities that could result in erosion, sediment, or other pollutant discharges to waters of the State. The BMPs shall be implemented in accordance with the Caltrans Construction Site Best Management Practice Manual (CCSBMPM) and all contractors and subcontractors shall comply with the CCSBMPM. In addition, BMPs for erosion and sediment control shall be utilized year round, regardless of season or time of year. Caltrans shall stage erosion and sediment control materials at the work site. All BMPs shall be installed properly and in accordance with the manufacturer's specifications. If the project Resident Engineer elects to install alternative BMPs for use on the project, Caltrans shall submit a proposal to Regional Water Board staff for review and concurrence.

13. Caltrans shall prioritize the use of wildlife-friendly biodegradable (not photo-degradable) erosion control products wherever feasible. Caltrans shall not use or allow the use of erosion control products that contain synthetic netting for permanent erosion control (i.e. erosion control materials to be left in place for two years or after the completion date of the project). If Caltrans finds that erosion control netting or products have entrapped or harmed wildlife, personnel shall remove the netting or product and replace it with wildlife-friendly biodegradable products. Caltrans shall not use or allow the use of erosion control products that contain synthetic materials within waters of the United States or waters of the State at any time. Caltrans shall request approval from the Regional Water Board if an exception from this requirement is needed for a specific location.

14. Work in flowing or standing surface waters, unless otherwise proposed in the project description and approved by the Regional Water Board, is prohibited. If construction dewatering of groundwater is found to be necessary, Caltrans shall use a method of water disposal other than disposal to surface waters (such as land disposal) or Caltrans shall apply for coverage under the Low Threat Discharge Permit or an individual National Pollutant Discharge Elimination System (NPDES) Permit and receive notification of coverage to discharge to surface waters, prior to the discharge.

15. Caltrans shall submit, subject to approval by the Regional Water Board staff, a dewatering and/or diversion plan that appropriately describe the dewatered or diverted areas and how those areas will be handled during construction. The diversion/dewatering plans shall be submitted no later than 30 days prior to conducting the proposed activity. Information submitted shall include the area or work to be diverted or dewatered and method of the proposed activity. All diversion or dewatering activities shall be designed to minimize the impact to waters of the State and maintain natural flows upstream and downstream. All dewatering or diversion structures shall be installed in a manner that does not cause sedimentation, siltation or erosion upstream or downstream. All dewatering or diversion structures shall be removed immediately upon completion of project activities.

16. Surface water monitoring shall be conducted whenever a project activity is conducted within waters of the State (e.g. installing and operating stream diversions, RSP placement, discharges from project activities). Surface water monitoring shall be conducted when any project activity has, or has the potential to, mobilize sediment and/or alter background conditions within waters of the State. In order to demonstrate compliance with receiving water limitations and applicable water quality standards, field measurements shall be collected whenever a project activity may alter background conditions.

17. Caltrans shall establish effluent, upstream (background) and downstream monitoring locations to demonstrate compliance with all applicable water quality objectives as detailed in the Basin Plan. The downstream location shall be no more than 50 feet from the effluent location. Field measurements shall be taken from each location four times daily for flow, pH, temperature, dissolved oxygen, total dissolved solids, turbidity and specific conductance. In addition, visual observations shall be made four times daily and include the appearance of the discharge including color, turbidity, floating or suspended matter or debris, appearance of the receiving water at the point of discharge (occurrence of erosion and scouring, turbidity, solids deposition, unusual aquatic growth, etc), and observations about the receiving water, such as the presence of aquatic life. Measurements shall be collected from each sampling location four times daily while work is being conducted within waters of the State.

18. Whenever, as a result of project activities, downstream measurements exceed the following water quality objectives, appropriate measurements shall be collected from all monitoring locations every hour during the period of increase, and shall continue until measurements demonstrate compliance with receiving water limitations and the water quality parameters are no longer increasing as a result of project activities.

pH	<6.5 or >8.5 (any changes >0.5 units)
temperature	>0.5°F above background
dissolved oxygen	<7 milligrams per liter (mg/L)
total dissolved solids	200 mg/L
turbidity	20% above natural background
specific conductance	>350 micromhos @ 77°F

If any measurements are beyond the water quality objectives 50 feet downstream of the source(s), all necessary steps shall be taken to install, repair, and/or modify BMPs to control the source(s). In addition, the overall distance from the source(s) to the downstream extent of the exceedance shall be measured.

Monitoring results shall be reported to appropriate Regional Water Board staff person by telephone within one hour of taking any measurements that exceed the limits detailed above (turbidity only if it is higher than 20 NTU as well). Upstream and downstream pictures within the working and/or disturbed area shall be taken and submitted to the appropriate Regional Water Board staff via e-mail or fax within 24 hours of the incident. All other monitoring data shall be reported on a monthly basis and is due to the Regional Water Board by the 15th of the following month.

19. Caltrans is prohibited from discharging waste to waters of the State, unless explicitly authorized by this Order. For example, no debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or concrete washings, welding slag, oil or petroleum products, or other organic or earthen material from any construction or associated activity of whatever nature, other than that authorized by this Order, shall be allowed to enter into waters of the State. In addition, none of the materials listed above shall be placed within 150 linear feet of waters of the State or where the materials may be washed by rainfall into waters of the State.

20. Herbicides and pesticides shall not be used on the project. If Caltrans has a compelling case as to why herbicides and pesticides should be used, they may submit a request along with a BMP plan to the Executive Officer of the Regional Water Board for review, consideration, and concurrence.

21. Fueling, lubrication, maintenance, storage and staging of vehicles and equipment shall be outside of waters of the U.S. and the State. Fueling, lubrication, maintenance, storage and staging of vehicles and equipment shall not result in a discharge or a threatened discharge to any waters of the State or the U.S. At no

time shall Caltrans use any vehicle or equipment which leaks any substance that may impact water quality.

22. If, at any time, an unauthorized discharge to surface water (including wetlands, rivers or streams) occurs, or any water quality problem arises, the associated project activities shall cease immediately until adequate BMPs are implemented. The Regional Water Board shall be notified promptly and in no case more than 24 hours after the unauthorized discharge or water quality problem arises.

23. Caltrans shall implement appropriate BMPs to prevent the discharge of equipment fluids to the stream channel. The minimum requirements will include: storing hazardous materials at least 150 linear feet outside of the stream banks; checking equipment for leaks; and preventing the use of equipment with leaks in a manner that does not result in a discharge to Waters of the State.

24. Caltrans and their contractor are not authorized to discharge wastewater (e.g., water that has contacted uncured concrete or cement, or asphalt) to surface waters, ground waters, or land. Wastewater may only be disposed of to a sanitary waste water collection system/facility (with authorization from the facility's owner or operator) or a properly-licensed disposal or reuse facility. If Caltrans or their contractor proposes an alternate disposal method, Caltrans or their contractor shall apply for a permit from the Regional Water Board. Plans to reuse or recycle wastewater require written approval from Regional Water Board staff.

25. Any potentially hazardous waste(s) (solids, liquids, or slurries) derived or encountered in this project shall undergo the appropriate characterization to demonstrate compliance will all applicable waste disposal laws and regulations. If unanticipated or anticipated waste are encountered or created during the project, Caltrans shall notify the Regional Water Board immediately and at least within 24 hours. Caltrans or their contractor shall prepare applicable work plans for handling, treating, transporting, and disposing of waste. The work plans shall be prepared and signed by an engineer or geologist with the appropriate and valid California licenses.

26. Caltrans shall provide analysis and verification that placing non-hazardous waste or inert materials (which may include discarded product or recycled materials) will not result in degradation of water quality, human health, or the environment. All project-generated waste shall be handled, transported, and disposed in strict compliance with all applicable State and Federal laws and regulations. When operations are complete, any excess material or debris shall be removed from the work area and disposed of properly and in accordance with the Special Provisions for the project and/or Standard Specification 7-1.13, Disposal of Material Outside the Highway Right of Way. Caltrans shall submit to the Regional Water Board the satisfactory evidence provided to the Caltrans Engineer by the Contractor referenced in Standard Specification 7-1.13. In accordance with State and Federal laws and

regulations, Caltrans is liable and responsible for the proper disposal of waste generated by their project.

27. All imported fill material shall be clean and free of pollutants. All fill material shall be imported from a source that has the appropriate environmental clearances and permits. The reuse of low-level contaminated solids as fill on-site shall be performed in accordance with all State and Federal policies and established guidelines and must be submitted to the Regional Water Board for review and concurrence.

28. Only clean washed spawning gravel (0.5" – 4") with a cleanliness value of at least 85, using the Cleanness Value Test Method for California Test No. 227 will be placed in the streams. Gravel bag fabric shall be nonwoven polypropylene geotextile (or comparable polymer) and shall conform to the following requirements:

    - Mass per unit area, grams per square meter, min ASTM Designation: D 5261 – 270
    - Grab tensile strength (25-mm grip), kilonewtons, min. ASTM Designation: D4632* 0.89
    - Ultraviolet stability, percent tensile strength retained after 500 hours, ASTM Designation: D4355, xenon arc lamp method 70 or appropriate test method for specific polymer
    - Gravel bags shall be between 600 mm and 800 mm in length, and between 400 mm and 500 mm in width.
    - Yarn used in construction of the gravel bags shall be as recommended by the manufacturer or bag supplier and shall be of a contrasting color. Gravel shall be between 0.5" – 4" in diameter, and shall be clean and free from clay balls, organic matter, and other deleterious materials. The opening of gravel-filled bags shall be secured to prevent gravel from escaping. Gravel-filled bags shall be between 13 kg and 22 kg in mass.

29. Rainy Day Reports: Caltrans shall take photos of all areas disturbed by project activities, including all excess materials disposal areas, after rainfall events that generate visible runoff from these areas in order to demonstrate that erosion control and revegetation measures are present and have been installed appropriately and successfully. A brief report containing these photos shall be submitted within 30 days of the rainfall event that generated runoff from the disturbed areas. Once the site has demonstrated appropriate and effective erosion and sediment control, Caltrans may request a reprieve from this condition from the Regional Water Board.

30. In the event of any violation or threatened violation of the conditions of this Order, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under applicable state or federal law. For the purposes of section 401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process or sanctions for the violation or threatened

violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Order. In response to a suspected violation of any condition of this certification, the State Water Board may require the holder of any federal permit or license subject to this Order to furnish, under penalty of perjury, any technical or monitoring reports the State Water Board deems appropriate, provided that the burden, including costs, of the reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In response to any violation of the conditions of this Order, the Regional Water Board may add to or modify the conditions of this Order as appropriate to ensure compliance.

31. The Regional Water Board may add to or modify the conditions of this Order, as appropriate, and to implement any new or revised Water Quality Standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act or section 303 of the Clean Water Act.

32. This Order is not transferable. In the event of any change in control of ownership of land presently owned or controlled by Caltrans, Caltrans shall notify the successor-in-interest of the existence of this Order by letter and shall forward a copy of the letter to the Regional Water Board. The successor-in-interest must send to the Regional Water Board Executive Officer a written request for transfer of this Order to discharge dredged or fill material under this Order. The request must contain the following:

    a. requesting entity's full legal name
    b. the state of incorporation, if a corporation
    c. address and phone number of contact person
    d. description of any changes to the project or confirmation that the successor-in-interest intends to implement the project as described in this Order.

33. The authorization of this certification for any dredge and fill activities expires on December 14, 2015. Conditions and monitoring requirements outlined in this Order are not subject to the expiration date outlined above, and remain in full effect and are enforceable.

34. Please contact our staff Environmental Specialist / Caltrans Liaison Jeremiah Puget of at (707) 576-2835 or jpuget@waterboards.ca.gov if you have any questions.

Catherine Kuhlman

Catherine Kuhlman
Executive Officer

Web link: State Water Resources Control Board Order No. 2003-0017 -DWQ, General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification can be found at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0017.pdf

Original sent to: Ms. Kendall Schinke, Caltrans North Region Environmental, P. O. Box 911, Marysville, CA 95901-0911

Copies sent to: Ms. Jane Hicks, U.S. Army Corps of Engineers, Regulatory Functions, 1455 Market Street, San Francisco, CA 94103-1398

Mr. Michael Cane, Caltrans North Region Environmental, P. O. Box 911, Marysville, CA 95901-0911

FOR CONTRACT NO.: 01-47770**4**

INFORMATION HANDOUT

PERMITS

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND GAME

NOTIFICATION NO. 1600-2010-0138-R1

ROUTE: 01-MEN-101-VAR

CALIFORNIA DEPARTMENT OF FISH AND GAME
NORTHERN REGION
601 LOCUST STREET
REDDING, CALIFORNIA 96001

RECEIVED
DEC 03 2010
D. F. G. – EUREKA

LAKE OR STREAMBED ALTERATION AGREEMENT
NOTIFICATION NO. 1600-2010-0138-R1
Unnamed Tributaries to Rattlesnake Creek.

Mr. Frank Demling, representing Caltrans
RATTLESNAKE WALL STORM DAMAGE REPAIR PROJECT
STATE ROUTE 101, MENDOCINO COUNTY
THREE ENCROACHMENTS

This Lake or Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Game (DFG) and Caltrans (Permittee) as represented by Mr. Frank Demling.

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified DFG on May 17, 2010, that Permittee intends to complete the project described herein.

WHEREAS, pursuant to FGC section 1603, DFG has determined that the project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

WHEREAS, Permittee has reviewed the Agreement and accepts its terms and conditions, including the measures to protect fish and wildlife resources.

NOW THEREFORE, Permittee agrees to complete the project in accordance with the Agreement.

PROJECT LOCATION

The project is located on unnamed tributaries to Rattlesnake Creek, in the County of Mendocino, along State Route 101.

PROJECT DESCRIPTION

The work under this Agreement is limited to removing and replacing culverts and drainage inlets, including the installation of down drains and rock slope protection for energy dissipation at culvert outlets, and temporary removal of riparian habitat, per the designs and specifications described in the notification.

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include: steelhead (*Oncorhynchus mykiss*), amphibians, reptiles, aquatic macroinvertebrates, birds, and other aquatic and riparian species.

The potential adverse effects the project could have on the fish or wildlife resources identified above include but are not limited to impeding up-and/or down-stream migration , damage to spawning or rearing habitat, accelerated channel scour, temporary loss of bank stability during construction, and loss or decline of riparian and/or emergent wetland habitat.

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

Permittee shall meet each administrative requirement described below.

1.1 Documentation at Project Site. Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to DFG personnel, or personnel from another state, federal, or local agency upon request.

1.2 Providing Agreement to Persons at Project Site. Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the project at the project site on behalf of Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.

1.3 Notification of Conflicting Provisions. Permittee shall notify DFG if Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, DFG shall contact Permittee to resolve any conflict.

1.4 Project Site Entry. Permittee agrees that DFG personnel may enter the project site at any time to verify compliance with the Agreement.

2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each measure listed below.

2.1 All work within the bed, bank and channel shall be confined to the period June 1 through October 15 of each year. Work may be conducted in or near the stream during the late season work period October 15 through November 1, provided adherence to all conditions in this Agreement and a) – e) below.

a) The affected channel reach is void of surface water.

b) The Permittee shall complete any unfinished encroachment work, including erosion control measures, within 24 hours of DFG directing the Responsible Party to do so.

c) Prior to any work at a site, the Permittee shall stock-pile erosion control materials at the site. All bare mineral soil exposed in conjunction with crossing construction, deconstruction, maintenance or repair or removal shall be treated for erosion immediately upon completion of work on the crossing, and prior to the onset of precipitation capable of generating runoff.

d) Road construction leading directly into or out of a proposed stream crossing shall only be performed when soils are sufficiently dry so that sediment is not discharged into streams.

e) When a 7-day National Weather Service forecast of rain includes a minimum of 5 consecutive days with any chance of precipitation, 3 consecutive days with a 30% or greater chance of precipitation, or 2 consecutive days of 50% or greater chance of precipitation, the Permittee shall finish work underway at encroachment and refrain from starting any new work at encroachment prior to the rain event.

2.2 No fill material shall be placed within a stream except as specified in this Agreement.

2.3 All heavy equipment (including parts i.e.; buckets) that will be entering the flow of a watercourse shall be free of materials deleterious to aquatic life including oil, grease, hydraulic fluid, soil and other debris. Cleaning of equipment shall take place outside of the channel and prior to entering the water.

2.4 Any equipment or vehicles driven and/or operated within or adjacent to the stream channel shall be checked and maintained in a manner which prevents materials that, if introduced to water, could be deleterious to aquatic life, wildlife, or riparian habitat.

2.5 Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations. The disturbed portions of any stream channel or lake margin within the high water mark of the stream or lake shall be restored to as near their original condition as possible. Restoration shall include re-vegetation of areas stripped or exposed by project activities. Slash pack, rock, or other erosion protection suitable to DFG shall be placed in areas where vegetation cannot reasonably be expected to become reestablished.

2.6 Adequate and effective erosion and siltation control measures shall be used to prevent sediment or turbid or silt-laden water from entering streams. Where needed, the Permittee shall use native vegetation or other treatments including

native slash, jute netting, straw wattles, and geotextiles to protect and stabilize soils.

2.7 All bare mineral soil exposed in conjunction with crossing construction, deconstruction, maintenance or repair, shall be treated for erosion prior to the onset of precipitation capable of generating run-off or the end of the yearly work period, whichever comes first. Restoration shall include using native slash or seeding and mulching of all bare mineral soil exposed in conjunction with encroachment work. Erosion control shall consist of at least 2 to 4 inches of certified weed-free straw mulch and 100 lbs/acre equivalent barley seed. No annual (Italian) ryegrass (*Lolium multiflorum*) shall be used.

2.8 Encroachments and associated structures, fills, and other exposed soils shall be armored as needed to protect fill, abutments, and the stream channel and banks from erosion.

2.9 All large woody debris (LWD) excavated during crossing construction or deconstruction shall be used on site or at other project locations for streambed and bank stabilization or erosion control. LWD shall be sufficiently anchored or keyed-in to resist movement during high flows and placed in a manner that prevents undercutting of streambanks.

2.10 The Permittee shall provide site maintenance including, but not limited to, re-applying erosion control to minimize surface erosion and ensuring drainage structures, streambeds and banks remain sufficiently armored and/or stable.

2.11 Structures and associated materials not designed to withstand high seasonal flows shall be removed to areas above the ordinary high water mark before such flows occur or the end of the yearly work period, whichever comes first.

2.12 Refueling of equipment and vehicles and storing, adding or draining lubricants, coolants or hydraulic fluids shall not take place within or adjacent to any stream. All such fluids and containers shall be disposed of properly. Heavy equipment parked within or adjacent to the stream shall use drip pans or other devices (i.e., absorbent blankets, sheet barriers or other materials) as needed to prevent soil and water contamination.

2.13 All activities performed in the field which involve the use of petroleum or oil based substances shall employ absorbent material designated for spill containment and clean up activity on site for use in case of accidental spill. Clean-up of all spills shall begin immediately. The Permittee shall immediately notify the State Office of Emergency Services at 1-800-852-7550. DFG shall be notified by the Permittee and consulted regarding clean-up procedures.

2.14 No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete washings, oil or petroleum products, or other organic or earthen material from construction work, or associated activity of whatever nature shall be allowed to enter into, or be placed where it may be washed by rainfall or runoff into Waters of the State. When operations are completed, any excess materials or debris shall be removed from the work area. (Not applicable to material installed permanently or temporarily as part of the project activities).

2.15 Upon DFG determination that turbidity/siltation levels resulting from project related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation, shall be halted until effective Department approved control devices are installed, or abatement procedures are initiated.

2.16 The disturbed portions of any stream channel and adjacent areas shall be restored to as near their original condition as possible. Crossings shall emulate the natural streambed elevation, substrate and flow velocity to the extent feasible.

2.17 Encroachments shall be constructed, deconstructed, repaired and maintained in a manner that minimizes to the extent feasible headcutting or downcutting of the stream channel by installing grade control such as rock slope protection (RSP)(also known as riprap), woody debris, or through other effective measures.

2.18 RSP and energy dissipater materials shall consist of clean rock, competent for the application, sized and properly installed to resist washout. RSP slopes shall be supported with competent boulders keyed into a footing trench with a depth sufficient to properly seat the footing course boulders and prevent instability (typically at least 1/3 diameter of footing course boulders). Excavation spoils shall not be side-cast into the channel nor is any manipulation of the substrate of the channel authorized except as herein expressly provided. Energy dissipation devices within the stream banks shall be replanted or seeded to encourage regrowth of riparian vegetation.

2.19 Stream banks shall be stabilized as needed to prevent erosion and protect Waters of the State.

2.20 Bank stabilization structures shall be constructed to remain in place during periods of high flow including 100-year flood flows.

2.21 Material used for bank stabilization shall be clean, competent material that will not discharge sediment or other forms of pollution to Waters of the State.

2.22 Repairs and maintenance of bank stabilization sites shall employ the same type of materials used in the original construction unless contraindicated.

2.23 Streambank modifications shall be conducted with consideration of upstream and downstream conditions, and performed in a manner that will not cause negative impacts upstream or downstream in the stream channel, including accelerated bank erosion or loss of vegetation.

2.24 Culverts and their outfall structures shall be aligned with the stream channel and as wide as or wider than the channel width to the maximum extent feasible.

2.25 Culverts shall be placed with the bottom set at or slightly below the natural streambed elevation to the maximum extent feasible.

2.26 If culverts cannot or will not be set to grade, they shall have downdrains and/or energy dissipators below the outfall as needed to effectively control erosion. Downdrains shall be securely attached to the culvert and staked or otherwise anchored to the fill slope.

2.27 Culverts at stream crossings shall be sized to pass the estimated 100-year flood flow, including debris and sediment loads, without overtopping or diverting. Culvert sizing factors shall include transportation of bedload, and the abundance and size of woody debris likely to be introduced to the stream upstream of the culvert crossing.

2.28 Where flowing water is present during operations and prior to any work including concrete pouring:

a. Cofferdams shall be installed to divert stream flow and isolate and dewater the work site, and to catch any sediment-laden water and minimize sediment transport downstream. Cofferdams shall be constructed of non-polluting materials including sand bags, rock, and/or plastic tarps. Mineral soil shall not be used in the construction of cofferdams.

b. Flowing water shall be cleanly bypassed and/or prevented from entering the work area through pumping or gravity flow, and cleanly returned to the stream below the work area. Flow diversions shall be done in a manner that shall prevent pollution and/or siltation and provides flows to downstream reaches.

c. The Permittee shall remove any turbid water and sediment present in the work area prior to restoring water flow through the project site, and place them in a location where they cannot enter the Waters of the State.

2.29 For installing concrete surrounding pipe casings, the following conditions shall apply:

a. The pipe casing shall be properly prepared for the application of quick-curing cement-based mortar or concrete. Surfaces to be in contact with

concrete shall be clean (free of rust, scale, dirt and debris) and dry prior to application of materials. The lowest practicable water/cement ratios and hardest available aggregates shall be used to maximize abrasion resistance.

b. To prevent the release of materials that may be toxic to fish and other aquatic species, poured concrete shall be isolated from stream flow and allowed to dry/cure for a minimum of 30 days. As an alternative, the Permittee shall allow the concrete to dry/cure for 72 hours, continually pumping out any water that may come into contact with the poured concrete during this 72 hour period, and then monitor the pH of water that has come into contact with the poured concrete. If this water has a pH of 9.0 or greater, the water shall be pumped to a lined off-channel basin and allowed to evaporate or be transported to an appropriate facility for disposal. All water that has come in contact with poured concrete shall be removed and not allowed to flow downstream or otherwise come in contact with fish and other aquatic resources until the pH values are below 9.0. The water shall be retested until pH values become less than 9.0. Once this has been determined, the area no longer needs to be isolated and water may be allowed to flow downstream. Results of pH monitoring shall be made available to DFG upon request.

2.30 Where feasible and site-appropriate, geotextile fabric made of natural plant materials (such as jute, hemp, or coconut fiber) shall be installed in streambeds where the use of geotextile fabric is necessary.

2.31 This Agreement does not cover water diversions for construction purposes such as mixing concrete or cleaning equipment.

CONTACT INFORMATION

Any communication that Permittee or DFG submits to the other shall be in writing and any communication or documentation shall be delivered to the address below by U.S. mail, fax, or email, or to such other address as Permittee or DFG specifies by written notice to the other.

To Permittee:
Mr. Michael Cane
Caltrans District 3 Office
703 B Street
Marysville, California 95901
Fax: 503-741-4457
michael_cane@dot.ca.gov

To DFG:
Department of Fish and Game, Region 1
619 Second Street

Eureka, California 95501
Attn: Lake and Streambed Alteration Program – Laurie Harnsberger
Notification #1600-2010-0138-R1
Fax: 707-441-2021
Email: lharnsberger@dfg.ca.gov

LIABILITY

Permittee shall be solely liable for any violations of the Agreement, whether committed by Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the project or any activity related to it that the Agreement authorizes.

This Agreement does not constitute DFG's endorsement of, or require Permittee to proceed with the project. The decision to proceed with the project is Permittee's alone.

SUSPENSION AND REVOCATION

DFG may suspend or revoke in its entirety the Agreement if it determines that Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

Before DFG suspends or revokes the Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide Permittee an opportunity to correct any deficiency before DFG suspends or revokes the Agreement, and include instructions to Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused DFG to issue the notice.

ENFORCEMENT

Nothing in the Agreement precludes DFG from pursuing an enforcement action against Permittee instead of, or in addition to, suspending or revoking the Agreement.

Nothing in the Agreement limits or otherwise affects DFG's enforcement authority or that of its enforcement personnel.

OTHER LEGAL OBLIGATIONS

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from obtaining any other permits or authorizations that might be required under other federal, state, or local laws or regulations before beginning the project or an activity related to it.

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the FGC including, but

not limited to, FGC sections 2050 et seq. (threatened and endangered species), 3503 (bird nests and eggs), 3503.5 (birds of prey), 5650 (water pollution), 5652 (refuse disposal into water), 5901 (fish passage), 5937 (sufficient water for fish), and 5948 (obstruction of stream).

Nothing in the Agreement authorizes Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

AMENDMENT

DFG may amend the Agreement at any time during its term if DFG determines the amendment is necessary to protect an existing fish or wildlife resource.

Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by DFG and Permittee. To request an amendment, Permittee shall submit to DFG a completed DFG "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in DFG's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by Permittee in writing, as specified below, and thereafter DFG approves the transfer or assignment in writing.

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, Permittee shall submit to DFG a completed DFG "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in DFG's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

EXTENSIONS

In accordance with FGC section 1605(b), Permittee may request one extension of the Agreement, provided the request is made prior to the expiration of the Agreement's term. To request an extension, Permittee shall submit to DFG a completed DFG "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in DFG's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). DFG shall process the extension request in accordance with FGC 1605(b) through (e).

If Permittee fails to submit a request to extend the Agreement prior to its expiration, Permittee must submit a new notification and notification fee before beginning or continuing the project the Agreement covers (Fish & G. Code, § 1605, subd. (f)). .

EFFECTIVE DATE
The Agreement becomes effective on the date of DFG's signature, which shall be: 1) after Permittee's signature; 2) after DFG complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable FGC section 711.4 filing fee listed at http://www.dfg.ca.gov/habcon/ceqa/ceqa_changes.html.

TERM
This Agreement shall expire five years after its effective date, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

AUTHORITY
If the person signing the Agreement (signatory) is doing so as a representative of Permittee, the signatory hereby acknowledges that he or she is doing so on Permittee's behalf and represents and warrants that he or she has the authority to legally bind Permittee to the provisions herein.

AUTHORIZATION
This Agreement authorizes only the project described herein. If Permittee begins or completes a project different from the project the Agreement authorizes, Permittee may be subject to civil or criminal prosecution for failing to notify DFG in accordance with FGC section 1602.

CONCURRENCE
The undersigned accepts and agrees to comply with all provisions contained herein.

FOR CALTRANS

12-3-2010

Name FRANK C. DEMLING — Date

Title PROJECT MANAGER

FOR DEPARTMENT OF FISH AND GAME

T. LABANCA — 12/10/10

Name — Date

FOR Acting Environmental Program Manager

Prepared by: Gordon Leppig, Staff Environmental Scientist

FOR CONTRACT NO.: 01-47770**4**

INFORMATION HANDOUT

PERMITS

UNITED STATES ARMY CORPS OF ENGINEERS

NON-REPORTING
NATIONWIDE PERMIT #14

ROUTE: 01-MEN-101-VAR (PM 83.82)

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
(33 CFR 325)

OMB APPROVAL NO. 0710-0003
EXPIRES: 31 August 2012

Public reporting burden for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This Information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME:
First - Michael Middle - W Last – Cane
Company – California Dept of Transportation (Caltrans)
E-mail Address – michael_cane@dot.ca.gov

8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required)
First - Middle - Last –
Company –
E-mail Address –

6. APPLICANT'S ADDRESS.
Address - 703 B St.
City – Marysville State – CA Zip – 95901 Country – USA

9. AGENT'S ADDRESS
Address -
City – State – Zip – Country –

7. APPLICANT'S PHONE NOs. W/AREA CODE.
a. Residence b. Business (530) 741-4579 c. Fax (530) 741-4457

10. AGENT'S PHONE NOs. W/AREA CODE
a. Residence b. Business c. Fax

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

_____
APPLICANT'S SIGNATURE DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
Rattlesnake Wall Storm Damage Repair Project

13. NAME OF WATERBODY, IF KNOWN (if applicable)
Unnamed tributaries to Rattlesnake Cr

14. PROJECT STREET ADDRESS (if applicable)
Address Mendocino 101-PM's 82.0, 82.50 and 83.82
City - State – CA Zip -

15. LOCATION OF PROJECT
Latitude: °N 39° 49' 45.23"
Longitude: °W 123° 36' 6.01"

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)
State Tax Parcel ID Municipality Tan Oak Park 7.5' USGS quadrangle
Section – 22 Township – 23N Range – 15W

17. DIRECTIONS TO THE SITE
From the town of Willits head north on SR-101 approximately 24 miles. PM's are 82.0, 82.5 and 83.82.

18. Nature of Activity (Description of project, include all features)

See Attached Project Description

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

This is a storm damage project with the purpose of reducing maintenance needs along a section of State Route (SR) 101 which is prone to failure. The final goal is to stabilize several slide areas along the highway by either reducing the weight of the road base or stabilizing the highway through walls.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Replacement of culverts and Roadway Rehabilitation

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
No Additional Fill, Just Replacement of Culverts	and temporary impacts	

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres 0.003 acre naturally flowing perennial stream, 0.006 acre culverted perennial stream,

Or

Liner Feet 0.002 acre naturally flowing Intermittent stream and 0.005 acre culverted intermittent stream.

23. Description of Avoidance, Minimization, and Compensation (see instructions)

See attached Avoidance, Minimization and Compensation Measures

24. Is Any Portion of the Work Already Complete? Yes ☐ No ☑ IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).

Address – See attached list of property owners

City – State – Zip –

26. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
SRWQCB	401	N/A	4/30/2010	Pending	
DFG	1602	N/A	4/30/2010	Pending	

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

Project Description

This Project will stabilize three locations on SR 101. Proposed work at each location are as follows:

Location 1, PM 82.00 (Station 45+00 to Sta. 53+00): On the fill side of the road in areas containing slipouts: excavate the two northbound lanes 15' to 25' below the shoulder, replace with lightweight fill (LWF), repave to pre-storm damage width, replace metal beam guard rail (MBGR). LWF will be expanded polystyrene blocks encapsulated in a rubber membrane, overlain by embankment material. Access to the work area will be from existing highway. On the cut slope side of the road, construct 20' deep underdrain and replace cross culverts and drain inlets (DI's) at PM 81.98 and 82.07. Repair breach in cut slope bench above the roadway and regrade ditch.

Construction work at PM 81.98 will require a temporary clear water diversion for a spring that flows through the culvert. The contractor will submit a diversion plan for approval. The diversion will most likely be accomplished by rerouting flow through the culvert at PM 82.07 and pumping it back to the original outlet point of the PM 81.98 culvert.

Location 2, PM 82.50 (Sta. 73+00 to Sta 77.50): Remove slide material, regrade cutoff ditch above slide, place rock slope protection (RSP) in the cutoff ditch's outfall channel. Buttress toe of slide with RSP. Fill surface voids in RSP with soil.

Location 3, PM 83.82 (Sta. 142+00 to Sta. 145+25): On the fill slope side of the road, construct soldier pile retaining wall. Piles will be cast in drilled hole (CIDH), therefore no pile driving is required. A small amount of excavation in front of the drilled holes will give workers a place to stand and place lagging below the existing slide surface. The drill and excavator will operate from the existing pavement. Fill will be placed behind wall and reconstruction of failed or excavated portions of roadway will be undertaken. Construct MBGR and cable railing along top of wall and replace AC dike at edge of pavement under MBGR. On the cut slope side of the road, construct 12' deep underdrain, regrade drainage ditch, replace 24" diameter cross culvert and DI.

Several measures will be taken to control sediment while working above Rattlesnake Creek. The road already carries an AC dike along the length of the proposed retaining wall at Location 3. Below the retaining wall, a temporary reinforced silt fence will be anchored in the slide material. Holes for piles will be drilled through a casing and the excavated material collected in a truck. If groundwater is encountered in the bottoms of the pile holes, standard practice is to place a slurry cement plug before casting the concrete around the piles.

For all three locations the contractor will prepare a Stormwater Pollution Prevention Plan (SWPPP) detailing the deployment of a selection of Best Management Practices

(BMP's). The contract will specify some line item BMP's to be included in the SWPPP. These are: temporary silt fence, temporary reinforced silt fence, temporary drainage inlet protection, temporary concrete washout, temporary clear water diversion system, and fiber rolls. Also, all disturbed soil areas will receive a compost blanket and hydroseeding.

The project will be constructed in the dry season from May 15th, 2011 to October 14th, 2011 over 85 working days.

Property Owners-

PM 81.98, left (uphill) side: Scott Bankard, PO Box 1297, Laytonville, 95454
PM 81.98, right side: Dawnda G Kennemer, 544 Kirkwood Ct, Santa Rosa, 95407
PM 83.82, left side: Randy J & Janice I Rosenthal, PO Box 265, Leggett, 95585
PM 83.82, right side: Harry Hosking, PO Box 1822, Laytonville, 95454

Minimization and Avoidance Measures,
Non-Reporting NW-14 USACE Section 404 Permit.

-Using a temporary concrete washout (portable)
-Placement of fiber rolls
-Follow Caltrans Standard BMP's.
-Working during the low/no flow period (May 16th – October 14th)
-Preservation of existing vegetation.
-Riparian vegetation will be trimmed in-lieu of removal.
-ESA Fencing will be placed around non-impacted Waters of the US to prevent additional inadvertent impacts beyond those shown in the impact mapping.

Nationwide Permit (14) Linear Transportation Projects (3/18/2002)

Activities required for the construction, expansion, modification, or improvement of linear transportation crossings (e.g., highways, railways, trails, airport runways, and taxiways) in waters of the US, including wetlands, if the activity meets the following criteria:

a. This NWP is subject to the following acreage limits:
That the discharge does not cause the loss of greater than 1/3 acre of waters of the U.S. (*per Norfolk District Regional Condition*)

b. The permittee must notify the District Engineer in accordance with General Condition 13 if any of the following criteria are met:
(1) The discharge causes the loss of greater than 1/10-acre of waters of the US; or
(2) There is a discharge in a special aquatic site, including wetlands;

c. The notification must include a compensatory mitigation proposal to offset permanent losses of waters of the US to ensure that those losses result only in minimal adverse effects to the aquatic environment and a statement describing how temporary losses will be minimized to the maximum extent practicable;

d. For discharges in special aquatic sites, including wetlands, and stream riffle and pool complexes, the notification must include a delineation of the affected special aquatic sites;

e. The width of the fill is limited to the minimum necessary for the crossing;

f. This permit does not authorize stream channelization, and the authorized activities must not cause more than minimal changes to the hydraulic flow characteristics of the stream, increase flooding, or cause more than minimal degradation of water quality of any stream (see General Conditions 9 & 21);

g. This permit cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars; and

h. The crossing is a single and complete project for crossing waters of the US. Where a road segment (i.e., the shortest segment of a road with independent utility that is part of a larger project) has multiple crossings of streams (several single and complete projects) the Corps will consider whether it should use its discretionary authority to require an Individual Permit. (Sections 10 and 404)

Note: Some discharges for the construction of farm roads, forest roads, or temporary roads for moving mining equipment may be eligible for an exemption from the need for a Section 404 permit (see 33 CFR 323.4).

GENERAL CONDITIONS:

The following general conditions must be followed in order for any authorization by a NWP to be valid:

1. Navigation. No activity may cause more than a minimal adverse effect on navigation.
2. Proper Maintenance. Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.
3. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.
4. Aquatic Life Movements. No activity may substantially disrupt the necessary life-cycle movements of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.
5. Equipment. Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.
6. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions which may have been added by the division engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the State or tribe in its Section 401 water quality certification and Coastal Zone Management Act consistency determination.
7. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status; unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation, or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).
8. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.
9. Water Quality. (a) In certain States and tribal lands an individual 401 water quality certification must be obtained or waived (See 33 CFR 330.4(c)).
   (b) For NWPs 12, 14, 17, 18, 32, 39, 40, 42, 43, and 44, where the State or tribal 401 certification (either generically or individually) does not require or approve a water quality management plan, the permittee must include design criteria and techniques that will ensure that the authorized work does not result in more than minimal degradation of water quality (or the Corps determines that compliance with state or local standards, where applicable, will ensure no more than minimal adverse effect on water quality). An important component of water quality management includes stormwater management that minimizes degradation of the downstream aquatic system, including water quality (refer to General Condition 21 for stormwater management requirements). Another important component of water quality management is the establishment and maintenance of vegetated buffers next to open waters, including streams (refer to General Condition 19 for vegetated buffer requirements for the NWPs).
10. Coastal Zone Management. In certain states, an individual state coastal zone management consistency concurrence must be obtained or waived (see 33 CFR 330.4(d)).
11. Endangered Species. (a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which will destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or is located in the designated critical habitat and shall not begin work on the activity until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. For activities that may affect Federally-listed endangered or threatened species or designated critical habitat, the notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. As a result of formal or informal consultation with the FWS or NMFS, the District Engineer may add species-specific regional endangered species conditions to the NWPs.
    (b) Authorization of an activity by a nationwide permit does not authorize the "take" of a threatened or endangered species as defined under the Federal Endangered Species Act. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service, both lethal and non-lethal "takes" of protected species are in violation of the Endangered Species Act. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. Fish and Wildlife Service and National Marine Fisheries Service or their world wide web pages at http://www.fws.gov/r9endspp/endspp.html and http://www.nmfs.noaa.gov/prot_res/overview/es.html respectively.
12. Historic Properties. No activity which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places is authorized, until the DE has complied with the provisions of 33 CFR Part 325, Appendix C. The prospective permittee must notify the District Engineer if the authorized activity may affect any historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of

Historic Places, and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office and the National Register of Historic Places (see 33 CFR 330.4(g)). For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the notification must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.

13. Notification.

(a) Timing: Where required by the terms of the NWP, the prospective permittee must notify the District Engineer with a preconstruction notification (PCN) as early as possible. The District Engineer must determine if the PCN is complete within 30 days of the date of receipt and can request the additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the District Engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the District Engineer. The prospective permittee shall not begin the activity:

(1) Until notified in writing by the District Engineer that the activity may proceed under the NWP with any special conditions imposed by the District or Division Engineer; or

(2) If notified in writing by the District or Division Engineer that an individual permit is required; or

(3) Unless 45 days have passed from the District Engineer's receipt of the complete notification and the prospective permittee has not received written notice from the District or Division Engineer. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Notification: The notification must be in writing and include the following information:

(1) Name, address, and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) Brief description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP (Sketches usually clarify the project and when provided result in a quicker decision.);

(4) For NWPs 7, 12, 14, 18, 21, 34, 38, 39, 40, 41, 42, and 43, the PCN must also include a delineation of affected special aquatic sites, including wetlands, vegetated shallows (e.g., submerged aquatic vegetation, seagrass beds), and riffle and pool complexes (see paragraph 13(f));

(5) For NWP 7 (Outfall Structures and Maintenance), the PCN must include information regarding the original design capacities and configurations of those areas of the facility where maintenance dredging or excavation is proposed.

(6) For NWP 14 (Linear Transportation Projects), the PCN must include a compensatory mitigation proposal to offset permanent losses of waters of the United States and a statement describing how temporary losses of waters of the United States will be minimized to the maximum extent practicable.

(7) For NWP 21 (Surface Coal Mining Activities), the PCN must include an Office of Surface Mining (OSM) or state-approved mitigation plan, if applicable. To be authorized by this NWP, the District Engineer must determine that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are minimal both individually and cumulatively and must notify the project sponsor of this determination in writing.

(8) For NWP 27 (Stream and Wetland Restoration Activities), the PCN must include documentation of the prior condition of the site that will be reverted by the permittee.

(9) For NWP 29 (Single-Family Housing), the PCN must also include:

(i)Any past use of this NWP by the individual permittee and/or the permittee's spouse;

(ii)A statement that the single-family housing activity is for a personal residence of the permittee;

(iii)A description of the entire parcel, including its size, and a delineation of wetlands. For the purpose of this NWP, parcels of land measuring ¼ acre or less will not require a formal on-site delineation. However, the applicant shall provide an indication of where the wetlands are and the amount of wetlands that exists on the property. For parcels greater than ¼ acre in size, a formal wetland delineation must be prepared in accordance with the current method required by the Corps. (See paragraph 13(f));

(iv)A written description of all land (including, if available, legal descriptions) owned by the prospective permittee and/or the prospective permittee's spouse, within a one mile radius of the parcel, in any form of ownership (including any land owned as a partner, corporation, joint tenant, co-tenant, or as a tenant-by-the-entirety) and any land on which a purchase and sale agreement or other contract for sale or purchase has been executed;

(10) For NWP 31 (Maintenance of Existing Flood Control Facilties), the prospective permittee must either notify the District Engineer with a PCN prior to each maintenance activity or submit a five year (or less) maintenance plan. In addition, the PCN must include all of the following:

(i) Sufficient baseline information so as to identify the approved channel depths and configurations and existing facilities. Minor deviations are authorized, provided the approved flood control protection or drainage is not increased;

(ii) A delineation of any affected special aquatic sites, including wetlands; and,

(iii) Location of the dredged material disposal site.

(11) For NWP 33 (Temporary Construction, Access, and Dewatering), the PCN must also include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources.

(12) For NWPs 39, 43, and 44, the PCN must also include a written statement to the District Engineer explaining how avoidance and minimization of losses of waters of the United States were achieved on the project site.

(13) For NWP 39 and NWP 42, the PCN must include a compensatory mitigation proposal to offset losses of waters of the US or justification explaining why compensatory mitigation should not be required. For discharges that cause the loss of greater than 300 linear feet of an intermittent stream bed, to be authorized, the District Engineer must determine that the activity complies with the other terms and conditions of the NWP, determine adverse environmental effects are minimal both individually and cumulatively, and waive the limitation on stream impacts in writing before the permittee may proceed;.

(14) For NWP 40 (Agricultural Activities), the PCN must include a compensatory mitigation proposal to offset losses of waters of the US. This NWP does not authorize the relocation of greater than 300 linear-feet of existing serviceable drainage ditches constructed in non-tidal streams unless, for drainage ditches constructed in intermittent non-tidal streams, the District Engineer waives this criterion in writing, and the District Engineer has determined that the project complies with all terms and conditions of this NWP, and that any adverse impacts of the project on the aquatic environment are minimal, both individually and cumulatively;.

(15) For NWP 43 (Stormwater Management Facilities), the PCN must include, for the construction of new stormwater management facilities, a maintenance plan (in accordance with state and local requirements, if applicable) and a compensatory mitigation proposal to offset losses of waters of the US. For discharges that cause the loss of greater than 300 linear feet of an intermittent stream bed, to be authorized, the District Engineer must determine that the activity complies with the other terms and conditions of the NWP, determine adverse environmental effects are minimal both individually and cumulatively, and waive the limitation on stream impacts in writing before the permittee may proceed;

(16) For NWP 44 (Mining Activities), the PCN must include a description of all waters of the United States adversely affected by the project, a description of measures taken to minimize adverse effects to waters of the United States, a description of measures taken to comply with the criteria of the NWP, and a reclamation plan (for aggregate mining activities in isolated waters and non-tidal wetlands adjacent to headwaters and any hard rock/mineral mining activities).

(17) For activities that may adversely affect Federally-listed endangered or threatened species, the PCN must include the name(s) of those endangered or threatened species that may be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work.

(18) For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.

(c) Form of Notification: The standard individual permit application form (Form ENG 4345) may be used as the notification but must clearly indicate that it is a PCN and must include all of the information required in (b) (1)-(19) of General Condition 13. A letter containing the requisite information may also be used.

(d) District Engineer's Decision: In reviewing the PCN for the proposed activity, the District Engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. The prospective permittee may, optionally, submit a proposed mitigation plan with the PCN to expedite the process and the District Engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. If the District Engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, the District Engineer will notify the permittee and include any conditions the District Engineer deems necessary.

Any compensatory mitigation proposal must be approved by the District Engineer prior to commencing work. If the prospective permittee is required to submit a compensatory mitigation proposal with the PCN, the proposal may be either conceptual or detailed. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the District Engineer will expeditiously review the proposed compensatory mitigation plan. The District Engineer must review the plan within 45 days of receiving a complete PCN and determine whether the conceptual or specific proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the District Engineer to be minimal, the District Engineer will provide a timely written response to the applicant stating that the project can proceed under the terms and conditions of the nationwide permit.

If the District Engineer determines that the adverse effects of the proposed work are more than minimal, then he will notify the applicant either: (1) that the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (2) that the project is authorized under the NWP subject to the applicant's submission of a mitigation proposal that would reduce the adverse effects on the aquatic environment to the minimal level; or (3) that the project is authorized under the NWP with specific modifications or conditions. Where the District Engineer determines that mitigation is required in order to ensure no more than minimal adverse effects on the aquatic environment, the activity will be authorized within the 45-day PCN period, including the necessary conceptual or specific mitigation or a requirement that the applicant submit a mitigation proposal that would reduce the adverse effects on the aquatic environment to the minimal level. When conceptual mitigation is included, or a mitigation plan is required under item (2) above, no work in waters of the United States will occur until the District Engineer has approved a specific mitigation plan.

(e) Agency Coordination: The District Engineer will consider any comments from Federal and State agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse effects on the aquatic environment to a minimal level.

For activities requiring notification to the District Engineer that result in the loss of greater than ½ acre of waters of the United States, the District Engineer will, upon receipt of a notification, provide immediately (e.g., via facsimile transmission, overnight mail, or other expeditious manner), a copy to the appropriate offices of the Fish and Wildlife Service, State natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO), and, if appropriate, the National Marine Fisheries Service. With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the District Engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the District Engineer will wait an additional 15 calendar days before making a decision on the notification. The District Engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The District Engineer will indicate in the administrative record associated with each notification that the resource agencies' concerns were considered. As required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act, the District Engineer will provide a response to National Marine Fisheries Service within 30 days of receipt of any Essential Fish Habitat conservation recommendations. Applicants are encouraged to provide the Corps multiple copies of notifications to expedite agency notification.

(f) Wetlands Delineations: Wetland delineations must be prepared in accordance with the current method required by the Corps. For NWP 29 see paragraph (b)(9)(iii) for parcels less than ¼ acre in size. The permittee may ask the Corps to delineate the special aquatic site. There may be some delay if the Corps does the delineation. Furthermore, the 45-day period will not start until the wetland delineation has been completed and submitted to the Corps, where appropriate.

14. Compliance Certification. Every permittee who has received a Nationwide permit verification from the Corps will submit a signed certification regarding the completed work and any required mitigation. The certification will be forwarded by the Corps with the authorization letter. The certification will include: a.) A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions; b.) A statement that any required mitigation was completed in accordance with the permit conditions; and c.) The signature of the permittee certifying the completion of the work and mitigation.

15. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3 acre.

16. Water Supply Intakes. No activity, including structures and work in navigable waters of the United States or discharges of dredged or fill material, may occur in the proximity of a public water supply intake except where the activity is for repair of the public water supply intake structures or adjacent bank stabilization.

17. Shellfish Beds. No activity, including structures and work in navigable waters of the United States or discharges of dredged or fill material, may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4.

18. Suitable Material. No activity, including structures and work in navigable waters of the United States or discharges of dredged or fill material, may consist of unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.) and material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

19. Mitigation. The District Engineer will consider the factors discussed below when determining the acceptability of appropriate and practicable mitigation necessary to offset adverse effects on the aquatic environment that are more than minimal.

(a) The project must be designed and constructed to avoid and minimize adverse effects to waters of the US to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland impacts requiring a PCN, unless the District Engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement. Consistent with National policy, the District Engineer will establish a preference for restoration of wetlands as compensatory mitigation, with preservation used only in exceptional circumstances.

(d) Compensatory mitigation (i.e., replacement or substitution of aquatic resources for those impacted) will not be used to increase the acreage losses allowed by the acreage limits of some of the NWPs. For example, \1/4\-acre of wetlands cannot be created to change a \3/4\-acre loss of wetlands to a \1/2\-acre loss associated with NWP 39 verification. However, \1/2\-acre of created wetlands can be used to reduce the impacts of a \1/2\-acre loss of wetlands to the minimum impact level in order to meet the minimal impact requirement associated with NWPs.

(e) To be practicable, the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of the overall project purposes. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by

creating, restoring, enhancing, or preserving similar functions and values, preferably in the same watershed.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., easements, deed restrictions) of vegetated buffers to open waters. In many cases, vegetated buffers will be the only compensatory mitigation required. Vegetated buffers should consist of native species. The width of the vegetated buffers required will address documented water quality or aquatic habitat loss concerns. Normally, the vegetated buffer will be 25 to 50 feet wide on each side of the stream, but the District Engineers may require slightly wider vegetated buffers to address documented water quality or habitat loss concerns. Where both wetlands and open waters exist on the project site, the Corps will determine the appropriate compensatory mitigation (e.g., stream buffers or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where vegetated buffers are determined to be the most appropriate form of compensatory mitigation, the District Engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland impacts.

(g) Compensatory mitigation proposals submitted with the "notification" may be either conceptual or detailed. If conceptual plans are approved under the verification, then the Corps will condition the verification to require detailed plans be submitted and approved by the Corps prior to construction of the authorized activity in waters of the US.

(h) Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases that require compensatory mitigation, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

20. Spawning Areas. Activities, including structures and work in navigable waters of the United States or discharges of dredged or fill material, in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., excavate, fill, or smother downstream by substantial turbidity) of an important spawning area are not authorized.

21. Management of Water Flows. To the maximum extent practicable, the activity must be designed maintain preconstruction downstream flow conditions (e.g., location, capacity, and flow rates). Furthermore, the activity must not permanently restrict or impede the passage of normal or expected high flows (unless the primary purpose of the fill is to impound waters) and the structure or discharge of dredged or fill material must withstand expected high flows. The activity must, to the maximum extent practicable, provide for retaining excess flows from the site, provide for maintaining surface flow rates from the site similar to preconstruction conditions, and provide for not increasing water flows from the project site, relocating water, or redirecting water flow beyond preconstruction conditions. Stream channelizing will be reduced to the minimal amount necessary, and the activity must, to the maximum extent practicable, reduce adverse effects such as flooding or erosion downstream and upstream of the project site, unless the activity is part of a larger system designed to manage water flows. In most cases, it will not be a requirement to conduct detailed studies and monitoring of water flow.
This condition is only applicable to projects that have the potential to affect waterflows. While appropriate measures must be taken, it is not necessary to conduct detailed studies to identify such measures or require monitoring to ensure their effectiveness. Normally, the Corps will defer to state and local authorities regarding management of water flow..

22. Adverse Effects From Impoundments. If the activity, including structures and work in navigable waters of the United States or discharge of dredged or fill material, creates an impoundment of water, adverse effects on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized to the maximum extent practicable.

23. Waterfowl Breeding Areas. Activities, including structures and work in navigable waters of the United States or discharges of dredged or fill material, into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

24. Removal of Temporary Fills. Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

25. Designated Critical Resource Waters. Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, National Wild and Scenic Rivers, critical habitat for Federally listed threatened and endangered species, coral reefs, State natural heritage sites, and outstanding national resource waters or other waters officially designated by a State as having particular environmental or ecological significance and identified by the District Engineer after notice and opportunity for public comment. The District Engineer may also designate additional critical resource waters after notice and opportunity for comment.

(a) Except as noted below, discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, and 44 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters. Discharges of dredged or fill materials into waters of the United States may be authorized by the above NWPs in National Wild and Scenic Rivers if the activity complies with General Condition 7. Further, such discharges may be authorized in designated critical habitat for Federally listed threatened or endangered species if the activity complies with General Condition 11 and the U.S. Fish and Wildlife Service or the National Marine Fisheries Service has concurred in a determination of compliance with this condition.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with General Condition 13, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The District Engineer may authorize activities under these NWPs only after he determines that the impacts to the critical resource waters will be no more than minimal.

26. Fills Within 100-Year Floodplains. For purposes of this general condition, 100-year floodplains will be identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps or FEMA-approved local floodplain maps.

(a) Discharges in Floodplain; Below Headwaters. Discharges of dredged or fill material into waters of the US within the mapped 100-year floodplain, below headwaters (i.e. five cfs), resulting in permanent above-grade fills, are not authorized by NWPs 39, 40, 42, 43, and 44.

(b) (b) Discharges in Floodway; Above Headwaters. Discharges of dredged or fill material into waters of the US within the FEMA or locally mapped floodway, resulting in permanent above-grade fills, are not authorized by NWPs 39, 40, 42, and 44.

(c) The permittee must comply with any applicable FEMA-approved state or local floodplain management requirements.

27. Construction Period. For activities that have not been verified by the Corps and the project was commenced or under contract to commence by the expiration date of the NWP (or modification or revocation date), the work must be completed within 12-months after such date (including any modification that affects the project). For activities that have been verified and the project was commenced or under contract to commence within the verification period, the work must be completed by the date determined by the Corps. For projects that have been verified by the Corps, an extension of a Corps approved completion date maybe requested. This request must be submitted at least one month before the previously approved completion date.

Further Information:

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other Federal, State, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project.

Section 401 Water Quality Conditions. No additional permit will be required except in the following cases:

1. When compensatory mitigation is in the form of the purchase of mitigation bank credits and the bank is not located within the same hydrologic unit or an adjacent hydrologic unit within the same river watershed as the impacted site by the Hydrologic Unit Map of the United States, 1980, unless the conditions listed in Section 62.1-44.15:5E of the Code of Virginia relating to bank and impact type and location are met.

2. When compensatory mitigation involves only the preservation of wetlands and/or wetland or upland vegetated buffers without accompanying creation or restoration of wetlands or the purchase of mitigation bank credits, or does not meet the goal of no net loss of wetland acreage and function.

3. For the location of a stormwater management facility in perennial stream or in oxygen or temperature impaired waters.

4. For impacts to perennial streams in excess of 500 linear feet and for impacts to intermittent streams in excess of 1500 linear feet.

5. For any water withdrawal project.

FOR CONTRACT NO.: 01-47770**4**

INFORMATION HANDOUT

MATERIALS INFORMATION

FOUNDATION REPORT

RETAINING WALL NO. 10E0019

ROUTE: 01-MEN-101-VAR (PM 83.82)

VR

State of California
Department of Transportation

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. JOE DOWNING
Structure Design Branch 3
Office of Bridge Design North

Attention: Mr. Ashraf Ahmed

Date: April 2, 2009

File: 01-MEN-101-PM 83.82
EA: 01-477701
Wall No.10E0019

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
OFFICE OF GEOTECHNICAL DESIGN - NORTH
BRANCH B - EUREKA

Subject: Foundation Report Addendum, Rattlesnake Wall

Project Description

This Foundation Report Addendum has been prepared to clarify the location of the test boreholes designated as R-07-001 and R-07-002 that were completed on August 14, 2007. These boreholes were located and mapped by Kleinfelder staff, using the "As-Built" stationing on HWY 101 that was provided to them by Caltrans North Region Office of Surveys (Plate 2). Subsequent to the geotechnical investigation, roadway design was begun on this project, with a design line designated "CL1" (Site Plan, Location 3).

The Borehole locations are as follows:

I.D.	"As-Built" Line Station/Offset Location (1)		"CL1" Line Station/Offset Location (1)	
R-07-001	26+40	21.4 feet right	113+87.9	22.6 feet right
R-07-002	25+90	21.0 feet right	114+38.1	23.9 feet right

(1) Approximate distance from existing centerline.

A vicinity map showing the project site plan with boring locations (Plate 2) and a draft layout sheet (Site Plan, Location 3, PM 83.82) prepared by District 2 Design (Branch R3) are attached.

The revised Log of Test Borings is also attached to this Addendum.

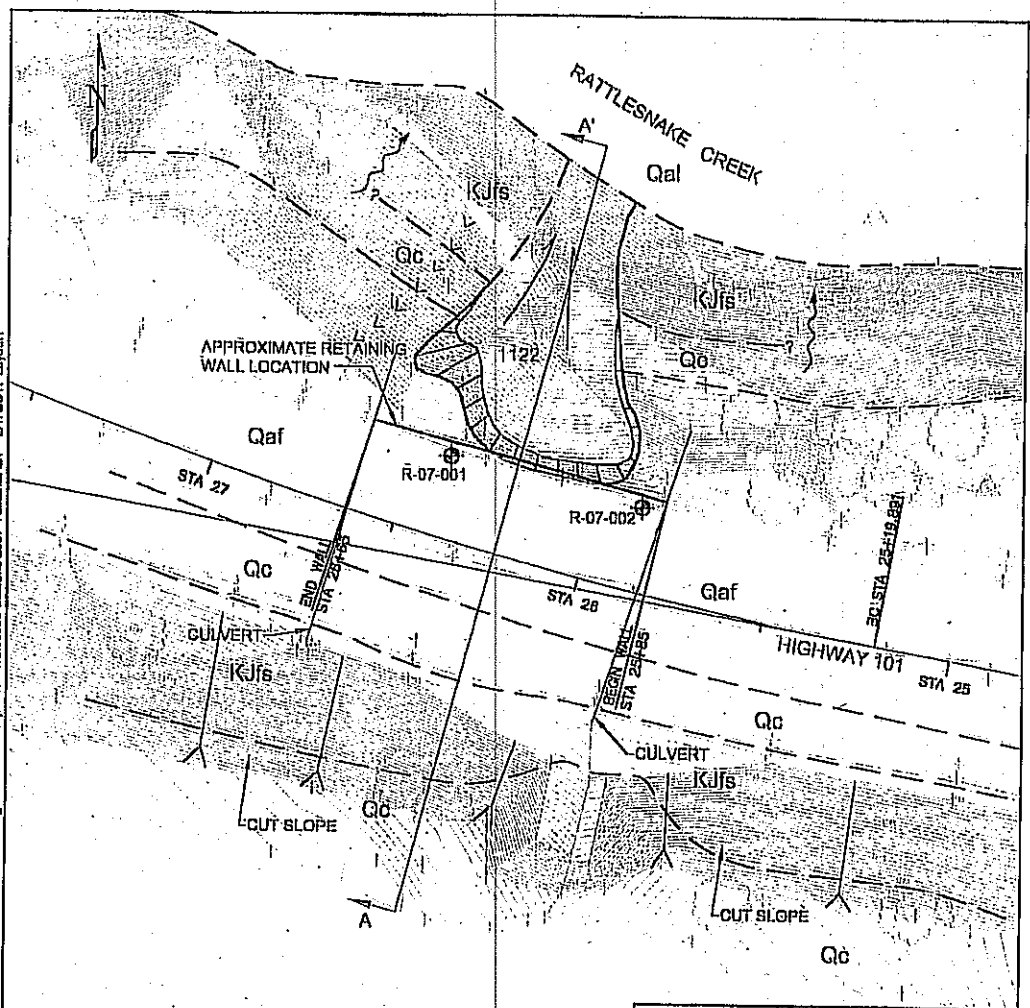
If you have any questions or require further assistance, please call Kathy Gallagher at (707) 441-2024 or Charlie Narwold at (707) 445-6036.

REGISTERED PROFESSIONAL ENGINEER
KATHRYN GALLAGHER
No. 62012
Exp. 9/30/09
CIVIL
STATE OF CALIFORNIA

KATHY GALLAGHER, PE
Transportation Engineer
Office of Geotechnical Design - North
Branch B

Attachments: Site Plan - Location 3 – PM 83.82 (CT Preliminary Plan Sheet)
Site Plan and Geology /Bore Hole Location Map (Plate 2)
Log of Test Borings (Revised3/25/09)

c: 01-R.E. Pending File
01-Maintenance Engineering
PCE (E-copy)
Structures – OE (E-Copy)
GDN File
GS File Room



EXPLANATION

Qaf	Artificial Fill
Qal	Alluvium
Qc	Colluvium
KJfs	Franciscan Complex: Central Belt
1122	Landslide: Hatchures Indicate Scarp Area; Arrows Indicate Direction of Movement
1122	Landslide Identification Number (see landslide chart)
> > > > >	Erosion Rilling or Gully
	Geologic Contact: Dashed Where Approximate
R-07-001	Boring Location (Kleinfelder, 2007)
	Soil Creep/Ravelling
A' A	Section Location

LANDSLIDE IDENTIFICATION CHART

1 2 3 4

STATE OF ACTIVITY

1=Active or Recently Active
(areas of unstable ground with relatively recent/ fresh geomorphic features such as ground cracks, hummocky topography, exposed soils, abrupt gradient breaks and/or disrupted vegetation, typically recent to 50 years old)

2=Dormant
(areas of quasi-stable ground, with eroded and subdued geomorphic features, no exposed soils, somewhat re-vegetated but typically with different type or density, typically >50 to several hundreds of years old)

3=Ancient
(areas of relatively stable ground, typically characterized by large, broad and deep landslides with highly eroded and subdued geomorphic features, re-vegetated with similar type and density, typically several hundreds to several thousands of years old)

CERTAINTY OF IDENTIFICATION

1=Definite
2=Probable
3=Questionable

DOMINANT TYPE OF MOVEMENT

1=Slump Flow Complex
2=Debris Slide
3=Debris Flow
4=Earth Flow
5=Creep
6=Translational

THICKNESS OF DEPOSIT

1=Less Than 5 Feet
2=5 to 15 Feet
3=15 to 50 Feet
4=Greater Than 50 Feet

DRAWN BY: P. Hubbard	**SITE PLAN**	KLEINFELDER	PLATE
REVISED BY:		2240 Northpoint Parkway Santa Rosa, CA 95407-5009 PH. 707-571-1803 FAX. 707-571-7013 www.kleinfelder.com	2
CHECKED BY: J. Richmond	STORM DAMAGE LOCATION EA: 01-477701 HIGHWAY 101 P.M. 83.82 MENDOCINO COUNTY, CALIFORNIA		
DATE: 11/07 / APPROVED BY:	PROJECT NO. 85305-2 / FILE NAME: MEN101PM83-82-2.DWG		

PLOTTED: 21 Nov 2007, 8:26am, phubbard

© by Kleinfelder, 2007

ATTACHED IMAGES: Images: DC_2502626.jpg
ATTACHED XREFS: XRef: 85305-Background; XRef: MEN101PM83-82-Stations
FILE: L:\2005\85PROJ CAD FILE: UNGEOTECH_PROJECTS\Projects\Active\85305 Caltrans 2007 4 sites\CAD LAYOUT: Layout1

in the submittal

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	Var		-

PRELIMINARY

REGISTERED CIVIL ENGINEER DATE

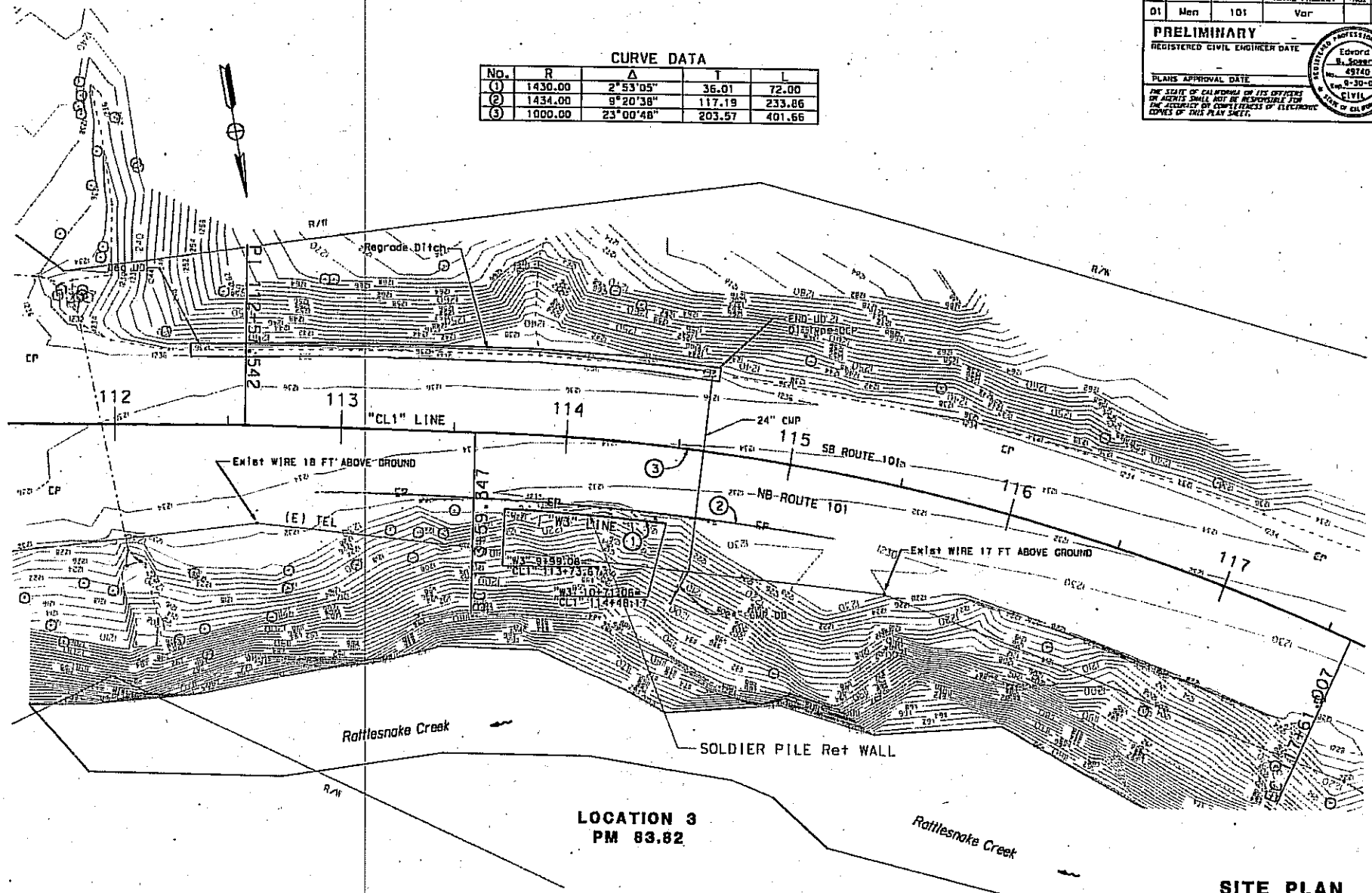
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER Edward B. Speer No. 49740 Exp. 9-30-08 CIVIL STATE OF CALIFORNIA

CURVE DATA

No.	R	Δ	T	L
(1)	1430.00	2°53'05"	36.01	72.00
(2)	1434.00	9°20'38"	117.19	233.86
(3)	1000.00	23°00'48"	203.57	401.66



SITE PLAN

SCALE 1" = 20'

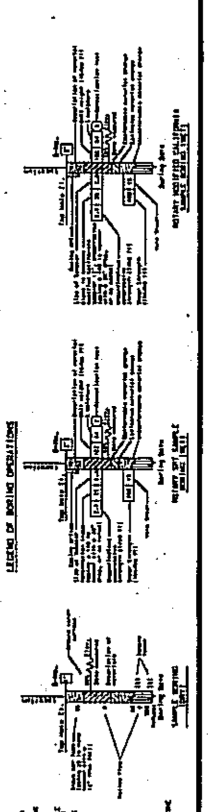
REVISED BY	DATE REVISED
ED SPEER	CHECKER
CALCULATED-DESIGNED BY	CHECKED BY
FUNCTIONAL SUPERVISOR	ROB BURNETT

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DESIGN

...\MEN101PM84Site.dgn 10/30/2008 3:23:45 PM

In there



LEGEND OF EARTH MATERIALS

CONSISTENCY CLASSIFICATION FOR SOILS

WEATHERING DESCRIPTORS

Modified from United States Bureau of Reclamation, Engineering Geology Field Manual.

Descriptors		Diagnostic features					
		Chemical weathering-Discoloration and/or oxidation		Mechanical weathering-Grain boundary conditions (disaggregation) primarily for granitics and some coarse-grained sediments	Texture and solutioning		General characteristics (strength, excavation, etc.)§
Alphanumeric descriptor	Descriptive term	Body of rock	Fracture surfaces †		Texture	Solutioning	
W1	Fresh	No discoloration, not oxidized.	No discoloration or oxidation.	No separation, intact (tight).	No change.	No solutioning.	Hammer rings when crystalline rocks are struck. Almost always rock excavation except for naturally weak or weakly cemented rocks such as siltstones or shales.
W2	Slightly weathered to fresh°						
W3	Slightly weathered	Discoloration or oxidation is limited to surface of, or short distance from, fractures; some feldspar crystals are dull.	Minor to complete discoloration or oxidation of most surfaces.	No visible separation, intact (tight).	Preserved.	Minor leaching of some soluble minerals may be noted.	Hammer rings when crystalline rocks are struck. Body of rock not weakened. With few exceptions, such as siltstones or shales, classified as rock excavation.
W4	Moderately to slightly weathered°						
W5	Moderately weathered	Discoloration or oxidation extends from fractures usually throughout; Fe-Mg minerals are "rusty," feldspar crystals are "cloudy."	All fracture surfaces are discolored or oxidized.	Partial separation of boundaries visible.	Generally preserved.	Soluble minerals may be mostly leached.	Hammer does not ring when rock is struck. Body of rock is slightly weakened. Depending on fracturing, usually is rock excavation except in naturally weak rocks such as siltstones or shales.
W6	Intensely to moderately weathered°						
W7	Intensely weathered	Discoloration or oxidation throughout; all feldspars and Fe-Mg minerals are altered to clay to some extent; or chemical alteration produces in-situ disaggregation, see grain boundary conditions.	All fracture surfaces are discolored or oxidized, surfaces friable.	Partial separation, rock is friable; in semiarid conditions granitics are disaggregated.	Texture altered by chemical disintegration (hydration, argillation).	Leaching of soluble minerals may be complete.	Dull sound when struck with hammer, usually can be broken with moderate to heavy manual pressure or by light hammer blow without reference to planes of weakness such as incipient or hairline fractures, or veinlets. Rock is significantly weakened. Usually common excavation.
W8	Very intensely weathered						
W9	Decomposed	Discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and Fe-Mg minerals are completely altered to clay.		Complete separation of grain boundaries (disaggregated).	Resembles a soil, partial or complete remnant rock structure may be preserved; leaching of soluble minerals usually complete.		Can be granulated by hand. Always common excavation. Resistant minerals such as quartz may be present as "stringers" or "dikes."

Note: This chart and its horizontal categories are more readily applied to rocks with feldspars and mafic minerals. Weathering in various sedimentary rocks, particularly limestones and poorly indurated sediments, will not always fit the categories established. This chart and weathering categories may have to be modified for particular site conditions or alteration such as hydrothermal effects; however, the basic framework and similar descriptors are to be used.

° Combination descriptors are permissible where equal distribution of both weathering characteristics are present over significant intervals or where characteristics present are "in between" the diagnostic feature. However, dual descriptors should not be used where significant, identifiable zones can be delineated. When given as a range, only two adjacent terms may be combined. "Decomposed to slightly weathered," or "moderately weathered to fresh" are not acceptable.

† Does not include directional weathering along shears or faults and their associated features. For example, a shear zone that carried weathering to great depths into a fresh rock mass would not require the rock mass to be classified as weathered.

§ These are generalizations and should not be used as diagnostic features for weathering or excavation classification. These characteristics vary to a large extent based on naturally weak materials or cementation and type of excavation.

BEDDING, FOLIATION, OR FLOW TEXTURE DESCRIPTIORS

Descriptors	Thickness / Spacing
Massive	Greater than 10 ft
Very thickly (bedded, foliated, or banded)	3 to 10 ft
Thickly	1 to 3 ft
Moderately	0.3 to 1 ft
Thinly	0.1 to 0.3 ft
Very thinly	0.03 (3/8 in) to 0.1 ft
Laminated (intensely foliated or banded)	Less than 0.03 ft (3/8 in)

Modified from United States Bureau of Reclamation, Engineering Geology Field Manual.

FRACTURE DENSITY

Modified from United States Bureau of Reclamation, Engineering Geology Field Manual.

FRACTURE DENSITY- Based on the spacing of all natural fractures in an exposure or core recovery lengths in boreholes; excludes mechanical breaks, shears, and shear zones; however, shear-disturbed zones (fracturing outside the shear) are included. Descriptors for fracture density apply to all rock exposures such as tunnel walls, dozer trenches, outcrops, or foundation cut slopes and inverts, as well as boreholes. Descriptive criteria presented below are based on borehole cores where lengths are measured along the core axis, for other exposures the criteria is distance measured between fractures (size of blocks).

UNFRACTURED (FD0): No fractures.

VERY SLIGHTLY FRACTURED (FD1): Core recovered mostly in lengths greater than 3 ft.

SLIGHTLY TO VERY SLIGHTLY FRACTURED (FD2)*

SLIGHTLY FRACTURED (FD3): Core recovered mostly in lengths from 1 to 3 ft. with few scattered lengths less than 1 ft or greater than 3 ft.

MODERATELY TO SLIGHTLY FRACTURED (FD4)*

MODERATELY FRACTURED (FD5): Core recovered mostly in 0.3 to 1.0 ft lengths with most lengths about 0.6 ft.

INTENSELY TO MODERATELY FRACTURED (FD6)*

INTENSELY FRACTURED (FD7): Lengths average from 0.1 to 0.3 ft with scattered fragmented intervals. Core recovered mostly in lengths less than 0.3 ft.

VERY INTENSELY TO INTENSELY FRACTURED (FD8)*

VERY INTENSELY FRACTURED (FD9): Core recovered mostly as chips and fragments with a few scattered short core lengths.

* Combinations of fracture densities (e.g. very intensely to intensely fractured, or moderately to slightly fractured) are used where equal distribution of both fracture density characteristics are present over a significant interval or exposure, or where characteristics are "in between" the descriptor definitions.

ROCK HARDNESS DESCRIPTORS

Alphanumeric Descriptor	Descriptor	Criteria
H1	Extremely hard	Core, fragment, or exposure cannot be scratched with knife or sharp pick; can only be chipped with repeated heavy hammer blows.
H2	Very hard	Cannot be scratched with knife or sharp pick. Core or fragment breaks with repeated heavy hammer blows.
H3	Hard	Can be scratched with knife or sharp pick with difficulty (heavy pressure). Heavy hammer blow required to break specimen.
H4	Moderately hard	Can be scratched with knife or sharp pick with light or moderate pressure. Core or fragment breaks with moderate hammer blow.
H5	Moderately soft	Can be grooved 1/16 inch deep by knife or sharp pick with moderate or heavy pressure. Core or fragment breaks with light hammer blow or heavy manual pressure.
H6	Soft	Can be grooved or gouged easily by knife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
H7	Very soft	Can be readily indented, grooved or gouged with fingernail, or carved with a knife. Breaks with light manual pressure.

Any bedrock unit softer than H7, very soft, is to be described using ASTM D-2488 consistency descriptors.

Note: Although "sharp pick" is included in these definitions, descriptions of ability to be scratched, grooved or gouged by a knife is the preferred criteria.

Modified from United States Bureau of Reclamation, Engineering Geology Field Manual.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Men	101	83.82		

GEOTECHNICAL PROFESSIONAL DATE 9-29-08

PLANS APPROVAL DATE

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KLEINFELDER
2240 NORTHPOINT PKWY.
SANTA ROSA, CA 95407

DESIGN OVERSIGHT

SIGN OFF DATE

DRAWN BY A. Sanchez

CHECKED BY J. Richmond, C.E.G

KLEINFELDER
FIELD INVESTIGATION BY
DATE: August 2007

PREPARED FOR THE
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PROJECT ENGINEER

BRIDGE NO. 10E0019
POST MILE 83.82

CU 01
EA 477701

RATTLESNAKE WALL

LOG OF TEST BORINGS 1 OF 3

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In there

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO	TOTAL SHEETS
01	Men	101	83.82		

GEOTECHNICAL PROFESSIONAL DATE 9-29-08

PLANS APPROVAL DATE

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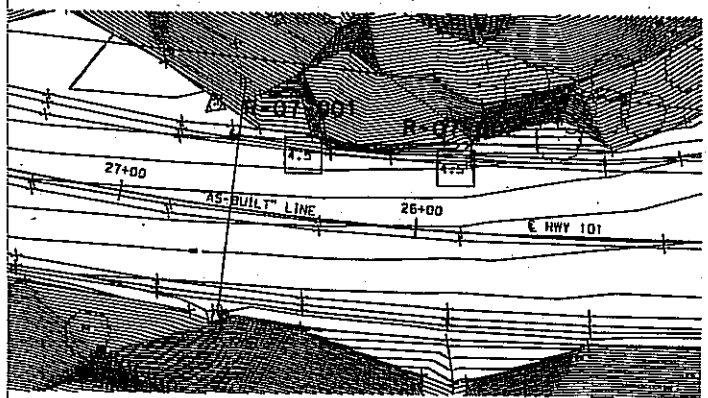
REGISTERED GEOTECHNICAL ENGINEER WILLIAM V. MCCONNELL III 1673 Exp. 11-30-08 CALIFORNIA

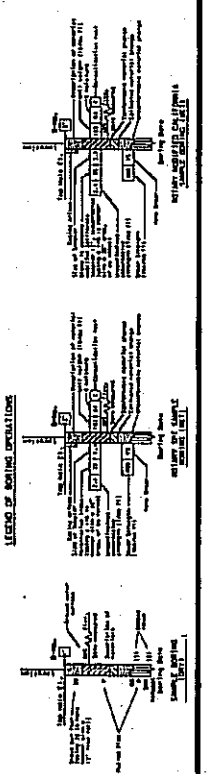
KLEINFELDER
2240 NORTHPOINT PKWY.
SANTA ROSA, CA 95407



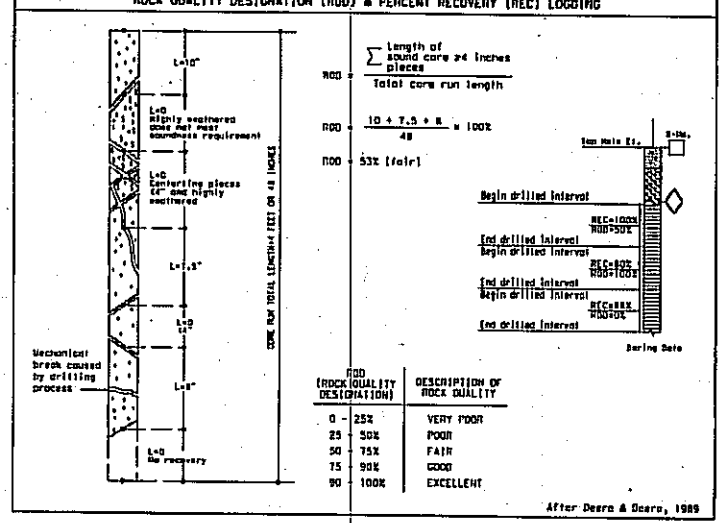
BORE HOLE LOCATIONS

BORING NUMBER	"AS-BUILT" LINE	"CL1" LINE
R-07-001	Sta 26+40, 21.4' Rt	Sta 113+87.9, 22.6' Rt
R-07-002	Sta 25+90, 21.0' Rt	Sta 114+38.1, 23.9' Rt

NOTE: GEOTECHNICAL INVESTIGATION WAS PERFORMED UTILIZING "AS-BUILT" LINE STATIONING.
ROADWAY DESIGN UTILIZES "CL1" LINE STATIONING.



ROCK QUALITY DESIGNATION (RQD) & PERCENT RECOVERY (REC) LOGGING



RQD (ROCK QUALITY DESIGNATION)	DESCRIPTION OF ROCK QUALITY
0 - 25%	VERY POOR
25 - 50%	POOR
50 - 75%	FAIR
75 - 90%	GOOD
90 - 100%	EXCELLENT

After Deere & Deere, 1989

Notes:

1. Samples were taken using a modified California split-barrel sampler with an inside diameter (I.D.) of 2 in. and an outside diameter (O.D.) of 2.5 in.
2. A safety semi-automatic hammer (140 lb) with a 30 inch drop was used to advance the sampler.
3. Blowcounts noted for boring are field blowcounts and have not been corrected.
4. Samples were taken using a SPT split-barrel sampler with an inside diameter (I.D.) of 1.4 in. and an outside diameter (O.D.) of 2 in.
5. Core samples were taken using either an HQ or HxS core sampler with a 2.5 in. and a 2.4 in. inside diameter (I.D.) and 3.8 in. and 3.7 in. outside diameter (O.D.) core barrel respectively.
6. Blowcounts 50/4 means 50 blows per 4 in. penetration.

IN-SITU, LAB & FIELD TEST DESIGNATIONS

- AL ATTERBERG LIMITS
- CA CHEMICAL ANALYSIS
- CN CONSOLIDATION
- CU CONSOLIDATED UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- MD MAX. DRY DENSITY
- PL POINT LOAD
- PP POCKET PENETROMETER
- SA SIEVE ANALYSIS
- TV TONVANE
- UC UNCONFINED COMPRESSION
- UU UNCONSOLIDATED UNDRAINED TRIAXIAL
- VS VANE SHEAR
- WC MOISTURE CONTENT

DESIGN OVERSIGHT
SIGN OFF DATE

DRAWN BY A. Sanchez
CHECKED BY J. Richmond, C.E.G

KLEINFELDER
FIELD INVESTIGATION BY:
DATE: August 2007

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

PROJECT ENGINEER X

CU 01
EA 477701
(FILE #3 RECORDS)

BRIDGE NO. 10E0019
POST MILE 83.82

RATTLESNAKE WALL
LOG OF TEST BORINGS 2 OF 3

REVISED PRINTS REQUIRED
SUBMITTED MOTION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET X OF X

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DATE PLOTTED BY USER

USERNAME BY USER

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DIST	COUNTY	ROUTE	POST MILE & TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	83.82		

GEOTECHNICAL PROFESSIONAL DATE 9-29-08

PLANS APPROVAL DATE

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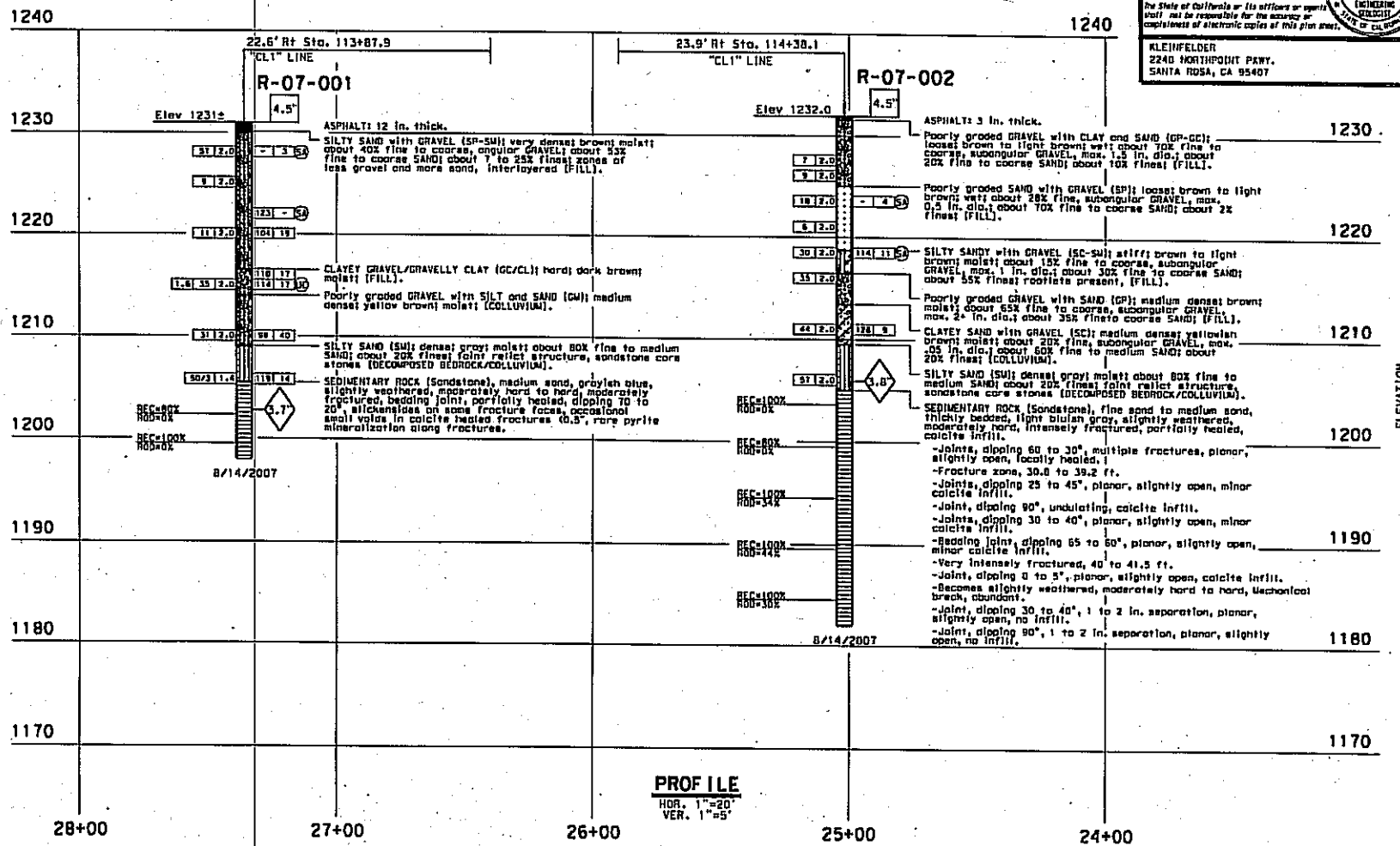
REGISTERED GEOLOGIST WILLIAM T. McCONNELL III 1973 Exp. 11-30-08 CERTIFIED ENGINEERING GEOLOGIST STATE OF CALIFORNIA

KLEINFELDER
2240 NORTHPOINT PKWY.
SANTA ROSA, CA 95407

FOR PLAN VIEW AND ADDITIONAL NOTES, SEE "LOG OF TEST BORINGS" SHEET 2 OF 3



PROFILE
HOR. 1"=20'
VER. 1"=5'

DESIGN OVERSIGHT	DRAWN BY A. Sanchez	P. Holland, J. Richmond FIELD INVESTIGATION BY	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
Supt. Grp. Date	CHECKED BY J. Richmond, C.E.G	DATE: August 2007	X PROJECT ENGINEER

BRIDGE NO. 10E0019
POST MILE 83.82

CU 01
EA 477701
FILE #3 REQUEST

RATTLESNAKE WALL
LOG OF TEST BORINGS 3 OF 3

SHEET X OF X

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Memorandum

Flex your power!
Be energy efficient!

To: MR. JOE DOWNING
Structure Design Branch 3
Office of Bridge Design North

Attention: Mr. Ashraf Ahmed

Date: October 30, 2008

File: 01-MEN-101-PM 83.82
EA: 01-477701
Wall No.10E0019

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
OFFICE OF GEOTECHNICAL DESIGN - NORTH
BRANCH B - EUREKA

Subject: Foundation Report, Rattlesnake Wall

Project Description

This Foundation Report has been prepared to summarize the geotechnical investigation and provide foundation recommendations for the proposed soldier pile wall on MEN-101 at PM 83.82. At this location, District 01 plans to construct a soldier pile wall in order to repair a slope failure at the edge of pavement along the northbound lane. The slope failure is characterized as a shallow debris slide that extends approximately 80 feet down slope towards the bank of Rattlesnake Creek. A preliminary Foundation Report was prepared by Kleinfelder's Geotechnical office in Santa Rosa, CA (dated November 29, 2007). This report, and the recommendations contained herein, supersedes all other geotechnical reports and recommendations relating to this storm damage site.

During the winter of 2005-2006, uncontrolled surface flow caused a section of the unpaved and paved shoulder to fail. A near vertical slope developed near the edge of traveled way (fog stripe). Caltrans Maintenance forces repaired the road temporarily by building a cold mix AC dike, and closing the #2 NB lane with delineators. A vicinity map showing the project location (Plate 1) and a draft layout sheet (Site Plan, Location 3, PM 83.82) prepared by Design South (Branch S14) are attached.

Scope of Work

The foundation recommendations contained in this report are based on a subsurface investigation consisting of geotechnical borings, laboratory testing of soil and rock

samples obtained from the borings, geotechnical calculations using data obtained from the subsurface investigation and laboratory testing, and Department standards. Subsurface conditions were evaluated only at the boring locations and may deviate elsewhere within the project limits.

Pertinent Reports and Investigations

The following publications were reviewed to assist in the assessment of site conditions:

1. *California Seismic Hazard Map 1996,* Caltrans, Lalliana Mualchin, 1996.

2. *Draft of General Plan for Rattlesnake Wall 10E0019* (dated 10/03/08), EA 01-477701, Caltrans Structure Design Branch 3.

3. *Geology and Geomorphic Features Related to Landsliding, Tan Oak Park 7.5 Minute Quadrangle, Mendocino County, California*, compiled by C.W. Davenport, California Department of Conservation, Division of Mines and Geology, 1984.

4. *"Tan Oak Park"* 7.5 Minute Topographic Quad Map, United States Geological Survey (USGS), 1970.

5. *Preliminary Foundation Report, Storm Damage Repair, 01 MEN 101 PM 83.82, EA: 01-477701, Mendocino County, CA,* prepared by Kleinfelder Engineering, Santa Rosa, CA, November 29, 2007.

6. United States Department of Transportation, Federal Highway Administration-California Division, Damage Assessment Form (DAF) – Title 23, Mendocino County, Highway 001, Post Mile 92.4, Report No. CSC-CT01-144-0, dated 4-11-2006.

7. McLaughlin, R. J. et al., United States Geological Survey Miscellaneous Field Studies MF-2336, Version 1.0, Geology of the Cape Mendocino, Eureka, Garberville, and Southwestern part of the Hayfork 30X60 Minute Quadrangles and Adjacent Offshore Area, Northern California, 2000.

8. Jenkins, O. P., California Geological Survey (formerly the Division of Mines and Geology) Regional Geologic Map Series, Geologic Map of the Ukiah Quadrangle, California, 1960.

Structure Description

The proposed soldier pile with timber lagging retaining wall is 72 feet in length, with a maximum wall height of 11 feet. A concrete barrier slab with a Type 732 barrier is proposed (see attached General Plan sheet dated 10/3/08).

Subsurface Exploration and Laboratory Testing

Two test borings, designated R-07-001 and R-07-002, were advanced using rotary wash drilling methods. Drilling was performed on August 14, 2007, by Caltrans Office of Drilling Services and Woodward Drilling. All drilling and sampling operations were supervised by Kleinfelder staff. Test boring R-07-001 was performed using Caltrans' truck-mounted Acker MPCA drill rig utilizing 102-mm diameter and 96-mm (HXB) casing equipped with a tungsten carbide Geo Barrel and #8 diamond impregnated core bit, respectively. Test boring R-07-002 was advanced with Woodward's truck-mounted Mobile B-57 drill rig utilizing 114mm (HWT) and 96mm (HQ) casing, equipped with a tri-cone mill tooth bit and a #8 diamond impregnated core bit, respectively. The borings were advanced from the Highway 101 pavement level in the outside traffic lane to depths of approximately 33 and 50 feet. The approximate locations of the borings are shown on Plate 2.

Laboratory testing of selected soil samples obtained from the test borings was performed at Kleinfelder's Geotechnical Laboratory in Santa Rosa, California. The purpose of the testing was to verify the field descriptions and identifications, and obtain information for subsequent engineering evaluations. Tests performed included:

Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass (ASTM D2216).

Density of Soil in Place by the Drive-Cylinder Method (ASTM D2937).

Particle-Size Analysis of Soils (ASTM D422).

Liquid Limit, Plastic Limit, and Plasticity Index of Soils (ASTM D4318).

Consolidated Undrained Triaxial Compression Test for Cohesive Soils (ASTM D4767).

Unconfined Compressive Strength of Cohesive Soil (ASTM D2166).

Corrosivity tests were performed by an independent testing laboratory (AP Engineering & Testing, Inc. in Pomona, California) in accordance with Caltrans Test Methods 532 – pH, 643 – resistivity, 417 – sulfates, and 422 – chlorides.

A summary of laboratory test results is attached.

Regional Geology

The site is located in the Rattlesnake Creek drainage, within the Coast Range Geomorphic Province of Northern California. Regional Geology is illustrated on Plate 4, "Regional Geology and Geomorphic Features Related to Landsliding." This province is generally characterized by northwest-trending mountain ranges and intervening valleys, which are a reflection of the dominant northwest structural trend of the bedrock in the region. The basement rock in the northern portion of this province is presumed to consist of the Franciscan Complex, a diverse group of igneous, sedimentary, and metamorphic rocks of early Tertiary to Cretaceous age (approximately 38 to 100 million years old (Coastal Belt) up to Upper Jurassic to Cretaceous age (140 to 65 million years old). The Franciscan Complex is part of a northwest-trending belt of material immediately adjacent to the eastern edge of the San Andreas fault system, which is located approximately 20.5 miles southwest of the site. In the vicinity of the site, the Franciscan Complex rocks are unconformably overlain by younger Quaternary alluvial, colluvial, and landslide deposits.

Site Geology

The site geology is shown on Plate 2. The geology of the site and vicinity has been mapped by Davenport (1984, California Geological Survey [formerly the Division of Mines and Geology] Open-File Report 84-17, Geology and Geomorphic Features Related to Landsliding, Tan Oak Park 7.5' Quadrangle, Mendocino County, California). Davenport (1984) shows the project site is underlain by Central Belt Franciscan Complex bedrock, which, according to McLaughlin et al. (2000) typically consists of meta-sandstone, meta-argillite, and conglomerate. The area immediately west of the site was mapped as Franciscan mélange which typically consists of sheared argillite and sandstone that contain resistant masses of sedimentary, metamorphic, and volcanic rocks. Davenport (1984) identified two active landslides designated as too small to be delineated

just west of the site, adjacent to Highway 101. In addition, the northern and southern bank of Rattlesnake Creek, located north (downslope) of the Highway 101 roadway are mapped as amphitheater slopes/debris slide areas.

The site has also been mapped by Jenkins (1960). He indicates the site is underlain by sandstone, shale, and conglomerate of undivided Jurassic-Cretaceous age Franciscan Complex bedrock.

Subsurface Conditions

The following table summarizes the drilling program performed for this investigation.

Table 1: Boring Summary

I.D.	Approx. Station	Location (1)	Depth of Boring (ft)	Surface Elev. (ft)	Date Completed	Depth to Bedrock (ft)
R-07-001	26+40	21.4 feet right	33	1231	7-14-07	25.5
R-07-002	25+90	21.0 feet right	50	1232	7-14-07	27.0

(1) Approximate distance from existing centerline.

Immediately beneath the roadway pavement section, the borings drilled for this investigation encountered 17 to 18.5 feet of sand and gravel fill. Beneath the fill, both borings encountered 8.5 feet of colluvium and decomposed bedrock that varied from silty sand to gravel. The textures of the fill, colluvium, and decomposed bedrock are very similar and transitions should be considered approximate. At depths of 25.5 to 27 feet the borings encountered moderately to intensely fractured sandstone. Recent landslide deposits were not identified in the borings.

Groundwater

Due to the use of drilling fluid, it was not possible to record groundwater depths at the time of drilling. Moisture/density tests results indicate that most samples below a depth of approximately 15 feet were saturated or nearly saturated.

Corrosion Potential

Chemical analyses were performed on one sample collected from the borings to evaluate corrosion potential of the on-site soils. Testing was performed by AP Engineering & Testing, Inc. in Pomona, California. The results of the corrosion tests are attached.

Based on the Caltrans Corrosion Guidelines (2003 version 1.0) and laboratory test results, the site may be considered as non-corrosive to steel and concrete.

Geotechnical and Foundation Recommendations

The damage or slip out evidenced in the roadway is the result of severe winter storms that occurred in the winter of 2005-2006. During this time, uncontrolled surface flow caused erosion of the unpaved shoulder and triggered a shallow debris slide on the slope below the roadway. There is no evidence of larger (global) instability at the site. A cantilevered soldier pile wall with timber lagging is recommended to retain and stabilize the new backfill material for the proposed repair. The proposed soldier pile with timber lagging retaining wall is 72 feet in length, with a maximum wall height of 11 feet.

It is assumed that the loads on the retaining wall will primarily be from the backfill as well as surcharge loads. The wall will be unrestrained at the top and should be designed for active earth pressures. Based on this assumption, we recommend the following soil parameters:

Layer	Depth (ft)	Description	Parameters
1	0 to 26	Silty Sand w/ Gravel	unit wt = 130 pcf phi = 40 c = 0 Ka = .22 Kp = 1.48
2	26 to 50	Franciscan Sandstone	unit wt = 140 pcf phi = 40 c = 500 psf Ka = .22 Kp = 7.8

The passive resistance assumes a sloping ground condition of approximately -30 degrees from bottom of lagging. Note that this passive resistance assumes no berm at the toe and this is considered the "design grade". A simplified typical wall section is attached as Figure 1.

We recommend that a concrete slab/barrier be placed on top of the piles as opposed to MBGR in order to bring the wall LOL in to 31 ft right of CL. Based on the cross sections dated 7/15/08 provided by Design R3, the maximum height of wall is approximately 11 ft. We recommend that the soldier pile embedment at the maximum wall height be 22 ft below the bottom of lagging of the soldier wall. This allows for a minimum 6 feet embedment into bedrock. Pile lengths on the ends of the wall may be shorter due to the reduced height of the retained material. Shims should be used between the timber lagging in conjunction with free-draining backfill material to prevent hydrostatic pressure behind the wall.

For transient loading associated with traffic surcharge, an additional 240.0 psf pressure should be applied to the wall. This surcharge load should be distributed uniformly along the entire free height of the wall. The proposed traffic barrier on top of the wall requires an additional 3.5 kips per foot minimum horizontal force as per Section 5.7.8 of the Bridge Design Specifications.

As per the Bridge Design Specifications 5.7.6, the finished grade should provide a berm in front of the face of the wall face at least 4 ft wide measured from the face of the wall. We recommend that the design grade at the bottom of the wall be at least 3 ft below finished grade measured at the face of the wall.

Construction Considerations

All earthwork should conform to Section 19 "Earthwork" of the Standard plans.

Seepage into drilled holes during pile installation may occur. The contractor should be prepared to drill and place CIDH piles in the presence of groundwater.

The granular soil material and intensely fractured nature of the rock may also produce caving conditions. Thus, temporary casing may be needed to keep the borings open prior to placing concrete.

Difficult drilling should be expected in drilling holes for the piles due to the presence of hard rock. The graywacke sandstone underlying the site is intensely weathered to fresh and typically moderately hard to hard. The hard rock will likely necessitate the use of specialty equipment such as diamond impregnated core bits or rotary percussion drilling techniques.

Project Information

Standard Special Provisions S5-280, "Project Information," discloses to bidders and contractors a list of pertinent information available for their inspection prior to bid opening. The following is an excerpt from SSP S5-280 disclosing information originating from Geotechnical Services. Items listed to be included in the Information Handout will be provided in Acrobat (.pdf) format to the addressee(s) of this report via electronic mail.

Data and information attached with the project plans are:

A. None

Data and information included in the Information Handout provided to the bidders and Contractors are:

A. Foundation Report for MEN 101 PM 83.83 Retaining Wall, dated October 30, 2008

Data and information available for inspection at the District Office:

A. None

Data and information available for inspection at the Transportation Laboratory:

A. Rock Cores

If any conceptual changes are made during final project design, the Office of Geotechnical Design North should review those changes to determine if these foundation recommendations are still applicable.

If you have any questions or require further assistance, please call Kathy Gallagher at (707)441-2024 or Charlie Narwold at (707) 445-6036.

REGISTERED PROFESSIONAL ENGINEER
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No. 62012
Exp. 9/30/09
CIVIL
STATE OF CALIFORNIA

REGISTERED GEOLOGIST
CHARLES FREDERICK NARWOLD
No. 2335
CERTIFIED ENGINEERING GEOLOGIST
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KATHY GALLAGHER, PE
Transportation Engineer
Office of Geotechnical Design - North
Branch B

CHARLIE NARWOLD, CEG #2335
Senior Engineering Geologist
Office of Geotechnical Design - North
Branch B

Attachments: Vicinity Map (Site Location)
Layout - Location 3 – PM 83.82
Rattlesnake Wall General Plan (10/3/08)
Bore Hole Location Map/Site Plan and Geology
Regional Geology/Geomorphology
Log of Test Borings
Typical Wall Section
Laboratory Test Results and Reports

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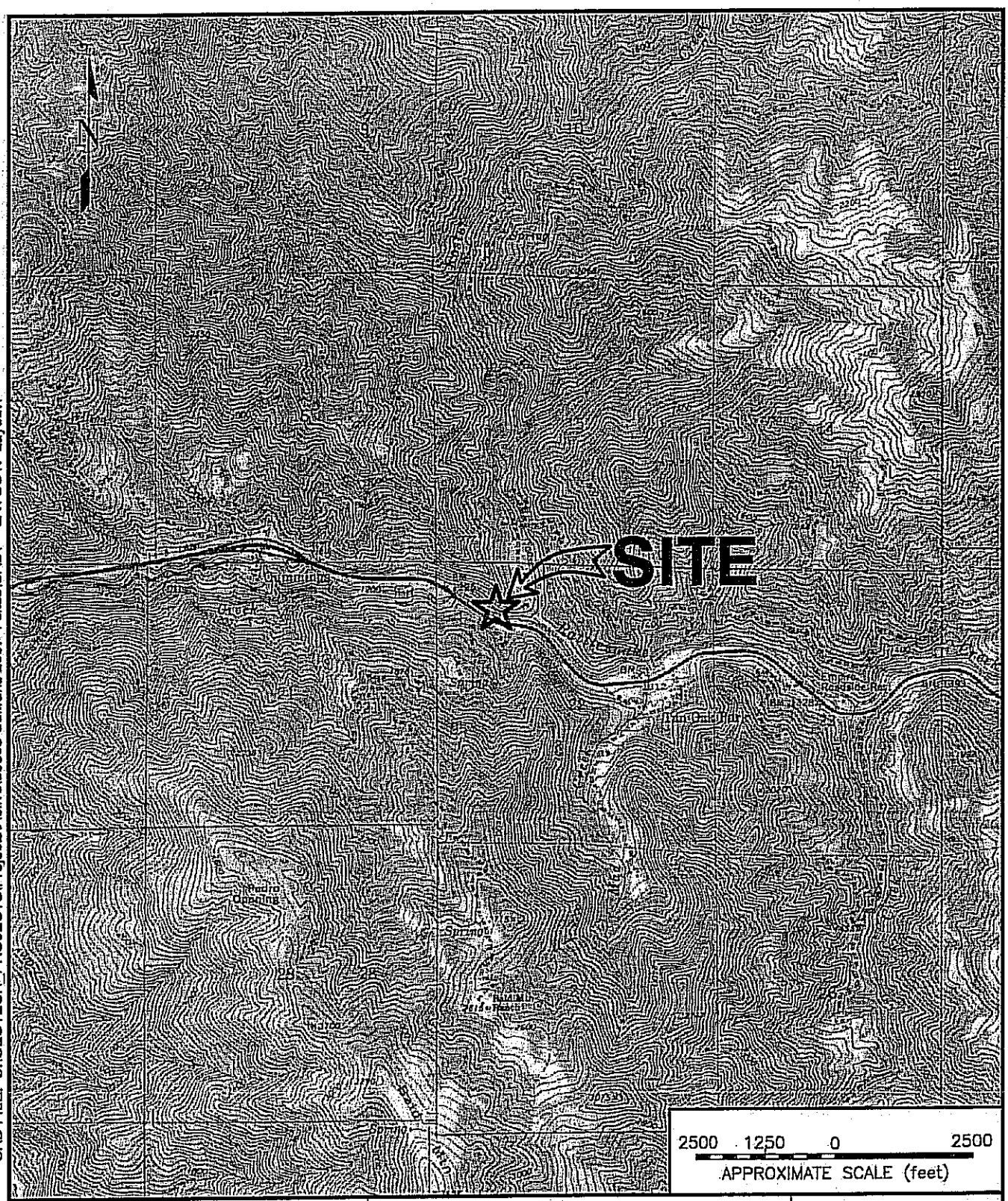
01-Maintenance Engineering
PCE (E-copy)
Structures – OE (E-Copy)
GDN File
GS File Room



ATTACHED IMAGES: Images: MEN101PM83-82-LOC.jpg
ATTACHED XREFS: Pie-L:\2005\05PROJ
CAD FILE: U:\GEOTECH_PROJECTS\Projects\Active\85365 Caltrans 2007 4 sites\CAD\ LAYOUT: Layout1

KLEINFELDER

2240 Northpoint Parkway
Santa Rosa, CA 95407-5009
PH. 707-571-1883 FAX. 707-571-7813
www.kleinfelder.com

SITE LOCATION

STORM DAMAGE LOCATION
EA: 01-477701
HIGHWAY 101 P.M. 83.82
MENDOCINO COUNTY, CALIFORNIA

DRAWN BY:	P. Hubbard
REVISED BY:	
CHECKED BY:	J. Richmond
PLATE	1

DRAWN: 11/07	APPROVED BY:	PROJECT NO. 85365-2	FILE NAMEMEN101PM83-82-3.DWG

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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO	TOTAL SHEETS
01	Men	101			

REGISTERED CIVIL ENGINEER DATE

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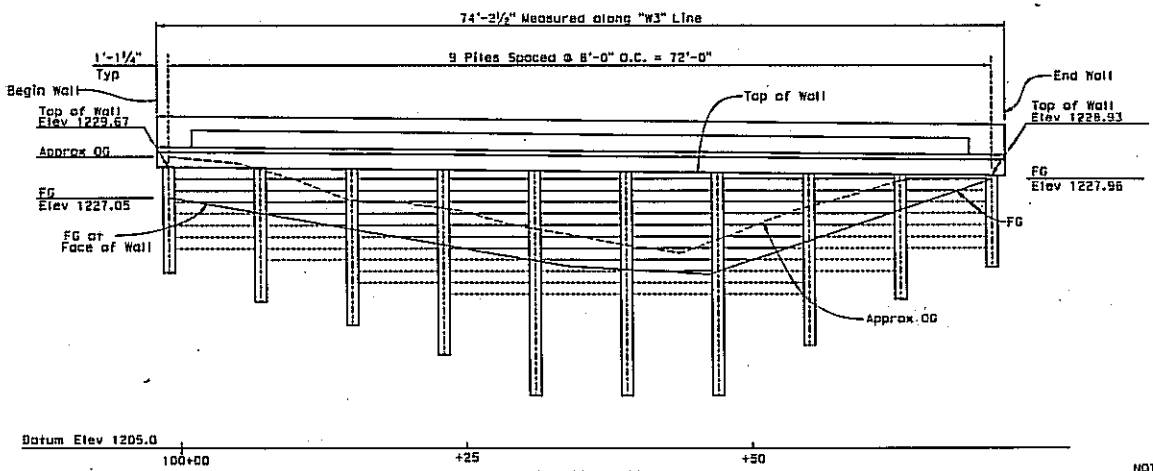
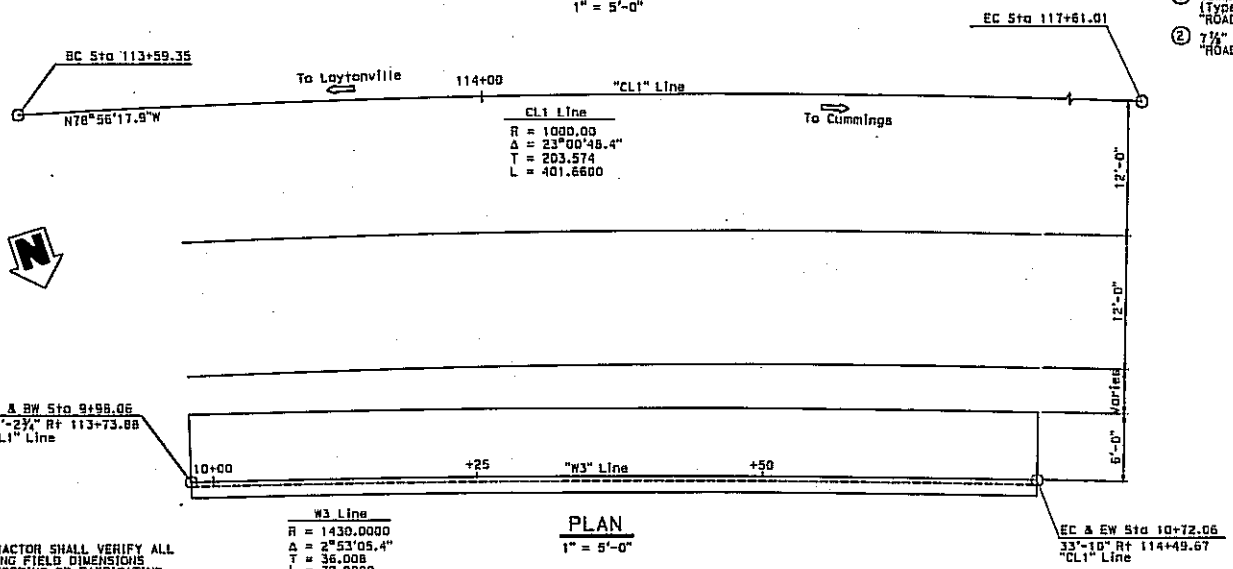
To get to the Caltrans web site, go to: http://www.dot.ca.gov

UNCOMPLETE PLAN FOR DESIGN STUDY PRINTED
DATE: 14-OCT-2008
Office of Structure Design
STATE OF CALIFORNIA

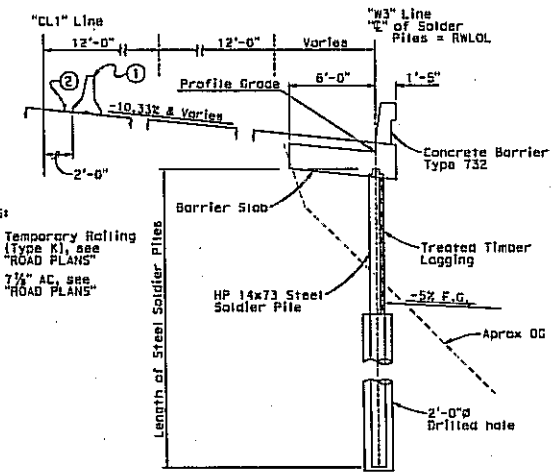


ELEVATION
1" = 5'-0"



PLAN
1" = 5'-0"

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.



NOTES:
1. Temporary Railing (Type K), see "ROAD PLANS"
2. 7¼" AC, see "ROAD PLANS"

TYPICAL SECTION
¼" = 1'-0"

NOTE:
For "GENERAL NOTES" and "INDEX TO PLANS" see "INDEX TO PLANS" sheet

DESIGN ENGINEER	DESIGN	BY Ashraf Ahmed	CHECKED X	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W"LOW-BOY" PERMIT DESIGN VEHICLE
	DETAILS	BY Joy Reid	CHECKED X	LAYOUT BY X	CHECKED X
	QUANTITIES	BY X	CHECKED X	SPECIFICATIONS BY X	PLANS AND SPECS CHECKED X

ORIGINAL SCALE IN INCHES FOR MICROFILM PLANS 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 3

BRIDGE NO. 1OE0019
POST MILE 83.82

CU 01
EA 47770

FILE #3 01-47770-0-gp.dgn

DIMENSIONS PRINTED DRAWING
ENGLISH REVISION DATES

REVISION DATES: 10/06 10/08

SHEET 1 OF X

RATTLESNAKE WALL
GENERAL PLAN

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.01-24-06)

DATE PLOTTED = 14-OCT-2008
TIME PLOTTED = 07:08:32
USERNAME = S1345833

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	101	Var		-

PRELIMINARY

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Edward B. Speer No. 49740 Exp. 9-30-08 CIVIL STATE OF CALIFORNIA

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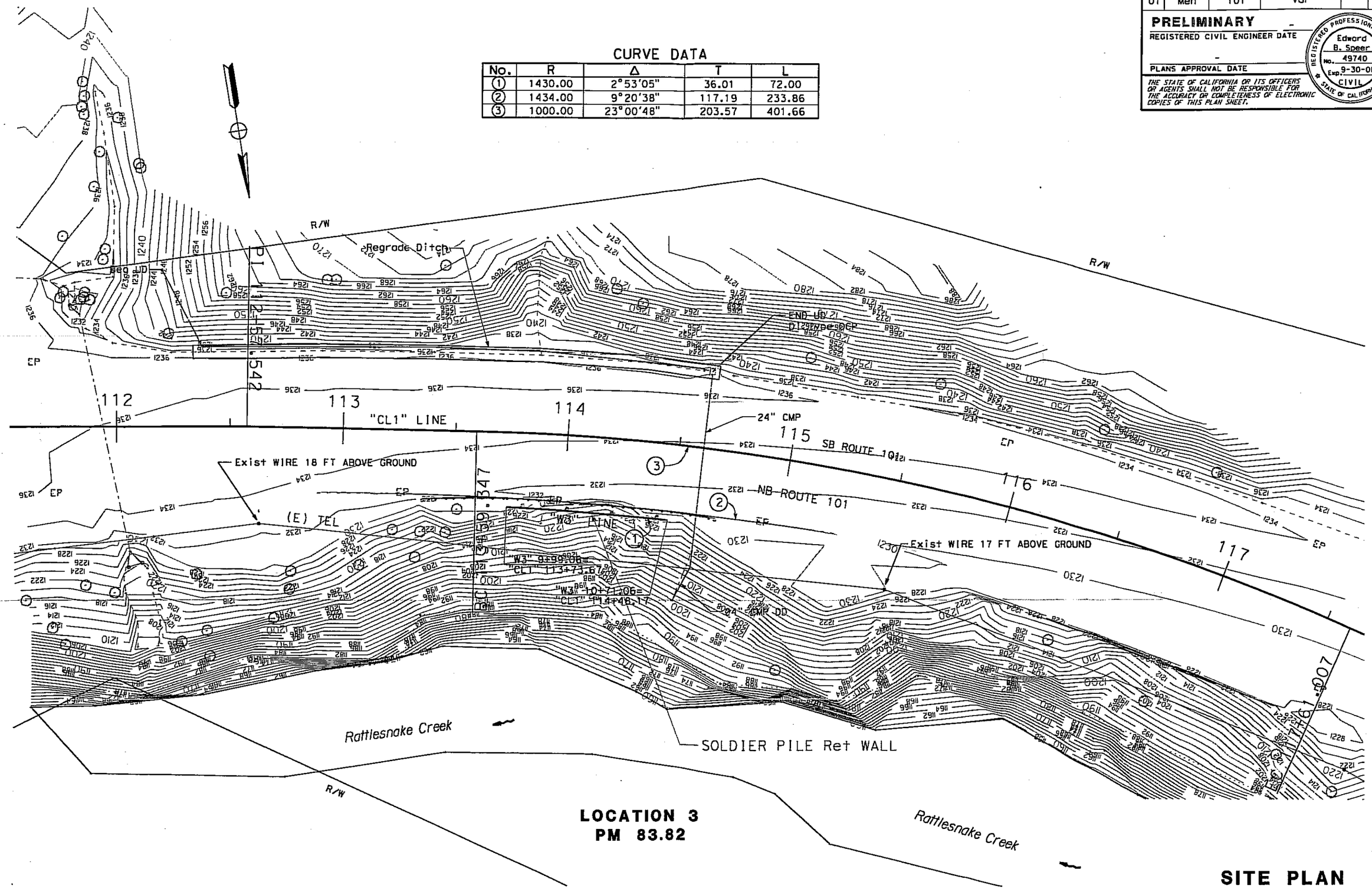
CURVE DATA

No.	R	Δ	T	L
1	1430.00	2°53'05"	36.01	72.00
2	1434.00	9°20'38"	117.19	233.86
3	1000.00	23°00'48"	203.57	401.66



LOCATION 3
PM 83.82

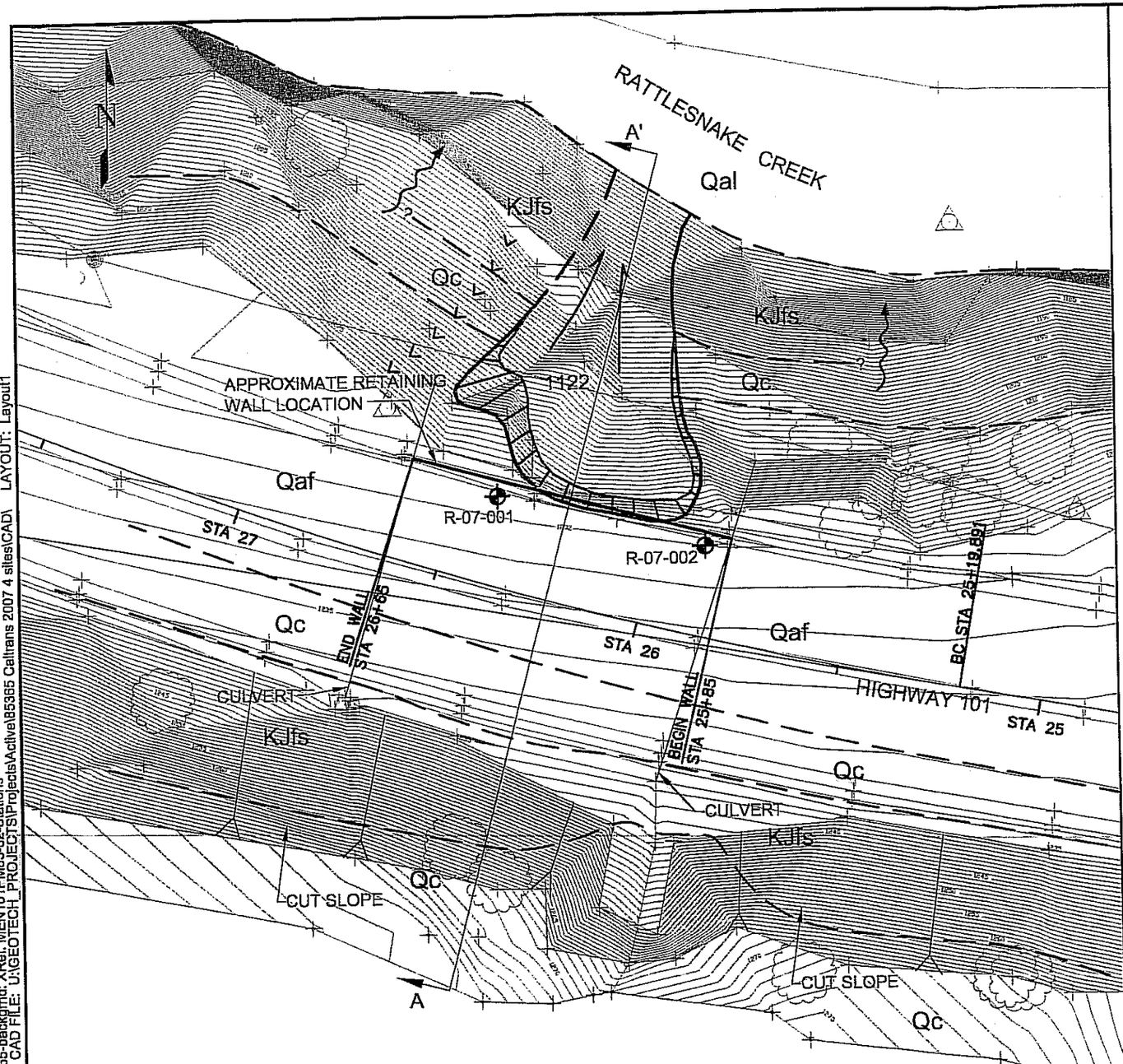
SITE PLAN
SCALE 1" = 20'

REVISED BY	DATE REVISED
ED SPEER	CHECKER
CALCULATED-DESIGNED BY	CHECKED BY
FUNCTIONAL SUPERVISOR	ROB BURNETT
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN

REQUEST

MEN101PM84Site.dgn 10/30/2008 3:23:45 PM

LAST REVISION DATE PLOTTED = $DATE



EXPLANATION

Qaf	Artificial Fill
Qal	Alluvium
Qc	Colluvium
KJfs	Franciscan Complex: Central Belt
1122	Landslide: Hatchures Indicate Scarp Area; Arrows Indicate Direction of Movement
1122	Landslide Identification Number (see landslide chart)
>>>>>	Erosion Rilling or Gully
	Geologic Contact: Dashed Where Approximate
R-07-001	Boring Location (Kleinfelder, 2007)
	Soil Creep/Ravelling
A' A	Section Location

LANDSLIDE IDENTIFICATION CHART

STATE OF ACTIVITY
- 1=Active or Recently Active (areas of unstable ground with relatively recent/"fresh" geomorphic features such as ground cracks, hummocky topography, exposed soils, abrupt gradient breaks and/or disrupted vegetation, typically recent to 50 years old)
- 2=Dormant (areas of quasi-stable ground, with eroded and subdued geomorphic features, no exposed soils, somewhat re-vegetated but typically with different type or density, typically >50 to several hundreds of years old)
- 3=Ancient (areas of relatively stable ground, typically characterized by large, broad and deep landslides with highly eroded and subdued geomorphic features, re-vegetated with similar type and density, typically several hundreds to several thousands of years old)

CERTAINTY OF IDENTIFICATION
- 1=Definite
- 2=Probable
- 3=Questionable

DOMINANT TYPE OF MOVEMENT
- 1=Slump Flow Complex
- 2=Debris Slide
- 3=Debris Flow
- 4=Earth Flow
- 5=Slump
- 6=Translational

THICKNESS OF DEPOSIT
- 1=Less Than 5 Feet
- 2=5 to 15 Feet
- 3=15 to 50 Feet
- 4=Greater Than 50 Feet

1 2 3 4

30 15 0 30
APPROXIMATE SCALE (feet)

© by Kleinfelder, 2007

DRAWN BY:	P. Hubbard
REVISED BY:	
CHECKED BY:	J. Richmond
DATE: 11/07	APPROVED BY:

SITE PLAN

STORM DAMAGE LOCATION
EA: 01-477701
HIGHWAY 101 P.M. 83.82
MENDOCINO COUNTY, CALIFORNIA

PROJECT NO. 85365-2 | FILE NAME: MEN101PM83-82-2.DWG

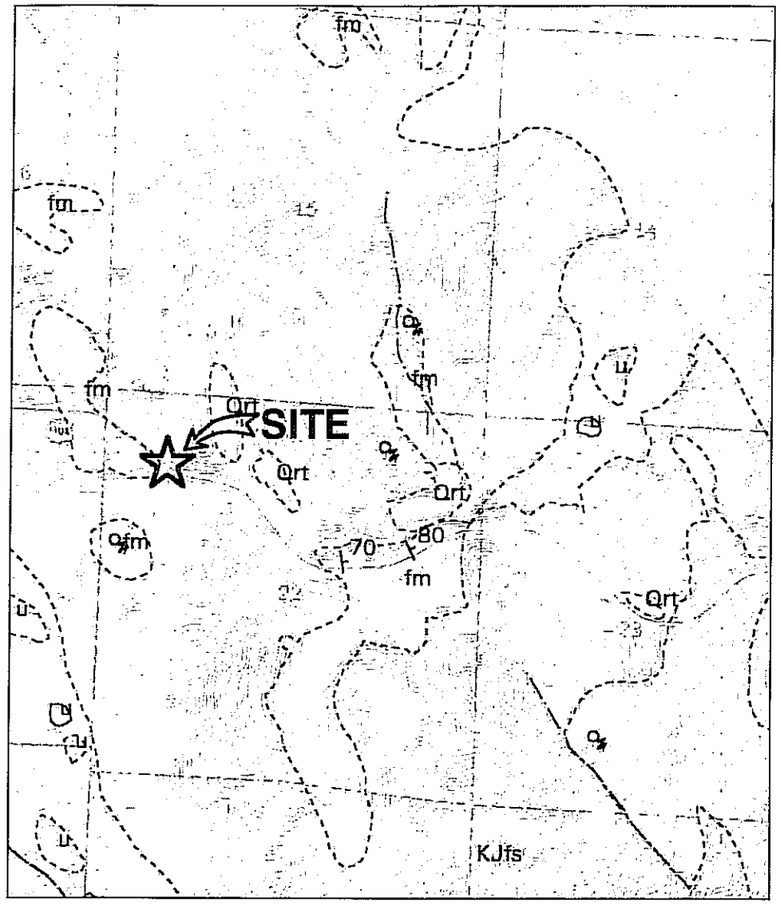
KLEINFELDER
2240 Northpoint Parkway
Santa Rosa, CA 95407-5009
PH. 707-571-1883 FAX. 707-571-7813
www.kleinfelder.com

PLATE **2**

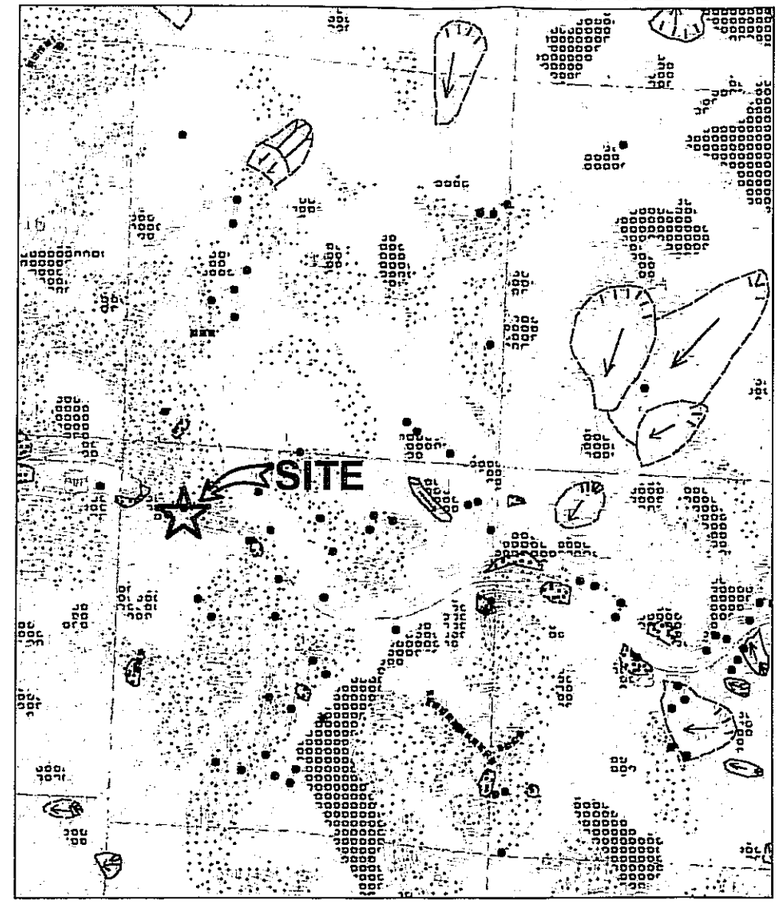
PLOTTED: 21 Nov 2007, 8:26am, phubbard

ATTACHED IMAGES: Images: DC_2502626.jpg
ATTACHED XREFS: XRef: 85365-background; XRef: MEN101PM83-82-Stations
File-L:\2005\05PROJ CAD FILE: U:\GEOTECH_PROJECTS\Projects\Active\85365 Caltrans 2007 4 sites\CAD\ LAYOUT: Layout1

REGIONAL GEOLOGY



GEOMORPHIC FEATURES RELATED TO LANDSLIDING



EXPLANATION

Qrt	River Terrace Deposit
fm	Franciscan Melange
u	Undifferentiated Block in Franciscan Melange
KJfs	Central Belt Franciscan Complex, Sedimentary Rocks
80	Strike and Dip of Bedding
	Spring
	Lithologic Contact (dashed where approximate or uncertain)

EXPLANATION

- Amphitheater Slope
- Disrupted Ground
- Debris Slide (dashed line indicates dormant)
- Translational/Rotational Slide (dashed line indicates dormant)
- Earthflow (dashed line indicates dormant)
- Inner Gorge
- Active Slide (too small to delineate @ 1:24000)
- Torrent Tracks (active)
- Torrent Tracks (dormant)
- Inner Gorge (too small to delineate @ 1:24000)

2000 1000 0 2000
APPROXIMATE SCALE (feet)

Reference: Davenport, 1984, CDMG Open File Report 84-17

© by Kleinfelder, 2007

DRAWN BY: P. Hubbard	**REGIONAL GEOLOGY AND GEOMORPHIC FEATURES RELATED TO LANDSLIDING**	**KLEINFELDER**
REVISED BY:	STORM DAMAGE SITE EA: 01-477701 HIGHWAY 101 PM 83.82 MENDOCINO COUNTY, CALIFORNIA	2240 Northpoint Parkway Santa Rosa, CA 95407-5009 PH. 707-571-1883 FAX. 707-571-7813 www.kleinfelder.com
CHECKED BY: J. Richmond		
DATE: 11/07 / APPROVED BY:	PROJECT NO. 85365-2 / FILE NAME: MEN101PM83-82-4.DWG	PLATE **4**

PLOTTED: 14 Nov 2007, 2:33pm, phubbard

ATTACHED IMAGES: Images: Pages from Landslides Tan Oak Park.jpg Images: Pages from Regional Geology Tan Oak Park.jpg
ATTACHED XREFS: Ple-L:\2005\05PROJ
CAD FILE: U:\GEOTECH_PROJECTS\Projects\Active\85365 Caltrans 2007 4 sites\CAD\ LAYOUT: Layout1

9-29-08
GEOTECHNICAL PROFESSIONAL DATE

REGISTERED GEOLOGIST WILLIAM V. McCORMICK III No. 1673 Exp. 11-30-08 CERTIFIED ENGINEERING GEOLOGIST STATE OF CALIFORNIA

PLANS APPROVAL DATE

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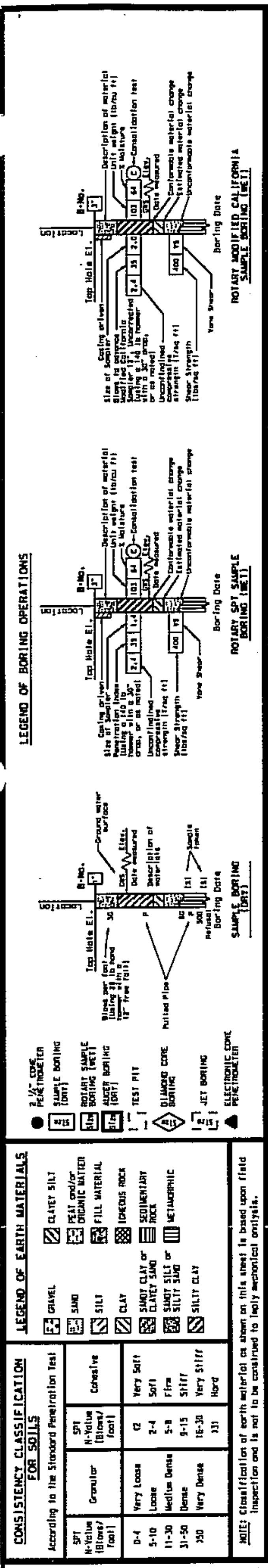
KLEINFELDER
2240 NORTHPOINT PKWY.
SANTA ROSA, CA 95407



WEATHERING DESCRIPTORS

Modified from United States Bureau of Reclamation, Engineering Geology Field Manual.

Descriptors		Diagnostic features					
		Chemical weathering-Discoloration and/or oxidation		Mechanical weathering-Grain boundary conditions (disaggregation) primarily for granitics and some coarse-grained sediments	Texture and solutioning		General characteristics (strength, excavation, etc.)§
Alphanumeric descriptor	Descriptive term	Body of rock	Fracture surfaces †		Texture	Solutioning	
W1	Fresh	No discoloration, not oxidized.	No discoloration or oxidation.	No separation, intact (tight).	No change.	No solutioning.	Hammer rings when crystalline rocks are struck. Almost always rock excavation except for naturally weak or weakly cemented rocks such as siltstones or shales.
W2	Slightly weathered to fresh º						
W3	Slightly weathered	Discoloration or oxidation is limited to surface of, or short distance from, fractures; some feldspar crystals are dull.	Minor to complete discoloration or oxidation of most surfaces.	No visible separation, intact (tight).	Preserved.	Minor leaching of some soluble minerals may be noted.	Hammer rings when crystalline rocks are struck. Body of rock not weakened. With few exceptions, such as siltstones or shales, classified as rock excavation.
W4	Moderately to slightly weathered º						
W5	Moderately weathered	Discoloration or oxidation extends from fractures usually throughout; Fe-Mg minerals are "rusty," feldspar crystals are "cloudy."	All fracture surfaces are discolored or oxidized.	Partial separation of boundaries visible.	Generally preserved.	Soluble minerals may be mostly leached.	Hammer does not ring when rock is struck. Body of rock is slightly weakened. Depending on fracturing, usually is rock excavation except in naturally weak rocks such as siltstones or shales.
W6	Intensely to moderately weathered º						
W7	Intensely weathered	Discoloration or oxidation throughout; all feldspars and Fe-Mg minerals are altered to clay to some extent; or chemical alteration produces in-situ disaggregation, see grain boundary conditions.	All fracture surfaces are discolored or oxidized, surfaces friable.	Partial separation, rock is friable; in semiarid conditions granitics are disaggregated.	Texture altered by chemical disintegration (hydration, argillation).	Leaching of soluble minerals may be complete.	Dull sound when struck with hammer, usually can be broken with moderate to heavy manual pressure or by light hammer blow without reference to planes of weakness such as incipient or hairline fractures, or veinlets. Rock is significantly weakened. Usually common excavation.
W8	Very intensely weathered						
W9	Decomposed	Discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and Fe-Mg minerals are completely altered to clay.		Complete separation of grain boundaries (disaggregated).	Resembles a soil, partial or complete remnant rock structure may be preserved; leaching of soluble minerals usually complete.		Can be granulated by hand. Always common excavation. Resistant minerals such as quartz may be present as "stringers" or "dikes."

Note: This chart and its horizontal categories are more readily applied to rocks with feldspars and mafic minerals. Weathering in various sedimentary rocks, particularly limestones and poorly indurated sediments, will not always fit the categories established. This chart and weathering categories may have to be modified for particular site conditions or alteration such as hydrothermal effects; however, the basic framework and similar descriptors are to be used.

º Combination descriptors are permissible where equal distribution of both weathering characteristics are present over significant intervals or where characteristics present are "in between" the diagnostic feature. However, dual descriptors should not be used where significant, identifiable zones can be delineated. When given as a range, only two adjacent terms may be combined. "Decomposed to slightly weathered," or "moderately weathered to fresh" are not acceptable.

† Does not include directional weathering along shears or faults and their associated features. For example, a shear zone that carried weathering to great depths into a fresh rock mass would not require the rock mass to be classified as weathered.

§ These are generalizations and should not be used as diagnostic features for weathering or excavation classification. These characteristics vary to a large extent based on naturally weak materials or cementation and type of excavation.

BEDDING, FOLIATION, OR FLOW TEXTURE DESCRIPTORS

Descriptors	Thickness / Spacing
Massive	Greater than 10 ft
Very thickly (bedded, foliated, or banded)	3 to 10 ft
Thickly	1 to 3 ft
Moderately	0.3 to 1 ft
Thinly	0.1 to 0.3 ft
Very thinly	0.03 (3/8 in) to 0.1 ft
Laminated (intensely foliated or banded)	Less than 0.03 ft (3/8 in)

Modified from United States Bureau of Reclamation, Engineering Geology Field Manual.

FRACTURE DENSITY

Modified from United States Bureau of Reclamation, Engineering Geology Field Manual.

FRACTURE DENSITY- Based on the spacing of all natural fractures in an exposure or core recovery lengths in boreholes; excludes mechanical breaks, shears, and shear zones; however, shear-disturbed zones (fracturing outside the shear) are included. Descriptors for fracture density apply to all rock exposures such as tunnel walls, dozer trenches, outcrops, or foundation cut slopes and inverts, as well as boreholes. Descriptive criteria presented below are based on borehole cores where lengths are measured along the core axis, for other exposures the criteria is distance measured between fractures (size of blocks).

UNFRACTURED (FD0): No fractures.

VERY SLIGHTLY FRACTURED (FD1): Core recovered mostly in lengths greater than 3 ft.

SLIGHTLY TO VERY SLIGHTLY FRACTURED (FD2)*

SLIGHTLY FRACTURED (FD3): Core recovered mostly in lengths from 1 to 3 ft. with few scattered lengths less than 1 ft or greater than 3 ft.

MODERATELY TO SLIGHTLY FRACTURED (FD4)*

MODERATELY FRACTURED (FD5): Core recovered mostly in 0.3 to 1.0 ft lengths with most lengths about 0.6 ft.

INTENSELY TO MODERATELY FRACTURED (FD6)*

INTENSELY FRACTURED (FD7): Lengths average from 0.1 to 0.3 ft with scattered fragmented intervals. Core recovered mostly in lengths less than 0.3 ft.

VERY INTENSELY TO INTENSELY FRACTURED (FD8)*

VERY INTENSELY FRACTURED (FD9): Core recovered mostly as chips and fragments with a few scattered short core lengths.

* Combinations of fracture densities (e.g. very intensely to intensely fractured, or moderately to slightly fractured) are used where equal distribution of both fracture density characteristics are present over a significant interval or exposure, or where characteristics are "in between" the descriptor definitions.

ROCK HARDNESS DESCRIPTORS

Alphanumeric Descriptor	Descriptor	Criteria
H1	Extremely hard	Core, fragment, or exposure cannot be scratched with knife or sharp pick; can only be chipped with repeated heavy hammer blows.
H2	Very hard	Cannot be scratched with knife or sharp pick. Core or fragment breaks with repeated heavy hammer blows.
H3	Hard	Can be scratched with knife or sharp pick with difficulty (heavy pressure). Heavy hammer blow required to break specimen.
H4	Moderately hard	Can be scratched with knife or sharp pick with light or moderate pressure. Core or fragment breaks with moderate hammer blow.
H5	Moderately soft	Can be grooved 1/16 inch deep by knife or sharp pick with moderate or heavy pressure. Core or fragment breaks with light hammer blow or heavy manual pressure.
H6	Soft	Can be grooved or gouged easily by knife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
H7	Very soft	Can be readily indented, grooved or gouged with fingernail, or carved with a knife. Breaks with light manual pressure.

Any bedrock unit softer than H7, very soft, is to be described using ASTM D-2488 consistency descriptors.

Note: Although "sharp pick" is included in these definitions, descriptions of ability to be scratched, grooved or gouged by a knife is the preferred criteria.

Modified from United States Bureau of Reclamation, Engineering Geology Field Manual.

DIST	COUNTY	ROUTE	TOTAL PROJECT	NO.	SHEET
01	Men	101	83.82		

GEOTECHNICAL PROFESSIONAL DATE 9-29-08

PLANS APPROVAL DATE

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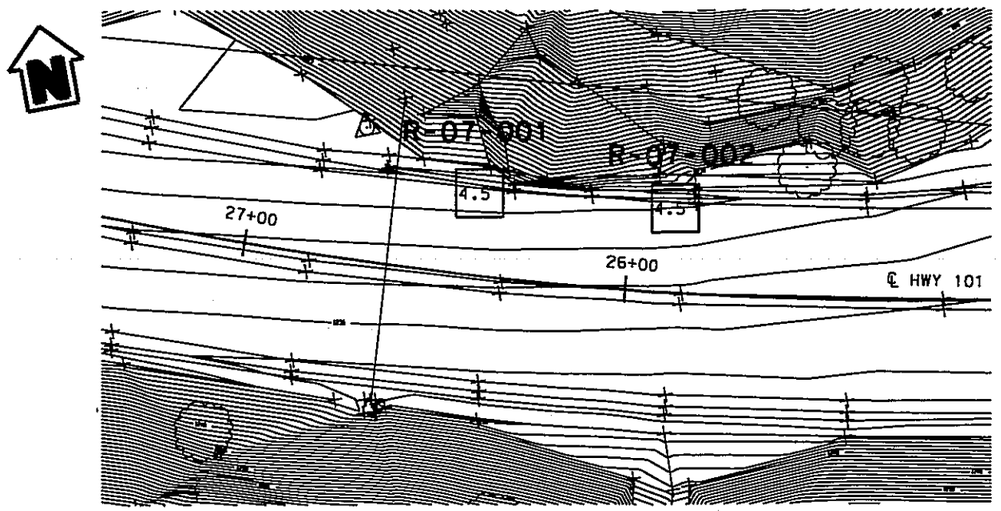
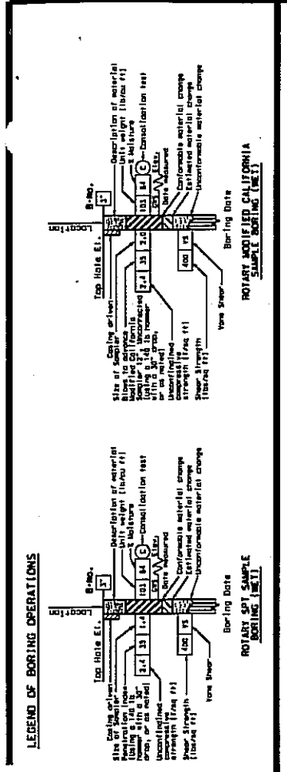
REGISTERED GEOLOGIST WILLIAM V. McCORMICK III No. 1673 Exp. 11-30-08 CERTIFIED ENGINEERING GEOLOGIST STATE OF CALIFORNIA

KLEINFELDER
2240 NORTHPOINT PKWY.
SANTA ROSA, CA 95407



LEGEND OF BORING OPERATIONS



LEGEND OF EARTH MATERIALS

GRAVEL, SAND, SILT, CLAY, SANDY CLAY or CLAYEY SAND, SANDY SILT or SILTY SAND, SILTY CLAY, CLAYEY SILT, PEAT and/or ORGANIC MATTER, FILL MATERIAL, IGNEOUS ROCK, SEDIMENTARY ROCK, METAMORPHIC

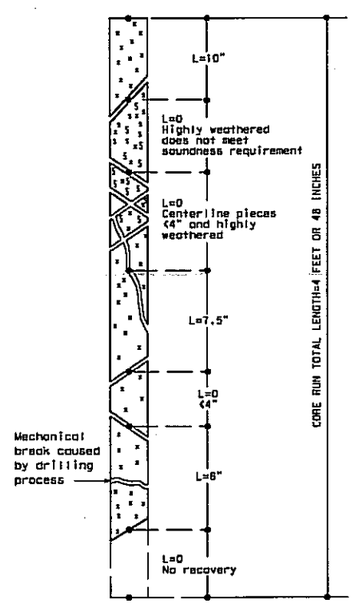
CONSISTENCY CLASSIFICATION FOR SOILS

According to the Standard Penetration Test

SPT N-Value (Blows/foot)	Granular	SPT N-Value (Blows/foot)	Cohesive
0-4	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-30	Medium Dense	5-8	Firm
31-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		>31	Hard

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not intended to imply laboratory analysis.

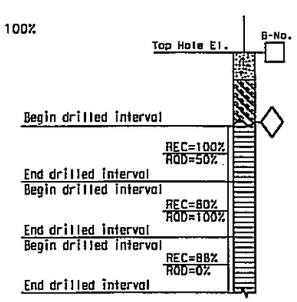
ROCK QUALITY DESIGNATION (RQD) & PERCENT RECOVERY (REC) LOGGING



$$RQD = \frac{\sum \text{Length of sound core} \geq 4 \text{ inches pieces}}{\text{Total core run length}}$$

$$RQD = \frac{10 + 7.5 + 8}{48} \times 100\%$$

RQD = 53% (fair)



RQD (ROCK QUALITY DESIGNATION)	DESCRIPTION OF ROCK QUALITY
0 - 25%	VERY POOR
25 - 50%	POOR
50 - 75%	FAIR
75 - 90%	GOOD
90 - 100%	EXCELLENT

After Deere & Deere, 1989

Notes:

1. Samples were taken using a modified California split-barrel sampler with an inside diameter (I.D.) of 2 in. and an outside diameter (O.D.) of 2.5 in.
2. A safety semi-automatic hammer (140 lb) with a 30 inch drop was used to advance the sampler.
3. Blowcounts noted for boring are field blowcounts and have not been corrected.
4. Samples were taken using a SPT split-barrel sampler with an inside diameter (I.D.) of 1.4 in. and an outside diameter (O.D.) of 2 in.
5. Core samples were taken using either an HQ or HxB core sampler with a 2.5 in. and a 2.4 in. inside diameter (I.D.) and 3.8 in. and 3.7 in. outside diameter (O.D.) core barrel respectively.
6. Blowcounts 50/4 means 50 blows per 4 in. penetration.

IN-SITU, LAB & FIELD TEST DESIGNATIONS

- AL ATTERBERG LIMITS
- CA CHEMICAL ANALYSIS
- CN CONSOLIDATION
- CU CONSOLIDATED UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- MD MAX. DRY DENSITY
- PL POINT LOAD
- PP POCKET PENETROMETER
- SA SIEVE ANALYSIS
- TV TORVANE
- UC UNCONFINED COMPRESSION
- UU UNCONSOLIDATED UNDRAINED TRIAXIAL
- VS VANE SHEAR
- WC MOISTURE CONTENT

DESIGN OVERSIGHT	DRAWN BY	A. Sanchez	KLEINFELDER FIELD INVESTIGATION BY:
SIGN OFF DATE	CHECKED BY	J. Richmond, C.E.G	DATE: August 2007

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

X PROJECT ENGINEER

BRIDGE NO. 10E0019 POST MILE 83.82

RATTLESNAKE WALL

LOG OF TEST BORINGS 2 OF 3

OSF GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 2/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 01
EA 477701

FILE => $REQUEST

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY) 11-1-07 9-29-08

SHEET X OF X

...\01-477701-z-ltb02.dgn 10/23/2008 8:31:10 AM

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO	TOTAL SHEETS
01	Men	101	83.82		

GEOTECHNICAL PROFESSIONAL — 9-29-08 DATE

REGISTERED GEOLOGIST — WILLIAM V. McCORMICK III — No. 1673 — Exp. 11-30-08 — CERTIFIED ENGINEERING GEOLOGIST — STATE OF CALIFORNIA

PLANS APPROVAL DATE

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KLEINFELDER
2240 NORTHPOINT PKWY.
SANTA ROSA, CA 95407

FOR PLAN VIEW AND ADDITIONAL NOTES, SEE "LOG OF TEST BORINGS" SHEET 2 OF 3

ELEVATION

1240 1230 1220 1210 1200 1190 1180 1170

21.4' Rt Sta. 26+40
℄ Route 101

R-07-001

Elev 1231±

4.5"

ASPHALT: 12 in. thick.

SILTY SAND with GRAVEL (SP-SM); very dense; brown; moist; about 40% fine to coarse, angular GRAVEL; about 53% fine to coarse SAND; about 7 to 25% fines; zones of less gravel and more sand, interlayered [FILL].

57 | 2.0 | - | 3 | SA
9 | 2.0
123 | - | SA
11 | 2.0 | 104 | 19
110 | 17
1.6 | 35 | 2.0 | 114 | 17 | UC

CLAYEY GRAVEL/GRAVELLY CLAY (GC/CL); hard; dark brown; moist; [FILL].

Poorly graded GRAVEL with SILT and SAND (GM); medium dense; yellow brown; moist; [COLLUVIUM].

31 | 2.0 | 99 | 40

SILTY SAND (SM); dense; gray; moist; about 80% fine to medium SAND; about 20% fines; faint relict structure, sandstone core stones [DECOMPOSED BEDROCK/COLLUVIUM].

50/3 | 1.4 | 119 | 14

SEDIMENTARY ROCK (Sandstone), medium sand, grayish blue, slightly weathered, moderately hard to hard, moderately fractured, bedding joint, partially healed, dipping 70 to 20°, slickensides on some fracture faces, occasional small voids in calcite healed fractures <0.5", rare pyrite mineralization along fractures.

3.7"

REC=80%
RQD=0%

REC=100%
RQD=0%

8/14/2007

21.0' Rt Sta. 25+90
℄ Route 101

R-07-002

Elev 1232.0

4.5"

ASPHALT: 3 in. thick.

Poorly graded GRAVEL with CLAY and SAND (GP-GC); loose; brown to light brown; wet; about 70% fine to coarse, subangular GRAVEL, max. 1.5 in. dia.; about 20% fine to coarse SAND; about 10% fines; [FILL].

7 | 2.0
9 | 2.0
18 | 2.0 | - | 4 | SA

Poorly graded SAND with GRAVEL (SP); loose; brown to light brown; wet; about 28% fine, subangular GRAVEL, max. 0.5 in. dia.; about 70% fine to coarse SAND; about 2% fines; [FILL].

6 | 2.0
30 | 2.0 | 114 | 11 | SA

SILTY SANDY with GRAVEL (SC-SM); stiff; brown to light brown; moist; about 15% fine to coarse, subangular GRAVEL, max. 1 in. dia.; about 30% fine to coarse SAND; about 55% fines; rootlets present, [FILL].

35 | 2.0

Poorly graded GRAVEL with SAND (GP); medium dense; brown; moist; about 65% fine to coarse, subangular GRAVEL, max. 2+ in. dia.; about 35% fineto coarse SAND; [FILL].

44 | 2.0 | 128 | 9

CLAYEY SAND with GRAVEL (SC); medium dense; yellowish brown; moist; about 20% fine, subangular GRAVEL, max. .05 in. dia.; about 60% fine to medium SAND; about 20% fines; [COLLUVIUM].

57 | 2.0

3.8"

SILTY SAND (SM); dense; gray; moist; about 80% fine to medium SAND; about 20% fines; faint relict structure, sandstone core stones [DECOMPOSED BEDROCK/COLLUVIUM].

SEDIMENTARY ROCK (Sandstone), fine sand to medium sand, thickly bedded, light bluish gray, slightly weathered, moderately hard, intensely fractured, partially healed, calcite infill.

REC=100%
RQD=0%

REC=80%
RQD=0%

REC=100%
RQD=34%

REC=100%
RQD=44%

REC=100%
RQD=30%

-Joints, dipping 60 to 30°, multiple fractures, planar, slightly open, locally healed.
-Fracture zone, 30.8 to 39.2 ft.
-Joints, dipping 25 to 45°, planar, slightly open, minor calcite infill.
-Joint, dipping 90°, undulating, calcite infill.
-Joints, dipping 30 to 40°, planar, slightly open, minor calcite infill.
-Bedding joint, dipping 65 to 60°, planar, slightly open, minor calcite infill.
-Very intensely fractured, 40 to 41.5 ft.
-Joint, dipping 0 to 5°, planar, slightly open, calcite infill.
-Becomes slightly weathered, moderately hard to hard, Mechanical break, abundant.
-Joint, dipping 30 to 40°, 1 to 2 in. separation, planar, slightly open, no infill.
-Joint, dipping 90°, 1 to 2 in. separation, planar, slightly open, no infill.

8/14/2007

PROFILE
HOR. 1"=20'
VER. 1"=5'

28+00 27+00 26+00 25+00 24+00

LEGEND OF BORING OPERATIONS

LEGEND OF EARTH MATERIALS: GRAVEL, SAND, SILT, CLAY, SANDY CLAY or CLAYEY SAND, SANDY SILT or SILTY SAND, SILTY CLAY, CLAYEY SILT, PEAT and/or ORGANIC MATTER, FILL MATERIAL, IGNEOUS ROCK, SEDIMENTARY ROCK, METAMORPHIC

CONSISTENCY CLASSIFICATION FOR SOILS
According to the Standard Penetration Test

SPT N-Value (Blows/foot)	Granular	SPT N-Value (Blows/foot)	Cohesive
0-4	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-30	Medium Dense	5-8	Firm
31-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		>31	Hard

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

DESIGN OVERSIGHT	DRAWN BY: A. Sanchez	P. Holland, J. Richmond — FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
SIGN OFF DATE	CHECKED BY: J. Richmond, C.E.G	DATE: August 2007	X PROJECT ENGINEER

BRIDGE NO. 10E0019 — POST MILE 83.82

RATTLESNAKE WALL
LOG OF TEST BORINGS 3 OF 3

CU 01
EA 477701

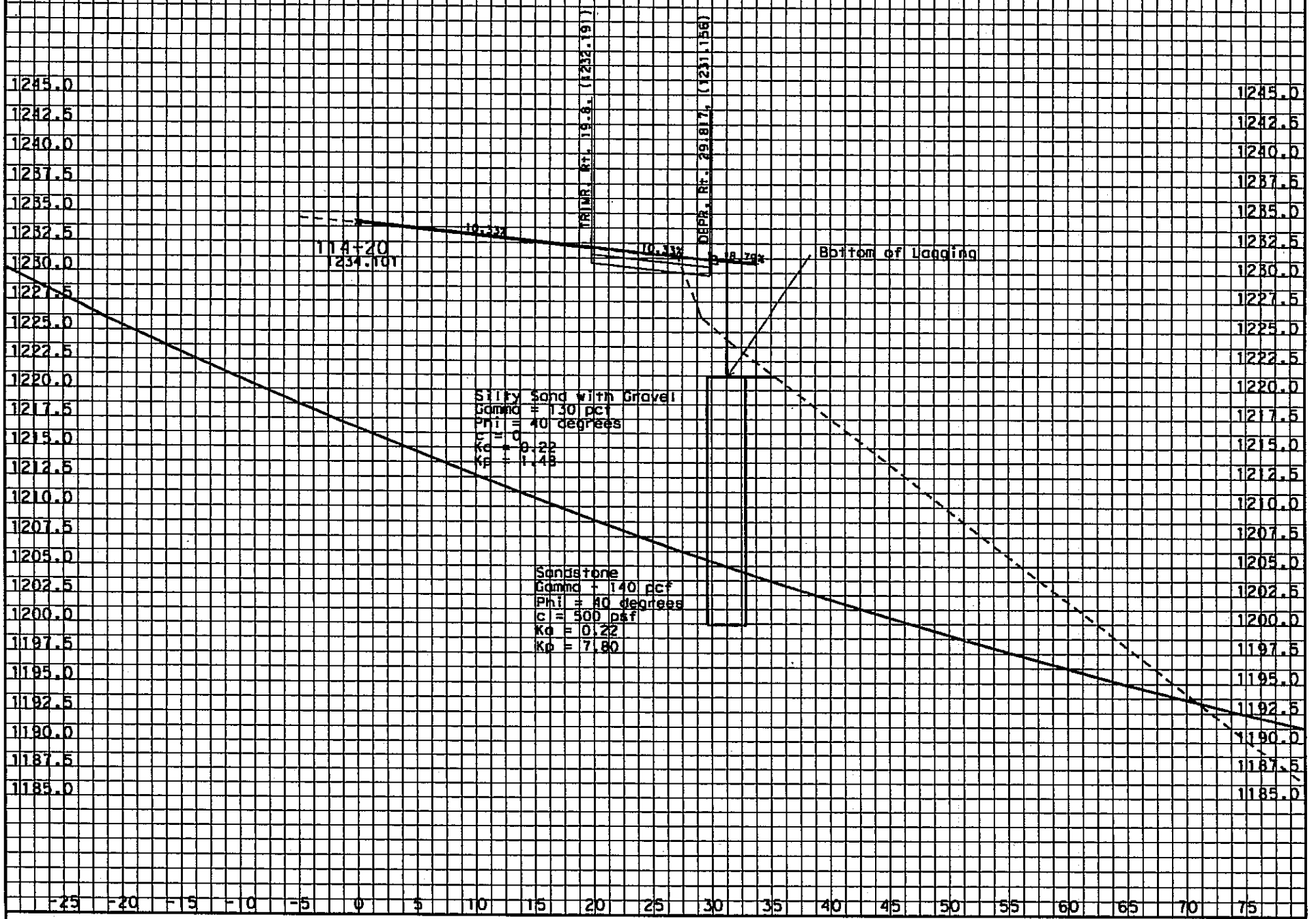
DISREGARD PRINTS BEARING EARLIER REVISION DATES — REVISION DATES (PRELIMINARY STAGE ONLY): 11-14-07, 9-29-08 — SHEET X OF X

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

FILE => $RFOUFST

OSF GEOTECHNICAL LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 2/25/05)

...\01-477701-z-ltb03.dgn 10/23/2008 8:44:46 AM



CANTILEVER WALL
TYPICAL SECTION

DATE: 10/30/2008 PREPARED BY K.Gallagher

ALL DIMENSIONS ARE FEET

RATTLESNAKE WALL
MEN 101 PM 83.82
EA: 01-477701

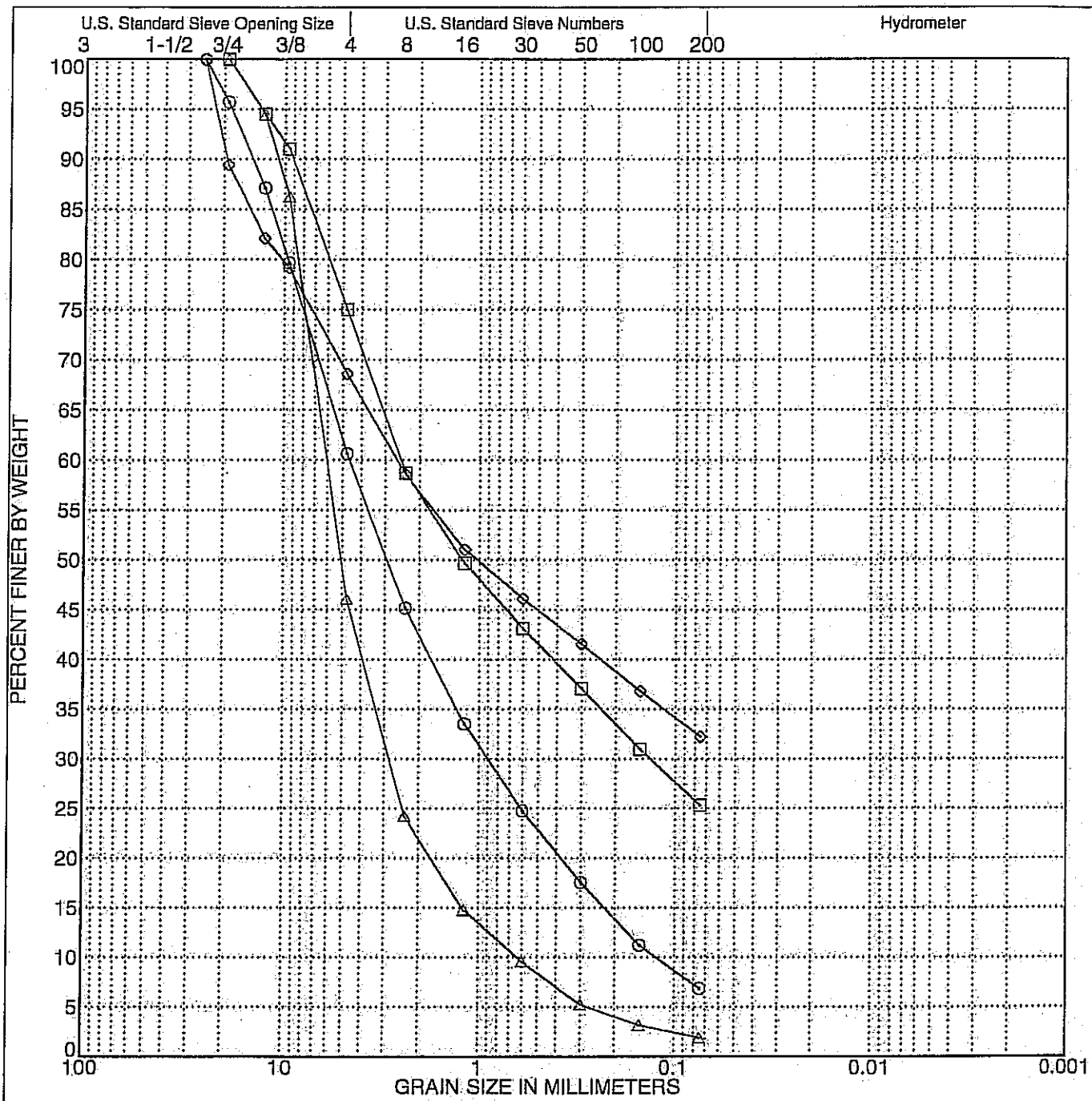
FIGURE 1

...\Rattle akeWallTypSection.dgn 10/30/2008 4:04:45 PM

Lab Test Summary
Storm Damage Location: **Highway 101 P.M. 83.82** Job # 85365

Soil/Rock Type	Boring	Depth (ft)	UC (psf)	Dry density (pcf)	Moisture content (%)	Total density (pcf)	-200 (%)
FILL: SP/SM	R-07-001	3			3.4		7
FILL: SC/SM	R-07-001	9		123			25
FILL: GC/CL	R-07-001	16		110	17.4	129	
FILL: GC/CL	R-07-001	16.5	3209	114	16.5	133	
COLLUVIUM: GM	R-07-001	21		99	39.5	138	
COLLUVIUM: SM	R-07-001	25		119	13.7	135	
FILL: GP	R-07-002	8			4.4		2
FILL: SC/SM	R-07-002	13.5		114	11.1	127	32
COLLUVIUM: SC	R-07-002	21		128	8.6	139	

EXPLANATION:
UU – TRIAXIAL UNCONSOLIDATED UNDRAINED
UC – UNCONFINED COMPRESSION



Cobbles	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SYMBOL	SAMPLE SOURCE	CLASSIFICATION
⊙	R-07-001 @ 3.0'	Gravelly Sand with Silt (SP-SM)
⊡	R-07-001 @ 9.0'	Silty Sand with Gravel (SC/SM)
△	R-07-002 @ 8.0'	Sandy Gravel (GP)
◇	R-07-002 @ 13.5'	Silty Sand with Gravel (SC/SM)

KLEINFELDER

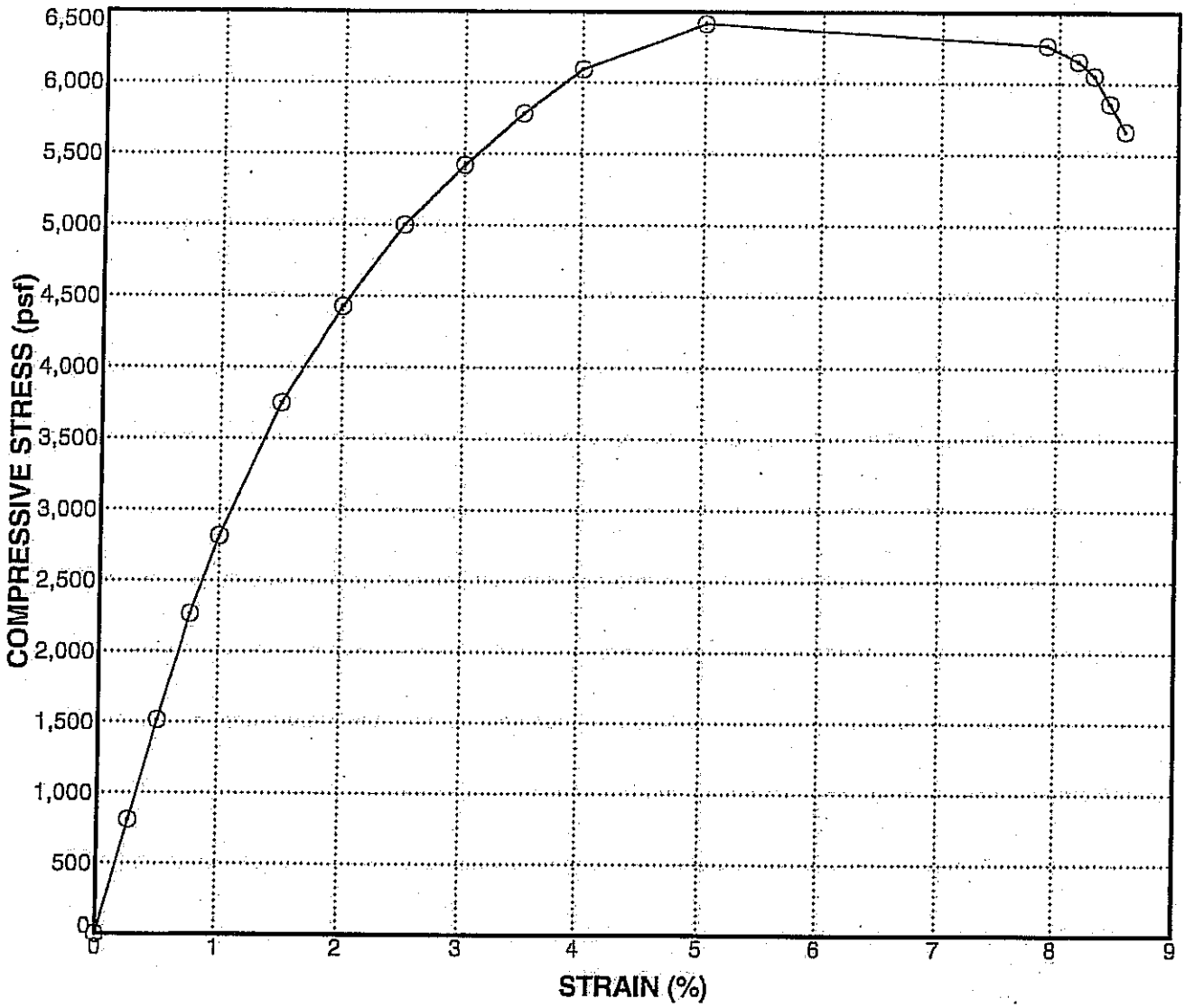
PROJECT NUMBER 85365 DATE Nov 2007

PARTICLE SIZE ANALYSIS

MEN 101 PM 83.82
EA 01-477701

PLATE

B-1



Sample Source	Classification	Type of Test	Confinement Pressure (psf)	Shear Strength (psf)	Strain (%)	Dry Density (pcf)	Moisture Content (%)
⊙ R-07-001 @ 16.5'	Clay with Gravel (CL/GC)	UC	0	3209	5	114	16.5

UC = Unconfined Compression

TX/UU = Unconsolidated Undrained Triaxial

KLEINFELDER

PROJECT NUMBER 85365 DATE Nov 2007

STRENGTH TEST DATA

MEN 101 PM 83.82
EA 01-477701

PLATE

B-2

AP Engineering & Testing, Inc.

CORROSION TEST RESULTS

Client Name: Kleinfelder
Project Name: N/A
Project No.: 85365

AP Job No.: 27-0900
Date 09/04/07

Sample ID.	Boring No.	Depth (ft)	Soil Type	Minimum Resistivity (ohm-cm)	pH	Sulfate Content (%)	Chloride Content (%)
EA 01-477701MEN 101 PM 84	R-07-001	14	CL	1500	7.1	0.0060	0.0142

NOTES:
Resistivity Test and pH: California Test Methods 532 and 643
Sulfate Content : California Test Method 417
Chloride Content : California Test Method 422
ND = Not Detectable
NA = Not Sufficient Sample
NR = Not Requested

2607 Pomona Boulevard, Pomona, CA 91768
Tel. (909) 869-6316 Fax. (909)869-6318

FOR CONTRACT NO.: 01-47770**4**

INFORMATION HANDOUT

MATERIALS INFORMATION

ADL AND NOA
SITE INVESTIGATION REPORT

ROUTE: 01-MEN-2101-VAR (PM 83.82)

Project No. S9300-06-99
October 15, 2009

Mr. Mark Melani
California Department of Transportation – District 3
Environmental Engineering Office
P.O. Box 911
Marysville, California 95901

Subject: STATE ROUTE 101, POST MILE 82.0
MENDOCINO COUNTY, CALIFORNIA
CONTRACT NO. 03A1368, TASK ORDER NO. 99, EA 01-477700
AERIALLY DEPOSITED LEAD AND NATURALLY OCCURRING ASBESTOS
SITE INVESTIGATION REPORT

Dear Mr. Melani:

In accordance with the California Department of Transportation (Caltrans) Contract No. 03A1368 and Task Order No. 99, and Expense Authorization 01-477700 we have performed environmental engineering services along State Route 101 (SR-101) from approximately 200 feet north to approximately 300 feet south of Post Mile (PM) 82.0 (the Site) in Mendocino County, California. The accompanying report summarizes the services performed including one diamond core and two mud-rotary borings for the collection of soil samples for aerially deposited lead and naturally occurring asbestos analyses.

The contents of this report reflect the views of the author, who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

Please contact us if you have any questions concerning the contents of this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

Joshua A. Goodwin, PG, CAC
Senior Project Geologist

David W. Bieber, PG, PGP, CEG, CHG
Senior Geologist

JAG:DWB:jaj

(3 + 3 CD) Addressee

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AERIALLY DEPOSITED LEAD AND NATURALLY OCCURRING ASBESTOS SITE INVESTIGATION REPORT

1.0 INTRODUCTION

This Aerially Deposited Lead (ADL) and Naturally Occurring Asbestos (NOA) Site Investigation Report was prepared under California Department of Transportation (Caltrans) Contract No. 03A1368, Task Order (TO) No. 99, and Expense Authorization (EA) 01-477700.

1.1 Project Description and Proposed Improvements

The project area consists of the unpaved shoulders and adjacent cut slopes of State Route 101 (SR-101) from approximately 200 feet north to approximately 300 feet south of Post Mile (PM) 82.0 (the Site), in Mendocino County, California. The approximate project location is depicted on the Vicinity Map, Figure 1.

Proposed improvements at the Site include removing a failed road section to a depth greater than 20 feet and replacing the existing material with lightweight fill. Approximately 14,000 cubic yards of excess soil will be generated by this project. The project limits are depicted on the Site Plan, Figure 2.

1.2 General Objectives

Construction of planned roadway improvements along SR-101 will require the disturbance of soil and existing pavement at the Site and will generate approximately 14,000 cubic yards of excess soil. The objective of the scope of services outlined in TO No. 99 was to evaluate the Site for potential impacts due to ADL in the surface and near-surface soils and for the potential presence of NOA to determine if special handling requirements will be necessary during soil export and disposal activities. The investigative results will also be used by Caltrans to inform the construction contractor if ADL- or NOA-impacted soils are present within the project boundaries for health and safety purposes.

2.0 BACKGROUND

The Site is comprised of the existing Caltrans right-of-way along approximately 0.1 mile of SR-101. Caltrans requested the site investigation to provide data regarding the potential presence of ADL and NOA within the proposed roadway improvement areas.

Regulatory criteria to classify a waste as “California hazardous” for handling and disposal purposes are contained in the California Code of Regulations (CCR), Title 22, Division 4.5, Chapter 11, Article 3, § 66261.24. Criteria to classify a waste as “Resource, Conservation, and Recovery Act (RCRA) hazardous” are contained in Chapter 40 of the Code of Federal Regulations (40 CFR), Section 261.

2.1 Potential Lead Soil Impacts

Ongoing testing by Caltrans has indicated that ADL exists along major freeway routes due to emissions from vehicles powered by leaded gasoline.

For waste containing metals, the waste is classified as California hazardous when: 1) the total metal content exceeds the respective Total Threshold Limit Concentration (TTLC); or 2) the soluble metal content exceeds the respective Soluble Threshold Limit Concentration (STLC) based on the standard Waste Extraction Test (WET). A waste may have the potential of exceeding the STLC when the waste's total metal content is greater than or equal to ten times the respective STLC value, since the WET uses a 1:10 dilution ratio. Hence, when a total metal is detected at a concentration greater than or equal to ten times the respective STLC, and assuming that 100 percent of the total metals are soluble, soluble metal analysis is required. A material is classified as RCRA hazardous, or Federal hazardous, when the soluble metal content exceeds the Federal regulatory level based on the Toxicity Characteristic Leaching Procedure (TCLP). The TTLC value for lead is 1,000 milligrams per kilogram (mg/kg). The STLC and TCLP values for lead are both 5.0 milligrams per liter (mg/l).

The above regulatory criteria are based on chemical concentrations. Wastes may also be classified as hazardous based on other criteria such as ignitability and corrosivity; however, for the purposes of this investigation, toxicity (i.e., lead concentrations) is the primary factor considered for waste classification since waste generated during the construction activities would not likely warrant testing for ignitability or corrosivity. Waste that is classified as either California-hazardous or RCRA-hazardous requires management as a hazardous waste.

The Department of Toxic Substances Control (DTSC) regulates and interprets hazardous waste laws in California. DTSC generally considers excavated or transported materials that exhibit "hazardous waste" characteristics to be a "waste" requiring proper management, treatment and disposal. Soil that contains lead above hazardous waste thresholds and is left in-place would not be necessarily classified by DTSC as a "waste." The DTSC has provided site-specific determinations that "movement of wastes within an area of contamination does not constitute "land disposal" and, thus, does not trigger hazardous waste disposal requirements." Therefore, lead-impacted soil that is scarified in-place, moisture-conditioned, and recompacted during roadway improvement activities might not be considered a "waste." DTSC should be consulted to confirm waste classification. It is noted that in addition to DTSC regulations, health and safety requirements and other local agency requirements may also apply to the handling and disposal of lead-impacted soil.

2.2 Naturally Occurring Asbestos

The construction activities proposed by Caltrans may disturb NOA-containing soil and/or rock units, if present at the Site. The California Air Resources Board (CARB) has mitigation practices for

construction, grading, quarrying and surface mining operations that may disturb natural occurrences of asbestos as outlined in Title 17 California Code of Regulations (CCR), Section 93105. NOA potentially possesses a health hazard when it becomes an airborne particulate. Mitigation practices can reduce the risk of exposure to asbestos-containing dust. The primary mitigation practice used for controlling exposure to potentially asbestos-containing dust is the implementation of engineering controls including wetting the materials being disturbed. If engineering controls do not adequately control exposure to potentially asbestos-containing dust, the use of personal protective equipment including wearing air purifying respirators with High Efficiency Particulate Air (HEPA) filters is required during construction activities. Dust control methods similar to those in Title 17 CCR, Section 93105 are outlined in Title 17 CCR, Section 93106 for airborne asbestos in road surfacing applications. Using surfacing material with 0.25% or more asbestos material is not permitted and wetting of the material or the application of a surface sealant is recommended to minimize disturbance of the asbestos material. Onsite reuse or disposal of NOA-containing materials is allowed by 17 CCR 93106 and 17 CCR 93105 if it is buried under at least 3 inches of material that does not contain NOA.

3.0 SCOPE OF SERVICES

The scope of services requested by Caltrans in TO No. 99 included the advancement of three borings to approximate depths of 40 feet, collection of soil samples to evaluate the Site for potential impacts from ADL and NOA, and preparation of this report.

3.1 Pre-field Activities

- Prepared a *Health and Safety Plan* dated July 2009 to provide guidelines on the use of personal protective equipment and the health and safety procedures implemented during the field activities.
- Provided 48-hour notification to Underground Service Alert (USA Ticket No.0249151) prior to job site mobilization.
- Obtained a boring permit from Mendocino County and paid requisite fees. A copy of the permit is presented in Appendix A.
- Retained the services of Advanced Technologies Laboratories (ATL), a Caltrans-approved and California-certified analytical laboratory, to perform the chemical analyses of samples.
- Retained the services of EMSL Inc., a Caltrans-approved analytical laboratory, to perform the asbestos analyses of samples.

3.2 Field Activities

On August 24 and 25, 2009, we advanced one diamond core boring and two mud-rotary borings to a maximum depth of approximately 33 feet for the collection of ADL and NOA soil and rock samples. Samples were placed in re-sealable plastic bags, which were labeled with sample identification numbers, date and time collected, and placed in a cooler pending delivery to the analytical laboratories

under chain-of-custody (COC) protocol. The boring locations were selected in the field by the Geocon field manager. Details of the field activities are presented in the following sections. Boring logs are presented in Appendix B.

4.0 INVESTIGATIVE METHODS

4.1 ADL Investigation

Nine soil samples were collected for lead analysis from three borings (B1 through B3). The borings were advanced along the unpaved southbound shoulder of SR-101 approximately 1 to 2 feet from the edge of pavement. The soil samples were collected from each boring at approximate depth intervals of 0 to 0.75 foot, 0.75 to 1.5 foot, and 1.5 to 2.25 feet. The soil samples were placed in labeled re-sealable plastic bags for field homogenization and delivered to ATL for lead analysis under COC protocol.

The location of each boring in latitude and longitude format, as determined using a global positioning system (GPS), is summarized on Table 1. The approximate boring locations are depicted on Figure 2.

4.2 NOA Investigation

Prior to sample collection, we conducted a reconnaissance assessment of the exposed soil and rock types present within cut slopes at the Site. Sixteen soil/rock samples were obtained from borings B1 through B3 for asbestos analysis. Samples were placed in labeled re-sealable plastic bags and delivered to EMSL for asbestos analysis under COC protocol. The approximate boring locations are shown on Figure 2.

4.3 Traffic Control

Caltrans provided a lane closure during the drilling activities on August 24, 2009. Geocon conducted a shoulder closure on August 25, 2009, which included the use of advance warning signs and traffic cones.

4.4 Quality Assurance/Quality Control Procedures

Quality Assurance/Quality Control (QA/QC) procedures were performed during the field exploration activities. These procedures included the decontamination of sampling equipment before each sample was collected and providing COC documentation for each sample submitted to the laboratory. The soil sampling equipment was cleansed between each boring by washing the equipment with an Alconox® solution followed by a double rinse with deionized water. The decontamination water was discharged to the ground surface within the Caltrans right-of-way, away from the roadway and storm drain inlets.

4.5 Laboratory Analyses

Prior to submitting the samples to the laboratory, the COC documentation was reviewed for

accuracy and completeness. Copies of the laboratory reports and COC documentation are presented in Appendix C.

4.5.1 Aerially Deposited Lead Samples

The soil samples collected from the ADL borings were submitted to ATL for the following analysis under standard ten-day turn-around-time (TAT):

- Total lead following United States Environmental Protection Agency (EPA) Test Method 6010B.
- One randomly selected soil sample was analyzed for soil pH using EPA Test Method 9045C.

4.5.2 Naturally Occurring Asbestos Samples

Sixteen soil/rock samples were submitted to EMSL for asbestos fiber analysis under standard ten-day TAT. EMSL analyzed the samples for asbestos using polarized light microscopy (PLM) by CARB Method 435 (CARB 435). The CARB 435 preparation includes milling the sample to a -200 mesh size which also homogenizes the sample. The analytical sensitivity of the PLM analysis was 0.25% by area.

4.5.3 Laboratory QA/QC Procedures

QA/QC procedures were performed by ATL as applicable for each method of analysis with specificity for each analyte listed in the test method's QA/QC. QA/QC measures for the various metals analyses included the following:

- One method blank for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One sample analyzed in duplicate for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One spiked sample for every ten samples, batch of samples or type of matrix, whichever was more frequent, with the spike made at ten times the detection limit or at the analyte level.

5.0 FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS

5.1 Field Observations

Subsurface materials encountered during drilling activities were generally composed of fill materials consisting of loose, dry, silty fine to medium sand with rounded gravels in the upper 5 feet. In boring B1 the fill material was underlain by the Cretaceous to Jurassic aged Franciscan Formation, which consisted of slightly weathered, fractured, light bluish gray, fine grained silica cemented graywacke. The fractures within the graywacke were filled with soft to medium, moist, silty clay with angular graywacke clasts. An approximate 13-foot thick zone of clayey fault gouge was observed within the graywacke in Boring B1. Approximately 35 feet of alluvial material, which consisted of medium to

stiff, moist, dark yellowish brown to greenish gray, silty clay with angular gravels (graywacke, chert, and metasedimentary rocks), was encountered in borings B2 and B3. The outcrops observed in the areas investigated did not appear to have characteristic features indicative of a rock-type in which NOA is likely to be present.

5.2 ADL Soil Analytical Results

Total lead was detected above the laboratory reporting limit (RL) of 5 mg/kg in eight of the nine soil samples analyzed at concentrations ranging from 6.2 to 22 mg/kg. WET soluble lead testing was not performed since none of the soil samples had reported total lead concentrations greater than 50 mg/kg (ten times the STLC value for lead of 5.0 mg/l). The soil pH value was reported at 7.7 in sample B1-0.

A summary of the ADL and pH soil sample analytical results is presented on Table 2. The ATL laboratory report and COC documentation are presented in Appendix C.

5.3 NOA Results

Sixteen highly weathered rock samples were analyzed by EMSL for asbestos by the PLM method using the CARB 435 sample preparation method. None of the 16 samples submitted for asbestos analysis were reported to contain asbestos at or greater than the PLM laboratory method detection limit of 0.25%. The analytical laboratory reported each of the samples as 100% non-fibrous.

A summary of the NOA soil sample analytical results is presented on Table 3. The EMSL laboratory report and COC documentation are presented in Appendix C.

5.4 Laboratory Quality Assurance/Quality Control

The ATL laboratory QA/QC report shows acceptable surrogate recoveries and non-detect results for the method blanks. The ATL Case Narrative stated that the “RPD for Duplicate (DUP) is outside criteria for samples 107067-049ADUP and 107082-002ADUP; however, the Laboratory Control Sample (LCS) validated the analytical batch.” The report showed acceptable recoveries and relative percent differences for the matrix spikes (MSs) and matrix spike duplicates (MSDs). Based on this limited data review, no additional qualifications of the ATL data are necessary, and the data are of sufficient quality for the purposes of this report.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Aerially Deposited Lead

While lead was reported in the samples from the Site, the concentrations are below levels of concern, and are consistent with background concentrations we have encountered in the region. Soil materials excavated to the maximum sampling depth of 2.25 feet within the project boundaries will not require special soil handling or disposal procedures based on lead content and can be reused or disposed as non-hazardous soil since the reported total lead values are less than 50 mg/kg.

6.2 Naturally Occurring Asbestos

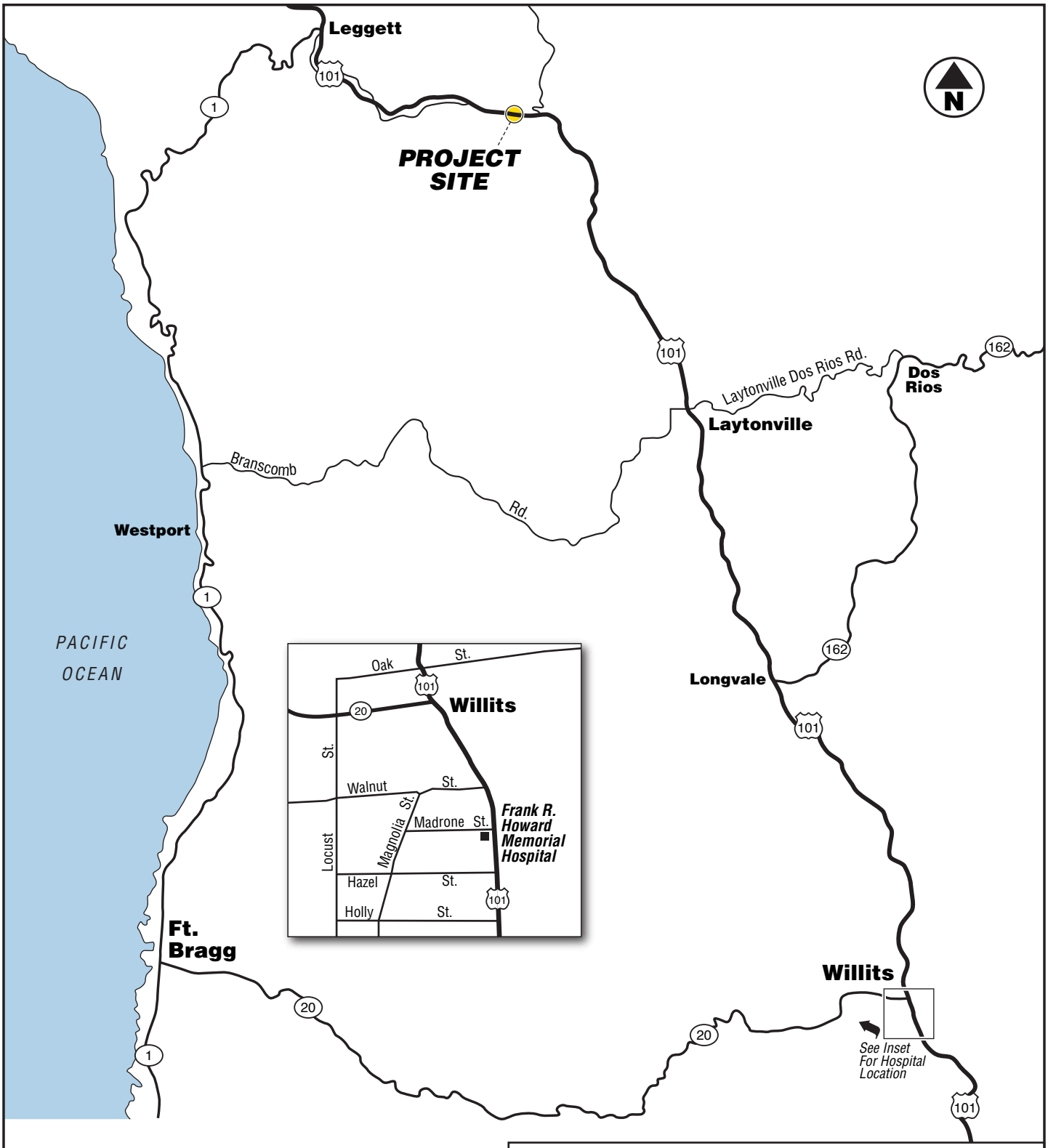
The Site is located within a geologic area where NOA minerals are known to occur. However, geologic materials likely to contain asbestos at regulated levels were not observed on the Site, and the samples submitted for analysis were not reported to contain asbestos at or greater than the regulatory threshold of 0.25% by the PLM method. Based on the observations and lack of reported asbestos at the Site, engineering controls to minimize the aerial dispersion of NOA should not be required and excess materials excavated at this location can be reused or disposed of without restriction with regards to NOA.

Since ultramafic rocks occur within close proximity of the Site, we recommend that materials transported to the Site for fill (if derived from an area likely to contain ultramafic rock) be tested for NOA content. If differing geologic materials are encountered during roadway improvement grading operations, these materials should be evaluated for the presence of NOA.

7.0 REPORT LIMITATIONS

This report has been prepared exclusively for Caltrans. The information contained herein is only valid as of the date of the report and will require an update to reflect additional information obtained.

This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein. Therefore, the report should be deemed conclusive with respect to only the information obtained. We make no warranty, express or implied, with respect to the content of this report or any subsequent reports, correspondence or consultation. We strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.



0 5 10

Scale in Miles

GEOCON CONSULTANTS, INC.

3160 GOLD VALLEY DR – SUITE 800 – RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 – FAX 916.852.9132

Highway 101 PM 82.0		
Mendocino County, California	**VICINITY MAP**	
GEOCON Proj. No. S9300-06-99		
Task Order No. 99	September 2009	Figure 1

LEGEND:

B1 ⊗ Approximate Boring Location

0 300
Scale in Feet

GEOCON
CONSULTANTS, INC.
3160 GOLD VALLEY DR – SUITE 800 – RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 – FAX 916.852.9132

Highway 101 PM 82.0		
Mendocino County, California	**SITE PLAN**	
GEOCON Proj. No. S9300-06-99		
Task Order No. 99	September 2009	Figure 2

TABLE 1
SUMMARY OF SOIL BORING COORDINATES
HIGHWAY 101, POST MILE 82.0
MENDOCINO COUNTY, CALIFORNIA

SAMPLE ID	DATE	LATITUDE	LONGITUDE
B1	8/24/2009	39.82787	-123.5883214
B2	8/24/2009	39.82795	-123.5863013
B3	8/25/2009	39.82719	-123.5848113

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS - TOTAL LEAD AND pH
HIGHWAY 101, POST MILE 82.0
MENDOCINO COUNTY, CALIFORNIA

SAMPLE ID	SAMPLE DATE	Total Lead (mg/kg)	pH
B1-0	8/24/2009	22	7.7
B1-0.75	8/24/2009	12	---
B1-1.5	8/24/2009	8.3	---
B2-0	8/24/2009	18	---
B2-0.75	8/24/2009	7.5	---
B2-1.5	8/24/2009	<5.0	---
B3-0	8/24/2009	11	---
B3-0.75	8/24/2009	12	---
B3-1.5	8/24/2009	6.2	---

Notes:
mg/kg = Milligrams per kilogram
< = Less than the indicated laboratory reporting limit
--- = Not analyzed

TABLE 3
SUMMARY OF ASBESTOS ANALYTICAL RESULTS
HIGHWAY 101, POST MILE 82.0
MENDOCINO COUNTY, CALIFORNIA

SAMPLE I.D.	SAMPLE TYPE	ANALYTICAL METHOD	ASBESTOS %	ASBESTOS TYPE
B1-0	fill	CARB 435 - PLM	<0.25	None Detected
B1-5	soil/rock	CARB 435 - PLM	<0.25	None Detected
B1-10	soil/rock	CARB 435 - PLM	<0.25	None Detected
B1-15	soil/rock	CARB 435 - PLM	<0.25	None Detected
B1-20	soil/rock	CARB 435 - PLM	<0.25	None Detected
B1-30	soil/rock	CARB 435 - PLM	<0.25	None Detected
B2-0	fill	CARB 435 - PLM	<0.25	None Detected
B2-9	soil/rock	CARB 435 - PLM	<0.25	None Detected
B2-23.5	soil/rock	CARB 435 - PLM	<0.25	None Detected
B2-38	soil/rock	CARB 435 - PLM	<0.25	None Detected
B3-0	fill	CARB 435 - PLM	<0.25	None Detected
B3-5	soil	CARB 435 - PLM	<0.25	None Detected
B3-15	soil	CARB 435 - PLM	<0.25	None Detected
B3-31.5	soil/rock	CARB 435 - PLM	<0.25	None Detected
B3-40	soil/rock	CARB 435 - PLM	<0.25	None Detected
B3-45	soil/rock	CARB 435 - PLM	<0.25	None Detected

Notes:

CARB 435 = Polarized light microscopy by California Air Resources Board Method 435
< = Less than the indicated laboratory reporting limit

APPENDIX A

COPY

Health and Human Services Agency
Environmental Health, Hazardous Materials

501 Low Gap Road, Rm 1326, Ukiah, CA, 95482 707-463-4466

MONITORING WELL APPLICATION

To Construct, Destroy, Repair, or Alter: Monitoring Wells, Cathodic Wells, Remediation Wells or Borings

RECEIVED AUG 17 2009 MENDO CAN HEALTH

(For Official Use Only)

PERMIT

Date Paid: 8/17/09

Fee Paid $ 142.00

Payment # UP 21038

Number: 23-6325

Rec'd By: GB

Application is hereby made to the Mendocino County Division of Environmental Health for a permit to perform the work as indicated below at the following site location:

Business Name: Cattmus, Mark Melani Phone: 530-741-4556

Site Address: Highway 101 - PM 82 City: Southeast of Leggett

Property Owner Address: 703 B Street

City: Marysville State: CA Zip: 95901

Work Information:

Indicate below the total number of wells already existing on the site:

Domestic Water Wells _____ Monitoring Wells _____

Type of Work Proposed: Construction ✓ Destruction _____

Repair _____ Alteration/Conversion _____

Indicate below the total number of proposed wells or borings for each type listed:

Monitoring Wells _____ Cathodic Wells _____ Borings/hydropunches 3

Consultant and Contractor Information:

Consulting Firm: Geocon Consultants Inc.

Address: 3160 Gold Valley Drive City: Rancho Cordova Zip: 95742

Contact Name: Ian Stevenson Phone #: 916-852-8118

Driller/Contractor: U&W Drilling

C-57 License #: 720904 Phone #: 209-469-7704

Address: 3806 Duck Creek Dr. City: Stockton Zip: 95215

Permit Terms and Conditions provide that the contractor will:

- Secure the authorization of the property owner.
- Submit written authorization(s) from the off-site property owner(s) for all off-site work.
- Complete the Site Plot Sketch according to the instructions on the back of this application.
- Consult with the inspector for an available inspection date a minimum of 5 days prior to scheduling field activities.
- Schedule field work to commence after a permit has been issued.
- Place seals by "free fall" (without a tremie pipe) only in dry intervals of less than 30 feet BGS.
- Construct surface seal/cover to prevent physical damage, unauthorized access & contamination.
- Submit a State of California Well Completion Report/Log or an "As Constructed" Well Log, or a Destruction Log of the Soil Boring within 15 days of completion as a requirement for final approval [Mendocino County Code Section 16.04.060 (c)]. (Final approval will not be given without the log(s) or sketch.)

Permit Agreement:

I hereby agree to construct, destroy, repair or alter all wells or borings on this permit application in accordance with the "Permit Terms And Conditions" as stated above and in compliance with the Mendocino County Well Ordinance (County Code Chapter 16.04) and the California Well Standards Bulletin 74-81 & 74-90 as they are amended from time to time.

I understand that this permit expires one year from the date of issuance (Mendocino County Code Section 16.04.090).

For Known Contaminated Sites: I understand that the North Coast Regional Water Quality Control Board requires an approved Work Plan prior to the start of any field work under this permit. [Please call (707) 576-2220 for questions regarding work plan approval.]

For Sites within the Coastal Zone: I understand that the Department of Planning and Building requires a Coastal Zone Permit prior to the start of any field work under this permit, and that they may require additional permit fees.

C-57 Contractor: Wet signatures required; faxes will not be accepted.

K R Strong (Print Name) (Signature)

Date: 8/6/09

Coastal Zone Approval:

(Signature)

Date:

Permit Approval:

This application is deemed as approved and issued when signed and dated by a Mendocino County Health Officer in the space provided on the lines below:

Issued by: Jay Johnson (Health Officer's Signature) 8/17/09 Date

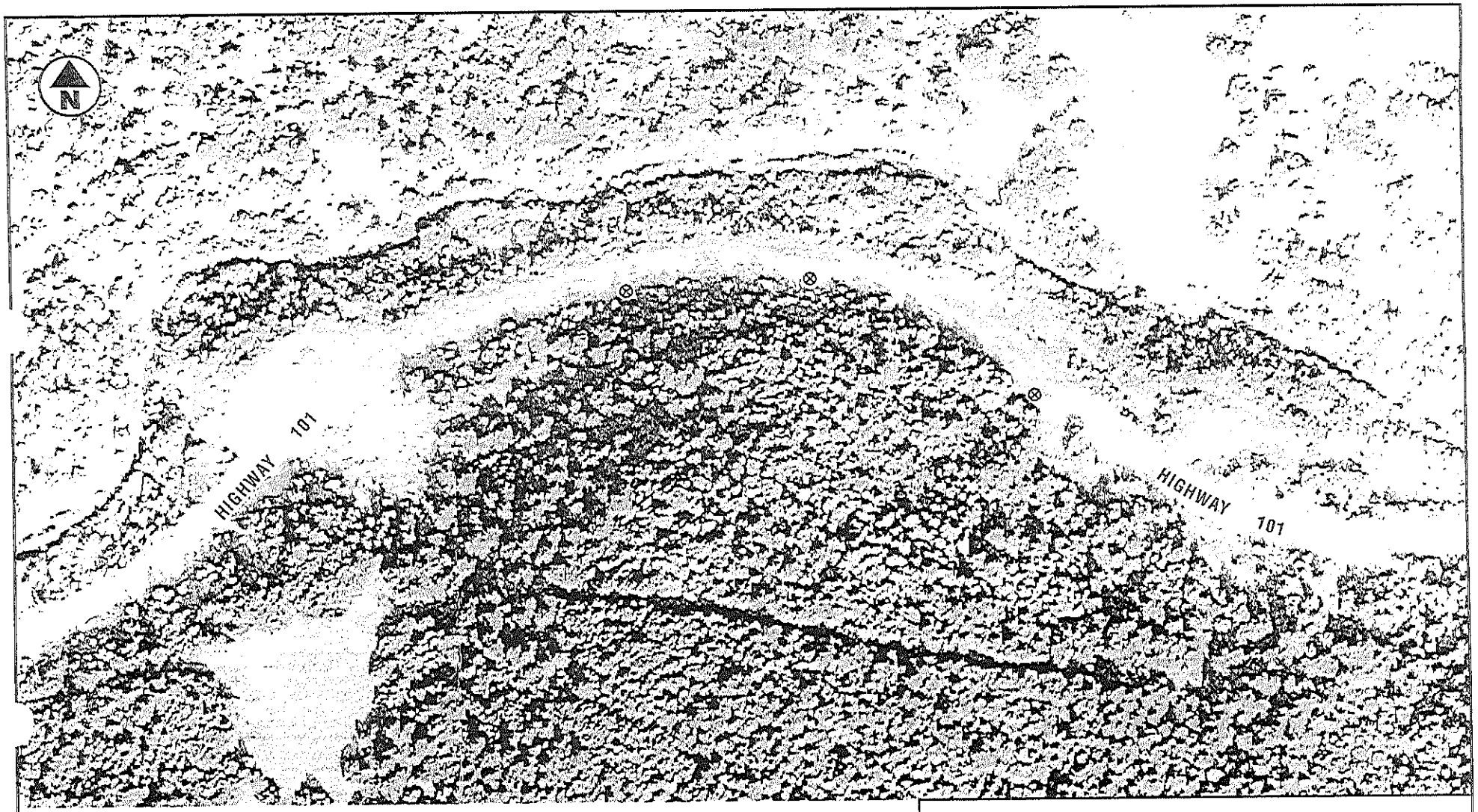
Work completed satisfactorily:

Final Approval by: _____ (Health Officer's Signature) Date:

Date Boring and Well Logs were received: _____

Distribution: Original to EH; Copy to well driller; Copy to Consultant; Copy to Water Quality Control

U:\Round Staff\Moved Info\Moved Application 1-29-08.doc



LEGEND:

⊗ Proposed Boring Location

0 300
Scale in Feet

GEOCON
CONSULTANTS, INC.
3160 GOLD VALLEY DR – SUITE 800 – RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 – FAX 916.852.9132

Highway 101 PM 82.0		
Mendocino County, California	**SITE PLAN**	
GEOCON Proj. No. S9300-06-99		
Task Order No. 99	August 2009	Figure 2-3

APPENDIX B

PROJECT NO. S9300-06-99

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	BORING NO. B1 DATE DRILLED 8/24/2009 WATER LEVEL (ATD) EQUIPMENT CME 75 Diamond Core DRILLER V&W Drilling	SOIL (USCS)	HEADSPACE (PPM)
				SOIL DESCRIPTION		
1				**FILL** Loose, dry, grayish brown, Silty fine to medium SAND with rounded gravel	SC	
2						
3						
4						
5				**FRANCISCAN FORMATION**		
6						
7						
8						
9				fractured, dark bluish gray, fine grained, silica cemented GRAYWACKE with quartz veins. Fractures filled with stiff, moist, dark blue to greenish gray, CLAY with angular graywacke fragments		
10						
11						
12						
13						
14						
15						
16						
17				Stiff, moist, dark blue to greenish gray, Silty CLAY FAULT GOUGE with angular graywacke fragments	CL	
18						
19						
20						
21						
22						
23						
24						

Figure A1, Log of Boring B1, page 1 of 2

ENV_NO_WELL TO 99 MENDOCINO 101 LOGS-2.GPJ 10/19/09

BORING ELEVATION:	ENGINEER/GEOLOGIST: **Joshua Goodwin**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9300-06-99

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	BORING NO. B1 DATE DRILLED 8/24/2009 WATER LEVEL (ATD) EQUIPMENT CME 75 Diamond Core DRILLER V&W Drilling	SOIL (USCS)	HEADSPACE (PPM)
				SOIL DESCRIPTION		
26						
27				Soft, moist, greenish gray to white, Silty Talcy CLAY FAULT GOUGE, with angular graywacke fragments	CL	
28						
29						
30				Slightly weathered, fractured, bluish gray, fine-grained, silica cemented GRAYWACKE with quartz veins and fine grained sulfides		
31						
32						
33				BORING TERMINATED AT 33 FEET		

Figure A2, Log of Boring B1, page 2 of 2

ENV_NO_WELL TO 99 MENDOCINO 101 LOGS-2.GPJ 10/19/09

BORING ELEVATION:

ENGINEER/GEOLOGIST: **Joshua Goodwin**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9300-06-99

BORING NO. B2

DATE DRILLED 8/24/2009 WATER LEVEL (ATD)

EQUIPMENT CME 75 Diamond Core DRILLER V&W Drilling

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	SOIL (USCS)	HEADSPACE (PPM)
1	14			**FILL** Loose, grayish brown, Silty Gravelly fine to medium SAND	SC	
2						
3						
4				**ALLUVIUM**	CL	
5						
6						
7						
8						
9				Loose, moist, dark yellowish brown, Silty Gravelly CLAY		
10	13					
11						
12						
13						
14						
15	14			Medium stiff, wet, dark yellowish brown, plastic, Sandy Gravelly CLAY	CL	
16						
17						
18						
19	11					
20						
21						
22						
23						
24						

Figure A3, Log of Boring B2, page 1 of 2

ENV_NO_WELL TO 99 MENDOCINO 101 LOGS-2.GPJ 10/19/09

BORING ELEVATION:

ENGINEER/GEOLOGIST: **Joshua Goodwin**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9300-06-99

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	BORING NO. B2 DATE DRILLED 8/24/2009 WATER LEVEL (ATD) EQUIPMENT CME 75 Diamond Core DRILLER V&W Drilling	SOIL (USCS)	HEADSPACE (PPM)
				SOIL DESCRIPTION		
26						
27						
28						
29				**FRANCISCAN FORMATION** fractured, bluish gray to black, medium grained with quartz veins, silica cemented, GRAYWACKE		
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40				BORING TERMINATED AT 40 FEET		

Figure A4, Log of Boring B2, page 2 of 2

ENV_NO_WELL TO 99 MENDOCINO 101 LOGS-2.GPJ 10/19/09

BORING ELEVATION:

ENGINEER/GEOLOGIST: **Joshua Goodwin**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9300-06-99

BORING NO. B3

DATE DRILLED 8/24/2009 WATER LEVEL (ATD)

EQUIPMENT CME 75 Diamond Core DRILLER V&W Drilling

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	SOIL (USCS)	HEADSPACE (PPM)
1		B3-0 B3-0.75		**FILL** Loose, dry, light yellowish brown, Clayey fine Sandy SILT with angular gravel	ML	
2		B3-1.5		**ALLUVIUM** Stiff, moist, dark yellowish brown, coarse Sandy Silty CLAY	CL	
3						
4						
5	17	B3-5 0943				
6						
7						
8						
9						
10	27	B3-10 0957				
11						
12						
13						
14						
15	33	B3-15 1009		- with coarse angular sand		
16						
17						
18						
19						
20	29	B3-20				
21						
22						
23						
24						

Figure A5, Log of Boring B3, page 1 of 2

ENV_NO_WELL TO 99 MENDOCINO 101 LOGS-2.GPJ 10/19/09

BORING ELEVATION:

ENGINEER/GEOLOGIST: **Joshua Goodwin**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S9300-06-99

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	BORING NO. B3 DATE DRILLED 8/24/2009 WATER LEVEL (ATD) EQUIPMENT CME 75 Diamond Core DRILLER V&W Drilling	SOIL (USCS)	HEADSPACE (PPM)
				SOIL DESCRIPTION		
	48	B3-25				
26				Stiff, moist, dark yellowish brown, Silty fine Sandy CLAY with angular fragments of black, fractured, graywacke	CL	
27						
28						
29						
30		B3-30		- slower drilling, sampler filled with a green silt with white mineralized veins, dry loose material		
31						
32						
33						
34						
35		B3-35		Medium stiff, moist, dark yellowish brown, CLAY with silt and angular graywacke fragments	CL	
36						
37						
38						
39				Medium stiff, moist, greenish gray, Sandy CLAY with angular graywacke fragments	CL	
40	44	B3-40				
41						
42						
43						
44				**FRANCISCAN FORMATION** weathered, fractured, dark gray, GRAYWACKE		
45	35	B3-45				
46						
				BORING TERMINATED AT 46.5 FEET		

Figure A6, Log of Boring B3, page 2 of 2

ENV_NO_WELL TO 99 MENDOCINO 101 LOGS-2.GPJ 10/19/09

BORING ELEVATION:	ENGINEER/GEOLOGIST: **Joshua Goodwin**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			SYMBOL	TYPICAL NAMES
COARSE-GRAINED SOILS (MORE THAN HALF IS COARSER THAN NO. 200 SIEVE)	GRAVELS (MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE)	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
			GP	POORLY GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, SILTY GRAVELS WITH SAND
			GC	CLAYEY GRAVELS, CLAYEY GRAVELS WITH SAND
	SANDS (MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE)	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
			SP	POORLY GRADED SANDS WITH OR WITHOUT GRAVELS, LITTLE OR NO FINES
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS WITH OR WITHOUT GRAVEL
			SC	CLAYEY SANDS WITH OR WITHOUT GRAVEL
FINE-GRAINED SOILS (MORE THAN HALF IS FINER THAN NO. 200 SIEVE)	SILTS AND CLAYS (LIQUID LIMIT 50% OR LESS)		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTS WITH SANDS AND GRAVELS
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, CLAYS WITH SANDS AND GRAVELS, LEAN CLAYS
			OL	ORGANIC SILTS OR CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (LIQUID LIMIT GREATER THAN 50%)		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS, FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OR CLAYS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

BORING/TRENCH LOG LEGEND

pp	—	Pocket Penetrometer (tsf)
tsf	—	Tons Per Square Foot
LL	—	Liquid Limit
PI	—	Plasticity Index
	—	Shelby Tube Sample
	—	Bulk Sample
	—	SPT Sample
	—	Modified California Sample
	—	Groundwater Level (At Completion)
	—	Groundwater Level (First Encountered)

PENETRATION RESISTANCE

SAND AND GRAVEL			SILT AND CLAY			
RELATIVE DENSITY	BLOWS PER FOOT (SPT)*	BLOWS PER FOOT (MOD-CAL)*	CONSISTENCY	BLOWS PER FOOT (SPT)*	BLOWS PER FOOT (MOD-CAL)*	COMPRESSIVE STRENGTH (tsf)
VERY LOOSE	0 - 4	0 - 7	VERY SOFT	0 - 2	0 - 2	0 - 0.25
LOOSE	4-10	7 - 17	SOFT	2 - 3	2 - 4	0.25 - 0.50
MEDIUM DENSE	10-30	17 - 48	MEDIUM STIFF	3 - 8	4 - 10	0.50 - 1.0
DENSE	30-50	48 - 85	STIFF	8 - 15	10 - 20	1.0 - 2.0
VERY DENSE	OVER 50	OVER 85	VERY STIFF	15 - 30	20 - 48	2.0 - 4.0
			HARD	OVER 30	OVER 48	OVER 4.0

*NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE LAST 12 INCHES OF AN 18-INCH DRIVE

GEOCON

Geocon Consultants, Inc.
3160 Gold Valley Drive, Suite 800
Rancho Cordova, CA 95742
Telephone: (916) 852-9118
Fax: (916) 852-9132

Key to Logs

APPENDIX C

September 03, 2009

Ian Stevenson
Geocon Consultants, Inc.
3160 Gold Valley Drive, Suite 800
Rancho Cordova, CA 95742

TEL: (916) 869-4308
FAX: (916) 852-9132

ELAP No.: 1838
NELAP No.: 02107CA
NEVADA.: CA-401
CSDLAC No.: 10196

Workorder No.: 107120

RE: Mendocino 101, S9300-06-99

Attention: Ian Stevenson

Enclosed are the results for sample(s) received on August 27, 2009 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

for Eddie F. Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.

CLIENT: Geocon Consultants, Inc.
Project: Mendocino 101, S9300-06-99
Lab Order: 107120

CASE NARRATIVE

Analytical Comments for Method 6010

RPD for Duplicate (DUP) is outside criteria for sample 107120-001ADUP; however, the Laboratory Control Sample (LCS) validated the analytical batch.

Advanced Technology Laboratories *3275 Walnut Avenue* *Signal Hill, CA 90755* *Tel: 562 989-4045* *Fax: 562 989-4040*

Advanced Technology Laboratories

Date: 9/3/2009

ANALYTICAL RESULTS

LEAD BY ICP
EPA 6010B

CLIENT:	Geocon Consultants, Inc.	**Lab Order:**	107120
Project:	Mendocino 101, S9300-06-99	**Date Received**	8/27/2009 8:55:00 AM
Project No:		**Matrix:**	Soil
Analyte:	Lead	**Analyst:**	SRB

Laboratory ID	Client Sample ID	Results	Units	QC Batch	PQL	DF	Date Collected	Date Analyzed
107120-001A	B1-0	22	mg/Kg	57784	5.0	1	8/24/2009	9/1/2009
107120-002A	B1-0.75	12	mg/Kg	57784	5.0	1	8/24/2009	9/1/2009
107120-003A	B1-1.5	8.3	mg/Kg	57784	5.0	1	8/24/2009	9/1/2009
107120-004A	B2-0	18	mg/Kg	57784	5.0	1	8/24/2009	9/1/2009
107120-005A	B2-0.75	7.5	mg/Kg	57784	5.0	1	8/24/2009	9/1/2009
107120-006A	B2-1.5	ND	mg/Kg	57784	5.0	1	8/24/2009	9/1/2009
107120-007A	B3-0	11	mg/Kg	57784	5.0	1	8/25/2009	9/1/2009
107120-008A	B3-0.75	12	mg/Kg	57784	5.0	1	8/25/2009	9/1/2009
107120-009A	B3-1.5	6.2	mg/Kg	57784	5.0	1	8/25/2009	9/1/2009

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

Advanced Technology Laboratories

Date: 03-Sep-09

CLIENT: Geocon Consultants, Inc.
Work Order: 107120
Project: Mendocino 101, S9300-06-99

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: MB-57784A | SampType: MBLK | TestCode: 6010_SPB | Units: mg/Kg | Prep Date: 8/31/2009 | RunNo: 112428
Client ID: PBS | Batch ID: 57784 | TestNo: EPA 6010B | EPA 3050M | Analysis Date: 9/1/2009 | SeqNo: 1775715

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	5.0									

Sample ID: LCS-57784 | SampType: LCS | TestCode: 6010_SPB | Units: mg/Kg | Prep Date: 8/31/2009 | RunNo: 112428
Client ID: LCSS | Batch ID: 57784 | TestNo: EPA 6010B | EPA 3050M | Analysis Date: 9/1/2009 | SeqNo: 1775716

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	254.786	5.0	250.0	0	102	80	120				

Sample ID: 107120-001A-DUP | SampType: DUP | TestCode: 6010_SPB | Units: mg/Kg | Prep Date: 8/31/2009 | RunNo: 112428
Client ID: B1-0 | Batch ID: 57784 | TestNo: EPA 6010B | EPA 3050M | Analysis Date: 9/1/2009 | SeqNo: 1775727

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	14.938	5.0						22.38	39.9	20	R

Sample ID: 107120-001A-MS | SampType: MS | TestCode: 6010_SPB | Units: mg/Kg | Prep Date: 8/31/2009 | RunNo: 112428
Client ID: B1-0 | Batch ID: 57784 | TestNo: EPA 6010B | EPA 3050M | Analysis Date: 9/1/2009 | SeqNo: 1775728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	202.265	5.0	250.0	22.38	72.0	33	120				

Sample ID: MB-57784B | SampType: MBLK | TestCode: 6010_SPB | Units: mg/Kg | Prep Date: 8/31/2009 | RunNo: 112428
Client ID: PBS | Batch ID: 57784 | TestNo: EPA 6010B | EPA 3050M | Analysis Date: 9/1/2009 | SeqNo: 1775729

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	5.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: Geocon Consultants, Inc.
Work Order: 107120
Project: Mendocino 101, S9300-06-99

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPB

Sample ID: **107164-004A-DUP** SampType: **DUP** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/31/2009** RunNo: **112428**
Client ID: **ZZZZZZ** Batch ID: **57784** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **9/1/2009** SeqNo: **1775740**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	4.762	5.0						11.32	0	20	

Sample ID: **107164-004A-MS** SampType: **MS** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/31/2009** RunNo: **112428**
Client ID: **ZZZZZZ** Batch ID: **57784** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **9/1/2009** SeqNo: **1775741**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	201.647	5.0	250.0	11.32	76.1	33	120				

Sample ID: **107164-004A-MSD** SampType: **MSD** TestCode: **6010_SPB** Units: **mg/Kg** Prep Date: **8/31/2009** RunNo: **112428**
Client ID: **ZZZZZZ** Batch ID: **57784** TestNo: **EPA 6010B** **EPA 3050M** Analysis Date: **9/1/2009** SeqNo: **1775742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	197.299	5.0	250.0	11.32	74.4	33	120	201.6	2.18	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CHAIN OF CUSTODY RECORD

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

P.O. #:
Logged By: Date: 8/27/09

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FedEx ☐ Other: GSO

Sample Condition Upon Receipt
1. CHILLED Y ☑ N ☐ (3.3)
2. HEADSPACE (VOA) Y ☐ N ☐ (NA)
3. CONTAINER INTACT Y ☑ N ☐
4. SEALED Y ☐ N ☑
5. # OF SPLS MATCH COC Y ☐ N ☐
6. PRESERVED Y ☐ N ☑

Client: GEOCON Consultants, Inc
Attention: Ian Stevenson (stevenson@geoconinc.com)
Address: 3160 Gold Valley Drive, Suite 800
City: Rancho Cordova State: CA Zip Code: 95742
Tel: 916.852.9118
Fax: 916.852.9132

Project Name: Mendocino 101 ~~Willits Bypass PSI~~
Project #: S9300-06-~~08~~ 99
Sampler: (Printed Name) ~~Ian Stevenson~~ Josh Goodwin (Signature)

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
~~Ian Stevenson~~ Josh Goodwin	8/26/09	1600	GSO	8/26/09	1600
			Mario	8/27/09	8:55

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter: ~~Ian Stevenson~~ Josh Goodwin
Print Name Date 8/26/09
Signature

Send Report To:
Attn:
Co: SAME AS ABOVE
Addr:
City: State: Zip:

Bill To:
Attn:
Co: SAME AS ABOVE
Addr:
City: State: Zip:

Special Instructions/Comments:
Caltrans billing per contract 03A1368
Hold remainder for possible W.E.T. analysis
Please copy Kari Cook on the results and EDF reports and include an excel file. Thank you. (cook@geoconinc.com)

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.

Storage Fees (applies when storage is requested):
Sample :$2.00 / sample /mo (after 45 days)
Records: $1 /ATL workorder /mo (after 1 year)

Circle or Add Analysis(es) Requested — SPECIFY APPROPRIATE MATRIX

QA/QC: RTNE ☐ CT ☑ SWRCB ☐ Logcode ____ OTHER ____

ITEM	LAB USE ONLY: Lab No.	Sample Description: Sample ID / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / 8020 (BTEX)	8015M (TPHd and TPHmo)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	Gasoline Package	TOTAL LEAD (6010B)	pH	SVOCs (8270C)	SOIL	WATER	GROUND WATER	WASTEWATER	CARBON	TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
	1071205-001	B1 - 0	8/24/09	0915										X				X					E	1	P		
	2	B1 - 0.75		0920																							
	3	B1 - 1.5		0925																							
	4	B2 - 0		1400																							
	5	B2 - 0.75		1405																							
	6	B2 - 1.5		1408																							
	7	B3 - 0	8/25/09	0920																							
	8	B3 - 0.75		0925																							
	9	B3 - 1.5		0930																							

▫ TAT starts 8AM the following day if samples received after 3 PM

TAT: A = Overnight ≤ 24 hrs; B = Emergency Next Workday; C = Critical 2 Workdays; D = Urgent 3 Workdays; E = Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=HCl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

September 14, 2009

Ian Stevenson
Geocon Consultants, Inc.
3160 Gold Valley Drive, Suite 800
Rancho Cordova, CA 95742

TEL: (916) 869-4308
FAX: (916) 852-9132

ELAP No.: 1838
NELAP No.: 02107CA
NEVADA.: CA-401
CSDLAC No.: 10196

Workorder No.: 107120

RE: Mendocino 101, S9300-06-99

Attention: Ian Stevenson

Enclosed are the results for sample(s) received on August 27, 2009 by Advanced Technology Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

Eddie F. Rodriguez
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories.

Advanced Technology Laboratories

ANALYTICAL RESULTS

Print Date: *14-Sep-09*

CLIENT:	Geocon Consultants, Inc.	**Client Sample ID:**	B1-0
Lab Order:	107120	**Collection Date:**	8/24/2009
Project:	Mendocino 101, S9300-06-99	**Matrix:**	SOIL
Lab ID:	107120-001A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
PH						
				EPA 9045C		
RunID: WETCHEM_090911A	QC Batch: R112760			PrepDate:		Analyst: **DDL**
pH	7.7	0.10		pH Units	1	9/11/2009

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories
3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

Advanced Technology Laboratories

Date: *14-Sep-09*

CLIENT: Geocon Consultants, Inc.
Work Order: 107120
Project: Mendocino 101, S9300-06-99

ANALYTICAL QC SUMMARY REPORT

TestCode: 9045_S

Sample ID: **107120-001ADUP** SampType: **DUP** TestCode: **9045_S** Units: **pH Units** Prep Date: RunNo: **112760**
Client ID: **B1-0** Batch ID: **R112760** TestNo: **EPA 9045C** Analysis Date: **9/11/2009** SeqNo: **1781496**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.630	0.10						7.670	0.523	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Diane Galvan

From: Joshua Goodwin [goodwin@geoconinc.com]
Sent: Friday, September 04, 2009 11:13 AM
To: Diane Galvan
Subject: FW: Results/EDD - Mendocino 101 (107120)

Hi Diane,
Could you please run soil sample B1-0 for soil pH using EPA Test Method 9045 on a standard TAT.
Thanks,
Josh

Please send me and Rebecca the invoices for S9300-06-98 and 99.

Joshua Goodwin, PG, CAC
Senior Project Geologist

Please visit our new website at http://www.geoconinc.com

Geocon Consultants, Inc.
3160 Gold Valley Drive, Suite 800
Sacramento, CA 95742
Tel (916) 852-9118
Fax (916) 852-9132

GEOCON

GEOTECHNICAL - ENVIRONMENTAL - MATERIALS

San Diego Murrieta Burbank San Bernardino Bakersfield Sacramento Livermore Carson City Las Vegas Portland

CONFIDENTIALITY NOTICE: This e-mail may contain confidential and privileged material for the sole use of the intended recipient (s). Any review, use, distribution or disclosure by others is strictly prohibited. If you have received this communication in error, please notify the sender immediately by e-mail and delete the message and any file attachments from your computer. Thank you.

EMSL Analytical, Inc
2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577
Phone: (510) 895-3675 Fax: (510) 895-3680 Email: milpitaslab@emsl.com

Attn: **Josh Goodwin**
Geocon Consultants
3160 Gold Valley Drive
Suite 800
Rancho Cordova, CA 95742

Fax: (916) 852-9132 Phone: (916) 852-9118
Project: **S9300-06-99**

Customer ID: GECN80
Customer PO: S9300-06-99
Received: 08/27/09 9:00 AM
EMSL Order: 090906977

EMSL Proj: S9300-06-**
Analysis Date: 9/2/2009

Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

			Non-Asbestos		Asbestos
Sample	Description	Appearance	% Fibrous	% Non-Fibrous	% Type
B1-0 *090906977-0001*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B1-5 *090906977-0002*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B1-10 *090906977-0003*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B1-15 *090906977-0004*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B1-20 *090906977-0005*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B1-30 *090906977-0006*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B2-0 *090906977-0007*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B2-9 *090906977-0008*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B2-23.5 *090906977-0009*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**

Analyst(s)
Adam C. Fink (16)

Baojia Ke, Laboratory Manager
or other approved signatory

This report relates only to the samples listed above and may not be reproduced except in full, without EMSL's written approval. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. EMSL is not responsible for sample collection activities or method limitations. Some samples may contain asbestos fibers below the resolution limit of PLM. EMSL recommends that samples reported as none detected or less than the limit of detection undergo additional analysis via TEM.Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc San Leandro 2235 Polvorosa Ave , Suite 230, San Leandro CA

EMSL Analytical, Inc
2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577
Phone: (510) 895-3675 Fax: (510) 895-3680 Email: milpitaslab@emsl.com

Attn: **Josh Goodwin**
Geocon Consultants
3160 Gold Valley Drive
Suite 800
Rancho Cordova, CA 95742

Fax: (916) 852-9132 Phone: (916) 852-9118
Project: **S9300-06-99**

Customer ID: GECN80
Customer PO: S9300-06-99
Received: 08/27/09 9:00 AM
EMSL Order: 090906977

EMSL Proj: S9300-06-**
Analysis Date: 9/2/2009

Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

			Non-Asbestos		Asbestos
Sample	Description	Appearance	% Fibrous	% Non-Fibrous	% Type
B2-38 *090906977-0010*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B3-0 *090906977-0011*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B3-5 *090906977-0012*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B3-15 *090906977-0013*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B-3-31.5 *090906977-0014*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B3-40 *090906977-0015*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B3-45 *090906977-0016*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**

Analyst(s)
Adam C. Fink (16)

Baojia Ke, Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc San Leandro 2235 Polvorosa Ave , Suite 230, San Leandro CA

THIS IS THE LAST PAGE OF THE REPORT.

Chain of Custody

Asbestos Lab Services

EMSL Analytical, Inc.
Suite 230
2235 Polvorosa Ave.
San Leandro,
CA 94577
Phone: (510) 895-3675 (888) 455-3675
Fax: (510) 895-3680
http://www.emsl.com

Please print all information legibly.

Company:	Geocon Consultants, Inc.	*Bill To:*	Geocon Consultants, Inc.
Address1:	3160 Gold Valley Drive #800	*Address1:*	3160 Gold Valley Drive #800
Address2:		*Address2:*	
City, State:	Rancho Cordova, CA	*City, State:*	Rancho Cordova, CA
Zip/Post Code:	95704	*Zip/Post Code:*	95704
Country:		*Country:*	
Contact Name:	~~Ian Stevenson~~ / Josh Goodwin	*Attn:*	~~Ian Stevenson~~ / Josh Goodwin
Phone:	916-852-9118	*Phone:*	916-852-9118
Fax:	916-852-9132	*Fax:*	916-852-9132
Email:	~~stevenson@geoconinc.com~~	*Email:*	~~stevenson@geoconinc.com~~ / goodwin@geoconinc.com
EMSL Rep:		*P.O. Number:*	
Project Name/Number:	89300-06-99		

MATRIX			TURNAROUND			
☐ Air	☒ Soil	☐ Micro-Vac	☐ 3 Hours	☐ 6 Hours		☐ 24 Hours (1 day)
☐ Bulk	☐ Drinking Water		☐ 48 Hours (2 days)	☐ 72 Hours (3 days)	☐ 96 Hours (4 days)	☐ 120 Hours (5 days)
☐ Wipe	☐ Wastewater		☒ 144+ hours (6-10 days)			

TEM AIR, 3 hours, 6 hours, Please call ahead to schedule. There is a premium charge for 3-hour tat, please call 1-800-220-3675 for price prior to sending samples. You will be asked to sign an authorization form for this service.

PCM - Air
- ☐ NIOSH 7400(A) Issue 2: August 1994
- ☐ OSHA w/TWA
- ☐ Other:

PLM - Bulk
- ☐ EPA 600/R-93/116
- ☐ EPA Point Count
- ☐ NY Stratified Point Count
- ☐ PLM NOB (Gravimetric) NYS 198.1
- ☐ NIOSH 9002:
- ☐ EMSL Standard Addition:

SEM Air or Bulk
- ☐ Qualitative
- ☐ Quantitative

TEM Air
- ☐ AHERA 40 CFR, Part 763 Subpart E
- ☐ NIOSH 7402
- ☐ EPA Level II

TEM BULK
- ☐ Drop Mount (Qualitative)
- ☐ Chatfield SOP - 1988-02
- ☐ TEM NOB (Gravimetric) NYS 198.4
- ☐ EMSL Standard Addition:

PLM Soil
- ☐ EPA Protocol Qualitative
- ☐ EPA Protocol Quantitative
- ☐ EMSL MSD 9000 Method fibers/gram

TEM WATER
- ☐ EPA 100.1
- ☐ EPA 100.2
- ☐ NYS 198.2

TEM Microvac/Wipe
- ☐ ASTM D 5755-95 (quantative method)
- ☐ Wipe Qualitative

XRD
- ☐ Asbestos
- ☐ Silica NIOSH 7500

OTHER
- ☒ CARB 435 PLM LEVEL A

Sensitivity = 0.25%

Received at EMSL Analytical, Inc
San Leandro, CA (888) 455-3675
By EMSL IH. Edwards
Date 8-11-09 @ 7:00 am/pm

Chain of Custody

Asbestos Lab Services

EMSL Analytical, Inc.
Suite 230
2235 Polvorosa Ave
San Leandro,
CA 94577
Phone: (510) 895-3675 (888) 455-3675
Fax: (510) 895-3680
http://www.emsl.com

Please print all information legibly.

Client Sample # (s): B1-0 - B2-38 Total Samples #: 16 total

Relinquished: [signature] Date: 8/26/09 Time: 1650

Received: M. Edwards Date: 8/27/09 Time: 9:00 AM file

Relinquished: Date: Time:

Received: Date: Time:

SAMPLE NUMBER	SAMPLE DESCRIPTION/LOCATION		~~VOLUME~~ (if applicable) DATE COLLECTED
B1-0	rock/soil	0915	8/24/09
B1-5	"	1000	
B1-10	"	1045	
B1-15	"	1123	
B1-20	rock	1157	
B1-30	rock	1320	
B2-0	soil	1400	
B2-9	soil/rock	1455	
B2-23.5	soil/rock	1530	
B2-38	soil/rock	1620	

Chain of Custody

Asbestos Lab Services

EMSL Analytical, Inc.
Suite 230
2235 Polvorosa Ave
San Leandro,
CA 94577
Phone: (510) 895-3675 (888) 455-3675
Fax: (510) 895-3680
http://www.emsl.com

Please print all information legibly.

Client Sample # (s) B3-0 - B3-45 Total Samples #: 16 total

Relinquished: [signature] Date: 8/26/09 Time: 1650

Received: M. Edwards Date: 8/27/09 Time: 9:00 AM-Fl.e

Relinquished: Date: Time:

Received: Date: Time:

SAMPLE NUMBER	SAMPLE DESCRIPTION/~~LOCATION~~	TIME	~~VOLUME (if applicable)~~ DATE COLLECTED
B3-0	Soil / rock	0920	8/25/09
B3-5	" "	0943	
B3-15	" "	1009	
B3-31.5	" "	1048	
B3-40	" "	1130	
B3-45	" "	1150	