FOR CONTRACT NO.: 05-0T5604

INFORMATIONAL HANDOUT

PERMITS

COUNTY OF MONTEREY
PLANNING DEPARTMENT
EMERGENCY COASTATL DEVELOPMENT PERMIT (COASTAL ZONE)

MATERIALS INFORMATION

FOUNDATION REPORT
DATED JULY 20, 2010

INSTALLATION DETAILS FOR STATE FURNISHED BATTERY BACKUP SYSTEM

ROUTE: Mon-1-22.6/22.8

MONTEREY COUNTY

PLANNING DEPARTMENT
168 W. Alisal St. 2nd Floor Salinas CA 93901
(831) 755-5025 FAX: (831) 757-9516

NOTICE OF ISSUANCE OF AN EMERGENCY COASTAL DEVELOPMENT PERMIT (COASTAL ZONE)

PROPERTY OWNERS:	Caltrans and Kenneth Harlan
REPRESENTATIVE:	Cecilia Boudreau, Caltrans District 5
PROJECT DESCRIPTION:	Emergency Coastal Permit to allow the construction of an approximately 825-foot long and 45-foot high soldier-pile tieback retaining wall, the reconstruction of a consistent 4-foot shoulder, the reconstruction of a consistent 12-foot lane in each direction, the construction of a 4-foot catchment basin abutting the toe of the inland slope, the construction of tapering transitions to match new lane and shoulder widths on the northern and southern portions of the project area, the placement of "open-style" bridge railing (Type 80 concrete vehicle guard railing) on top of the retaining wall (with bicycle railing attached on top of the bridge railing), approximately 30,000 cubic yards of cut and fill, and the construction of an 8-foot wide bench in front of the wall.
PROJECT ADDRESS:	Highway 1 Right-of-Way and 62480 Highway 1, south of Lucia between post-miles 22.5 and 22.9, Big Sur South Coast
APNs:	000-000-000-000 (primary), 422-011-014-000, and 422-011-015-000
ISSUANCE DATE:	July 23, 2010
FILE #:	PLN100336

NOTICE AND CAUSE OF EMERGENCY: Pursuant to Chapter 20.79 of the Monterey County Coastal Implementation Plan (Part 1), Caltrans District 5 has requested an Emergency Coastal Permit to allow the construction of an approximately 825-foot long and 45-foot high soldier-pile tieback retaining wall, the reconstruction of a consistent 4-foot shoulder, the reconstruction of a

consistent 12-foot lane in each direction, the construction of a 4-foot catchment basin abutting the toe of the inland slope, the construction of tapering transitions to match new lane and shoulder widths on the northern and southern portions of the project area, the placement of "open-style" bridge railing (Type 80 concrete vehicle guard railing) on top of the retaining wall (with bicycle railing attached on top of the bridge railing), approximately 30,000 cubic yards of cut and fill, and the construction of an 8-foot wide bench in front of the wall between post-miles 22.5 and 22.9. The purpose of Chapter 20.79, *Emergency Permits*, is to provide a means whereby development normally requiring discretionary approvals under this Title may be considered without the normally required public hearing processes to meet an emergency situation. The situation demands immediate action to prevent or mitigate circumstances that are detrimental to the safety, comfort, and general welfare of the persons transiting, occupying, or working on the property. This project is statutorily exempt under 15269(c) of the CEQA Guidelines. This Administrative decision is appealable to the Monterey County Board of Supervisors and the California Coastal Commission pursuant to Sections 20.79.050.E, 20.86.030.A, and 20.86.080.A of the Monterey County Coastal Implementation Plan (Part 1). Project description and location information is attached.

I. FINDINGS OF FACT

1. **FINDING:** An emergency situation exists which requires more expeditious action than the normal discretionary permit procedure.

EVIDENCE:

a) Caltrans District 5 submitted an application (dated June 25, 2010) to request an emergency permit for work along Highway 1, between post-miles 22.5 and 22.9, in the South Coast - Lucia area. As a result of substantial rainfall in Big Sur during the winter of 2009 – 2010, a large landslide occurred on February 6, 2010. The slide below the roadway forced the closure of the southbound lane of Highway 1. Currently, the highway at this location remains one lane with the northbound lane open to two-way traffic, controlled by a temporary traffic signal. Landslide monitoring and constant stabilization is necessary to preserve the remaining lane and prevent full closure of the highway.

b) After the landslide of February 6, 2010, Caltrans submitted a preliminary Emergency Notification Form (ENF) on February 10, 2010. Between February 10 and March 4, 2010, Caltrans collected additional information from the site and provided an updated ENF to the County on March 4, 2010. In coordination with the County and the Coastal Commission, Caltrans requested the issuance of an Emergency Coastal Permit (PLN100113) for the drilling of geotechnical monitoring holes. Monuments placed below the roadway and within the visible headscarp of the active portion of the slide all exhibited significant movement, from approximately 23 feet near the toe of the slide, to several feet at the base of the fill just below the roadway. Subsurface and surface monitoring data indicates there is a high potential for catastrophic failure resulting in loss of the roadway prism. If allowed to persist, this situation could result in a serious risk to the

current residents, tourists, and public facilities, and be detrimental to the safety, health, and general welfare of travelers and residents in the area.

c) In order to maintain essential services for the safety and welfare of the public and prevent full highway closure, work on the retaining wall must begin by early September, 2010, prior to the next rainy season.

d) The project has been designated by both state and federal governments as an Emergency Permanent Restoration Project, and is being funded through the Federal Highway Administration Emergency Restoration Program.

e) The project is located near 62480 Highway 1 and within the Highway 1 right-of-way, between post-miles 22.5 and 22.9, Big Sur South Coast - Lucia area, Coastal Zone. The proposed project site is located on Assessor's Parcel Numbers 000-000-000-000, 422-011-014-000, and 422-011-015-000. The primary project area zoning (i.e., the highway right-of-way) is unclassified; however, the adjacent properties within the project area are zoned Watershed and Scenic Conservation, 40 acres per unit, with a Design Control Overlay, Coastal Zone [WSC/40-D (CZ)].

f) Site visit by the Caltrans agent on or about February 10, 2010, and subsequent monitoring.

d) The Coastal Commission staff concurs with the County's determination that an emergency exists, based on an email dated July 12, 2010, and a telephone conversation dated July 22, 2010.

e) Correspondence between the Planning Department, Caltrans, and California Coastal Commission in Project Files PLN100113 and PLN100336.

f) Plans and materials contained in Project File PLN100336.

2. **FINDING:** The work authorized by the Emergency Permit is the minimum amount of work required to mitigate the emergency situation.

EVIDENCE:

a) This Emergency Permit authorizes the construction of an approximately 825-foot long and 45-foot high soldier-pile tieback retaining wall, the reconstruction of a consistent 4-foot shoulder, the reconstruction of a consistent 12-foot lane in each direction, the construction of a 4-foot catchment basin abutting the toe of the inland slope, the construction of tapering transitions to match new lane and shoulder widths on the northern and southern portions of the project area, the placement of "open-style" bridge railing (Type 80 concrete vehicle guard railing) on top of the retaining wall (with bicycle railing attached on top of the bridge railing), approximately 30,000 cubic yards of cut and fill, and the construction of an 8-foot wide bench in front of the wall, on Highway 1 between post-miles 22.5 and 22.9, near 62480 Highway 1 (Assessor's Parcel Numbers 000-000-000-000, 422-011-014-000, and 422-011-015-000), Big Sur South Coast - Lucia area, Coastal Zone. No other development is allowed under this Emergency Permit (Condition No. 1).

b) The retaining wall is necessary to accomplish restoration of both lanes of Highway 1, and ensure roadway reliability and safety. The installation of the wall

piles must be completed prior to the rainy season in order to prevent the high probability of loss of the remaining northbound lane and full roadway closure.

c) As identified in Condition No. 4, a follow-up permit will be required pursuant to Section 20.70 (Title 20) because there may be issues that require consideration through a permanent or follow-up permit.

d) Site visit by the Caltrans agent on or about February 10, 2010, and subsequent monitoring.

e) Plans and materials contained in Project File PLN100336.

3. **FINDING:** The work authorized by the Emergency Permit is consistent with the provisions of the applicable Monterey County Local Coastal Program and the Coast Highway Management Plan.

EVIDENCE:

a) Monterey County Resource Management Agency-Planning Department staff has reviewed the request for the construction of an approximately 825-foot long and 45-foot high soldier-pile tieback retaining wall, and associated development, on Highway 1 between post-miles 22.5 and 22.9, and has incorporated appropriate conditions that provide resource and environmental protection consistent with Coastal Zone policies contained in the Big Sur Coast Land Use Plan. The scope of work identified by this Emergency Permit shall avoid the ocean waters of the Monterey Bay National Marine Sanctuary and utilize best management practices for the construction. Under no circumstances is direct ocean disposal of construction materials and/or slide materials allowed.

b) The proposed retaining wall is consistent with the provisions of the Coast Highway Management Plan regarding landslide management and stabilization (Section 6.1). The proposed design is consistent with similar projects along Highway 1.

c) This emergency permit will expire 90 days after issuance. The owner/applicant shall obtain required permits and initiate construction within that time frame (Condition No. 3).

d) Site visit by the Caltrans agent on or about February 10, 2010, and subsequent monitoring.

e) Plans and materials contained in Project File PLN100336.

4. **FINDING:** The establishment, maintenance or operation of the use or structures approved by the Emergency Permit will not, under the circumstances of the particular case, be detrimental to the health, safety, peace, morals, comfort and general welfare of persons residing or working in the neighborhood of such approved use, or, be detrimental or injurious to property and improvement in the neighborhood, or to the general welfare of the County.

EVIDENCE:

a) The project was reviewed by the RMA-Planning Department, and conditions have been recommended, where appropriate, to ensure that the project will not have an

adverse effect on the health, safety, and welfare of persons either residing or working on the property or in the neighborhood.

b) Finding Nos. 1, 2, and 3, and supporting evidence; and conditions of approval for this Emergency Permit.

c) Plans and materials contained in Project File PLN100336.

5. FINDING: This emergency activity is exempt from the requirements of the California Environmental Quality Act (CEQA).

EVIDENCE:

a) Section 15269(c) of the CEQA Guidelines statutorily exempts specific actions necessary to prevent or mitigate an emergency. Based on monitoring conducted and reviewed by Caltrans staff, there is a high probability that the remaining lane will be lost if a permanent structure is not in place by the next rainy season. The situation demands immediate action to prevent or mitigate circumstances that have a high probability to be detrimental to the safety of the persons transiting, occupying, or working in the area.

b) The applicant (Caltrans) submitted a Categorical Exemption for the subject emergency project under Section 15301 (Class 1) of the CEQA Guidelines. The County, as Responsible Agency, determined that a Statutory Exemption under Section 15269(c) of the CEQA Guidelines is the more applicable and appropriate exemption to use for this emergency project. Potential adverse environmental effects will require environmental review under a follow-up Combined Development Permit.

c) The work authorized by this Emergency Permit allows the construction of an approximately 825-foot long and 45-foot high soldier-pile tieback retaining wall, the reconstruction of a consistent 4-foot shoulder, the reconstruction of a consistent 12-foot lane in each direction, the construction of a 4-foot catchment basin abutting the toe of the inland slope, the construction of tapering transitions to match new lane and shoulder widths on the northern and southern portions of the project area, the placement of "open-style" bridge railing (Type 80 concrete vehicle guard railing) on top of the retaining wall (with bicycle railing attached on top of the bridge railing), approximately 30,000 cubic yards of cut and fill, and the construction of an 8-foot wide bench in front of the wall, on Highway 1 between post-miles 22.5 and 22.9.

d) Due to slide activity, the slope below the roadway is devoid of any mature vegetation. The slope is comprised of loose and unconsolidated slide material. No impacts to sensitive resources will occur.

e) The inland or east side of the highway runs parallel to a steep slope with narrow shoulders and vegetation continuing up to the top of the slope. Preliminary surveys have identified a very small (approximately 247 square feet or .0059 acre) wetland area along the inland shoulder. The wetland area has been formed by highway grading which has created a drainage ditch in which water accumulates. The potential impacts to this area will be temporary during the construction phase of the project.

f) Potential adverse environmental effects identified during staff review of the emergency permit application will be addressed through a permanent or follow-up development permit (Condition No. 4). The permanent coastal development permit will address potential impacts related to aesthetics, air quality, biological resources, cultural (historical) resources, and geology/soils.

g) The project area is bound by two creeks, Dani Creek to the south and Harlan Creek to the north. The proposed project will not result in any disturbance or impacts within these drainages.

h) Finding No. 1 and supporting evidence.

i) Plans and materials contained in Project File PLN100336.

II. DECISION OF THE ZONING ADMINISTRATOR

Based on these facts, the Monterey County Zoning Administrator hereby grants an Emergency Permit subject to conditions contained in **Exhibit A**, attached hereto and incorporated herein by reference.

Mike Novo, Zoning Administrator
July 23, 2010

Attachments: Exhibit A Conditions of Approval
Site Plan

Note: You may need a building and/or grading permits and must comply with the Monterey County Building ordinance in every respect. Do not start any construction until you have obtained the necessary permits and use clearances from the Monterey County Building Department.

cc: Zoning Administrator; California Coastal Commission; Building Services Department; Kenneth Harlan, Property Owner; Caltrans District 5 (Cecilia Boudreau), Agent; Laura Lawrence, Planning Services Manager; Joseph Sidor, Planner; Project File PLN100336.

EXHIBIT A Monterey County Resource Management Agency Planning Department Condition Compliance Reporting Plan	Project Name: CALTRANS File No.: PLN100336 APNs: 422-011-014-000, 422-011-015-000, and 000-000-000-000 Approved by: Zoning Administrator Date: July 23, 2010

**Monitoring or Reporting refers to projects with an EIR or adopted Mitigated Negative Declaration per Section 21081.6 of the Public Resources Code.*

Permit Cond. Number	*Mitig. Number*	*Conditions of Approval and/or Mitigation Measures and Responsible Land Use Department*	*Compliance or Monitoring Actions to be performed. Where applicable, a certified professional is required for action to be accepted.*	*Responsible Party for Compliance*	*Timing*	*Verification of Compliance (name/ date)*
1.		**PD001 - SPECIFIC USES ONLY** This Emergency Coastal Permit (PLN100336) allows the the construction of an approximately 825-foot long and 45-foot high soldier-pile tieback retaining wall, the reconstruction of a consistent 4-foot shoulder, the reconstruction of a consistent 12-foot lane in each direction, the construction of a 4-foot catchment basin abutting the toe of the inland slope, the construction of tapering transitions to match new lane and shoulder widths on the northern and southern portions of the project area, the placement of "open-style" bridge railing (Type 80 concrete vehicle guard railing) on top of the retaining wall (with bicycle railing attached on top of the bridge railing), approximately 30,000 cubic yards of cut and fill, and the construction of an 8-foot wide bench in front of the wall. The activity is located	Adhere to conditions and uses specified in the permit.	Owner/ Applicant	Ongoing unless otherwise stated.	

Permit Cond. Number	*Mitig. Number*	*Conditions of Approval and/or Mitigation Measures and Responsible Land Use Department*	*Compliance or Monitoring Actions to be performed. Where applicable, a certified professional is required for action to be accepted.*	*Responsible Party for Compliance*	*Timing*	*Verification of Compliance (name/ date)*
		near 62480 Highway 1, between post-miles 22.5 and 22.9 (Assessor's Parcel Numbers 000-000-000-000, 422-011-014-000, and 422-011-015-000), Big Sur South Coast - Lucia, Coastal Zone. This permit was approved in accordance with County ordinances and land use regulations subject to the following terms and conditions. Neither the uses nor the construction allowed by this permit shall commence unless and until all of the conditions of this permit are met to the satisfaction of the Director of the RMA - Planning Department. Any use or construction not in substantial conformance with the terms and conditions of this permit is a violation of County regulations and may result in modification or revocation of this permit and subsequent legal action. No use or construction other than that specified by this permit is allowed unless additional permits are approved by the appropriate authorities. To the extent that the County has delegated any condition compliance or mitigation monitoring to the Monterey County Water Resources Agency, the Water Resources Agency shall provide all information requested by the County and the County shall bear ultimate responsibility to ensure that conditions and mitigation measures are properly fulfilled. **(RMA - Planning Department)**				

Permit Cond. Number	*Mitig. Number*	*Conditions of Approval and/or Mitigation Measures and Responsible Land Use Department*	*Compliance or Monitoring Actions to be performed. Where applicable, a certified professional is required for action to be accepted.*	*Responsible Party for Compliance*	*Timing*	*Verification of Compliance (name/ date)*
2.		**PD002 - NOTICE-PERMIT APPROVAL** The applicant shall record a notice which states: "A permit (Resolution PLN100336) was approved by the Zoning Administrator for Assessor's Parcel Numbers 422-011-014-000, 422-011-015-000, and 000-000-000-000 on July 23, 2010. The permit was granted subject to four (4) conditions of approval which run with the land. A copy of the permit is on file with the Monterey County RMA - Planning Department." Proof of recordation of this notice shall be furnished to the Director of the RMA - Planning Department prior to issuance of building permits or commencement of the use. **(RMA - Planning Department)**	Proof of recordation of this notice shall be furnished to the RMA - Planning Department.	Owner / Applicant	Within 30 days of issuance of this permit.	
3.		**PD032(A) - PERMIT TIME/YEAR & DATE** The permit shall be granted for a time period of 90 days, to expire on October 21, 2010, unless actual construction has begun within this period. **(RMA – Planning Department)**	The applicant shall obtain a valid grading or building permit and/or commence the authorized use to the satisfaction of the Director of Planning. Any request for extension must be received by the Planning Department at least 30 days prior to the expiration date.	Owner / Applicant	As stated in the conditions of approval.	
4.		**PDSP01 – PERMANENT PERMIT APPLICATIONS (NON-STANDARD)** Within 60 days after project initiation, the applicant shall submit an Application Request for a Combined Development Permit, pursuant to Section 20.70 of the	Applicant shall submit an Application Request for a Combined Development Permit within 60 days after project initiation. Within 60 days after project	Owner / Applicant Owner /	Within 60 days after initiation of project. Within 60	

INDEX OF PLANS

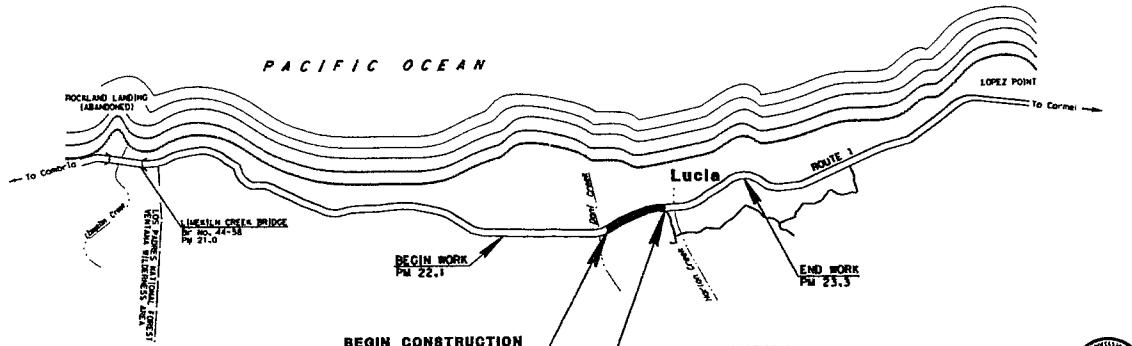
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN MONTEREY COUNTY
NEAR LUCIA
FROM 1.6 MILE TO 1.6 MILE
NORTH OF LIMEKILN CREEK BRIDGE

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

DIST	COUNTY	ROUTE	POST MILES / KILOMETER POSTS	SHEET NO.	TOTAL SHEETS
05	MON	1	22.6/22.8		

LOCATION MAP



PROJECT MANAGER: KEN DOSTALEK
DESIGN ENGINEER: STEVE WYATT

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

PROJECT ENGINEER / 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 SCANNED COPIES OF THIS PLAN SHEET.

NO SCALE

CONTRACT No. 05-0T8604

BORDER LAST REVISED 8/1/2006	CALTRANS WEB SITE IS: HTTP://WWW.DOT.CA.GOV/	RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3	CU 01450	EA 015601

State of California
Department of Transportation

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: FRITZ HOFFMAN
Senior Bridge Engineer
Office of Bridge Design Central
DIVISION OF ENGINEERING SERVICES
STRUCTURES DESIGN

Attn: Don Nguyen-Tan
Senior Bridge Engineer

Date: July 20, 2010

File: 05-Mon-001-22.5/22.9
Dani Creek Landslide
EA 05-0T5601
Br. No. 44E0100
Project ID 0500020037

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES

Subject: Foundation Report

Scope of Work

A Foundation Report (FR) is provided for the above referenced project. The purpose of this report is to document geotechnical conditions and provide foundation recommendations to mitigate Dani Creek Landslide, on State Highway 1 in Monterey County. Landsliding and loss of support below the roadway has cost millions of dollars in repair and maintenance and continues to cause damage to the road, especially during wet winter months. There is concern about the high annual maintenance cost, road closures, and decreased highway safety due to the instability.

Project Description

State Highway 1 within the project extents was constructed as a two-lane highway on a side-hill cut and fill. The existing roadway consists of 10 to 12-foot lanes with variable width, 2 to 6-foot, paved and unpaved shoulders. The roadway crosses an active landslide exhibiting movement and causing damage to the roadway. During the El Nino winter of 1997-1998, the rate of movement of the Dani Creek Landslide accelerated and the roadway began dropping more rapidly than had been observed in the past. A project to study the landslide and provide alternatives to mitigate the dropping roadway was initiated, and exploratory drilling within the landslide began in 1999.

Heavy rains in the winter of 2009-2010 increased the rate of landsliding below the roadway and caused migration of a near vertical scarp across the southbound lane of Highway 1. The remaining roadway consists of one unpaved lane with a traffic signal at either end to provide temporary one-way traffic control. K-rail and an earthen berm have been placed at the southbound outside shoulder to prevent vehicles from going over edge. The berm, K-rail, and sections of the remaining roadbed must be maintained on a daily basis to prevent them from falling below the road and for the road grade to remain passable.

An emergency contract was opened in March of 2010 to provide full-time contractor forces dedicated to maintaining the roadway and providing support to exploratory drilling operations. Contractor forces and District Maintenance crews place aggregate base and unconsolidated fill daily at the most rapidly dropping locations on the roadway, and cold-mix asphalt at less rapidly dropping locations, in an attempt to maintain the roadway elevation. Despite ongoing maintenance efforts, the roadway is very rough and has been observed to drop vertically several inches per day.

The headscarp of the active portion of the landslide impacting the highway roughly follows the southbound lane of Highway 1 and extends for a width of approximately 600-feet, from near Harlan Creek to near Dani Creek. The headscarp can be observed in the form of pavement and shoulder cracking parallel to the highway, extending from approximately the edge of the shoulder of the northbound lane in the worst case and to the shoulder of the southbound lane elsewhere. Vertical and near vertical slopes up to 30 feet high are visible beneath the highway and continue to advance inland.

Construction of a soldier pile tieback wall is recommended to support the roadway and stabilize the portion of the landslide impacting the highway facility.

Pertinent Reports and Investigations

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

1. *Big Sur Coast Highway Management Plan.* California Department of Transportation, District 5; March 2004.

2. Hall C.A Jr. Geology of the Point Sur-Lopez Point Region, Coast Ranges, California: Part of the Southern California Allochthon. *Geological Society of America, Special Paper 266.* 1991.

3. Medley E. 1997. *Order in Chaos: The Geotechnical Characterization of Mélange Bimrocks.* Proc. Of First International Conference on Site Characterization, Atlanta, GA, April 19-22, 1998.

4. Turner Keith A., Schuster Robert L. *Landslides Investigation and Mitigation.* Transportation Research Board Special Report 247. 1996.

5. Wills C.J., Manson M.W., Brown K.D., Davenport C.W., Domrose C.J. *Landslides in the Highway 1 Corridor: Geology and Slope Stability along the Coast Between Point Lobos and San Carporforo Creek, Monterey and San Luis Obispo Counties, California.* California Department of Conservation, Division of Mines and Geology. August 2001.

Physical Setting

The project area is located within the Santa Lucia Mountain Range in the Coast Range Geomorphic Province. The area is characterized by rugged, steep terrain with steeply incised drainages and narrow crested ridges. Dani Creek, which approximately forms the eastern boundary of the landslide complex, is a steep drainage that flows during spring and winter and is dry during summer and fall. Harlan Creek flows year round and passes under the highway to the north of the Harlan driveway near the western limit of the landslide. The climate is mild, with average summer temperatures in the 60's (Fahrenheit) and average winter temperatures in the 50's. The area typically receives heavy rains in the winter months of 30 to 40 inches annually.

Field Investigation and Testing Program

An investigation including field reconnaissance and surface mapping, review of historic and recent aerial oblique photography, Slope Inclinometer and Time-Domain Reflectometer (TDR) instrumentation, ground surface monitoring via a survey grid, groundwater level monitoring, and subsurface sampling was performed for this project. Twenty-five mud-rotary borings were drilled at the site between 1999 and 2010 to determine the subsurface conditions throughout the site. Seventeen Slope Inclinometers and five TDR cables were installed in mud rotary borings to determine the depth of sliding of the active portions of the landslide and locate stable features. Refer to the boring layout and LOTB sheets included in the construction documents for details of subsurface monitoring.

Twelve Slope Inclinometers were installed at the highway elevation, one above the cut slope adjacent to the highway, and four below the roadway. Three TDR cables were installed at the roadway elevation and two were installed below the roadway in the body of the slide. The observed depths of movement in competent installations are summarized in the following table.

Table 1. Slope Inclinometer and TDR Data

Boring ID	*Instrument Type*	*Ground Elevation (ft)*	*Sliding Surface Elevation (ft)*
B-1-06	SI & TDR	411.0	378.0
B-2-06	SI & TDR	419.0	384.0
B-3-06	SI	434.4	394.0
R-09-001	SI & TDR	433.6	No Movement
R-09-002	SI	409.0	No Movement
R-09-003	SI & TDR	220.0	95.0
R-10-001i	SI	408.6	No Movement
R-10-003i	SI	416.3	No Movement
R-10-005i	SI	425.1	No Movement
R-10-007i	SI	446.7	No Movement
R-10-009i	SI	457.4	No Movement
R-10-012i	SI	514.3	No Movement
R-10-014	SI	382.6	No Movement
R-10-015i	SI	400.3	352.0
R-10-015tdr	TDR	401.5	351.0
R-10-016	SI	379.3	339.3

District 5 Surveys and Geotechnical Design installed a total of 58 ground surface monuments beginning in December of 2008 and periodically monitor their direction and magnitude of movement. Monuments placed below the roadway and within the visible headscarp of the active portion of the slide all exhibited significant movement, from approximately 23 feet near the toe of the slide at the bluffs above the beach, to several feet at the base of the fill just below the roadway. Monuments installed above the roadway and behind the visible headscarp on the roadway exhibited minimal movement. The order of magnitude of movement measured in the monuments outside of the active slide is attributable to temperature fluctuation, survey equipment error, or soil creep. Refer to the attached topographic map showing the direction and magnitude of movement of the surface monitoring points.

California Geological Survey (CGS), in the report titled Landslides in the Highway 1 Corridor: Geology and Slope Stability along the Big Sur Coast between Point Lobos and San Carpoforo Creek, Monterey and San Luis Obispo Counties, California, indicates that the Dani Creek Landslide is a complex of active failures below the highway within a large dormant slide extending above Highway 1 to the headwaters of Dani Creek. CGS's study was based on first hand accounts, review of historic aerial photography and interpretation of the apparent geomorphology. The detailed landslide study performed for this report indicates that the slopes above the road are stable, and that the active portion of the slide is located from the roadway down to the ocean.

Results of the surface and subsurface monitoring programs indicate the active sliding zone begins at the roadway headscarp and toes out in the bluffs near sea level. Slopes above the roadway including the existing cut slope adjacent to the northbound lane and the Harlan property above the cut slope appear to be stable. Very small movements were measured on the ground surface and no sliding surface was identified in the Slope Inclinometers installed above the roadway or behind the visible scarps on the road. No cracking is visible on the paved and unpaved roads or cleared areas of the Harlan property above the highway. No damage to the numerous structures on the Harlan property has been observed or reported. In addition to the recent monitoring and field reconnaissance, observation of the cut slope over the years and review of historic photographs of the cut slope and slopes above the roadway show very little change, indicating relative stability above the highway.

Laboratory Testing Program

Unconfined compressive strength (UCS) tests were preformed at the Headquarters Geotechnical Laboratory on nine rock cores collected during the subsurface investigation. Test results are summarized in Table 2. Testing was performed on intact rock cores taken from metagreywacke blocks encountered in the borings. UCS values are not representative of the entire mélange unit; only the hardest and least fractured blocks were suitable for testing. Test results are provided to inform contractors of the potential strength of the rock and allow planning of construction methods accordingly.

Table 2. Rock Unconfined Compressive Strength

Boring	*Depth (ft)*	*UCS (pounds per square inch)*
R-10-002	52.5	5190
R-10-002	101.0	10026
R-10-003	102.0	9251
R-10-011	82.0	12939
R-10-011	100.0	10856
R-10-011	103.0	10739
R-10-012	35.0	5732
R-10-013	34.5	12702
R-10-015	100.0	6846

Site Geology and Subsurface Conditions

Geology

The Dani Creek Landslide is located in the Santa Lucia Mountain Range, part of the northwest-southeast trending Coast Range Geomorphic Province. This geology of the province is dominantly comprised of Franciscan Complex basement rocks, characterized by a mixture (mélange) of metamorphosed ultramafic-igneous and sedimentary hard rock (blocks), embedded within softer metamorphosed mudstone and siltstone (matrix). For the purpose of geotechnical characterization, the Franciscan Mélange is classified as block-in-matrix rocks, or bimrocks. Within the project limits the Franciscan Complex is overlain by colluvium (Qc) and surficial landslide deposits (Qls) of variable composition and age. Artificial fill (Qaf) placed over the colluvium and surficial landslide deposits underlies the roadway along the current highway alignment. Detailed descriptions of each geologic unit are presented in the following paragraphs.

Artificial fill (Qaf) is primarily found along the current highway alignment and varies between about 70 feet thick at the embankment fill over Dani Creek, to about 1 foot thick along portions of the highway constructed over resistant blocks of mostly metagraywacke. The fill is composed of imported aggregate base, native soils and rock from adjacent sites, and cold-mix asphalt. Metagraywacke cobbles and boulders were encountered in the fill between depths of 20 and 65 feet below the road surface in the Dani Creek embankment fill. Inter-layered gravel and cold-mix are particularly evident in the vicinity of borings R-10-006 and R-10-007, where a near-vertical scarp borders the southbound shoulder, exposing about 15 feet of fill. In the vicinity of R-09-001, a prominent vertical scarp shows exposure of more than 20 feet of alternating layers of fill and cold-mix. Boring R-10-003 shows a similar sequence approximately 13 feet thick and overlying surficial landslide deposits (Qls). Movement of the landslide below the roadway continues to transport the fill down slope towards the ocean.

Colluvium (Qc) and surficial landslide deposits (Qls) are the most extensively dispersed geologic units in the project area. The colluvium is characterized by loose, gravity-transported sediments, and varies in thickness from a few feet to about 40 feet thick. The unit consists of organics near the surface, and loose silts, sands and gravels.

Surficial landslide deposits (Qls) are characterized by intensely sheared and fractured Franciscan Complex bimrocks, extending up to 125 feet thick in the active portion of the landslide and projected to be up to 200 feet thick on the upper dormant portion of the landslide. Franciscan Complex metagraywacke blocks within metasiltstone/slate matrix pervasively sheared to a soil-like consistency are the dominant rock types within Qls. Blocks are most prominent in the Dani Creek drainage and along a "block-rich" ridge aligned with borings R-10-013 and R-10-016 that extends to the coastal bluff at the toe of the slide. Rocks encountered in this unit may vary in size from fine gravel to boulder and vary compositionally depending their origin.

Franciscan Complex (Kjf, and Kjfgw) underlies all surficial deposits in the project area, as verified by borings in the project area. The two main rock types encountered in the borings were metagraywacke and graphitic-siltstone-slates. The sandstone-shale sequence has undergone high pressure-low temperature (blue schist facies) metamorphism and tectonic shearing. Intense shearing is observed dominantly in the weaker graphite rich metasiltstone-slate, which preserves a strong foliation cleavage generally plunging between 50 to 85 degrees from horizontal. The intact fragments of metagraywacke and slate are mostly very hard and dispersed randomly at a scale ranging from a few inches to tens of feet in diameter. The estimated proportion of "block" versus "matrix" is discussed in more detail under the Construction Considerations section.

The Dani Creek Landslide has been divided into active and dormant sections based on relative age and activity. The boundary between these two sections roughly follows the current alignment of the highway between Dani and Harlan Creeks. The active portion of the slide below Highway 1 has shown rates of displacement defined by Varnes (1978, 1996 TRB Report 247) ranging between "slow" (> 1.0 ft/day) to "very slow" (0.01 ft/day) during wet and dry seasons respectively. It is characterized by hummocky terrain, steep fresh scarps, and tension cracks. The upper dormant section shows geomorphic maturity, with rounded peripheral scarps and dense vegetation. Both surface and subsurface monitoring of this upper portion support its classification as dormant and stable. A landslide classification system is used in this section to describe the nature of the landslide and is presented as an attachment. The four-digit code classifies the following properties in the shown order: a) "state of activity", b) "certainty of identification", c) "dominant type of movement", and d) "thickness of deposit".

The dormant portion of the slide above the highway is interpreted to be Quaternary in age, of probable certainty, with translational movement greater than 15 feet deep. This portion of the landslide has shown no "sympathetic" movement in response to the rapid displacement below the highway. The portion of the landslide below the highway is classified as an active slide of definite certainty, dominantly translational in mode of failure and greater than 15 feet in depth.

The Dani Creek Landslide is a complex landslide characterized with dominantly translational movement through intensely sheared bimrocks. The heterogeneity in rock strength, characteristic of mélange, combined with zones of perched groundwater, influences the direction, rate, and type of movement. Although the surface is covered by dense vegetation, multiple "inter-slices" defined by steep, fresh scarp faces and locally back rotated topography have been identified along intersecting survey paths down the slide as detailed in attachment 7.

Subsurface Conditions

Field observations and review of subsurface data indicate that the piles and ground anchors for the proposed soldier pile tieback wall will be founded in Franciscan Complex consisting of hard intact rock (blocks) dispersed within zones of intensely sheared and fractured metasiltstone-slate (matrix). The size of hard intact rock units within the formation varies from gravel size to on the order of magnitude of tens of feet. The degree of weathering varies from fresh to decomposed, and from hard intact rock to very soft soil-like material weathered to silt, sand, clay and gravel. Excavation for the soldier piles will also extend through fill material placed over the years to maintain the failing roadway. Fill material is highly variable and consists of silts, clays, sands, asphalt layers, and gravel to cobble size rocks from onsite and imported from various locations. Fill material is unconsolidated and the depth varied from approximately 8 to 45 feet in the borings drilled near the proposed wall limits.

Groundwater

Open observation wells were installed in ten borings and vibrating wire piezometers were installed in borings R-09-003, R-10-012 and R-10-015. Fluctuations in groundwater levels were monitored to determine the influence of groundwater on construction and foundation design. Groundwater head pressures measured at several depths in the borings by piezometers varied widely, indicating a complex groundwater regime. Groundwater generally resides in the intensely fractured blocks of metagraywacke and seeps into the less permeable, fine-grained matrix materials. Oxidation on fracture surfaces in block zones recovered during drilling indicates that water is moving through fractures in blocks in perched zones bounded by low permeability matrix material. Perched groundwater can also be observed in springs daylighting through the slopes above and below the road during the rainy season. Results of the groundwater-monitoring program are summarized in Table 4.

Table 4. Groundwater Elevations

Boring	*Ground Elevation (ft)*	*Date*	*Groundwater Elevation (ft)*
R-10-002	411.5	4/21/2010	374.5
		4/26/2010	397.6
		4/30/2010	377.7
		5/4/2010	397.1
		5/10/2010	379.5
R-10-003	415.9	4/7/2010	330.9
		4/21/2010	332.7
		4/26/2010	334.3
		4/30/2010	335.8
		5/4/2010	338.3
		5/10/2010	340.9
		5/19/2010	342.6
R-10-005	424.4	4/26/2010	358.4
		4/28/2010	364.4
		4/30/2010	320.7
		5/4/2010	341.7
		5/10/2010	319.4
R-10-006	450.7	4/26/2010	410.6
		4/30/2010	402.4
		5/4/2010	402.5
		5/10/2010	402.5
R-10-007	448.2	4/21/2010	406.4
		4/26/2010	405.9
		4/30/2010	405.8
		5/4/2010	405.7
		5/10/2010	405.5
		5/17/2010	404.5
R-10-008	454.7	4/26/2010	412.8
		4/30/2010	412.9
		5/4/2010	413.0
		5/10/2010	412.7
R-10-011	459.5	4/26/2010	439.4
		4/29/2010	439.0
		5/4/2010	438.8
		5/10/2010	434.1
		5/17/2010	400.9
R-10-013	513.1	4/26/2010	415.5
		4/29/2010	415.0
		5/4/2010	414.7
		5/10/2010	414.7
		5/17/2010	414.8
		6-16-2010	412.1

Corrosion Evaluation

Caltrans considers a site to be corrosive to foundation elements if one or more of the following conditions exist for the representative soil and/or water samples taken at the site: pH of less than 5.5, resistivity of 1000 ohm-cm or less, chloride content greater than 500 ppm, or sulphate content greater than 2000 ppm. Material samples were obtained from representative depths and borings and sent to the District 5 Geotechnical Laboratory for corrosion potential evaluation. Based on the results of the corrosion testing, the samples are not considered corrosive. However, due to the proximity of the Pacific Ocean, protection of the exposed portions of the structure is recommended. Refer to the following table for corrosion testing results.

Table 5. Corrosion Testing Summary

Boring	*Depth (ft)*	*pH*	*Resistivity ohm-cm*	*Chloride ppm*	*Sulphate ppm*	*Corrosive*
R-10-001	24.0-26.0	7.6	8700	-	-	NO
R-10-002	11.0-11.5	6.9	3130	-	-	NO
R-10-002	33.5-34.0	8.0	4930	-	-	NO
R-10-002	37.5-40.0	7.6	5790	-	-	NO
R-10-002	65.5-66.0	7.9	6000	-	-	NO
R-10-005	71.5-72.0	8.2	4450	-	-	NO

Seismic Recommendations

The project area is located within a seismically active region. As determined by Caltrans, the following are the active and potentially active faults that have the greatest potential of influencing the site, along with the maximum credible Moment Magnitude, approximate distance to the site, and peak horizontal acceleration.

Table 6. Fault Data

Fault	*Maximum Credible Moment Magnitude*	*Distance (miles)*	*Peak Horizontal Acceleration (gravity)*
San Simeon Hosgri Fault Zone	7.0	1.0	0.47g

As-Built Foundation Data

Soldier pile tieback walls constructed in similar Franciscan geology are located to the north and south of the project site at the Hermitage Wall (PM 21.9/22.1) and Gamboa Point (PM 26.2). Difficult drilling conditions including fractured rock and caving were encountered during construction of both walls and should be anticipated during construction of this project.

Slope Stability

Slope stability of the Dani Creek Landslide was evaluated using defined failure surfaces and ground profiles generated from a topographic map with a two-foot contour interval. The sliding surfaces were defined using the headscarp observed in the roadway, discreet sliding depths from

the Slope Inclinometer installations below the road, and the toe of the slide observed in the bluffs at the beach. The computer program SLOPE-W was used to model the existing slope geometry and material properties to calculate the global slope stability factor of safety (FOS) using Spencer's method with an effective stress limit state equilibrium analysis. Due to the uncertainty of the location of groundwater and the high likelihood of perched groundwater, a high groundwater surface was assumed in the analysis. Mohr-Coulomb strength parameters were back calculated to result in a factor of safety just less than 1.0 for the active slide geometry at the worst-case location. Because the landslide has undergone significant displacement, it was assumed that the residual shear strength along the slip surface has no cohesion. The following material strength parameters were determined from the slope stability modeling of the existing slope:

$$\Phi' = 27^\circ \quad c' = 0 \text{ psf} \quad \text{Total Unit Weight} = 135 \text{ pcf}$$

An additional slope stability model of the proposed retaining wall was then analyzed with the same material strength properties and used to determine the required resisting force to be applied to the ground anchors to provide an acceptable factor of safety of global stability of 1.3.

Slope stability of the wall was also evaluated under seismic loading by applying a horizontal force equal to one-third of the horizontal peak acceleration to the wall. The pseudo-static factor of safety was greater than 1.1; therefore the wall is considered to have adequate stability.

Continued movement of the slope in front of the structure is anticipated following completion of construction. Specified lagging elevations are designed to retain material below the failure surface in anticipation of continued landsliding to prevent exposure of the material beneath the lagged portion of the wall.

Foundation Recommendations

Construction of a soldier pile tieback wall is recommended to improve the serviceability and safety of the highway facility.

Design of the soldier pile tieback wall was based upon Caltrans Bridge Design Specifications (BDS) Chapter 5 and the FHWA Geotechnical Engineering Circular No. 4 *Ground Anchors and Anchored Systems*. Material strength parameters were back calculated from a limit state equilibrium analysis of the existing slope in the computer program SLOPE-W, as described in the Slope Stability section of this report. Resisting forces provided by the ground anchors required to achieve a global stability FOS of 1.3 were determined from the slope stability analysis, and compared to the resultant lateral earth pressure force calculated from a trial wedge analysis using Coulomb theory with the same material strength characteristics. Per BDS section 5.5.5.7.1, the required resisting force provided by the ground anchors shall not be less than 1.44 times the Coulomb lateral earth pressure resultant force. The resultant lateral earth pressure force multiplied by 1.44 controlled the tieback design.

Ground anchors shall have a minimum unbonded length beginning at the wall face and extending 10 feet past the theoretical slide plane to ensure installation of the bonded zone in competent material.

Pile vertical load capacity was calculated using the methods presented in the 2007 AASHTO LRFD Bridge Design Specifications. Pile axial loads were resolved from the vertical components of the tieback forces at each pile. Piles are assumed to obtain their axial capacity in side resistance only. Negligible pile settlement is anticipated.

Pile tip elevations and ground anchor unbonded lengths are provided in the Pile & Tieback Data Table attached to this report. Minimum pile tip elevations are listed for the given number of tieback levels. 42-inch diameter cast-in-drilled-hole (CIDH) piles were used in the analysis.

An 8-foot wide bench sloped away from the wall as detailed in the plans shall be constructed in front of the wall and sloped up at the ends at a maximum slope of 1.5:1 (H:V). A chimney drain in front of the wall shall also be constructed as detailed in the plans and specifications. Fill slopes shall be constructed at maximum slope of 1.5:1 to intersect existing grade following installation of the bottom row of tiebacks and lagging.

Construction Considerations

Difficult drilling conditions were encountered in the subsurface investigation borings and can be expected during the drilling of the piles and ground anchors. The encountered Franciscan Complex consisted of very intensely to moderately fractured rock ranging from extremely hard to very soft, and fresh to decomposed.

An estimation of the percentage of anticipated hard rock drilling was made using Dr. Edmund Medley's theories developed for predicting the volumetric proportion of blocks to the entire rock mass volume of a mélange unit. Dr. Medley was consulted in the field (April 26, 2010) and provided guidance on the applicability and use of his theories after visiting the site and reviewing some of the subsurface data collected in the exploration. The estimated percentage of hard rock drilling was calculated by correlating the linear proportion of blocks to matrix encountered in the borings to a volumetric proportion in the three dimensional mélange unit and adjusting for error.

Based upon the preceding method, it is estimated that 35% of the foundation drilling will be in hard rock. The remaining 65% of the drilling will be in intensely weathered and fractured rock layered between hard zones. Values of uniaxial compressive strength of the hard rock encountered in the borings are presented in Table 2. Vertical fracture orientation in the rock may cause caving and casing may be required to stabilize the pile and tieback excavations.

Groundwater may enter the drilled excavations for the soldier piles through fractures in the rock. Depending upon the contractor's methods and the groundwater levels, it is possible that the contractor will not be able to drill the holes, place the pile, and pour concrete before a significant amount of water enters the hole. Caving conditions are also anticipated within the intensely

sheared and fractured metasiltstone-slate matrix material. Temporary casing or placement of lean concrete may be required to stabilize the excavation and prevent water from entering the hole.

Horizontal borings for the ground anchors may also encounter caving conditions as well as groundwater. Casing may be required for tieback borings if caving conditions are encountered. Loss of drilling fluid circulation and grout was noted during exploratory drilling operations and Slope Inclinometer installations. "Grout socks" or casing may be necessary when ground anchors are installed to prevent excessive grout loss into the fractured rock and ensure proper installation.

"Top-down" construction techniques are anticipated at the ends of the retaining wall and where the existing roadway is wide enough to excavate to the first row of ground anchors. At some locations the existing ground elevation at the wall layout line may be lower than the proposed anchor elevations. "Bottom-up" construction techniques shall be employed as specified in the Special Provisions where this condition occurs.

Pile lengths at the north end of the wall are designed to penetrate the full slide thickness identified in the main slide in anticipation of a future failure to the north of the current Dani Creek Landslide limits. Surface cracking was observed in the roadway to the north of Harlan Creek, but determined to be independent of current limits of the Dani Creek Landslide. If construction of an earth retaining structure at this location is required in the future, lengthening of the Dani Creek wall may be a viable alternative. Utilizing the existing piles from the Dani Creek Wall improves constructability issues with beginning and ending wall slopes and provides full capacity if the limits of the retaining wall grow. The elevation limits of Class II concrete in the piles at the north end of the wall shall follow the same grade as the full lagged-height portion of the wall to facilitate removal of material and installation of tiebacks and lagging to the full height if necessary. Refer to the Pile & Tieback Data Table for details.

Complete highway closures may be required during drilling and installation of the soldier piles due to the narrow width of the existing roadway.

Standard Special Provision 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 of this report via electronic mail.

Data and information attached with the project plans are:

A. Log of Test Borings.

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

A. Foundation Report for the Retaining Wall dated July 20, 2010.

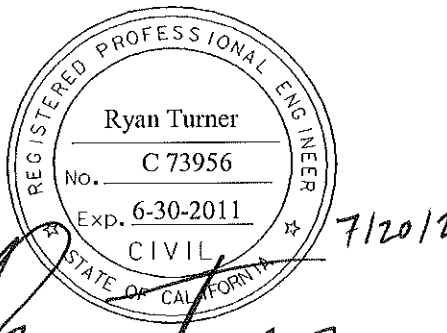
Data and Information available for inspection at the District Office:

A. Borehole core samples.

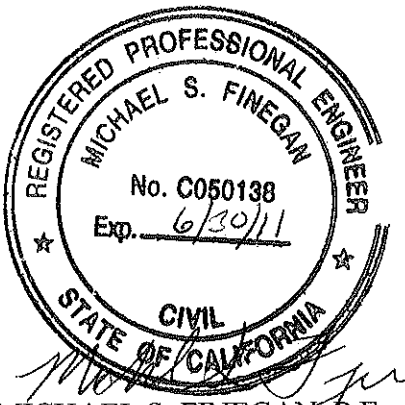
The District Office is located at 50 Higuera Street, San Luis Obispo, California, 93401.

If you have any questions or comments, please contact Ryan Turner at (805) 549-3750, Mike Jurasius at (805) 549-3729, or Michael Finegan at (805) 549-3194.

MIKE JURASIUS, P.G.
Engineering Geologist
Geotechnical Design – North
Branch D



RYAN TURNER, P.E.
Transportation Engineer Civil
Geotechnical Design – North
Branch D



MICHAEL S. FINEGAN, P.E.
Branch Chief
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Branch D

c: Roy Bibbens / GDN Records
GS File Room (email gs_file_room@dot.ca.gov)
Job File / Branch D Records
GS Corporate (email Mark_Willian@dot.ca.gov)
Ken Dostalek / Project Manager
Structure Construction RE Pending File (email RE_pending_file@dot.ca.gov)
Kelly Holden / DES Office Engineer
Andrew Tan / PCE
Douglas Lambert / DME

LIST OF ATTACHMENTS

INDEX OF PLANS

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON

STATE HIGHWAY

IN MONTEREY COUNTY NEAR
ON ROUTE 1
FROM
TO

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	MON	1	22.5/22.9		

PROJECT ENGINEER — DATE
REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

PROJECT MANAGER: KEN DOSTALEK

DESIGN ENGINEER:

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

DATE PLOTTED => 01-JAN-2010
TIME PLOTTED => 11:57

BORDER LAST REVISED 8/1/2008	CALTRANS WEB SITE IS: HTTP://WWW.DOT.CA.GOV/	RELATIVE BORDER SCALE IS IN INCHES (0 1 2 3)	USERNAME => 6135365 DGN FILE => 507560db001.dgn	CONTRACT No. CU 06235	EA 0T5601

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	MON	1	22.5/22.9		

REGISTERED CIVIL ENGINEER DATE

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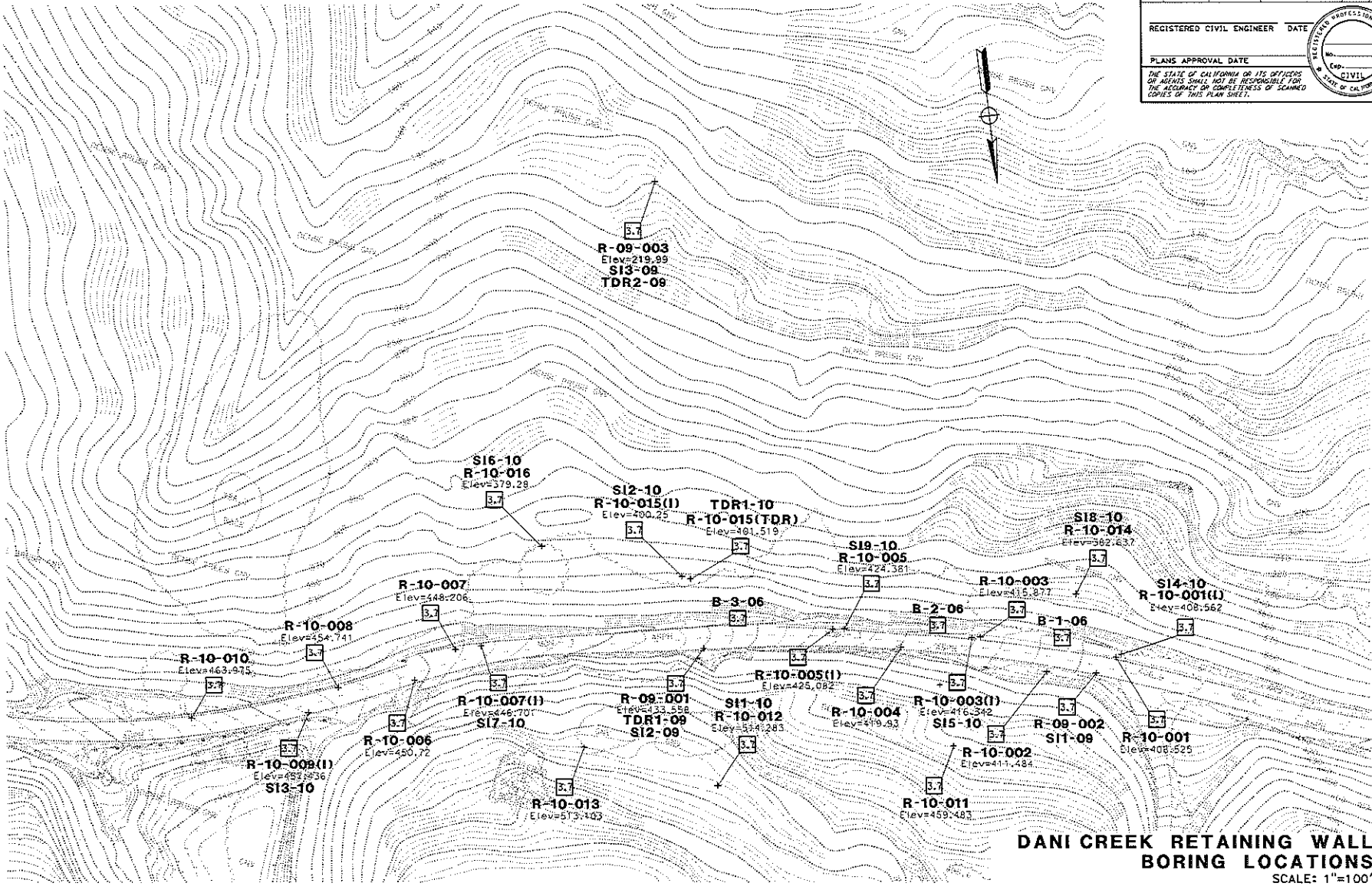
REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans GEOTECHNICAL DESIGN

FUNCTIONAL SUPERVISOR: MIKE FINEGAN



DANI CREEK RETAINING WALL
BORING LOCATIONS

SCALE: 1"=100'

LAST REVISED: DATE PLOTTED => 01-JUN-2010
04-13-10 TIME PLOTTED => 13:49

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

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DGN FILE => BoreLoc.dgn

CU 59323

EA 0T5601

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	Mon	1	22.5/22.9		

REGISTERED CIVIL ENGINEER X DATE

PLANS APPROVAL DATE

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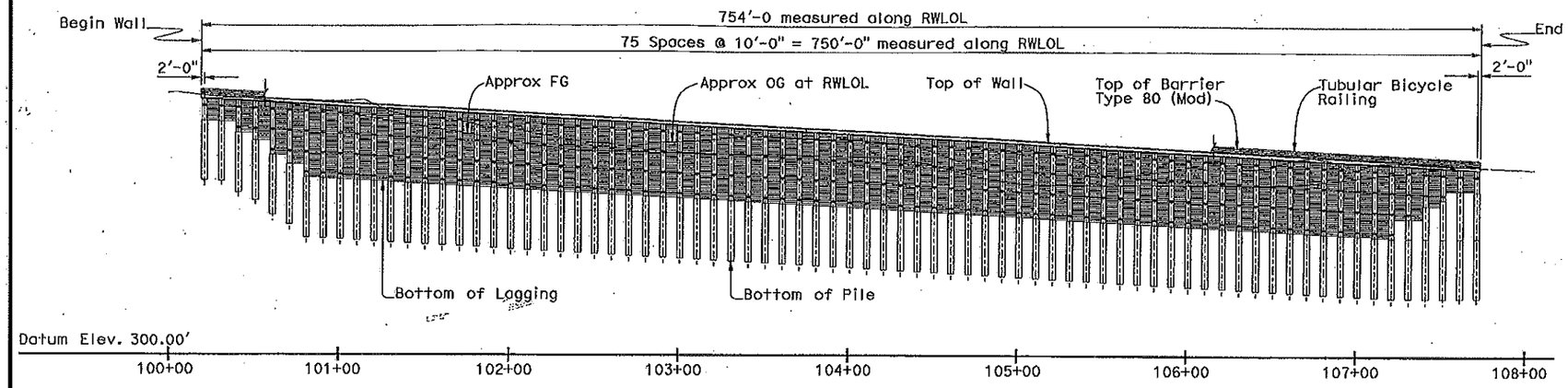
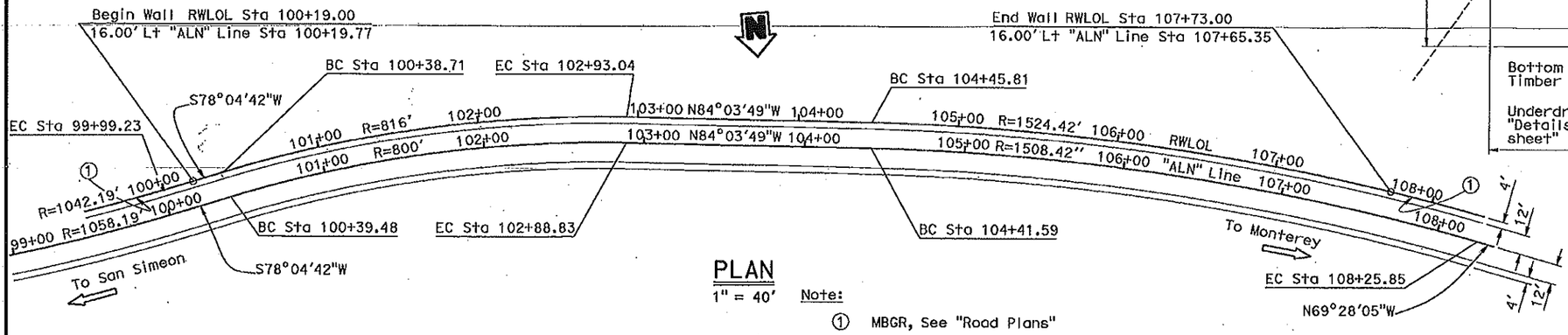
REGISTERED PROFESSIONAL ENGINEER — Don L. Nguyen-Tan — No. C057510 — Exp. X — CIVIL — STATE OF CALIFORNIA



DEVELOPED MIRROR ELEVATION

1" = 40'

CURVE DATA			
R	Δ	T	L
1042.19	2°45'41"	25.12	50.23
816.00	17°51'29"	128.21	254.33
1058.19	12°12'07"	113.11	225.36
800.00	17°51'29"	125.69	249.34
1524.42	14°35'44"	195.22	388.34
1508.42	14°35'44"	193.18	384.26

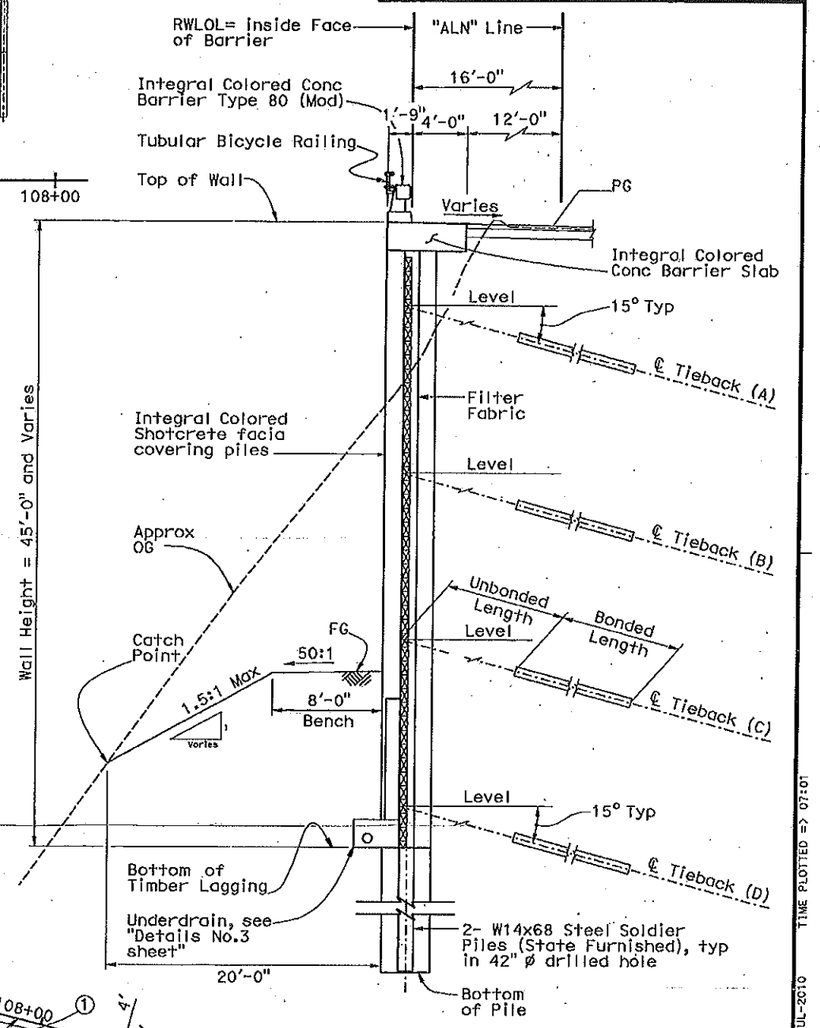


PLAN

1" = 40'

Note:

① MBGR, See "Road Plans"



TYPICAL SECTION

3/16" = 1'-0"

X Fritz Hoffman, DESIGN ENGINEER	DESIGN	D. Nguyen-Tan	R. Melko	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE		
	DETAILS	K. Chonkria	D. Nguyen-Tan	LAYOUT	K. Chonkria	D. Nguyen-Tan	
	QUANTITIES	R. Melko	H. Tuazon	SPECIFICATIONS	V. Renganathan	PLANS AND SPECS COMPARED D. Nguyen-Tan	

STATE OF CALIFORNIA — DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES — STRUCTURE DESIGN — DESIGN BRANCH 6

BRIDGE NO. 40-E0100 — POST MILE 22.5/22.9

LUCIA RETAINING WALL
GENERAL PLAN

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 05
EA 0T5601
FILE => 0t5601-a-gp.dgn

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 06-29-10 | 07-01-10 | 07/12/10

SHEET X OF X

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.07-24-06)

USERNAME => s135425 DATE PLOTTED => 13-JUL-2010 TIME PLOTTED => 07:01

Pile & Tieback Data Table

Station along RWLOL	Pile Number	Top of Wall Elev	Bottom of Pile Elev	Bottom of Lagging Elev (Note 1)	Top of Concrete Backfill Elevation (Note 2)	Tiebacks							
						T_A		T_B		T_C		T_D	
						T (kip)	Unbonded Length (ft)	T (kip)	Unbonded Length (ft)	T (kip)	Unbonded Length (ft)	T (kip)	Unbonded Length (ft)
100+21.00	1	451.11	409.78	436.11	*	190	45						
100+31.00	2	450.79	409.46	435.79	*	190	45						
100+41.00	3	450.45	399.12	429.45	*	190	45	250	40				
100+51.00	4	450.01	393.68	425.01	*	190	45	250	40				
100+61.00	5	449.57	388.24	421.57	*	190	45	250	40				
100+71.00	6	449.13	387.80	415.13	*	190	45	250	40	250	35		
100+81.00	7	448.69	377.36	408.69	*	190	45	250	40	250	35		
100+91.00	8	448.25	366.91	403.25	*	190	45	250	40	250	35	190	35
101+01.00	9	447.81	366.47	402.81	*	190	45	250	40	250	35	190	35
101+11.00	10	447.37	366.03	402.37	*	190	45	250	40	250	35	190	35
101+21.00	11	446.93	365.59	401.93	*	190	45	250	40	250	35	190	35
101+31.00	12	446.49	365.15	401.49	*	190	45	250	40	250	35	190	35
101+41.00	13	446.05	364.71	401.05	*	190	45	250	40	250	35	190	35
101+51.00	14	445.61	364.27	400.61	*	190	45	250	40	250	35	190	35
101+61.00	15	445.17	363.83	400.17	*	190	45	250	40	250	35	190	35
101+71.00	16	444.73	363.39	399.73	*	190	45	250	40	250	35	190	35
101+81.00	17	444.29	362.95	399.29	*	190	45	250	40	250	35	190	35
101+91.00	18	443.85	362.51	398.85	*	190	45	250	40	250	35	190	35
102+01.00	19	443.41	362.07	398.41	*	190	45	250	40	250	35	190	35
102+11.00	20	442.86	361.53	397.86	*	190	45	250	40	250	35	190	35
102+21.00	21	442.31	360.98	397.31	*	190	45	250	40	250	35	190	35
102+31.00	22	441.77	360.43	396.77	*	190	45	250	40	250	35	190	35
102+41.00	23	441.22	359.89	396.22	*	190	45	250	40	250	35	190	35
102+51.00	24	440.67	359.34	395.67	*	190	45	250	40	250	35	190	35
102+61.00	25	440.12	358.79	395.12	*	190	45	250	40	250	35	190	35
102+71.00	26	439.58	358.24	394.58	*	190	45	250	40	250	35	190	35
102+81.00	27	439.03	357.69	394.03	*	190	45	250	40	250	35	190	35
102+91.00	28	438.48	357.15	393.48	*	190	45	250	40	250	35	190	35
103+01.00	29	437.92	356.59	392.92	*	190	45	250	40	250	35	190	35
103+11.00	30	437.37	356.03	392.37	*	190	45	250	40	250	35	190	35
103+21.00	31	436.81	355.47	391.81	*	190	45	250	40	250	35	190	35
103+31.00	32	436.25	354.91	391.25	*	190	45	250	40	250	35	190	35
103+41.00	33	435.69	354.36	390.69	*	190	45	250	40	250	35	190	35
103+51.00	34	435.13	353.80	390.13	*	190	45	250	40	250	35	190	35
103+61.00	35	434.57	353.24	389.57	*	190	45	250	40	250	35	190	35
103+71.00	36	434.01	352.68	389.01	*	190	45	250	40	250	35	190	35
103+81.00	37	433.46	352.12	388.46	*	190	45	250	40	250	35	190	35
103+91.00	38	432.90	351.56	387.90	*	190	45	250	40	250	35	190	35
104+01.00	39	432.34	351.01	387.34	*	190	45	250	40	250	35	190	35
104+11.00	40	431.78	350.45	386.78	*	190	45	250	40	250	35	190	35
104+21.00	41	431.22	349.89	386.22	*	190	45	250	40	250	35	190	35
104+31.00	42	430.66	349.33	385.66	*	190	45	250	40	250	35	190	35
104+41.00	43	430.11	348.77	385.11	*	190	45	250	40	250	35	190	35
104+51.00	44	429.55	348.22	384.55	*	190	45	250	40	250	35	190	35
104+61.00	45	429.00	347.66	384.00	*	190	45	250	40	250	35	190	35
104+71.00	46	428.45	347.11	383.45	*	190	45	250	40	250	35	190	35
104+81.00	47	427.89	346.56	382.89	*	190	45	250	40	250	35	190	35
104+91.00	48	427.34	346.01	382.34	*	190	45	250	40	250	35	190	35
105+01.00	49	426.79	345.45	381.79	*	190	45	250	40	250	35	190	35
105+11.00	50	426.22	344.89	381.22	*	190	45	250	40	250	35	190	35
105+21.00	51	425.67	344.34	380.67	*	190	45	250	40	250	35	190	35
105+31.00	52	425.13	343.80	380.13	*	190	45	250	40	250	35	190	35
105+41.00	53	424.60	343.26	379.60	*	190	45	250	40	250	35	190	35
105+51.00	54	424.06	342.72	379.06	*	190	45	250	40	250	35	190	35
105+61.00	55	423.52	342.18	378.52	*	190	45	250	40	250	35	190	35
105+71.00	56	422.98	341.64	377.98	*	190	45	250	40	250	35	190	35
105+81.00	57	422.44	341.11	377.44	*	190	45	250	40	250	35	190	35
105+91.00	58	421.90	340.57	376.90	*	190	45	250	40	250	35	190	35
106+01.00	59	421.36	340.03	376.36	*	190	45	250	40	250	35	190	35
106+11.00	60	420.82	339.49	375.82	*	190	45	250	40	250	35	190	35
106+21.00	61	420.28	338.95	375.28	*	190	45	250	40	250	35	190	35
106+31.00	62	419.74	338.41	374.74	*	190	45	250	40	250	35	190	35
106+41.00	63	419.20	337.87	374.20	*	190	45	250	40	250	35	190	35
106+51.00	64	418.66	337.33	373.66	*	190	45	250	40	250	35	190	35
106+61.00	65	418.12	336.79	373.12	*	190	45	250	40	250	35	190	35
106+71.00	66	417.59	336.25	372.59	*	190	45	250	40	250	35	190	35
106+81.00	67	417.05	335.71	372.05	*	190	45	250	40	250	35	190	35
106+91.00	68	416.51	335.17	371.51	*	190	45	250	40	250	35	190	35
107+01.00	69	415.92	334.59	370.92	*	190	45	250	40	250	35	190	35
107+11.00	70	415.29	333.95	370.29	*	190	45	250	40	250	35	190	35
107+21.00	71	414.65	333.32	381.65	369.65	190	45	250	40	250	35	190	35
107+31.00	72	414.02	332.68	387.02	369.02	190	45	250	40	250	35		
107+41.00	73	413.38	332.05	392.38	368.38	190	45	250	40				
107+51.00	74	412.75	331.42	397.75	367.75	190	45	250	40				
107+61.00	75	412.12	330.78	397.12	367.12	190	45						
107+71.00	76	411.49	330.16	396.49	366.49	190	45						

Notes:
1. The bottom of lagging elevation denoted refers to the elevation in the lagging bay immediately to the right of the respective Pile Number.
2. * Designates that the Top of Concrete Backfill Elevation is the same as the Bottom of Lagging Elevation.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	MON	1	22.5/22.9		

REGISTERED CIVIL ENGINEER DATE

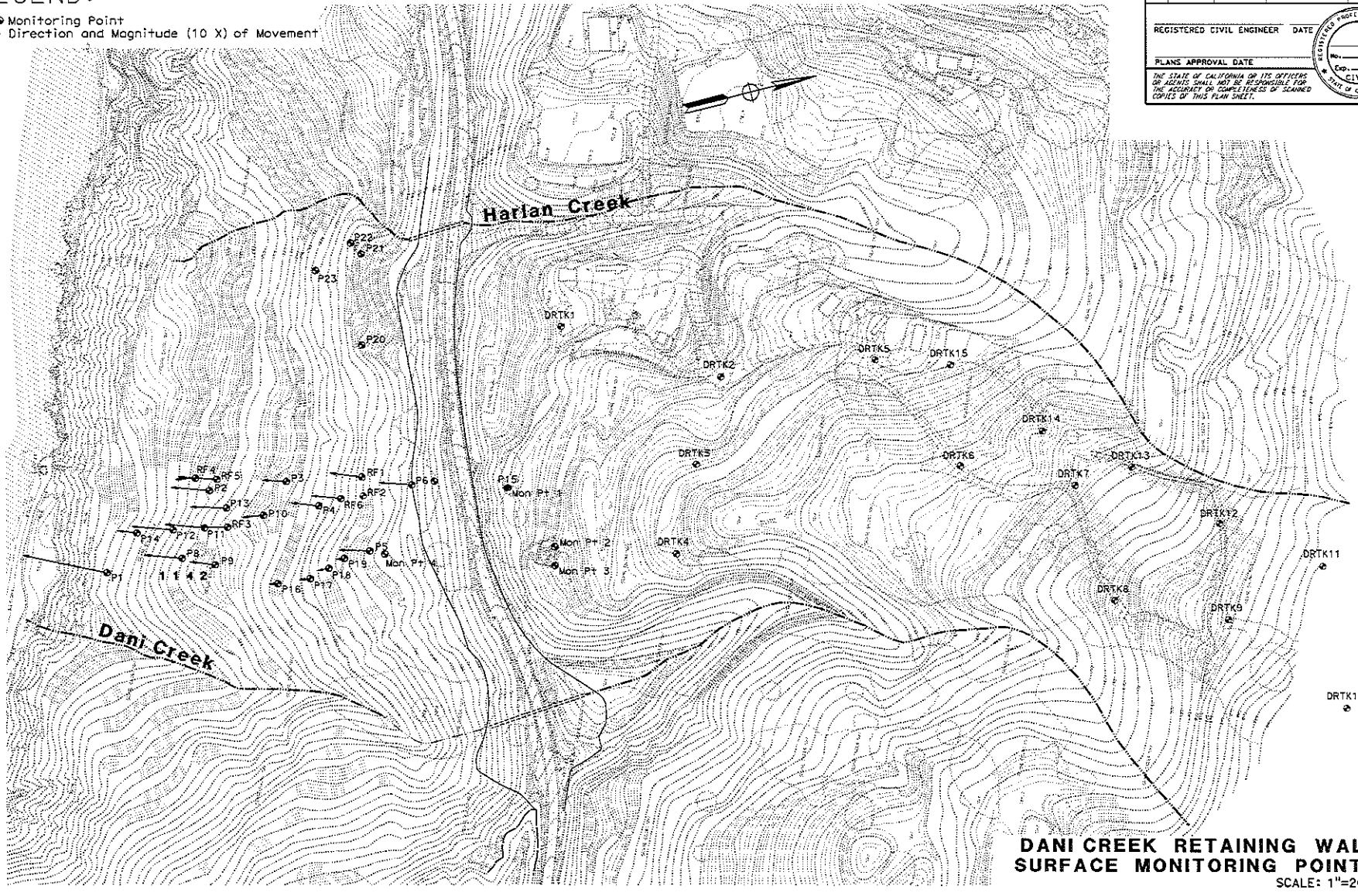
PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

LEGEND:

● Monitoring Point
→ Direction and Magnitude (10 X) of Movement



DANI CREEK RETAINING WALL
SURFACE MONITORING POINTS
SCALE: 1"=200'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans · GEOTECHNICAL DESIGN

FUNCTIONAL SUPERVISOR: MIKE FINEGAN
CALCULATED-DESIGNED BY
CHECKED BY

REVISED BY	DATE REVISED

LAST REVISED: DATE PLOTTED => 01-JUN-2010 04-13-10 TIME PLOTTED => 13:43

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => s135365
DGN FILE => Surface Monitoring.dgn

CU 59323

EA 0T5601

Name	Northing feet	Easting feet	Elevation feet	date	Prism offset	Description	Dx	Dy	Dz	Hor Dist	Azimuth	Magnitude
P1	1899701.110	5809116.392	109.956	dec, 2008			0.000	0.000	0.000	0.000	0.000	0.000
P1	1899698.500	5809115.192	108.736	may, 2009	(-34)mm	T post with prism	-1.200	-2.610	-1.220	2.873	204.692	3.121
P1	1899689.996	5809111.351	104.409	feb, 2010			-3.841	-8.504	-4.327	9.331	204.307	10.286
P1	1899681.841	5809106.892	101.180	March 25, 2010	(-34mm)		-4.459	-8.155	-3.229	9.294	208.669	9.839
						Total Movement	-9.500	-19.269	-8.776	21.484	206.244	23.207
P2	1899962.564	5808996.701	187.734	dec, 2008			0.000	0.000	0.000	0.000	0.000	0.000
P2	1899961.609	5808996.340	187.274	may, 2009	(-34)mm	T post with prism	-0.361	-0.955	-0.460	1.021	200.707	1.120
P2	1899957.974	5808995.117	186.053	feb, 2010			-1.223	-3.635	-1.221	3.835	198.596	4.025
P2	1899953.749	5808993.586	184.517	March 25, 2010	(-34mm)		-1.531	-4.225	-1.536	4.494	199.919	4.749
P2	1899950.360	5808992.384	183.318	May 5, 2010			-1.202	-3.389	-1.199	3.596	199.528	3.790
P2	1899948.988	5808991.907	182.856	May 27, 2010			-0.477	-1.372	-0.462	1.453	199.171	1.524
P2	1899947.958	5808991.562	182.521	June 18, 2010			-0.345	-1.030	-0.335	1.086	198.518	1.137
						Total Movement	-5.139	-14.606	-5.213	15.484	199.384	16.338
P3	1900130.729	5809018.748	242.450	dec, 2008			0.000	0.000	0.000	0.000	0.000	0.000
P3	1900130.145	5809018.449	242.189	may, 2009	(-34)mm	T post with prism	-0.299	-0.584	-0.261	0.656	207.112	0.706
P3	1900127.800	5809017.704	241.450	feb, 2010			-0.745	-2.345	-0.739	2.460	197.625	2.569
P3	1900125.216	5809016.824	240.621	March 25, 2010	(-34mm)		-0.880	-2.584	-0.829	2.730	198.807	2.853
P3	1900124.468	5809016.511	240.388	April 7, 2010			-0.313	-0.748	-0.233	0.811	202.707	0.844
P3	1900124.138	5809016.471	240.314	April 14, 2010	(-34mm)		-0.040	-0.330	-0.074	0.332	186.911	0.341
P3	1900123.047	5809016.176	239.797	May 5, 2010			-0.295	-1.091	-0.517	1.130	195.131	1.243
P3	1900122.082	5809015.951	239.604	May 27, 2010			-0.225	-0.965	-0.193	0.991	193.125	1.010
P3	1900121.403	5809015.767	239.349	June 18, 2010			-0.184	-0.679	-0.255	0.703	195.162	0.748
						Total Movement	-2.981	-9.326	-3.101	9.791	197.726	10.270
P4	1900186.393	5809088.327	276.315	dec, 2008			0.000	0.000	0.000	0.000	0.000	0.000
P4	1900185.698	5809088.052	275.765	may, 2009	(-34)mm	T post with prism	-0.275	-0.695	-0.550	0.747	201.588	0.928
P4	1900182.967	5809087.060	273.953	feb, 2010			-0.992	-2.731	-1.812	2.906	199.963	3.424
P4	1900180.040	5809085.925	271.889	March 25, 2010	(-34mm)		-1.135	-2.927	-2.064	3.139	201.195	3.757
P4	1900179.053	5809085.478	271.269	April 7, 2010			-0.447	-0.987	-0.620	1.084	204.365	1.248
P4	1900178.717	5809085.398	270.951	April 14, 2010	(-34mm)		-0.080	-0.336	-0.318	0.345	193.392	0.469
P4	1900177.490	5809084.955	270.075	May 5, 2010			-0.443	-1.227	-0.876	1.305	199.852	1.571
P4	1900176.487	5809084.606	269.482	May 27, 2010			-0.349	-1.003	-0.593	1.062	199.186	1.216
						Total Movement	-3.721	-9.906	-6.833	10.582	200.588	12.596
P5	1900270.622	5809210.683	351.230	dec, 2008			0.000	0.000	0.000	0.000	0.000	0.000
P5	1900269.865	5809210.328	350.657	may, 2009	(-34)mm	T post with prism	-0.355	-0.757	-0.573	0.836	205.125	1.014
P5	1900266.842	5809209.437	348.816	feb, 2010			-0.891	-3.023	-1.841	3.152	196.422	3.650
P5	1900263.428	5809208.380	346.593	March 25, 2010	(-34mm)		-1.057	-3.414	-2.223	3.574	197.203	4.209
P5	1900262.389	5809207.976	345.989	April 7, 2010			-0.404	-1.039	-0.604	1.115	201.248	1.268
P5	1900260.520	5809207.470	344.684	May 5, 2010			-0.506	-1.869	-1.305	1.936	195.149	2.335
P5	1900259.309	5809207.124	344.045	May 27, 2010			-0.346	-1.211	-0.639	1.259	195.945	1.412
P5	1900258.429	5809206.830	343.451	June 18, 2010			-0.294	-0.880	-0.594	0.928	198.474	1.102
						Total Movement	-3.853	-12.193	-7.779	12.787	197.537	14.968
P6	1900396.139	5809092.920	381.362	may, 2009	(-34)mm	T post with prism	0.000	0.000	0.000	0.000	0.000	0.000
P6	1900392.980	5809092.029	378.933	feb, 2010			-0.891	-3.159	-2.429	3.282	195.751	4.083
P6	1900389.341	5809090.685	376.080	March 25, 2010	(-34mm)		-1.344	-3.639	-2.853	3.879	200.271	4.815
P6	1900388.225	5809090.250	375.228	April 7, 2010			-0.435	-1.116	-0.852	1.198	201.295	1.470
P6	1900387.820	5809090.133	374.743	April 14, 2010	(-34mm)		-0.117	-0.405	-0.485	0.422	196.113	0.643
P6	1900384.978	5809089.326	372.644	May 27, 2010			-0.807	-2.842	-2.099	2.954	195.852	3.624
						Total Movement	-3.594	-11.161	-8.718	11.725	197.849	14.611
P8	1899867.881	5809125.497	193.909	may, 2009	(-34)mm	T post with prism	0.000	0.000	0.000	0.000	0.000	0.000
P8	1899864.290	5809124.266	192.163	feb, 2010			-1.231	-3.591	-1.746	3.796	198.922	4.178
P8	1899860.111	5809122.775	190.093	March 25, 2010	(-34mm)		-1.491	-4.179	-2.070	4.437	199.636	4.896
P8	1899856.690	5809121.659	188.402	May 5, 2010			-1.116	-3.421	-1.691	3.598	198.067	3.976
P8	1899855.339	5809121.261	187.913	May 27, 2010			-0.398	-1.351	-0.489	1.408	196.415	1.491
P8	1899854.368	5809120.999	187.420	June 18, 2010			-0.262	-0.971	-0.493	1.006	195.100	1.120
						Total Movement	-4.498	-13.513	-6.489	14.242	198.411	15.651
P9	1899934.678	5809157.241	224.336	may, 2009	(-34)mm	T post with prism	0.000	0.000	0.000	0.000	0.000	0.000
P9	1899932.428	5809156.507	224.178	feb, 2010			-0.734	-2.250	-0.158	2.367	198.067	2.372
P9	1899929.544	5809155.225	223.624	March 25, 2010	(-34mm)		-1.282	-2.884	-0.554	3.156	203.966	3.204
P9	1899928.756	5809154.912	223.560	April 7, 2010			-0.313	-0.788	-0.064	0.848	201.663	0.850
P9	1899928.419	5809154.884	223.483	April 14, 2010	(-34mm)		-0.028	-0.337	-0.077	0.338	184.750	0.347
P9	1899927.444	5809154.730	223.279	May 5, 2010			-0.154	-0.975	-0.204	0.987	188.976	1.008
P9	1899926.588	5809154.606	223.239	May 27, 2010			-0.124	-0.856	-0.040	0.865	188.243	0.866
P9	1899926.360	5809154.698	223.111	June 18, 2010			0.092	-0.228	-0.128	0.246	158.025	0.277
						Total Movement	-2.543	-8.318	-1.225	8.698	197.000	8.784
P10	1900063.919	5809078.360	237.655	may, 2009	(-34)mm	T post with prism	0.000	0.000	0.000	0.000	0.000	0.000
P10	1900061.714	5809078.051	237.134	feb, 2010			-0.309	-2.205	-0.521	2.227	187.977	2.287
P10	1900059.499	5809077.629	236.197	March 25, 2010	(-34mm)		-0.422	-2.215	-0.937	2.255	190.787	2.442
P10	1900058.757	5809077.398	235.941	April 7, 2010			-0.231	-0.742	-0.256	0.777	197.292	0.818
P10	1900058.367	5809077.391	235.786	April 14, 2010	(-34mm)		-0.007	-0.390	-0.155	0.390	181.028	0.420
P10	1900057.334	5809077.236	235.464	May 5, 2010			-0.155	-1.033	-0.322	1.045	188.533	1.093
P10	1900056.425	5809077.067	235.246	May 27, 2010			-0.169	-0.909	-0.218	0.925	190.532	0.950
P10	1900055.689	5809076.911	235.071	June 18, 2010			-0.156	-0.736	-0.175	0.752	191.967	0.772
						Total Movement	-1.449	-8.230	-2.584	8.357	189.985	8.747
P11	1899932.043	5809073.182	199.136	may, 2009	(-34)mm	T post with prism	0.000	0.000	0.000	0.000	0.000	0.000
P11	1899928.323	5809071.984	197.763	feb, 2010			-1.218	-3.720	-1.373	3.914	198.129	4.148
P11	1899924.018	5809070.321	196.123	March 25, 2010	(-34mm)		-1.643	-4.305	-1.640	4.608	200.889	4.891
P11	1899920.457	5809069.058	194.764	May 5, 2010			-1.263	-3.561	-1.359	3.778	199.526	4.015
P11	1899919.076	5809068.600	194.317	May 27, 2010			-0.458	-1.381	-0.447	1.455	198.348	1.522
P11	1899917.994	5809068.234	193.939	June 18, 2010			-0.366	-1.082	-0.378	1.142	198.689	1.203
						Total Movement	-4.948	-14.049	-5.197	14.895	199.402	15.775
P12	1899864.172	5809060.784	162.557	may, 2009	(-34)mm	T post with prism	0.000	0.000	0.000	0.000	0.000	0.000
P12	1899860.298	5809059.443	161.187	feb, 2010			-1.341	-3.874	-1.370	4.100	199.093	4.322

P12	1899855.745	5809057.838	159.402	March 25, 2010	(-34mm)		-1.605	-4.553	-1.785	4.628	199.418	5.147
P12	1899853.842	5809057.214	158.726	April 14, 2010	(-34mm)		-0.624	-1.903	-0.676	2.003	198.154	2.114
P12	1899852.006	5809056.680	158.037	May 5, 2010			-0.534	-1.836	-0.689	1.912	196.217	2.032
P12	1899850.611	5809056.281	157.539	May 27, 2010			-0.399	-1.395	-0.498	1.451	195.962	1.534
P12	1899849.511	5809055.959	157.086	June 18, 2010			-0.322	-1.100	-0.453	1.146	196.316	1.232
						Total Movement	-4.825	-14.661	-5.471	15.435	198.217	16.376
P13	1899989.470	5809043.487	209.868	may, 2009	(-34)mm	T post with prism	0.000	0.000	0.000	0.000	0.000	0.000
P13	1899986.115	5809042.535	209.095	feb, 2010			-0.952	-3.355	-0.773	3.487	195.842	3.572
P13	1899981.997	5809041.312	208.107	March 25, 2010	(-34mm)		-1.223	-4.118	-0.988	4.296	196.541	4.408
P13	1899978.760	5809040.274	207.220	May 5, 2010			-1.038	-3.237	-0.887	3.399	197.779	3.513
P13	1899977.548	5809039.950	206.991	May 27, 2010			-0.324	-1.212	-0.229	1.255	194.967	1.275
P13	1899976.584	5809039.679	206.752	June 18, 2010			-0.271	-0.964	-0.239	1.001	195.702	1.029
						Total Movement	-3.808	-12.868	-3.116	13.437	196.463	13.793
P14	1899785.881	5809048.372	127.540	feb, 2010	(-34)mm	T post with prism	0.000	0.000	0.000	0.000	0.000	0.000
P14	1899782.026	5809046.752	126.329	March 25, 2010	(-34mm)		-1.620	-3.855	-1.211	4.182	202.794	4.353
P14	1899780.819	5809046.194	125.976	April 7, 2010			-0.558	-1.207	-0.353	1.330	204.811	1.376
P14	1899780.133	5809045.976	125.771	April 14, 2010	(-34mm)		-0.218	-0.686	-0.205	0.720	197.629	0.748
P14	1899777.078	5809044.851	124.815	May 27, 2010			-1.125	-3.055	-0.956	3.256	200.216	3.393
P14	1899776.041	5809044.463	124.427	June 18, 2010			-0.388	-1.037	-0.388	1.107	200.514	1.173
						Total Movement	-3.909	-9.840	-3.113	10.586	201.666	11.036
P15	1900597.659	5809151.072	519.080	feb, 2010	(-34)mm	T post with prism	0.000	0.000	0.000	0.000	0.000	0.000
P15	1900597.426	5809150.963	519.114	March 25, 2010	(-34mm)		-0.109	-0.233	0.034	0.257	205.071	0.259
P15	1900597.547	5809150.943	519.070	April 14, 2010	(-34mm)		-0.020	0.121	-0.044	0.123	170.614	0.130
P15	1900597.335	5809150.989	519.062	May 27, 2010			0.046	-0.212	-0.008	0.217	167.758	0.217
P15	1900597.289	5809150.998	519.032	June 18, 2010			0.009	-0.046	-0.030	0.047	168.930	0.056
						Total Movement	-0.074	-0.370	-0.048	0.377	191.310	0.380
P16	1900056.923	5809231.239	260.508	March 25, 2010	(-34mm)		0.000	0.000	0.000	0.000	0.000	0.000
P16	1900056.203	5809230.925	260.338	April 7, 2010			-0.314	-0.720	-0.170	0.785	203.563	0.804
P16	1900056.056	5809231.019	260.069	April 14, 2010	(-34mm)	T post with prism	0.094	-0.147	-0.269	0.174	147.403	0.321
P16	1900055.222	5809231.000	259.489	May 5, 2010			-0.019	-0.834	-0.580	0.834	181.305	1.016
P16	1900054.440	5809230.934	259.032	May 27, 2010			-0.066	-0.782	-0.457	0.785	184.824	0.908
P16	1900053.929	5809230.924	258.658	June 18, 2010			-0.010	-0.511	-0.374	0.511	181.121	0.633
						Total Movement	-0.315	-2.994	-1.850	3.011	186.006	3.534
P17	1900128.801	5809237.829	298.353	March 25, 2010	(-34mm)		0.000	0.000	0.000	0.000	0.000	0.000
P17	1900127.946	5809237.479	297.886	April 7, 2010			-0.350	-0.855	-0.467	0.924	202.262	1.035
P17	1900127.622	5809237.467	297.611	April 14, 2010	(-34mm)	T post with prism	-0.012	-0.324	-0.275	0.324	182.121	0.425
P17	1900126.550	5809237.318	296.731	May 5, 2010			-0.149	-1.072	-0.880	1.082	187.913	1.395
P17	1900125.657	5809237.186	296.106	May 27, 2010			-0.132	-0.893	-0.625	0.903	188.408	1.098
P17	1900124.932	5809237.070	295.500	June 18, 2010			-0.116	-0.725	-0.606	0.734	189.090	0.962
						Total Movement	-0.759	-3.869	-2.853	3.943	191.099	4.867
P18	1900174.054	5809225.327	317.046	March 25, 2010	(-34mm)		0.000	0.000	0.000	0.000	0.000	0.000
P18	1900173.137	5809225.086	316.581	April 7, 2010			-0.241	-0.917	-0.465	0.948	194.725	1.056
P18	1900172.650	5809225.070	316.185	April 14, 2010	(-34mm)	T post with prism	-0.016	-0.487	-0.396	0.487	181.882	0.628
P18	1900171.460	5809224.862	315.153	May 5, 2010			-0.208	-1.190	-1.032	1.208	189.915	1.589
P18	1900170.417	5809224.665	314.404	May 27, 2010			-0.197	-1.043	-0.749	1.061	190.696	1.299
P18	1900169.516	5809224.475	313.728	June 18, 2010			-0.190	-0.901	-0.676	0.921	191.908	1.142
						Total Movement	-0.852	-4.538	-3.318	4.617	190.633	5.686
P19	1900212.250	5809212.681	332.035	March 25, 2010	(-34mm)		0.000	0.000	0.000	0.000	0.000	0.000
P19	1900211.044	5809212.231	331.487	April 7, 2010			-0.450	-1.206	-0.548	1.287	200.462	1.399
P19	1900210.571	5809212.163	331.228	April 14, 2010	(-34mm)	T post with prism	-0.068	-0.473	-0.259	0.478	188.181	0.544
P19	1900208.156	5809211.561	329.501	May 27, 2010			-0.602	-2.415	-1.727	2.489	193.997	3.029
						Total Movement	-1.120	-4.094	-2.534	4.244	195.300	4.943
prf20	1900363.516	5808768.539	333.181	May 5, 2010			0.000	0.000	0.000	0.000	0.000	0.000
prf20	1900365.303	5808768.848	334.376	April 14, 2010	(-34mm)	T post with prism	0.309	1.787	1.195	1.814	189.810	2.172
prf20	1900363.509	5808768.541	333.178	May 5, 2010			-0.307	-1.794	-1.198	1.820	189.711	2.179
prf20	1900362.111	5808768.371	332.333	May 27, 2010			-0.170	-1.398	-0.845	1.408	186.933	1.642
prf20	1900360.982	5808768.211	331.546	June 18, 2010			-0.160	-1.129	-0.787	1.140	188.066	1.385
						Total Movement	-0.328	-2.534	-1.635	2.555	187.375	3.033
prf21	1900414.685	5808572.620	336.652	April 7, 2010			0.000	0.000	0.000	0.000	0.000	0.000
prf21	1900414.599	5808572.785	336.665	April 14, 2010	(-34mm)	T post with prism	0.165	-0.086	0.013	0.186	117.529	0.187
prf21	1900414.586	5808572.692	336.650	May 5, 2010			-0.093	-0.013	-0.015	0.094	262.042	0.095
prf21	1900414.499	5808572.694	336.685	May 27, 2010			0.002	-0.087	0.035	0.087	178.683	0.094
prf21	1900414.486	5808572.682	336.667	June 18, 2010			-0.012	-0.013	-0.018	0.018	222.709	0.025
						Total Movement	0.062	-0.199	0.015	0.208	162.695	0.209
prf22	1900398.270	5808543.860	321.658	April 7, 2010			0.000	0.000	0.000	0.000	0.000	0.000
prf22	1900398.208	5808544.065	321.644	April 14, 2010	(-34mm)	T post with prism	0.185	-0.062	-0.014	0.195	108.528	0.196
prf22	1900398.253	5808543.980	321.646	May 5, 2010			-0.085	0.045	0.002	0.096	117.897	0.096
prf22	1900398.184	5808543.969	321.677	May 27, 2010			-0.011	-0.069	0.031	0.070	189.058	0.076
prf22	1900398.188	5808543.963	321.651	June 18, 2010			-0.006	0.004	-0.026	0.007	123.690	0.027
						Total Movement	0.083	-0.082	-0.007	0.117	134.653	0.117
prf23	1900308.134	5808584.326	278.038	April 7, 2010			0.000	0.000	0.000	0.000	0.000	0.000
	not visible											
RF1	1900294.322	5809049.521	323.703	may, 2009	(0.00)mm	carsonite with reflector	0.000	0.000	0.000	0.000	0.000	0.000
RF1	1900291.292	5809048.380	321.496	feb, 2010			-1.141	-3.030	-2.207	3.238	200.635	3.918
RF1	1900287.844	5809046.941	318.838	March 25, 2010	(0.00mm)		-1.439	-3.448	-2.658	3.736	202.653	4.585
RF1	1900284.985	5809045.781	316.591	May 5, 2010			-1.160	-2.859	-2.247	3.085	202.084	3.817
RF1	1900283.821	5809045.223	315.759	May 27, 2010			-0.558	-1.164	-0.832	1.291	205.612	1.536
RF1	1900282.899	5809044.955	315.083	June 18, 2010			-0.268	-0.922	-0.676	0.960	196.208	1.174
						Total Movement	-4.566	-11.423	-8.620	12.302	201.788	15.021
RF2	1900286.392	5809090.660	326.320	may, 2009	(0.00)mm	carsonite with reflector	0.000	0.000	0.000	0.000	0.000	0.000
	obliterated											

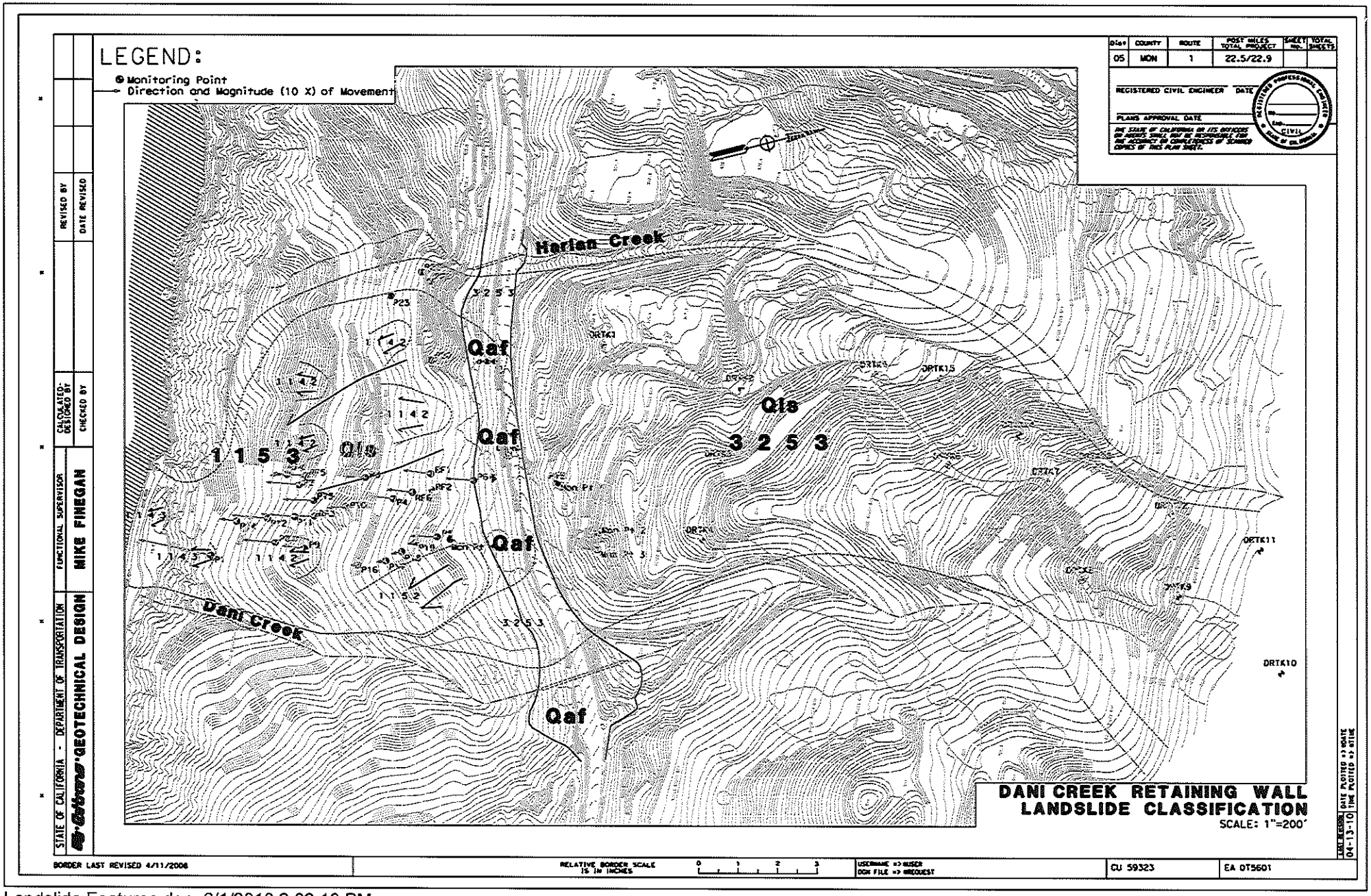
RF3	1899981.072	5809083.994	219.794	may, 2009	0.00mm	carsonite with reflector	0.000	0.000	0.000	0.000	0.000	0.000
RF3	1899978.250	5809083.302	218.898	feb, 2010			-0.892	-2.822	-0.896	2.906	193.778	3.041
RF3	1899975.102	5809082.421	217.956	March 25, 2010	(0.00mm)		-0.881	-3.148	-0.942	3.269	195.635	3.402
RF3	1899974.257	5809082.092	217.648	April 7, 2010			-0.329	-0.845	-0.308	0.907	201.273	0.958
RF3	1899973.705	5809081.987	217.461	April 14, 2010	(0.00mm)		-0.105	-0.552	-0.187	0.562	190.770	0.592
RF3	1899972.399	5809081.635	217.088	May 5, 2010			-0.352	-1.306	-0.373	1.353	195.084	1.403
RF3	1899971.372	5809081.233	216.887	May 27, 2010			-0.402	-1.027	-0.201	1.103	201.377	1.121
RF3	1899970.442	5809081.066	216.593	June 18, 2010			-0.167	-0.930	-0.294	0.945	190.180	0.990
						Total Movement	-2.928	-10.630	-3.201	11.026	195.400	11.481
RF4	1899939.746	5808963.015	169.082	may, 2009	(0.00)mm	carsonite with reflector	0.000	0.000	0.000	0.000	0.000	0.000
RF4	1899935.575	5808962.184	167.855	feb, 2010			-0.831	-4.171	-1.227	4.253	191.268	4.426
RF4	1899927.137	5808960.138	165.147	May 5, 2010			-2.046	-8.438	-2.708	8.683	193.630	9.095
RF4	1899925.714	5808959.689	164.744	May 27, 2010			-0.449	-1.423	-0.403	1.492	197.512	1.546
RF4	1899924.548	5808959.547	164.404	June 18, 2010			-0.142	-1.166	-0.340	1.175	186.944	1.223
						Total Movement	-3.468	-15.198	-4.678	15.589	192.854	16.275
RF5	1899984.462	5808976.970	186.437	may, 2009	(0.00)mm	carsonite with reflector	0.000	0.000	0.000	0.000	0.000	0.000
RF5	1899980.725	5808975.831	185.470	feb, 2010			-1.139	-3.737	-0.967	3.907	196.951	4.025
RF5	1899976.553	5808974.346	183.845	March 25, 2010	(0.00mm)		-1.485	-4.172	-1.625	4.428	199.593	4.717
						Total Movement	-2.624	-7.909	-2.592	8.333	198.354	8.727
RF6	1900237.453	5809084.749	295.234	may, 2009	(0.00)mm	carsonite with reflector	0.000	0.000	0.000	0.000	0.000	0.000
RF6	1900234.567	5809083.747	293.353	feb, 2010			-1.002	-2.886	-1.881	3.055	199.147	3.588
RF6	1900231.353	5809082.527	291.135	March 25, 2010	(0.00mm)		-1.220	-3.214	-2.218	3.438	200.786	4.091
RF6	1900227.598	5809080.999	288.557	May 27, 2010			-1.528	-3.755	-2.578	4.054	202.143	4.804
						Total Movement	-3.750	-9.855	-6.677	10.544	200.833	12.481
R09003	1900005.220	5809082.538	219.990	feb, 2010			0.000	0.000	0.000	0.000	0.000	0.000
PM 22.95	1900420.156	5808054.375	308.743	may, 2009			0.000	0.000	0.000	0.000	0.000	0.000
PM 22.95	1900419.865	5808054.387	308.715	feb,2010			0.012	-0.291	-0.028	0.291	177.639	0.293
PM 22.95	1900419.590	5808054.404	308.634	March 25, 2010			0.017	-0.275	-0.081	0.276	176.463	0.287
PM 22.95	1900419.564	5808054.418	308.598	April 7, 2010			0.014	-0.026	-0.036	0.030	151.699	0.047
PM 22.95	1900419.560	5808054.387	308.615	April 14, 2010	control		-0.031	-0.004	0.017	0.031	262.648	0.036
PM 22.95	1900419.516	5808054.407	308.610	May 5, 2010			0.020	-0.044	-0.005	0.048	155.556	0.049
PM 22.95	1900419.454	5808054.421	308.606	May 27, 2010			0.014	-0.062	-0.004	0.064	167.276	0.064
PM 22.95	1900419.443	5808054.409	308.572	June 18, 2010			-0.012	-0.011	-0.034	0.016	227.490	0.038
						Total Movement	0.034	-0.713	-0.171	0.714	177.270	0.734
PM 23.06	1900356.855	5807369.671	311.558	may, 2009			0.000	0.000	0.000	0.000	0.000	0.000
PM 23.06	1900356.772	5807369.762	311.536	feb, 2010			0.091	-0.083	-0.022	0.123	132.368	0.125
PM 23.06	1900356.748	5807369.786	311.540	March 25, 2010			0.024	-0.024	0.004	0.034	135.000	0.034
PM 23.06	1900356.737	5807369.779	311.516	April 7, 2010			-0.007	-0.011	-0.024	0.013	212.471	0.027
PM 23.06	1900356.755	5807369.748	311.514	April 14, 2010	control		-0.031	0.018	-0.002	0.036	120.141	0.036
PM 23.06	1900356.729	5807369.789	311.541	May 5, 2010			0.041	-0.026	0.027	0.049	122.381	0.056
PM 23.06	1900356.729	5807369.800	311.524	May 27, 2010			0.011	0.000	-0.017	0.011	0.000	0.020
PM 23.06	1900356.737	5807369.790	311.532	June 18, 2010			-0.010	0.008	0.008	0.013	128.660	0.015
						Total Movement	0.119	-0.118	-0.026	0.168	134.758	0.170
Mon pt 1	1900599.604	5809151.142	514.325	March 25, 2010	GPS Derived		0.000	0.000	0.000	0.000	0.000	0.000
Mon pt 1	1900599.593	5809151.157	514.361	April 8, 2010		PK & Shiner	0.015	-0.011	0.036	0.019	126.254	0.041
Mon pt 1	1900599.542	5809151.154	514.264	May 11, 2010			-0.003	-0.051	-0.097	0.051	183.366	0.110
Mon pt 1	1900599.521	5809151.160	514.259	May 27, 2010			0.006	-0.021	-0.005	0.022	164.055	0.022
Mon pt 1	1900599.516	5809151.135	514.259	June 18, 2010			-0.025	-0.005	0.000	0.025	258.690	0.025
						Total Movement	-0.007	-0.088	-0.066	0.088	184.548	0.110
Mon pt 2	1900666.989	5809301.436	542.288	March 25, 2010	GPS Derived		0.000	0.000	0.000	0.000	0.000	0.000
Mon pt 2	1900667.004	5809301.440	542.254	April 8, 2010		PK & Shiner	0.004	0.015	-0.034	0.016	194.931	0.037
Mon pt 2	1900666.970	5809301.444	542.256	May 11, 2010			0.004	-0.034	0.002	0.034	173.290	0.034
Mon pt 2	1900666.962	5809301.444	542.253	May 27, 2010			0.000	-0.008	-0.003	0.008	180.000	0.009
Mon pt 2	1900666.932	5809301.417	542.257	June 18, 2010			-0.027	-0.030	0.004	0.040	221.987	0.041
						Total Movement	-0.019	-0.057	-0.031	0.060	198.435	0.068
Mon pt 3	1900657.339	5809341.197	536.846	March 25, 2010	GPS Derived		0.000	0.000	0.000	0.000	0.000	0.000
Mon pt 3	1900657.338	5809341.224	536.820	April 7, 2010		PK & Shiner	0.027	-0.001	-0.026	0.027	92.121	0.037
Mon pt 3	1900657.303	5809341.204	536.830	May 11, 2010			-0.020	-0.035	0.010	0.040	209.745	0.042
Mon pt 3	1900657.289	5809341.208	536.821	May 27, 2010			0.004	-0.014	-0.009	0.015	164.055	0.017
Mon pt 3	1900657.272	5809341.200	536.806	June 18, 2010			-0.008	-0.017	-0.015	0.019	205.201	0.024
						Total Movement	0.003	-0.067	-0.040	0.067	177.436	0.078
Mon pt 4	1900300.992	5809225.246	356.188	March 25, 2010	GPS Derived		0.000	0.000	0.000	0.000	0.000	0.000
Mon pt 4	1900300.110	5809224.905	355.636	April 8, 2010		PK & Shiner	-0.341	-0.882	-0.552	0.946	201.136	1.095
Mon pt 4	1900297.794	5809223.988	354.180	May 11, 2010			-0.937	-2.316	-1.456	2.498	202.027	2.892
Mon pt 4	1900297.035	5809223.694	353.701	May 27, 2010			-0.274	-0.759	-0.479	0.807	199.850	0.938
Mon pt 4	1900296.198	5809223.341	353.102	June 18, 2010			-0.353	-0.837	-0.599	0.908	202.867	1.088
						Total Movement	-1.905	-4.794	-3.086	5.159	201.671	6.011
DRTK1	1900800.343	5808836.451	495.391	may, 2009	GPS Derived	hub with tack	0.000	0.000	0.000	0.000	0.000	0.000
DRTK1	1900800.215	5808836.429	495.364	feb, 2010			-0.022	-0.128	-0.027	0.130	189.752	0.133
DRTK1	1900800.212	5808836.435	495.083	March 25, 2010	GPS derived		0.006	-0.003	-0.281	0.007	116.565	0.281
			obliterated				-0.016	-0.131	-0.308	0.132	186.963	0.335
DRTK2	1901111.379	5809029.417	541.857	may, 2009	GPS Derived	hub with tack	0.000	0.000	0.000	0.000	0.000	0.000
DRTK2	1901111.223	5809029.445	541.798	feb,2010			0.028	-0.156	-0.059	0.158	169.824	0.169
DRTK2	1901111.190	5809029.414	541.765	March 25, 2010	GPS derived		-0.031	-0.033	-0.033	0.045	223.210	0.056
DRTK2	1901111.182	5809029.406	541.772	April 8, 2010			-0.008	-0.008	0.007	0.011	225.000	0.013
DRTK2	1901111.228	5809029.384	541.788	April 14, 2010	GPS derived		-0.022	0.046	0.016	0.051	154.440	0.053
DRTK2	1901111.178	5809029.396	541.789	May 11, 2010			0.012	-0.050	0.001	0.051	166.504	0.051
DRTK2	1901111.189	5809029.408	541.757	May 27, 2010			0.012	0.011	-0.032	0.016	227.490	0.036
DRTK2	1901111.170	5809029.376	541.760	June 18, 2010			-0.032	-0.019	0.003	0.037	239.300	0.037
						Total Movement	-0.041	-0.209	-0.097	0.213	191.099	0.234

DRTK3	1901011.995	5809202.473	576.442	may, 2009	GPS Derived	hub with tack	0.000	0.000	0.000	0.000	0.000	0.000
DRTK3	1901011.933	5809202.465	576.440	feb, 2010			-0.008	-0.062	-0.002	0.063	187.352	0.063
DRTK3	1901011.940	5809202.433	576.421	April 14, 2010	GPS derived		-0.032	0.007	-0.019	0.033	102.339	0.038
DRTK3	1901011.921	5809202.421	576.394	May 11, 2010			-0.012	-0.019	-0.027	0.022	212.276	0.035
DRTK3	1901011.921	5809202.443	576.411	May 27, 2010			0.022	0.000	0.017	0.022	0.000	0.028
DRTK3	1901011.862	5809202.433	576.411	June 18, 2010			-0.010	-0.039	0.000	0.040	194.381	0.040
						Total Movement	-0.040	-0.113	-0.031	0.120	199.493	0.124
DRTK4	1900921.218	5809381.228	580.428	may, 2009	GPS Derived	hub with tack	0.000	0.000	0.000	0.000	0.000	0.000
DRTK4	1900921.146	5809381.229	580.386	feb, 2010			0.001	-0.072	-0.042	0.072	179.204	0.083
DRTK4	1900921.128	5809381.240	580.385	April 7, 2010			0.011	-0.018	-0.001	0.021	146.570	0.021
DRTK4	1900921.121	5809381.197	580.416	April 14, 2010	GPS derived		-0.043	-0.007	0.031	0.044	260.754	0.053
DRTK4	1900921.104	5809381.198	580.393	May 11, 2010			0.001	-0.017	-0.023	0.017	176.634	0.029
DRTK4	1900921.094	5809381.188	580.468	May 27, 2010			-0.010	-0.010	0.075	0.014	225.000	0.076
DRTK4	1900921.093	5809381.196	580.373	June 18, 2010			0.008	-0.001	-0.095	0.008	97.125	0.095
						Total Movement	-0.032	-0.125	-0.055	0.129	194.359	0.140
DRTK5	1901449.499	5809076.490	583.968	may, 2009	GPS Derived	hub with tack	0.000	0.000	0.000	0.000	0.000	0.000
DRTK5	obliterated											
DRTK6	1901572.855	5809347.309	636.863	may, 2009	GPS Derived	hub with tack	0.000	0.000	0.000	0.000	0.000	0.000
DRTK6	1901572.820	5809347.271	636.865	feb, 2010			-0.038	-0.035	0.002	0.052	227.353	0.052
DRTK6	1901572.811	5809347.257	636.841	April 7, 2010			-0.014	-0.009	-0.024	0.017	237.265	0.029
DRTK6	1901572.800	5809347.253	636.850	April 14, 2010	GPS derived		-0.004	-0.011	0.009	0.012	199.983	0.015
DRTK6	1901572.774	5809347.235	636.859	May 11, 2010			-0.018	-0.026	0.009	0.032	214.695	0.033
DRTK6	1901572.779	5809347.248	636.886	May 27, 2010			0.013	0.005	0.027	0.014	248.962	0.030
DRTK6	1901572.766	5809347.226	636.828	June 18, 2010			-0.022	-0.013	-0.058	0.026	239.421	0.063
						Total Movement	-0.083	-0.089	-0.035	0.122	223.002	0.127
DRTK7	1901806.132	5809449.516	673.216	may, 2009	GPS Derived	hub with tack	0.000	0.000	0.000	0.000	0.000	0.000
DRTK7	1901806.081	5809449.449	673.262	feb, 2010			-0.067	-0.051	0.046	0.084	232.722	0.096
DRTK7	1901806.062	5809449.431	673.236	April 7, 2010			-0.018	-0.019	-0.026	0.026	223.452	0.037
DRTK7	1901806.067	5809449.412	673.217	April 14, 2010	GPS derived		-0.019	0.005	-0.019	0.020	104.744	0.027
DRTK7	1901806.032	5809449.412	673.238	May 11, 2010			0.000	-0.035	0.021	0.035	180.000	0.041
DRTK7	1901806.053	5809449.414	673.207	May 27, 2010			0.002	0.021	-0.031	0.021	185.440	0.037
DRTK7	1901806.042	5809449.408	673.147	June 18, 2010			-0.006	-0.011	-0.060	0.013	208.610	0.061
						Total Movement	-0.108	-0.090	-0.069	0.141	230.194	0.157
DRTK8	1901827.779	5809714.645	744.252	may, 2009	GPS Derived	hub with tack	0.000	0.000	0.000	0.000	0.000	0.000
DRTK8	1901827.713	5809714.592	744.184	feb, 2010			-0.053	-0.066	-0.068	0.085	218.766	0.109
DRTK8	1901827.646	5809714.563	744.242	April 8, 2010			-0.029	-0.067	0.058	0.073	203.405	0.093
DRTK8	1901827.678	5809714.523	744.124	April 14, 2010	GPS derived		-0.040	0.032	-0.118	0.051	128.660	0.129
DRTK8	1901827.623	5809714.510	744.193	May 11, 2010			-0.013	-0.055	0.069	0.057	193.299	0.089
DRTK8	1901827.665	5809714.476	744.233	May 27, 2010			-0.034	0.042	0.040	0.054	141.009	0.067
DRTK8	1901827.627	5809714.480	744.121	June 18, 2010			0.004	-0.038	-0.112	0.038	173.991	0.118
						Total Movement	-0.165	-0.152	-0.131	0.224	227.348	0.260
DRTK9	1902059.036	5809817.177	797.971	may, 2009	GPS Derived	hub with tack	0.000	0.000	0.000	0.000	0.000	0.000
DRTK9	1902058.985	5809817.118	797.950	feb, 2010			-0.059	-0.051	-0.021	0.078	229.160	0.081
DRTK9	1902058.928	5809817.072	797.945	April 8, 2010			-0.046	-0.057	-0.005	0.073	218.904	0.073
DRTK9	1902058.929	5809817.093	797.925	April 14, 2010	GPS derived		0.021	0.001	-0.020	0.021	267.274	0.029
DRTK9	1902058.926	5809817.066	797.878	May 11, 2010			-0.027	-0.003	-0.047	0.027	263.660	0.054
DRTK9	1902058.925	5809817.070	797.993	May 27, 2010			0.004	-0.001	0.115	0.004	104.036	0.115
DRTK9	1902058.881	5809817.042	797.980	June 18, 2010			-0.028	-0.044	-0.013	0.052	212.471	0.054
						Total Movement	-0.135	-0.155	0.009	0.206	221.055	0.206
DRTK10	1902262.676	5810070.660	907.629	may, 2009	GPS Derived	hub with tack	0.000	0.000	0.000	0.000	0.000	0.000
DRTK10	1902262.664	5810070.671	907.440	feb, 2010			0.011	-0.012	-0.189	0.016	137.490	0.190
DRTK10	1902262.642	5810070.651	907.430	April 7, 2010			-0.020	-0.022	-0.010	0.030	222.274	0.031
DRTK10	1902262.616	5810070.652	907.426	April 14, 2010	GPS derived		0.001	-0.026	-0.004	0.026	177.797	0.026
DRTK10	1902262.616	5810070.628	907.397	May 11, 2010			-0.024	0.000	-0.029	0.024	0.000	0.038
DRTK10	1902262.610	5810070.640	907.415	May 27, 2010			0.012	-0.006	0.018	0.013	116.565	0.022
DRTK10	1902262.604	5810070.624	907.418	June 18, 2010			-0.016	-0.006	0.003	0.017	249.444	0.017
						Total Movement	-0.036	-0.072	-0.211	0.080	206.565	0.226
DRTK11	1902289.074	5809752.970	853.323	may, 2009	GPS Derived	hub with tack	0.000	0.000	0.000	0.000	0.000	0.000
DRTK11	1902288.973	5809752.877	853.340	feb, 2010			-0.093	-0.101	0.017	0.137	222.639	0.138
DRTK11	1902288.947	5809752.858	853.309	April 8, 2010			-0.019	-0.026	-0.031	0.032	216.158	0.045
DRTK11	1902288.946	5809752.858	853.320	April 14, 2010	GPS derived		0.000	-0.001	0.011	0.001	180.000	0.011
DRTK11	1902288.965	5809752.837	853.305	May 11, 2010			-0.021	0.019	-0.015	0.028	132.138	0.032
DRTK11	1902288.956	5809752.855	853.274	May 27, 2010			0.018	-0.009	-0.031	0.020	116.565	0.037
DRTK11	1902288.938	5809752.844	853.294	June 18, 2010			-0.011	-0.018	0.020	0.021	211.430	0.029
						Total Movement	-0.126	-0.136	-0.029	0.185	222.814	0.188
DRTK12	1902092.487	5809607.039	766.128	may, 2009	GPS Derived	hub with tack	0.000	0.000	0.000	0.000	0.000	0.000
DRTK12	1902092.407	5809607.038	766.051	feb, 2010			-0.001	-0.080	-0.077	0.080	180.716	0.111
DRTK12	1902092.346	5809607.005	765.994	April 8, 2010			-0.033	-0.061	-0.057	0.069	208.413	0.090
DRTK12	1902092.375	5809607.010	766.014	April 14, 2010	GPS derived		0.005	0.029	0.020	0.029	189.782	0.036
DRTK12	1902092.331	5809606.907	N/A	May 11, 2010			-0.103	-0.044	0.020	0.112	246.869	0.114
DRTK12	1902092.353	5809607.005	765.953	May 27, 2010			0.098	0.022	-0.061	0.100	257.347	0.118
DRTK12	1902092.348	5809606.981	765.991	June 18, 2010			-0.024	-0.005	0.038	0.025	258.232	0.045
						Total Movement	-0.058	-0.139	-0.137	0.151	202.649	0.204
DRTK13	1901936.668	5809441.349	685.212	may, 2009	GPS Derived	hub with tack	0.000	0.000	0.000	0.000	0.000	0.000
DRTK13	1901936.608	5809441.303	685.156	feb, 2010			-0.046	-0.060	-0.056	0.076	217.476	0.094
DRTK13	1901936.542	5809441.247	685.135	April 7, 2010			-0.056	-0.066	-0.021	0.087	220.314	0.089
DRTK13	1901936.536	5809441.272	685.134	May 11, 2010			0.025	-0.006	-0.001	0.026	103.496	0.026
DRTK13	1901936.533	5809441.265	685.161	May 27, 2010			-0.007	-0.003	0.027	0.008	246.801	0.028
DRTK13	1901936.545	5809441.248	685.125	June 18, 2010			-0.017	0.012	-0.036	0.021	125.218	0.042
						Total Movement	-0.101	-0.123	-0.087	0.159	219.391	0.181
DRTK14	1901766.339	5809317.943	650.037	may, 2009	GPS Derived	hub with tack	0.000	0.000	0.000	0.000	0.000	0.000

DRTK14	1901766.226	5809317.911	650.045	feb, 2010			-0.032	-0.113	0.008	0.117	195.811	**0.118**
DRTK14	1901766.189	5809317.873	650.018	April 8, 2010			-0.038	-0.037	-0.027	0.053	225.764	**0.060**
DRTK14	1901766.208	5809317.873	650.048	April 14, 2010	GPS derived		0.000	0.019	0.030	0.019	180.000	**0.036**
DRTK14	1901766.193	5809317.848	650.008	May 11, 2010			-0.025	-0.015	-0.040	0.029	239.036	**0.049**
DRTK14	1901766.175	5809317.869	650.032	May 27, 2010			0.021	-0.018	0.024	0.028	130.601	**0.037**
DRTK14	1901766.183	5809317.832	649.989	June 18, 2010			-0.037	0.008	-0.043	0.038	102.200	**0.057**
						Total Movement	-0.111	-0.156	-0.048	0.191	215.433	**0.197**
DRTK15	1901607.039	5809127.801	592.007	April 14, 2010	GPS Derived		0.000	0.000	0.000	0.000	0.000	**0.000**
DRTK15	obliterated											

Bore Hole locations

Name	Northing ft	Easting ft	Elevation ft	Date	Desc.
bh1	1900617.413	5809235.639	513.103	April 14, 2010	Bore Hole
bh2	1900676.118	5809095.067	514.283	April 14, 2010	Bore Hole
R10001F	1900586.910	5808643.063	408.525	April 14, 2010	Bore Hole
R10001I	1900584.323	5808636.878	408.562	April 14, 2010	sloe indicator
R10002	1900593.898	5808720.356	411.484	April 14, 2010	Bore Hole
R10003	1900547.265	5808788.235	415.877	April 14, 2010	Bore Hole
R10003I	1900546.747	5808797.620	416.342	April 14, 2010	sloe indicator
R10004	1900548.895	5808876.515	419.930	April 14, 2010	Bore Hole
R10005	1900521.024	5808936.185	424.381	April 14, 2010	Bore Hole
R10005I	1900519.833	5808948.692	425.082	April 14, 2010	sloe indicator
R10006	1900522.294	5809412.086	450.720	April 14, 2010	Bore Hole
R10007	1900493.903	5809363.379	448.206	April 14, 2010	Bore Hole
R10007I	1900493.302	5809334.746	446.701	April 14, 2010	sloe indicator
R10008	1900521.376	5809496.919	454.741	April 14, 2010	Bore Hole
R10009I	1900544.510	5809532.476	457.436	April 14, 2010	sloe indicator
R10010	1900535.577	5809660.985	463.975	April 29, 2010	Bore Hole
R10014	1900512.015	5808678.047	382.637	April 30, 2010	Bore Hole
R10015I	1900442.211	5809106.188	400.250	May 1, 2010	sloe indicator
R10015TC	1900446.189	5809097.321	401.519	May 2, 2010	Bore Hole
PM2200	1900456.018	5813113.201	1129.500	control	
PM2390	1900910.160	5803462.938	258.877	control	



Landslide Features.dgn 6/1/2010 2:02:18 PM

Landslide and Geology Legend

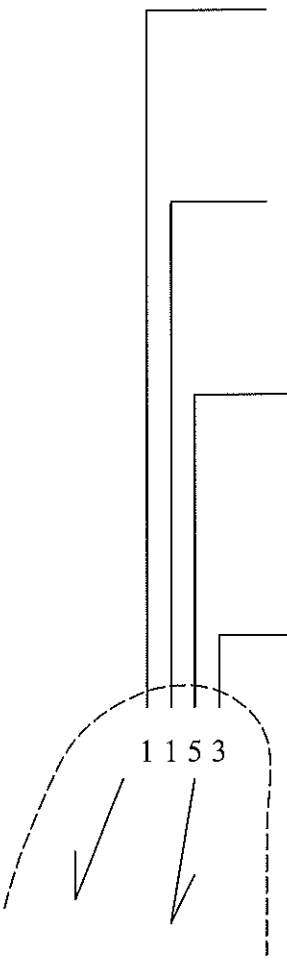
Qaf Artificial FILL- mostly native Franciscan Complex soils and rock, road base, and cold-mix asphalt

Qls 1153 Quaternary landslide deposits – weathered debris containing Franciscan Complex rocks varying between gravel and boulder size in a silty, clayey sand matrix with thickness up to 40 feet

Drainage culvert

1153 Landslide Identification Number (see landslide chart)

LANDSLIDE IDENTIFICATION CHART



State of Activity:
1 = Active or Recently Active
2 = Dormant
3 = Quaternary

Certainty of Identification:
1 = Definite
2 = Probable
3 = Questionable

Dominant Type of Movement:
1 = Slump-Flow Complex
2 = Debris Slide
3 = Debris Flow
4 = Slump (Rotational)
5 = Translational

Thickness of Deposit:
1 = Less than 5 feet
2 = 5 to 15 feet
3 = Greater than 15 feet

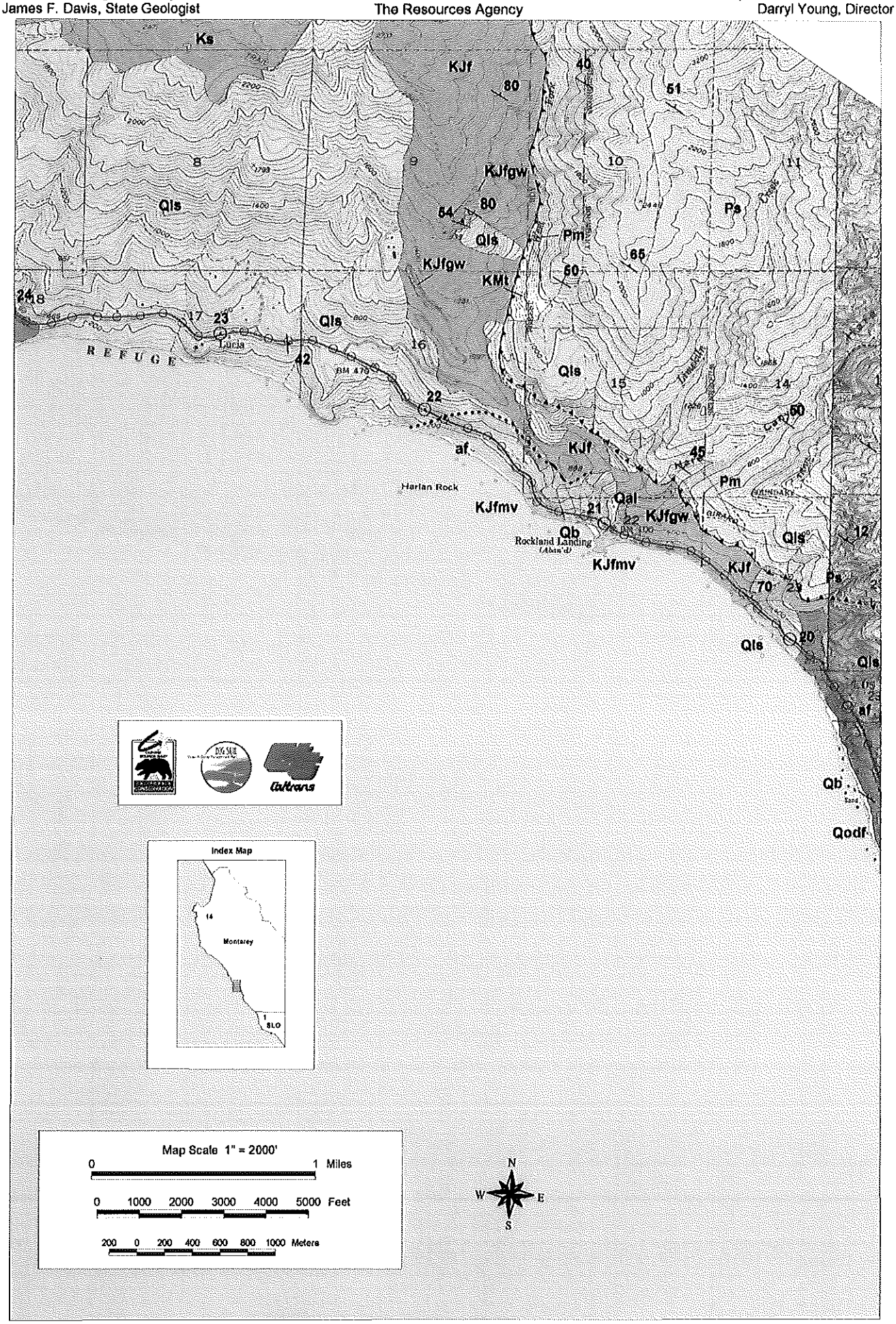


Plate 1
Map 5 of 14

Geology and Slope Stability Along the Big Sur Coast

Highway Corridor Geologic Map

USGS Quads: Cape San Martin, Cone Peak & Lopez Point

February 1, 2003

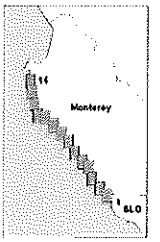
PLATE 1
EXPLANATION
Geologic Units

		af	Artificial Fill
		Qal	Alluvium
		Qb	Beach deposit
	Holocene	Qc	Colluvium
		Qdf	Youngest (active) debris fans
		Qd	Dune deposits
Quaternary		Qls	Landslide deposits
		Qydf	Young debris fans
		Qodf	Older Debris fan
		Qoa	Older Alluvium
	Pleistocene	Qod	Older dune deposits
		Qom	Marine terrace deposit, undifferentiated
		Qom2	Youngest marine terrace deposits
		Qom1	Oldest marine terrace deposit
		Qfb	Fault breccia
		Qvoa	Very old alluvium
		Tmpe	Pismo Fm. Edna member
		Tmpm	Pismo Fm. Miguelito member
		Tmr	Rincon Fm.
	Miocene	Tm	Monterey Fm.
		Tss, Tus	Miocene marine sandstone of Clark and others
Tertiary		Tv, Tvb	Miocene volcanic rocks of Clark and others
		Tmv	Vaqueros Fm.
	Paleocene	Tc	Carmelo Fm.
		Ks, Ku	Cretaceous sandstone & shale
		Kush	Cretaceous shale
		Kuss	Cretaceous sandstone
		Kucg	Cretaceous conglomerate
		Kpgd	Porphyritic granodiorite
	Cretaceous	KMgdo	Granodiorite of Cachagua
		KMdsp	Hornblende-biotite quartz diorite
		KMct	Charnockitic Tonalite
		KMt	Charnocktitic tonalite equivalent?
Mesozoic		KJf	Franciscan complex (undifferentiated)
		KJfgw	Franciscan graywacke
		KJfmv	Fransiscan meta-volcanic
	Jurassic-Cretaceous	KJfc	Franciscan chert
		KJfgs	Franciscan greenschist
		KJfmg	Franciscan altered gabbro
		KJfsh	Franciscan shale
		KJfcg	Franciscan conglomerate
		KJfsc	Franciscan silica carbonate rocks
		KJfbs	Franciscan Blueschist
		s	Serpentinite
Paleozoic?		Ps	Sur complex undifferentiated
		Pm	Sur complex marble
		Ps-q	Sur complex quartz dike

Geology of the Highway 1 corridor between Point Lobos and San Carpoforo Creek, Monterey and San Luis Obispo Counities, California

prepared for the
COAST HIGHWAY MANAGEMENT PLAN

by
C.J. Wills, M.W. Manson, K.D. Brown, C.W. Davenport, and C.J. Domrose
California Department of Conservation
California Geological Survey

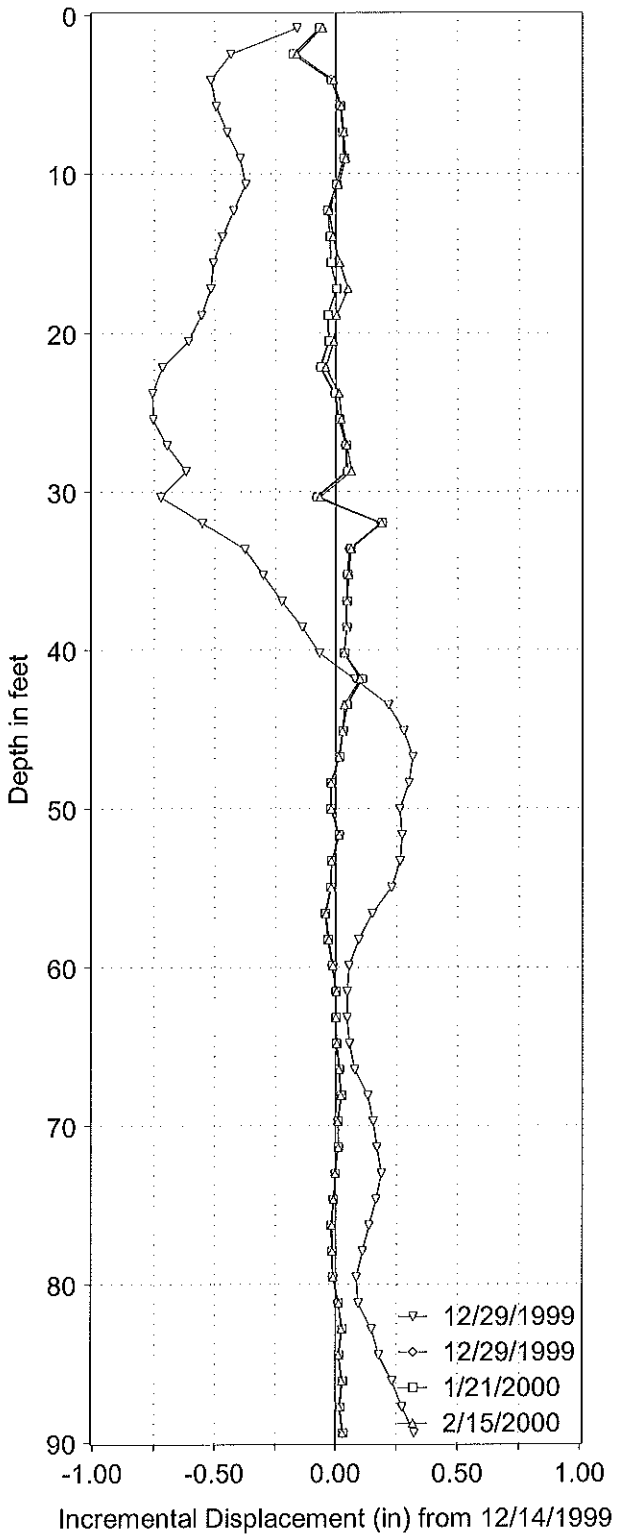


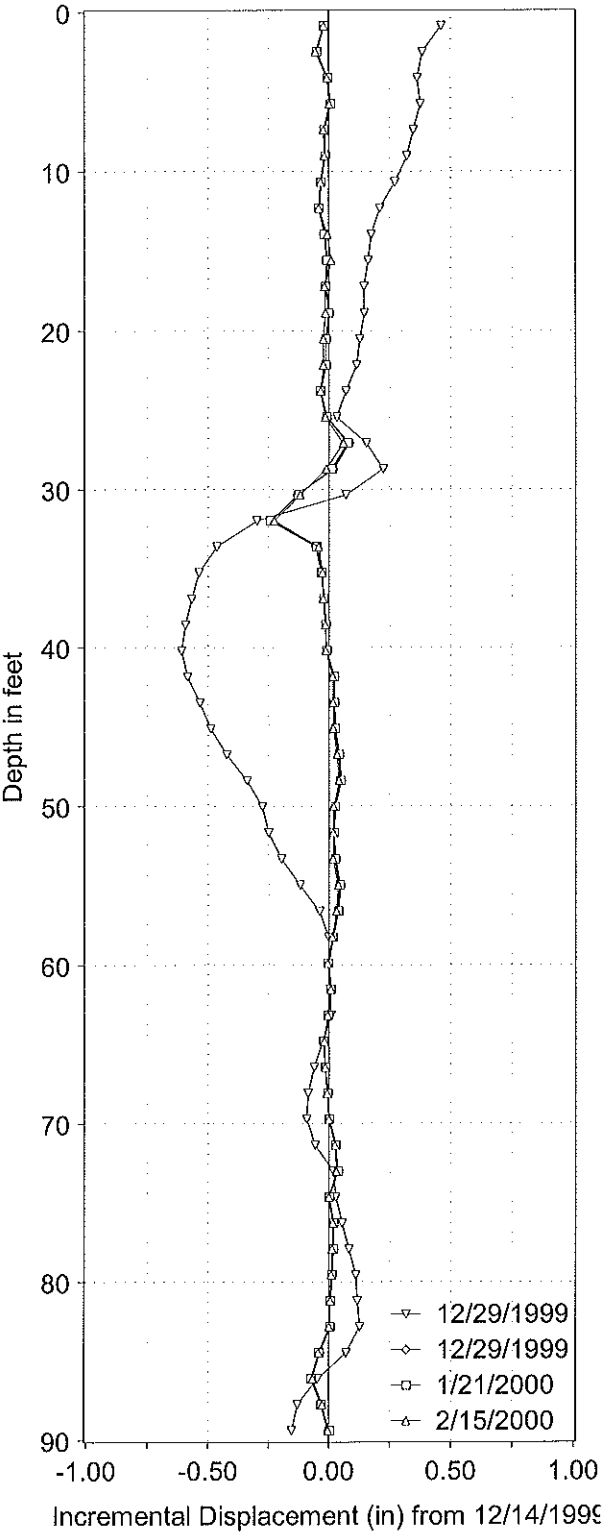
Location Information

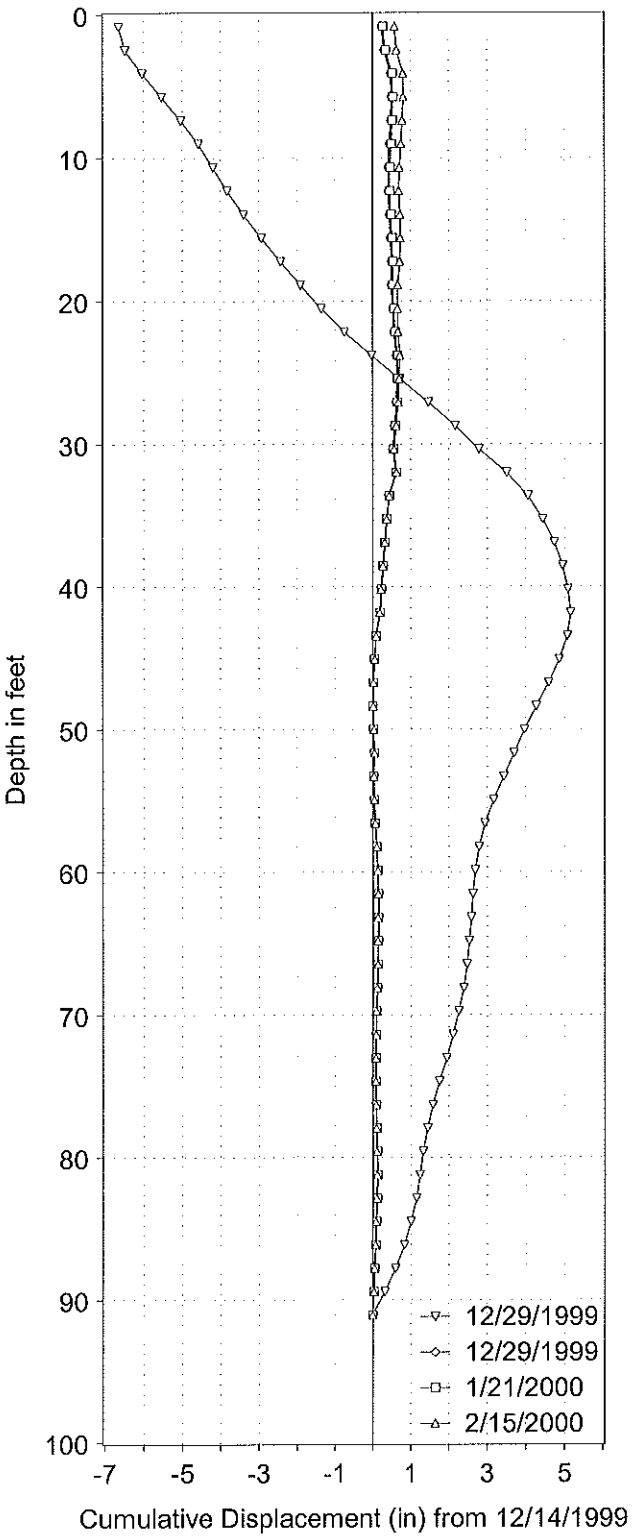
The geologic map is divided into 14 map pages as shown at left, arranged from south to north. Postmiles are shown along Highway One as at right; each mile is labeled and tenths shown by unlabeled circles.

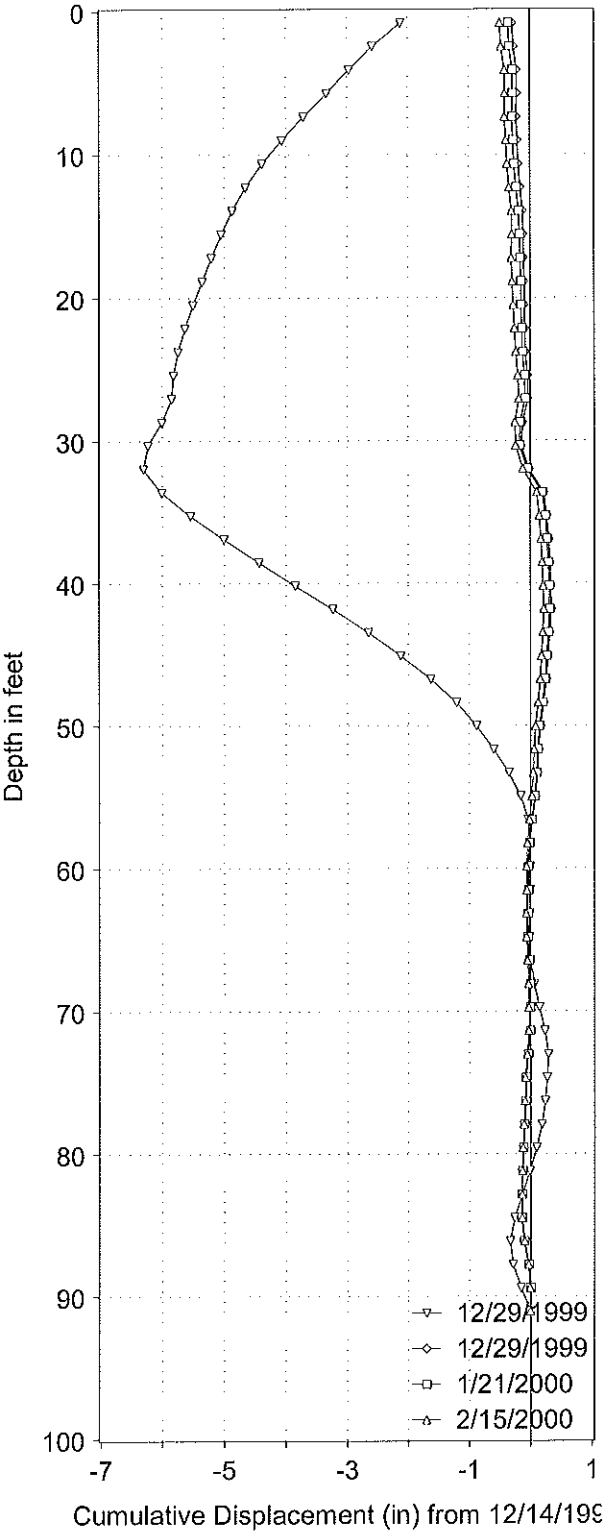
Geologic structure symbols

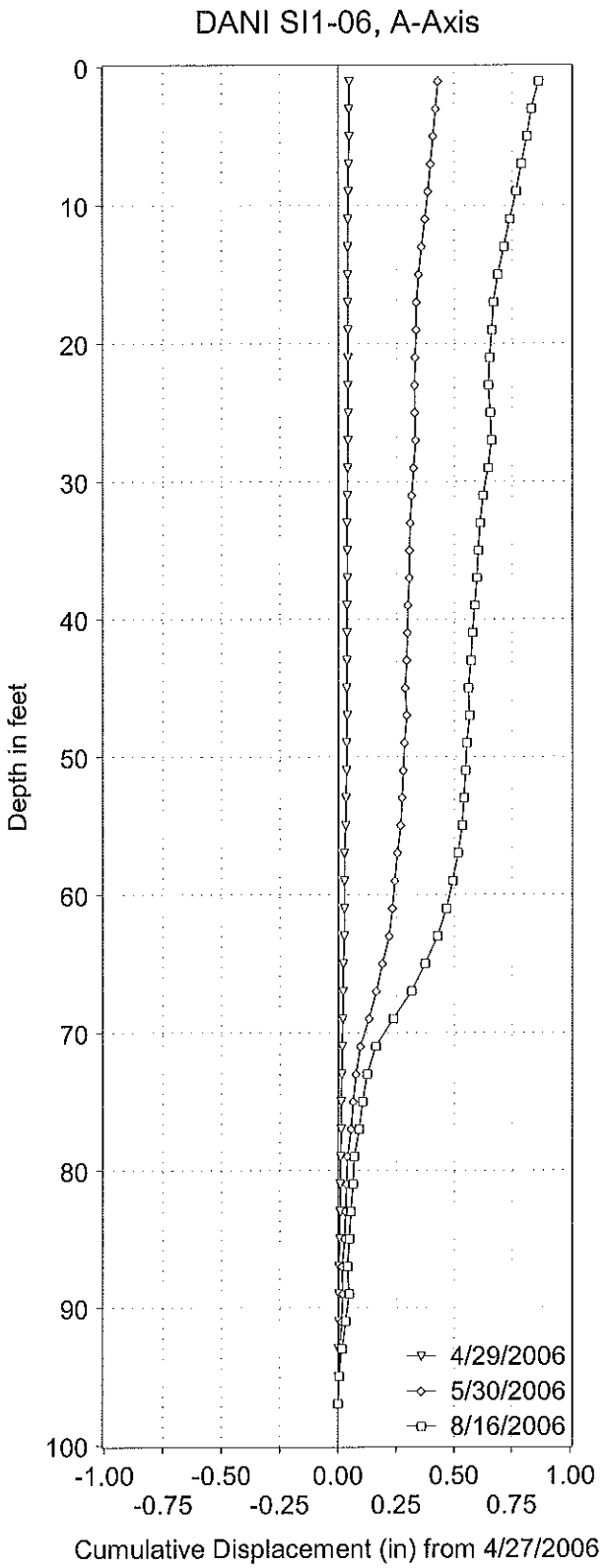
- Fault, well located
- Fault, approximately located
- Fault, concealed
- Fault, uncertain
- Fault, offshore
- Anticline, approximately located
- Anticline, concealed
- Overturned anticline, approximately located
- Syncline, approximately located
- Syncline, concealed
- Overturned syncline, approximately located
- Thrust fault, well located
- Thrust fault, approximately located
- Thrust fault, concealed
- Fault, Inclined
- Fault, Vertical
- Inclined Beds
- Inclined Beds, Approximately Located
- Vertical Beds
- Overturned Beds
- Irregular Bedding
- Inclined Foliation/Beds
- Inclined Foliation
- Vertical Foliation
- Deformed Foliation
- Inclined Joint

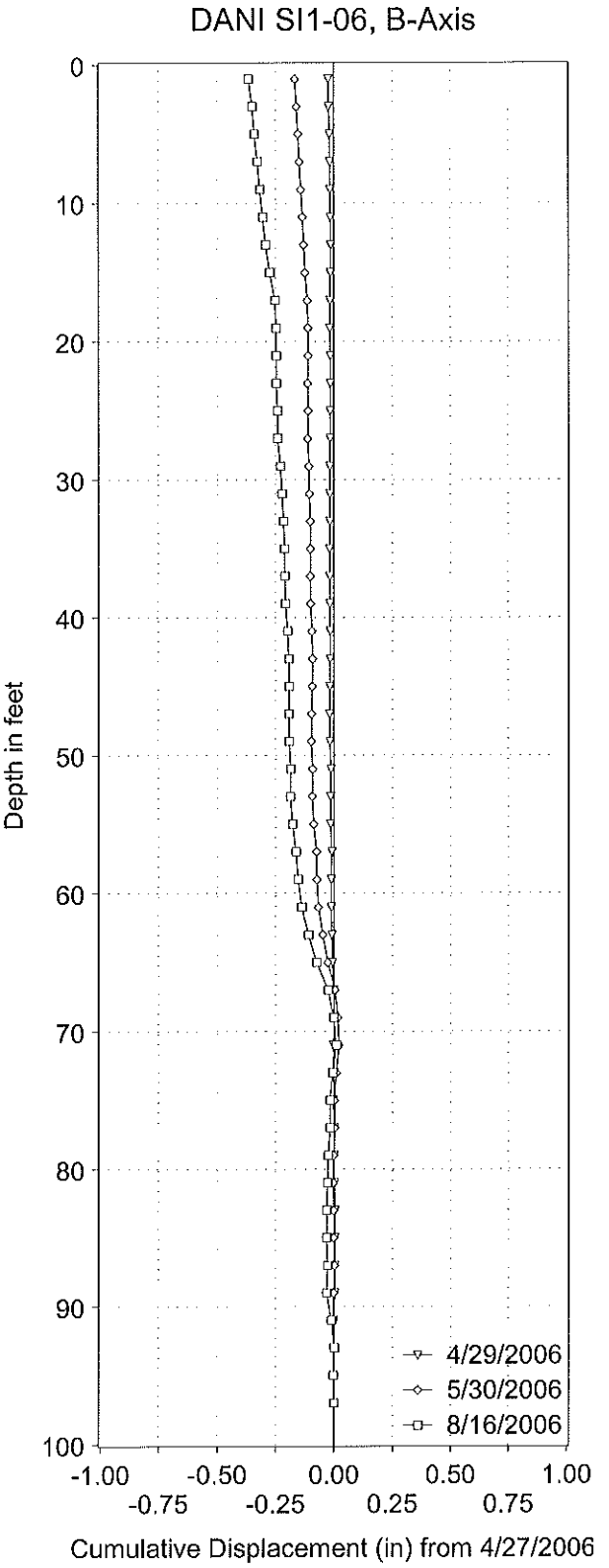

LUCIA SI1, A-Axis
Depth in feet
0
10
20
30
40
50
60
70
80
90
-1.00
-0.50
0.00
0.50
1.00
Incremental Displacement (in) from 12/14/1999
12/29/1999
12/29/1999
1/21/2000
2/15/2000


LUCIA SI1, B-Axis
Depth in feet
0
10
20
30
40
50
60
70
80
90
-1.00
-0.50
0.00
0.50
1.00
Incremental Displacement (in) from 12/14/199
12/29/1999
12/29/1999
1/21/2000
2/15/2000

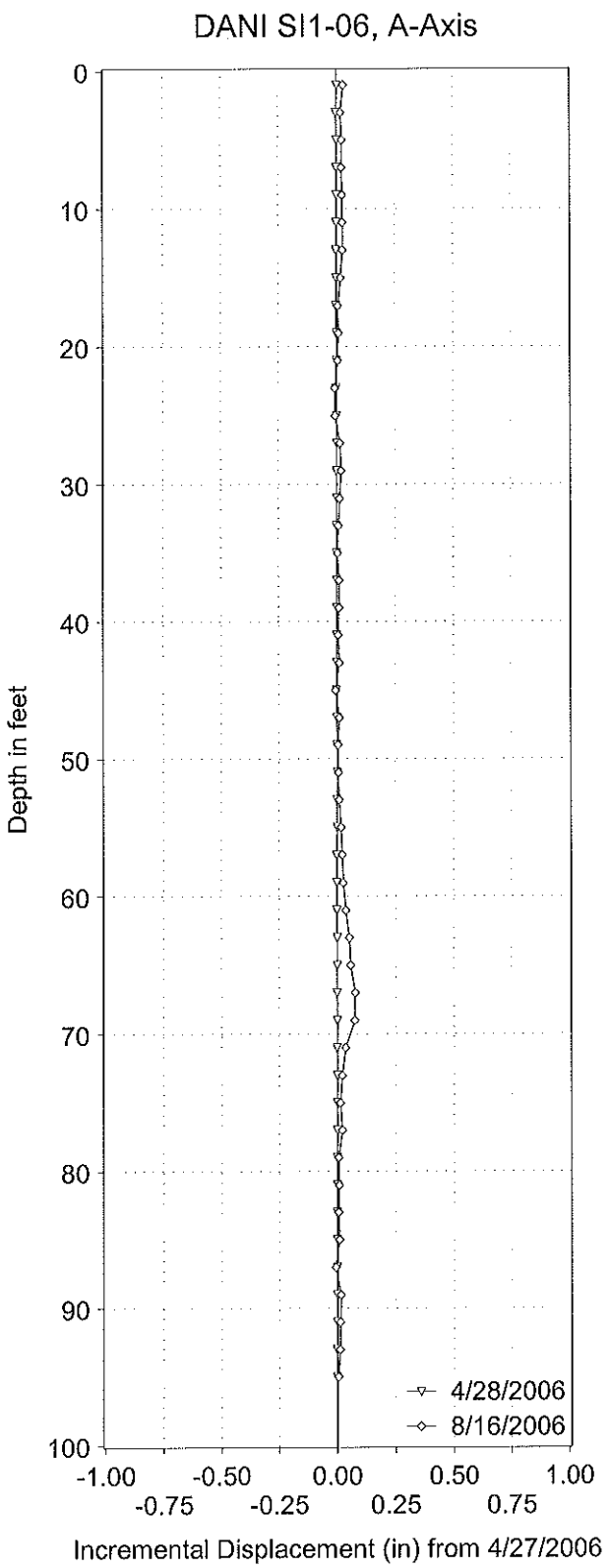

LUCIA SI1, A-Axis
Depth in feet
0
10
20
30
40
50
60
70
80
90
100
-7
-5
-3
-1
1
3
5
12/29/1999
12/29/1999
1/21/2000
2/15/2000
Cumulative Displacement (in) from 12/14/1999

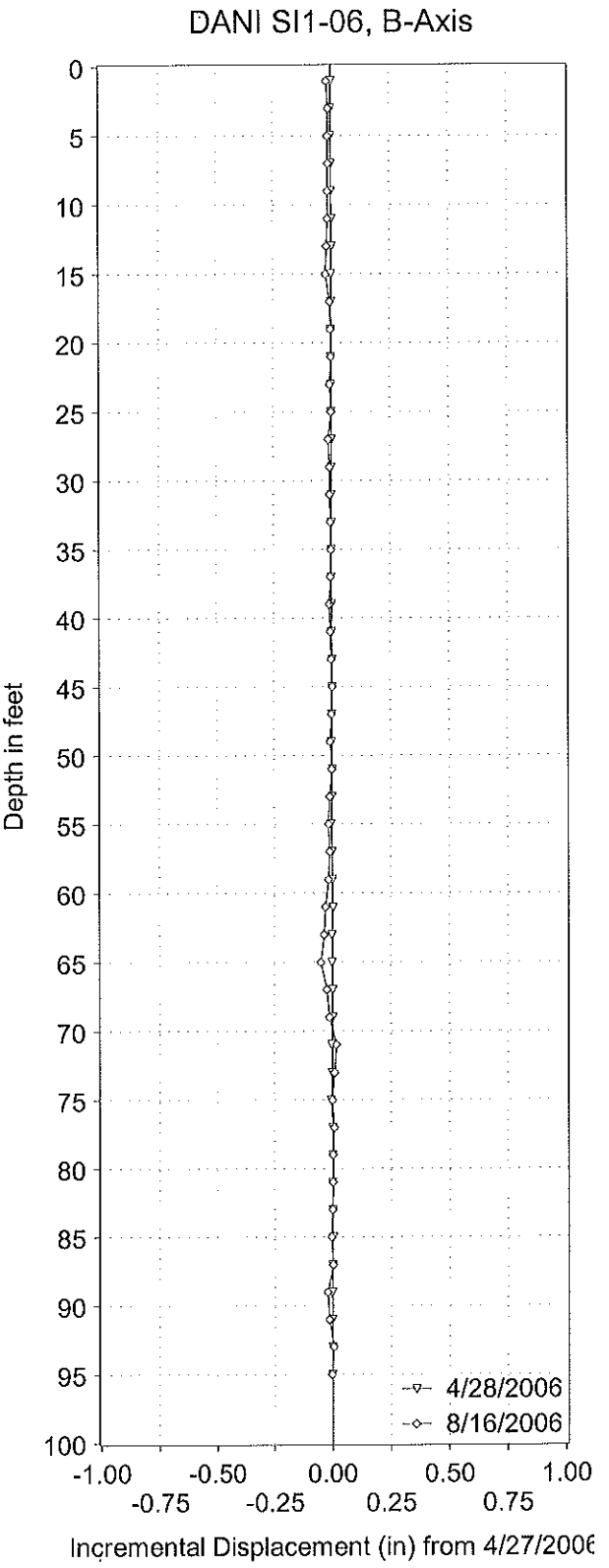

LUCIA SI1, B-Axis
Depth in feet
0
10
20
30
40
50
60
70
80
90
100
-7
-5
-3
-1
1
12/29/1999
12/29/1999
1/21/2000
2/15/2000
Cumulative Displacement (in) from 12/14/19



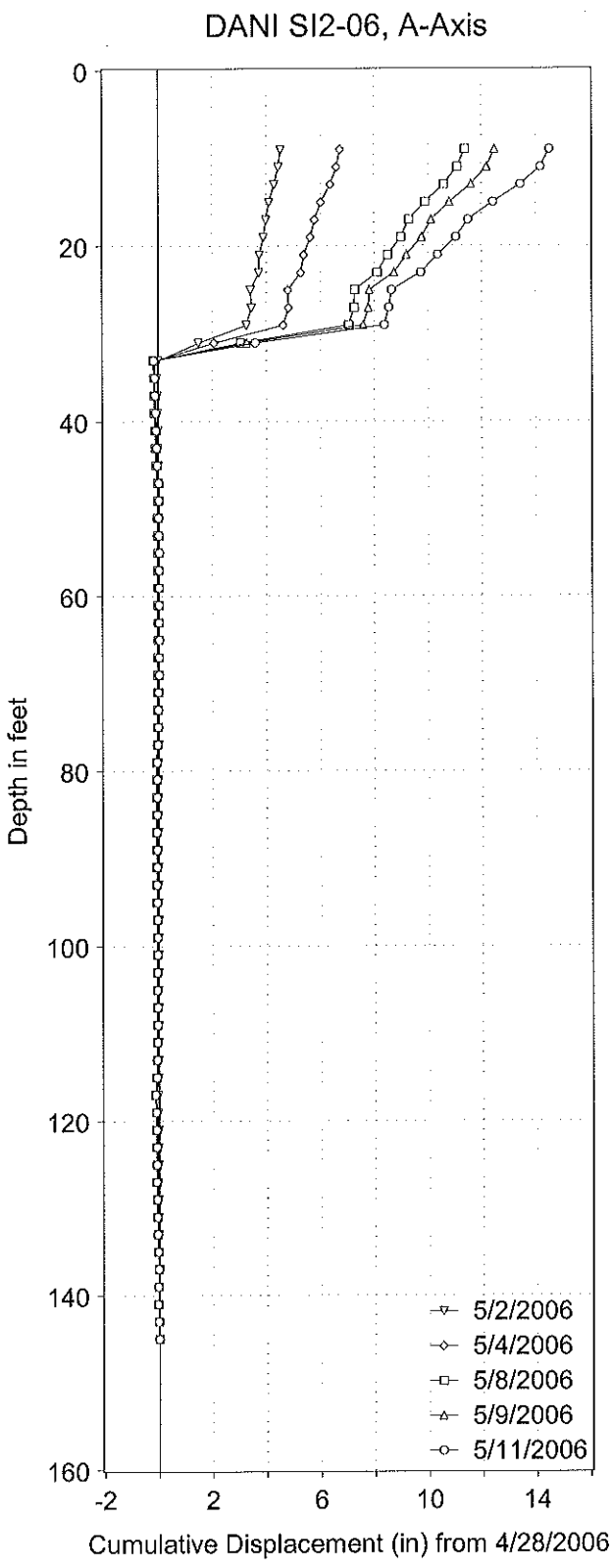


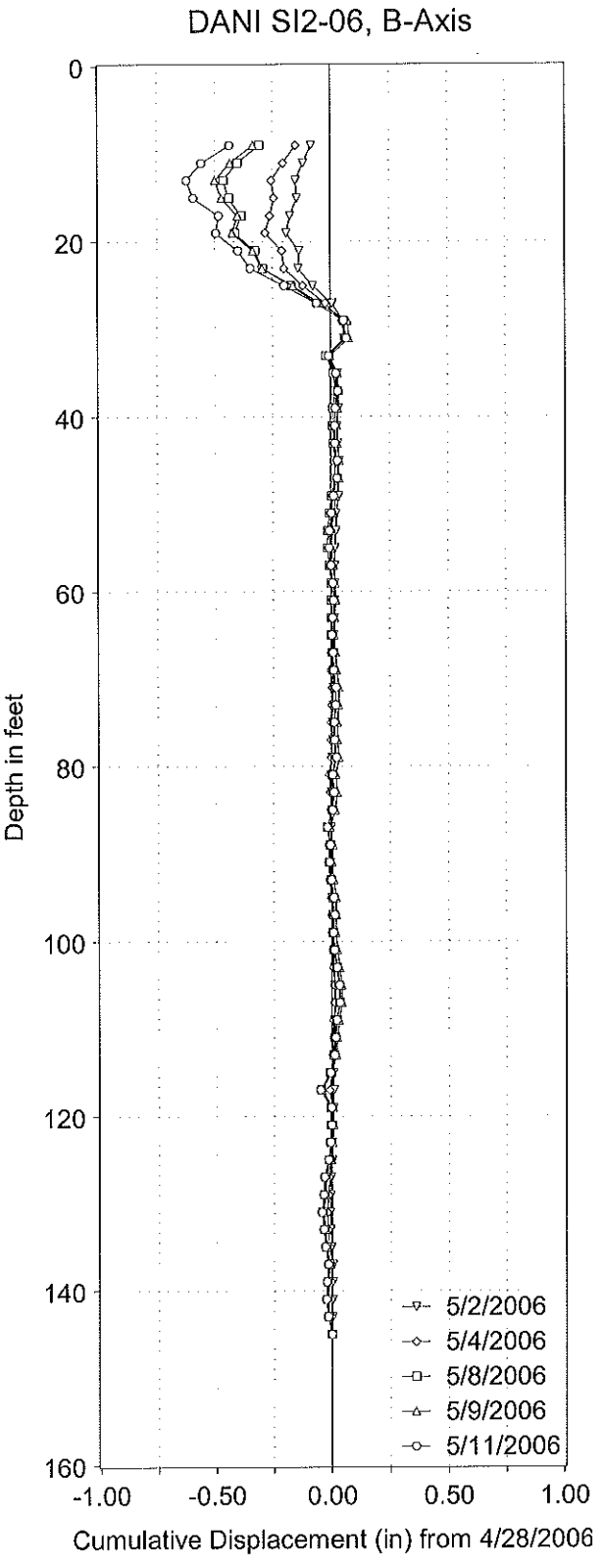
Dani Creek	bottom @ 96 feet, 98 feet @ cleat
SI1-06	top @ 2 feet
most northern SI	TDR 1.5/35 meters



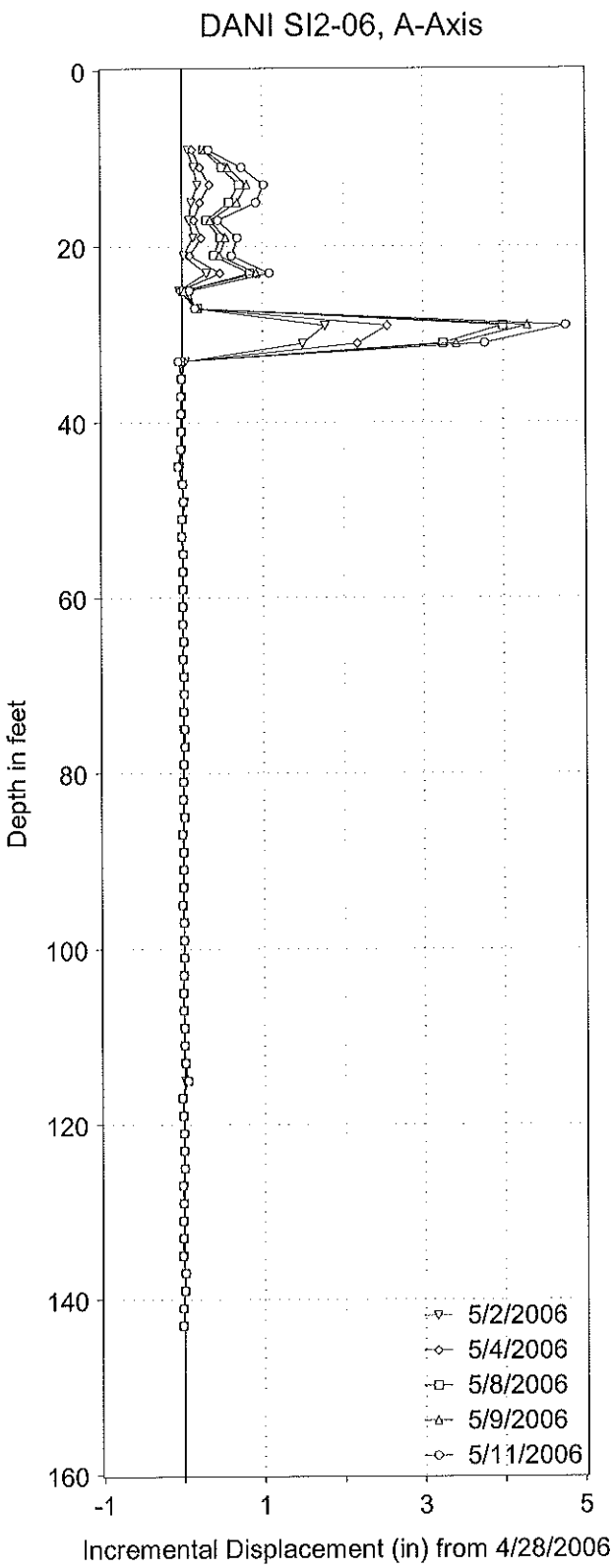


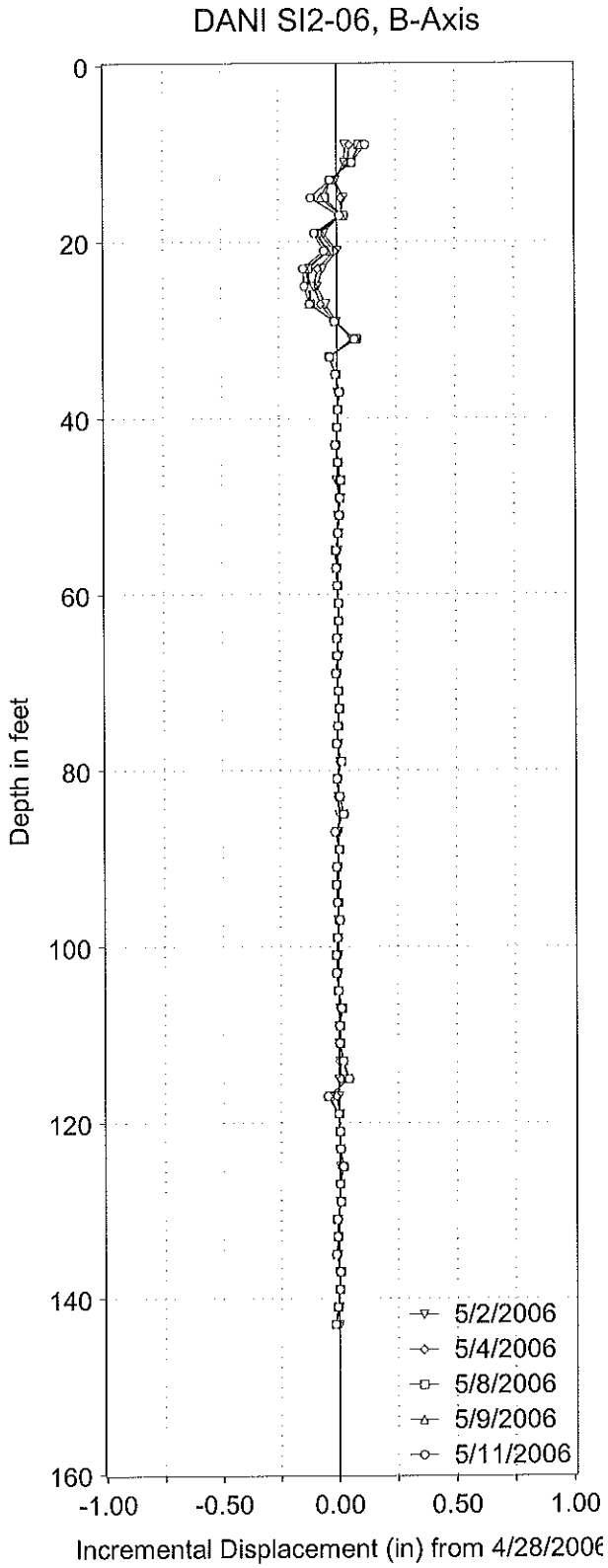
Dani Creek	bottom @ 96 feet, 98 feet @ cleat
SI1-06	top @ 2 feet
most northern SI	TDR 1.5/35 meters



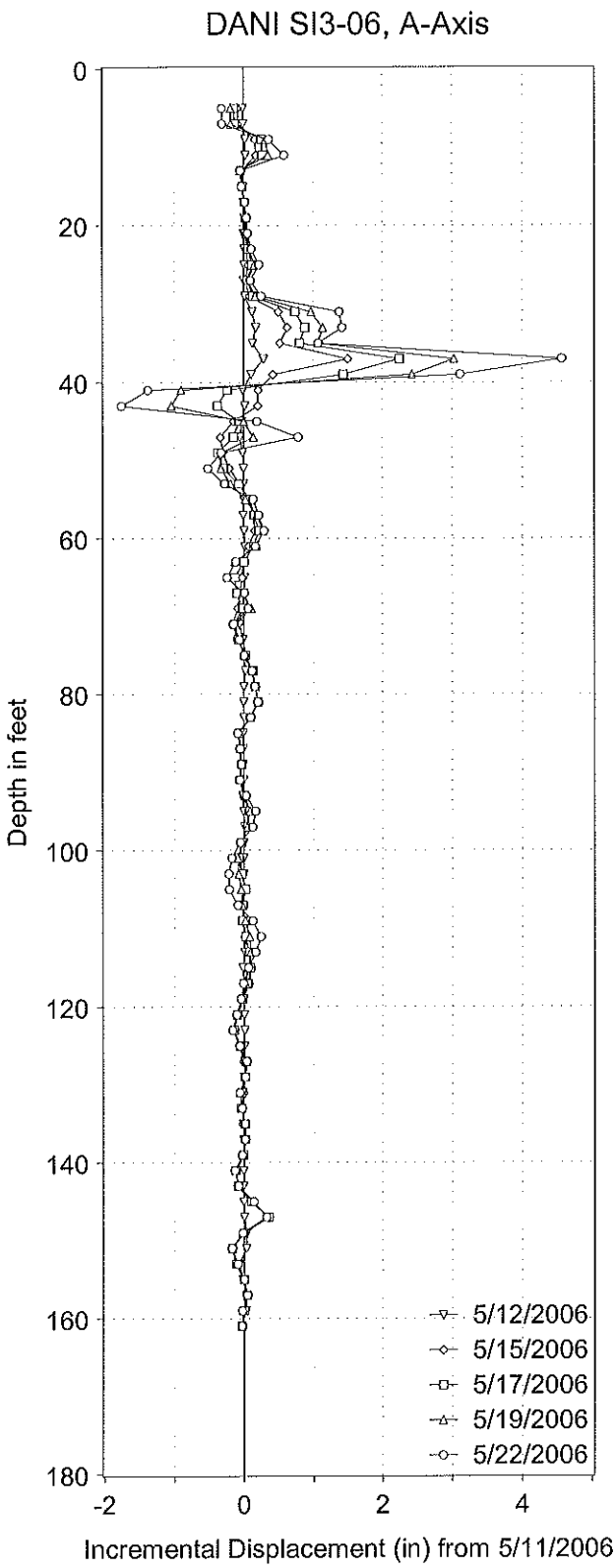


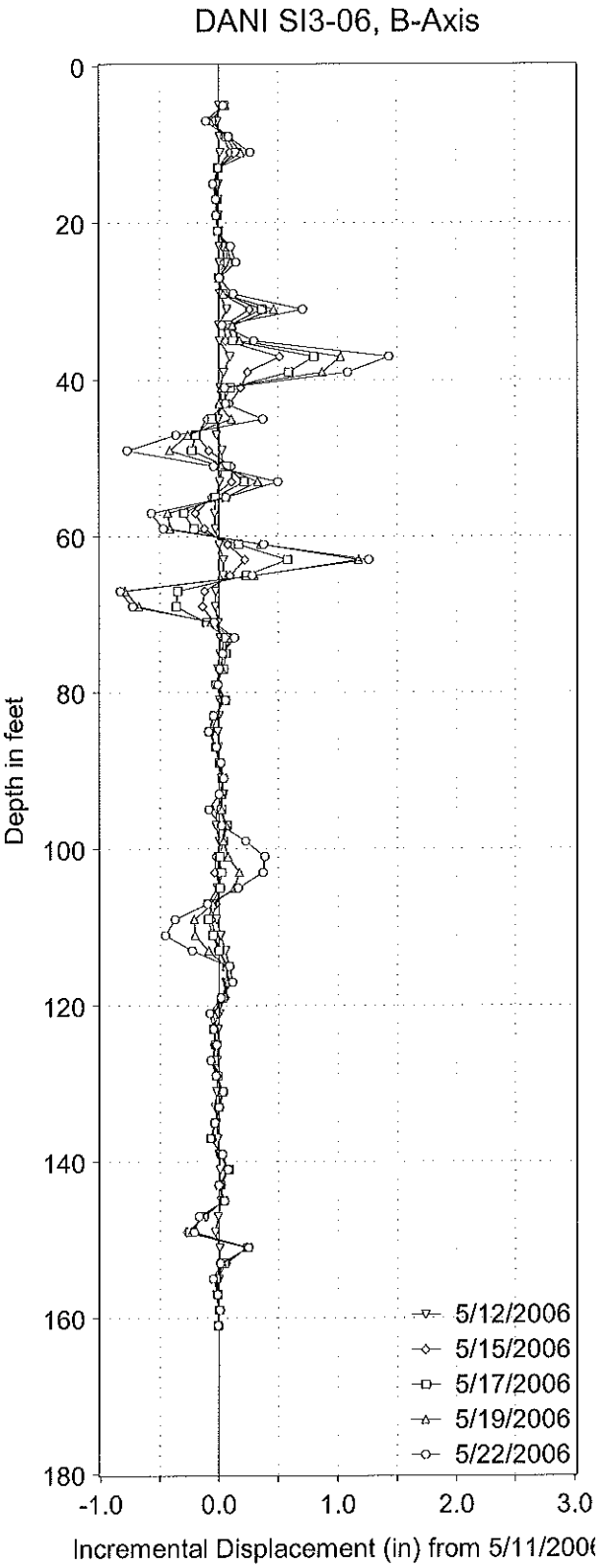
Dani Creek	bottom @ 144 feet, 146 at cleat
SI2-06	top @ 10 feet
second SI from north	TDR 1.5/50 meters



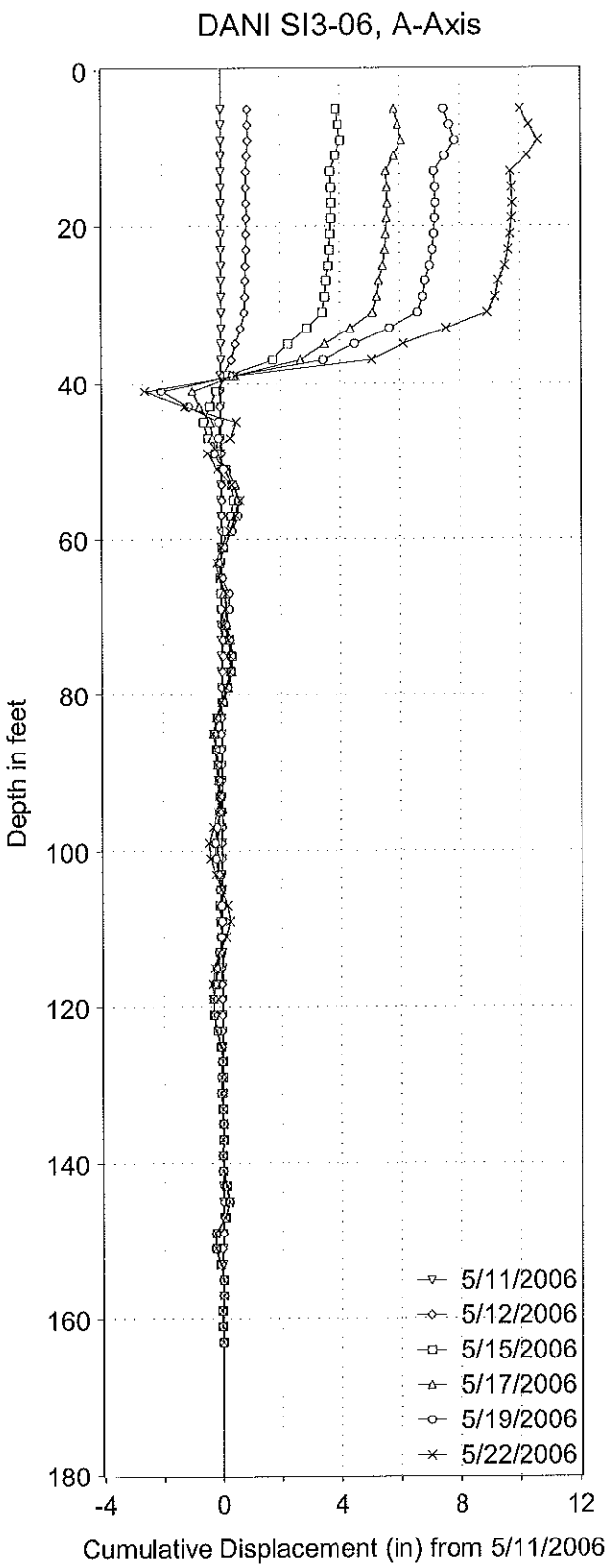


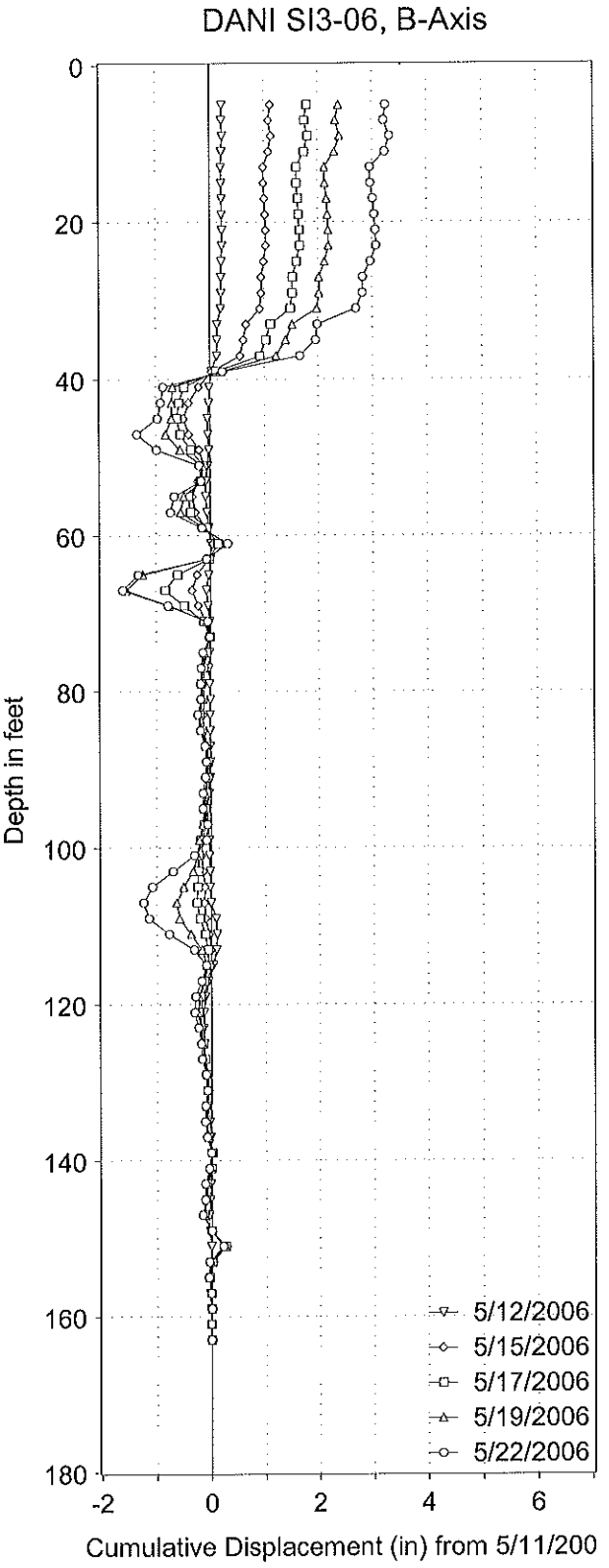
Dani Creek	bottom @ 144 feet, 146 feet 2 cleat
SI1-06	top @ 10 feet
second SI from north	TDR 1.5/50 meters
	NOTE SCALES



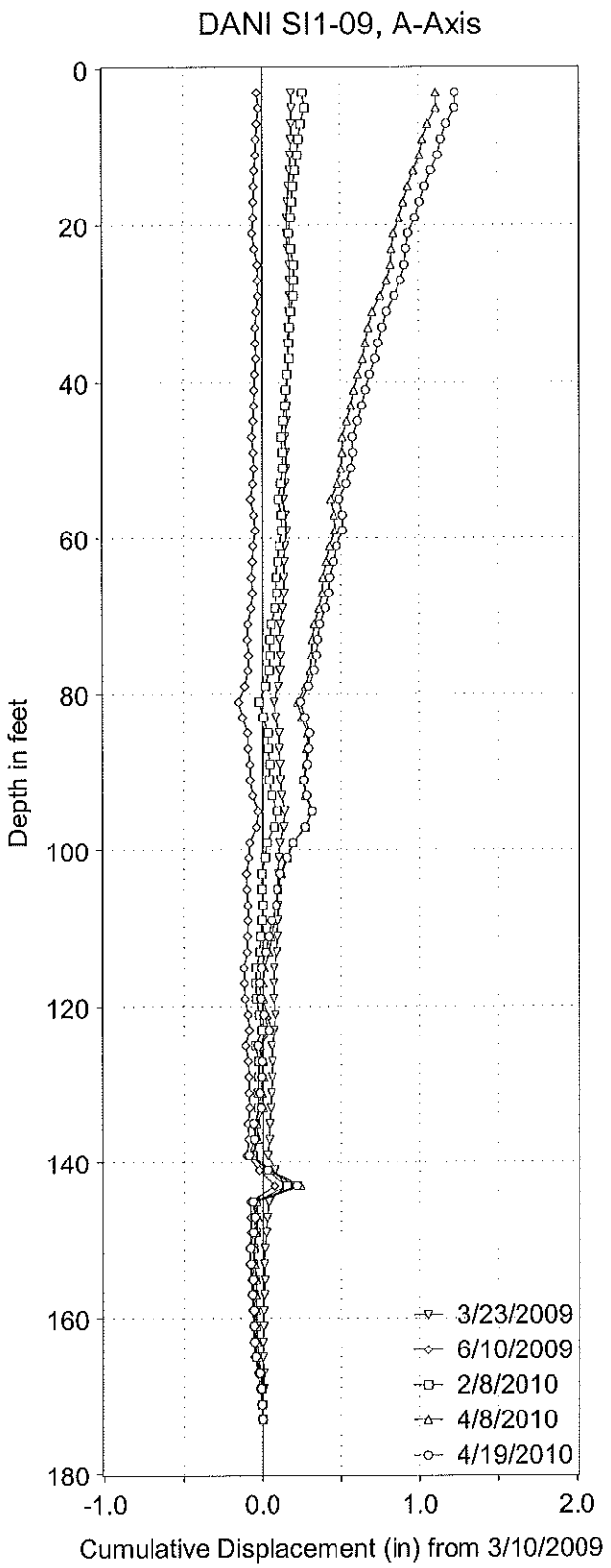


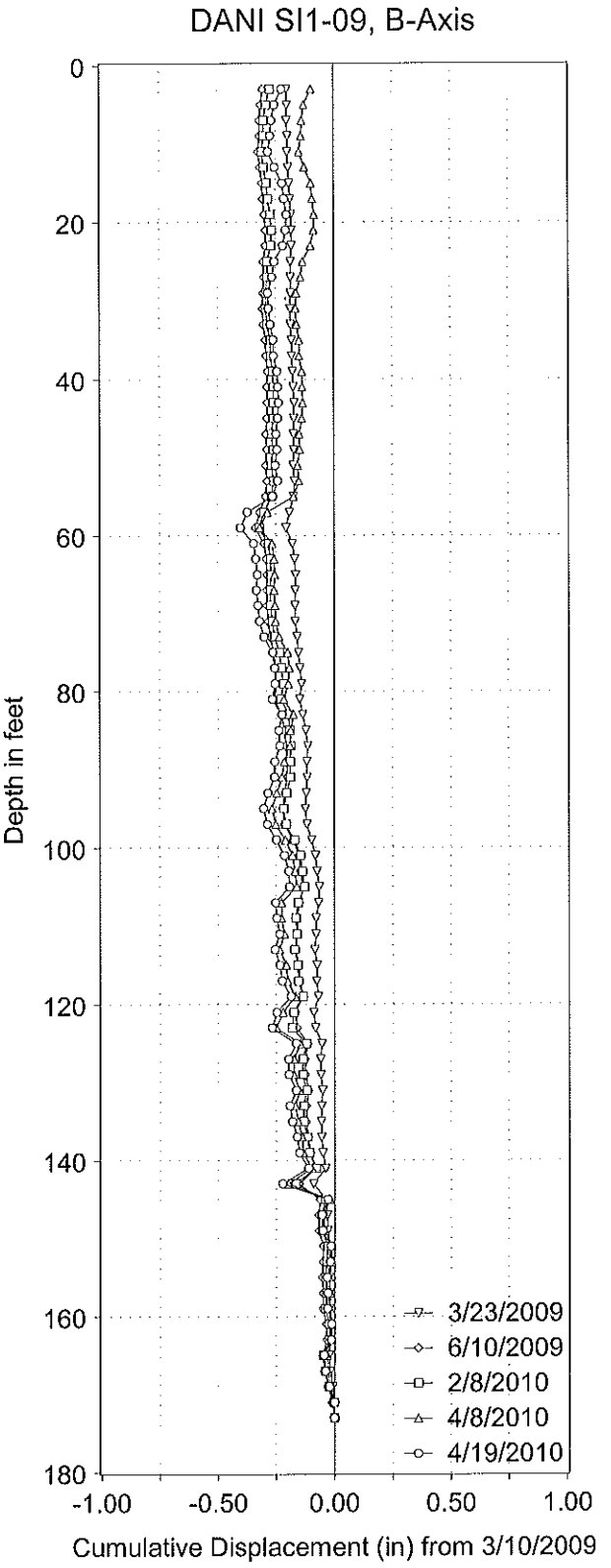
Dani Creek	bottom @ 162 feet, 164 feet @ cleat
SI3-06	top @ 6 feet
most southern SI	TDR 1.5/55 meters

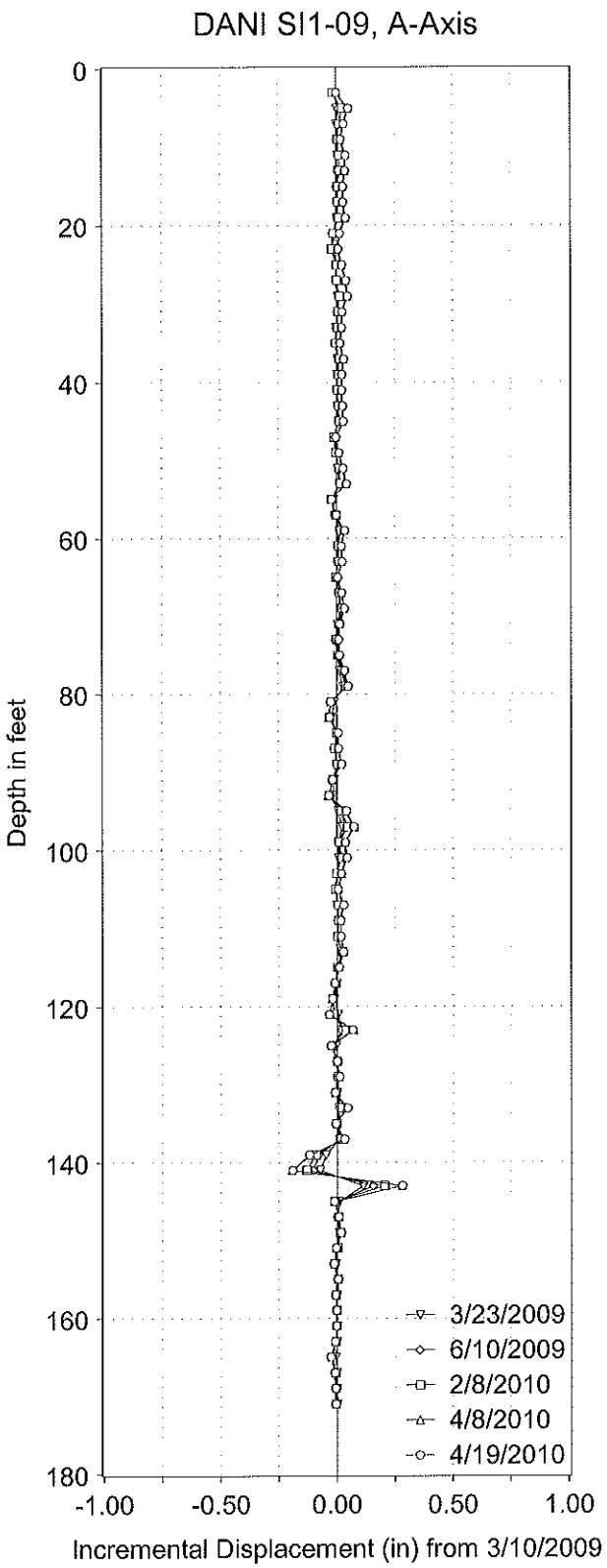


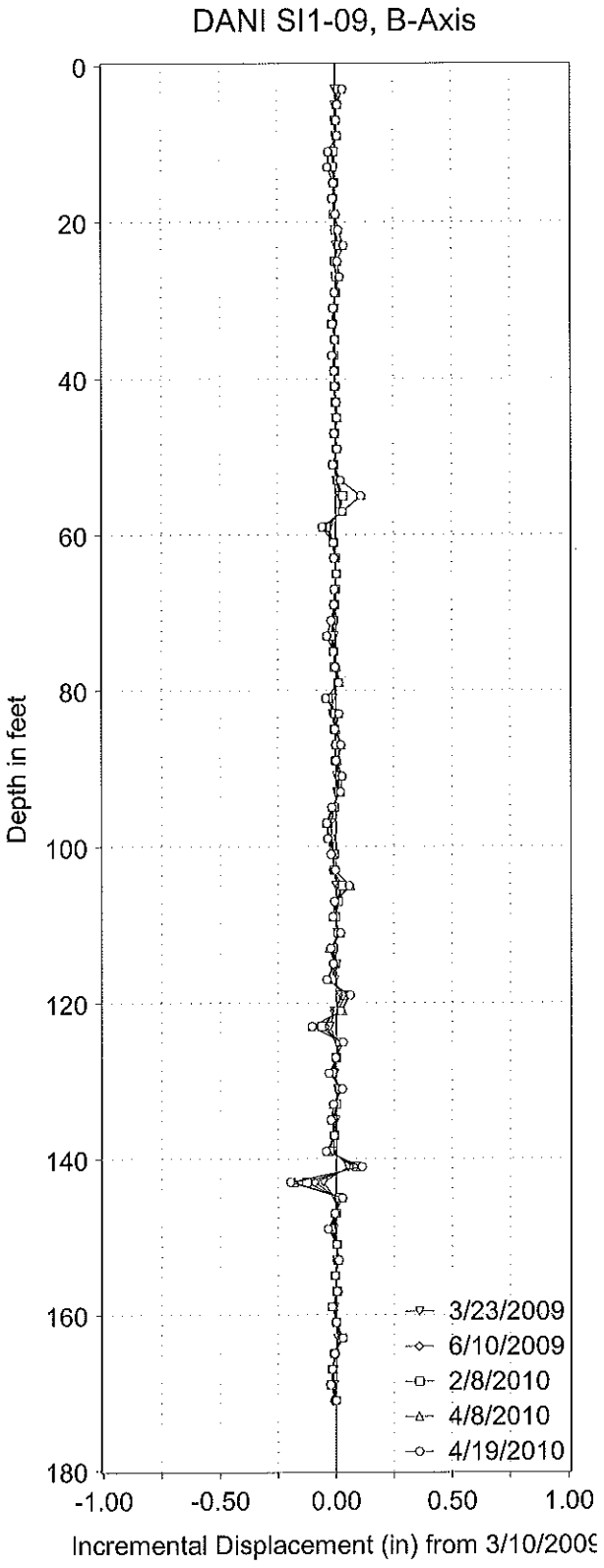


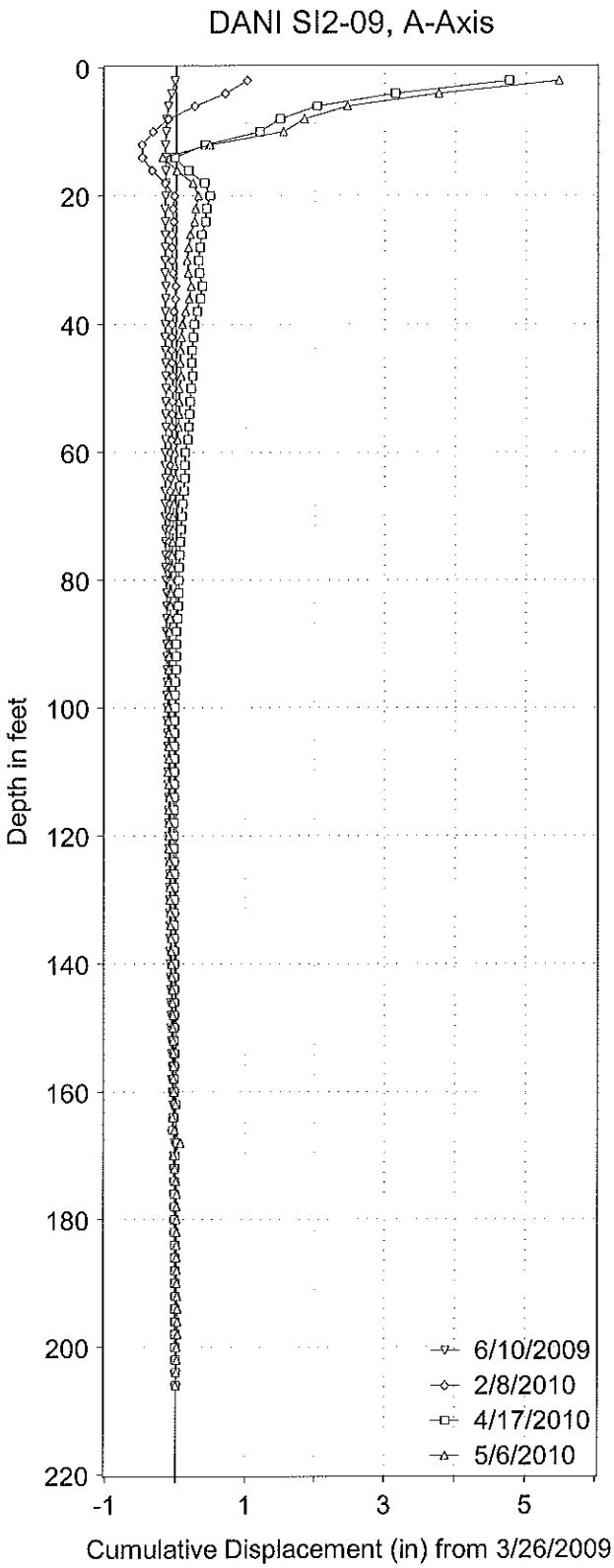
Dani Creek	bottom @ 162 feet, 164 @ cleat
SI3-06	top @ 6 feet
most southern SI	TDR 1.5/55 meters

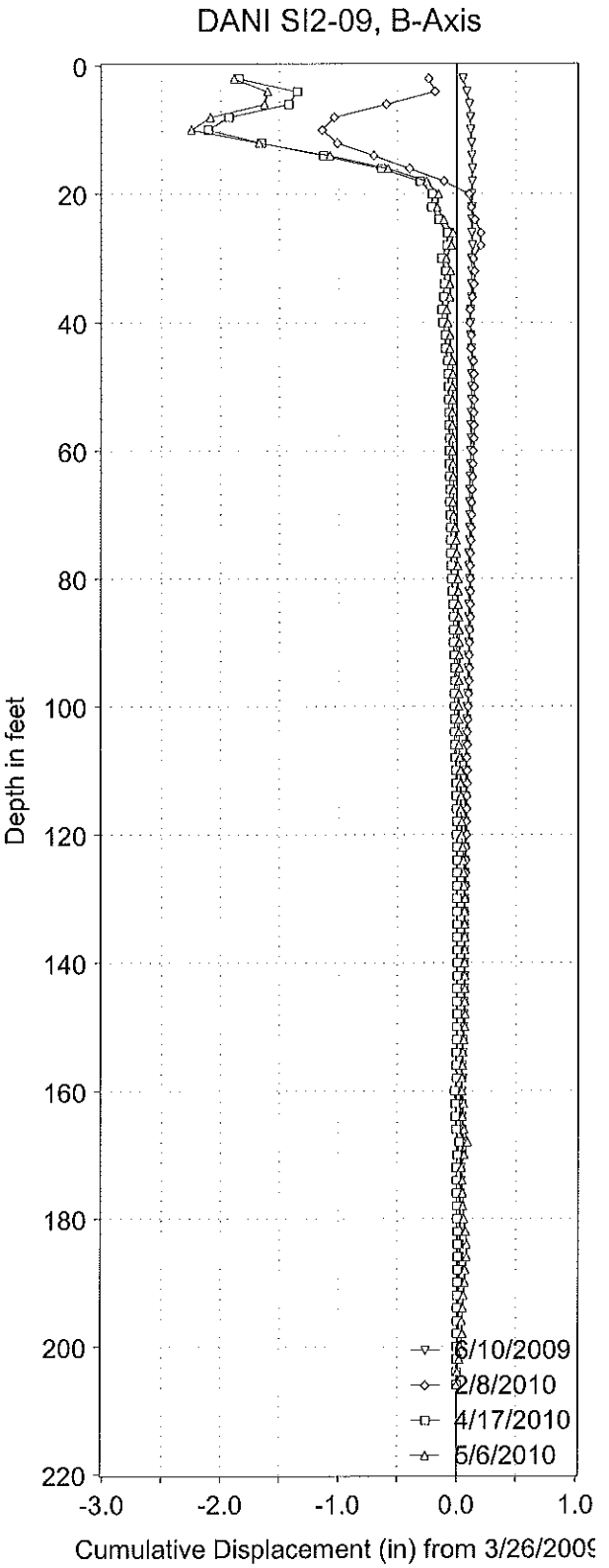

DANI SI1-09, A-Axis
Depth in feet
0
20
40
60
80
100
120
140
160
180
-1.0
0.0
1.0
2.0
Cumulative Displacement (in) from 3/10/2009
3/23/2009
6/10/2009
2/8/2010
4/8/2010
4/19/2010


DANI SI1-09, B-Axis
Depth in feet
0
20
40
60
80
100
120
140
160
180
-1.00
-0.50
0.00
0.50
1.00
Cumulative Displacement (in) from 3/10/2009
3/23/2009
6/10/2009
2/8/2010
4/8/2010
4/19/2010


DANI SI1-09, A-Axis
Depth in feet
0
20
40
60
80
100
120
140
160
180
-1.00
-0.50
0.00
0.50
1.00
Incremental Displacement (in) from 3/10/2009
3/23/2009
6/10/2009
2/8/2010
4/8/2010
4/19/2010

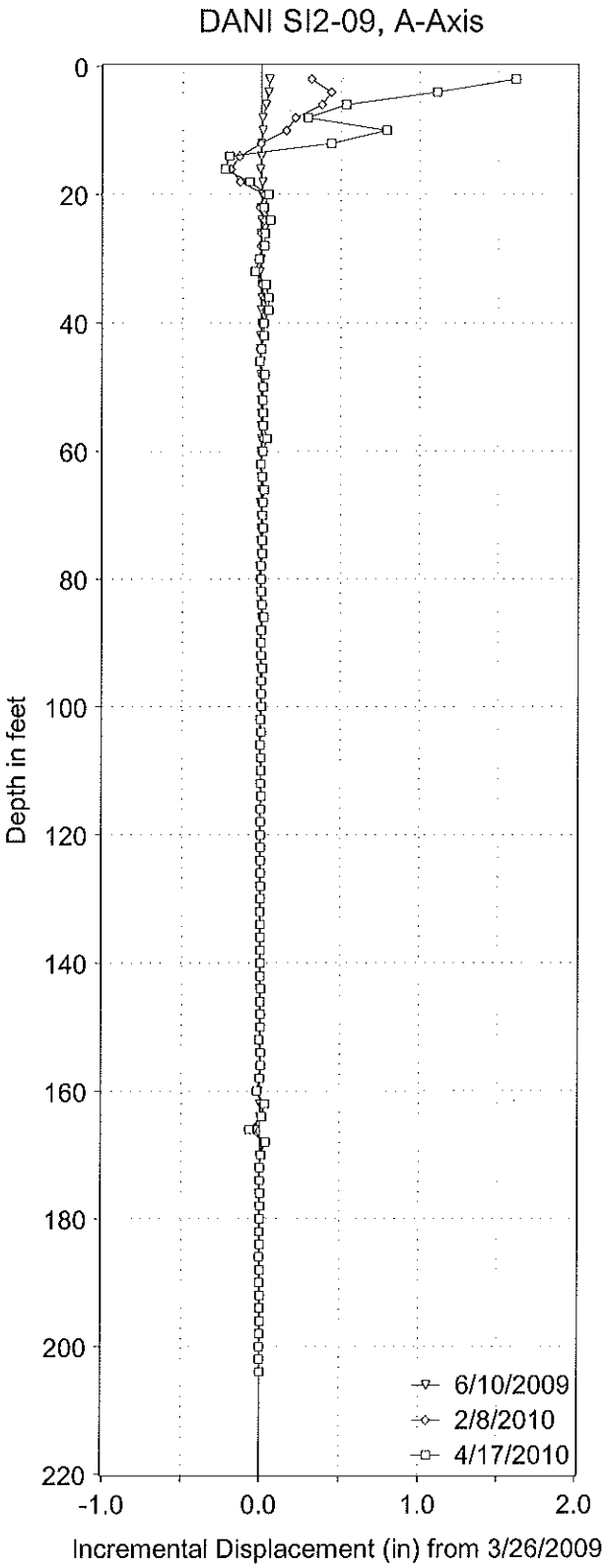

DANI SI1-09, B-Axis
Depth in feet
0
20
40
60
80
100
120
140
160
180
-1.00
-0.50
0.00
0.50
1.00
Incremental Displacement (in) from 3/10/2009
3/23/2009
6/10/2009
2/8/2010
4/8/2010
4/19/2010

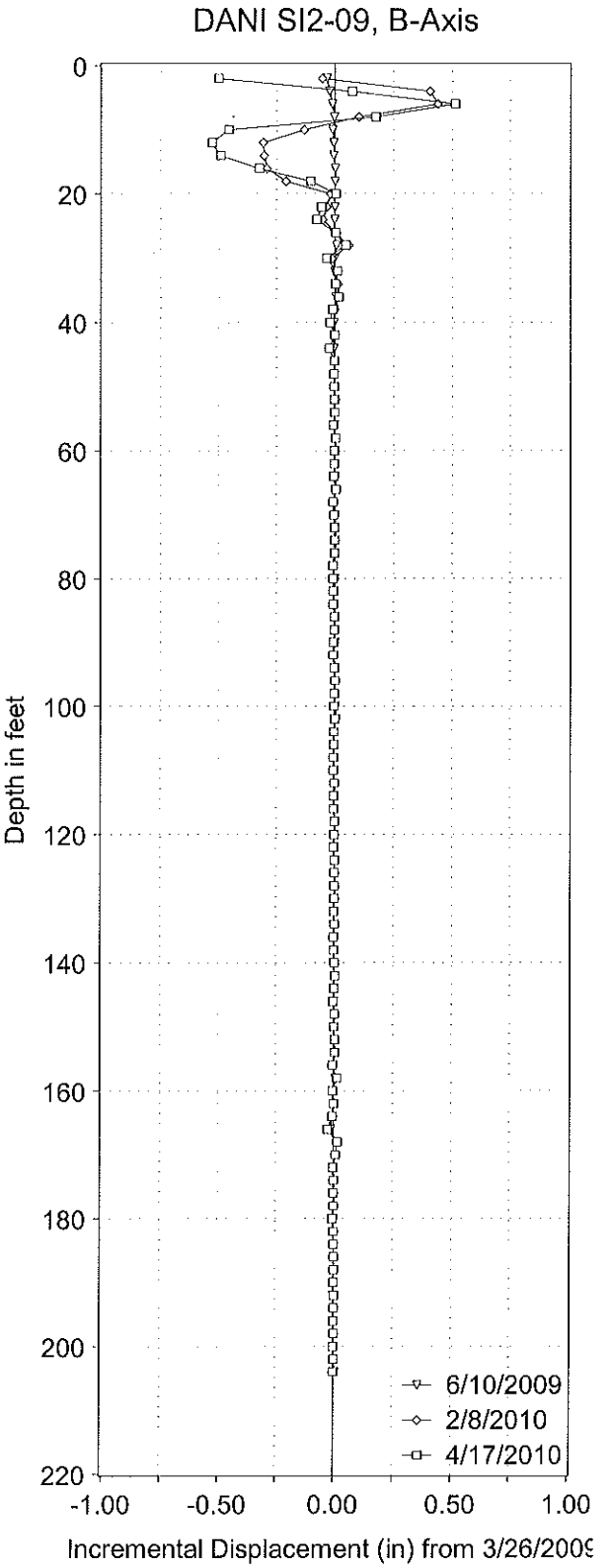




Dani Creek Landslide
05-MON-001-22.8
SI2-09, In NB lane near telephone pole
Under metal plate, may need assistance

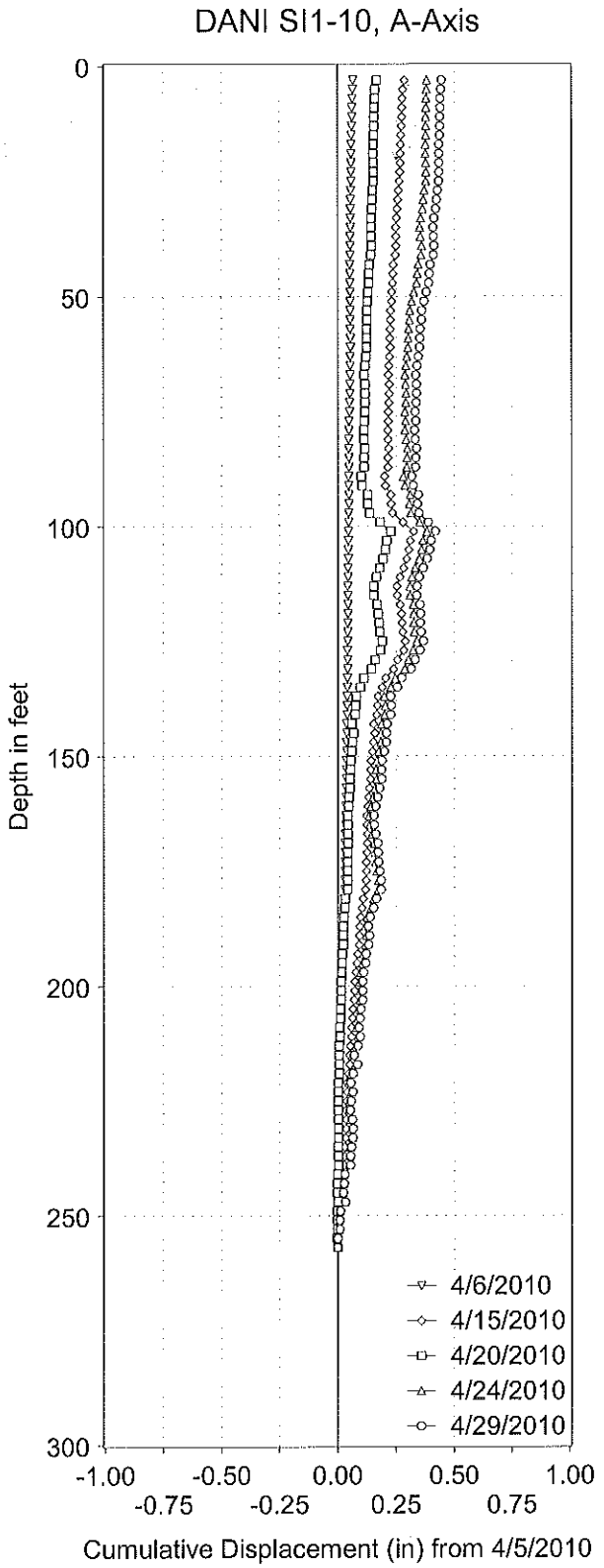
CUMULATIVE DISPLACEMENT
Re-Initialed w/ 3/26/09 instead of 3/10/09

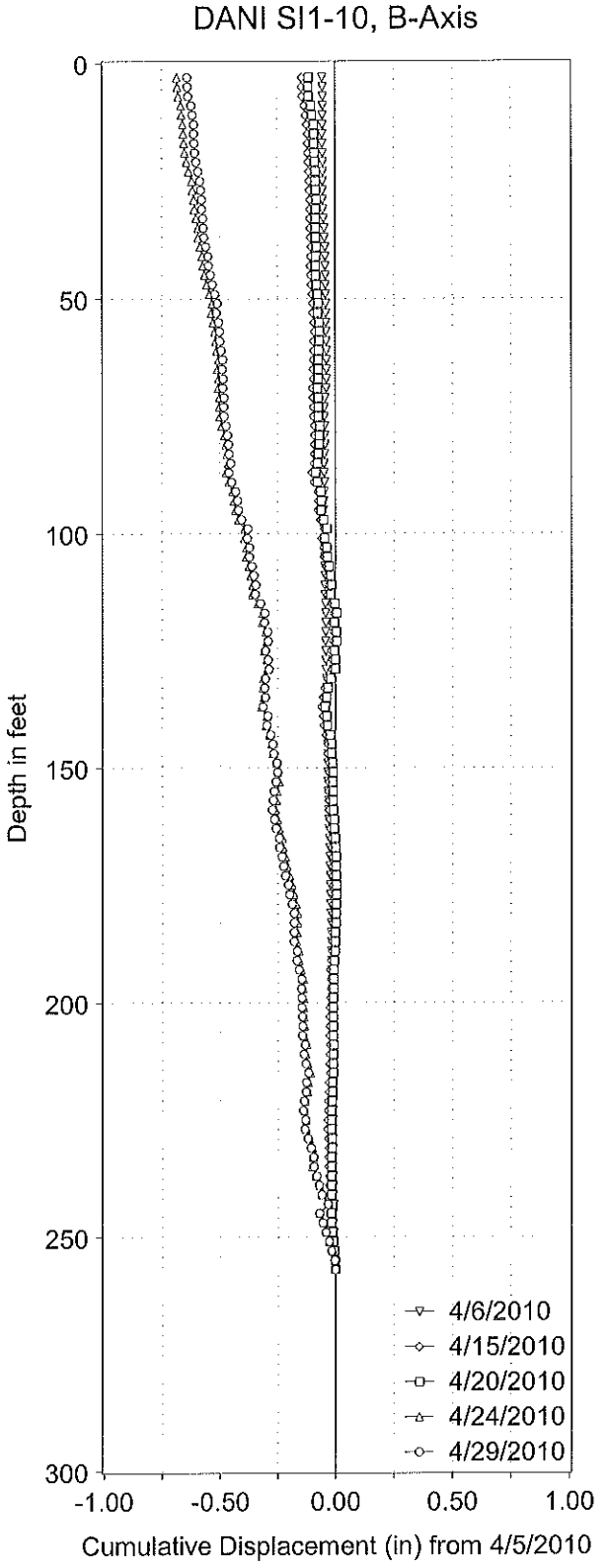




Dani Creek Landslide
05-MON-001-22.8
SI2-09, In NB lane near telephone pole
In box

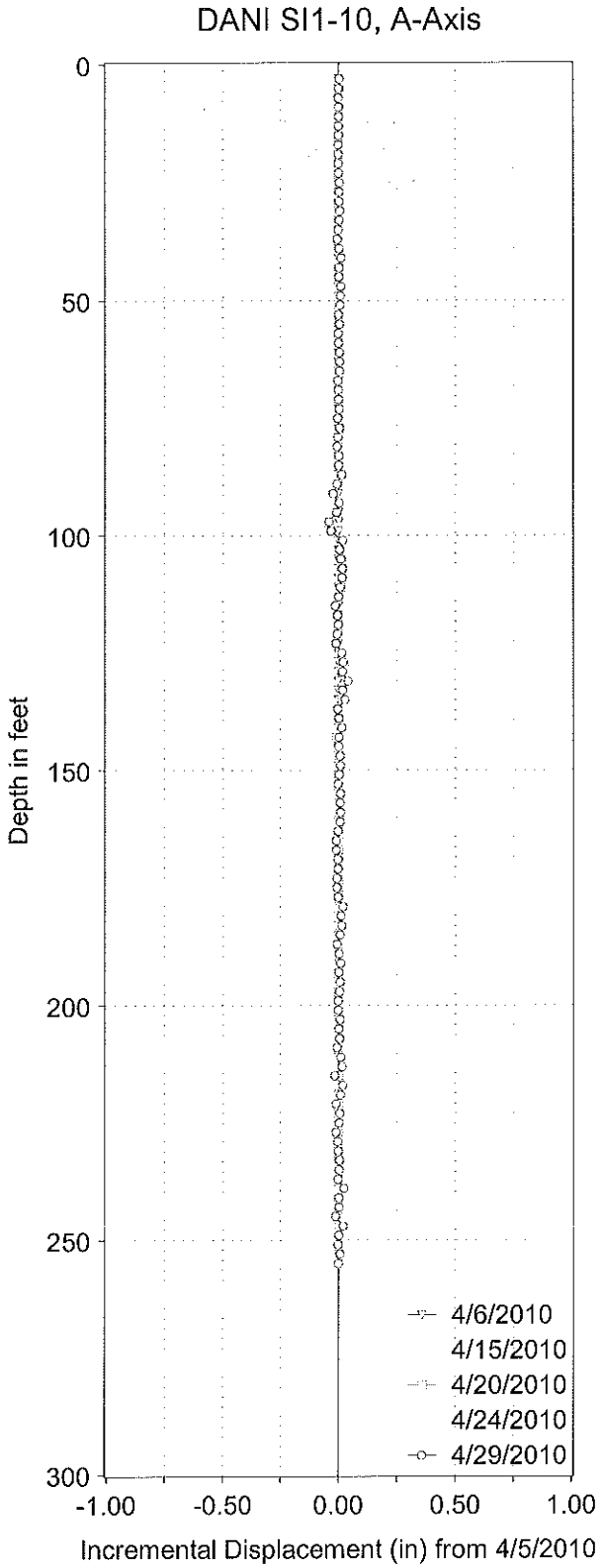
INCREMENTAL DISPLACEMENT
Re-Initialed w/ 3/26/09 instead of 3/10/09

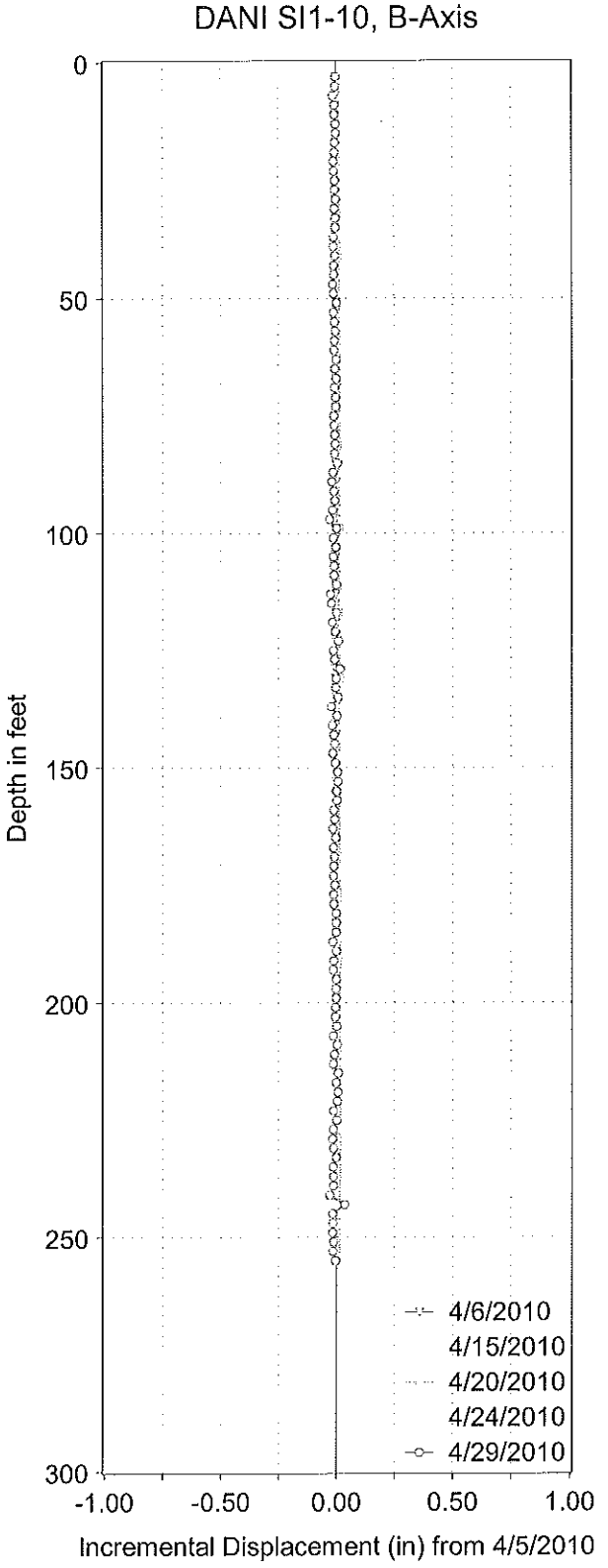




Dani Creek Landslide
At R-10-012 (SI)

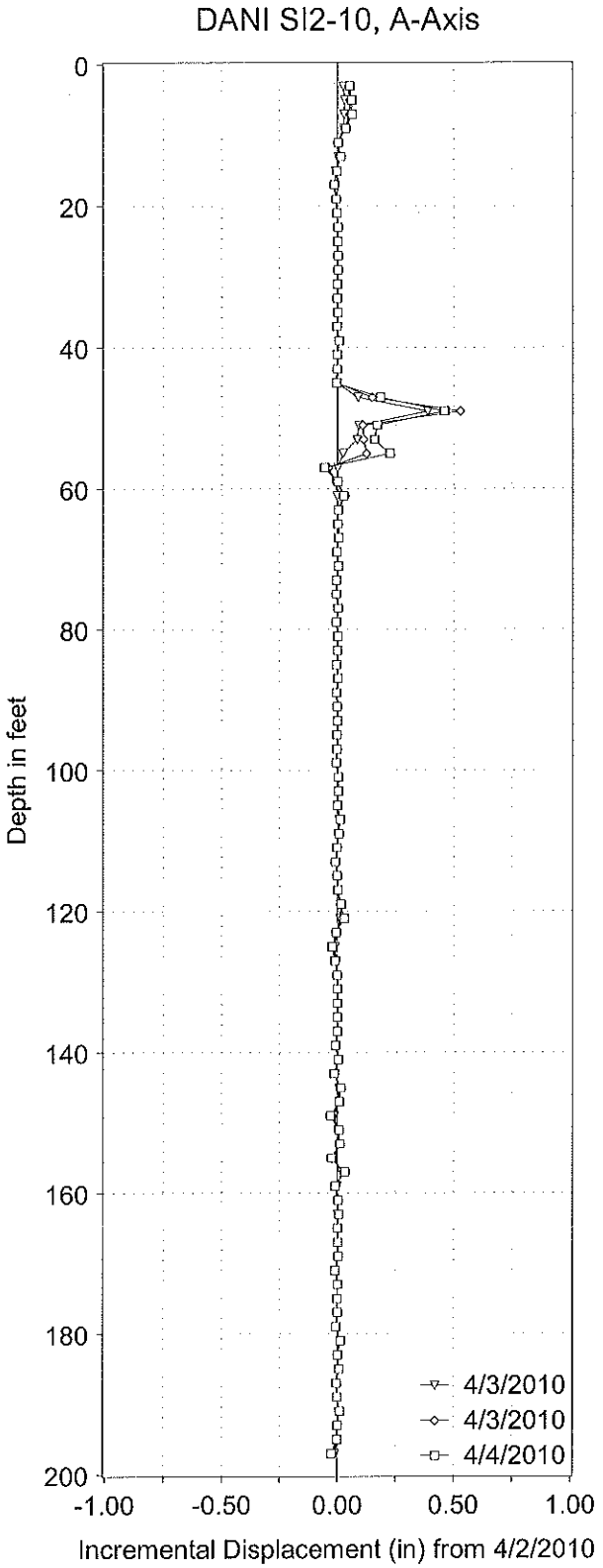
CUMULATIVE DISPLACEMENT
Disregard datasets dated earlier than 4/5/10

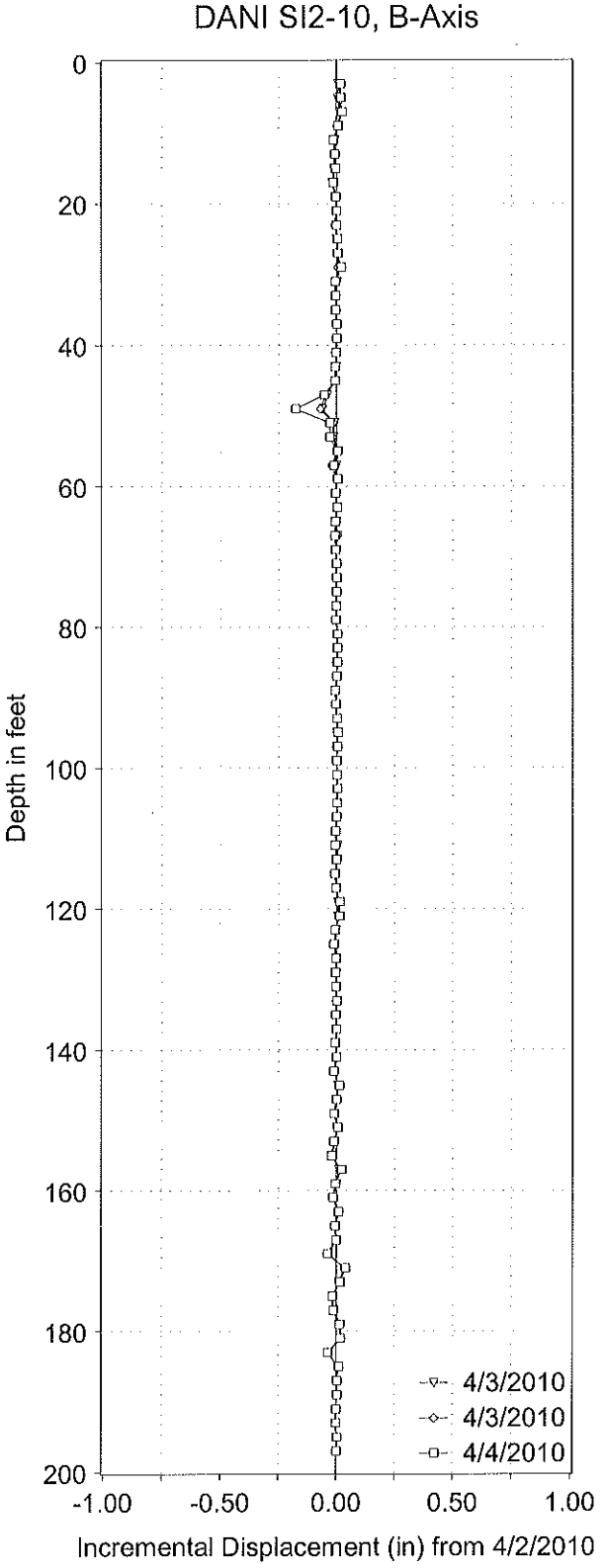


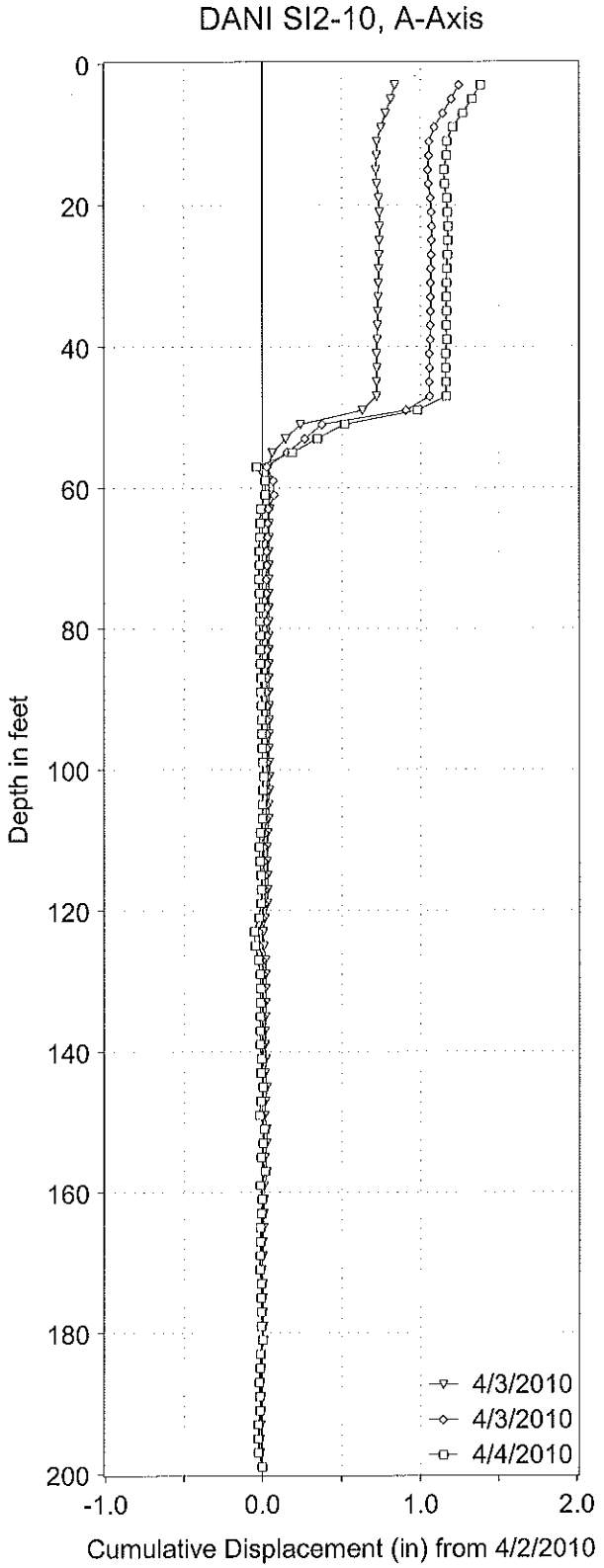


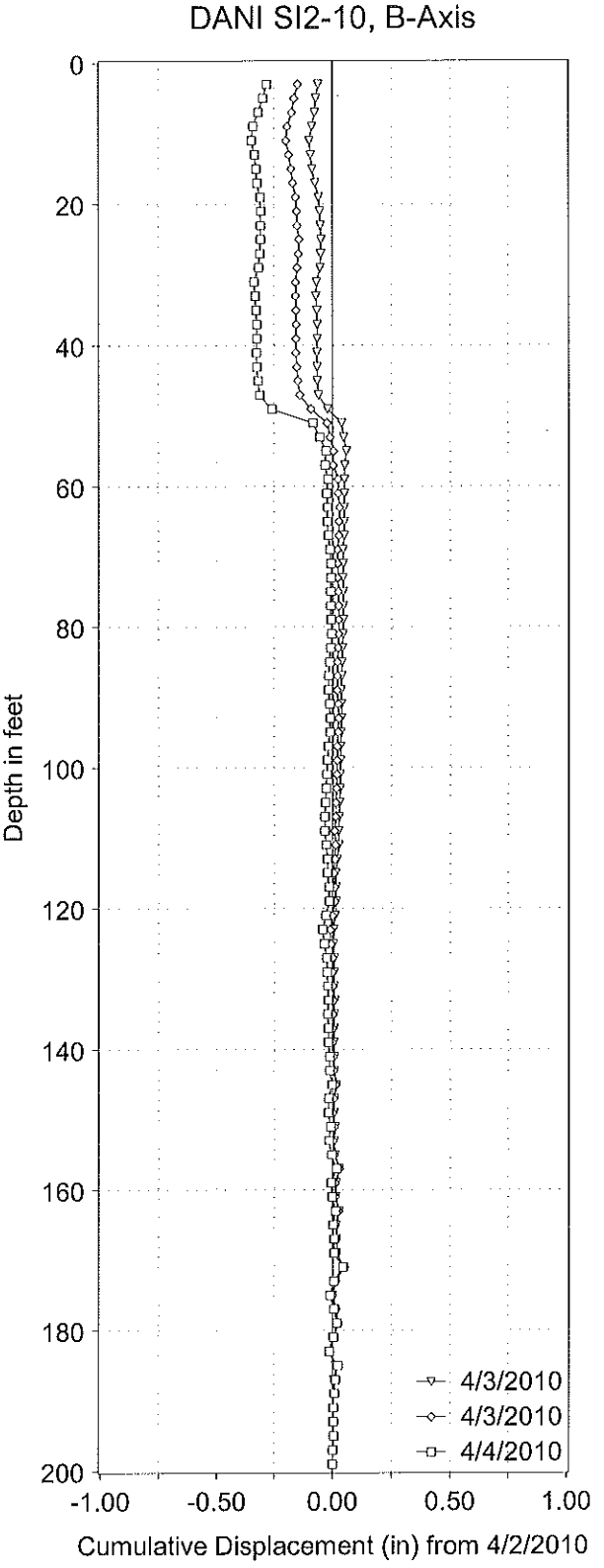
Dani Creek Landslide
At R-10-012 (SI)

INCREMENTAL DISPLACEMENT
Disregard data sets dated earlier than 4/510


DANI SI2-10, A-Axis
Depth in feet
0
20
40
60
80
100
120
140
160
180
200
-1.00
-0.50
0.00
0.50
1.00
Incremental Displacement (in) from 4/2/2010
4/3/2010
4/3/2010
4/4/2010

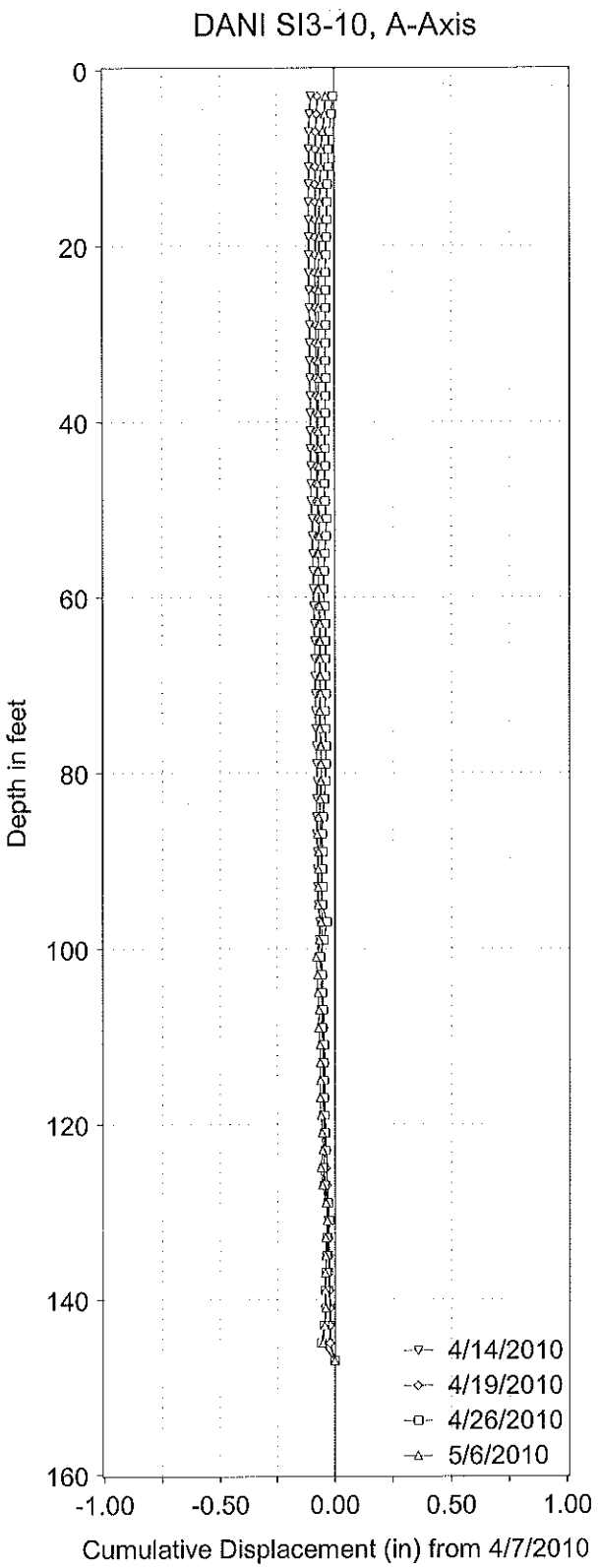

DANI SI2-10, B-Axis
Depth in feet
0
20
40
60
80
100
120
140
160
180
200
-1.00
-0.50
0.00
0.50
1.00
Incremental Displacement (in) from 4/2/2010
4/3/2010
4/3/2010
4/4/2010

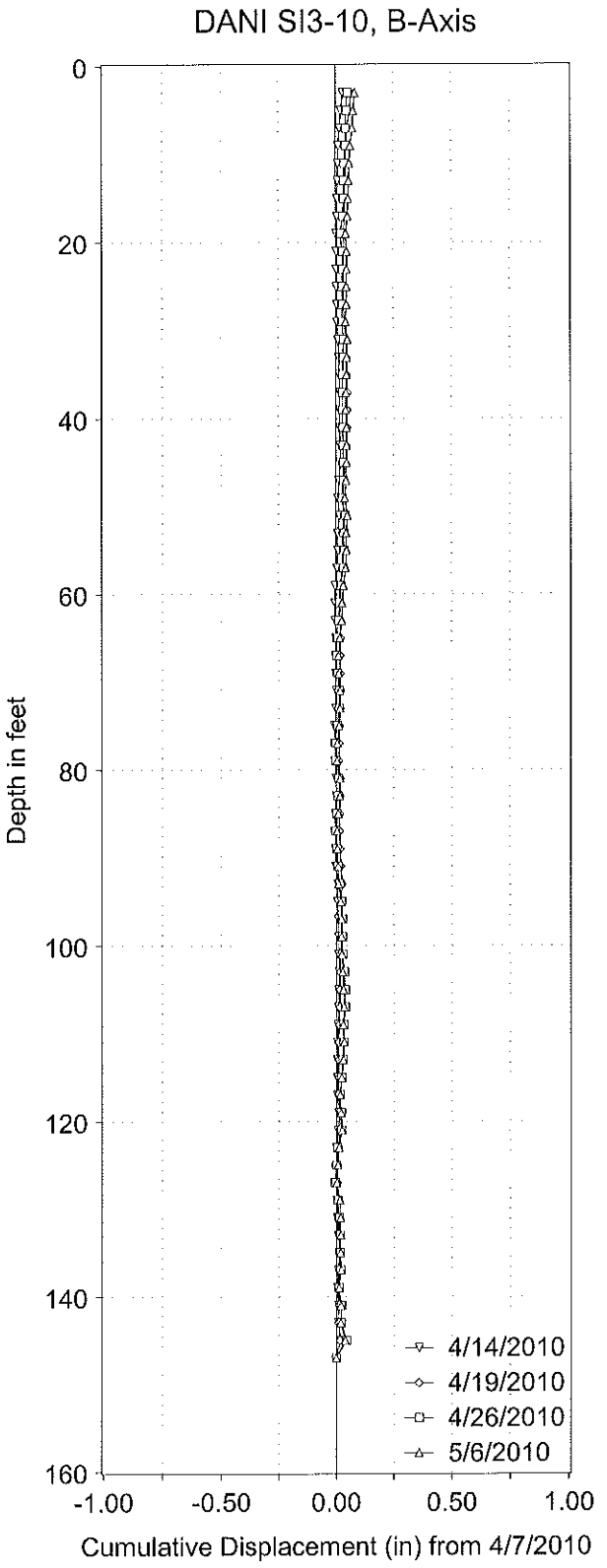




Dani Creek Landslide
05-MON-22.8
SI2-10, On Bench below road
Drilled w/ Crux, 3/29 - 4/1

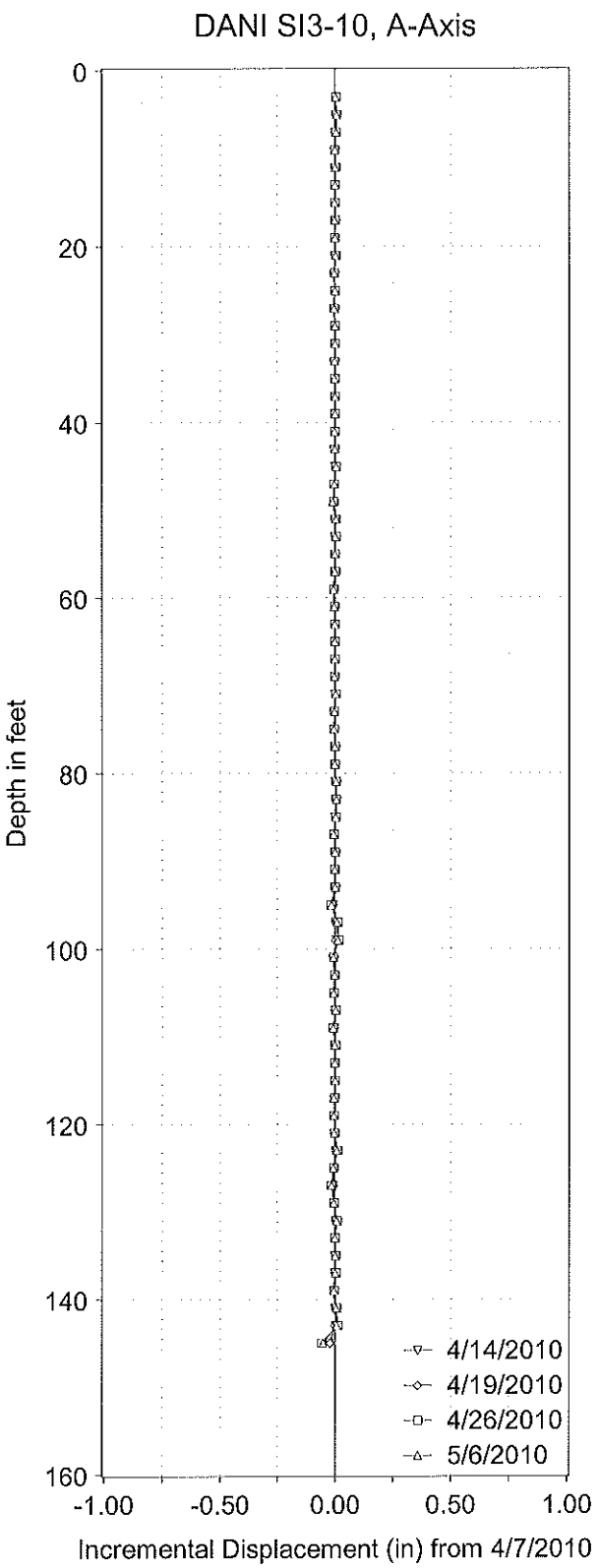
CUMULATIVE DISPLACEMENT

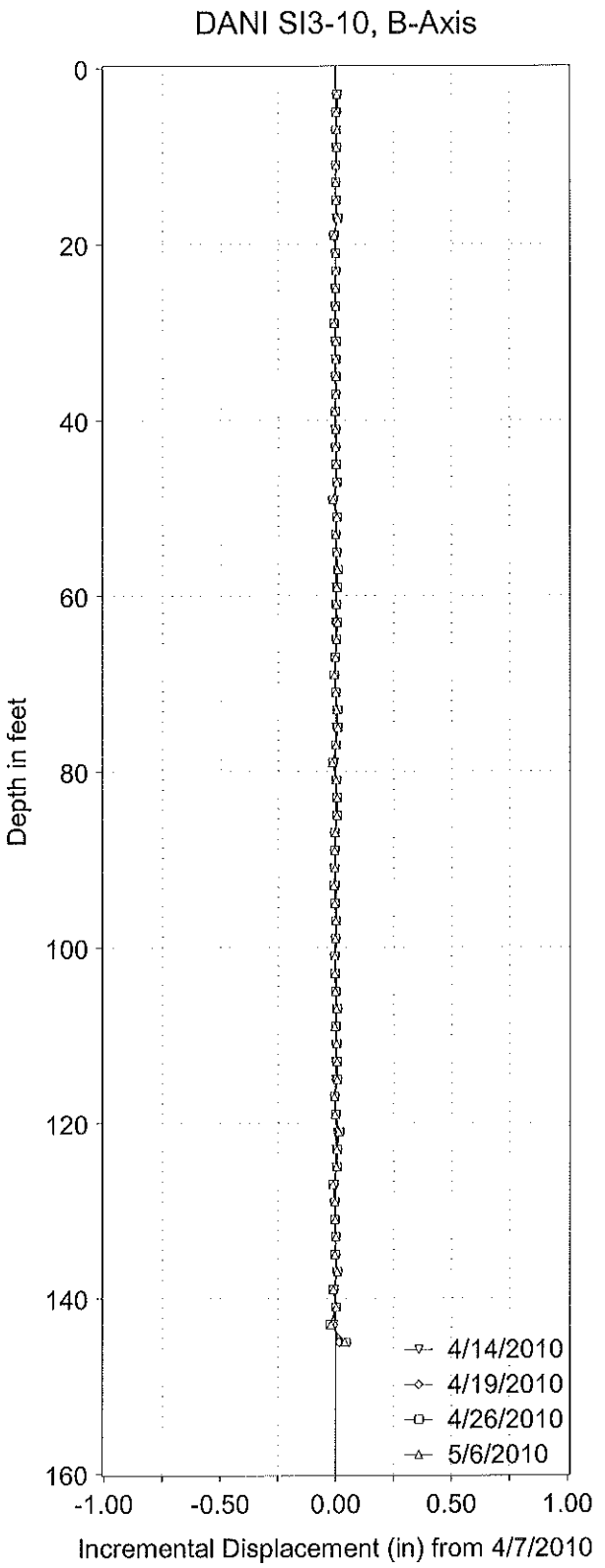




Dani Creek Landslide
At R-10-009
NB near Dani Creek

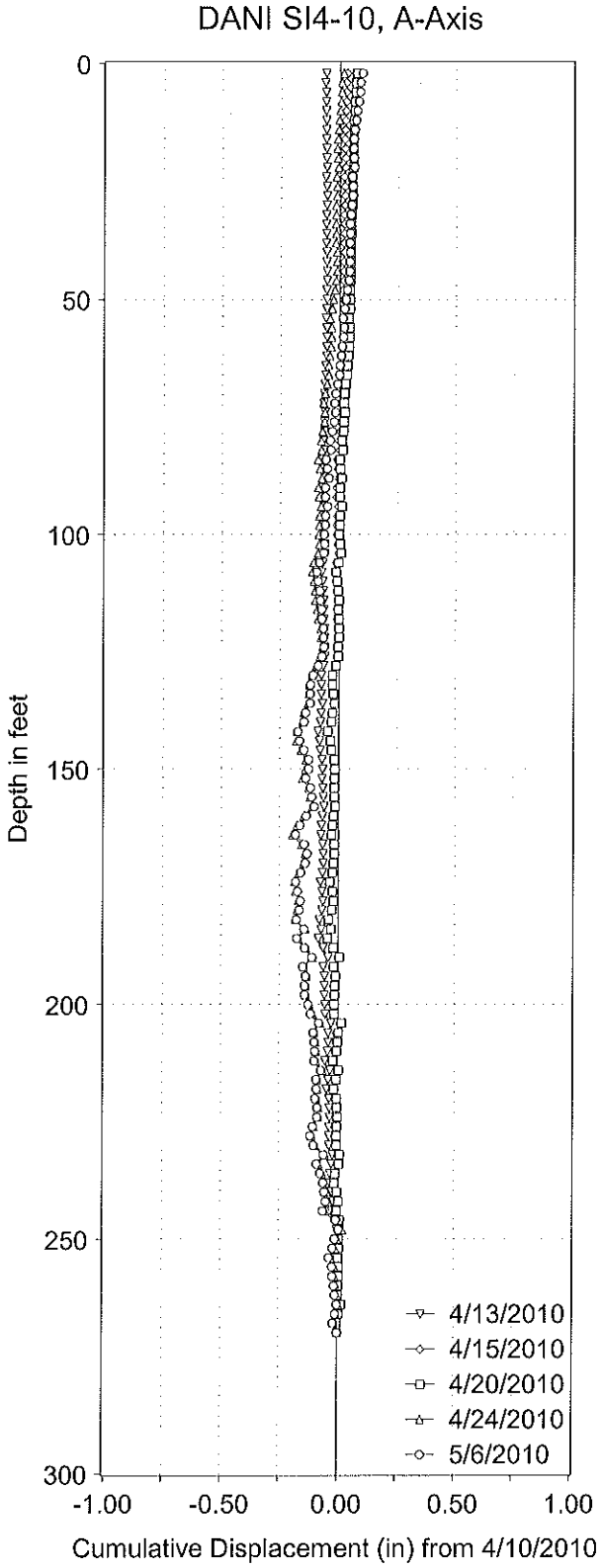
CUMULTAIVE DISPLACEMENT

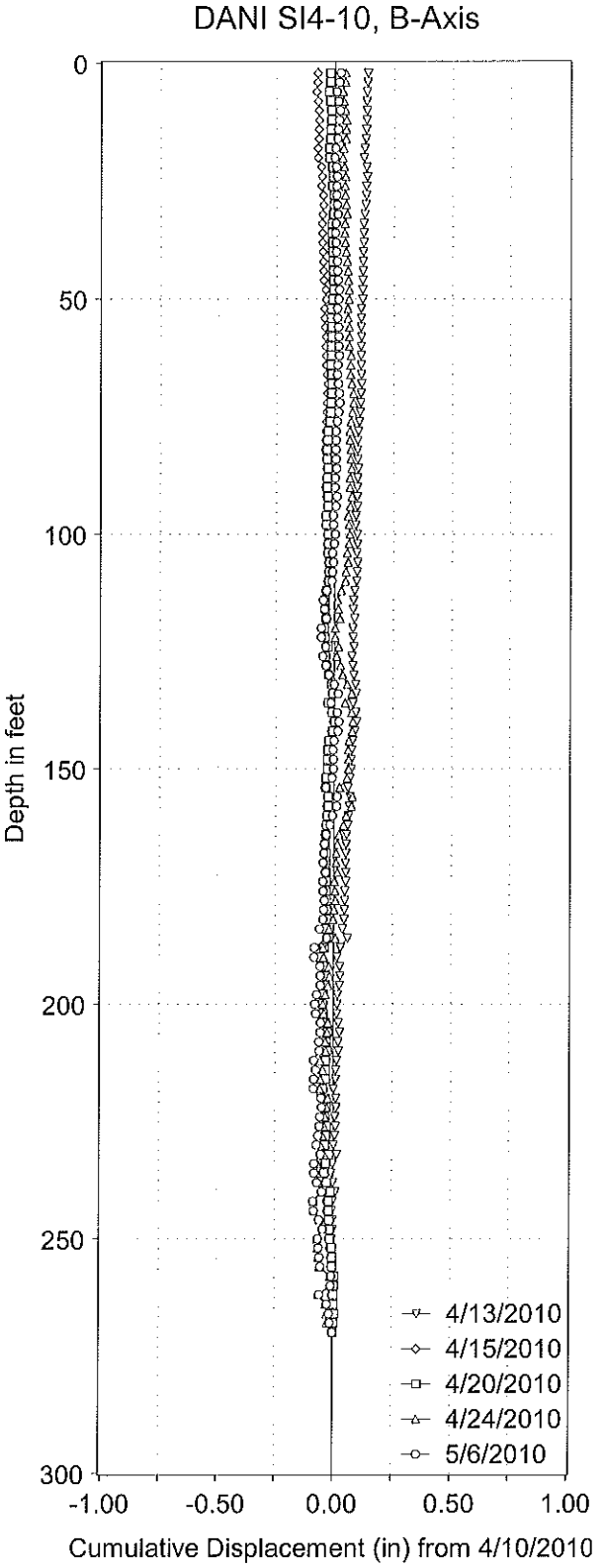




Dani Creek Landslide
At R-10-009
NB near Dani Creek

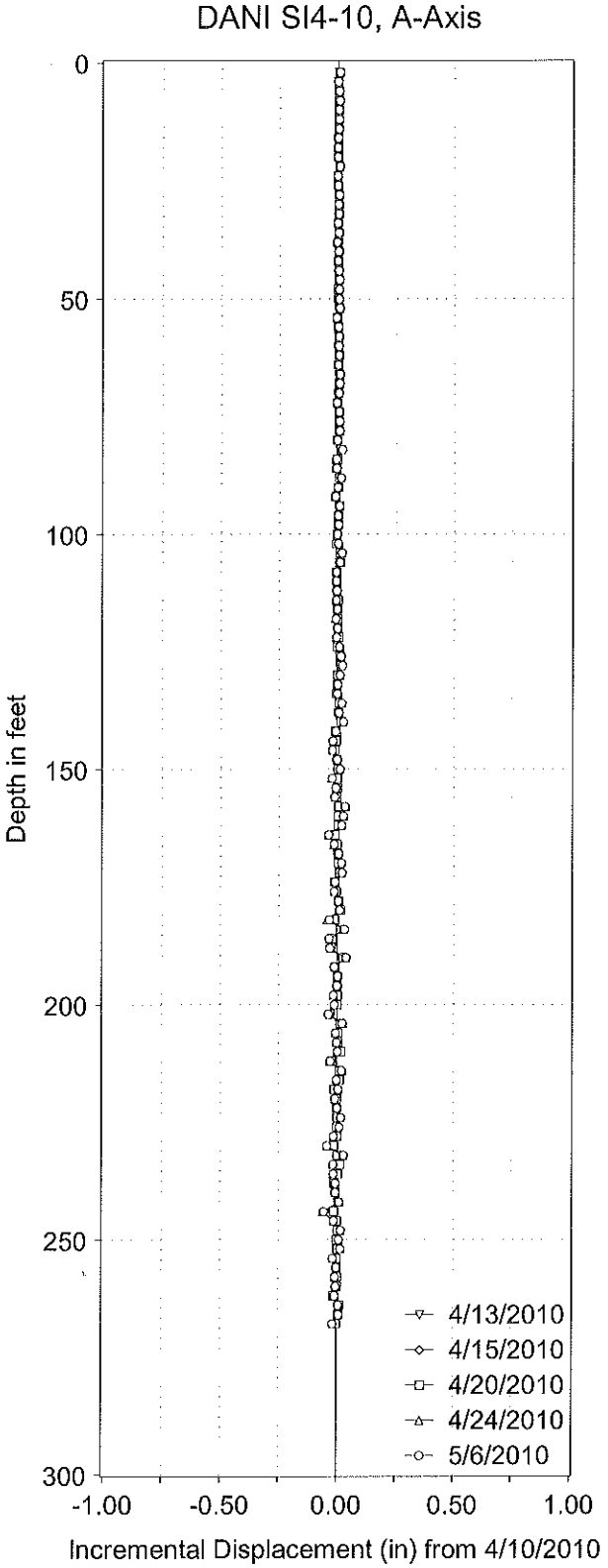
INCREMENTAL DISPLACEMENT

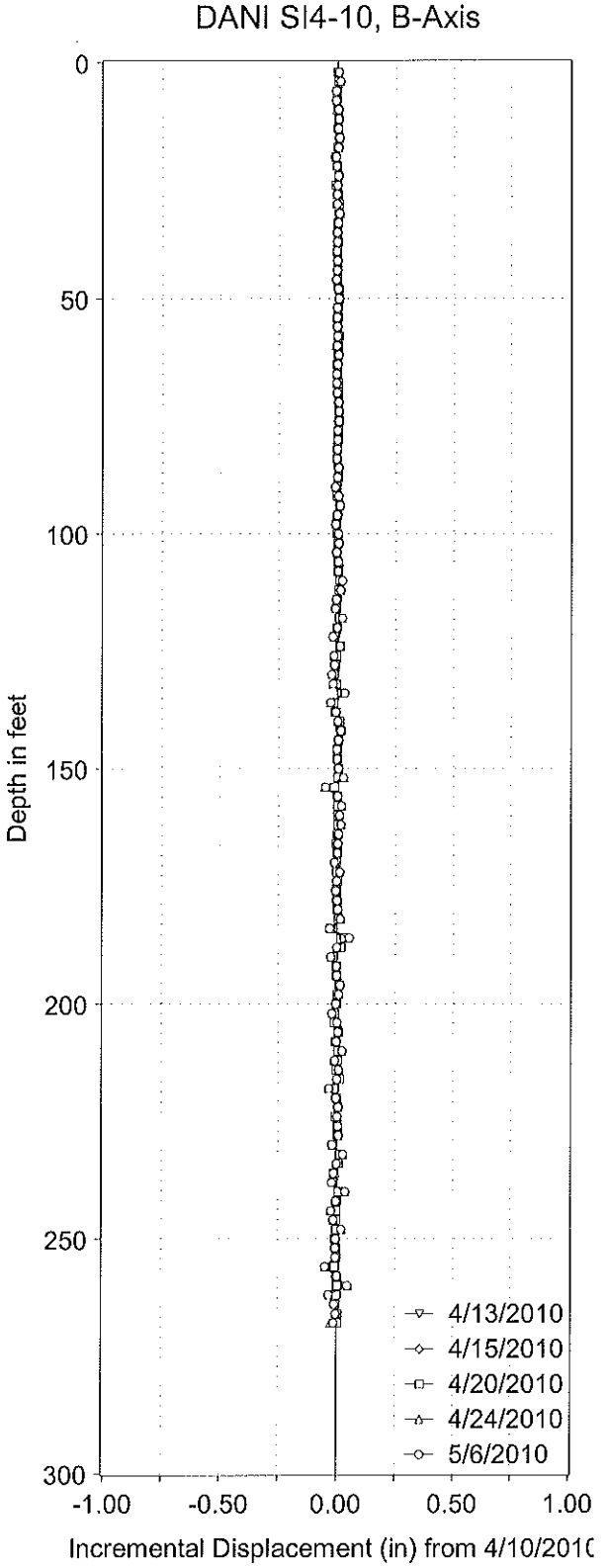




Dani Creek Landslide
At R-10-001 (I)
SB at North end

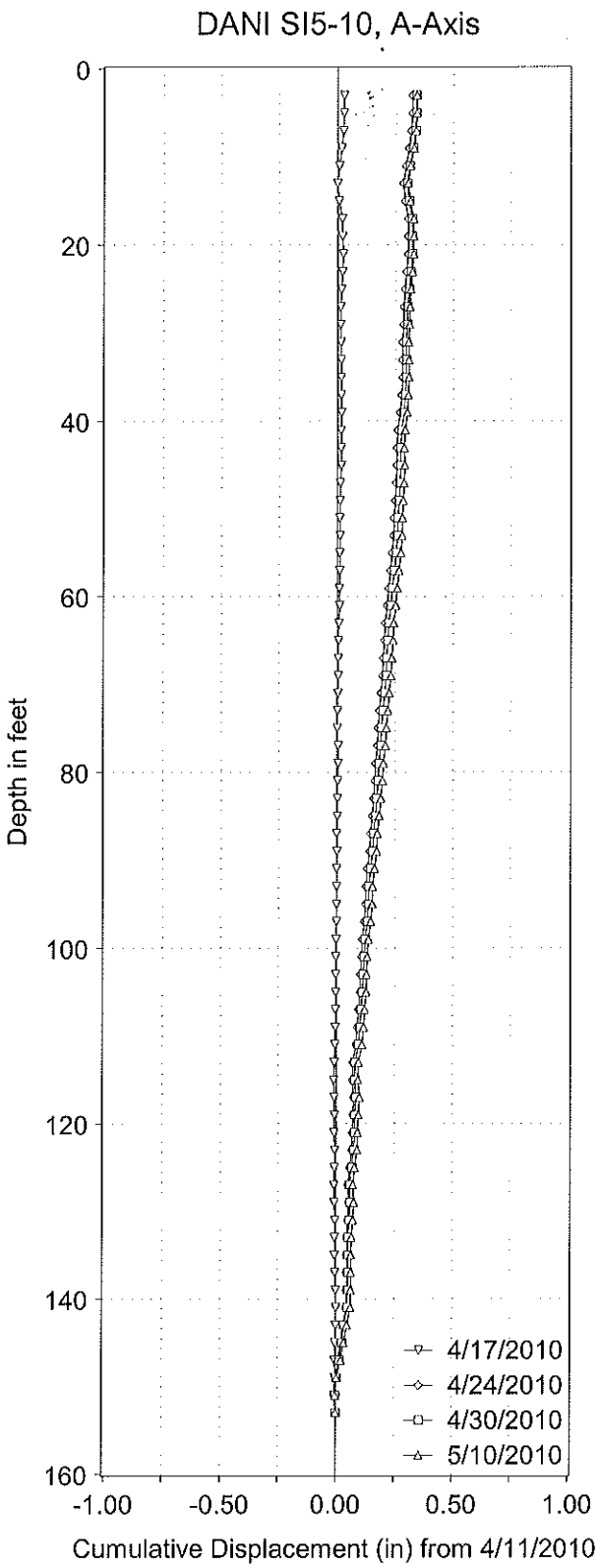
CUMULATIVE DISPLACEMENT

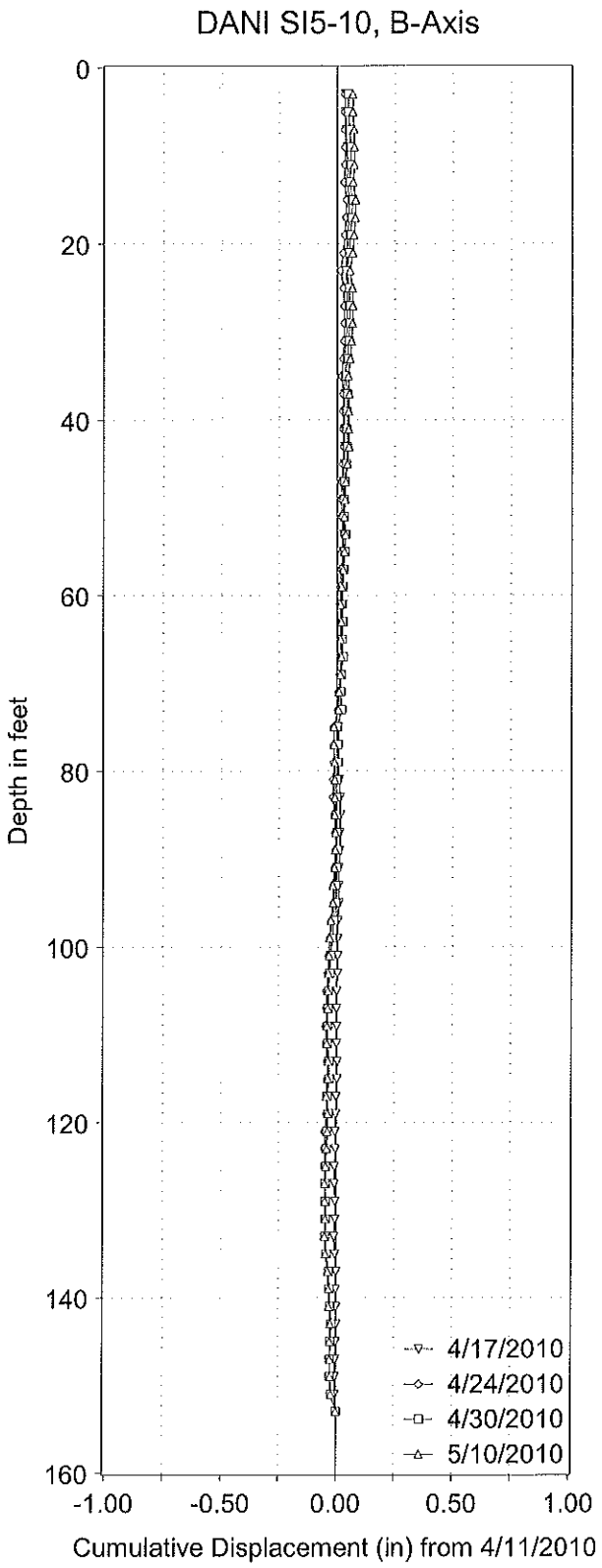




Dani Creek Landslide
At R-10-001(I)
SB at North end

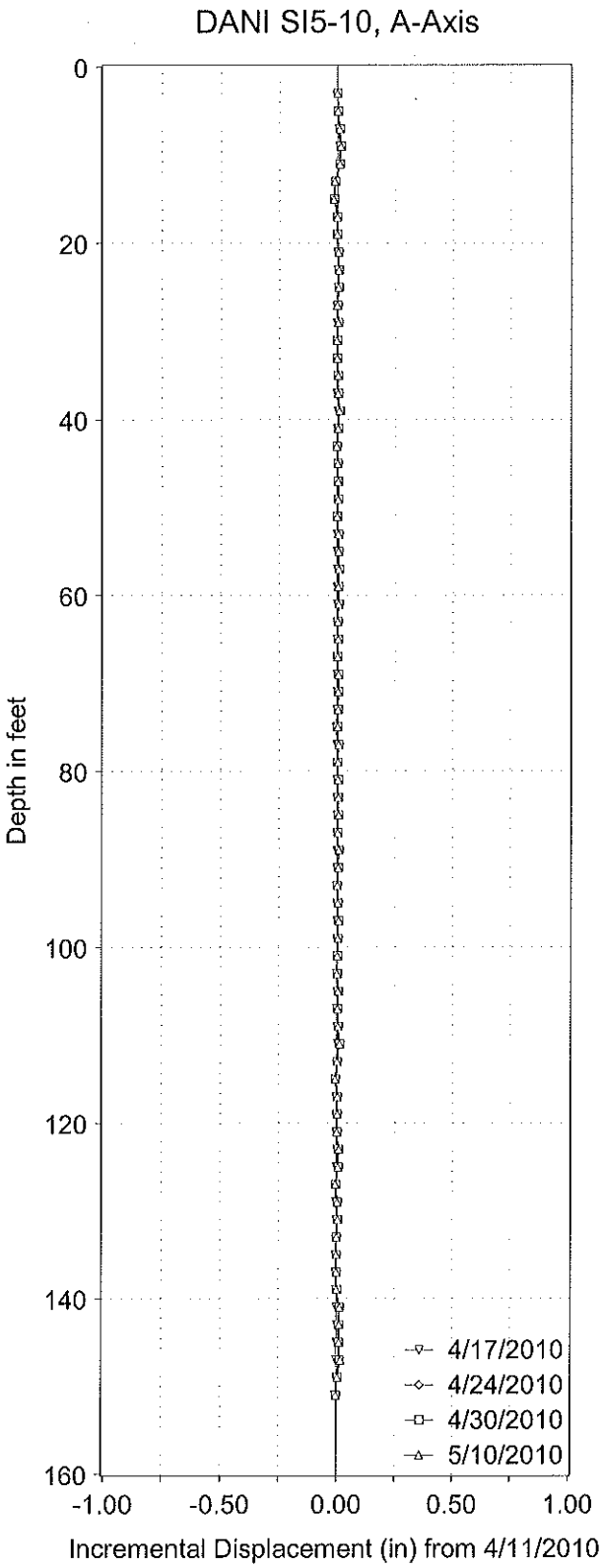
INCREMENTAL DISPLACEMENT

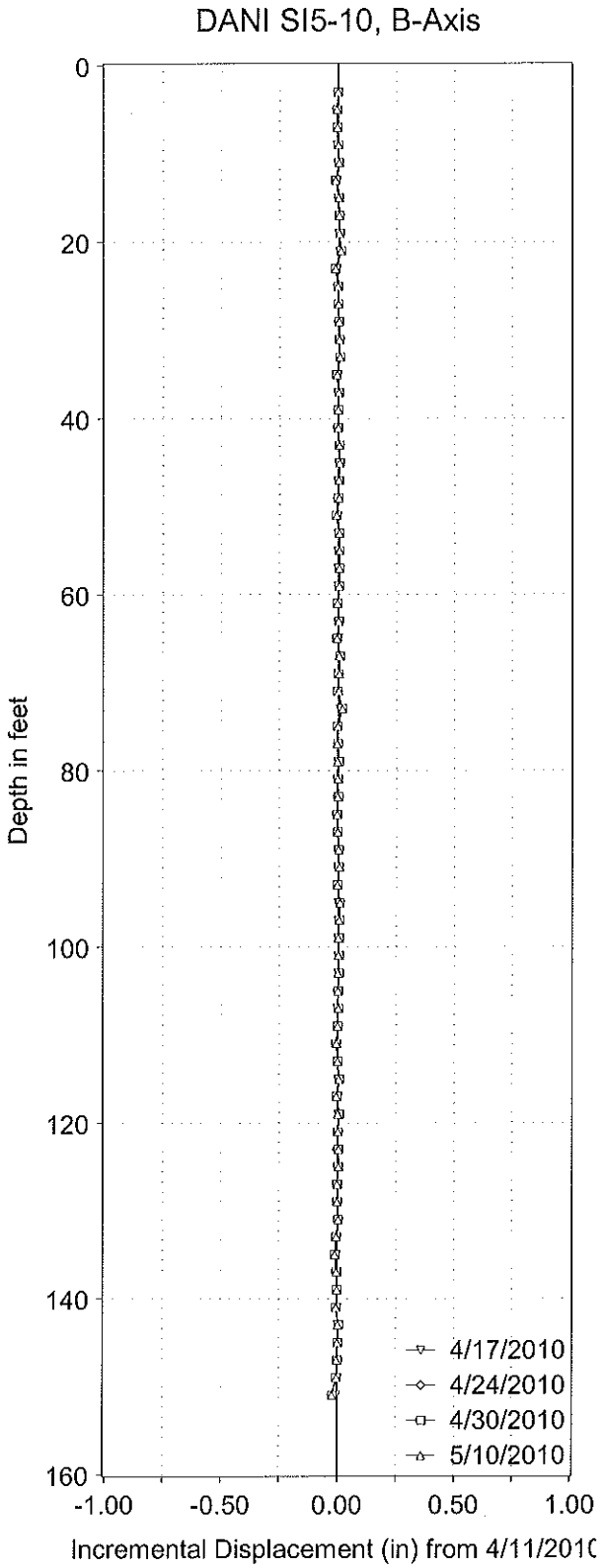




Dani Creek Landslide
At R-10-003 (I)
SB

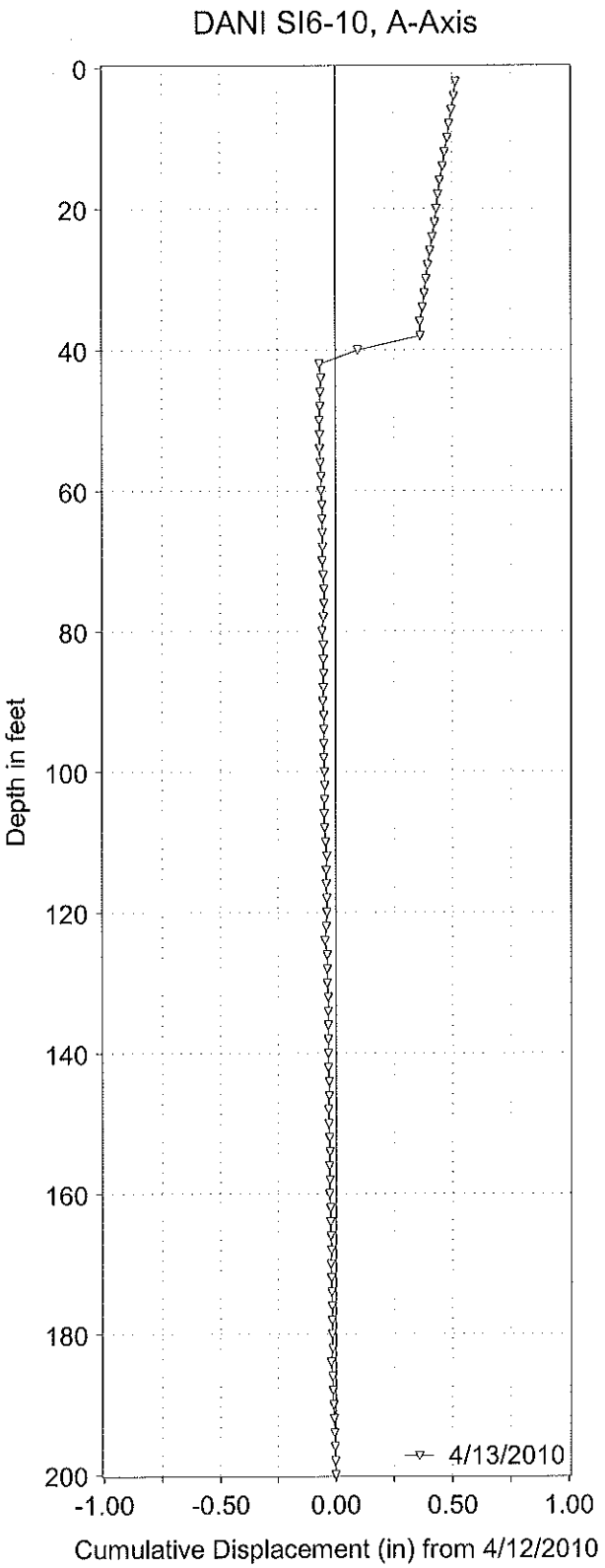
CUMULATIVE DISPLACEMENT

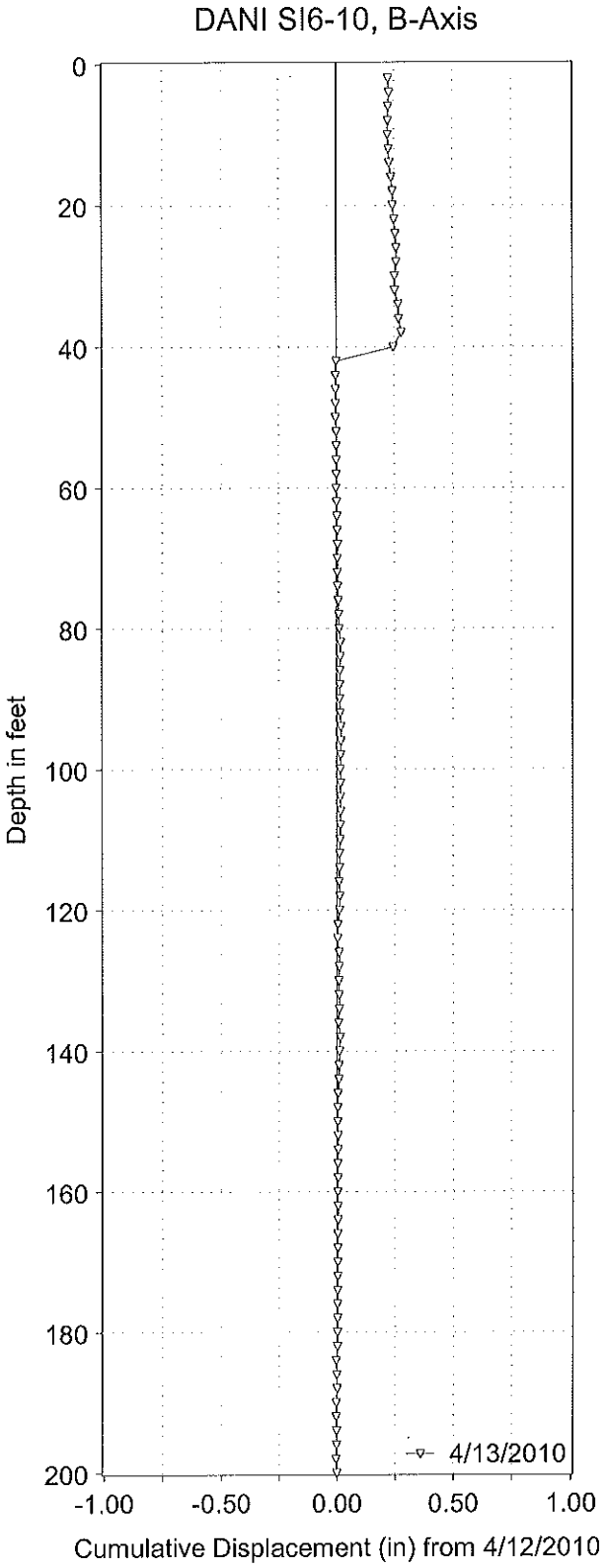




Dani Creek Landslide
At R-10-003 (I)

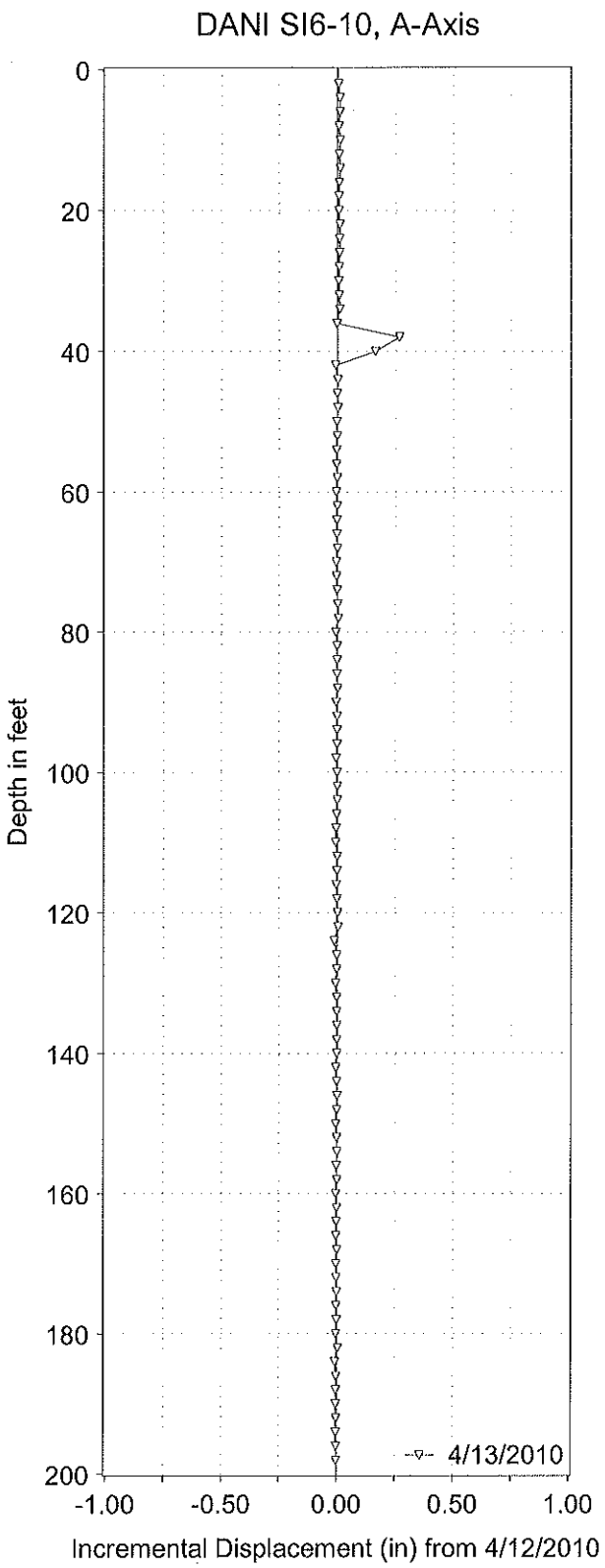
INCREMENTAL DISPLACEMENT

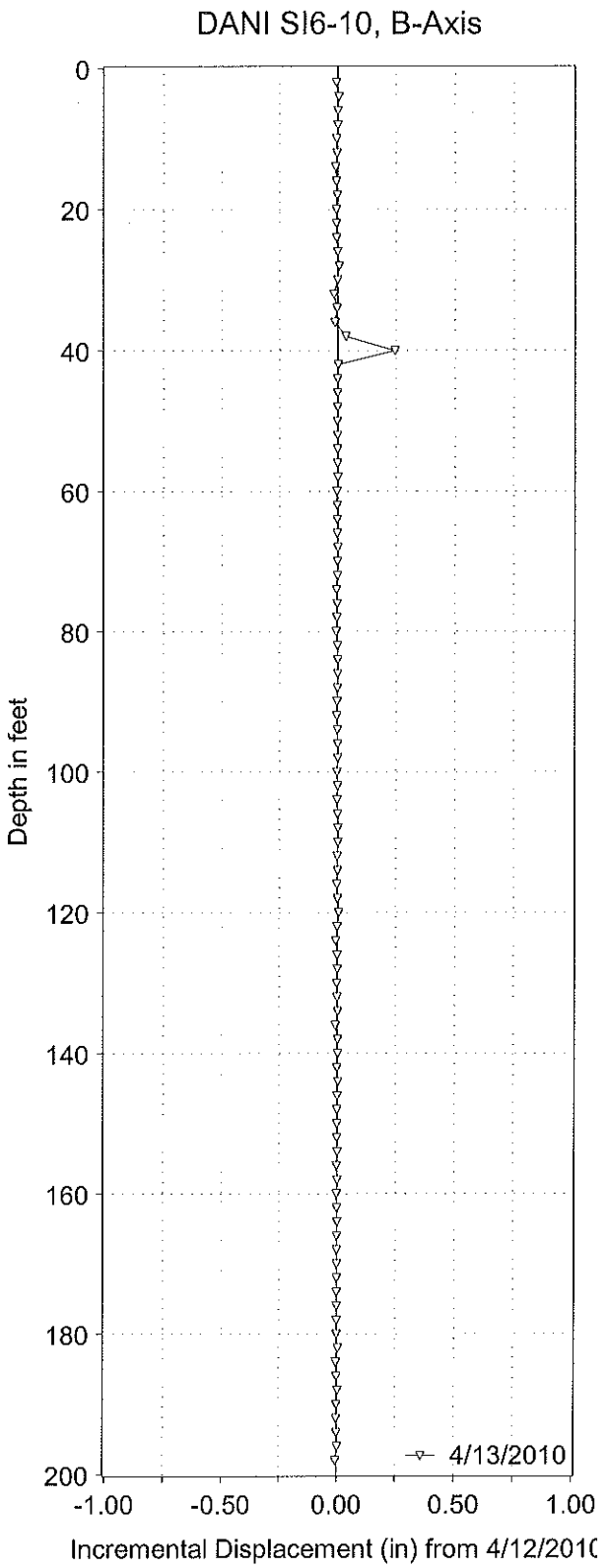


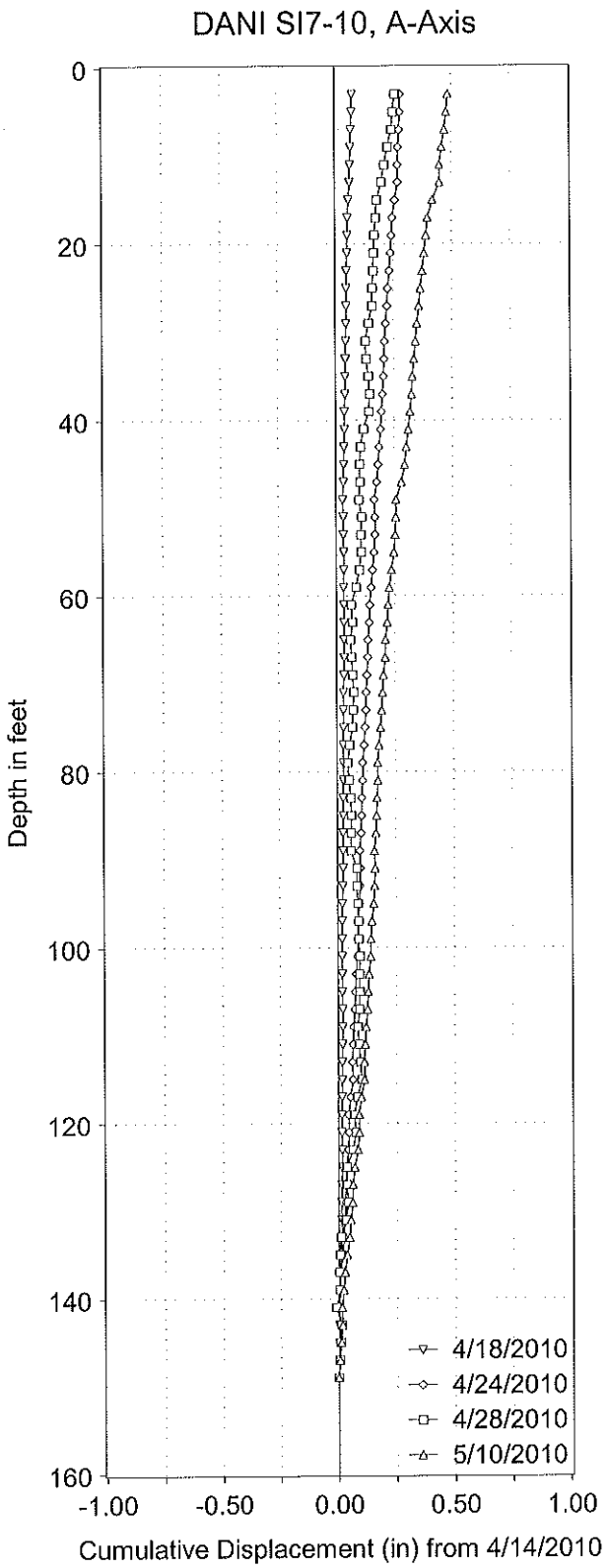


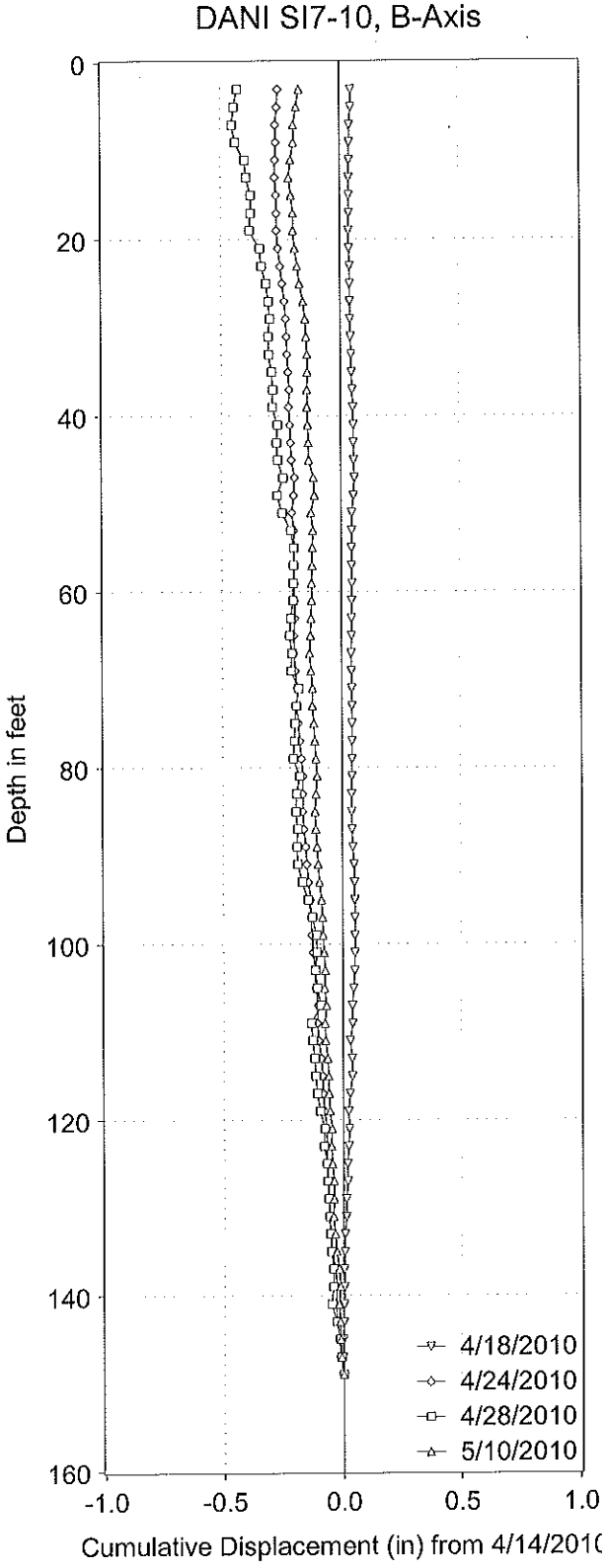
Dani Creek Landslide
At R-10-016

CUMULATIVE DISPLACEMENT


DANI SI6-10, A-Axis
Depth in feet
0
20
40
60
80
100
120
140
160
180
200
-1.00
-0.50
0.00
0.50
1.00
4/13/2010
Incremental Displacement (in) from 4/12/2010

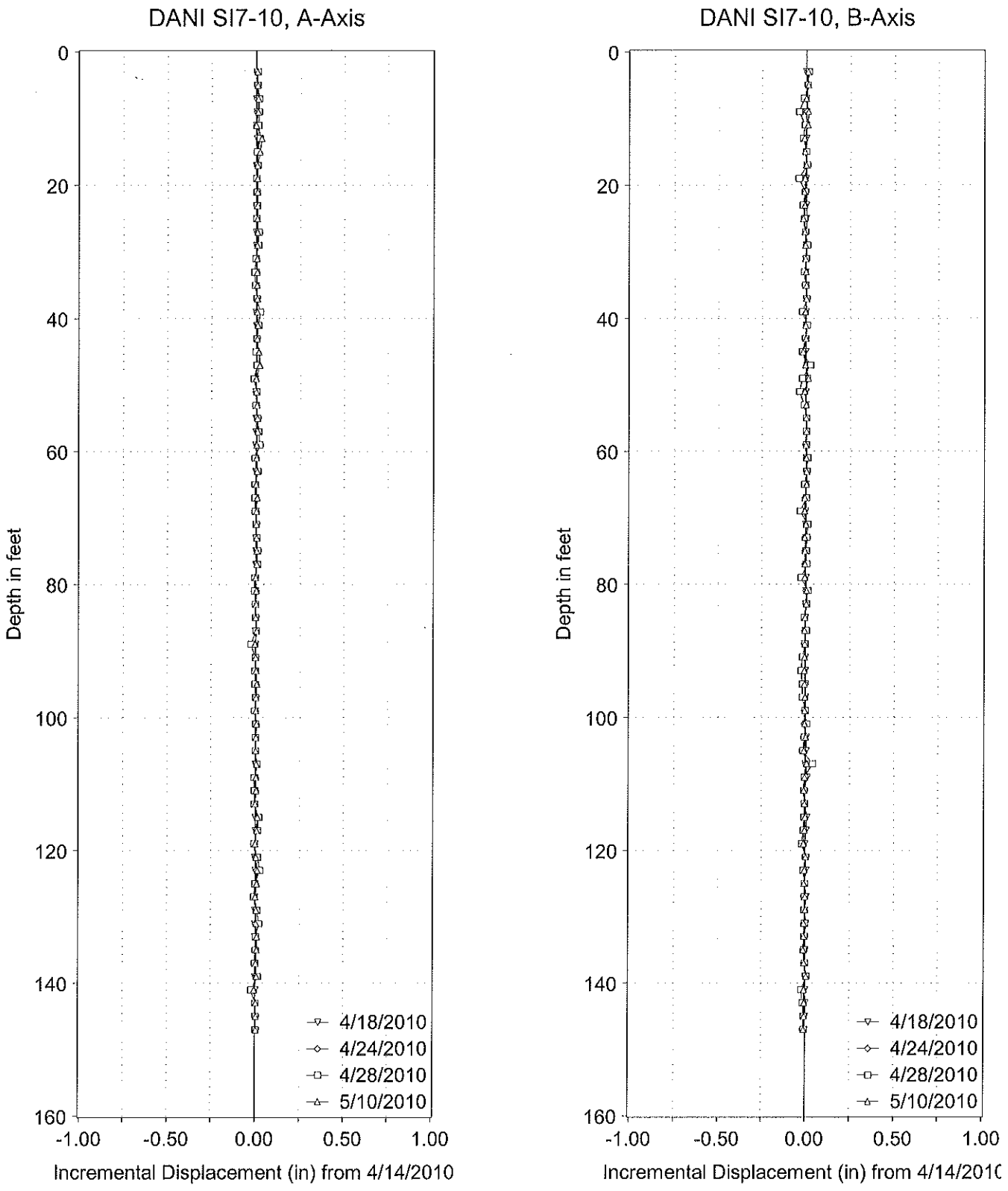

DANI SI6-10, B-Axis
Depth in feet
0
20
40
60
80
100
120
140
160
180
200
-1.00
-0.50
0.00
0.50
1.00
4/13/2010
Incremental Displacement (in) from 4/12/201





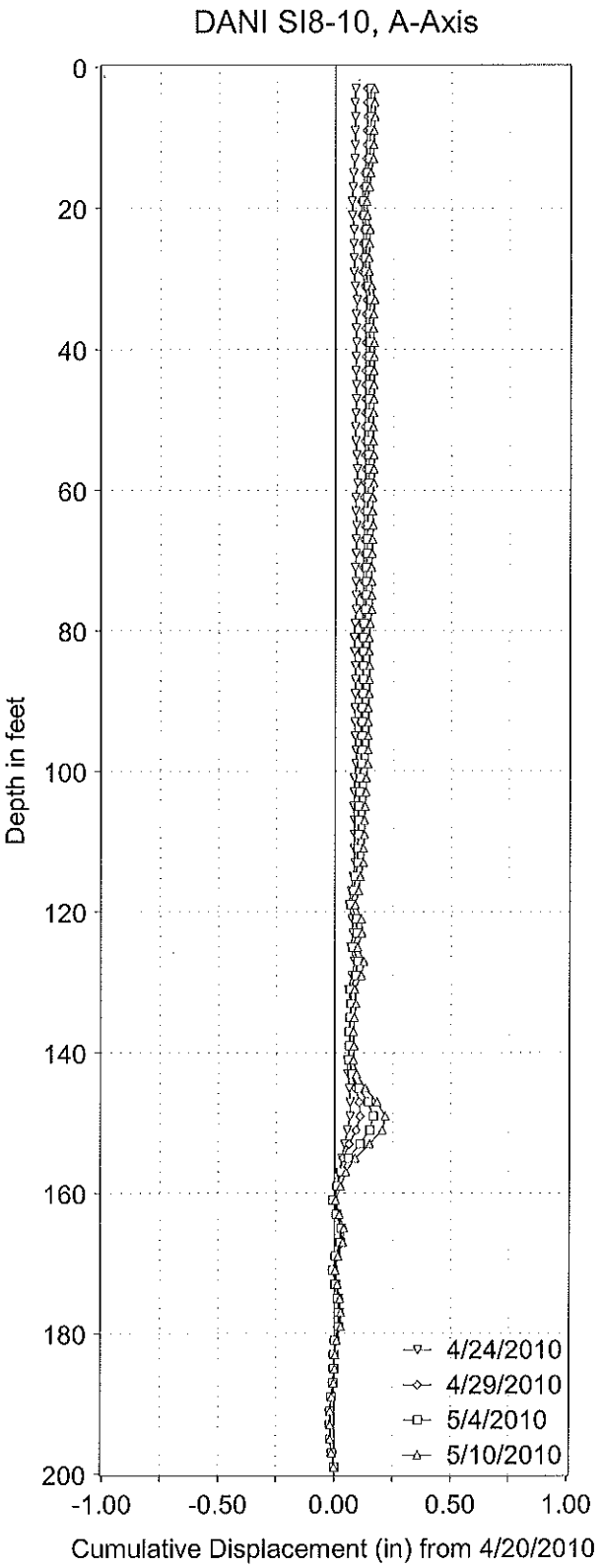
Dani Creek Landslide
05-MON-001-22.8
At R-10-007 (I)

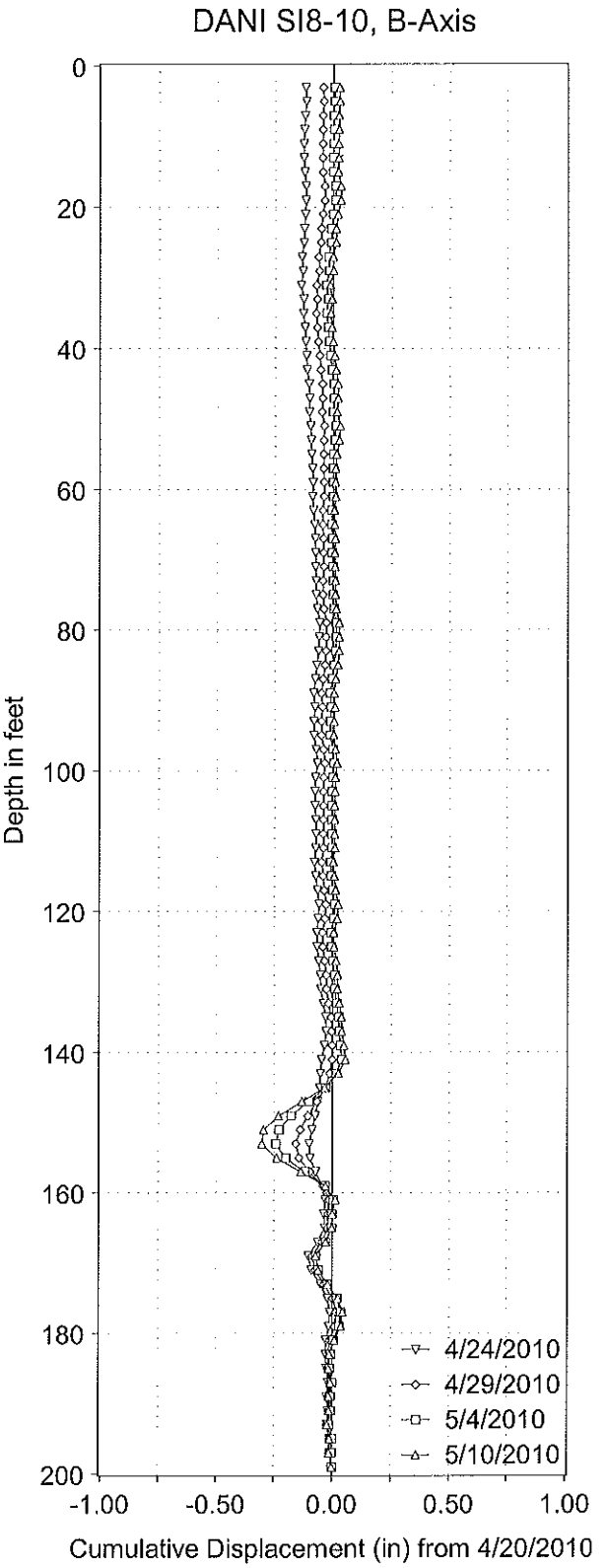
CUMULATIVE DISPLACEMENT



Dani Creek Landslide
05-MON-001-22.8
At R-10-007 (I)

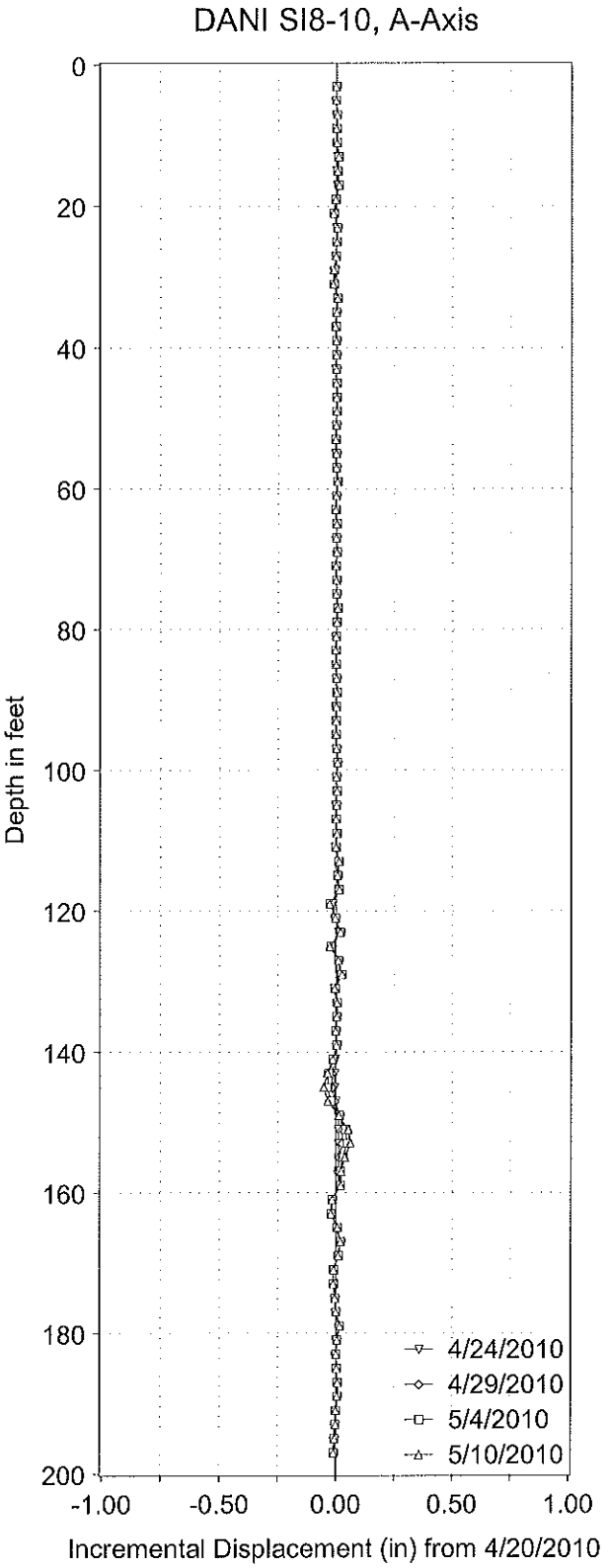
INCREMENTAL DISPLACEMENT

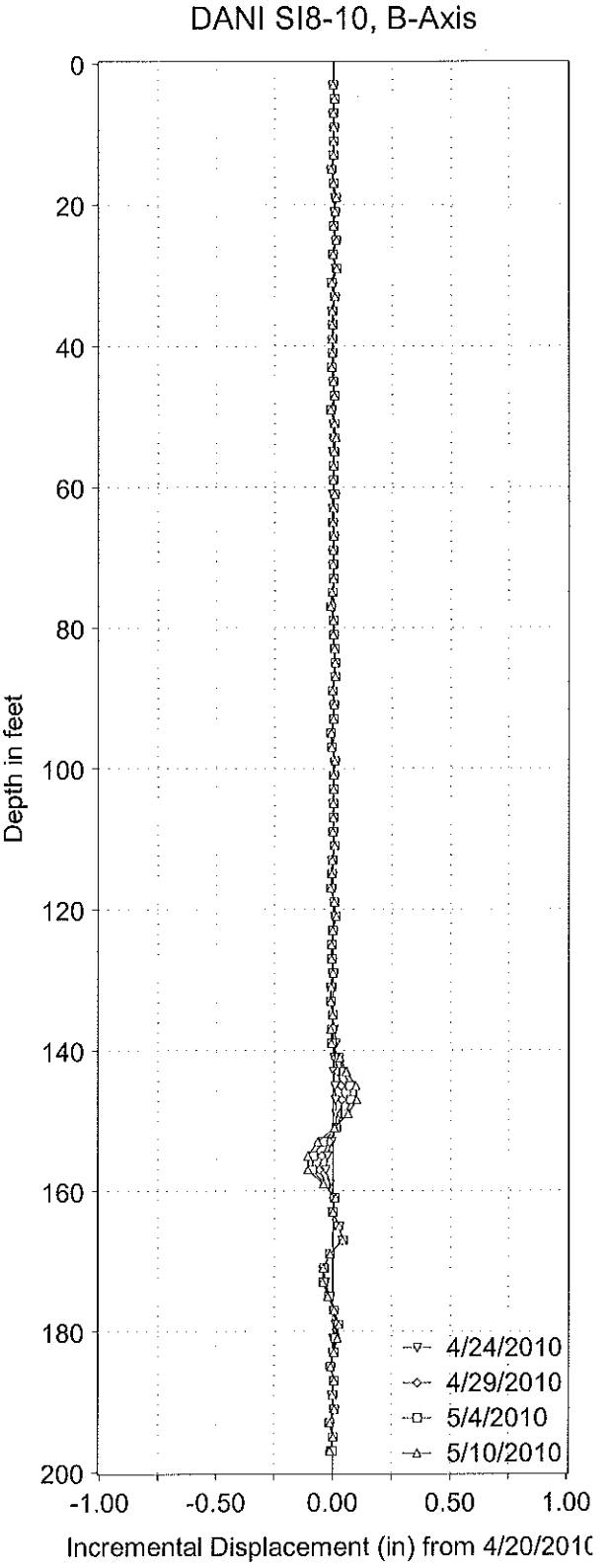




Dani Creek Landslide
05-MON-001-22.8
At R-10-014, Below road at north end

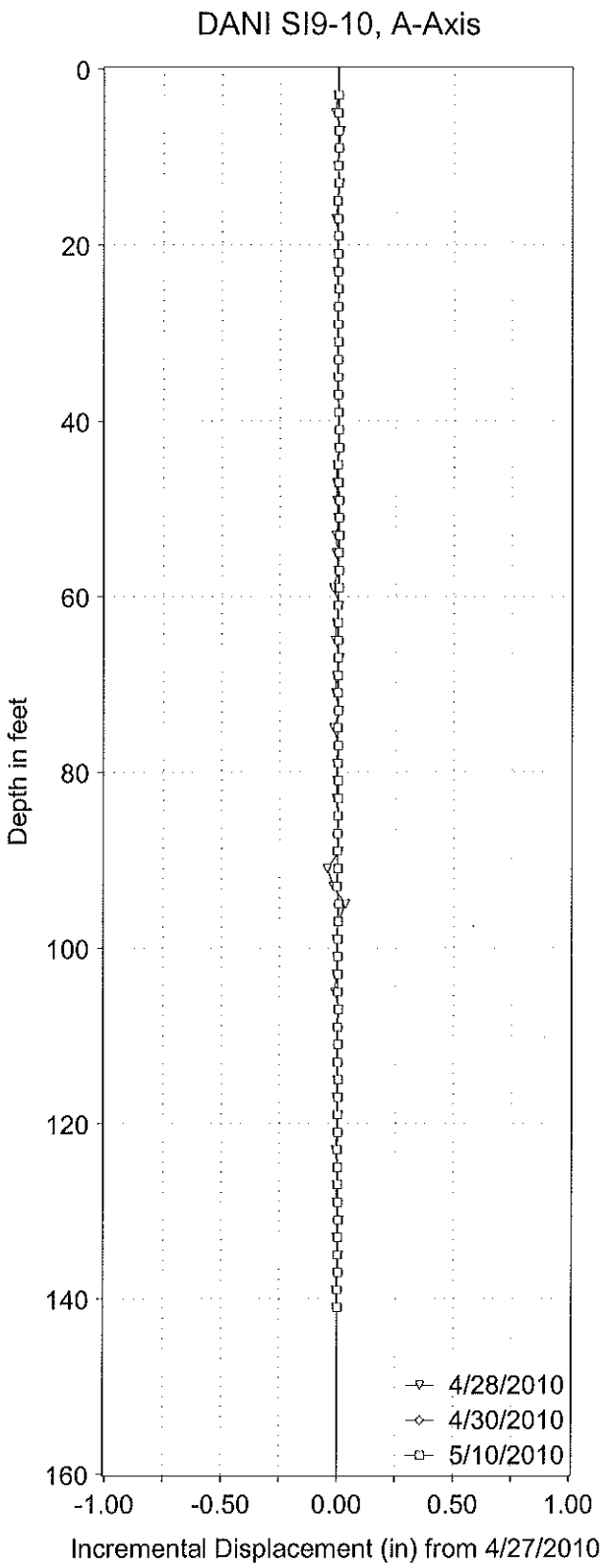
CUMULATIVE DISPLACEMENT

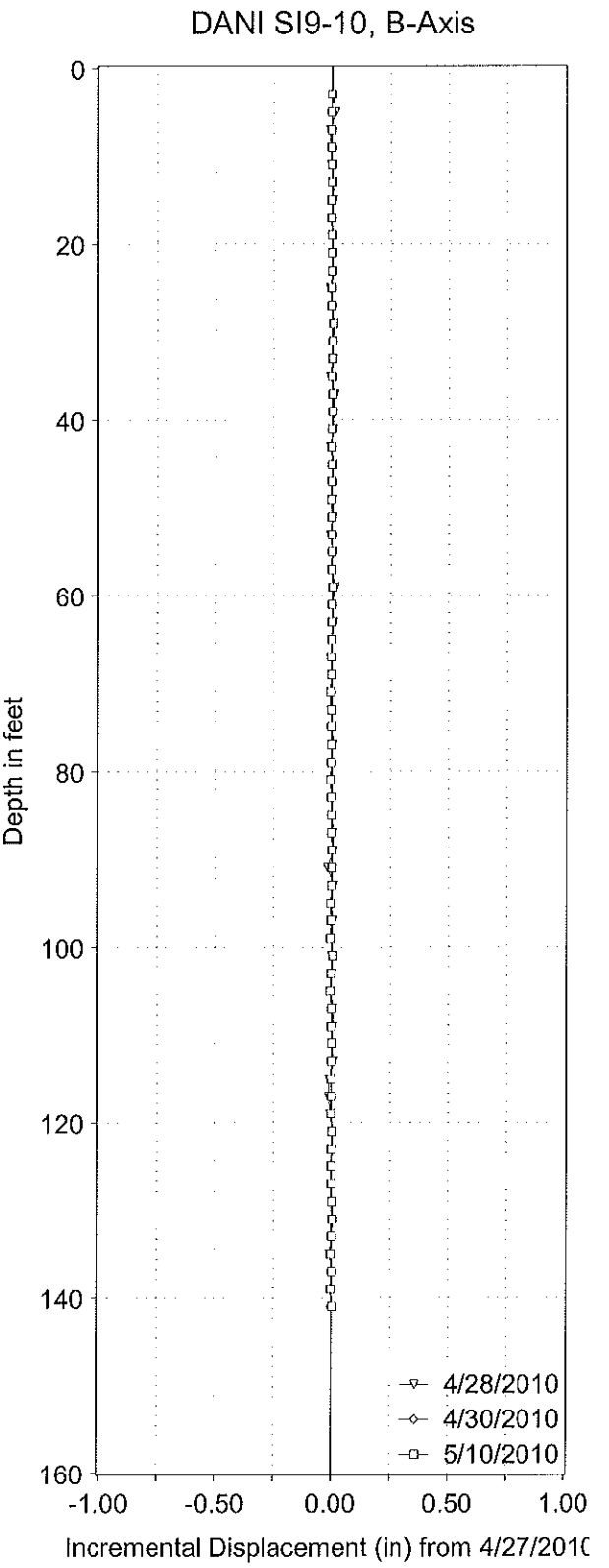




Dani Creek Landslide
05-MON-001-22.8
At R-10-014, Below road at north end

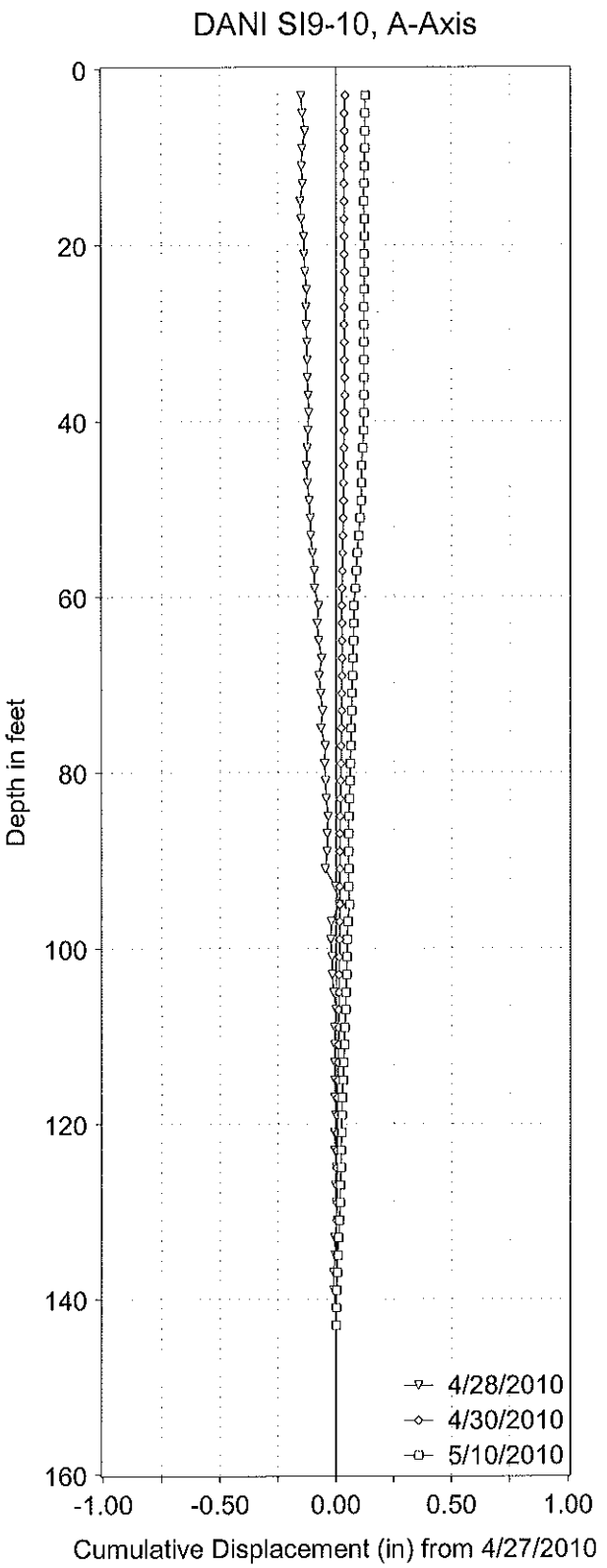
INCREMENTAL DISPLACEMENT

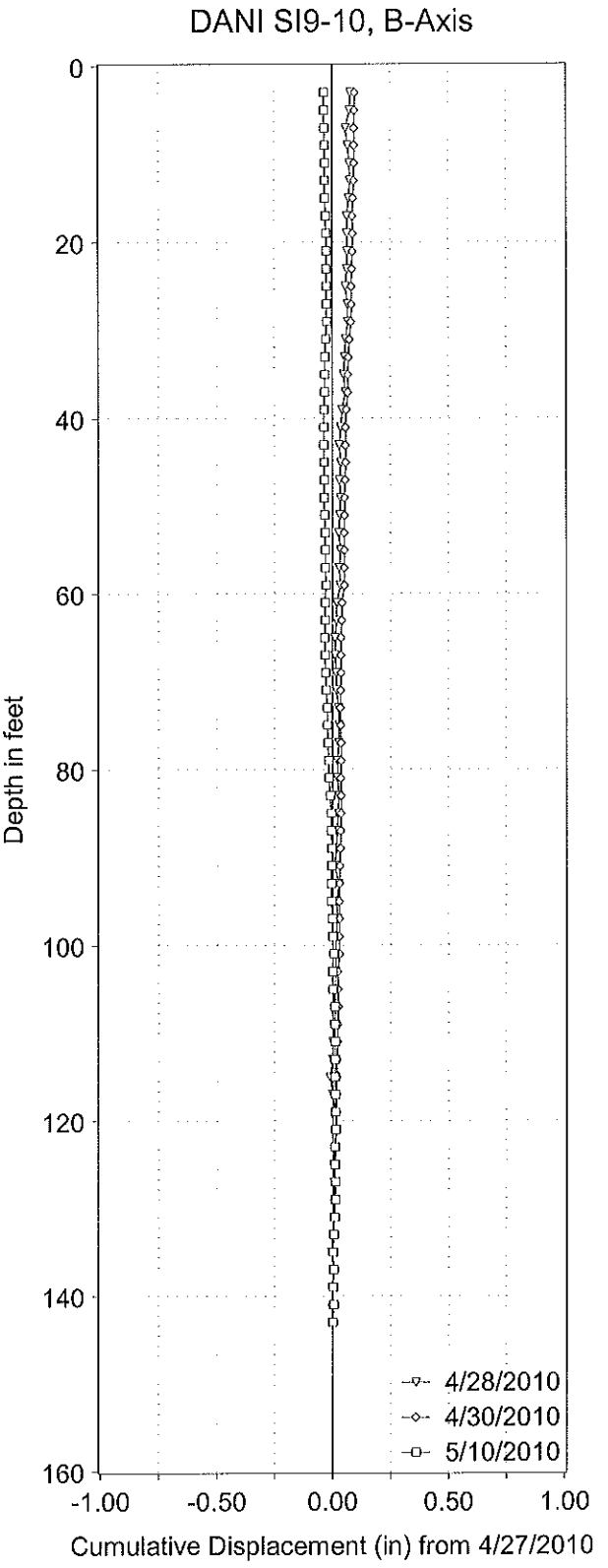




Dani Creek Landslide
At R-10-005 (I)

INCREMENTAL DISPLACEMENT



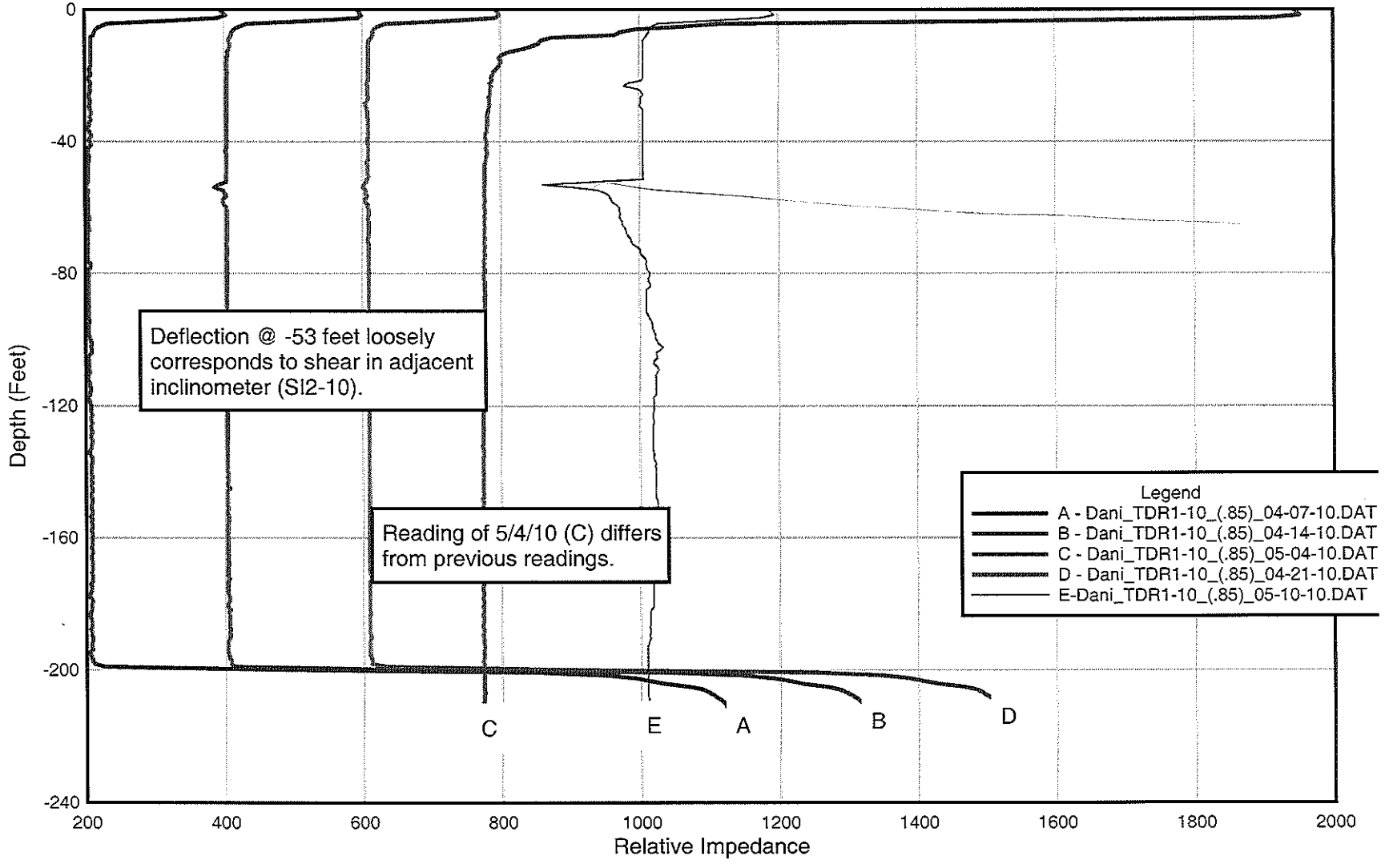


Dani Creek Landslide
At R-10-005 (I)

CUMULATIVE DISPLACEMENT

5/12/2010

Dani Creek Landslide
TDR1-10 @ R-10-015 (TDR)
05-MON-001-22.8

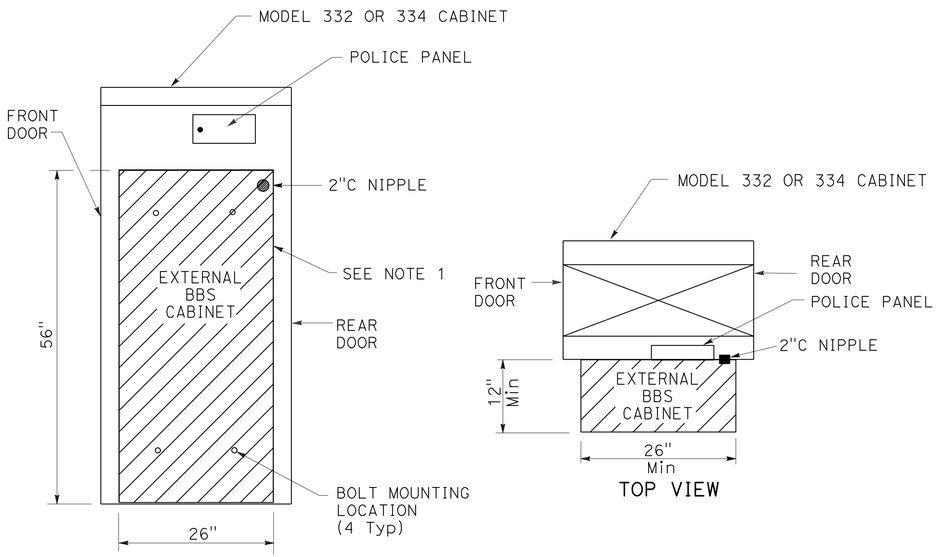


Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Theresa Gabriel — 12-20-07
REGISTERED CIVIL ENGINEER — DATE

REGISTERED PROFESSIONAL ENGINEER
Theresa A. Gabriel
No. E15129
Exp. 6-30-10
ELECT
STATE OF CALIFORNIA

PLANS APPROVAL DATE

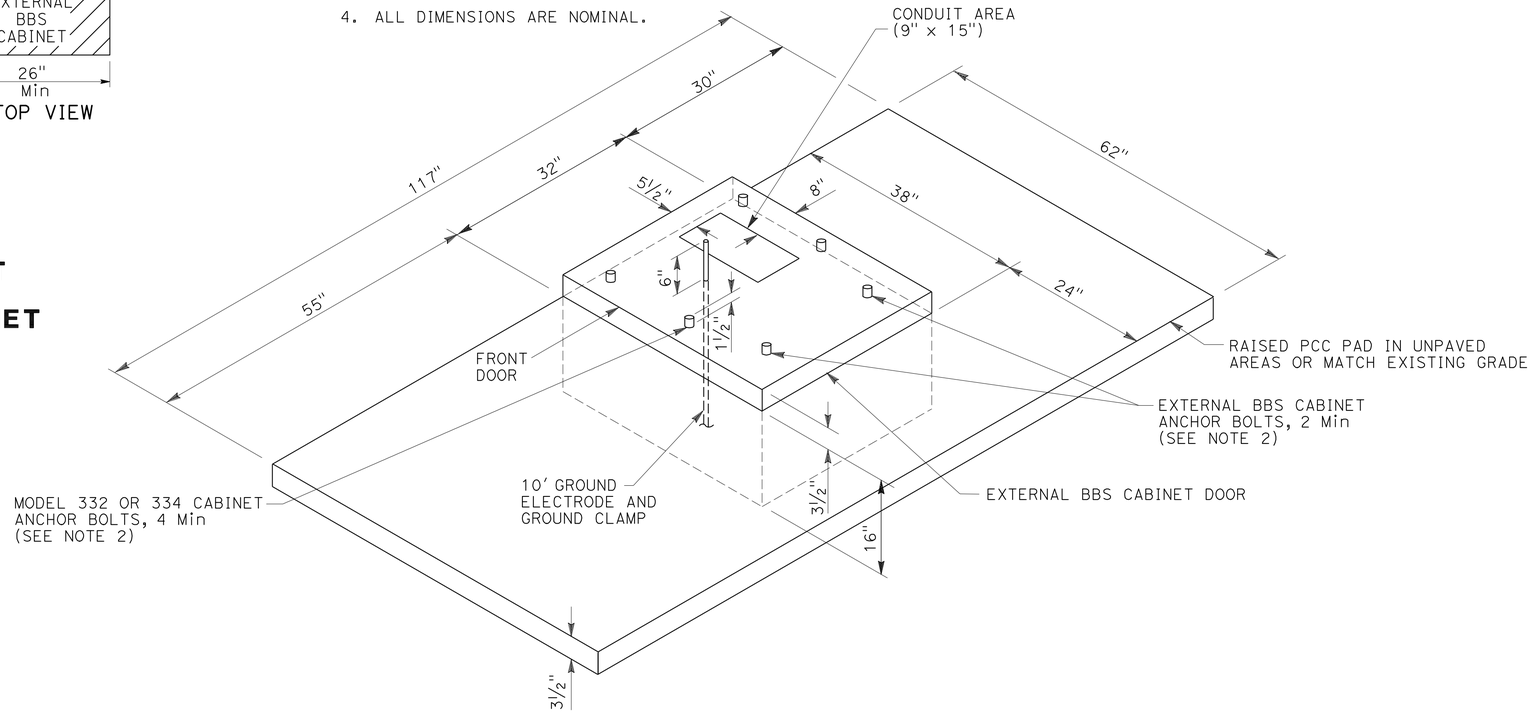


SIDE VIEW

EXTERNAL BBS CABINET MOUNTED TO THE MODEL 332 OR 334 CABINET

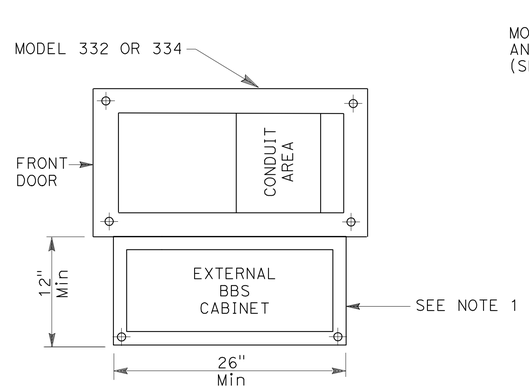
NOTE: (THIS SHEET ONLY)

1. THE EXTERNAL BBS CABINET SHALL BE MOUNTED TO THE MODEL 332 OR 334 CABINET WITH FOUR 18-8 STAINLESS STEEL HEX HEAD, FULLY-THREADED, $\frac{3}{8}$"-16 X 1" BOLTS; TWO WASHERS PER BOLT, DESIGNED FOR $\frac{3}{8}$" BOLTS AND ARE 18-8 STAINLESS STEEL, 1" OUTSIDE DIAMETER, ROUND, AND FLAT; AND ONE K-LOCK NUT PER BOLT THAT IS 18-8 STAINLESS STEEL AND A HEX-NUT. THE ENGINEER WILL HAVE TO APPROVE THE BOLT MOUNTING LOCATION PRIOR TO INSTALLATION.
2. THE ANCHOR BOLTS SHALL BE $\frac{3}{4}$" Dia X 15" WITH A 2"-90° BEND. THE CABINET MANUFACTURER'S SPECIFICATION SHALL DETERMINE THE LOCATION OF THE ANCHOR BOLTS IN THE FOUNDATION. THE ENGINEER WILL HAVE TO APPROVE THE ANCHOR BOLTS AND ITS LOCATION IN THE FOUNDATION PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL VERIFY THE DIMENSIONS OF THE BBS CABINET PRIOR TO CONSTRUCTING THE FOUNDATION OF THE MODIFIED PORTION OF THE Std MODEL 332 AND 334 CABINET FOUNDATION. THE ENGINEER WILL HAVE TO APPROVE ANY NECESSARY DEVIATIONS PRIOR TO CONSTRUCTION.
4. ALL DIMENSIONS ARE NOMINAL.



MODIFIED MODEL 332 AND 334 CABINET FOUNDATION DETAIL FOR BATTERY BACKUP SYSTEM (BBS)

(FOR DIMENSIONS AND DETAILS NOT SHOWN AND ADDITIONAL NOTES, SEE SHEET ES-3C OF THE STANDARD PLANS FOR MODEL 332 AND 334 CABINETS)



BASE PLAN FOR BBS MOUNTED TO THE MODEL 332 OR 334 CABINET

(FOR DIMENSIONS AND DETAILS NOT SHOWN, SEE SHEET A6-1 TO A6-4, CABINET HOUSING DETAILS OF THE TRANSPORTATION ELECTRICAL EQUIPMENT SPECIFICATION (TEES))

ELECTRICAL SYSTEMS
(BBS FOUNDATION DETAILS)

NO SCALE

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

REVISED BY | DATE REVISED
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 2-2-09
DATE PLOTTED => 13-APR-2010
TIME PLOTTED => 11:41

BORDER LAST REVISED 4/11/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trpierce
DGN FILE => BBS Foundation.dgn
CU 00000
EA 000000

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Theresa Gabriel — REGISTERED CIVIL ENGINEER — 12-20-07 DATE

REGISTERED PROFESSIONAL ENGINEER — Theresa A. Gabriel — No. E15129 — Exp. 6-30-10 — ELECT — STATE OF CALIFORNIA

PLANS APPROVAL DATE

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LEGEND: (THIS SHEET ONLY)

PTS = POWER TRANSFER SWITCH
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AC- = GROUNDED CONDUCTOR
C = COMMON
Grn = GREEN
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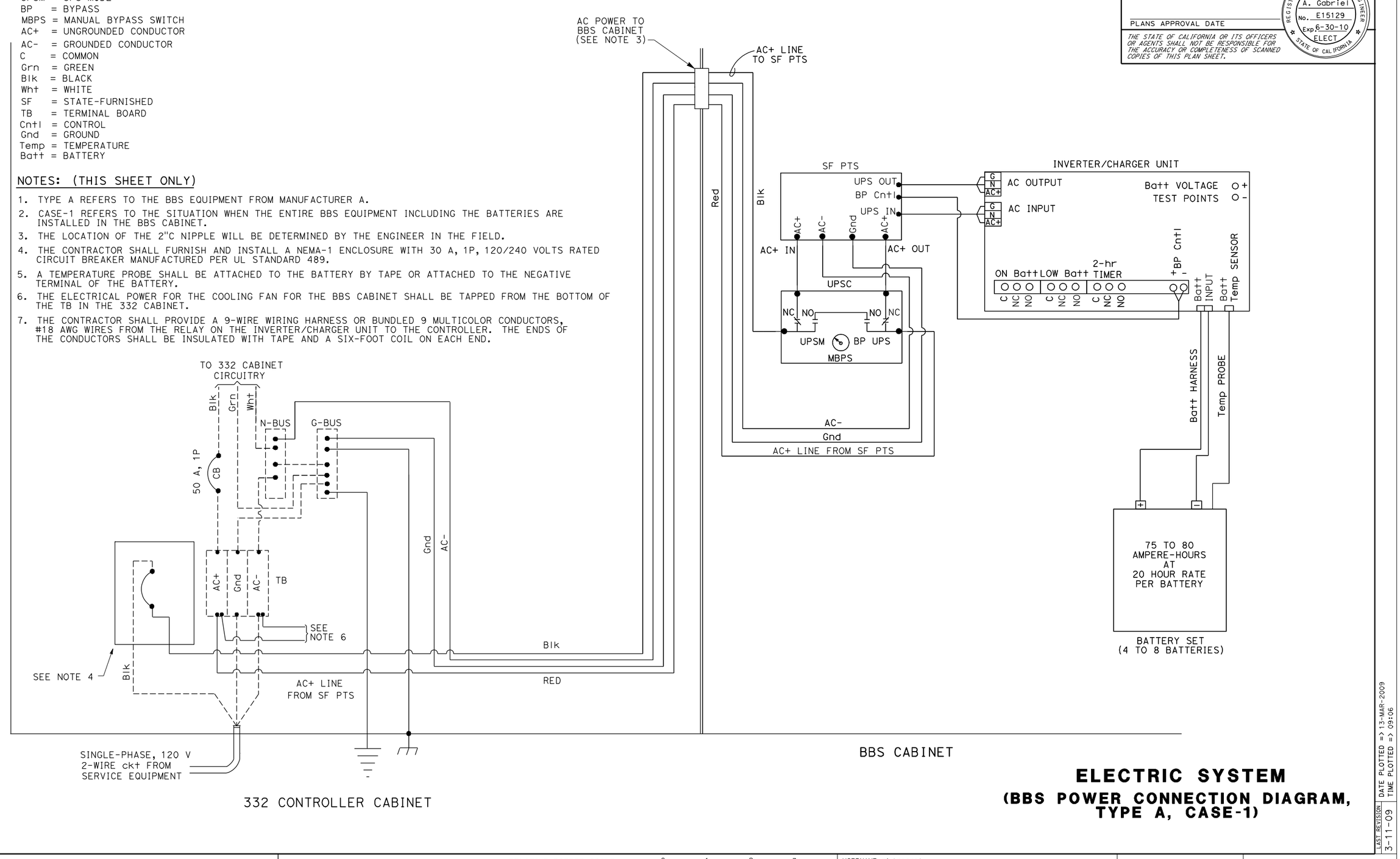
SF = STATE-FURNISHED
TB = TERMINAL BOARD
Cntl = CONTROL
Gnd = GROUND
Temp = TEMPERATURE
Batt = BATTERY

NOTES: (THIS SHEET ONLY)

1. TYPE A REFERS TO THE BBS EQUIPMENT FROM MANUFACTURER A.
2. CASE-1 REFERS TO THE SITUATION WHEN THE ENTIRE BBS EQUIPMENT INCLUDING THE BATTERIES ARE INSTALLED IN THE BBS CABINET.
3. THE LOCATION OF THE 2"C NIPPLE WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL A NEMA-1 ENCLOSURE WITH 30 A, 1P, 120/240 VOLTS RATED CIRCUIT BREAKER MANUFACTURED PER UL STANDARD 489.
5. A TEMPERATURE PROBE SHALL BE ATTACHED TO THE BATTERY BY TAPE OR ATTACHED TO THE NEGATIVE TERMINAL OF THE BATTERY.
6. THE ELECTRICAL POWER FOR THE COOLING FAN FOR THE BBS CABINET SHALL BE TAPPED FROM THE BOTTOM OF THE TB IN THE 332 CABINET.
7. THE CONTRACTOR SHALL PROVIDE A 9-WIRE WIRING HARNESS OR BUNDLED 9 MULTICOLOR CONDUCTORS, #18 AWG WIRES FROM THE RELAY ON THE INVERTER/CHARGER UNIT TO THE CONTROLLER. THE ENDS OF THE CONDUCTORS SHALL BE INSULATED WITH TAPE AND A SIX-FOOT COIL ON EACH END.



ELECTRIC SYSTEM
(BBS POWER CONNECTION DIAGRAM, TYPE A, CASE-1)

LAST REVISION 3-11-09 | DATE PLOTTED => 13-MAR-2009 | TIME PLOTTED => 09:06

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | FUNCTIONAL SUPERVISOR | CALCULATED-DESIGNED BY | CHECKED BY | REVISED BY | DATE REVISED

BORDER LAST REVISED 4/11/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => trcarol | DGN FILE => BBS 1250FSM.dgn | CU 00000 | EA 000000

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Theresa Gabriel — REGISTERED CIVIL ENGINEER — 12-20-07 DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Theresa A. Gabriel — No. E15129 — Exp 6-30-10 — ELECT — STATE OF CALIFORNIA

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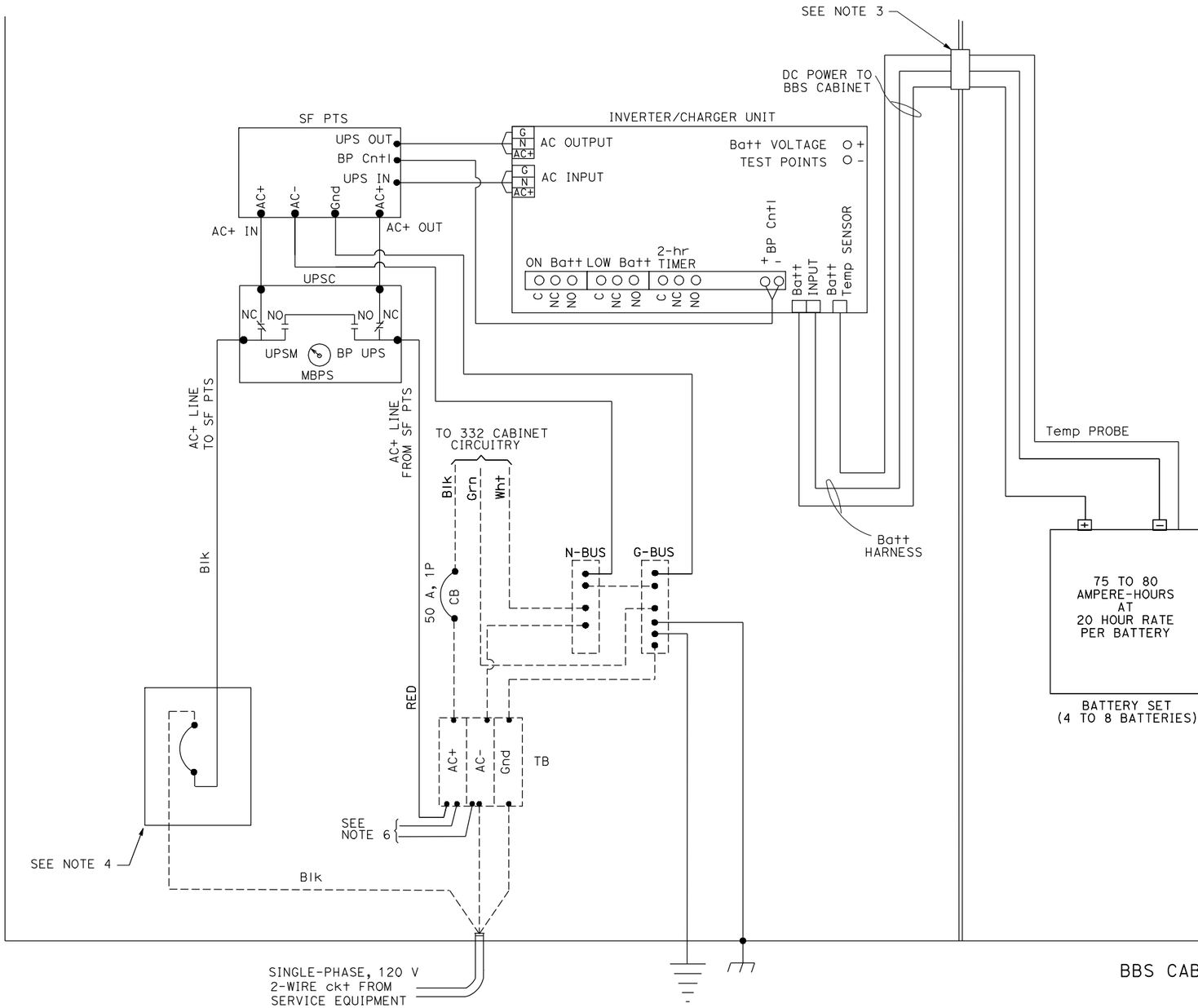

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Blk = BLACK
Wht = WHITE
SF = STATE-FURNISHED
Batt = BATTERY
Temp = TEMPERATURE
TB = TERMINAL BOARD
Cntl = CONTROL
Gnd = GROUND

NOTES: (THIS SHEET ONLY)

1. TYPE B REFERS TO THE BBS EQUIPMENT FROM MANUFACTURER B.
2. CASE-2 REFERS TO THE SITUATION WHEN ONLY THE BATTERIES ARE INSTALLED IN THE BBS CABINET. THE REMAINING EQUIPMENT IS PLACED IN THE 332 CONTROLLER CABINET.
3. THE LOCATION OF THE 2"C NIPPLE WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL A NEMA-1 ENCLOSURE WITH 30 A, 1P, 120/240 VOLTS RATED CIRCUIT BREAKER MANUFACTURED PER UL STANDARD 489.
5. A TEMPERATURE PROBE SHALL BE ATTACHED TO THE BATTERY BY TAPE OR ATTACHED TO THE NEGATIVE TERMINAL OF THE BATTERY.
6. THE ELECTRICAL POWER FOR THE COOLING FAN FOR THE BBS CABINET SHALL BE TAPPED FROM THE BOTTOM OF THE TB IN THE 332 CABINET.
7. THE CONTRACTOR SHALL PROVIDE A 9-WIRE WIRING HARNESS OR BUNDLED 9 MULTICOLOR CONDUCTORS, #18 AWG WIRES FROM THE RELAY ON THE INVERTER/CHARGER UNIT TO THE CONTROLLER. THE ENDS OFTHE CONDUCTORS SHALL BE INSULATED WITH TAPE AND A SIX-FOOT COIL ON EACH END.

ELECTRICAL SYSTEMS
(BBS POWER CONNECTION DIAGRAM, TYPE A, CASE-2)

NO SCALE

REVISED BY | DATE REVISED
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 2-2-09
DATE PLOTTED => 13-MAR-2009
TIME PLOTTED => 09:07

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Theresa Gabriel — REGISTERED CIVIL ENGINEER — 12-20-07 DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Theresa A. Gabriel — No. E15129 — Exp 6-30-10 — ELECT — STATE OF CALIFORNIA

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NOTES: (THIS SHEET ONLY)

1. TYPE B REFERS TO THE BBS EQUIPMENT FROM MANUFACTURER B.
2. CASE-1 REFERS TO THE SITUATION WHEN THE ENTIRE BBS EQUIPMENT INCLUDING THE BATTERIES ARE INSTALLED IN THE BBS CABINET.
3. THE LOCATION OF THE 2"C NIPPLE WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
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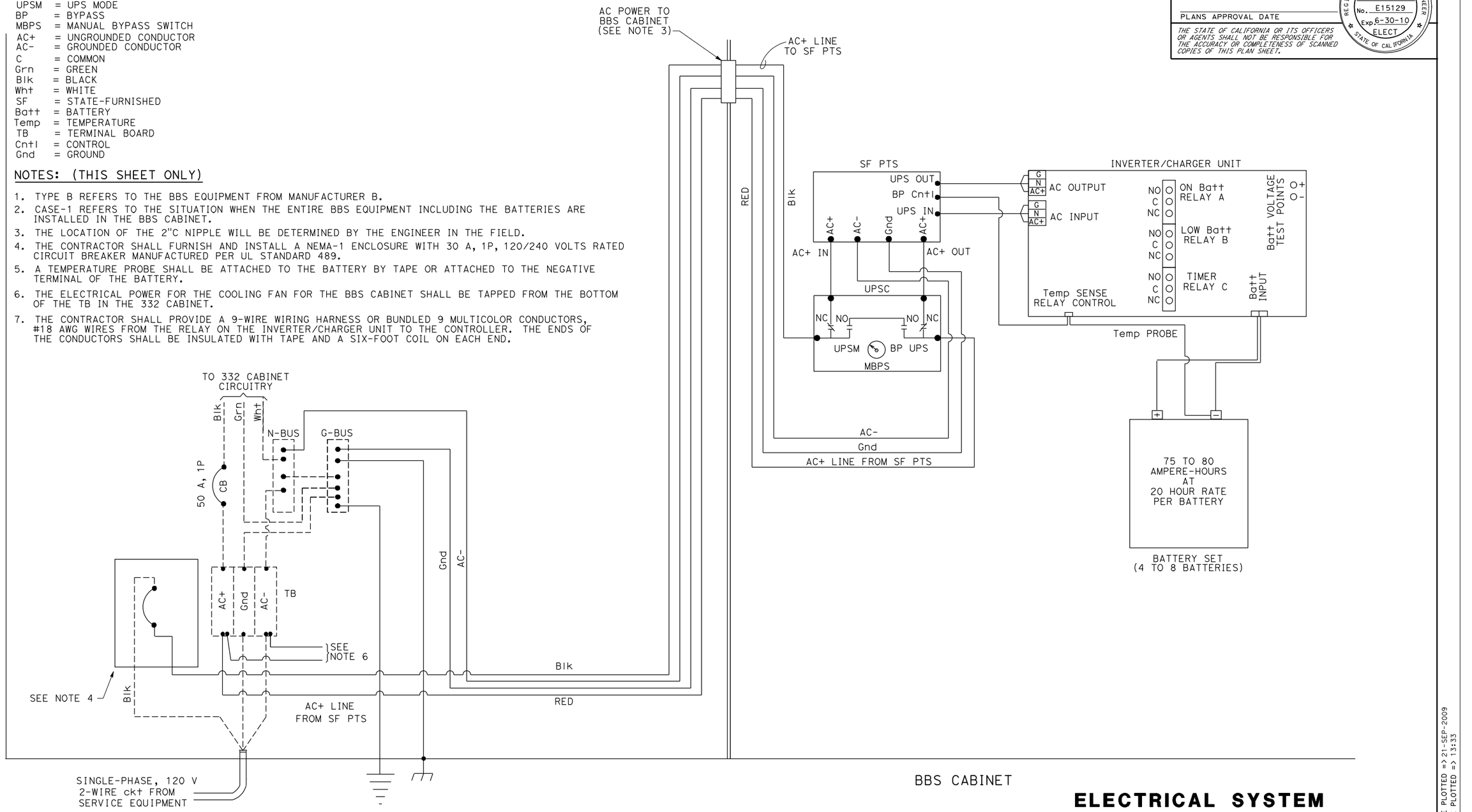

ELECTRICAL SYSTEM

(BBS POWER CONNECTION DIAGRAM, TYPE B, CASE-1)

LAST REVISION 3-11-09
DATE PLOTTED => 21-SEP-2009
TIME PLOTTED => 13:33

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FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => trcarol
DGN FILE => BBS DUIFSM.dgn

CU 00000

EA 000000

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Theresa Gabriel — 12-20-07
REGISTERED CIVIL ENGINEER — DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Theresa A. Gabriel — No. E15129 — Exp 6-30-10 — ELECT — STATE OF CALIFORNIA

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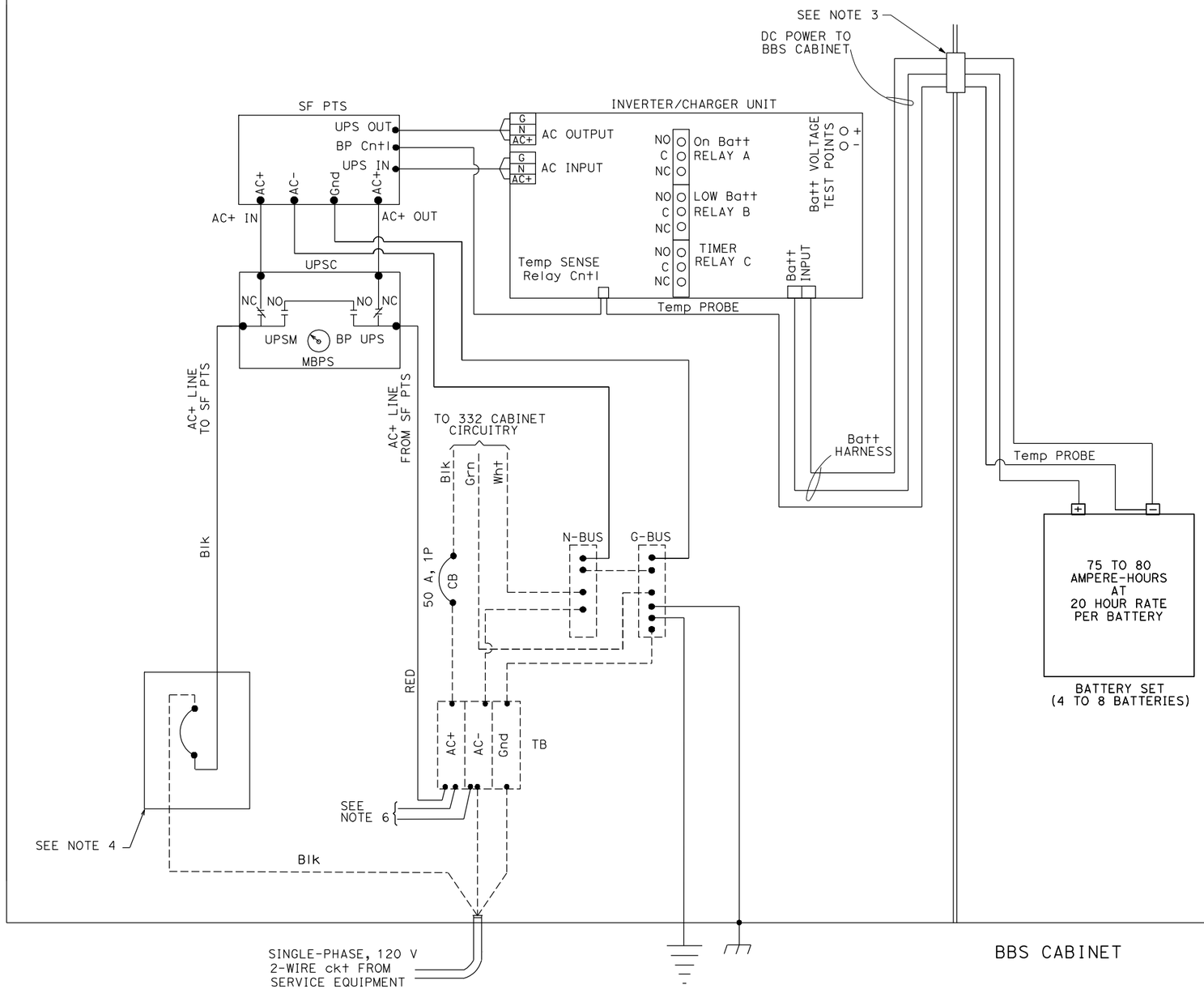

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ELECTRICAL SYSTEM

(BBS POWER CONNECTION DIAGRAM, TYPE B, CASE-2)

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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LAST REVISION 3-11-09
DATE PLOTTED => 13-MAR-2009
TIME PLOTTED => 09:10

BORDER LAST REVISED 4/11/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
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DGN FILE => BBS DUIFSP.dgn
CU 00000
EA 000000