GEOTECHNICAL DESIGN REPORT
GOLDEN STATE BOULEVARD CORRIDOR
FRESNO COUNTY, CALIFORNIA
KLEINFELDER PROJECT NO. 20171121.001A

SEPTEMBER 19, 2022

September 19, 2022
Kleinfelder Project No.: 20171121.001A

Mr. Ed Noriega
Mark Thomas & Company, Inc.
7571 N. Remington Avenue, Suite 102
Fresno, CA 93711

SUBJECT:Geotechnical Design Report
Golden State Boulevard Corridor
Fresno County, California

Dear Mr. Noriega:

Kleinfelder is pleased to present this Geotechnical Design Report which discusses the geotechnical conditions and provides recommendations for Golden State Boulevard in Fresno County, California. This report has been prepared in general conformance with Caltrans guidelines and provides geotechnical recommendations for use in project design and construction.

We appreciate the opportunity to provide geotechnical engineering services to Mark Thomas, the Fresno Council of Governments, and other project designers. We trust this information meets your current needs. If there are any questions concerning the information presented in this report, please contact this office at your convenience.

Respectfully submitted,

KLEINFELDER, INC.

REGISTERED PROFESSIONAL ENGINEER
DAVID L. PEARSON
No. 674
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GEOTECHNICAL
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Project Manager

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Senior Principal Geotechnical Engineer

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1 INTRODUCTION

1.1 GENERAL

This report presents the results of an investigation for Golden State Boulevard Corridor located in Fresno County, California (Plate 1, Site Vicinity Map). This report is intended to assist the project roadway design engineer, and the Fresno Council of Governments, in evaluation and design of necessary roadway improvements associated with the replacement of the existing Golden State Boulevard between American Avenue in Fresno County and Gilroy Street in Kingsburg, CA.

1.2 PURPOSE AND SCOPE OF SERVICES

The purpose of the materials/geotechnical design report is to provide geotechnical recommendations and opinions to aid in project design. The report provides the following:

- A description of the proposed project including a site vicinity map showing the location of the project alignment and a site plan showing the approximate locations of the exploration points for this study
- General description and characteristics of the subsurface materials along the roadway alignment, including boring logs
- A summary of the field exploration and laboratory testing programs
- Discussion of regional and local geology, including faults and seismicity
- Comments and recommendations for site preparation and earthwork grading
- Characterization of subgrade using correlation of soil survey maps, observed soil types, R-Value and Sand Equivalent tests, and Falling Weight Deflectometer (FWD) deflection survey.
- Recommendations for new traditional and Full Depth Reclamation (FDR) roadway structural sections based on furnished Traffic Indexes
- Comments and recommendations on rehabilitation by CIR and/or AC overlay
- Recommendations for pole foundations for signs, lighting and signals

- Recommendations for lateral earth pressures for use in design of retaining walls, if necessary, and
- Comments on the general corrosion potential of on-site soils to buried metal and concrete.

Kleinfelder's scope of services consisted of general site reconnaissance, a field exploration and deflection program, laboratory testing, review of NCRS Soil Survey Maps and previous investigations in the project's vicinity, design analysis and preparation of this written report.

1.3 LIMITATIONS

Recommendations contained in this report are based on field observations and the subsurface exploration, laboratory tests, and present knowledge of the proposed construction. It is possible that soil conditions could vary beyond the point explored.

This report has been prepared in substantial accordance with the generally accepted geotechnical engineering practice as it exists at the time of the study. No warranty is expressed or implied.

This report is intended to be used by Mark Thomas, the Fresno Council of Governments, project subconsultants, and regulatory agencies, and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions or other factors may change over time, and additional work may be required with the passage of time. Any other party who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.

2 PROPOSED IMPROVEMENTS

2.1 GENERAL

The improvements along the length of the Corridor will include new pavement, pavement rehabilitation, drainage facilities, traffic signals, lighting, possible retaining walls, bicycle lanes, and pedestrian/bicycle paths, landscaping, and other hardscape improvements. The project improvements extend from Gilroy Street north to American Avenue, a total distance of 74,680 feet.

2.2 ROADWAYS

The existing Golden State Boulevard is a 4-lane divided roadway from American Avenue to approximately 1,000 feet south of Stroud Avenue, where it becomes a 2-lane road. The proposed road improvement will generally coincide with the present alignment. Consequently, most of the project will involve rehabilitation of the existing road. Some new areas of road embankment will be necessary to raise existing grade and to accommodate subtle realignment areas. Based on traffic analyses, the Traffic Indexes for the improved Golden State Boulevard will vary from 9.0 to 12.5. Table 2.2-1 provides the furnished Traffic Indexes.

Table 2.2-1

Design Traffic Indexes

Study Segment	Limits	Traffic Index	
		Northbound	Southbound
Golden State Boulevard	Gilroy Street to SR-201	9	9
Golden State Boulevard	SR-201 to Stroud Avenue	9	9.5
Golden State Boulevard	Stroud Avenue to Bethel Avenue	9.5	10
Golden State Boulevard	Bethel Avenue to Mountain View Avenue	10.5	10.5
Golden State Boulevard	Mountain View Avenue to Park Street	10	9.5
Whitson Street	Park Street to Floral Avenue	9.5	9.5
Whitson Street	Floral Avenue to Highland Avenue	11	11
Golden State Boulevard	Highland Avenue to Manning Avenue	11	11
Golden State Boulevard	Manning Avenue to Temperance Avenue	12	12.5
Golden State Boulevard	Temperance Avenue to South Avenue	11	12
Golden State Boulevard	South Avenue to Adams Avenue	11	11
Golden State Boulevard	Adams Avenue to Clovis Avenue	10.5	10.5
Golden State Boulevard	Clovis Avenue to American Avenue	10.5	11

3 PERTINENT REPORTS AND INVESTIGATIONS

During the preparation of this report, the following reports, drawings, and information were used.

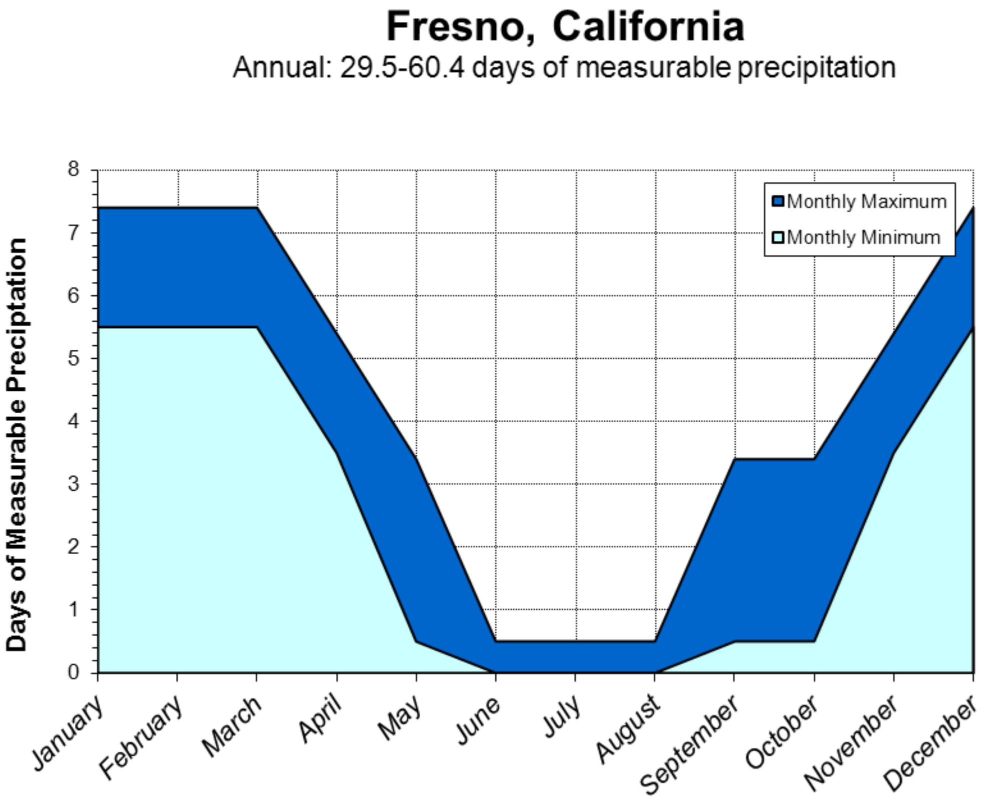
- USDA, Natural Resources Conservation Service, Eastern Fresno Area, California, Version 9, Sep 22, 2016.
- The Cenozoic Evolution of the San Joaquin Valley, California, J. Alan Bartow, 1991.
- Geology of California, Fresno Sheet, California Geological Survey, 1965.
- Golden State Corridor Economic Development Infrastructure Improvements Report, prepared by Quad Knopf, August 2011

4 PHYSICAL SETTING

4.1 CLIMATE

Fresno is characterized by hot summers and mild winters. Fresno typically has less than 29.5 days of measurable precipitation per year. Measurable rainfall typically occurs from November to May. The maximum and minimum measurable rainfall for each month is presented in Figure 4.1-1.

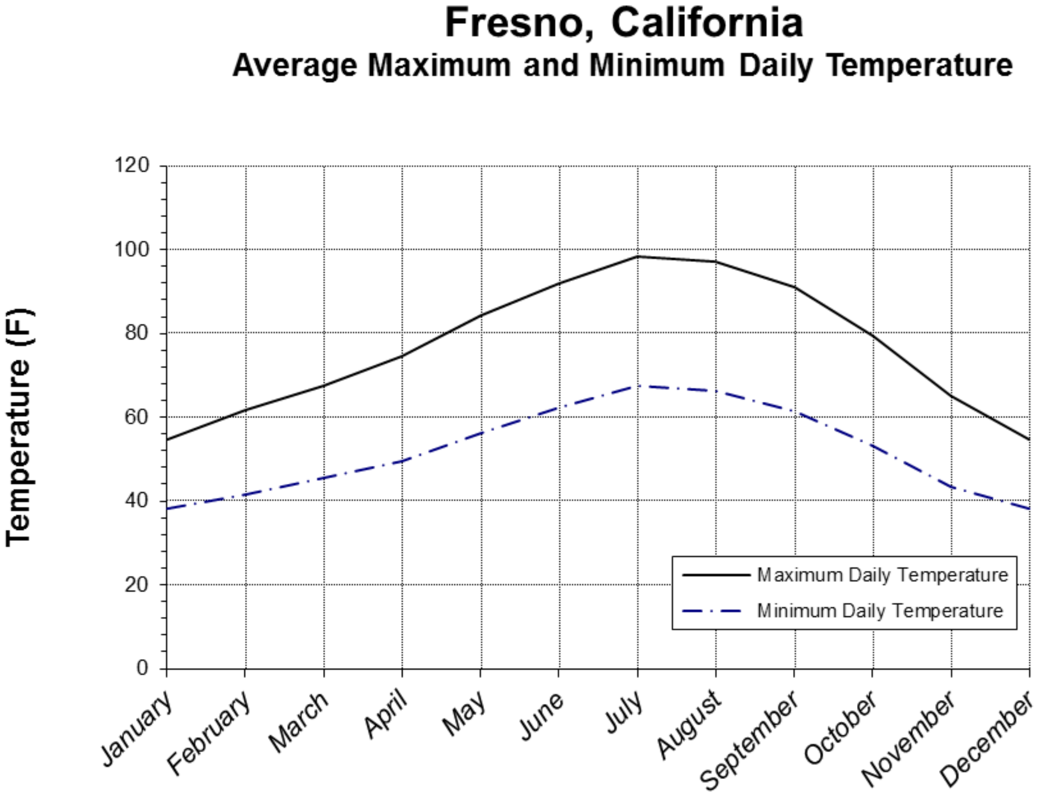
FIGURE 4.1-1



The average annual rainfall is about 11 inches.

During the year, temperatures typically fluctuate between highs in the 90s and 100s in the summer to lows in the 30s and 40s in the winter. The maximum and minimum average daily temperature for each month is presented in Figure 4.1-2.

FIGURE 4.1-2



Frost heave conditions are not a concern in the Fresno area.

4.2 TOPOGRAPHY AND DRAINAGE

The existing ground surface in the project vicinity is generally about 310 feet (above mean sea level).

4.3 REGIONAL GEOLOGY AND SEISMICITY

The project alignment lies in the central portion of the Great Valley geomorphic province in central California. This province was formed by the filling of a large structural trough or downwarp in the underlying bedrock. The trough is situated between the Sierra Nevada Range on the east and south and the Coast Ranges on the west. Both of these mountain ranges were initially formed during the Jurassic and Cretaceous periods of geologic time (greater than 65 million years ago). Uplift began in the Sierra Nevada during the Tertiary time, and is continuing today. The trough that underlies the valley is asymmetrical, with the greatest depths of sediments near the western margin. The sediments that fill the trough originated as erosion material from the adjacent mountains and foothills.

4.3.1 Site Faulting and Seismicity

There are no known faults, which cut through the local soil along the alignment. The project alignment is not located in an Alquist-Priolo Earthquake Fault Zone, as defined by Special Publication 42 (revised 2010). These maps are available on the California Geologic Survey (CGS) Website http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html for the Fault Activity Map and http://www.quake.ca.gov/gmaps/WH/regulatorymaps.htm for the Earthquake Fault Zone Map.

4.3.2 Regional Faulting and Seismicity

The more significant of the regional faults, with respect to the project alignment, are the Creeping section of the San Andreas Fault, the Parkfield section of the San Andreas Fault, and the Cholame section of the San Andreas Fault. Table 4.3-1 presents data on these significant faults. The distances were calculated and the magnitudes obtained for these faults using the current Caltrans ARS Online (V2.0.4) Web site: http://dap3.dot.ca.gov/shake_stable/v2/index.php.

Table 4.3-1

Local Faults and Estimated Moment Magnitudes

Fault	Approximate Distance from Eastern Portion of Alignment km (mi)	Maximum Credible Earthquake (Moment Magnitude, M_w[1])
San Andreas (Creeping Section)	105.3 (65.4)	7.9
San Andreas (Parkfield)	105.7 (65.7)	7.9
San Andreas (Cholame)	115.7 (71.9)	7.9

Note: [1] From Caltrans ARS Online (V2.0.4)

4.4 SOIL SURVEY MAPPING

The area of the project is included in the Soil Survey of Eastern Fresno Area by the NRCS (formerly USDA, Soil Conservation Survey). The soil units mapped along the alignment are primarily the Delhi loamy sand, Hanford sandy loam, Hesperia fine sandy loam, and Hanford fine sandy loam.

Table 4.4-1 presents some properties of the soil types that make up the mapped soil units.

Table 4.4-1
Soil Classification and Data[1]

Soil Unit	USCS	Thickness (feet)	Shrink-Swell Potential	Plasticity Index[2]	Permeability
Delhi loamy sand	SM	>6.5	Low	NP	Moderate to High
Hanford sandy loam	SM	>6.5	Low	NP	Moderate
Hesperia fine sandy loam	SM	>6.5	Low	NP	Moderate
Hanford fine sandy loam	SM	>6.5	Low	NP	Moderate

Notes:

[1] Defined in referenced Soil Survey of Fresno Area as taking into account engineering properties and test data.

[2] NP – Non-plastic

5 EXPLORATION

5.1 DRILLING AND SAMPLING

The field exploration for the project was conducted from August 8 to August 25, 2016, and consisted of site reconnaissance by a staff engineer and several test excavations. Fifty-eight (58) test borings were drilled for the project. Test borings B-29 and B-30 were not drilled due to traffic control issues. The test borings were drilled with a CME 75 truck-mounted drill rig using hollow stem auger techniques. The boring depths ranged from 5 to 6.5 feet below the existing ground surface. The approximate locations of the test borings are shown in Appendix 13.1 of this report.

The earth materials encountered in the test borings were visually classified in the field and a continuous log was recorded. Samples were collected from select borings by driving a 2.5-inch ID California sampler (CAL) into the undisturbed soil with a 140-pound automatic hammer free falling a distance of 30 inches. The CAL sampler was used with brass liners. Resistance to sampler penetration was noted as the number of blows per foot over the last 12 inches of sampler penetration on the boring logs. The blow counts listed in the boring logs have not been corrected for the effects of overburden pressure, rod length, sampler size, or hammer efficiency. Samples obtained with the 2.5 ID split barrel sampler are considered relatively undisturbed. In addition, bulk samples were obtained from auger cuttings at each boring. Upon completion of drilling, the borings were backfilled with soil cuttings and capped with quickset lean concrete.

An additional field exploration was conducted on December 16, 2016, and consisted of drilling ten (10) test cores at selected locations on Golden State Boulevard. Cores generally had visible cracks from 2 to 5 inches below surface. Core recovery was sometimes problematic due to the apparent existence of micro-cracks. The approximate locations of these test cores are shown in Appendix 13.1 of this report.

5.2 DEFLECTION SURVEY

Nondestructive pavement deflection tests were performed on all potential traffic lanes in both directions of the study site to evaluate the relative strength of the existing pavement sections and the possible need for structural enhancement (i.e., HMA overlay). Deflection tests were performed on August 1 to 4, 2016 by Dynatest Consulting (Ventura, California) using a Dynatest Model 8000 Falling-Weight Deflectometer (FWD). The deflection measurements were taken in both travel lanes at intervals of approximately 200 feet. A total of 1373 FWD test points were collected over the selected roadway. For this project, target load levels of 6,000, 9,000, and 12,000-lbs were applied. All drops were utilized to obtain the load normalized center deflections. Drop number 2 corresponding to a load level of 9,000-lbs was used to obtain the back calculated layer moduli. FWD sensor (geophone) spacing was set at 0, 8, 12, 18, 24, 36, 48, 60, and 72 inches away from the load plate. The FWD data was correlated to a California traveling deflectometer, the testing equipment used in California Test (CT) 356 and the Caltrans Highway Design Manual. The deflection test data collected by Dynatest Consulting are presented in the attached Appendix 13.5.

5.3 GEOLOGIC MAPPING

No geologic mapping was appropriate for the site. Basic geologic observation performed during this investigation, was supplemented with research of existing literature (see Section 4.4 and 7.1). The proposed roadway alignment is generally contained within Holocene age alluvial sediments. No known fault structures traverse or are near the project site.

5.4 GEOPHYSICAL STUDIES

Geophysical studies were not performed during the investigation due to a lack of need for such studies at this site.

5.5 INSTRUMENTATION

No instrumentation was installed or deemed necessary during the investigation.

6 GEOTECHNICAL TESTING

6.1 LABORATORY TESTING

Kleinfelder performed laboratory tests on selected samples to evaluate their physical characteristics. The following laboratory tests were used to develop the geotechnical design parameters:

- Sieve Analysis (ASTM C136)
- Unit Weight (ASTM D2937)
- Moisture Content (ASTM D2216)
- Maximum Density Curve (ASTM D1557)
- Direct Shear (ASTM D3080)
- Resistance Value (California Test Method No. 301)
- Minimum Resistivity and pH (California Test Method No. 643)
- Soluble Sulfates (California Test Method No. 417)
- Soluble Chlorides (California Test Method No. 422)
- Sand Equivalent (California Test Method No. 217)
- Unconfined Concrete Compression Test (ASTM C42)

The pH and minimum resistivity results are summarized in the "Corrosion Characteristics" Section (Section 8.8). The remaining test results are provided in the Appendix 13.6.

7 GEOTECHNICAL CONDITIONS

7.1 SITE GEOLOGY

7.1.1 Surface Conditions

The regional geology is described in Section 4.4. The majority of the surface materials in the project area have been mapped by the USDA and Natural Conservation Resources Service (NCRS) as loam and sandy loam. These soils are described as fine to coarse grained. The regional topography is relatively flat.

7.1.2 Lithology

The project site lies in the central portion of the San Joaquin Valley in the Great Valley geomorphic province in California. This province was formed by the filling of a large structural trough or downwarp in the underlying bedrock. The trough is situated between the Sierra Nevada Range on the east and south and the Coast Range on the west. Both of these mountain ranges were initially formed during the Jurassic and Cretaceous periods of geologic time (greater than 65 million years ago). Uplift began in the Sierra Nevada during the Tertiary time, and is continuing today. The majority of the native sediments in the project area (Plate 2) have been mapped by Matthews et al., 1991 (Fresno 2° geologic sheet) by the California Geological Survey (CGS) as basin deposits (Qb). These sediments are described as typically consisting of sediments deposited during flood stages of major streams in the area between natural stream levees and fans.

The trough that underlies the valley is asymmetrical, with the greatest depths of sediments near the western margin. The sediments that fill the trough originated as erosional material from the adjacent mountains and foothills. The sediments consist of about 10,000 feet of Quaternary alluvial deposits and Tertiary sedimentary rock overlying Mesozoic and Paleozoic crystalline basement rock. The upper alluvial deposits are comprises of non-marine granular soil with a geologic age of Holocene.

7.1.3 Natural Slope Stability

Due to the relatively flat nature of the surrounding grade, natural slope stability is not an issue on this project.

7.2 ALIGNMENT SURFACE MATERIAL

The present road surfacing material consists of asphalt concrete (AC) and portland cement concrete (PCC). A significant amount of the AC is underlain by PCC (original pavement). Some AC pavement is full depth (AC on subgrade). A few areas contained an aggregate base (AB) layer. Original plans noted cement treated base in some areas, however, cores revealed PCC. Table 7.2-1 provides the various pavement sections encountered in the test borings. Test boring logs are provided in Appendix 13.2.

Table 7.2-1

Existing Pavement Sections

Boring	Lane	Station	Pavement Section
B1	2SB	759+40	4" AC / 6" AB / 3" PCC
B2	1SB	734+40	7" AC / 5" PCC / 3"AB
B3	2SB	709+40	5" AC / 6" AB
B4	1SB	684+30	8" AC / 4.5" PCC / 2" Cement-Slurry
B5	2SB	659+30	8" AC / 4.5" PCC
B6	1SB	634+30	6" AC / 9" PCC
B7	2SB	609+30	6" AC / 9" PCC
B8	1SB	584+30	5" AC / 6" PCC
B9	2SB	559+40	6" AC / 7" PCC
B10	1SB	534+25	9" AC
B11	2SB	509+30	6" AC / 3" AB
B12	1SB	484+10	9" AC
B13	2SB	459+20	9" AC
B14	1SB	434+20	10" AC
B15	2SB	409+10	9" AC
B16	1SB	384+10	9.5" AC
B17	2SB	359+10	9" AC
B18	1SB	333+70	10" AC
B19	2SB	308+25	6" AC
B20	1SB	283+25	8.5" AC
B21	2SB	258+00	9.5" AC
B22	1SB	232+90	8" PCC
B23	2SB	208+00	2.5" AC / 8" PCC
B24	1SB	182+25	2" AC / 8" PCC
B25	2SB	157+30	2" AC / 8" PCC
B26	1SB	132+25	1" AC / 9" PCC
B27	2SB	107+25	8.5" PCC
B28	1SB	82+20	8" PCC
B31	1NB	13+60	9" AC / PCC
B32	1NB	42+30	9.5" AC / PCC
B33	1NB	66+50	7" AC / PCC
B34	1NB	90+80	8" AC / 4.5" PCC

Boring	Lane	Station	Pavement Section
B35	2NB	116+70	5" AC / 7" PCC
B36	1NB	142+30	7.5" AC / 3" CTB / 8" PCC
B37	2NB	168+90	9" AC / 5" PCC
B38	1NB	194+20	7" AC / 6" AB / 8" PCC
B39	2NB	213+40	9" AC / 4" PCC
B40	1NB	245+75	8.5" AC / 4.5" PCC
B41	2NB	270+20	8" AC
B42	1NB	289+60	5" AC / 5" PCC
B43	2NB	314+70	7" AC
B44	1NB	341+80	5" AC / 4" PCC
B45	2NB	367+00	8" AC / 6" PCC
B46	1NB	394+60	13" AC
B47	2NB	416+90	15" AC
B48	1NB	443+10	17" AC
B49	2NB	468+10	14" AC / 2" PCC
B50	1NB	493+10	12.5" AC / 4" PCC
B51	2NB	521+10	11" AC / 3" PCC
B52	1NB	543+10	12" AC
B53	2NB	568+25	4" AC / 6" PCC
B54	1NB	594+90	7" AC / 8" PCC
B55	2NB	620+50	7" AC / 7.5" PCC
B56	1NB	647+00	10.5" AC / 5" PCC
B57	2NB	672+00	13" AC / 4" PCC
B58	1NB	697+00	12" AC / 5.5" PCC
B59	2NB	722+00	16" AC / 4" PCC
B60	1NB	747+10	10" AC / 5" PCC

Note: [1] Borings B-29 and B-30 were not drilled.

Table 7.2-2 provides descriptions of the conditions encountered in the ten pavement test cores. Pictures of the cores are provided in Appendix 13.3.

Table 7.2-2

Core Specimen Data

Core	Lane	Station	Pavement Section
C1[1]	2SB	627+40	4.5" AC / 4.5" PCCP
C2	1SB	501+10	Too Damaged to Tell
C3	2SB	295+10	app. 4" AC / Loose Material
C4	2SB	77+30	3.5" AC / Loose Gravel
C5	1NB	246+90	5" AC / PCCP
C6	2NB	329+30	6" AC / PCCP
C7	2NB	350+00	4" AC / Sand[3]
C8	1NB	386+80	8.5" AC / PCCP
C9	1NB	463+60	10.5" AC / PCCP
C10[2]	1NB	554+80	4" AC / 4" PCCP

Note: [1] PCCP from Core C1 tested at 3300 psi compressive strength
[2] PCCP from Core C10 tested at 5000 psi compressive strength
[3] Trench backfill

7.3 SUBSURFACE MATERIALS

Based on site observation and soil borings, the soil profile along the roadway alignment is normally consolidated alluvium. The near surface soils encountered at the test boring locations predominately consisted of medium dense silty sand and sandy silts extending to the depths explored, 6.5 feet below existing grade. Test boring logs are presented in Appendix 13.2.

7.4 WATER

7.4.1 Surface Water

The only surface water crossing the alignment is the Fowler Switch Canal, which is a controlled facility. Design will accommodate collection and discharge of incidental surface run-off.

7.4.2 Ground Water

Groundwater was not encountered within the depths explored, 6.5 feet below existing grade. The latest California Department of Water Resources data indicates the depth to groundwater is approximately 30 to 70 feet. It is possible that groundwater conditions at the site could change at some time in the future due to variations in rainfall, groundwater withdrawal, water banking, or other factors not apparent at the time the test borings were made. However, ground water is not anticipated to have any effect on project design or construction.

7.5 PROJECT SEISMICITY

7.5.1 Ground Motion

Based on Caltrans Seismic Design Criteria (Version 1.7), the estimated Peak Horizontal Ground Acceleration (PHGA) is 0.34g. Recommended seismic design criteria are presented in Section 8.1 of this report.

7.5.2 Ground Rupture

There are no known faults that cut through the local soil at the project site. The site is not located within a currently established Alquist-Priolo Earthquake Fault Zone as defined by Special Publication 42 (revised 2010) published by the California Geologic Survey (CGS). The occurrence of ground rupture at the project site is very unlikely.

8 GEOTECHNICAL ANALYSIS AND DESIGN

8.1 DYNAMIC ANALYSIS

8.1.1 Parameter Selection

Based on the data from the borings and per Caltrans SDC, the site can be classified as Soil Profile Type D. A V_{s30} of 197 m/s was determined and used for the evaluation. Where structures require seismic design, the project seismic design criteria would be based on Caltrans SDC, Version 1.7. The probabilistic response spectra were found to govern for all periods. The attached ARS curve (Appendix 13.7) should be used.

Where design requires the input of a PHGA, a value of 0.34g should be used. Where required, the design earthquake magnitude associated with the PGHA would be 7.8.

8.1.2 Analysis

The dynamic analysis along the alignment consisted of liquefaction potential and seismically induced settlement. No significant permanent slopes are planned. Consequently, dynamic slope stability or deformation is not an issue.

In order for liquefaction, and possible associated effects, of soils due to ground shaking to occur, it is generally accepted that four conditions will exist:

- The subsurface soils are in a relatively loose state;
- The soils are saturated;
- The soils are non-plastic; and,
- Ground shaking is of sufficient intensity to act as a triggering mechanism.

The Youd et. al. (2001) method was utilized to estimate the potential for liquefaction at the site. Earthquake induced settlements at the boring locations have been estimated using the method proposed by Tokimatsu and Seed (1987).

Based on the relative density of the foundation soil, the depth to groundwater and the anticipated ground motion, liquefaction and associated seismically induced settlement is not likely to occur at the project site.

Another type of seismically induced ground deformation, which can occur as a result of seismic shaking, is dynamic compaction. Such phenomena typically occur in unsaturated, loose, granular material or uncompacted fill soils. The subsurface conditions encountered in the borings for this project and general characteristics of deeper soil in the area are not generally considered conducive to such seismically- induced ground deformation.

8.2 CUTS AND EXCAVATION

8.2.1 Stability

No significant permanent cuts are anticipated.

Safe inclinations of temporary cuts and excavations for constructing foundations, drainage improvements, or underground utilities should conform to regulatory requirements and are the contractor’s responsibility.

As a guide, dimensionless stability analysis using methods by Janbu indicate temporary construction cuts for heights to 5 feet should not be steeper than 0.25H:1V. Gradients should not be steeper than 1:1 for cut heights of 10 feet.

8.2.2 Rippability

Based on site observation and soil borings, the soils along the roadway alignment are generally normally consolidated to possibly slightly over-consolidated alluvium. It is anticipated the soils present can be excavated with well maintained, conventional construction equipment. Bedrock will not be present.

8.2.3 Grading Factors

Insufficient data is available to estimate the shrinkage or bulking that would be experienced from cut to fill volume.

8.3 EMBANKMENT FILL

8.3.1 Stripping and Preparation

In general, clearing and grubbing should be consistent with Section 16 of the 2015 Caltrans Standard Specifications (CSS). All areas to receive fill should be stripped of any vegetation, debris, undocumented fill or other deleterious matter. Special Provisions should require removal of any stumps and root systems from the embankment area regardless of the thickness of fill to achieve the grading plane. Special Provisions should also require the cleared approved area to receive fill be scarified to a depth of 8 inches, moisture conditioned as necessary to facilitate compaction and compacted to at least 90% of maximum density.

8.3.2 Material

On-site excavated soil is generally considered suitable for use as Local Borrow. It is anticipated the embankment material will be generated from on-site excavations, or imported. Imported fill should meet the requirements provided in Table 8.3-1

Table 8.3-1
Import Fill Criteria

Gradation		Test Procedures	
Sieve Size	**Percent Passing**	**ASTM[1]**	**Caltrans[2]**
76 mm (3 inch)	100	C136	202
19 mm (3/4 inch)	80 - 100	C136	202
No. 4	60 - 100	C136	202
No. 200	20 - 70	C136	202
Plasticity			
Liquid Limit	**Plasticity Index**		
< 50	< 6	D4318	204
R - Value			
40			301
Friction Angle			
34°		D3080	-
Soluble Sulfates			
< 2000 ppm		-	417
Soluble Chloride			
< 500 ppm		-	422
Resistivity			
> 1000 ohm - cm		-	532

Notes: [1] American Society for Testing and Materials Standards (latest edition)
[2] State of California, Department of Transportation, Standard Test Methods (latest edition)

8.3.3 Placement and Compaction

Embankment should be placed and compacted in accordance with Sections 19-5 and 19-6 of the 2015 CSS.

8.4 EARTH RETAINING SYSTEMS / POLE FOOTINGS

Shallow retaining walls and lighting/signage pole footings may be necessary for the project. It is anticipated that in-place site soil and site soil used as backfill will have characteristics consistent with, or better the soil parameters used by the Caltrans Standard Plans. The Standard Plans designs for retaining wall and lighting/signage pole footings could be used for this project.

8.5 PAVEMENT

8.5.1 General

Many areas of asphalt concrete pavement (ACP) along the Golden State Corridor show significant surface distress in the form of cracking. However, the deflection testing indicates the subgrade is stable and the existing pavement generally has sufficient structural capability. An example of this would be southbound Whitson Street from Floral to Highland Avenues. This section of pavement has significant surface cracking, which led to a preliminary conclusion for removal and replacement. The surface cracking represents environmental block cracking and lack of regular maintenance. Deflection testing for this section indicates the overall existing section is structurally sufficient. For the design TI, the tolerable deflection is 11 mils. The 13 individual deflection points in this section range from 6.4 to 13.5 mils (seven points less than 11 mils, three 11.2 to 11.9 mils, and three 13.1 to 13.5 mils). The structural deficiency for deflections of 11.2 to 13.5 is 0.01 to 0.05 feet of new HMA. Consequently, the necessary milling and overlay associated with reflective crack retardation, as recommended by Caltrans, provides more than the needed structural capacity increase. This rehabilitation is sufficient for most of the Golden State Corridor alignment. Overlay recommendations are provided in Section 8.5.4 of this report.

There are three areas in southbound Golden State Boulevard where cracking may include early fatigue cracking. Fatigue cracks, unlike environmental cracks, generate from the bottom of the ACP section. As such, in areas of fatigue cracking, removal and replacement of the pavement section is necessary. Removal and replacement is discussed in Section 8.5.2.

In general, areas of exposed portland cement concrete pavement (PCCP) and areas with thin ACP overlays on PCCP are structurally adequate. A new overlay on existing PCCP will be governed by reflective crack retardation. This overlay recommendation is in Section 8.5.4. Based on discussions, the existing PCCP will be the wearing surface in the City of Kingsburg section (south of Mountain View Avenue). Where thin ACP exists over the PCCP, it will be milled off. In the Kingsburg segment, the PCCP will be diamond ground, which is discussed in Section 8.5.3. Where ACP abuts PCCP, a transition PCCP panel, consistent with Caltrans Standard Plans, should be provided. This transition panel is discussed in Section 8.5.6.

The subgrade soil along the alignment are generally silty sand with moderate to very good subgrade characteristics. Thirteen (13) R-value tests were performed on existing subgrade soil. Table 8.5-1 provides the R-value results.

Table 8.5-1

Design R-Value

Boring	R-Value
B-1	69
B-5	35
B-9	36
B-13	73
B-17	68
B-21	70
B-25	28
B-34	72
B-38	72
B-42	71
B-46	71
B-50	72
B-54	41

The deflection testing also implies generally good subgrade quality. Where realignment, removal and replacement, or significant raising of grade is necessary, new conventional asphalt concrete paving or cement treated subgrade can be used. New pavement sections are provided in Section 8.5.5.

8.5.2 Pavement Removal

There is significant surface cracking distress in a large percentage of the alignment. Appendix 13.4 provides the Pavement Condition Index (PCI) based on visual observation. The majority of surface distress is considered to be block cracking resulting primarily from environmental factors (oxidation brittleness and thermal expansion and contraction). In southbound Golden State Boulevard from about Station 374+50 to 390+50, 406+00 to 470+00, and 511+50 to 522+50, crack distress is generally more significant in the wheel paths. Although no perceptible rutting is observed in these sections, consideration of all available information (visual surface conditions, deflection data and apparent existing pavement sections) indicates cracking in these locations could include some early fatigue (alligator) cracking. Based on discussions with Caltrans personnel, Section 635.1(5)(c) and Table 635.1D of the Highway Design Manual (while not explicitly stated) are intended to apply, when combined with proper pavement maintenance, to retardation of block crack reflection and not alligator crack reflection. Fatigue (alligator) cracks, which generate from the bottom of the pavement, will eventually reflect through a new surface overlay.

Based on the data gathered (borings, deflection data, and visual observation), it is anticipated the recommendations presented in Section 8.5.4 are applicable for the majority of the alignment. For the southbound lanes from Station 374+50 to 390+50, 406+00 to 470+00, and 511+50 to 522+50, removal of the existing pavement section and replacement with new conventional pavement consistent with Section 8.5.5.1 or full depth reclamation consistent with Section 8.5.5.2 or another comparable alternative is recommended to reduce the risk of premature crack reflection.

To refine the areas of recommended removal and replacement would require sufficient coring to determine the cracking in wheel paths do not generate from the bottom of the existing pavement sections.

There may be localized areas needing removal and replacement prior to overlay, which are too small in relation to the project scale to presently be detected (e.g. utility trenches and shoulder areas). If after milling in rehabilitation areas (8.5.3 and 8.5.4) a condition is observed which differs from the surrounding area, the designers should be contacted.

8.5.3 PCCP Diamond Grind

Within the Kingsburg segment, surface or near surface PCCP is in the southbound lanes. Exposed PCCP has generally been sufficiently maintained (joint and crack sealing). Some edge spalling has occurred at transverse control joints. Existing HMA overlay (about Station 131+90 to 192+20 and about Station 70+00 to 80+70) needs to be milled off the existing PCCP. The exposed PCCP (from about Station 70+00 to 192+20) should be diamond ground to provide the ride quality consistent with the remainder of the rehabilitated Golden State Corridor project. Any unsealed joints or cracks should be filled with joint sealant in general conformance with Caltrans Standard Plan P20.

From about Station 70+00 to 76+50, the underlying PCCP may deviate from the new travel way. In this transition zone, milling off the existing HMA should continue downstation from Station 80+70 until the PCCP deviates from the full width of the new travel way. When PCCP no longer covers the full width, the shallow HMA/PCCP section should be removed until the HMA section allows for use of the recommended overlay options (estimated to be about Station 70+00). The transition zone should be replaced with new pavement consistent with Section 8.5.5.

8.5.4 Pavement Overlay

Two conditions were considered in determining the recommended overlay: (1) structural capacity and (2) retardation of reflective cracking. The analyses for structural capacity indicate an overlay of 0.19 feet or less of Hot Mix Asphalt (HMA) is adequate for all but two locations. These are both in the Southbound Number 2 lane from about Station 215+80 to Station 394+50 and Station 446+15 to Station 508+00. Retarding the propagation of cracks considered the several alternatives provided in Caltrans Highway Design Manual Table 635.1D and Cold In-Place Recycling (CIR). Consideration of reflective crack retardation will govern the overlay thickness for the majority of the Golden State Boulevard alignment. Table 8.5-2 provides alternatives for the recommended overlay.

Table 8.5-2

Recommended Minimum Design Overlay Sections

Study Segment	Station Begin	Station End	Recommended Section (feet)	
			Alternative 1(1)	Alternative 2(5)
Northbound	13+50	760+00	0.18' HMA / 0.30' CIR	0.25' HMA / SAMI-R
Southbound	13+50	70+00	0.18' HMA / 0.30' CIR	0.25' HMA / SAMI-R
	70+00	76+50	R&R (Transition Zone)(2)	
	76+50	192+20	Diamond Grind PCCP	
	192+20	256+60	0.20’ RHMA-G / SAMI-R(3)	
	256+60	318+50	0.18' HMA / 0.30' CIR	0.30' HMA / SAMI-R
	318+50	370+00	0.18' HMA / 0.30' CIR	0.25' HMA / SAMI-R
	370+00	374+50	0.18' HMA / 0.30' CIR	0.30' HMA / SAMI-R
	374+50	390+50	R&R(4)	
	390+50	406+50	0.18' HMA / 0.30' CIR	0.30' HMA / SAMI-R
	406+50	470+00	R&R(4)	
	470+00	478+50	0.18' HMA / 0.30' CIR	0.30' HMA / SAMI-R
	478+50	511+00	0.18' HMA / 0.30' CIR	0.40' HMA / SAMI-R
	511+00	522+50	R&R(4)	
	522+50	549+00	0.18' HMA / 0.30' CIR	0.30' HMA / SAMI-R
	549+00	760+00	0.18' HMA / 0.30' CIR	0.25' HMA / SAMI-R

Notes:

[1] The milling depth would be 0.30-foot and the 0.18-foot HMA wearing will raise existing grade to insure structural capability.

[2] See transition zone discussion in Section 8.5.3.

[3] Mill off existing HMA, and crack and seat existing PCCP prior to placing SAMI-R.

[4] See section 8.5.2.

[5] The minimum milling depth is 0.25-foot

Where SAMI-R is used, it should extend through the shoulder to allow for unimpeded horizontal drainage of the overlying pavement material.

Based on discussions with designers, recommended overlays were kept constant across both lanes of northbound or southbound travel ways.

In areas where mill and overlay thickness may differ and existing curb and gutter grades need to be maintained, milling at the gutter would have to coincide with the overlay thickness and could be tapered up to the general milling depth of the section.

8.5.5 New Pavement

Areas of realignment outside of existing pavement, including potential transition zone from about Station 70+00 to 76+50 and areas of pavement removal and replacement, and areas requiring significant grade changes, will require new pavement.

8.5.5.1 Conventional Pavement

Table 8.5-3 provides recommended new pavement sections at-grade or in cut. Sections are based on the anticipated R-value of existing subgrade soil and the furnished TI for various road segments.

Table 8.5-3
Recommended Design Pavement Sections At-Grade or in Excavation

Stationing	Location	Direction	TI	Design R-Value	Pavement Section
13+50 to 31+50	Gilroy Street to Draper Street	NB	9	35	0.45' HMA / 0.95' AB
					0.45' HMA / 0.55' AB / 0.40' ASB
		SB	9	35	0.45' HMA / 0.95' AB
					0.45' HMA / 0.55' AB / 0.40' ASB
31+50 to 52+50	Draper Street to SR-201	NB	9	35	0.45' HMA / 0.95' AB
					0.45' HMA / 0.55' AB / 0.40' ASB
		SB	9	35	0.45' HMA / 0.95' AB
					0.45' HMA / 0.55' AB / 0.40' ASB
52+50 to 87+50	SR-201 to Stroud Avenue	NB	9	35	0.45' HMA / 0.95' AB
					0.45' HMA / 0.55' AB / 0.40' ASB
		SB	9.5	35	0.45' HMA / 1.05' AB
					0.45' HMA / 0.65' AB / 0.45' ASB

Stationing	Location	Direction	TI	Design R-Value	Pavement Section
87+50 to 126+50	Stroud Avenue to Bethel Avenue	NB	9.5	50	0.45' HMA / 0.65' AB
		SB	10	50	0.50' HMA / 0.65' AB
126+50 to 193+00	Bethel Avenue to Mountain View Avenue	NB	10.5	28	0.55' HMA / 1.30' AB 0.55' HMA / 0.65' AB / 0.75' ASB
		SB	10.5	28	0.55' HMA / 1.30' AB 0.55' HMA / 0.65' AB / 0.75' ASB
193+00 to 262+50	Mountain View Avenue to Park Street	NB	10	50	0.50' HMA / 0.65' AB
		SB	9.5	50	0.45' HMA / 0.65' AB
262+50 to 339+50	Park Street to Floral Avenue	NB	9.5	50	0.45' HMA / 0.65' AB
		SB	9.5	50	0.45' HMA / 0.65' AB
339+50 to 361+50	Floral Avenue to Highland Avenue	NB	11	50	0.55' HMA / 0.75' AB
		SB	11	50	0.55' HMA / 0.75' AB
361+50 to 478+00	Highland Avenue to Manning Avenue	NB	11	50	0.55' HMA / 0.75' AB
		SB	11	50	0.55' HMA / 0.75' AB
478+00 to 520+50	Manning Avenue to Temperance Avenue	NB	12	50	0.60' HMA / 0.85' AB
		SB	12.5	50	0.65' HMA / 0.80' AB
520+50 to 549+00	Temperance Avenue to South Avenue	NB	11	36	0.55' HMA / 1.20' AB 0.55' HMA / 0.75' AB / 0.50' ASB
		SB	12	36	0.60' HMA / 1.35' AB 0.60' HMA / 0.80' AB / 0.55' ASB
549+00 to 619+00	South Avenue to Adams Avenue	NB	11	36	0.55' HMA / 1.20' AB 0.55' HMA / 0.75' AB / 0.50' ASB
		SB	11	36	0.55' HMA / 1.20' AB 0.55' HMA / 0.75' AB / 0.50' ASB
619+00 to 677+50	Adams Avenue to Clovis Avenue	NB	10.5	35	0.55' HMA / 1.10' AB 0.55' HMA / 0.65' AB / 0.50' ASB
		SB	10.5	35	0.55' HMA / 1.10' AB 0.55' HMA / 0.65' AB / 0.50' ASB
677+50 to 760+00	Clovis Avenue to American Avenue	NB	10.5	50	0.55' HMA / 0.65' AB
		SB	11	50	0.55' HMA / 0.75' AB

Where proposed grades must be elevated sufficiently for pavement to be constructed in embankment, a design R-value of 40 has been used. Table 8.5-4 provides recommended pavement sections in embankment for the various project TI's.

Table 8.5-4

Recommended Pavement Sections in Embankment

Traffic Index	Pavement Section
9	0.45' HMA / 0.80' AB
9.5	0.45' HMA / 0.90' AB
10	0.50' HMA / 0.95' AB
10.5	0.55' HMA / 0.95' AB
11	0.55' HMA / 1.05' AB
12	0.60' HMA / 1.10' AB
12.5	0.65' HMA / 1.15' AB

The subgrade for all new pavement should be moisture conditioned to at or above optimum and compacted to at least 95% relative compaction to a depth of 2.5 feet below the finished pavement surface or 0.5 feet below the subgrade elevation, whichever is deeper.

8.5.5.2 FDR Pavement Sections

Prior experience suggests a 5.0% portland cement amendment to either the pulverized existing pavement section or the subgrade soil will result in a design unconfined compressive strength for the Cement Treated Subgrade (CTS) of about 400 psi. This cement content and strength can be used for preliminary evaluation of alternatives. If selected for construction, a mix design will need to be developed. Table 8.5-5 provides the minimum preliminary FDR pavement section. Sections provided include the Caltrans AC safety factor. Existing PCCP underlying existing ACP is anticipated to have an unconfined compressive strength of greater than 3300 psi. If it is necessary to incorporate PCCP into the FDR section, PCCP will likely require progressive pulverization (approximately 1 to 1.5 inch thick increments).

Table 8.5-5

Recommended Minimum Sections (FDR)

Stationing	General Location	Direction	TI	Design R-Value	Pavement Section
13+50 to 31+50	Gilroy Street to Draper Street	NB	9	35	0.45' HMA / 0.80' CTS
		SB	9	35	0.45' HMA / 0.80' CTS
31+50 to 52+50	Draper Street to SR-201	NB	9	35	0.45' HMA / 0.80' CTS
		SB	9	35	0.45' HMA / 0.80' CTS
52+50 to 87+50	SR-201 to Stroud Avenue	NB	9	35	0.45' HMA / 0.80' CTS
		SB	9.5	35	0.45' HMA / 0.90' CTS
87+50 to 126+50	Stroud Avenue to Bethel Avenue	NB	9.5	50	0.45' HMA / 0.55' CTS
		SB	10	50	0.50' HMA / 0.55' CTS
126+50 to 193+00	Bethel Avenue to Mountain View Avenue	NB	11	28	0.55' HMA / 1.10' CTS
		SB	11	28	0.55' HMA / 1.10' CTS
193+00 to 262+50	Mountain View Avenue to Park Street	NB	10	50	0.50' HMA / 0.55' CTS
		SB	9.5	50	0.45' HMA / 0.55' CTS
262+50 to 339+50	Park Street to Floral Avenue	NB	9.5	50	0.45' HMA / 0.55' CTS
		SB	9.5	50	0.45' HMA / 0.55' CTS
339+50 to 361+50	Floral Avenue to Highland Avenue	NB	11	50	0.55' HMA / 0.65' CTS
		SB	11	50	0.55' HMA / 0.65' CTS
361+50 to 478+00	Highland Avenue to Manning Avenue	NB	11	50	0.55' HMA / 0.65' CTS
		SB	11	50	0.55' HMA / 0.65' CTS
478+00 to 520+50	Manning Avenue to Temperance Avenue	NB	12	50	0.60' HMA / 0.70' CTS
		SB	13	50	0.65' HMA / 0.75' CTS
520+50 to 549+00	Temperance Avenue to South Avenue	NB	11	36	0.55' HMA / 1.00' CTS
		SB	12	36	0.60' HMA / 1.15' CTS
549+00 to 619+00	South Avenue to Adams Avenue	NB	11	36	0.55' HMA / 1.00' CTS
		SB	11	36	0.55' HMA / 1.00' CTS
619+00 to 677+50	Adams Avenue to Clovis Avenue	NB	11	35	0.55' HMA / 0.95' CTS
		SB	11	35	0.55' HMA / 0.95' CTS
677+50 to 760+00	Clovis Avenue to American Avenue	NB	11	50	0.55' HMA / 0.55' CTS
		SB	11	50	0.55' HMA / 0.65' CTS

The CTS thickness noted in the tables is the minimum necessary to satisfy the design TI. It is strongly recommended consideration be given to providing the soil-cement amendment for the full 18-inch capability of the cross-shafted mixer. The cost difference between the full depth and minimum depth should be minimal (cost of the cement product), while the benefits can be substantial. The full depth treatment provides an extremely stable subgrade for almost any unanticipated loading or lower R-value subgrade condition. The "weak link" of the section becomes the AC wearing surface, which is the easiest and most economical layer to maintain, repair, or rehabilitate to meet future needs. The full depth thickness, versus the minimum thickness, is less vulnerable to brittle fatigue or shrinkage cracking.

HMA should conform to, and be placed in accordance with, the latest revision of the Caltrans Standard Specifications. The proper cement spread rate, uniformity of mixing, proper moisture conditioning, and proper curing are extremely important. A preconstruction conference should be held between the contractor, Project Resident Engineer, designers, and quality control testers (if other than designers) to be sure all parties understand the required procedures and criteria for acceptance. Daily production of CTS has to be limited to the area that can be finish graded the same day as mixing and compaction. Specifications for preparation of the cement treated material is included in Appendix 13.8.

Traffic can be diverted onto the compacted full depth CTS after finish grading. With the minimum CTS thickness, automobile traffic could be placed on the subgrade after finish grading. Care will have to be exercised to not over stress the minimum CTS with truck traffic until the first AC lift is placed.

The CTS site grading should have continuous observation of the spreading, pulverization, mixing, moisture conditioning, and compaction operations by a representative of the Geotechnical Engineer. Field and laboratory testing should be performed on a relatively even grid established to be representative of the specific work area. Observation and testing should be independent of the contractor (i.e., provided by the owner) to truly allow for independent oversight. The suggested minimum testing to support continuous observation is also provided in specifications in Appendix 13.8.

8.5.6 ACP to PCCP Transition

A transition panel should be constructed where HMA paving will abut areas of PCCP. At present, three locations are anticipated in the southbound lanes of Golden State Boulevard; transition from new pavement to diamond grind PCCP somewhere between Station 70+00 and 76+50; diamond grind PCCP to RHMA-G overlay at Station 192+20; and RHMA-G/PCCP to overlay on conventional pavement section at Station 256+60. The transition panel should be consistent with Caltrans Standard Plan P30.

8.6 CORROSION CHARACTERISTICS

Soil samples obtained from some of the test borings along the proposed alignment were tested for pH, sulfates, chlorides, and minimum resistivity. Specific test results are presented in Table 8.6-1.

Table 8.6-1
Corrosion Test Results

Sample Location	pH	Minimum Resistivity (ohm-cm)	Soluble Sulfate (ppm)	Soluble Chloride (ppm)
B-8 at 0 to 5 feet	8.0	10990	7.2	7.1
B-36 at 0 to 5 feet	7.2	12330	8.7	5.0

Table 8.6-2 presents the applicability of various thickness' of uncoated and bitumen coated plain galvanized Corrugated Steel Pipe (CSP), Steel Spiral Rib Pipe (SSRP) and Structural Steel Plate Pipe (SSPP); 16 gauge Corrugated Aluminum Pipe (CAP) and Aluminum Spiral Rib Pipe (ASRP); and 16 gauge Corrugated Aluminized Steel Pipe, Type 2, (CASP). The table considers a service design life of 50 years, with respect to corrosion, as indicated in Topic 852 of the Caltrans HDM.

The pH, minimum resistivity, soluble sulfates, and soluble chlorides are all outside Caltrans threshold limits. Therefore, the site soil is considered to be non-corrosive with respect to concrete structures (e.g., RCP culverts and culvert headwalls). Normal portland cement (Type II) should be adequate for concrete structures which come in contact with on-site soil. It is very unlikely culverts would ever be exposed to ground water. Consequently, there should be no concern regarding infiltration or potential soil migration at joints. The site soils and properly compacted backfill should not be adversely effected (e.g., expansion or settlement) from minor exfiltration at joints. Normal joints for pipe culverts should be adequate with respect to site geotechnical conditions.

Table 8.6-2

Servicability of Metal Pipe

Applicable for 50-yr Service Life															
Boring No.	**Depth (ft)**	**Plain Galvanized CSP, SSPP, SSRP**						**Bitumen Coated-Soil Side(1) CSP, SSPP, SSRP**						**16 ga CAP ASRP**	**16 ga CASP. (type 2)**
		18ga	16ga	14ga	12ga	10ga	8ga	18ga	16ga	14ga	12ga	10ga	8ga		
B-8	0 to 5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
B-36	0 to 5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: [1] Per Caltrans Standard Specification Section 66-1.03

9 MATERIAL SOURCES

The on-site material is anticipated to consist of silty sand and sandy silt. Based on the information obtained from the borings and laboratory testing for this study, any excavated on-site soils are anticipated to suitable for construction along the alignment. Other potential sources of embankment material have not been investigated.

Asphalt concrete, portland cement concrete, and aggregate base can be imported from a commercial source. The names and addresses of some nearby commercial suppliers are given below.

- **Builders Concrete** **(559) 225-3667**
  3664 Ashlan Ave.
  Fresno, California

- **Cemex** **(559) 277-2266**
  4335 Golden State Boulevard
  Fresno, California

- **Granite Construction Company** **(559) 441-5700**
  2716 Granite Court
  Fresno, California

- **Calaveras Materials** **(559) 268-5654**
  410 Thorne Avenue
  Fresno, California

- **Vulcan Materials Co.** **(559) 434-1202**
  11099 Old Friant Road
  Fresno, California

10 MATERIAL DISPOSAL

No earth materials considered unsuitable for use in construction are anticipated. It is not anticipated that any excess excavation would require any special disposal. However, environment evaluation is beyond the scope of this study.

Disposal of materials outside the road right-of-way should be accomplished in accordance with Section 7-1.13 of Caltrans Standard Specifications.

11 CONSTRUCTION CONSIDERATIONS

11.1 CONSTRUCTION ADVISORIES

Various utilities are anticipated to transverse the proposed alignment at various locations. The appropriate companies and agencies should be notified to help locate these utilities.

11.2 CONSTRUCTION CONSIDERATIONS THAT INFLUENCE DESIGN

Generally, there are no construction related factors that are anticipated to influence design.

11.3 CONSTRUCTION CONSIDERATIONS THAT INFLUENCE SPECIFICATIONS

Generally, there are no construction related factors that influenced the project specifications.

11.4 CONSTRCUTION MONITORING AND INSTRUMENTATION

No special construction monitoring or instrumentation programs are anticipated to be required at this time.

11.5 HAZARDOUS WASTE CONSIDERATIONS

The possibility of hazardous materials was not part of this study. No visual indications were observed that might indicate possible hazardous material.

11.6 DIFFERING SITE CONDITIONS

It is possible that soil or pavement conditions could vary between or beyond the points explored for this study. If conditions are encountered during construction that differ from those described herein, the Resident Engineer, the Contractor, and Geotechnical Engineer of Record should communicate immediately on any appropriate changes to the design and construction recommendations.

12 RECOMMENDATIONS AND SPECIFICATIONS

The following recommendations are presented to assist in design and evaluation of the Golden State Boulevard Corridor project.

- Grading and earthwork should be in general accordance with Caltrans Standard Specifications (2015).
- Soil characteristics are anticipated to be compatible with use of Caltrans Standard Plans.
- The project site is in an area of moderate potential seismicity. However, geohazards, such as liquefaction and dynamic compaction, are considered unlikely.
- Pavement structural sections and overlays are discussed in Section 8.5.
- Corrosion characteristics of soil should not restrict the use of available metal culvert materials, as indicated in Section 8.6.

APPENDICES

APPENDIX 13.1
Site Vicinity and Boring Location Maps

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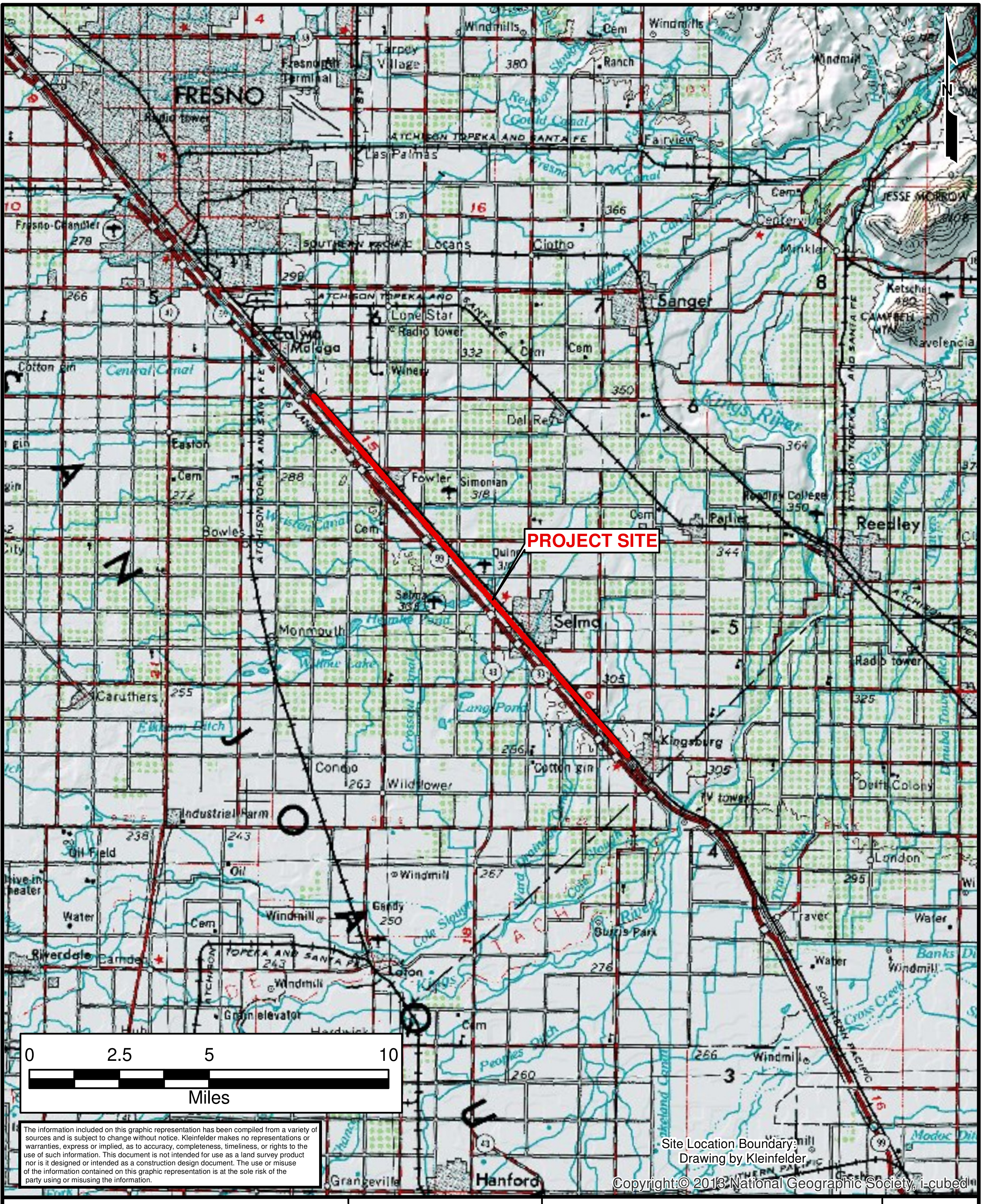

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SITE VICINITY MAP

Golden State Corridor Project
Fresno County, California

FIGURE
13.1-1

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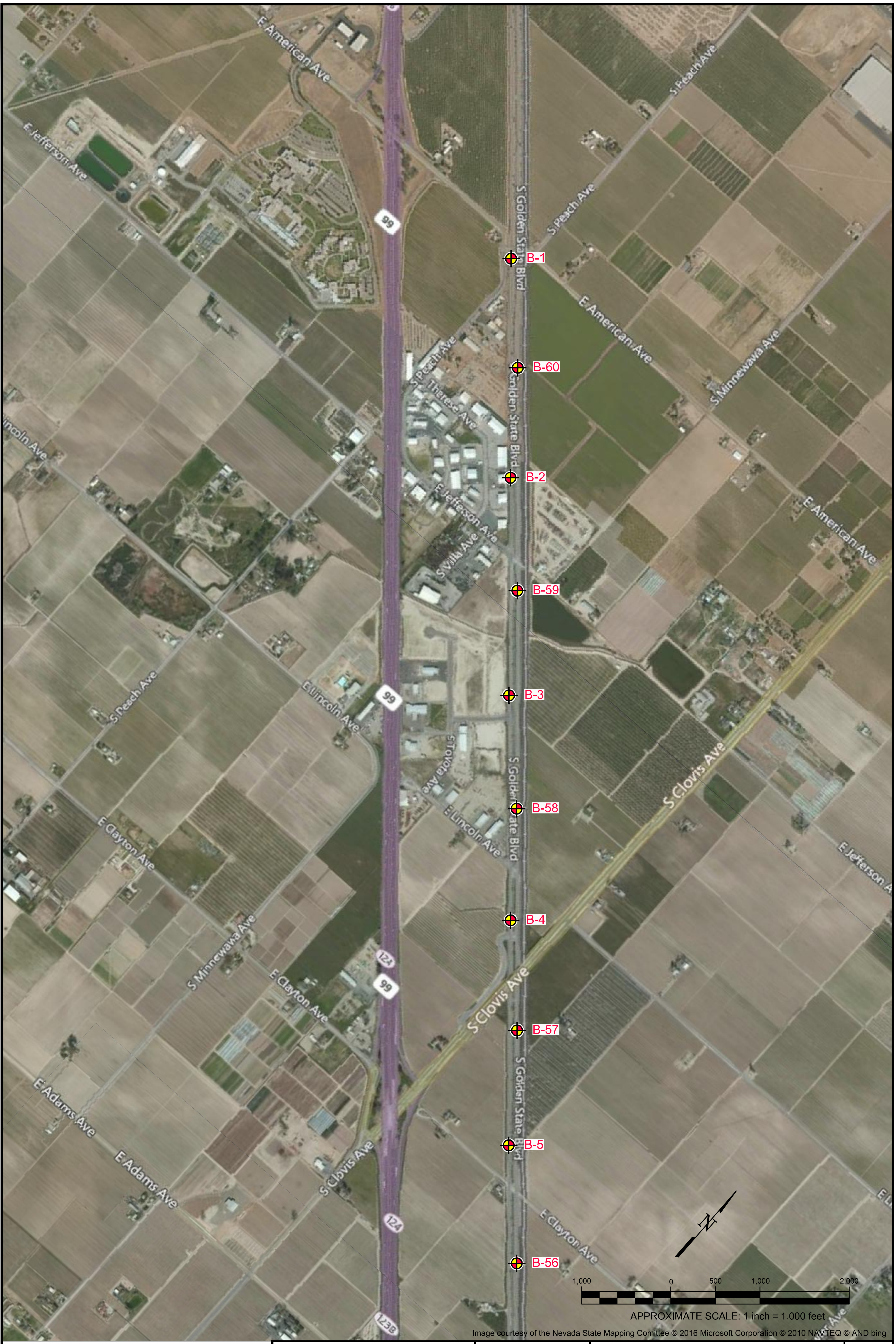

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LEGEND

● Approximate Boring Location

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BORING LOCATION MAP

Golden State Corridor Project
Fresno County, California

FIGURE
13.1.2
1 of 6

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APPROXIMATE SCALE: 1 inch = 1.000 feet

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LEGEND

⌖ Approximate Boring Location

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BORING LOCATION MAP

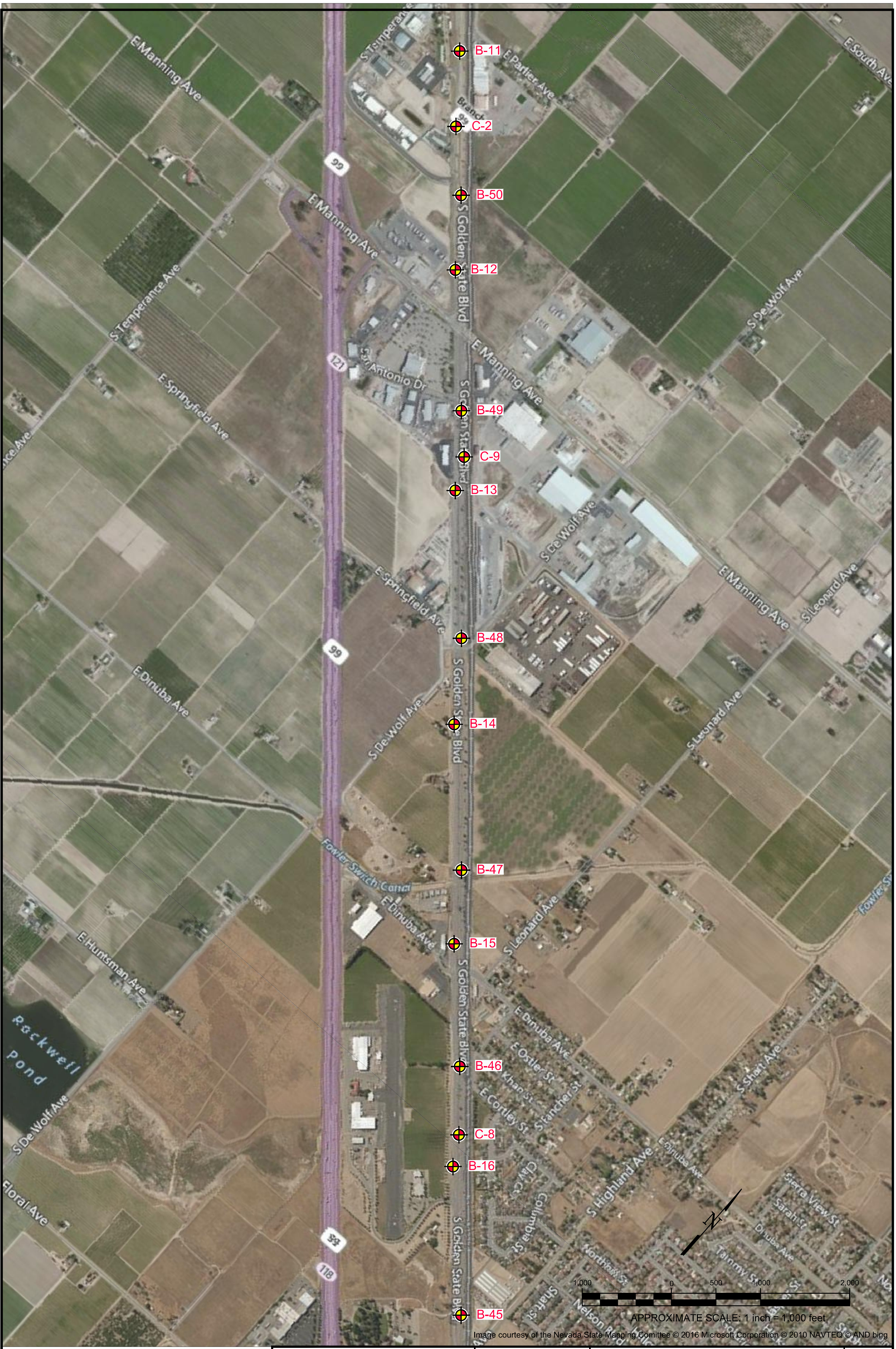
Golden State Corridor Project
Fresno County, California

FIGURE

13.1.3

2 of 6

PLOTTED: 11 Aug 2017, 3:00pm, NPopenoe



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LEGEND

⊕ Approximate Boring Location

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PROJECT NO. 20171121
DRAWN: 8/11/17
DRAWN BY: D. Ross
CHECKED BY: N. Popenoe
FILE NAME: 20171121_2.dwg

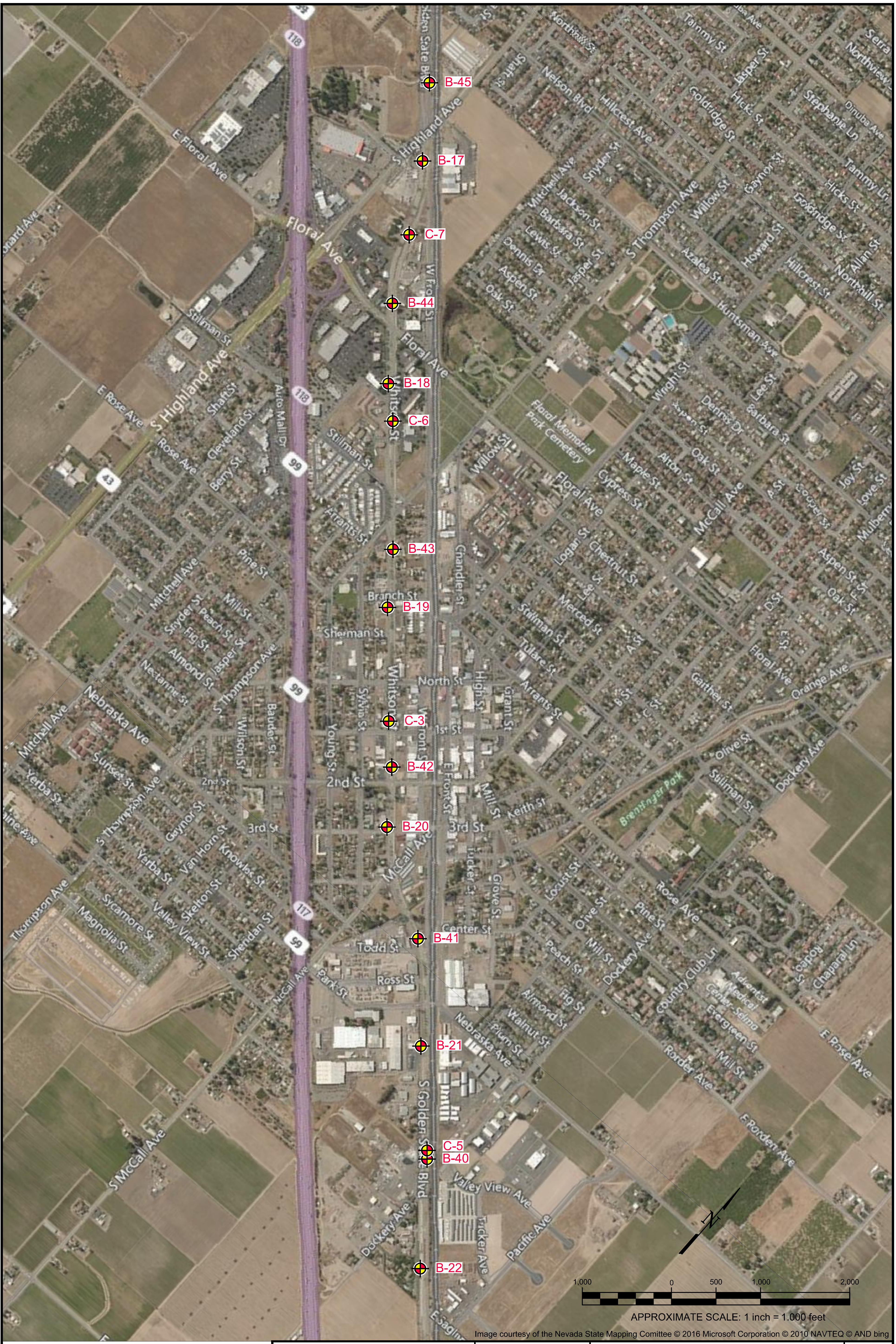
BORING LOCATION MAP

Golden State Corridor Project
Fresno County, California

FIGURE
13.1.4
3 of 6

CAD FILE: C:\Users\npopenoe\Desktop\Working\Golden State\CAD\ LAYOUT: 3

PLOTTED: 11 Aug 2017, 3:00pm, NPopenoe



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LEGEND

⊕ Approximate Boring Location

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PROJECT NO.	20171121
DRAWN:	8/11/17
DRAWN BY:	D. Ross
CHECKED BY:	N. Popenoe
FILE NAME:	20171121_2.dwg

BORING LOCATION MAP

Golden State Corridor Project
Fresno County, California

FIGURE

13.1.5

4 of 6

CAD FILE: C:\Users\npopenoe\Desktop\Working\Golden State\CAD\ LAYOUT: 4

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LEGEND

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PROJECT NO. 20171121
DRAWN: 8/11/17
DRAWN BY: D. Ross
CHECKED BY: N. Popenoe
FILE NAME:
20171121_2.dwg

BORING LOCATION MAP

Golden State Corridor Project
Fresno County, California

FIGURE
13.1.6
5 of 6

CAD FILE: C:\Users\npopenoe\Desktop\Working\Golden State\CAD\ LAYOUT: 5

PLOTTED: 11 Aug 2017, 3:00pm, NPopenoe

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LEGEND

⊕ Approximate Boring Location

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PROJECT NO. 20171121
DRAWN: 8/11/17
DRAWN BY: D. Ross
CHECKED BY: N. Popenoe
FILE NAME:
20171121_2.dwg

BORING LOCATION MAP

Golden State Corridor Project
Fresno County, California

FIGURE
13.1.7
6 of 6

CAD FILE: C:\Users\npopenoe\Desktop\Working\Golden State\CAD\ LAYOUT: 6

APPENDIX 13.2

Boring Logs

SAMPLE/SAMPLER TYPE GRAPHICS

☒	BULK / GRAB / BAG SAMPLE
■	MODIFIED CALIFORNIA SAMPLER (2 or 2-1/2 in. (50.8 or 63.5 mm.) outer diameter)
◧	CALIFORNIA SAMPLER (3 in. (76.2 mm.) outer diameter)
◩	STANDARD PENETRATION SPLIT SPOON SAMPLER (2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)
▥	SHELBY TUBE SAMPLER
▯	HOLLOW STEM AUGER
▮	SOLID STEM AUGER
▒	WASH BORING
▥	NQ CORE SAMPLE (1.874 in. (47.6 mm.) core diameter)
▽	TEXAS CONE PENETRATION

GROUND WATER GRAPHICS

▽	WATER LEVEL (level where first observed)
▼	WATER LEVEL (level after exploration completion)
▼	WATER LEVEL (additional levels after exploration)
≈	OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	**GRAVELS** (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVEL WITH <5% FINES	Cu≥4 and 1≤Cc≤3	▦	**GW**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu<4 and/ or 1>Cc>3	▦	**GP**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5% TO 12% FINES	Cu≥4 and 1≤Cc≤3	▦	**GW-GM**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
				▦	**GW-GC**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu<4 and/ or 1>Cc>3	▦	**GP-GM**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
				▦	**GP-GC**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH > 12% FINES		▦	**GM**	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
				▦	**GC**	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
				▦	**GC-GM**	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (More than half of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu≥6 and 1≤Cc≤3	▒	**SW**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu<6 and/ or 1>Cc>3	░	**SP**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5% TO 12% FINES	Cu≥6 and 1≤Cc≤3	▒	**SW-SM**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
				▒	**SW-SC**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu<6 and/ or 1>Cc>3	░	**SP-SM**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
				░	**SP-SC**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH > 12% FINES		▥	**SM**	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
				▨	**SC**	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
				▨	**SC-SM**	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES

FINE GRAINED SOILS (More than half of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)	▥	**ML**	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY
		▨	**CL**	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		▨	**CL-ML**	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		▤	**OL**	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid Limit greater than 50)	▥	**MH**	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
		▨	**CH**	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		≋	**OH**	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

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PROJECT NO.: 20171121	GRAPHICS KEY	APPENDIX
DRAWN BY: MAP		
CHECKED BY: NP	Golden State Corridor Fresno, California	13.2-1
DATE: 1/17/2017		
REVISED: -		

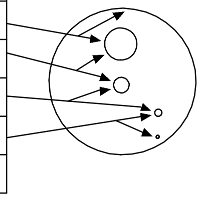
PLOTTED: 01/17/2017 11:51 AM BY: MPalmer

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [GEO-LEG 1 (GRAPHICS KEY) WITH USCS - SQL]

PLOTTED: 01/17/2017 11:51 AM BY: MPalmer

GRAIN SIZE

DESCRIPTION		SIEVE SIZE	GRAIN SIZE	APPROXIMATE SIZE
Boulders		>12 in. (304.8 mm.)	>12 in. (304.8 mm.)	Larger than basketball-sized
Cobbles		3 - 12 in. (76.2 - 304.8 mm.)	3 - 12 in. (76.2 - 304.8 mm.)	Fist-sized to basketball-sized
Gravel	coarse	3/4 -3 in. (19 - 76.2 mm.)	3/4 -3 in. (19 - 76.2 mm.)	Thumb-sized to fist-sized
	fine	#4 - 3/4 in. (#4 - 19 mm.)	0.19 - 0.75 in. (4.8 - 19 mm.)	Pea-sized to thumb-sized
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)	Rock salt-sized to pea-sized
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)	Sugar-sized to rock salt-sized
	fine	#200 - #40	0.0029 - 0.017 in. (0.07 - 0.43 mm.)	Flour-sized to sugar-sized
Fines		Passing #200	<0.0029 in. (<0.07 mm.)	Flour-sized and smaller



SECONDARY CONSTITUENT

Term of Use	AMOUNT	
	Secondary Constituent is Fine Grained	Secondary Constituent is Coarse Grained
Trace	<5%	<15%
With	≥5 to <15%	≥15 to <30%
Modifier	≥15%	≥30%

MUNSELL COLOR

NAME	ABBR	NAME	ABBR
Red	R	Blue	B
Yellow Red	YR	Purple Blue	PB
Yellow	Y	Purple	P
Green Yellow	GY	Red Purple	RP
Green	G	Black	N
Blue Green	BG		

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	SPT - N_{60} (# blows / ft)	UNCONFINED COMPRESSIVE STRENGTH (Q_u)(psf)	VISUAL / MANUAL CRITERIA
Very Soft	<2	<500	Thumb will penetrate more than 1 inch (25 mm). Extrudes between fingers when squeezed.
Soft	2 - 4	500 - 1000	Thumb will penetrate soil about 1 inch (25 mm). Remolded by light finger pressure.
Medium	4 - 8	1000 - 2000	Thumb will penetrate soil about 1/4 inch (6 mm). Remolded by strong finger pressure.
Stiff	8 - 15	2000 - 4000	Can be imprinted with considerable pressure from thumb.
Very Stiff	15 - 30	4000 - 8000	Thumb will not indent soil but readily indented with thumbnail.
Hard	>30	>8000	Thumbnail will not indent soil.

FROM TERZAGHI AND PECK, 1948; LAMBE AND WHITMAN, 1969; FHWA, 2002; AND ASTM D2488

CEMENTATION

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or slight finger pressure.
Moderately	Crumbles or breaks with considerable finger pressure.
Strongly	Will not crumble or break with finger pressure.

REACTION WITH HYDROCHLORIC ACID

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT-N_{60} (# blows/ft)	MODIFIED CA SAMPLER (# blows/ft)	CALIFORNIA SAMPLER (# blows/ft)	RELATIVE DENSITY (%)
Very Loose	<4	<4	<5	0 - 15
Loose	4 - 10	5 - 12	5 - 15	15 - 35
Medium Dense	10 - 30	12 - 35	15 - 40	35 - 65
Dense	30 - 50	35 - 60	40 - 70	65 - 85
Very Dense	>50	>60	>70	85 - 100

FROM TERZAGHI AND PECK, 1948

PLASTICITY

DESCRIPTION	LL	FIELD TEST
Non-plastic	NP	A 1/8-in. (3 mm.) thread cannot be rolled at any water content.
Low (L)	< 30	The thread can barely be rolled and the lump or thread cannot be formed when drier than the plastic limit.
Medium (M)	30 - 50	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump or thread crumbles when drier than the plastic limit.
High (H)	> 50	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump or thread can be formed without crumbling when drier than the plastic limit.

STRUCTURE

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. thick, note thickness.
Laminated	Alternating layers of varying material or color with the layer less than 1/4-in. thick, note thickness.
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.
Slickensided	Fracture planes appear polished or glossy, sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness.

ANGULARITY

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Particles are similar to angular description but have rounded edges.
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges.
Rounded	Particles have smoothly curved sides and no edges.

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PROJECT NO.: 20171121	SOIL DESCRIPTION KEY	APPENDIX
DRAWN BY: MAP		
CHECKED BY: NP	Golden State Corridor Fresno, California	13.2-2
DATE: 1/17/2017		
REVISED: -		

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [GEO-LEGEND 2 (SOIL DESC KEY) REV 072616]

PLOTTED: 01/17/2017 11:53 AM BY: MPalmer

BORING LOG B-1

Date Begin - End: 8/08/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 95° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 759+40 Latitude: 36.66313° N Longitude: -119.71841° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 4"											**R-Value=** 69
		AGGREGATE BASE: 6"											
1		**CONCRETE**: 3"											
2 3 4 5		**Silty SAND (SM)**: fine to medium-grained sand, trace gravel, non-plastic, brown, moist, medium dense											

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 08, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-1

Golden State Corridor
Fresno, California

APPENDIX
13.2-3

PAGE: 1 of 1

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End: 8/10/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 97° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-2

Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 734+40
Latitude: 36.65810° N
Longitude: -119.71277° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 7"								22			SE = 23
		CONCRETE: 5"											
1		**AGGREGATE BASE**: 2-3"											
		Silty SAND (SM): fine to medium-grained sand, non-plastic, brown, moist											
2													
3													
4													
5				BC=4 4 5			3.9	105.0					
6													

7

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 10, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-2

Golden State Corridor
Fresno, California

APPENDIX

13.2-4

PAGE: 1 of 1

PLOTTED: 01/17/2017 11:53 AM BY: MPalmer
gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 01/17/2017 11:53 AM BY: MPalmer

Date Begin - End: 8/08/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 95° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-3

Hammer Type - Drop: 140 lb. Auto - 30 in.

FIELD EXPLORATION

CL of Golden State Boulevard Sta. 709+40
Latitude: 36.65310° N
Longitude: -119.70727° W
Surface Condition: Asphalt

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 5"											SE = 22
		AGGREGATE BASE: 6"											
1		**Silty SAND (SM)**: fine to medium-grained sand, trace gravel, non-plastic, brown, moist, medium dense											
2			☒										
3													
4		- dark brown below 4 feet											
5													

LABORATORY RESULTS

6 7 8 9 10 11 12 13 14

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 08, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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PROJECT NO.:	20171121
DRAWN BY:	MAP
CHECKED BY:	NP
DATE:	1/17/2017
REVISED:	-

BORING LOG B-3

Golden State Corridor
Fresno, California

APPENDIX

13.2-5

PAGE: 1 of 1

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 01/17/2017 11:53 AM BY: MPalmer

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-4

Date Begin - End: 8/10/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 97° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 684+30
Latitude: 36.64781° N
Longitude: -119.70146° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 8"											SE = 22
		CONCRETE: 4.5"											
1		**SLURRY**: 2"											
2		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											
3													
4		- slightly darker brown below 4 feet											
5				BC=4 5 6			6.1	110.1					
6													

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The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 10, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-4

Golden State Corridor
Fresno, California

APPENDIX
13.2-6

PAGE: 1 of 1

Date Begin - End: 8/08/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 95° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-5

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 659+30 Latitude: 36.64264° N Longitude: -119.69585° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 8"											SE = 20 **R-Value=** 35
		CONCRETE: 4.5"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, light brown, moist, medium dense	☒										
2													
3		- dark brown below 3 feet											
4													
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 08, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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KLEINFELDER
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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-5

Golden State Corridor
Fresno, California

APPENDIX
13.2-7

PAGE: 1 of 1

PLOTTED: 01/17/2017 11:54 AM BY: MPalmer

BORING LOG B-6

Date Begin - End: 8/10/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 97° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 634+30
Latitude: 36.63752° N
Longitude: -119.69017° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 6"											SE = 32
1	▨	**CONCRETE**: 9"											Concrete was much softer at this location
2 3 4 5	▨	**Silty SAND (SM)**: fine to medium-grained sand, trace fine-grained gravel, non-plastic, brown to dark brown, moist, medium dense	☒										

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The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 10, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

KLEINFELDER
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PROJECT NO.:	20171121
DRAWN BY:	MAP
CHECKED BY:	NP
DATE:	1/17/2017
REVISED:	-

BORING LOG B-6

Golden State Corridor
Fresno, California

APPENDIX

13.2-8

PAGE: 1 of 1

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End: 8/08/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 95° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

BORING LOG B-7

CL of Golden State Boulevard Sta. 609+30
Latitude: 36.63231° N
Longitude: -119.68462° W
Surface Condition: Asphalt

Depth (feet)	Graphical Log	FIELD EXPLORATION Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 6"											SE = 16
1		**CONCRETE**: 9"											
2 3		**Silty SAND (SM)**: fine to medium-grained sand, trace fine-grained gravel, non-plastic, moist, medium dense	☒										
4		- darker brown below 3.5 feet											
5 6			■	BC=13 12 10			6.1	115.0					

7 8 9 10 11 12 13 14

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 08, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-7

Golden State Corridor
Fresno, California

APPENDIX
13.2-9

PAGE: 1 of 1

PLOTTED: 01/17/2017 11:54 AM BY: MPalmer

BORING LOG B-8

Date Begin - End: 8/10/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 97° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 584+30
Latitude: 36.62719° N
Longitude: -119.67894° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 5"											SE = 19
		CONCRETE: 6"											Concrete much softer
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
2													
3													
4		- slightly darker brown below 4 feet											
5													
6													
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The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 10, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-8

Golden State Corridor
Fresno, California

APPENDIX

13.2-10

PAGE: 1 of 1

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 01/17/2017 11:54 AM BY: MPalmer

Date Begin - End: 8/08/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 95° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-9

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 559+40 Latitude: 36.62203° N Longitude: -119.67331° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 6"											SE = 24 **R-Value=** 36 Concrete was weaker here than at other locations
	▨	**CONCRETE**: 7"											
1	▒	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
2													
3													
4													
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 08, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-9

Golden State Corridor
Fresno, California

APPENDIX

13.2-11

PAGE: 1 of 1

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End: 8/10/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 97° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

BORING LOG B-10

CL of Golden State Boulevard Sta. 534+25
Latitude: 36.61694° N
Longitude: -119.66758° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9"								29			SE = 20
1	⁙	**Silty SAND (SM)**: fine to medium-grained sand, trace fine-grained gravel, non-plastic, brown, moist, medium dense	☒										
2	⁙												
3	⁙												
4	⁙	- darker brown below 4 feet											
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 10, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-10

Golden State Corridor
Fresno, California

APPENDIX
13.2-12

PAGE: 1 of 1

PLOTTED: 01/17/2017 11:55 AM BY: MPalmer

Date Begin - End:	8/08/2016	**Drilling Company:**	All Well		**BORING LOG B-11**
Logged By:	NS	**Drill Crew:**	Miguel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny, 95° F	**Exploration Diameter:**	8 in. O.D.		

CL of Golden State Boulevard Sta. 509+30
Latitude: 36.61184° N
Longitude: -119.66188° W
Surface Condition: Asphalt

Depth (feet)	Graphical Log	FIELD EXPLORATION Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 6"											SE = 26
		AGGREGATE BASE: 3"											
1 2 3 4 5		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 08, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

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PROJECT NO.: 20171121	BORING LOG B-11	APPENDIX
DRAWN BY: MAP		
CHECKED BY: NP	Golden State Corridor Fresno, California	13.2-13
DATE: 1/17/2017		
REVISED: -		PAGE: 1 of 1

PLOTTED: 01/17/2017 11:55 AM BY: MPalmer

Date Begin - End: 8/10/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 97° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-12

Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 484+10
Latitude: 36.60664° N
Longitude: -119.65629° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9"											SE = 54
1 2 3 4 5	▨	**Silty SAND (SM)**: fine to medium-grained sand, trace fine-grained gravel, non-plastic, brown, moist, medium dense	☒										

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The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 10, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-12

Golden State Corridor
Fresno, California

APPENDIX
13.2-14

PAGE: 1 of 1

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 01/17/2017 11:55 AM BY: MPalmer

BORING LOG B-13

Date Begin - End: 8/11/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 459+20
Latitude: 36.60146° N
Longitude: -119.65070° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9"											**R-Value=** 73
1	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
2													
3													
4		- slightly darker brown below 4 feet											
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The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 11, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

KLEINFELDER
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PROJECT NO.:	20171121
DRAWN BY:	MAP
CHECKED BY:	NP
DATE:	1/17/2017
REVISED:	-

BORING LOG B-13

Golden State Corridor
Fresno, California

APPENDIX

13.2-15

PAGE: 1 of 1

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 01/17/2017 11:55 AM BY: MPalmer

Date Begin - End: 8/10/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 97° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-14

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 434+20 Latitude: 36.59634° N Longitude: -119.64502° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 10"	☐										SE = 38
1 2 3 4 5	⁚	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 10, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-14

Golden State Corridor
Fresno, California

APPENDIX

13.2-16

PAGE: 1 of 1

Date Begin - End: 8/11/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-15

Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 409+10
Latitude: 36.59116° N
Longitude: -119.63940° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0	■	**ASPHALT**: 9"											SE = 39
1 2 3 4	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 11, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-15

Golden State Corridor
Fresno, California

APPENDIX

13.2-17

PAGE: 1 of 1

PLOTTED: 01/17/2017 11:55 AM BY: MPalmer

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	8/12/2016	**Drilling Company:**	All Well		**BORING LOG B-16**
Logged By:	NS	**Drill Crew:**	Miguel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny, 100° F	**Exploration Diameter:**	8 in. O.D.		

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 384+10 Latitude: 36.58603° N Longitude: -119.63373° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 9.5"											SE = 32
1 2 3 4 5		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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PROJECT NO.: 20171121	BORING LOG B-16	APPENDIX	
DRAWN BY: MAP			
CHECKED BY: NP	Golden State Corridor Fresno, California	13.2-18	
DATE: 1/17/2017			
REVISED: -		PAGE: 1 of 1	

Date Begin - End: 8/11/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-17

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 359+10 Latitude: 36.58086° N Longitude: -119.62811° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9"											**R-Value=** 68
1 2 3 4	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
5 6		The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 11, 2016.				GROUNDWATER LEVEL INFORMATION: Groundwater was not encountered during drilling or after completion. GENERAL NOTES:							
7 8 9 10 11 12 13 14													

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-17

Golden State Corridor
Fresno, California

APPENDIX

13.2-19

PAGE: 1 of 1

BORING LOG B-18

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 333+70 Latitude: 36.57511° N Longitude: -119.62343° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 10"								15			SE = 39
1	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
2													
3													
4													
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-18

Golden State Corridor
Fresno, California

APPENDIX

13.2-20

PAGE: 1 of 1

Date Begin - End: 8/11/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-19

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 308+25 Latitude: 36.56984° N Longitude: -119.61768° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 6"											SE = 31
1 2 3 4 5	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 11, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-19

Golden State Corridor
Fresno, California

APPENDIX

13.2-21

PAGE: 1 of 1

Date Begin - End:	8/12/2016	**Drilling Company:**	All Well		**BORING LOG B-20**
Logged By:	NS	**Drill Crew:**	Miguel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny, 100° F	**Exploration Diameter:**	8 in. O.D.		

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 283+25 Latitude: 36.56473° N Longitude: -119.61204° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 8.5"									NP	NP	SE = 14
1–5	▨	**Silty SAND (SM)**: fine-grained sand, non-plastic, dark brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

Depth (feet): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

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PROJECT NO.: 20171121	BORING LOG B-20	APPENDIX
DRAWN BY: MAP		
CHECKED BY: NP	Golden State Corridor Fresno, California	13.2-22
DATE: 1/17/2017		
REVISED: -		PAGE: 1 of 1

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PLOTTED: 01/17/2017 11:57 AM BY: MPalmer

Date Begin - End: 8/11/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-21

Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 258+00
Latitude: 36.56030° N
Longitude: -119.60554° W
Surface Condition: Asphalt

Depth (feet)	Graphical Log	FIELD EXPLORATION Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 9.5"											**R-Value=** 70
1 2 3 4 5		**Silty SAND (SM)**: fine-grained sand, non-plastic, brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 11, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
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DATE: 1/17/2017
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BORING LOG B-21

Golden State Corridor
Fresno, California

APPENDIX

13.2-23

PAGE: 1 of 1

gINT FILE: Klf_gint_master_2016
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BORING LOG B-22

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 232+90
Latitude: 36.55516° N
Longitude: -119.59990° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		CONCRETE: 8"											SE = 21 **1557A=** Max. Dry Unit Wt.: 131.9 pcf Opt. Water Content: 6.7%
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, dark brown, moist, medium dense											
2													
3													
4													
5				BC=5 7 8			6.5	108.8					
6													

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-22

Golden State Corridor
Fresno, California

APPENDIX
13.2-24

PAGE: 1 of 1

Date Begin - End:	8/11/2016	**Drilling Company:**	All Well		**BORING LOG B-23**
Logged By:	NS	**Drill Crew:**	Miguel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny, 98° F	**Exploration Diameter:**	8 in. O.D.		

CL of Golden State Boulevard Sta. 208+00
Latitude: 36.55000° N
Longitude: -119.59429° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 2.5"											SE = 17
		CONCRETE: 8"											
1		**Silty SAND (SM)**: fine to medium-grained sand, trace fine-grained gravel, non-plastic, brown, moist, medium dense											
2													
3													
4													
5				BC=4 4 7			5.4	108.7					
6													

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The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 11, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20171121	BORING LOG B-23	APPENDIX
	DRAWN BY: MAP		
	CHECKED BY: NP	Golden State Corridor Fresno, California	13.2-25
	DATE: 1/17/2017		
	REVISED: -		PAGE: 1 of 1

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PLOTTED: 01/17/2017 11:57 AM BY: MPalmer

BORING LOG B-24

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 182+25
Latitude: 36.54472° N
Longitude: -119.58848° W
Surface Condition: Asphalt

Depth (feet)	Graphical Log	FIELD EXPLORATION Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 2"											SE = 17
		CONCRETE: 8"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, dark brown, moist, medium dense											
2													
3													
4													
5				BC=14 27 34			5.5	128.2					
6		- dark reddish brown, moderately cemented below 5.5 feet											

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
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DATE: 1/17/2017
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BORING LOG B-24

Golden State Corridor
Fresno, California

APPENDIX
13.2-26

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-25

Date Begin - End: 8/11/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 157+30 Latitude: 36.53955° N Longitude: -119.58287° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 2"											SE = 22 **R-Value=** 28
		CONCRETE: 8"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											
2													
3													
4		- dark brown below 4 feet											
5				BC=8 7 7			6.3	113.1					
6													

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The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 11, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-25

Golden State Corridor
Fresno, California

APPENDIX

13.2-27

PAGE: 1 of 1

PLOTTED: 01/17/2017 11:58 AM BY: MPalmer

BORING LOG B-26

Date Begin - End: 8/12/2016
Drilling Company: All Well
Logged By: NS
Drill Crew: Miguel
Hor.-Vert. Datum: Not Available
Drilling Equipment: CME-75
Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge: -90 degrees
Drilling Method: Hollow Stem Auger
Weather: Sunny, 100° F
Exploration Diameter: 8 in. O.D.

CL of Golden State Boulevard Sta. 132+25
Latitude: 36.53442° N
Longitude: -119.57721° W
Surface Condition: Asphalt

FIELD EXPLORATION						LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 1"								33			SE = 20
		CONCRETE: 9"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
5			■	BC=5 8 18			12.1	105.6					
		- increase in fines, trace fine-grained gravel below 6.3 feet											

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

PROJECT NO.:	20171121
DRAWN BY:	MAP
CHECKED BY:	NP
DATE:	1/17/2017
REVISED:	-

BORING LOG B-26

Golden State Corridor
Fresno, California

APPENDIX

13.2-28

PAGE: 1 of 1

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End: 8/23/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

BORING LOG B-27

CL of Golden State Boulevard Sta. 107+25
Latitude: 36.52925° N
Longitude: -119.57161° W
Surface Condition: Asphalt

Depth (feet)	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	CONCRETE: 8.5"											SE = 22
1	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											
5			BC=12 30 41			16.1	101.4					
6	**Sandy SILT (ML)**: fine-grained sand, trace clay, non-plastic to low plasticity, light grayish brown, moist, medium dense											

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 23, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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DATE: 1/17/2017
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BORING LOG B-27

Golden State Corridor
Fresno, California

APPENDIX
13.2-29

PLOTTED: 01/17/2017 11:58 AM BY: MPalmer

Date Begin - End: 8/24/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 99° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-28

Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 82+20
Latitude: 36.52412° N
Longitude: -119.56595° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		CONCRETE: 8"											SE = 30
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
2													
3													
4													
5			■	BC=6 9 13			4.1	112.6					
6													

7

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 24, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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DATE: 1/17/2017
REVISED: -

BORING LOG B-28

Golden State Corridor
Fresno, California

APPENDIX

13.2-30

PAGE: 1 of 1

PLOTTED: 01/17/2017 11:58 AM BY: MPalmer

BORING LOG B-31

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 13+60 Latitude: 36.51008° N Longitude: -119.55037° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9"											Need to come back to core
1	▨	**CONCRETE**											
2													
3													
4													
5													

5 6 7 8 9 10 11 12 13 14

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
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BORING LOG B-31

Golden State Corridor
Fresno, California

APPENDIX

13.2-31

PAGE: 1 of 1

PLOTTED: 01/17/2017 11:58 AM BY: MPalmer

Date Begin - End:	8/12/2016	**Drilling Company:**	All Well		**BORING LOG B-32**
Logged By:	NS	**Drill Crew:**	Miguel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny, 100° F	**Exploration Diameter:**	8 in. O.D.		

CL of Golden State Boulevard Sta. 42+30
Latitude: 36.51604° N
Longitude: -119.55679° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9.5"											Need to come back to core
1	▨	**CONCRETE**											
2													
3													
4													
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121	BORING LOG B-32		APPENDIX
DRAWN BY: MAP			
CHECKED BY: NP	Golden State Corridor Fresno, California		13.2-32
DATE: 1/17/2017			
REVISED: -			PAGE: 1 of 1

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PLOTTED: 01/17/2017 11:58 AM BY: MPalmer

BORING LOG B-33

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 66+50 Latitude: 36.52100° N Longitude: -119.56227° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 7"											Need to come back to core
	▨	**CONCRETE**											
1													
2													
3													
4													
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-33

Golden State Corridor
Fresno, California

APPENDIX

13.2-33

PAGE: 1 of 1

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-34

Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 90+80
Latitude: 36.52599° N
Longitude: -119.56781° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0		**ASPHALT**: 8"											**R-Value=** 72
		CONCRETE: 4.5"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
5		- increase in fines below 5 feet	■	BC=5 6 7			3.3	111.5					**Direct Shear=** Peak Cohesion: 157.14 psf Peak Friction Angle: 31.1°

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
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BORING LOG B-34

Golden State Corridor
Fresno, California

APPENDIX
13.2-34

PLOTTED: 01/17/2017 11:59 AM BY: MPalmer

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-35

Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 116+70
Latitude: 36.53136° N
Longitude: -119.57360° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 5"											SE = 46
		CONCRETE: 7"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
2													
3													
4													
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-35

Golden State Corridor
Fresno, California

APPENDIX
13.2-35

PLOTTED: 01/17/2017 11:59 AM BY: MPalmer

BORING LOG B-36

Date Begin - End: 8/15/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 142+30
Latitude: 36.53659° N
Longitude: -119.57939° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 7.5"											SE = 26
		CONCRETE: 3", soft											
1		**CONCRETE**: 5", hard											
2		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, light brown, moist, loose											
5				BC=4 6 6			3.4	102.9					
		Sandy SILT (ML): fine-grained sand, non-plastic to low plasticity, light brownish gray, moist, loose											

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-36

Golden State Corridor
Fresno, California

APPENDIX
13.2-36

PAGE: 1 of 1

PLOTTED: 01/17/2017 11:59 AM BY: MPalmer

Date Begin - End: 8/16/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

BORING LOG B-37

CL of Golden State Boulevard Sta. 168+90
Latitude: 36.54211° N
Longitude: -119.58534° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9"								26			SE = 50
1		**CONCRETE**: 5"											
2 3 4 5		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 16, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

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PROJECT NO.:	20171121
DRAWN BY:	MAP
CHECKED BY:	NP
DATE:	1/17/2017
REVISED:	-

BORING LOG B-37

Golden State Corridor
Fresno, California

APPENDIX

13.2-37

PLOTTED: 01/17/2017 11:59 AM BY: MPalmer

Date Begin - End:	8/15/2016	**Drilling Company:**	All Well		**BORING LOG B-38**
Logged By:	NS	**Drill Crew:**	Miguel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny, 101° F	**Exploration Diameter:**	8 in. O.D.		

CL of Golden State Boulevard Sta. 194+20
Latitude: 36.54729° N
Longitude: -119.59107° W
Surface Condition: Asphalt

	FIELD EXPLORATION					LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 7"								62			**R-Value=** 72
		AGGREGATE BASE: 6"											
1		**CONCRETE**: 8"											
2		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											
5				BC=4 7 8			11.5	100.7					
6		**Sandy SILT (ML)**: fine-grained sand, trace clay, non-plastic to low plasticity, light brownish gray with red stain, moist, loose											

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

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PROJECT NO.: 20171121	BORING LOG B-38	APPENDIX
DRAWN BY: MAP		
CHECKED BY: NP	Golden State Corridor Fresno, California	13.2-38
DATE: 1/17/2017		
REVISED: -		PAGE: 1 of 1

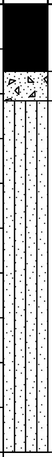
Date Begin - End: 8/16/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

BORING LOG B-39

CL of Golden State Boulevard Sta. 213+40
Latitude: 36.55126° N
Longitude: -119.59536° W
Surface Condition: Asphalt



		FIELD EXPLORATION				LABORATORY RESULTS								
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 9"											SE = 27
1		**CONCRETE**: 4"											
2 3 4 5		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown to dark brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 16, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-39

Golden State Corridor
Fresno, California

APPENDIX
13.2-39

BORING LOG B-40

Date Begin - End: 8/15/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 101° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 245+75
Latitude: 36.55789° N
Longitude: -119.60270° W
Surface Condition: Asphalt

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 8.5"				SM			100	45	NP	NP	
		CONCRETE: 4.5"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											
5				BC=24 22 19			7.7	104.6					
		Sandy SILT (ML): fine-grained sand, non-plastic to low plasticity, light brownish gray, moist, medium dense											
		Silty SAND (SM): fine to medium-grained sand, non-plastic, brown, moist, medium dense											

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-40

Golden State Corridor
Fresno, California

APPENDIX
13.2-40

BORING LOG B-41

Date Begin - End: 8/16/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 270+20
Latitude: 36.56279° N
Longitude: -119.60841° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 8"											
	▒	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											
1	▒		☒										
2	▒												
3	▒												
4	▒												
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 16, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-41

Golden State Corridor
Fresno, California

APPENDIX

13.2-41

PAGE: 1 of 1

PLOTTED: 01/17/2017 12:00 PM BY: MPalmer

Date Begin - End: 8/15/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 101° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-42

Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 289+60
Latitude: 36.56610° N
Longitude: -119.61343° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 5"									NP	NP	**R-Value=** 71
	▨	**CONCRETE**: 5"											Concrete was softer here than at other locations
1 2 3 4 5	▒	**Silty SAND (SM)**: fine-grained sand, non-plastic, brown to light brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-42

Golden State Corridor
Fresno, California

APPENDIX

13.2-42

PAGE: 1 of 1

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 01/17/2017 12:00 PM BY: MPalmer

BORING LOG B-43

Date Begin - End: 8/16/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 103° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 314+70
Latitude: 36.57127° N
Longitude: -119.61905° W
Surface Condition: Asphalt

Depth (feet)	Graphical Log	FIELD EXPLORATION: Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0	■	**ASPHALT**: 7"											
1 2 3 4 5	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, olive brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 16, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-43

Golden State Corridor
Fresno, California

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13.2-43

PAGE: 1 of 1

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-44

Date Begin - End: 8/15/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 101° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 341+80
Latitude: 36.57686° N
Longitude: -119.62519° W
Surface Condition: Asphalt

	FIELD EXPLORATION					LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 5"											
		CONCRETE: 4"											Concrete was softer than other locations
1 2 3 4 5		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											

6 7 8 9 10 11 12 13 14

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

PROJECT NO.:	20171121
DRAWN BY:	MAP
CHECKED BY:	NP
DATE:	1/17/2017
REVISED:	-

BORING LOG B-44

Golden State Corridor
Fresno, California

APPENDIX

13.2-44

PAGE: 1 of 1

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PLOTTED: 01/17/2017 12:00 PM BY: MPalmer
gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 01/17/2017 12:01 PM BY: MPalmer

BORING LOG B-45

Date Begin - End: 8/16/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 103° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 367+00 Latitude: 36.58266° N Longitude: -119.62972° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 8"											SE = 53
1	▨	**CONCRETE**: 6"											
2 3 4 5	⁘	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
6 7 8 9 10 11 12 13 14													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 16, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-45

Golden State Corridor
Fresno, California

APPENDIX
13.2-45

PAGE: 1 of 1

BORING LOG B-46

Date Begin - End: 8/15/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 101° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 394+60 Latitude: 36.58831° N Longitude: -119.63598° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 13"											**R-Value=** 71
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, olive brown, moist, medium dense	☒										
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-46

Golden State Corridor
Fresno, California

APPENDIX

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PAGE: 1 of 1

PLOTTED: 01/17/2017 12:01 PM BY: MPalmer

BORING LOG B-47

Date Begin - End: 8/16/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 103° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 416+90 Latitude: 36.59294° N Longitude: -119.64099° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1	■	**ASPHALT**: 15"								27			
2 3 4 5	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, dark brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 16, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
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BORING LOG B-47

Golden State Corridor
Fresno, California

APPENDIX
13.2-47

PAGE: 1 of 1

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 01/17/2017 12:01 PM BY: MPalmer

BORING LOG B-48

Date Begin - End: 8/15/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 101° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 443+10
Latitude: 36.59830° N
Longitude: -119.64694° W
Surface Condition: Asphalt

FIELD EXPLORATION						LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0–1	■	**ASPHALT**: 17"											
2–5	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

Depth scale (feet): 1 2 3 4 5 6 7 8 9 10 11 12 13 14

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BORING LOG B-48

Golden State Corridor
Fresno, California

APPENDIX
13.2-48

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gINT FILE: Klf_gint_master_2016 gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

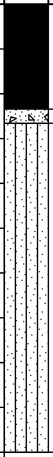
Date Begin - End: 8/16/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 103° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-49

Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 468+10
Latitude: 36.60348° N
Longitude: -119.65254° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		**ASPHALT**: 14"											
1		**CONCRETE**: 2"											Concrete was softer
2		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
3													
4													
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 16, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
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CHECKED BY: NP
DATE: 1/17/2017
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BORING LOG B-49

Golden State Corridor
Fresno, California

APPENDIX

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PAGE: 1 of 1

Date Begin - End: 8/15/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 101° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-50

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 493+10 Latitude: 36.60860° N Longitude: -119.65821° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 12.5"											**R-Value=** 72
1	▨	**CONCRETE**: 4", **ASPHALT**: 4"											
2	▥	**Sandy SILT (ML)**: fine-grained sand, non-plastic, light brown, moist, medium dense	☒										
3													
4													
5			■	BC=7 10 10			15.6	100.0					**Direct Shear=** Peak Cohesion: 85.71 psf Peak Friction Angle: 33.2°
6		- increase in fines, red stain below 5.5 feet											

7

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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BORING LOG B-50

Golden State Corridor
Fresno, California

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gINT FILE: Klf_gint_master_2016
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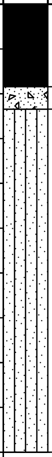
Date Begin - End:	8/16/2016	**Drilling Company:**	All Well		**BORING LOG B-51**
Logged By:	NS	**Drill Crew:**	Miguel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny, 103° F	**Exploration Diameter:**	8 in. O.D.		



FIELD EXPLORATION						LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 521+10 Latitude: 36.61438° N Longitude: -119.66446° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 11"											
1		**CONCRETE**: 3"											
		Silty SAND (SM): fine to medium-grained sand, non-plastic, brown to olive brown, moist, medium dense	☒										
2													
3													
4													
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 16, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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BORING LOG B-51

Golden State Corridor
Fresno, California

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PLOTTED: 01/17/2017 12:02 PM BY: MPalmer

Date Begin - End: 8/15/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 101° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-52

Hammer Type - Drop: 140 lb. Auto - 30 in.

Depth (feet)	Graphical Log	FIELD EXPLORATION				LABORATORY RESULTS							
		CL of Golden State Boulevard Sta. 543+10 Latitude: 36.61889° N Longitude: -119.66948° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 12"											
1	▨	**Silty SAND (SM)**: fine-grained sand, non-plastic, brown, moist, medium dense	☒										
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

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BORING LOG B-52

Golden State Corridor
Fresno, California

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BORING LOG B-52a

Date Begin - End: 8/25/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

FIELD EXPLORATION

CL of Golden State Boulevard Sta. 543+10
Latitude: 36.61889° N
Longitude: -119.66948° W
Surface Condition: Asphalt

LABORATORY RESULTS

Depth (feet)	Lithologic Description	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0	**ASPHALT**: 12"										
1	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense										
5		BC=3 3 6			8.2	103.1					
6	- lense of Sandy SILT (ML), ~70% fines, light brownish gray with red stain below 6 feet										

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The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 25, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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DATE: 1/17/2017
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BORING LOG B-52a

Golden State Corridor
Fresno, California

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gINT FILE: Klf_gint_master_2016
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BORING LOG B-53

Date Begin - End: 8/17/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 102° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	CL of Golden State Boulevard Sta. 568+25 Latitude: 36.62404° N Longitude: -119.67519° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 4"											SE = 54
		CONCRETE: 6"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
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14													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 17, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

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BORING LOG B-53

Golden State Corridor
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PAGE: 1 of 1

Date Begin - End: 8/25/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-54

Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 594+90
Latitude: 36.62948° N
Longitude: -119.68121° W
Surface Condition: Asphalt

Depth (feet)	Graphical Log	FIELD EXPLORATION Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 7"											SE = 29 **R-Value=** 41
1	▨	**CONCRETE**: 8" (two 4" layers)											
2 3 4	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, dark brown, moist, medium dense	☒										
5 6	▨		■	BC=3 3 5			4.6	109.8					

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The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 25, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
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DATE: 1/17/2017
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BORING LOG B-54

Golden State Corridor
Fresno, California

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PAGE: 1 of 1

PLOTTED: 01/17/2017 12:03 PM BY: MPalmer

BORING LOG B-55

Date Begin - End: 8/17/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 102° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 620+50
Latitude: 36.63481° N
Longitude: -119.68696° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 7"								24			SE = 38
1		**CONCRETE**: 7.5"											
2 3 4 5		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 17, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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BORING LOG B-55

Golden State Corridor
Fresno, California

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gINT FILE: Klf_gint_master_2016 gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 01/17/2017 12:03 PM BY: MPalmer

BORING LOG B-56

Date Begin - End: 8/25/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 647+00
Latitude: 36.64027° N
Longitude: -119.69292° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 10.5"							100	31			**1557A=** Max. Dry Unit Wt.: 131.5 pcf Opt. Water Content: 6.3%
1		**CONCRETE**: 5"											
		Silty SAND (SM): fine to medium-grained sand, non-plastic, brown, moist, medium dense											
2													
3													
4													
5				BC=5 6 9			5.4	113.5					
6													

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The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 25, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

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BORING LOG B-56

Golden State Corridor
Fresno, California

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BORING LOG B-57

Date Begin - End:	8/17/2016	**Drilling Company:**	All Well		
Logged By:	NS	**Drill Crew:**	Miguel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny, 102° F	**Exploration Diameter:**	8 in. O.D.		

CL of Golden State Boulevard Sta. 672+00
Latitude: 36.64545° N
Longitude: -119.69852° W
Surface Condition: Asphalt

	FIELD EXPLORATION					LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0–1	■	**ASPHALT**: 13"											SE = 30
1		**CONCRETE**: 4"											
1.5–5		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 17, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.:	20171121
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BORING LOG B-57

Golden State Corridor
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gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-58

Date Begin - End: 8/25/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

Depth (feet)	Graphical Log	FIELD EXPLORATION CL of Golden State Boulevard Sta. 697+00 Latitude: 36.65056° N Longitude: -119.70421° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 12"											
1		**CONCRETE**: 5.5"											
2 3 4		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											
5				BC=11 18 18			14.5	101.1					
6		**Sandy SILT (ML)**: fine-grained sand, non-plastic, light brownish gray, red stain, moist, medium dense											
7 8 9 10 11 12 13 14													

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 25, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.:	20171121
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BORING LOG B-58

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PLOTTED: 01/17/2017 12:03 PM BY: MPalmer

BORING LOG B-59

Date Begin - End: 8/17/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 102° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

FIELD EXPLORATION

CL of Golden State Boulevard Sta. 722+00
Latitude: 36.65573° N
Longitude: -119.70982° W
Surface Condition: Asphalt

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0	■	**ASPHALT**: 16"											SE = 18
1.33	▨	**CONCRETE**: 4"											
1.67	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 17, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
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BORING LOG B-59

Golden State Corridor
Fresno, California

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PLOTTED: 01/17/2017 12:04 PM BY: MPalmer

BORING LOG B-60

Date Begin - End: 8/25/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

CL of Golden State Boulevard Sta. 747+10
Latitude: 36.66085° N
Longitude: -119.71549° W
Surface Condition: Asphalt

FIELD EXPLORATION						LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 10"											
1		**CONCRETE**: 5"											
2		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, olive brown, moist, medium dense											
5				BC=4 6 8			7.4	109.5					
6		- lense of Silty SAND (SM), fine-grained, non-plastic, light brownish gray with red stain, moist, ~70% fines below 6 feet											

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 25, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

Depth scale: 1 2 3 4 5 6 7 8 9 10 11 12 13 14

gINT FILE: Klf_gint_master_2016
gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

BORING LOG B-60

Golden State Corridor
Fresno, California

APPENDIX

13.2-61

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APPENDIX 13.3

Pavement Cores

Core C-1 SB Right Lane, Sta: 627+40

Core C-2 SB Left Lane, Sta: 501+10

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Pavement Coring Photographs

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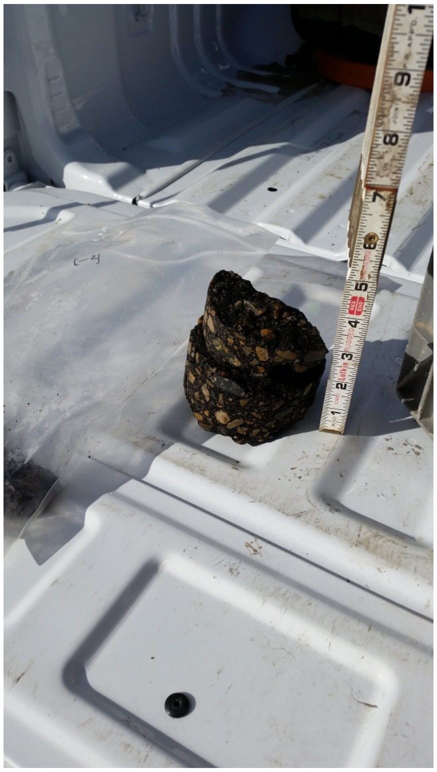
Fresno, CA

Appendix

13.3-1

Drawn by: N. Strid
Date: 01/12/2017
Project Number: 20171121
File Name: Core photos.pub

Core C-3 SB Right Lane, Sta: 295+10



Core C-4 SB Right Lane, Sta: 77+30

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Appendix

13.3-2

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Project Number: 20171121
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Core C-5 NB Left Lane, Sta: 246+90

Core C-6 NB Right Lane, Sta: 329+30

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Appendix

13.3-3

Drawn by: N. Strid	Date: 01/12/2017	Project Number: 20171121	File Name: Core photos.pub

Core C-7 NB Right Lane Sta: 350+00

Core C-8 NB Left Lane, Sta: 386+80

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13.3-4

Drawn by: N. Strid
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Project Number: 20171121
File Name: Core photos.pub

Core C-9 NB Left Lane, Sta: 463+60

Core C-10 NB Left Lane, Sta: 554+80

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Fresno, CA

Appendix

13.3-5

Drawn by: N. Strid | Date: 01/12/2017 | Project Number: 20171121 | File Name: Core photos.pub

APPENDIX 13.4

Visual Pavement Evaluation

	Lane 1		Lane 2				
Direction	PCI Rating	Color Code	PCI Rating	Color Code	Start	End	
SB	81	🟩	81	🟩	760+09	750+00	760+09: just south of American Ave.
SB	81	🟩	81	🟩	750+00	740+00	
SB	77	🟩	81	🟩	740+00	730+00	
SB	96	🟩	81	🟩	730+00	720+00	
SB	96	🟩	73	🟩	720+00	710+00	
SB	96	🟩	81	🟩	710+00	700+00	
SB	96	🟩	96	🟩	700+00	690+00	
SB	96	🟩	81	🟩	690+00	680+00	
SB	96	🟩	94	🟩	680+00	670+00	
SB	96	🟩	96	🟩	670+00	660+00	
SB	96	🟩	96	🟩	660+00	650+00	
SB	96	🟩	81	🟩	650+00	639+70	Section Change
SB	62	🟨	50	🟥	639+70	630+00	
SB	58	🟨	35	🟥	630+00	627+10	
SB	89	🟩	85	🟩	627+10	616+50	Overlay @ East Adams Ave.
SB	47	🟥	53	🟥	616+50	610+00	
SB	62	🟨	56	🟨	610+00	600+00	
SB	58	🟨	32	🟥	600+00	598+00	
SB	74	🟩	74	🟩	598+00	589+00	Overlay @ East Merced Street
SB	60	🟨	32	🟥	589+00	580+00	
SB	70	🟨	51	🟥	580+00	570+00	
SB	77	🟩	50	🟥	570+00	560+00	
SB	81	🟩	51	🟥	560+00	550+00	
SB	71	🟩	33	🟥	550+00	540+00	
SB	63	🟨	36	🟥	540+00	530+00	
SB	70	🟨	58	🟨	530+00	520+00	
SB	71	🟩	45	🟥	520+00	510+00	
SB	78	🟩	37	🟥	510+00	500+00	
SB	64	🟨	53	🟥	500+00	490+00	
SB	65	🟨	43	🟥	490+00	480+00	
SB	43	🟥	30	🟥	480+00	470+00	
SB	65	🟨	46	🟥	470+00	460+00	
SB	50	🟥	31	🟥	460+00	450+00	
SB	80	🟩	81	🟩	450+00	440+00	
SB	94	🟩	30	🟥	440+00	430+00	
SB	80	🟩	47	🟥	430+00	420+00	
SB	62	🟨	46	🟥	420+00	410+00	
SB	62	🟨	56	🟨	410+00	400+00	

Color Code	Rating	PCI Range
🟩	Good	86-100
🟩	Satisfactory	71-85
🟨	Fair	56-70
🟥	Poor	41-55
🟥	Very Poor	26-40
🟫	Serious	11-25
⬛	Failed	0-10

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Visual Pavement Assessment

Golden State Boulevard Corridor
Fresno, CA

Appendix

13.4-1

Drawn by: N. Strid | Date: 01/12/2017 | Project Number: 20171121 | File Name: Core photos.pub

	Lane 1		Lane 2				
Direction	PCI Rating	Color Code	PCI Rating	Color Code	Start	End	
SB	62	🟨	56	🟨	410+00	400+00	
SB	81	🟢	52	🟧	400+00	390+00	
SB	81	🟢	46	🟧	390+00	380+00	
SB	70	🟨	43	🟧	380+00	375+00	
SB	50	🟧	44	🟧	375+00	360+00	
SB	63	🟨	45	🟧	360+00	350+00	
SB	21	🟫	31	🟥	350+00	345+00	Section change north of Floral Ave.
SB	90	🟩	84	🟢	345+00	330+00	
SB	90	🟩	90	🟩	330+00	320+00	
SB	90	🟩	84	🟢	320+00	310+00	
SB	90	🟩	62	🟨	310+00	300+00	
SB	90	🟩	62	🟨	300+00	290+00	
SB	90	🟩	94	🟩	290+00	280+00	
SB	90	🟩	90	🟩	280+00	270+00	
SB	77	🟢	58	🟨	270+00	260+00	
SB	62	🟨	56	🟨	260+00	259+50	
SB	96	🟩	96	🟩	259+50	240+00	Start of PCCP section
SB	96	🟩	92	🟩	240+00	231+00	End of PCCP section
SB	96	🟩	87	🟩	231+00	220+00	
SB	96	🟩	96	🟩	220+00	210+00	
SB	96	🟩	96	🟩	210+00	200+00	
SB	98	🟩	98	🟩	200+00	190+00	
SB	96	🟩	96	🟩	190+00	180+00	
SB	94	🟩	92	🟩	180+00	170+00	
SB	96	🟩	98	🟩	170+00	160+00	
SB	94	🟩	96	🟩	160+00	150+00	
SB	96	🟩	98	🟩	150+00	140+00	
SB	96	🟩	96	🟩	140+00	135+00	
SB	89	🟩	89	🟩	135+00	120+00	Start PCCP section
SB	59	🟨	85	🟢	120+00	110+00	
SB	89	🟩	96	🟩	110+00	100+00	
SB	96	🟩	85	🟢	100+00	90+00	
SB	89	🟩	89	🟩	90+00	84+00	End PCCP section
SB	18	🟫			84+00	70+00	
SB	55	🟧			70+00	60+00	
SB	55	🟧			60+00	55+00	
SB	77	🟢			55+00	40+00	Change in section south of Sierra St.
SB	94	🟩			40+00	30+00	
SB	81	🟢			30+00	20+00	
SB	89	🟩			20+00	14+00	

Color Code	Rating	PCI Range
🟩	Good	86-100
🟢	Satisfactory	71-85
🟨	Fair	56-70
🟧	Poor	41-55
🟥	Very Poor	26-40
🟫	Serious	11-25
⬛	Failed	0-10

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Fresno, CA

Appendix

13.4-2

Drawn by: N. Strid
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Project Number: 20171121
File Name: Core photos.pub

	Lane 1		Lane 2				
Direction	PCI Rating	Color Code	PCI Rating	Color Code	Start	End	
NB	96	🟩	87	🟢	753+00	760+00	
NB	96	🟩	83	🟢	743+00	753+00	
NB	89	🟩	75	🟢	733+00	743+00	
NB	96	🟩	96	🟩	723+00	733+00	
NB	96	🟩	96	🟩	713+00	723+00	
NB	96	🟩	94	🟩	703+00	713+00	
NB	87	🟩	89	🟩	693+00	703+00	
NB	96	🟩	89	🟩	683+00	693+00	
NB	96	🟩	81	🟢	673+00	683+00	
NB	96	🟩	79	🟢	663+00	673+00	
NB	96	🟩	94	🟩	653+00	663+00	
NB	89	🟩	79	🟢	643+00	653+00	
NB	72	🟢	77	🟢	635+00	643+00	Section change
NB	29	🟥	31	🟥	627+00	635+00	
NB	89	🟩	85	🟢	617+00	627+00	East Adams Overlay
NB	65	🟨	56	🟨	613+00	617+00	
NB	54	🟧	53	🟧	600+00	613+00	
NB	89	🟩	85	🟢	591+00	600+00	East Merced Street Overlay
NB	65	🟨	45	🟧	583+00	591+00	
NB	62	🟨	41	🟧	573+00	583+00	
NB	65	🟨	56	🟨	563+00	573+00	
NB	21	🟫	55	🟧	553+00	563+00	
NB	27	🟥	53	🟧	543+00	553+00	
NB	27	🟥	61	🟨	533+00	543+00	
NB	19	🟫	59	🟨	523+00	533+00	
NB	19	🟫	56	🟨	513+00	523+00	
NB	27	🟥	73	🟢	503+00	513+00	
NB	27	🟥	77	🟢	493+00	503+00	
NB	31	🟥	65	🟨	483+00	493+00	
NB	21	🟫	65	🟨	473+00	483+00	
NB	21	🟫	53	🟧	463+00	473+00	
NB	60	🟨	43	🟧	453+00	463+00	
NB	85	🟢	55	🟧	443+00	453+00	
NB	79	🟢	52	🟧	433+00	443+00	
NB	87	🟩	65	🟨	423+00	433+00	
NB	72	🟢	43	🟧	413+00	423+00	
NB	76	🟢	65	🟨	403+00	413+00	

Color Code	Rating	PCI Range
🟩	Good	86-100
🟢	Satisfactory	71-85
🟨	Fair	56-70
🟧	Poor	41-55
🟥	Very Poor	26-40
🟫	Serious	11-25
⬛	Failed	0-10

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Visual Pavement Assessment

Golden State Boulevard Corridor
Fresno, CA

Appendix

13.4-3

Drawn by: N. Strid | Date: 01/12/2017 | Project Number: 20171121 | File Name: Core photos.pub

	Lane 1		Lane 2				
Direction	PCI Rating	Color Code	PCI Rating	Color Code	Start	End	
NB	89	🟩	83	🟩	393+00	403+00	
NB	68	🟨	64	🟨	381+50	393+00	
NB	31	🟥	55	🟥	373+00	381+50	Change in section
NB	51	🟥	53	🟥	363+00	373+00	
NB	32	🟥	30	🟥	353+00	363+00	
NB	27	🟥	32	🟥	344+00	353+00	
NB	61	🟨	60	🟨	333+00	344+00	Section change N of Floral Ave.
NB	68	🟨	61	🟨	323+00	333+00	
NB	75	🟩	75	🟩	313+00	323+00	
NB	75	🟩	79	🟩	303+00	313+00	
NB	85	🟩	77	🟩	293+00	303+00	
NB	81	🟩	69	🟨	283+00	293+00	
NB	75	🟩	76	🟩	273+00	283+00	Section change
NB	55	🟥	44	🟥	263+00	273+00	
NB	49	🟥	43	🟥	253+00	263+00	
NB	53	🟥	53	🟥	243+00	253+00	
NB	70	🟨	62	🟨	231+00	243+00	Section Change
NB	94	🟩	83	🟩	223+00	231+00	
NB	98	🟩	94	🟩	213+00	223+00	
NB	98	🟩	94	🟩	203+00	213+00	
NB	94	🟩	83	🟩	193+00	203+00	
NB	98	🟩	94	🟩	183+00	193+00	
NB	94	🟩	94	🟩	173+00	183+00	
NB	96	🟩	94	🟩	163+00	173+00	
NB	96	🟩	85	🟩	153+00	163+00	
NB	96	🟩	96	🟩	135+50	153+00	Section change
NB	65	🟨	69	🟨	133+00	135+50	
NB	65	🟨	64	🟨	123+00	133+00	
NB	54	🟥	58	🟨	113+00	123+00	
NB	54	🟥	62	🟨	103+00	113+00	
NB	54	🟥	62	🟨	93+00	103+00	
NB	69	🟨	51	🟥	79+50	93+00	
NB	21	🟥			73+50	79+50	
NB	81	🟩			73+00	73+50	
NB	93	🟩			63+00	73+00	
NB	72	🟩			53+00	63+00	
NB	81	🟩			43+00	53+00	
NB	94	🟩			33+00	43+00	
NB	96	🟩			23+00	33+00	
NB	89	🟩			16+50	23+00	

Color Code	Rating	PCI Range
🟩	Good	86-100
🟩	Satisfactory	71-85
🟨	Fair	56-70
🟥	Poor	41-55
🟥	Very Poor	26-40
🟥	Serious	11-25
⬛	Failed	0-10

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Appendix

13.4-4

Drawn by: N. Strid
Date: 01/12/2017
Project Number: 20171121
File Name: Core photos.pub

APPENDIX 13.5

Deflection Study Results - FWD Draft Report

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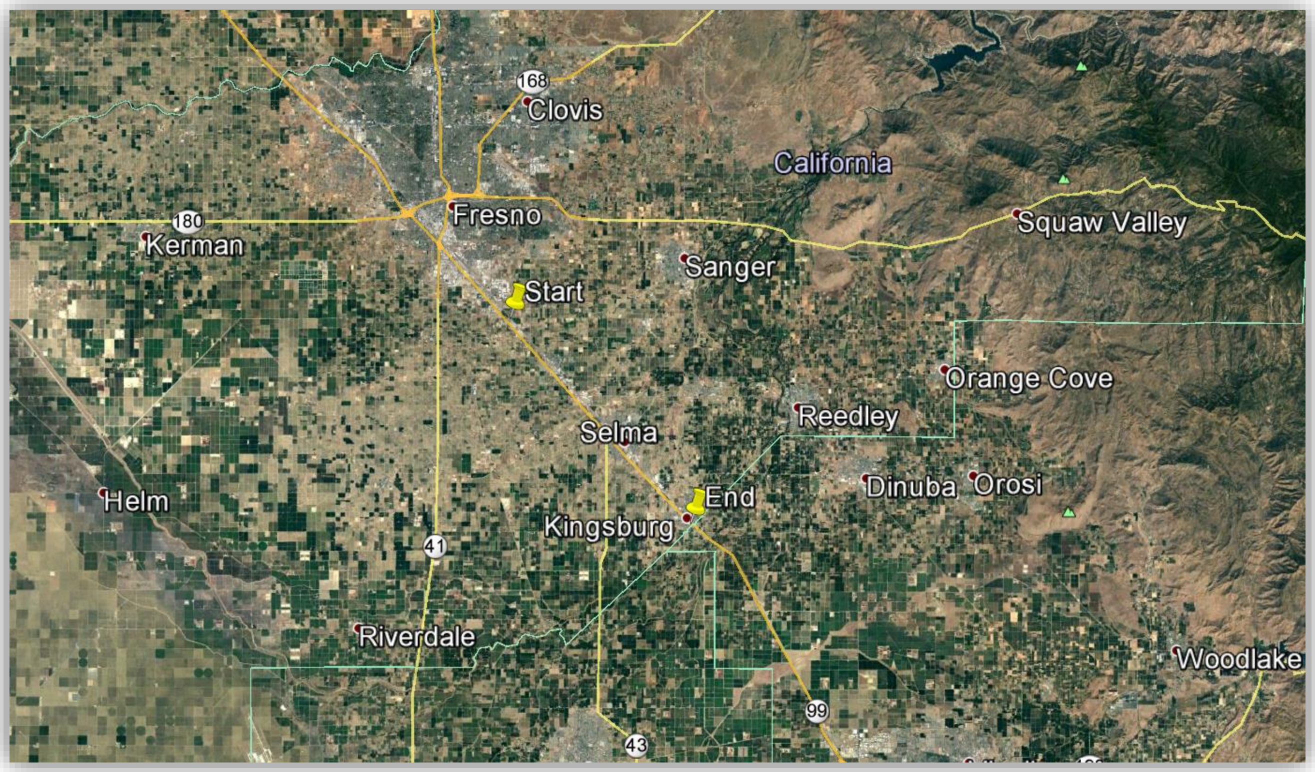
Pavement Engineering Specialists
and Equipment

Kleinfelder

November 2016

Load/Deflection Analysis of Dynatest Falling Weight Deflectometer Test Results for

Golden State Boulevard, Whitson Street & Simpson Street



In
Fresno County, CA

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1. Executive Summary

The following information on Golden State Boulevard, Whitson Street & Simpson Street, tested in Fresno County, California is summarized from Section 6 of this report and is for the benefit of those simply interested in a general overview of the analysis results, without the input data, discussion and other details associated with and leading to the recommendations presented. It is imperative that reviewers familiarize themselves with the detailed information included in the report prior to making any specific decisions based on these recommendations.

The objectives of this project are to determine the bearing capacity of the pavement and rehabilitation strategies in accordance with the California Test Method 356 (CTM 356) and the Caltrans 2012 Highway Design Manual (HDM 2012) design principles as well as other considerations discussed in the report. The structural analyses are based on Falling Weight Deflectometer (FWD) measurements; 20-year design traffic indices (TI_{20}) as well as layer thickness information and R-values that were provided by Kleinfelder personnel.

The presence of curbs and gutters directly influenced the selection of the rehabilitation alternatives for some of the sections where the existing profile elevations have to be maintained.

Preventive maintenance was recommended when the pavement is structurally adequate and the pavement surface is in good condition. The mill and overlay was included as an alternative for all sections due to the fairly thick asphalt concrete (AC) layer and the presence of a Portland cement concrete (PCC) or cement treated base (CTB) layer underneath the AC. However, reconstruction might be a better alternative for some of the sections due to the thick structural overlay required, pavement surface condition, increase in current pavement surface elevation, or practicality during reconstruction.

It is not recommended to overlay a pavement surface that shows a considerable amount of cracks due to reflective cracking. If an overlay is considered as an alternative, the pavement should be repaired according to Section 6.1.4. In addition, rubberized hot mix asphalt with gap grading (RHMA-G) mixture is recommended to mitigate reflective cracking, resist thermal stresses created by wide temperature variations, add flexibility and minimize the aging of the structural overlay.

The recommended rehabilitation alternatives for all the streets are shown in Table 1. As a matter of convenience and practicality, differences in rehabilitation strategies between directions, lanes, and sections should be kept to a minimum, and this approach was used to develop the final recommendations.

Table 1: Final Rehabilitation Alternatives using TI_{20}

Street1)		TI_{20}	Existing Average AC Thickness (ft.)	Existing Average PCC Thickness (ft.)	Alternative 13)	Alternative 2
Golden State Blvd., Whitson St., & Simpson St. (American Ave. to Gilroy St.)						
NB Slow Lane	0+00 to 141+00	10.5	1.00	0.42	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R4)	---
	141+00 to 171+00	11	1.00	0.42	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R4)	---
	171+00 to 202+00	11	0.33	0.50	Mill 0.20′ and Overlay 0.20′ RHMA-G over 0.10′ HMA over SAMI-R5)	---
	202+00 to 241+00	11	1.00	0.30	Mill 0.50′ and Overlay 0.20′ RHMA-G over 0.30′ HMA over SAMI-R5)	---
	241+00 to 283+00	12	1.00	0.30	Mill 0.50′ and Overlay 0.20′ RHMA-G over 0.30′ HMA over SAMI-R5)	---
	283+00 to 402+00	11	1.00	0.30	Mill 0.50′ and Overlay 0.20′ RHMA-G over 0.30′ HMA over SAMI-R5)	---
	402+00 to 423+00	11	0.58	n/a	Mill 0.40′ and Overlay 0.20′ RHMA-G over 0.25′ HMA over SAMI-R5)	Reconstruction (R-Value=50)6) 0.90′ HMA or 0.55′ HMA over 0.75′ AB
	423+00 to 486+00	9.5	0.58	n/a	Mill 0.40′ and Overlay 0.20′ RHMA-G over 0.20′ HMA over SAMI-R4)	Reconstruction (R-Value=50)6) 0.80′ HMA or 0.45′ HMA over 0.65′ AB
	486+00 to 500+00	9.5	0.67	n/a	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R4)	---
	500+00 to 508+00	10	0.67	n/a	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R4)	---
	508+00 to 571+00	10	0.75	0.38	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R	---
	571+00 to 637+50	10.5	0.75	0.38	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R	---
	637+00 to 677+00	9.5	0.42	0.58	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R5)	---
	677+00 to 702+00	9	0.42	0.58	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R5)	---
	702+00 to End	9	0.71	unknown	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R4)	---

1) Sta. 0+00 is set at the "From" street shown in the limits above. NB = Northbound
2) The values reflect the calculation for the 80th percentile deflection after removing the high deflections to consider localized R&R. Locations showing relatively high deflections and possible localized failure are included but not limited to Stations shown in Table 5. Final locations and extent of R&R needs to be determined visually for any selected alternative.
3) Maximum allowable RHMA-G thickness is 0.20′. Place a layer of HMA under the 0.20′ RHMA-G layer.
4) Curb and gutter exist in this section.
5) Pavement is in poor condition, which was considered in the milling depth.
6) Reconstruction might be a better alternative due to the thick structural overlay required, pavement surface condition, increase in current pavement surface elevation, or practicality during construction. HMA is Hot Mix Asphalt and AB is Class II Aggregate Base, and n/a is not applicable.

Table 1 (Cont'd): Final Rehabilitation Alternatives using TI$_{20}$

Street1)		TI$_{20}$	Existing Average AC Thickness (ft.)	Existing Average PCC Thickness (ft.)	Alternative 13)	Alternative 2
Golden State Blvd., Whitson St., & Simpson St. (American Ave. to Gilroy St.)						
NB Fast Lane	0+00 to 141+00	10.5	0.90	0.42	Mill 0.20' and Overlay 0.20' RHMA-G over SAMI-R4)	---
	141+00 to 189+00	11	0.58	0.67	Mill 0.20' and Overlay 0.20' RHMA-G over SAMI-R4)	---
	189+00 to 223+00	11	1.00	n/a	Mill 0.50' and Overlay 0.20' RHMA-G over 0.30' HMA over SAMI-R5)	---
	223+00 to 241+00	11	1.05	0.33	Mill 0.50' and Overlay 0.20' RHMA-G over 0.30' HMA over SAMI-R5)	---
	241+00 to 263+00	12	1.05	0.33	Mill 0.50' and Overlay 0.20' RHMA-G over 0.30' HMA over SAMI-R5)	---
	263+00 to 283+00	12	1.05	0.33	Mill 0.50' and Overlay 0.20' RHMA-G over 0.30' HMA over SAMI-R5)	---
	283+00 to 400+00	11	1.25	n/a	Mill 0.50' and Overlay 0.20' RHMA-G over 0.30' HMA over SAMI-R5)	---
	400+00 to 423+00	11	0.42	0.33	Mill 0.20' and Overlay 0.20' RHMA-G over 0.15' HMA over SAMI-R5)	---
	423+00 to 473+00	9.5	0.42	0.42	Mill 0.20' and Overlay 0.20' RHMA-G over SAMI-R4)	---
	473+00 to 500+00	9.5	0.42	0.42	Mill 0.20' and Overlay 0.20' RHMA-G over SAMI-R4)	---
	500+00 to 535+00	10	0.71	0.38	Mill 0.20' and Overlay 0.20' RHMA-G over SAMI-R4)	---
	535+00 to 571+00	10	0.58	0.67	Mill 0.20' and Overlay 0.20' RHMA-G over SAMI-R	---
	571+00 to 637+50	10.5	0.63	0.67	Mill 0.20' and Overlay 0.20' RHMA-G over SAMI-R	---
	637+50 to 677+00	9.5	0.67	0.38	Mill 0.45' and Overlay 0.20' RHMA-G over 0.25' HMA over SAMI-R5)	---
	677+00 to End	9	0.67	unknown	Mill 0.45' and Overlay 0.20' RHMA-G over 0.25' HMA over SAMI-R5)	---

1) Sta. 0+00 is set at the "From" street shown in the limits above. NB = Northbound
2) The values reflect the calculation for the 80th percentile deflection after removing the high deflections to consider localized R&R. Locations showing relatively high deflections and possible localized failure are included but not limited to Stations shown in Table 5. Final locations and extent of R&R needs to be determined visually for any selected alternative.
3) Maximum allowable RHMA-G thickness is 0.20'. Place a layer of HMA under the 0.20' RHMA-G layer.
4) Curb and gutter exist in this section.
5) Pavement is in poor condition, which was considered in the milling depth.
6) Reconstruction might be a better alternative due to the thick structural overlay required, pavement surface condition, increase in current pavement surface elevation, or practicality during construction. HMA is Hot Mix Asphalt and AB is Class II Aggregate Base, and n/a is not applicable.

Table 1 (Cont'd): Final Rehabilitation Alternatives using TI$_{20}$

Street[1]		TI$_{20}$	Existing Average AC Thickness (ft.)	Existing Average PCC Thickness (ft.)	Alternative 1[3]	Alternative 2
Golden State Blvd., Whitson St., & Simpson St. (American Ave. to Gilroy St.)						
SB Slow Lane	0+00 to 82+50	11	0.38	0.25	Mill 0.15′ and Overlay 0.20′ RHMA-G over SAMI-R	---
	82+50 to 141+00	10.5	0.67	0.38	Mill 0.35′ and Overlay 0.20′ RHMA-G over 0.15′ HMA over SAMI-R[4] [5]	---
	141+00 to 197+00	11	0.50	0.67	Mill 0.35′ and Overlay 0.20′ RHMA-G over 0.15′ HMA over SAMI-R[2] [4] [5]	---
	197+00 to 212+50	11	0.50	n/a	Mill 0.35′ and Overlay 0.20′ RHMA-G over 0.20′ HMA over SAMI-R[5]	Reconstruction (R-Value=41)[6] 1.00′ HMA or 0.55′ HMA over 1.00′ AB
	212+50 to 241+00	12	0.50	n/a	Mill 0.35′ and Overlay 0.20′ RHMA-G over 0.30′ HMA over SAMI-R[4] [5]	Reconstruction (R-Value=36)[6] 1.20′ HMA or 0.60′ HMA over 1.30′ AB
		10	0.50	n/a	Mill 0.35′ and Overlay 0.20′ RHMA-G over 0.15′ HMA over SAMI-R[4] [5]	Reconstruction (R-Value=36)[6] 1.00′ HMA or 0.50′ HMA over 1.05′ AB
	241+00 to 283+00	12.5	0.50	n/a	Mill 0.35′ and Overlay 0.20′ RHMA-G over 0.35′ HMA over SAMI-R[4] [5]	Reconstruction (R-Value=50)[6] 1.05′ HMA or 0.65′ HMA over 0.80′ AB
		10	0.50	n/a	Mill 0.35′ and Overlay 0.20′ RHMA-G over 0.25′ HMA over SAMI-R[4] [5]	Reconstruction (R-Value=50)[6] 0.80′ HMA or 0.50′ HMA over 0.65′ AB
	283+00 to 391+00	11	0.75	n/a	Mill 0.55′ and Overlay 0.20′ RHMA-G over 0.35′ HMA over SAMI-R[4] [5]	Reconstruction (R-Value=50)[6] 0.90′ HMA or 0.55′ HMA over 0.75′ AB
		10	0.75	n/a	Mill 0.50′ and Overlay 0.20′ RHMA-G over 0.30′ HMA over SAMI-R[4] [5]	Reconstruction (R-Value=50)[6] 0.80′ HMA or 0.50′ HMA over 0.65′ AB
	391+00 to 423+00	11	0.75	n/a	Mill 0.55′ and Overlay 0.20′ RHMA-G over 0.35′ HMA over SAMI-R[5]	Reconstruction (R-Value=50)[6] 0.90′ HMA or 0.55′ HMA over 0.75′ AB
	423+00 to 445+00	9.5	0.75	n/a	Mill 0.25′ and Overlay 0.10′ RHMA-G over 0.15′ HMA over SAMI-R[4] [5]	Reconstruction (R-Value=50)[6] 0.80′ HMA or 0.45′ HMA over 0.65′ AB

1) Sta. 0+00 is set at the "From" street shown in the limits above. SB = Southbound
2) The values reflect the calculation for the 80th percentile deflection after removing the high deflections to consider localized R&R. Locations showing relatively high deflections and possible localized failure are included but not limited to Stations shown in Table 5. Final locations and extent of R&R needs to be determined visually for any selected alternative.
3) Maximum allowable RHMA-G thickness is 0.20′. Place a layer of HMA under the 0.20′ RHMA-G layer.
4) Curb and gutter exist in this section.
5) Pavement is in poor condition, which was considered in the milling depth.
6) Reconstruction might be a better alternative due to the thick structural overlay required, pavement surface condition, increase in current pavement surface elevation, or practicality during construction. HMA is Hot Mix Asphalt and AB is Class II Aggregate Base, and n/a is not applicable.

Table 1 (Cont'd): Final Rehabilitation Alternatives using TI_{20}

Street1)		TI_{20}	Existing Average AC Thickness (ft.)	Existing Average PCC Thickness (ft.)	Alternative 13)	Alternative 2
Golden State Blvd., Whitson St., & Simpson St. (American Ave. to Gilroy St.)						
SB Slow Lane	445+00 to 506+50	9.5	0.50	n/a	Mill 0.35' and Overlay 0.20' RHMA-G over 0.30' HMA over SAMI-R4) 5)	Reconstruction (R-Value=50)6) 0.80' HMA or 0.45' HMA over 0.65' AB
	506+50 to 535+00	9.5	n/a	0.67	Crack, Seat and Overlay PCC with 0.20' RHMA-G over SAMI-R over 0.10' HMA Leveling Course	---
	535+00 to 571+00	9.5	0.19	0.67	Mill AC layer. Crack, Seat and Overlay PCC with 0.20' RHMA-G over SAMI-R over 0.10' HMA Leveling Course	---
	571+00 to 632+20	10.5	0.19	0.67	Mill AC layer. Crack, Seat and Overlay PCC with 0.20' RHMA-G over SAMI-R over 0.10' HMA Leveling Course	---
	632+20 to 637+50	10.5	n/a	0.71	Crack, Seat and Overlay PCC with 0.20' RHMA-G over SAMI-R over 0.10' HMA Leveling Course	Preservation including but not limited to spall repair, slab replacement, crack sealing, and grinding
	637+50 to 677+00	10	n/a	0.71	Crack, Seat and Overlay PCC with 0.20' RHMA-G over SAMI-R over 0.10' HMA Leveling Course	Preservation including but not limited to spall repair, slab replacement, crack sealing, and grinding
	677+00 to 686+00	9.5	n/a	0.71	Crack, Seat and Overlay PCC with 0.20' RHMA-G over SAMI-R over 0.10' HMA Leveling Course	Preservation including but not limited to spall repair, slab replacement, crack sealing, and grinding
	686+00 to 712+00	9.5	0.70	unknown	Mill 0.40' and Overlay 0.20' RHMA-G over 0.20' HMA over SAMI-R5)	Reconstruction (R-Value=50)6) 0.80' HMA or 0.45' HMA over 0.65' AB
	712+00 to End	9	0.70	unknown	Mill 0.40' and Overlay 0.20' RHMA-G over 0.25' HMA over SAMI-R4)	Reconstruction (R-Value=50)6) 0.75' HMA or 0.45' HMA over 0.55' AB

1) Sta. 0+00 is set at the "From" street shown in the limits above. SB = Southbound
2) The values reflect the calculation for the 80th percentile deflection after removing the high deflections to consider localized R&R. Locations showing relatively high deflections and possible localized failure are included but not limited to Stations shown in Table 5. Final locations and extent of R&R needs to be determined visually for any selected alternative.
3) Maximum allowable RHMA-G thickness is 0.20'. Place a layer of HMA under the 0.20' RHMA-G layer.
4) Curb and gutter exist in this section.
5) Pavement is in poor condition, which was considered in the milling depth.
6) Reconstruction might be a better alternative due to the thick structural overlay required, pavement surface condition, increase in current pavement surface elevation, or practicality during construction. HMA is Hot Mix Asphalt and AB is Class II Aggregate Base, PCC is Portland Cement Concrete, and n/a is not applicable.

Table 1 (Cont'd): Final Rehabilitation Alternatives using TI_{20}

Street[1]		TI_{20}	Existing Average AC Thickness (ft.)	Existing Average PCC Thickness (ft.)	Alternative 1[3]	Alternative 2
Golden State Blvd., Whitson St., & Simpson St. (American Ave. to Gilroy St.)						
SB Fast Lane	0+00 to 82+50	11	0.63	0.40	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R	---
	82+50 to 141+00	10.5	0.50	0.75	Mill 0.35′ and Overlay 0.20′ RHMA-G over 0.15′ HMA over SAMI-R[4] [5]	---
	141+00 to 196+00	11	0.42	0.50	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R[4] [5]	---
	196+00 to 212+50	11	0.42	0.50	Mill 0.25′ and Overlay 0.20′ RHMA-G over 0.10′ HMA over SAMI-R[5]	---
	212+50 to 241+00	12	0.75	n/a	Mill 0.55′ and Overlay 0.20′ RHMA-G over 0.35′ HMA over SAMI-R[4] [5]	Reconstruction (R-Value=36)[6] 1.20′ HMA or 0.60′ HMA over 1.30′ AB
	241+00 to 283+00	12.5	0.75	n/a	Mill 0.55′ and Overlay 0.20′ RHMA-G over 0.35′ HMA over SAMI-R[5]	Reconstruction (R-Value=50)[6] 1.05′ HMA or 0.65′ HMA over 0.80′ AB
	283+00 to 303+00	11	0.75	n/a	Mill 0.55′ and Overlay 0.20′ RHMA-G over 0.35′ HMA over SAMI-R[4] [5]	Reconstruction (R-Value=50)[6] 0.90′ HMA or 0.55′ HMA over 0.75′ AB
	303+00 to 423+00	11	0.81	n/a	Mill 0.55′ and Overlay 0.20′ RHMA-G over 0.35′ HMA over SAMI-R[5]	Reconstruction (R-Value=50)[6] 0.90′ HMA or 0.55′ HMA over 0.75′ AB
	423+00 to 461+00	9.5	0.83	n/a	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R[4] [5]	Reconstruction (R-Value=50)[6] 0.80′ HMA or 0.45′ HMA over 0.65′ AB
	461+00 to 506+00	9.5	0.71	n/a	Mill 0.30′ and Overlay 0.20′ RHMA-G over 0.10′ HMA over SAMI-R[4] [5]	Reconstruction (R-Value=50)[6] 0.80′ HMA or 0.45′ HMA over 0.65′ AB
	506+00 to 533+00	9.5	n/a	0.67	Crack, Seat and Overlay PCC with 0.20′ RHMA-G over SAMI-R over 0.10′ HMA Leveling Course	---
	533+00 to 571+00	9.5	0.13	0.71	Mill AC layer. Crack, Seat and Overlay PCC with 0.20′ RHMA-G over SAMI-R over 0.10′ HMA Leveling Course	---

1) Sta. 0+00 is set at the "From" street shown in the limits above. SB = Southbound
2) The values reflect the calculation for the 80th percentile deflection after removing the high deflections to consider localized R&R. Locations showing relatively high deflections and possible localized failure are included but not limited to Stations shown in Table 5. Final locations and extent of R&R needs to be determined visually for any selected alternative.
3) Maximum allowable RHMA-G thickness is 0.20′. Place a layer of HMA under the 0.20′ RHMA-G layer.
4) Curb and gutter exist in this section.
5) Pavement is in poor condition, which was considered in the milling depth.
6) Reconstruction might be a better alternative due to the thick structural overlay required, pavement surface condition, increase in current pavement surface elevation, or practicality during construction. HMA is Hot Mix Asphalt and AB is Class II Aggregate Base, PCC is Portland Cement Concrete, and n/a is not applicable.

Table 1 (Cont'd): Final Rehabilitation Alternatives using TI_{20}

Street[1]		TI_{20}	Existing Average AC Thickness (ft.)	Existing Average PCC Thickness (ft.)	Alternative 1[3]	Alternative 2
Golden State Blvd., Whitson St., & Simpson St. (American Ave. to Gilroy St.)						
SB Fast Lane	571+00 to 631+00	10.5	0.13	0.71	Mill AC layer. Crack, Seat and Overlay PCC with 0.20' RHMA-G over SAMI-R over 0.10' HMA Leveling Course	---
	631+00 to 637+50	10.5	n/a	0.67	Crack, Seat and Overlay PCC with 0.20' RHMA-G over SAMI-R over 0.10' HMA Leveling Course	Preservation including but not limited to spall repair, slab replacement, crack sealing, and grinding
	637+50 to 677+00	10	n/a	0.67	Crack, Seat and Overlay PCC with 0.20' RHMA-G over SAMI-R over 0.10' HMA Leveling Course	Preservation including but not limited to spall repair, slab replacement, crack sealing, and grinding
	677+00 to 683+50	9.5	n/a	0.67	Crack, Seat and Overlay PCC with 0.20' RHMA-G over SAMI-R over 0.10' HMA Leveling Course	Preservation including but not limited to spall repair, slab replacement, crack sealing, and grinding
	683+50 to End	9.5	0.70	unknown	Mill 0.40' and Overlay 0.20' RHMA-G over 0.25' HMA over SAMI-R[5]	Reconstruction (R-Value=50)[6] 0.80' HMA or 0.45' HMA over 0.65' AB

1) Sta. 0+00 is set at the "From" street shown in the limits above. SB = Southbound
2) The values reflect the calculation for the 80th percentile deflection after removing the high deflections to consider localized R&R. Locations showing relatively high deflections and possible localized failure are included but not limited to Stations shown in Table 5. Final locations and extent of R&R needs to be determined visually for any selected alternative.
3) Maximum allowable RHMA-G thickness is 0.20'. Place a layer of HMA under the 0.20' RHMA-G layer.
4) Curb and gutter exist in this section.
5) Pavement is in poor condition, which was considered in the milling depth.
6) Reconstruction might be a better alternative due to the thick structural overlay required, pavement surface condition, increase in current pavement surface elevation, or practicality during construction. HMA is Hot Mix Asphalt and AB is Class II Aggregate Base, PCC is Portland Cement Concrete, and n/a is not applicable.

2. Introduction

From August 1st through 5th, 2016, nondestructive load-deflection tests were performed on Golden State Blvd., Whitson St., & Simpson St. in Fresno County, CA. The weather was sunny and the pavement surface was dry at the time of testing. The air temperature ranged from 67°F to 105°F. The asphalt surface temperature ranged from 78°F to 146°F.

Pavement Maintenance, Rehabilitation and Reconstruction (MR&R) is not about a single treatment, nor is it a one size fits all philosophy. Instead, pavement MR&R must be tailored to each owner's system needs in the most cost-effective manner. This involves using a variety of preventive treatments and pavement rehabilitation solutions aimed at extending pavement life and optimizing resources. The successful completion of this project enables Kleinfelder to choose the appropriate MR&R strategies based on non-destructive pavement testing, TI_{20}, layer thicknesses, R-values, and pavement surface condition. As proposed, CTM 356 was used in the analyses performed and reported herein.

3. The Dynatest FWD/HWD Test System

The Dynatest 8082 Heavy Weight Deflectometer (HWD) Test System was used to generate the necessary Non-Destructive Testing (NDT) load-deflection data analyzed in this report (See Figure 1 and **Appendix A**). The Dynatest HWD generates a transient, impulse-type load of 25-30 msec. duration, at any desired (peak) load level between 6,500 and 72,000-lbf, thereby approximating the effect of a 30-50 mph moving wheel load. A more complete description of the Dynatest FWD/HWD Test System, along with other information about Dynatest, can be obtained upon request.

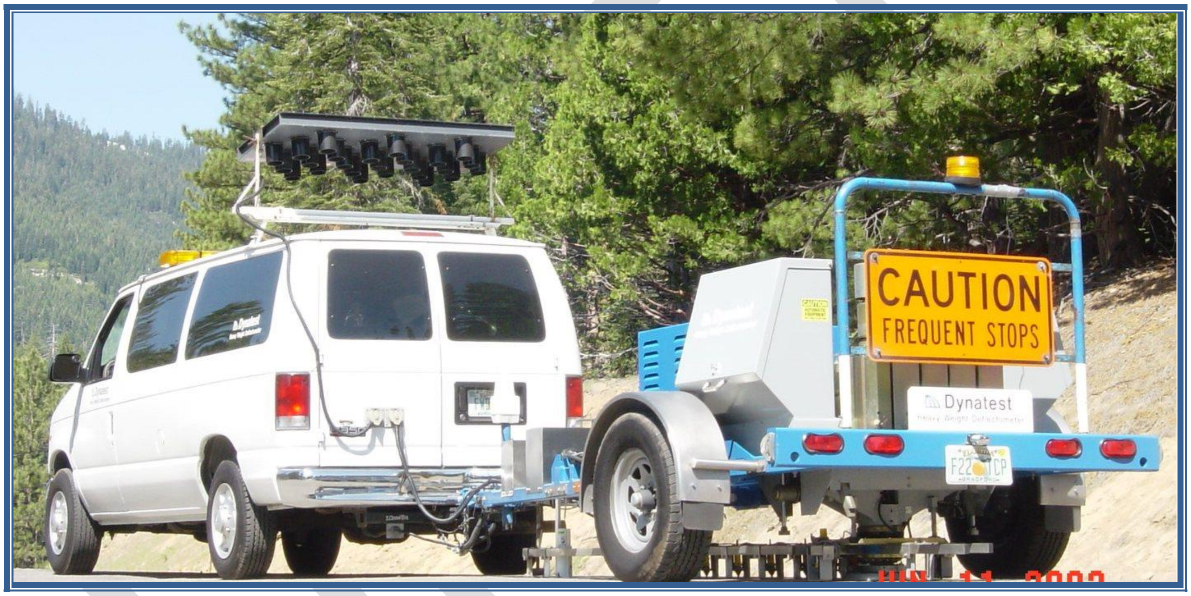


Figure 1 – Dynatest 8082 HWD Test System

For this project, target load levels of 6,000, 9,000 and 12,000-lbs were applied. Drop number 2 was used in the analyses corresponding to the effect of a standard 18,000-lbs equivalent single axle load (i.e., 9,000-lbs. in each wheel path).

4. References

The FWD-generated load-deflection data was analyzed using CTM 356 and HDM 2012, which use the FWD's center deflection readings only. Documentation regarding HDM 2012 is included in **Appendix B**.

5. Analysis Approach

The streets tested and the different sections based on TI_{20} are shown in Table 2. The streets were tested and analyzed using the general procedures described above in Sections 3 and 4:

Table 2: Test Limits and Corresponding TI_{20}

Street	Limits	Number of Lanes	Design TI_{20}	
			Northbound	Southbound
Golden State Boulevard	American Avenue to Clovis Avenue	4	10.5	11
Golden State Boulevard	Clovis Avenue to Adams Avenue	4	10.5	10.5
Golden State Boulevard	Adams Avenue to South Avenue	4	11	11
Golden State Boulevard	South Avenue to Temperance Avenue	4	11	12
Golden State Boulevard	Temperance Avenue to Manning Avenue	4	12	12.5
Golden State Boulevard	Manning Avenue to Highland Avenue	4	11	11
Whitson Street	Highland Ave to Floral Ave	4	11	11
Whitson Street	Floral Avenue to Park Street	4	9.5	9.5
Golden State Boulevard	Park Street to Mountain View Avenue	4	10	9.5
Golden State Boulevard	Mountain View Avenue to Bethel Avenue	4	10.5	10.5
Golden State Boulevard	Bethel Avenue to Stroud Avenue	4	9.5	10
Simpson Street	Stroud Avenue to SR-201	2	9	9.5
Simpson Street	SR-201 to Draper Street	2	9	9
Simpson Street	Draper Street to Gilroy Street	2	9	9

Stationing for this project was carried out in units of feet. Station 0+00 was set at American Ave. All streets and sections have two lanes in each direction except for Simpson St. from approximately Stroud Ave. to Gilroy St., which has one lane in each direction. Testing was performed in both traveling directions and in all lanes at a test interval of approximately 200 ft. A total of 1,471 FWD test points were collected over the evaluated streets.

Kleinfelder performed boring and R-value testing of the native subgrade soil. The pavement layer thicknesses and types were obtained on a total of fifty eight (58) locations along the different streets. Two (2) boring locations did not have thickness information for the base layer. Therefore, it was assumed that the AC layer is on top of the subgrade. In addition, twelve (12) samples of native subgrade soil were collected to determine the R-value. The asphalt concrete (AC) and Portland cement concrete (PCC) layer thicknesses that were obtained from field cores and used in the analysis are presented in Table 3. Detailed information regarding the layer thicknesses and R-values, which was provided by Kleinfelder, is shown in **Appendix C.**

Table 3: Layer Thicknesses used in the Analyses

Street	Direction and Lane	Limits	AC Layer Thickness (ft.)	PCC Layer Thickness (ft.)
Golden State Blvd.	NB Slow Lane	0+00 to 171+00	1.00	0.42
Golden State Blvd.		171+00 to 202+00	0.33	0.50
Golden State Blvd.		202+00 to 402+00	1.00	0.30
Whitson St.		402+00 to 486+00	0.58	n/a
Whitson St./Golden State Blvd.		486+00 to 508+00	0.67	n/a
Golden State Blvd.		508+00 to 637+50	0.75	0.38
Golden State Blvd./Simpson St.		637+50 to 702+00	0.42	0.58
Simpson St.		702+00 to End	0.71	unknown
Golden State Blvd.	NB Fast Lane	0+00 to 141+00	0.90	0.42
Golden State Blvd.		141+00 to 189+00	0.58	0.67
Golden State Blvd.		189+00 to 223+00	1.00	n/a
Golden State Blvd.		223+00 to 283+00	1.05	0.33
Golden State Blvd.		283+00 to 400+00	1.25	n/a
Whitson St.		400+00 to 423+00	0.42	0.33
Whitson St.		423+00 to 500+00	0.42	0.42
Golden State Blvd.		500+00 to 535+00	0.71	0.38
Golden State Blvd.		535+00 to 571+00	0.58	0.67
Golden State Blvd.		571+00 to 637+50	0.63	0.67
Golden State Blvd.		637+50 to 677+00	0.67	0.38
Simpson St.		677+00 to End	0.67	unknown
Golden State Blvd.	SB Slow Lane	0+00 to 82+50	0.38	0.25
Golden State Blvd.		82+50 to 141+00	0.67	0.38
Golden State Blvd.		141+00 to 197+00	0.50	0.67
Golden State Blvd.		197+00 to 283+00	0.50	n/a
Golden State Blvd./Whitson St.		283+00 to 445+00	0.75	n/a
Whitson St./Golden State Blvd.		445+00 to 506+50	0.50	n/a
Golden State Blvd.		506+50 to 535+00	n/a	0.67
Golden State Blvd.		535+00 to 632+20	0.19	0.67
Golden State Blvd./Simpson St.		632+20 to 686+00	n/a	0.71
Simpson St.		686+00 to End	0.70	unknown
Golden State Blvd.	SB Fast Lane	0+00 to 82+50	0.63	0.40
Golden State Blvd.		82+50 to 141+00	0.50	0.75
Golden State Blvd.		141+00 to 212+50	0.42	0.50
Golden State Blvd.		215+50 to 303+00	0.75	n/a
Golden State Blvd./Whitson St.		303+00 to 423+00	0.81	n/a
Whitson St.		423+00 to 461+00	0.83	n/a
Whitson St./Golden State Blvd.		461+00 to 506+00	0.71	n/a
Golden State Blvd.		506+00 to 533+00	n/a	0.67
Golden State Blvd.		533+00 to 631+00	0.13	0.71
Golden State Blvd./Simpson St.		631+00 to 683+50	n/a	0.67
Simpson St.		683+50 to End	0.70	unknown

CTM 356 / HDM 2012 use only the FWD's center deflection reading to evaluate the pavement structural adequacy and rehabilitation analysis. At the present time, Caltrans provides no correction factor for temperature or moisture content; therefore, the deflection data were used as is. The design TI_{20} and the surfacing thickness, as shown in Tables 2 and 3 respectively, were used in determining the required overlay thickness according to CTM 356 and HDM 2012, as reported in the following section.

6. Discussion of Results

The first step to develop effective rehabilitation strategies was to assess the structural condition of the pavements. Deflection data from the FWD testing was analyzed to determine the structural condition. A summary of relevant results is presented in this section.

When analyzing deflection measurements, it is useful to note that the deflection measured at the center of the load plate (i.e. directly underneath the load) is the summation of the compression of all pavement layers. The normalized center deflections plots for a 9,000-lbs wheel load for all evaluated streets are shown in Figure 2 and Figure 3. The deflections ranged from fairly low to fairly high. In addition, the deflections were highly variable along the streets but they were consistent between lanes in each direction. One location on the southbound slow lane showed high deflections. This location is shown in Figure 3 and Table 5, and should be inspected and repaired prior to performing any rehabilitation alternative. The results presented in the following sections are in agreement with the deflection data. **Appendix D** shows the raw FWD data used in the analysis.

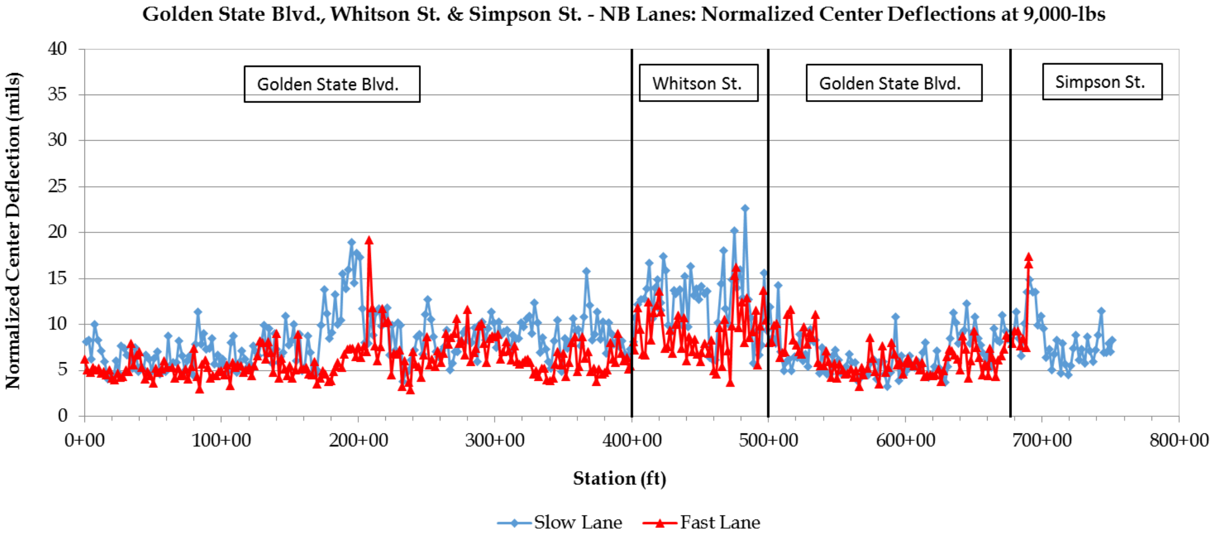


Figure 2 – Normalized Center Deflections for the NB Lanes

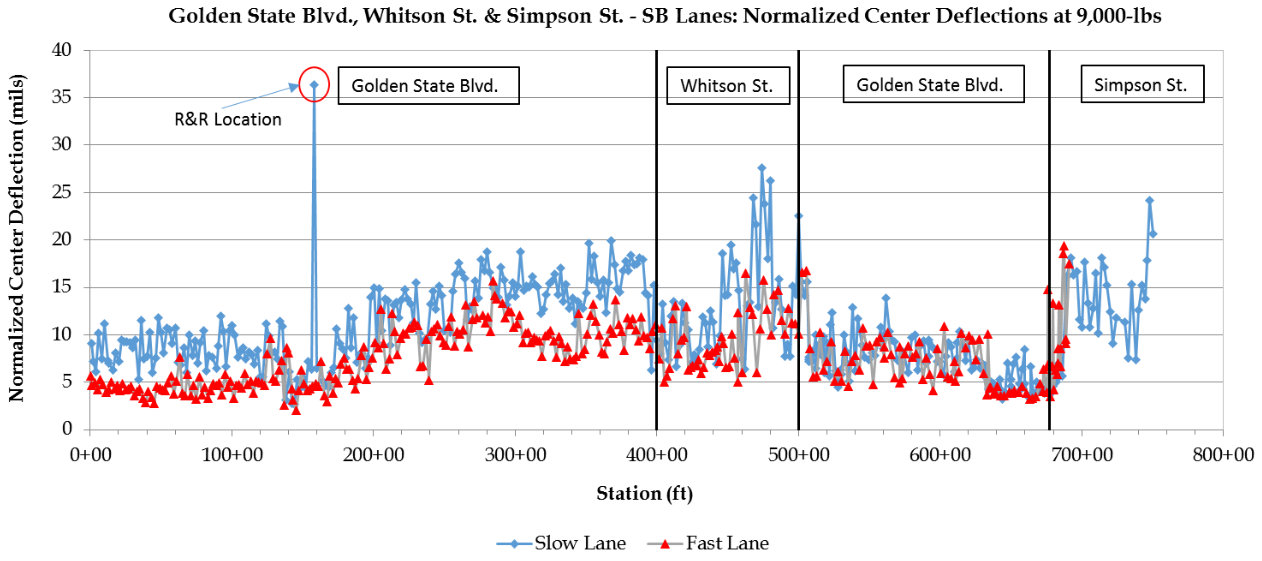


Figure 3 – Normalized Center Deflections for the SB Lanes

6.1 Rehabilitation Alternatives

Based on the pavement deflection data that was collected on the various streets, coupled with the pavement surface condition through photographs taken during FWD testing at 25-foot intervals and the presence of curb and gutters, several alternatives were recommended as shown in Table 5. The following section summarizes these different alternatives or the components of these alternatives. The preparation of the existing pavement surface and reflective cracking mitigation are discussed in case the agency elects to place an overlay on top of the existing surface.

It is important to mention that even though a design period of 20 years was selected for all rehabilitation alternatives, a series of preventive maintenance activities must be applied at the right time after rehabilitating the evaluated streets. The budget allocation and the timely application of preventive maintenance must be supported with a Pavement Management System (PMS) that accounts for the actual roadway condition, local traffic, climate and pavement performance trends.

6.1.1 Preventive Maintenance

Preventive maintenance is selected whenever the pavement is in fairly good condition and does not require a structural overlay. Preventive maintenance applies lower cost treatments to retard a pavement's deterioration, maintain or improve the functional condition, and extend the pavement's service life. With various short-term treatments, preventive maintenance can extend the pavement life by about 3 to 7 years.

Preventive maintenance involves activities such as slurry sealing, chip sealing, micro-surfacing, and crack and joint sealing, among other alternatives that must be applied when the overall pavement condition is still in good state and no structural failure such as fatigue cracking, severe permanent deformation or pot holes are present.

6.1.2 Hot Mix Asphalt (HMA) [HDM 2012 – Index 631.1]

HMA consists of a mixture of asphalt binder and a graded aggregate ranging from coarse to very fine particles. The aggregate can be treated and the binder can be modified. HMA could be made from new or recycled material. Examples of recycled asphalt concrete include, but are not limited to, hot and cold in-place recycling. HMA is classified by type depending on the specified aggregate quality and mix design criteria appropriate for the project conditions. HMA should not be placed over a new rubberized HMA (RHMA) pavement.

6.1.3 Mill and Overlay

Mill and Overlay is selected whenever the pavement is in fair to good condition and a structural overlay is required, or the pavement is in fair condition and a structural overlay is not required. In addition, this alternative is applied whenever the current profile elevation is to be maintained.

Mill and Overlay consists of the removal of part of the surface course and placement of an HMA or rubberized HMA gap graded (RHMA-G) overlay. At least the bottom 2 inches of the existing surface course should be left intact to ensure the milling machine does not loosen the base material or the underlying unbound material, and to account for variability in the AC layer thickness.

Mill and overlay is a very suitable solution when the pavement structure shows permanent deformation coming from the existing AC layer only. This type of distress becomes evident since permanent deformation is localized on the wheelpaths and two “humps” are formed on the edges of the wheelpaths. The subsequent channelized ruts, also referred to as rutting, are usually localized within the first 1 to 3 inches of the AC layer, thus milling this portion of the existing surface course and replacing it with a more stable HMA will present an economical solution.

This alternative should not be used when the pavement structure is in poor condition. If the pavement failed due to poor subgrade or base conditions, a mill and overly will not address the critical layer and therefore premature failure of the new structure is expected unless a much thicker overlay is placed. In addition, if bottom-up fatigue cracking is present, a mill and overlay will not prevent reflective cracking to propagate through the new HMA or RHMA layer. Reflective cracking will be fully discussed in the next subsection.

6.1.4 Reconstruction / Remove & Replace

Reconstruction of the pavement section would involve removing the existing pavement and replacing it with a new structural section calculated using the R-value based design guidelines presented in California TM #301.

The term R&R stands for "Remove and Replace". This refers to localized repair, generally in the form of deep patching of highly distressed areas of the roadway prior to the placement of an overlay. The replacement section is usually matched to the existing structural section prior to overlaying, or a new structural section is calculated using the R-value design criteria.

6.1.5 Preparation of Existing Pavement Prior to Overlay [HDM 2012 – 645.1 (3)]

Existing pavement distresses should be repaired before overlaying the pavement. Cracks wider than ¼ inch should be sealed. Undesirable material such as bleeding seal coats or excessive crack sealant should be removed before paving. Existing thermoplastic traffic stripes and raised pavement markers should be removed. Spalls in rigid pavement should be repaired and broken slabs or punchouts replaced. Loose flexible pavement should be removed and replaced, and potholes and localized failures repaired. Routing cracks before applying crack sealant has been found to be beneficial. The width of the routing should be ¼ inch wider than the crack width. The depth should be equal to the width of the routing plus ¼ inch. In order to alleviate the potential bump in the overlay from the crack sealant, leave the crack sealant ¼ inch below grade to allow for expansion (i.e., recess fill).

6.1.6 Reflective Cracking Mitigation

Reflective cracking is defined as the propagation of an existing crack or joint upward to the new pavement surface. This cracking can result from traffic and environmentally induced causes. Cracks will allow water to penetrate the underlying layers causing further damage to the pavement structure by destroying the bond between the existing pavement and overlay, causing moisture damage in the HMA layers, as well as weakening unbound layers, and result in a loss of ride quality or smoothness.

Cracks tend to reflect at a rate of about 1-inch per year when placed over severely cracked AC surfaces or over PCC pavements. Several materials and methods have been evaluated to reduce reflective crack propagation with varying degrees of success. None of them have been proven to be hundred percent effective in completely eliminating this distress mechanism. The most commonly used methods include:

- increased overlay thickness,

- modification of asphalt and mixture properties, such as using rubberized or polymer modified asphalt mixtures,
- stress absorbing membrane interlayers (SAMI),
- crack sealing the existing pavement surface,
- crack and seat the PCC layer, and
- microcraking the underlying cement treated layer.

Under no circumstances it is recommended to place rubberized HMA over a severely cracked AC layer.

6.2 Visual Condition of Pavement Surface

A limited distress survey was conducted on all tested lanes through digital photographs that were automatically collected at 25-ft intervals while testing. The pavement analyses and recommendations for the rehabilitation of the streets consider the current surface condition (and other local constraints) of the pavement as well as the results of the deflection analyses.

A description of the overall surface condition for each of the streets is presented in the following paragraphs.

Golden State Blvd. – NB (Sta. 0+00 to 123+20): The pavement exhibits low to medium severity transverse cracking and longitudinal cracking along the construction joint with some localized alligator cracking in the slow lane. In addition, rutting and bleeding were noted in the slow lane.

Figure 4 – NB at Sta. 109+20 Representative Pavement Condition

Golden State Blvd. – NB (Sta. 123+20 to 127+45): The pavement exhibits medium severity block cracking in both lanes. In addition, rutting and bleeding were noted in the slow lane.

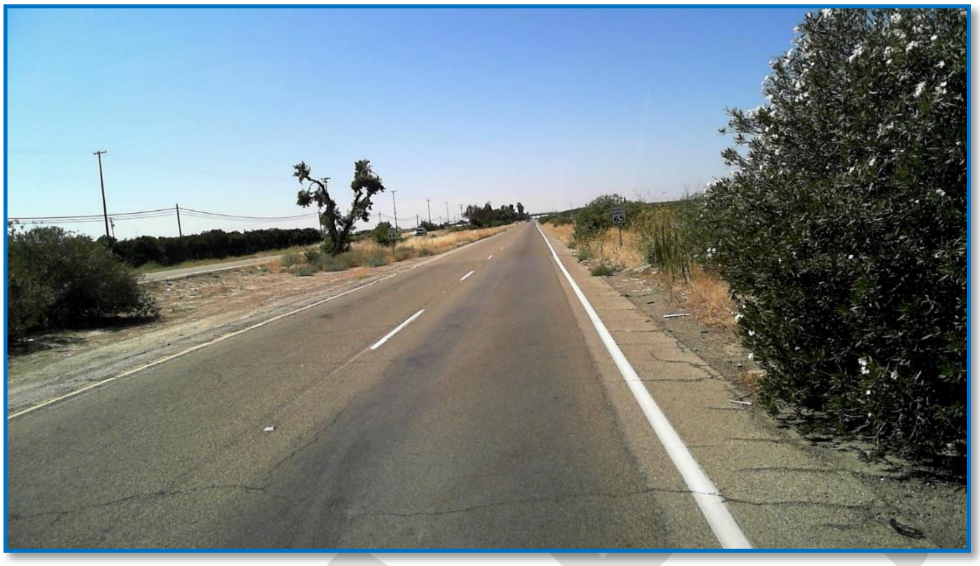


Figure 5 – NB at Sta. 124+44 Representative Pavement Condition

Golden State Blvd. – NB (Sta. 127+45 to 135+70): The pavement exhibits high severity block and alligator cracking in both lanes.

Figure 6 – NB at Sta. 133+95 Representative Pavement Condition

Golden State Blvd. – NB (Sta. 135+70 to 145+95): The pavement exhibits low to moderate severity block, transverse and alligator cracking in both lanes. Curbs and gutters exist in this section.

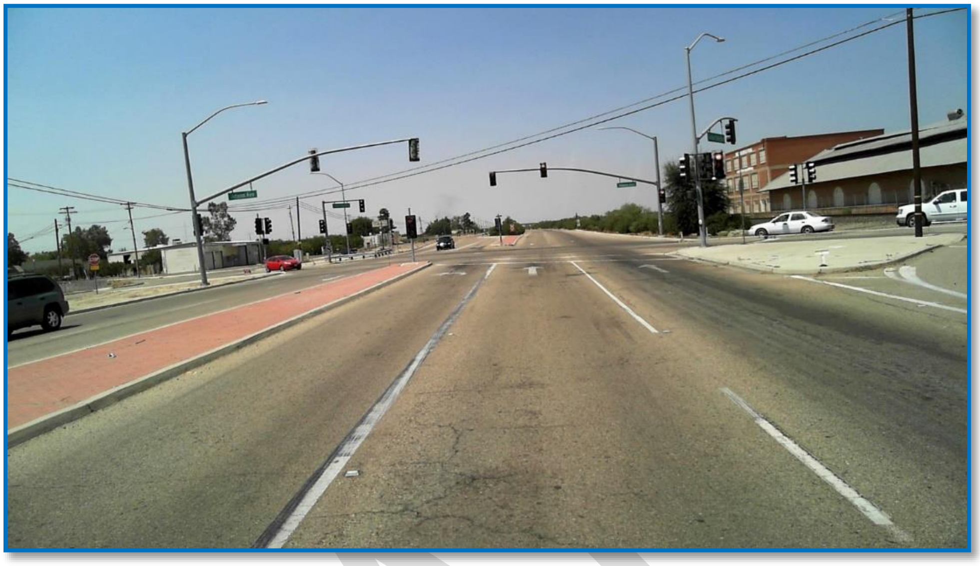


Figure 7 – NB at Sta. 142+95 Representative Pavement Condition

Golden State Blvd. – NB (Sta. 145+95 to 162+95): The pavement exhibits high severity block and alligator cracking in both lanes. In addition, bleeding was noted in both lanes.

Figure 8 – NB at Sta. 158+20 Representative Pavement Condition

Golden State Blvd. – NB (Sta. 162+95 to 172+20): The pavement exhibits low to moderate severity transverse, alligator and longitudinal cracking in both lanes. In addition, bleeding was noted in the slow lane. Curbs and gutters exist in this section.

Figure 9 – NB at Sta. 165+20 Representative Pavement Condition

Golden State Blvd. – NB (Sta. 172+20 to 303+20): The pavement exhibits moderate to high severity transverse, alligator and block cracking in both lanes. In addition, bleeding was noted in both lanes. The slow lane appears to be in a slightly better condition than the fast lane.

Figure 10 – NB at Sta. 202+20 Representative Pavement Condition

Figure 11 – NB at Sta. 259+20 Representative Pavement Condition

Golden State Blvd. – NB (Sta. 303+20 to 382+95): The pavement exhibits moderate to high severity transverse, alligator, longitudinal and block cracking in both lanes. The slow lane appears to be in worse condition than the fast lane. In addition, bleeding was noted in both lanes.

Figure 12 – NB at Sta. 341+45 Representative Pavement Condition

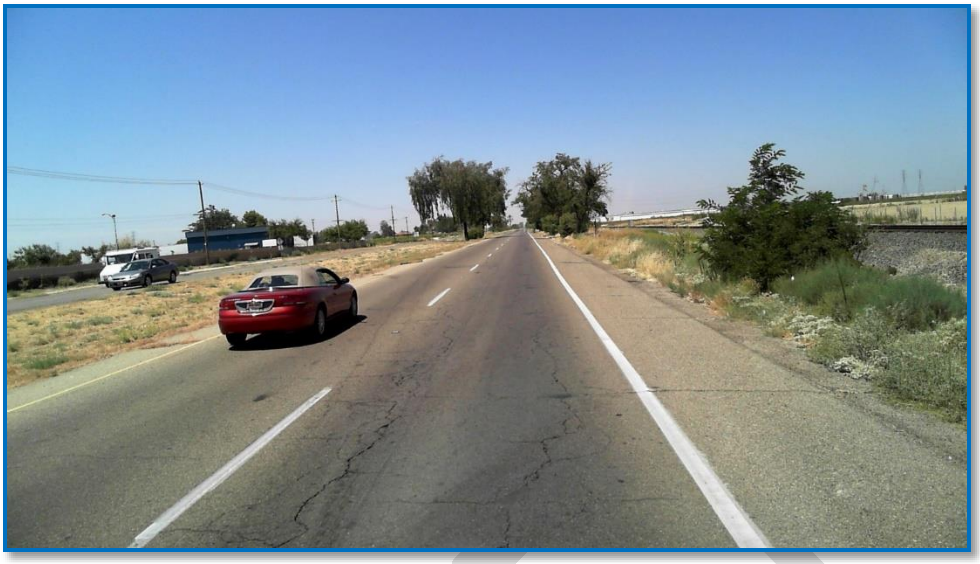


Figure 13 – NB at Sta. 353+94 Representative Pavement Condition

Golden State Blvd./Whitson St. – NB (Sta. 382+95 to 421+45): The pavement exhibits high severity block, alligator and transverse cracking in both lanes.

Figure 14 – NB at Sta. 388+20 Representative Pavement Condition

Whitson St. – NB (Sta. 421+45 to 500+70): The pavement exhibits low to moderate severity alligator and transverse cracking in both lanes. Curbs and gutters exist in this section.

Figure 15 – NB at Sta. 477+45 Representative Pavement Condition

Golden State Blvd. – NB (Sta. 500+70 to 506+45): The pavement exhibits low to moderate severity block cracking in both lanes. Curbs and gutters exist in this section.

Figure 16 – NB at Sta. 504+45 Representative Pavement Condition

Golden State Blvd. – NB (Sta. 506+45 to 535+95): The pavement exhibits moderate severity block and alligator cracking in both lanes. In addition, bleeding was noted in the slow lane.

Figure 17 – NB at Sta. 520+20 Representative Pavement Condition

Golden State Blvd. – NB (Sta. 535+95 to 631+70): The pavement exhibits low severity transverse and alligator cracking in both lanes.

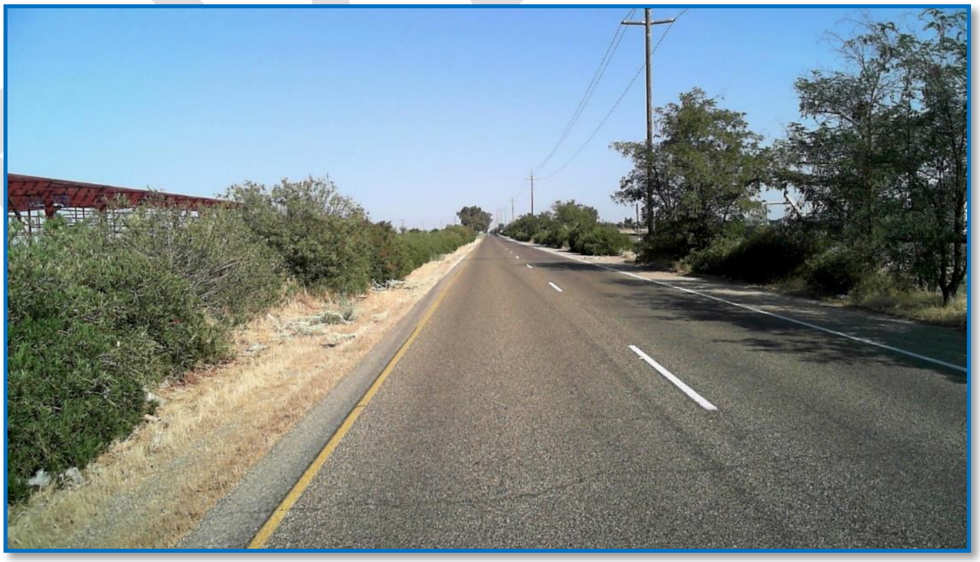


Figure 18 – NB at Sta. 593+70 Representative Pavement Condition

Golden State Blvd./Simpson St. – NB (Sta. 631+70 to 712+20): The pavement exhibits moderate to high severity block, alligator, and transverse cracking in both lanes.

Figure 19 – NB at Sta. 659+45 Representative Pavement Condition

Simpson St. – NB (Sta. 712+20 to End): The pavement exhibits low to moderate severity transverse and longitudinal cracking. Curbs and gutters exist in this section.

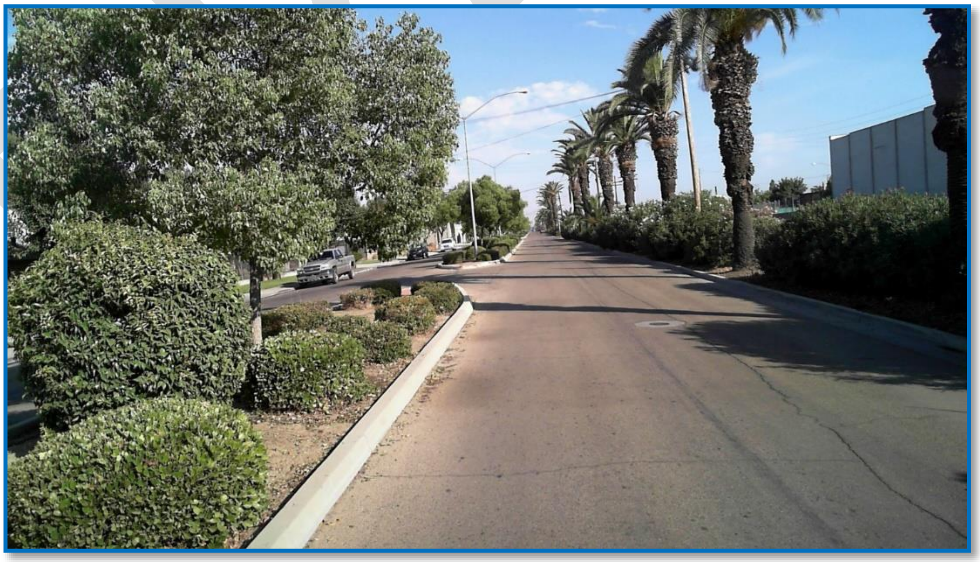


Figure 20 – NB at Sta. 748+45 Representative Pavement Condition

Golden State Blvd. – SB (Sta. 0+00 to 123+55): The pavement exhibits low to medium severity transverse cracking and longitudinal cracking along the construction joint with some localized alligator cracking in the slow lane. In addition, rutting and bleeding were noted in the slow lane.

Figure 21 – SB at Sta. 74+55 Representative Pavement Condition

Golden State Blvd. – SB (Sta. 123+55 to 136+30): The pavement exhibits high severity block and alligator cracking in both lanes.

Figure 22 – SB at Sta. 132+30 Representative Pavement Condition

Golden State Blvd. – SB (Sta. 136+30 to 146+80): The pavement exhibits low to moderate severity block, transverse and alligator cracking in both lanes. Curbs and gutters exist in this section.

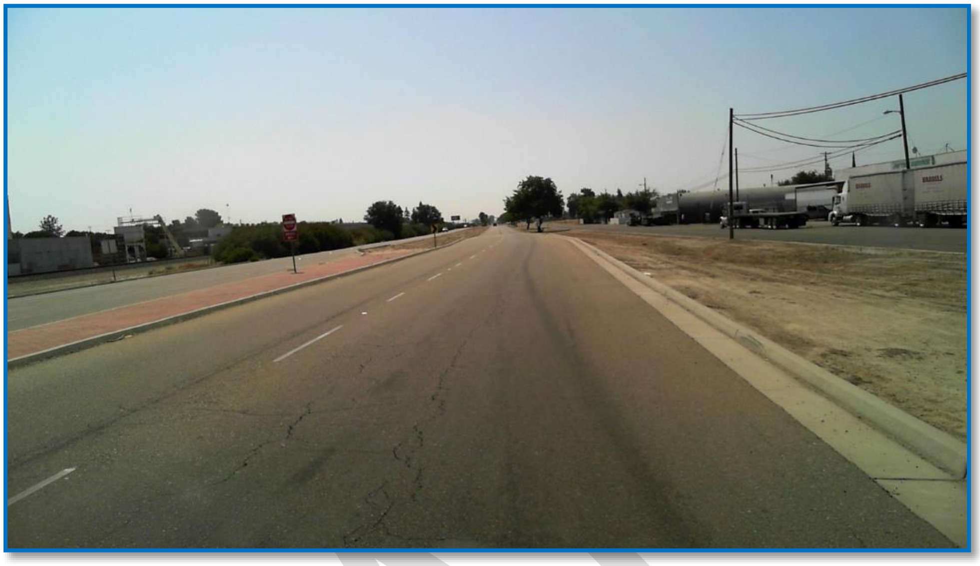


Figure 23 – SB at Sta. 142+80 Representative Pavement Condition

Golden State Blvd. – SB (Sta. 146+80 to 163+55): The pavement exhibits high severity block and alligator cracking in both lanes. In addition, bleeding was noted in both lanes.

Figure 24 –SB at Sta. 161+80 Representative Pavement Condition

Golden State Blvd. – SB (Sta. 163+55 to 173+05): The pavement exhibits low to moderate severity transverse, alligator and longitudinal cracking in both lanes. In addition, bleeding was noted in the slow lane. Curbs and gutters exist in this section.

Figure 25 – SB at Sta. 168+80 Representative Pavement Condition

Golden State Blvd. – SB (Sta. 173+05 to 209+30): The pavement exhibits moderate to high severity transverse, alligator and block cracking in both lanes. In addition, bleeding was noted in both lanes.

Figure 26 – SB at Sta. 203+05 Representative Pavement Condition

Golden State Blvd. – SB (Sta. 209+30 to 304+55): The pavement exhibits high severity block and alligator cracking in both lanes. In addition, bleeding was noted in both lanes. Curbs and gutter exist in this section.

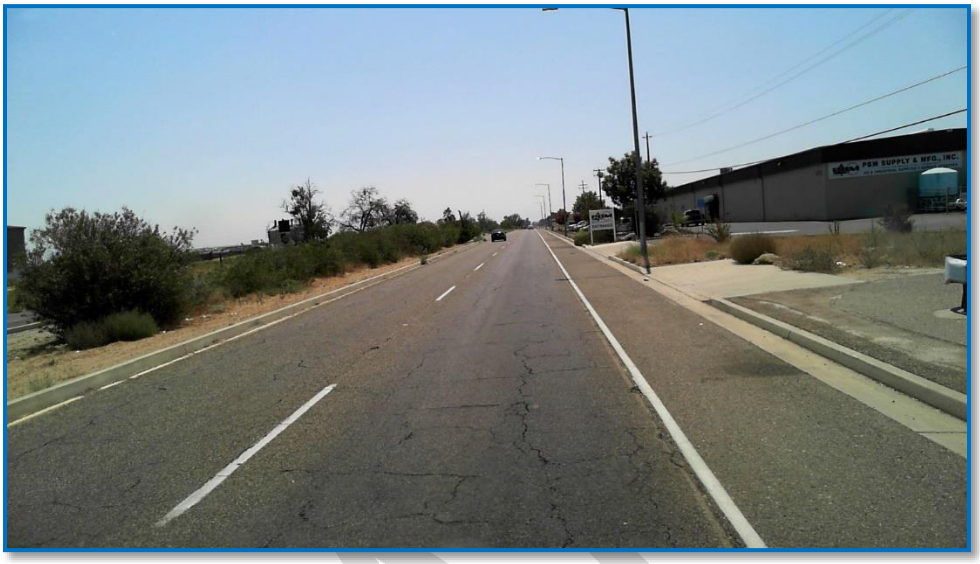


Figure 27 – SB at Sta. 295+30 Representative Pavement Condition

Golden State Blvd. – SB (Sta. 304+55 to 389+55): The pavement exhibits moderate to high severity transverse, alligator and longitudinal cracking in both lanes. In addition, bleeding was noted in both lanes.

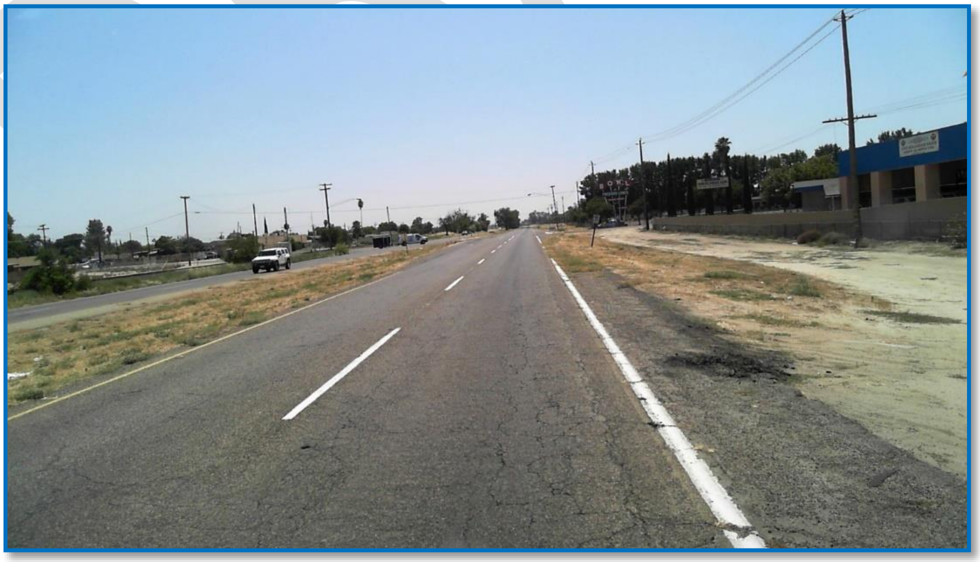


Figure 28 – SB at Sta. 352+30 Representative Pavement Condition

Golden State Blvd./Whitson St. – SB (Sta. 389+55 to 421+80): The pavement exhibits high severity block, alligator and transverse cracking in both lanes.

Figure 29 – SB at Sta. 412+80 Representative Pavement Condition

Whitson St. – SB (Sta. 421+80 to 500+55): The pavement exhibits low to moderate severity alligator and transverse cracking in both lanes. Curbs and gutters exist in this section.

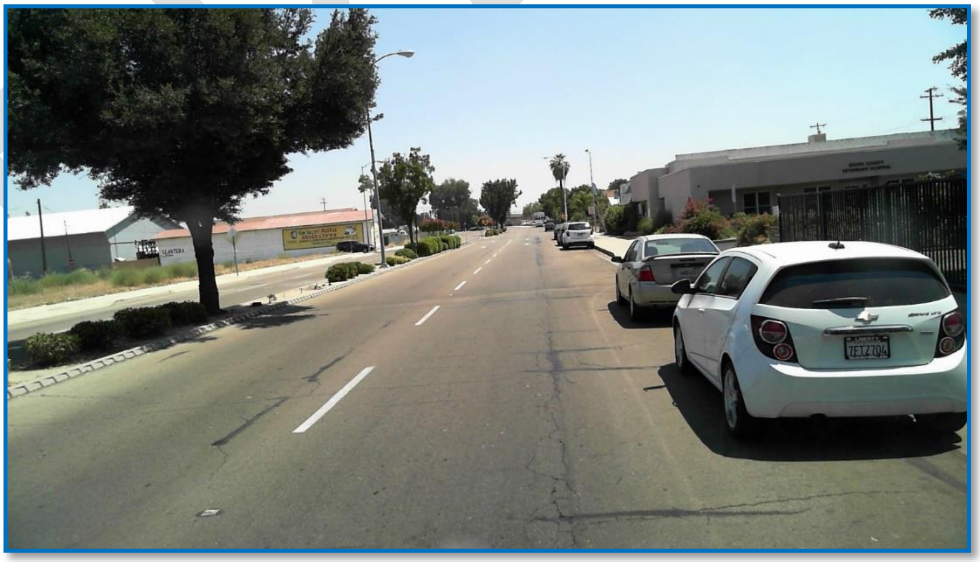


Figure 30 – SB at Sta. 477+30 Representative Pavement Condition

Golden State Blvd. – SB (Sta. 500+55 to 506+80): The pavement exhibits moderate severity block cracking in both lanes. Curbs and gutters exist in this section.

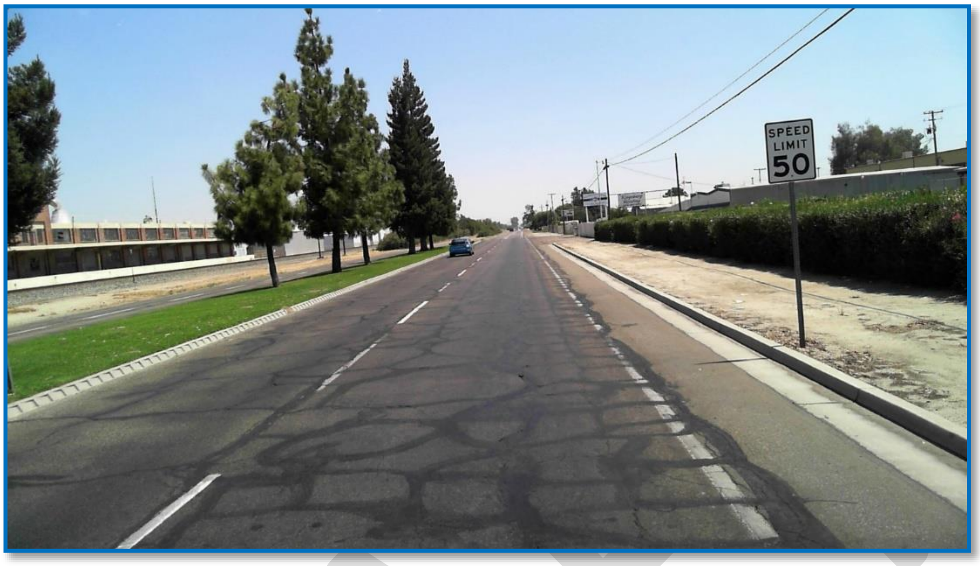


Figure 31 – SB at Sta. 502+55 Representative Pavement Condition

Golden State Blvd. – SB (Sta. 506+80 to 535+80): The PCC pavement exhibits moderate to high severity cracking with some slabs having 3rd stage cracking. In addition, the pictures show that spalling of the joints and surface polish are present on the majority of the slabs.

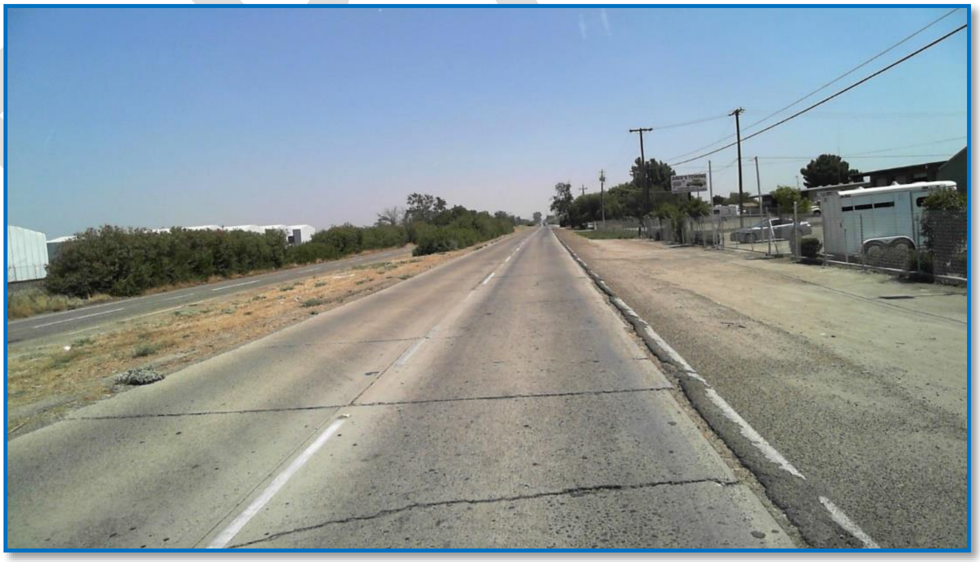


Figure 32 – SB at Sta. 507+30 Representative Pavement Condition

Golden State Blvd. – SB (Sta. 535+80 to 632+05): The pavement exhibits low severity transverse cracking in both lanes.

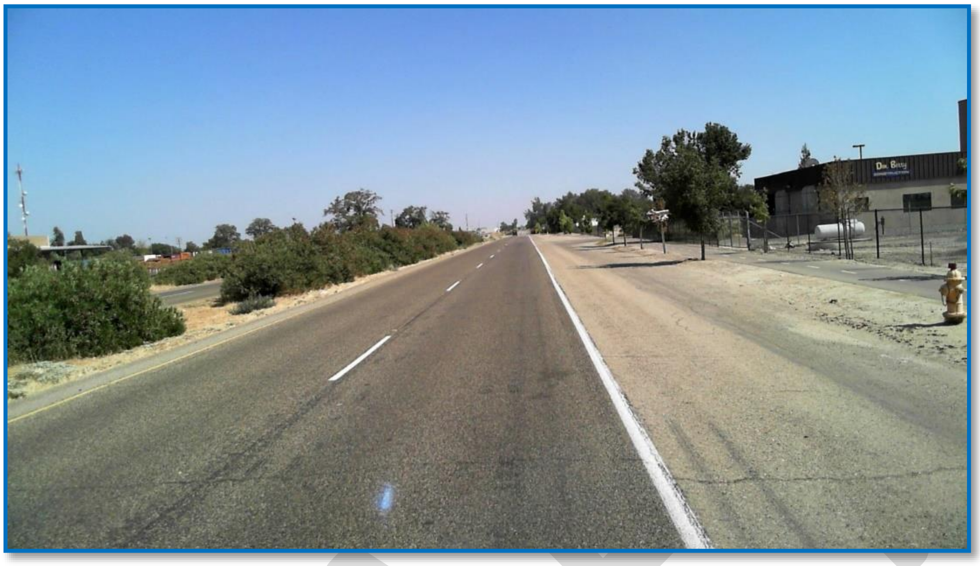


Figure 33 – SB at Sta. 624+80 Representative Pavement Condition

Golden State Blvd./Simpson St. – SB (Sta. 632+05 to 683+80): The PCC pavement exhibits localized low to moderate severity cracking. In addition, the pictures show that spalling of the joints and surface polish are present on the majority of the slabs.

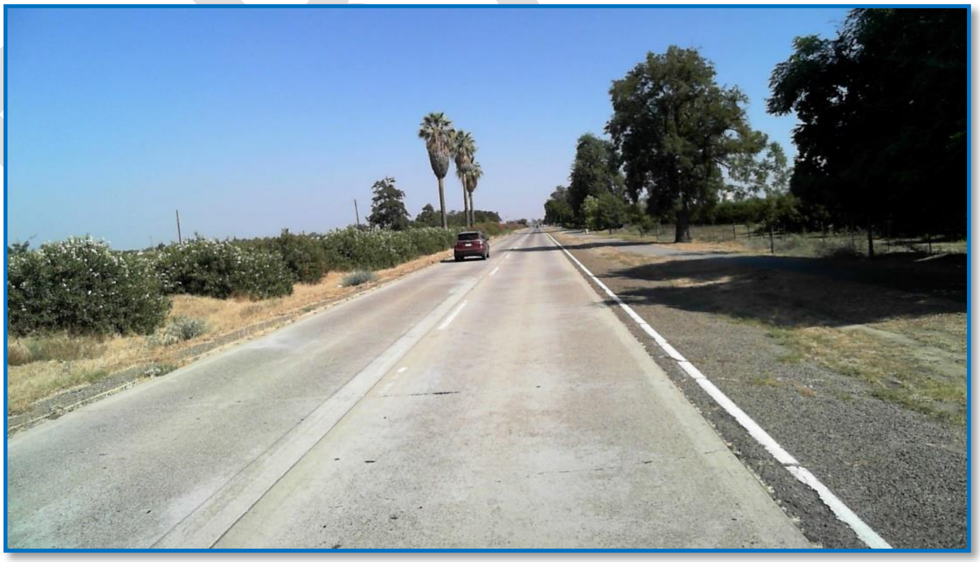


Figure 34 – SB at Sta. 657+30 Representative Pavement Condition

Simpson St. – SB (Sta. 683+80 to 694+30): The pavement exhibits high severity alligator and block cracking.

Figure 35 – SB at Sta. 691+05 Representative Pavement Condition

Simpson St. – SB (Sta. 694+30 to 712+05): The pavement exhibits high severity transverse and longitudinal cracking.

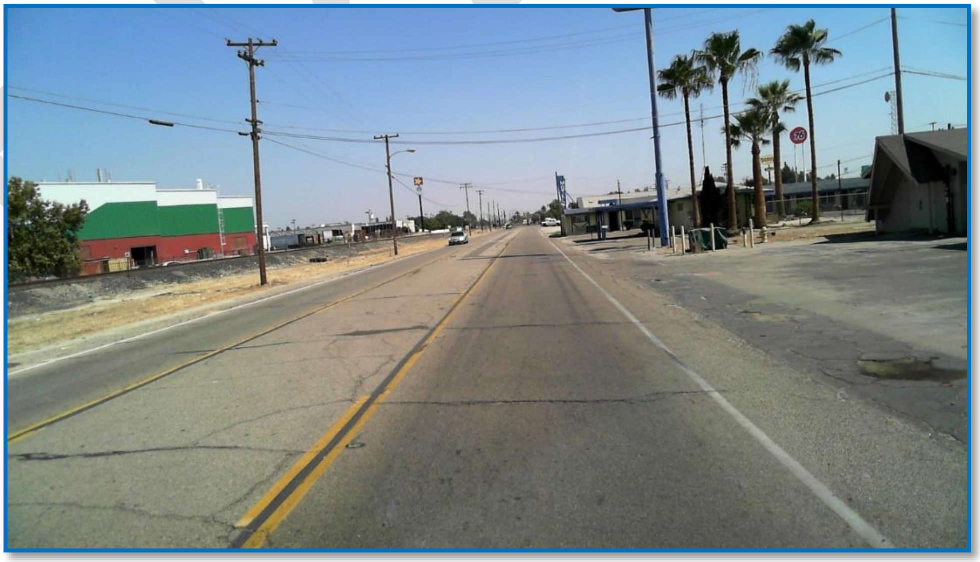


Figure 36 – SB at Sta. 697+30 Representative Pavement Condition

Simpson St. – SB (Sta. 712+05 to End): The pavement exhibits low to moderate severity transverse and longitudinal cracking. Curbs and gutters exist in this section.

Figure 37 – SB at Sta. 735+80 Representative Pavement Condition

6.3 Deflections and Overlay Calculations

The FWD deflection data was analyzed using CTM 356 and HDM 2012 for a 20-year design period using the traffic indices and the layer thicknesses that were provided by Kleinfelder. A PCC layer was present under the AC layer on several sections of the streets. The results of all CTM 356 and HDM 2012 calculations are summarized in Table 4.

Table 4: CTM 356 / HDM 2012 Summary Statistics using TI$_{20}$

Street1)		TI$_{20}$	Existing Average AC Thickness (ft.)	Existing Average PCC Thickness (ft.)	Tolerable Deflection (mils)	80th Percentile Deflection (mils)	% Reduction	Gravel Equivalent (ft.)	Calculated Structural HMA Overlay (ft.)
Golden State Blvd., Whitson St., & Simpson St. (American Ave. to Gilroy St.)									
NB Slow Lane	0+00 to 141+00	10.5	1.00	0.42	10	9.55	n/a	n/a	0.00
	141+00 to 171+00	11	1.00	0.42	9	10.22	12	0.05	0.03
	171+00 to 202+00	11	0.33	0.50	13	19.39	33	0.29	0.15
	202+00 to 241+00	11	1.00	0.30	9	13.00	31	0.26	0.14
	241+00 to 283+00	12	1.00	0.30	8	11.72	32	0.28	0.15
	283+00 to 402+00	11	1.00	0.30	9	12.61	29	0.23	0.12
	402+00 to 423+00	11	0.58	n/a	11	18.15	39	0.40	0.21
	423+00 to 486+00	9.5	0.58	n/a	13	19.39	33	0.29	0.15
	486+00 to 500+00	9.5	0.67	n/a	13	14.45	10	0.03	0.02
	500+00 to 508+00	10	0.67	n/a	12	15.77	24	0.16	0.08
	508+00 to 571+00	10	0.75	0.38	10	8.61	n/a	n/a	0.00
	571+00 to 637+50	10.5	0.75	0.38	10	9.11	n/a	n/a	0.00
	637+00 to 677+00	9.5	0.42	0.58	11	11.93	8	0.02	0.01
	677+00 to 702+00	9	0.42	0.58	12	15.66	23	0.15	0.08
	702+00 to End	9	0.71	unknown	12	10.01	n/a	n/a	0.00

1) Sta. 0+00 is set at the "From" street shown in the limits above.
2) The values reflect the calculation for the 80th percentile deflection after removing the high deflections to consider localized R&R. Locations showing relatively high deflections and possible localized failure are included but not limited to the Station shown in Table 5. Final locations and extent of R&R needs to be determined visually for any selected alternative.
3) n/a = not applicable

Table 4 (Cont'd): CTM 356 / HDM 2012 Summary Statistics using TI_{20}

Street[1]		TI_{20}	Existing Average AC Thickness (ft.)	Existing Average PCC Thickness (ft.)	Tolerable Deflection (mils)	80th Percentile Deflection (mils)	% Reduction	Gravel Equivalent (ft.)	Calculated Structural HMA Overlay (ft.)
Golden State Blvd., Whitson St., & Simpson St. (American Ave. to Gilroy St.)									
NB Fast Lane	0+00 to 141+00	10.5	0.90	0.42	10	7.50	n/a	n/a	0.00
	141+00 to 189+00	11	0.58	0.67	9	7.14	n/a	n/a	0.00
	189+00 to 223+00	11	1.00	n/a	11	13.76	20	0.11	0.06
	223+00 to 241+00	11	1.05	0.33	9	8.21	n/a	n/a	0.00
	241+00 to 263+00	12	1.05	0.33	8	8.54	6	0.02	0.01
	263+00 to 283+00	12	1.05	0.33	8	11.97	33	0.29	0.15
	283+00 to 400+00	11	1.25	n/a	11	9.20	n/a	n/a	0.00
	400+00 to 423+00	11	0.42	0.33	9	14.39	37	0.37	0.19
	423+00 to 473+00	9.5	0.42	0.42	11	11.04	n/a	n/a	0.00
	473+00 to 500+00	9.5	0.42	0.42	15	16.09	7	0.02	0.01
	500+00 to 535+00	10	0.71	0.38	10	11.99	17	0.09	0.05
	535+00 to 571+00	10	0.58	0.67	10	6.98	n/a	n/a	0.00
	571+00 to 637+50	10.5	0.63	0.67	10	8.03	n/a	n/a	0.00
	637+50 to 677+00	9.5	0.67	0.38	11	9.35	n/a	n/a	0.00
	677+00 to End	9	0.67	unknown	14	16.73	16	0.08	0.04

1) Sta. 0+00 is set at the "From" street shown in the limits above.
2) The values reflect the calculation for the 80th percentile deflection after removing the high deflections to consider localized R&R. Locations showing relatively high deflections and possible localized failure are included but not limited to the Station shown in Table 5. Final locations and extent of R&R needs to be determined visually for any selected alternative.
3) n/a = not applicable

Table 4 (Cont'd): CTM 356 / HDM 2012 Summary Statistics using TI_{20}

Street[1]		TI_{20}	Existing Average AC Thickness (ft.)	Existing Average PCC Thickness (ft.)	Tolerable Deflection (mils)	80th Percentile Deflection (mils)	% Reduction	Gravel Equivalent (ft.)	Calculated Structural HMA Overlay (ft.)
Golden State Blvd., Whitson St., & Simpson St. (American Ave. to Gilroy St.)									
SB Slow Lane	0+00 to 82+50	11	0.38	0.25	9	11.95	25	0.18	0.09
	82+50 to 141+00	10.5	0.67	0.38	10	12.07	17	0.09	0.05
	141+00 to 197+00	11	0.50	0.67	9	10.66[2]	16	0.08	0.04
	197+00 to 212+50	11	0.50	n/a	11	17.50	37	0.37	0.19
	212+50 to 241+00	12	0.50	n/a	9	16.84	47	0.57	0.30
		10	0.50	n/a	12	16.84	29	0.23	0.12
	241+00 to 283+00	12.5	0.50	n/a	9	20.03	55	0.74	0.39
		10	0.50	n/a	12	20.03	40	0.42	0.22
	283+00 to 391+00	11	0.75	n/a	11	20.44	46	0.55	0.29
		10	0.75	n/a	12	20.44	41	0.44	0.23
	391+00 to 423+00	11	0.75	n/a	11	16.97	31	0.26	0.14
	423+00 to 445+00	9.5	0.75	n/a	13	13.35	3	0.01	0.01
	445+00 to 506+50	9.5	0.50	n/a	13	24.31	47	0.57	0.30
	506+50 to 535+00	9.5	n/a	0.67	11	11.26	2	0.01	0.01
	535+00 to 571+00	9.5	0.19	0.67	11	13.22	17	0.09	0.05
	571+00 to 632+20	10.5	0.19	0.67	10	10.80	7	0.02	0.01
	632+20 to 637+50	10.5	n/a	0.71	10	6.30	n/a	n/a	0.00
	637+50 to 677+00	10	n/a	0.71	10	7.19	n/a	n/a	0.00
	677+00 to 686+00	9.5	n/a	0.71	11	7.38	n/a	n/a	0.00
	686+00 to 712+00	9.5	0.70	unknown	13	20.02	35	0.33	0.17
	712+00 to End	9	0.70	unknown	14	21.87	36	0.35	0.18

1) Sta. 0+00 is set at the "From" street shown in the limits above.
2) The values reflect the calculation for the 80th percentile deflection after removing the high deflections to consider localized R&R. Locations showing relatively high deflections and possible localized failure are included but not limited to the Station shown in Table 5. Final locations and extent of R&R needs to be determined visually for any selected alternative.
3) n/a = not applicable

Table 4 (Cont'd): CTM 356 / HDM 2012 Summary Statistics using TI_{20}

Street1)		TI_{20}	Existing Average AC Thickness (ft.)	Existing Average PCC Thickness (ft.)	Tolerable Deflection (mils)	80th Percentile Deflection (mils)	% Reduction	Gravel Equivalent (ft.)	Calculated Structural HMA Overlay (ft.)
Golden State Blvd., Whitson St., & Simpson St. (American Ave. to Gilroy St.)									
SB Fast Lane	0+00 to 82+50	11	0.63	0.40	9	6.18	n/a	n/a	0.00
	82+50 to 141+00	10.5	0.50	0.75	10	7.97	n/a	n/a	0.00
	141+00 to 196+00	11	0.42	0.50	9	7.76	n/a	n/a	0.00
	196+00 to 212+50	11	0.42	0.50	9	12.18	26	0.19	0.10
	212+50 to 241+00	12	0.75	n/a	9	13.42	33	0.29	0.15
	241+00 to 283+00	12.5	0.75	n/a	9	14.31	37	0.37	0.19
	283+00 to 303+00	11	0.75	n/a	11	16.83	35	0.33	0.17
	303+00 to 423+00	11	0.81	n/a	11	13.43	18	0.09	0.05
	423+00 to 461+00	9.5	0.83	n/a	13	10.89	n/a	n/a	0.00
	461+00 to 506+00	9.5	0.71	n/a	13	17.91	27	0.20	0.11
	506+00 to 533+00	9.5	n/a	0.67	11	10.27	n/a	n/a	0.00
	533+00 to 571+00	9.5	0.13	0.71	11	11.37	3	0.01	0.01
	571+00 to 631+00	10.5	0.13	0.71	10	10.77	7	0.02	0.01
	631+00 to 637+50	10.5	n/a	0.67	10	9.75	n/a	n/a	0.00
	637+50 to 677+00	10	n/a	0.67	10	8.23	n/a	n/a	0.00
	677+00 to 683+50	9.5	n/a	0.67	11	11.16	1	0.01	0.01
	683+50 to End	9.5	0.70	unknown	13	20.47	36	0.35	0.18

1) Sta. 0+00 is set at the "From" street shown in the limits above.
2) The values reflect the calculation for the 80th percentile deflection after removing the high deflections to consider localized R&R. Locations showing relatively high deflections and possible localized failure are included but not limited to the Station shown in Table 5. Final locations and extent of R&R needs to be determined visually for any selected alternative.
3) n/a = not applicable

The location showing relatively high deflection and possible localized failure is included but not limited to the Station shown in Table 5. Due to the discrete nature of deflection testing, final extent and location of R&R need to be determined visually for any selected alternative.

Table 5: Location Showing High Deflection

Direction	Lane	Approximate Station (ft.)
Southbound	Slow Lane	158+04

6.4 Rehabilitation Recommendations

It is not recommended to overlay a pavement surface that shows a considerable amount of cracks due to reflective cracking. If an overlay is considered as an alternative, the pavement should be repaired according to Section 6.1.5. In addition, rubberized hot mix asphalt with gap grading (RHMA-G) mixture is recommended to resist reflective cracking, resist thermal stresses created by wide temperature variations, add flexibility and minimize the aging of the structural overlay.

The recommended rehabilitation alternatives for all the streets are shown in Table 6. As a matter of convenience and practicality, differences in rehabilitation strategies between directions, lanes, and sections should be kept to a minimum, and this approach was used to develop the final recommendations.

Preventive maintenance was recommended when the pavement is structurally adequate and the pavement surface is in good condition. The mill and overlay was included as an alternative for all sections due to the fairly thick asphalt concrete (AC) layer and the presence of a Portland cement concrete (PCC) or cement treated base (CTB) layer underneath the AC. However, reconstruction might be a better alternative for some of the sections due to the thick structural overlay required, pavement surface condition, increase in current pavement surface elevation, or practicality during reconstruction.

Only the PCC sections in the southbound lanes from approximately Sta. 631+00 to 686+00 didn’t require a structural overlay and the surface condition was in a fairly good condition based on the limited survey performed from the digital photographs. Preventive maintenance can be performed as a second alternative if a detailed pavement surface condition survey confirms that the surface is in good condition.

Please note that the entire pavement surface should be inspected prior to milling and overlaying for potential digout areas, which may have been missed by the discrete nature of the deflection survey and brief inspection.

Table 6: Final Rehabilitation Alternatives using TI_{20}

Street[1]		TI_{20}	Existing Average AC Thickness (ft.)	Existing Average PCC Thickness (ft.)	Alternative 1[3]	Alternative 2
Golden State Blvd., Whitson St., & Simpson St. (American Ave. to Gilroy St.)						
NB Slow Lane	0+00 to 141+00	10.5	1.00	0.42	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R[4]	---
	141+00 to 171+00	11	1.00	0.42	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R[4]	---
	171+00 to 202+00	11	0.33	0.50	Mill 0.20′ and Overlay 0.20′ RHMA-G over 0.10′ HMA over SAMI-R[5]	---
	202+00 to 241+00	11	1.00	0.30	Mill 0.50′ and Overlay 0.20′ RHMA-G over 0.30′ HMA over SAMI-R[5]	---
	241+00 to 283+00	12	1.00	0.30	Mill 0.50′ and Overlay 0.20′ RHMA-G over 0.30′ HMA over SAMI-R[5]	---
	283+00 to 402+00	11	1.00	0.30	Mill 0.50′ and Overlay 0.20′ RHMA-G over 0.30′ HMA over SAMI-R[5]	---
	402+00 to 423+00	11	0.58	n/a	Mill 0.40′ and Overlay 0.20′ RHMA-G over 0.25′ HMA over SAMI-R[5]	Reconstruction (R-Value=50)[6] 0.90′ HMA or 0.55′ HMA over 0.75′ AB
	423+00 to 486+00	9.5	0.58	n/a	Mill 0.40′ and Overlay 0.20′ RHMA-G over 0.20′ HMA over SAMI-R[4]	Reconstruction (R-Value=50)[6] 0.80′ HMA or 0.45′ HMA over 0.65′ AB
	486+00 to 500+00	9.5	0.67	n/a	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R[4]	---
	500+00 to 508+00	10	0.67	n/a	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R[4]	---
	508+00 to 571+00	10	0.75	0.38	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R	---
	571+00 to 637+50	10.5	0.75	0.38	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R	---
	637+00 to 677+00	9.5	0.42	0.58	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R[5]	---
	677+00 to 702+00	9	0.42	0.58	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R[5]	---
	702+00 to End	9	0.71	unknown	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R[4]	---

1) Sta. 0+00 is set at the "From" street shown in the limits above.
2) The values reflect the calculation for the 80th percentile deflection after removing the high deflections to consider localized R&R. Locations showing relatively high deflections and possible localized failure are included but not limited to Stations shown in Table 5. Final locations and extent of R&R needs to be determined visually for any selected alternative.
3) Maximum allowable RHMA-G thickness is 0.20′. Place a layer of HMA under the 0.20′ RHMA-G layer.
4) Curb and gutter exist in this section.
5) Pavement is in poor condition, which was considered in the milling depth.
6) Reconstruction might be a better alternative due to the thick structural overlay required, pavement surface condition, increase in current pavement surface elevation, or practicality during reconstruction. HMA is Hot Mix Asphalt and AB is Class II Aggregate Base.

Table 6 (Cont'd): Final Rehabilitation Alternatives using TI$_{20}$

Street[1]		TI$_{20}$	Existing Average AC Thickness (ft.)	Existing Average PCC Thickness (ft.)	Alternative 1[3]	Alternative 2
Golden State Blvd., Whitson St., & Simpson St. (American Ave. to Gilroy St.)						
NB Fast Lane	0+00 to 141+00	10.5	0.90	0.42	Mill 0.20' and Overlay 0.20' RHMA-G over SAMI-R[4]	---
	141+00 to 189+00	11	0.58	0.67	Mill 0.20' and Overlay 0.20' RHMA-G over SAMI-R[4]	---
	189+00 to 223+00	11	1.00	n/a	Mill 0.50' and Overlay 0.20' RHMA-G over 0.30' HMA over SAMI-R[5]	---
	223+00 to 241+00	11	1.05	0.33	Mill 0.50' and Overlay 0.20' RHMA-G over 0.30' HMA over SAMI-R[5]	---
	241+00 to 263+00	12	1.05	0.33	Mill 0.50' and Overlay 0.20' RHMA-G over 0.30' HMA over SAMI-R[5]	---
	263+00 to 283+00	12	1.05	0.33	Mill 0.50' and Overlay 0.20' RHMA-G over 0.30' HMA over SAMI-R[5]	---
	283+00 to 400+00	11	1.25	n/a	Mill 0.50' and Overlay 0.20' RHMA-G over 0.30' HMA over SAMI-R[5]	---
	400+00 to 423+00	11	0.42	0.33	Mill 0.20' and Overlay 0.20' RHMA-G over 0.15' HMA over SAMI-R[5]	---
	423+00 to 473+00	9.5	0.42	0.42	Mill 0.20' and Overlay 0.20' RHMA-G over SAMI-R[4]	---
	473+00 to 500+00	9.5	0.42	0.42	Mill 0.20' and Overlay 0.20' RHMA-G over SAMI-R[4]	---
	500+00 to 535+00	10	0.71	0.38	Mill 0.20' and Overlay 0.20' RHMA-G over SAMI-R[4]	---
	535+00 to 571+00	10	0.58	0.67	Mill 0.20' and Overlay 0.20' RHMA-G over SAMI-R	---
	571+00 to 637+50	10.5	0.63	0.67	Mill 0.20' and Overlay 0.20' RHMA-G over SAMI-R	---
	637+50 to 677+00	9.5	0.67	0.38	Mill 0.45' and Overlay 0.20' RHMA-G over 0.25' HMA over SAMI-R[5]	---
	677+00 to End	9	0.67	unknown	Mill 0.45' and Overlay 0.20' RHMA-G over 0.25' HMA over SAMI-R[5]	---

1) Sta. 0+00 is set at the "From" street shown in the limits above.
2) The values reflect the calculation for the 80th percentile deflection after removing the high deflections to consider localized R&R. Locations showing relatively high deflections and possible localized failure are included but not limited to Stations shown in Table 5. Final locations and extent of R&R needs to be determined visually for any selected alternative.
3) Maximum allowable RHMA-G thickness is 0.20'. Place a layer of HMA under the 0.20' RHMA-G layer.
4) Curb and gutter exist in this section.
5) Pavement is in poor condition, which was considered in the milling depth.
6) Reconstruction might be a better alternative due to the thick structural overlay required, pavement surface condition, increase in current pavement surface elevation, or practicality during reconstruction. HMA is Hot Mix Asphalt and AB is Class II Aggregate Base.

Table 6 (Cont'd): Final Rehabilitation Alternatives using TI$_{20}$

Street1)		TI$_{20}$	Existing Average AC Thickness (ft.)	Existing Average PCC Thickness (ft.)	Alternative 13)	Alternative 2
Golden State Blvd., Whitson St., & Simpson St. (American Ave. to Gilroy St.)						
SB Slow Lane	0+00 to 82+50	11	0.38	0.25	Mill 0.15' and Overlay 0.20' RHMA-G over SAMI-R	---
	82+50 to 141+00	10.5	0.67	0.38	Mill 0.35' and Overlay 0.20' RHMA-G over 0.15' HMA over SAMI-R4) 5)	---
	141+00 to 197+00	11	0.50	0.67	Mill 0.35' and Overlay 0.20' RHMA-G over 0.15' HMA over SAMI-R2) 4) 5)	---
	197+00 to 212+50	11	0.50	n/a	Mill 0.35' and Overlay 0.20' RHMA-G over 0.20' HMA over SAMI-R5)	Reconstruction (R-Value=41)6) 1.00' HMA or 0.55' HMA over 1.00' AB
	212+50 to 241+00	12	0.50	n/a	Mill 0.35' and Overlay 0.20' RHMA-G over 0.30' HMA over SAMI-R4) 5)	Reconstruction (R-Value=36)6) 1.20' HMA or 0.60' HMA over 1.30' AB
		10	0.50	n/a	Mill 0.35' and Overlay 0.20' RHMA-G over 0.15' HMA over SAMI-R4) 5)	Reconstruction (R-Value=36)6) 1.00' HMA or 0.50' HMA over 1.05' AB
	241+00 to 283+00	12.5	0.50	n/a	Mill 0.35' and Overlay 0.20' RHMA-G over 0.35' HMA over SAMI-R4) 5)	Reconstruction (R-Value=50)6) 1.05' HMA or 0.65' HMA over 0.80' AB
		10	0.50	n/a	Mill 0.35' and Overlay 0.20' RHMA-G over 0.25' HMA over SAMI-R4) 5)	Reconstruction (R-Value=50)6) 0.80' HMA or 0.50' HMA over 0.65' AB
	283+00 to 391+00	11	0.75	n/a	Mill 0.55' and Overlay 0.20' RHMA-G over 0.35' HMA over SAMI-R4) 5)	Reconstruction (R-Value=50)6) 0.90' HMA or 0.55' HMA over 0.75' AB
		10	0.75	n/a	Mill 0.50' and Overlay 0.20' RHMA-G over 0.30' HMA over SAMI-R4) 5)	Reconstruction (R-Value=50)6) 0.80' HMA or 0.50' HMA over 0.65' AB
	391+00 to 423+00	11	0.75	n/a	Mill 0.55' and Overlay 0.20' RHMA-G over 0.35' HMA over SAMI-R5)	Reconstruction (R-Value=50)6) 0.90' HMA or 0.55' HMA over 0.75' AB
	423+00 to 445+00	9.5	0.75	n/a	Mill 0.25' and Overlay 0.10' RHMA-G over 0.15' HMA over SAMI-R4) 5)	Reconstruction (R-Value=50)6) 0.80' HMA or 0.45' HMA over 0.65' AB

1) Sta. 0+00 is set at the "From" street shown in the limits above.
2) The values reflect the calculation for the 80th percentile deflection after removing the high deflections to consider localized R&R. Locations showing relatively high deflections and possible localized failure are included but not limited to Stations shown in Table 5. Final locations and extent of R&R needs to be determined visually for any selected alternative.
3) Maximum allowable RHMA-G thickness is 0.20'. Place a layer of HMA under the 0.20' RHMA-G layer.
4) Curb and gutter exist in this section.
5) Pavement is in poor condition, which was considered in the milling depth.
6) Reconstruction might be a better alternative due to the thick structural overlay required, pavement surface condition, increase in current pavement surface elevation, or practicality during reconstruction. HMA is Hot Mix Asphalt and AB is Class II Aggregate Base.

Table 6 (Cont'd): Final Rehabilitation Alternatives using TI$_{20}$

Street1)		TI$_{20}$	Existing Average AC Thickness (ft.)	Existing Average PCC Thickness (ft.)	Alternative 13)	Alternative 2
Golden State Blvd., Whitson St., & Simpson St. (American Ave. to Gilroy St.)						
SB Slow Lane	445+00 to 506+50	9.5	0.50	n/a	Mill 0.35′ and Overlay 0.20′ RHMA-G over 0.30′ HMA over SAMI-R4) 5)	Reconstruction (R-Value=50)6) 0.80′ HMA or 0.45′ HMA over 0.65′ AB
	506+50 to 535+00	9.5	n/a	0.67	Crack, Seat and Overlay PCC with 0.20′ RHMA-G over SAMI-R over 0.10′ HMA Leveling Course	---
	535+00 to 571+00	9.5	0.19	0.67	Mill AC layer. Crack, Seat and Overlay PCC with 0.20′ RHMA-G over SAMI-R over 0.10′ HMA Leveling Course	---
	571+00 to 632+20	10.5	0.19	0.67	Mill AC layer. Crack, Seat and Overlay PCC with 0.20′ RHMA-G over SAMI-R over 0.10′ HMA Leveling Course	---
	632+20 to 637+50	10.5	n/a	0.71	Crack, Seat and Overlay PCC with 0.20′ RHMA-G over SAMI-R over 0.10′ HMA Leveling Course	Preservation including but not limited to spall repair, slab replacement, crack sealing, and grinding
	637+50 to 677+00	10	n/a	0.71	Crack, Seat and Overlay PCC with 0.20′ RHMA-G over SAMI-R over 0.10′ HMA Leveling Course	Preservation including but not limited to spall repair, slab replacement, crack sealing, and grinding
	677+00 to 686+00	9.5	n/a	0.71	Crack, Seat and Overlay PCC with 0.20′ RHMA-G over SAMI-R over 0.10′ HMA Leveling Course	Preservation including but not limited to spall repair, slab replacement, crack sealing, and grinding
	686+00 to 712+00	9.5	0.70	unknown	Mill 0.40′ and Overlay 0.20′ RHMA-G over 0.20′ HMA over SAMI-R5)	Reconstruction (R-Value=50)6) 0.80′ HMA or 0.45′ HMA over 0.65′ AB
	712+00 to End	9	0.70	unknown	Mill 0.40′ and Overlay 0.20′ RHMA-G over 0.25′ HMA over SAMI-R4)	Reconstruction (R-Value=50)6) 0.75′ HMA or 0.45′ HMA over 0.55′ AB

1) Sta. 0+00 is set at the "From" street shown in the limits above.
2) The values reflect the calculation for the 80th percentile deflection after removing the high deflections to consider localized R&R. Locations showing relatively high deflections and possible localized failure are included but not limited to Stations shown in Table 5. Final locations and extent of R&R needs to be determined visually for any selected alternative.
3) Maximum allowable RHMA-G thickness is 0.20′. Place a layer of HMA under the 0.20′ RHMA-G layer.
4) Curb and gutter exist in this section.
5) Pavement is in poor condition, which was considered in the milling depth.
6) Reconstruction might be a better alternative due to the thick structural overlay required, pavement surface condition, increase in current pavement surface elevation, or practicality during reconstruction. HMA is Hot Mix Asphalt and AB is Class II Aggregate Base.

Table 6 (Cont'd): Final Rehabilitation Alternatives using TI_{20}

Street1)		TI_{20}	Existing Average AC Thickness (ft.)	Existing Average PCC Thickness (ft.)	Alternative 13)	Alternative 2
Golden State Blvd., Whitson St., & Simpson St. (American Ave. to Gilroy St.)						
SB Fast Lane	0+00 to 82+50	11	0.63	0.40	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R	---
	82+50 to 141+00	10.5	0.50	0.75	Mill 0.35′ and Overlay 0.20′ RHMA-G over 0.15′ HMA over SAMI-R4) 5)	---
	141+00 to 196+00	11	0.42	0.50	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R4) 5)	---
	196+00 to 212+50	11	0.42	0.50	Mill 0.25′ and Overlay 0.20′ RHMA-G over 0.10′ HMA over SAMI-R5)	---
	212+50 to 241+00	12	0.75	n/a	Mill 0.55′ and Overlay 0.20′ RHMA-G over 0.35′ HMA over SAMI-R4) 5)	Reconstruction (R-Value=36)6) 1.20′ HMA or 0.60′ HMA over 1.30′ AB
	241+00 to 283+00	12.5	0.75	n/a	Mill 0.55′ and Overlay 0.20′ RHMA-G over 0.35′ HMA over SAMI-R5)	Reconstruction (R-Value=50)6) 1.05′ HMA or 0.65′ HMA over 0.80′ AB
	283+00 to 303+00	11	0.75	n/a	Mill 0.55′ and Overlay 0.20′ RHMA-G over 0.35′ HMA over SAMI-R4) 5)	Reconstruction (R-Value=50)6) 0.90′ HMA or 0.55′ HMA over 0.75′ AB
	303+00 to 423+00	11	0.81	n/a	Mill 0.55′ and Overlay 0.20′ RHMA-G over 0.35′ HMA over SAMI-R5)	Reconstruction (R-Value=50)6) 0.90′ HMA or 0.55′ HMA over 0.75′ AB
	423+00 to 461+00	9.5	0.83	n/a	Mill 0.20′ and Overlay 0.20′ RHMA-G over SAMI-R4) 5)	Reconstruction (R-Value=50)6) 0.80′ HMA or 0.45′ HMA over 0.65′ AB
	461+00 to 506+00	9.5	0.71	n/a	Mill 0.30′ and Overlay 0.20′ RHMA-G over 0.10′ HMA over SAMI-R4) 5)	Reconstruction (R-Value=50)6) 0.80′ HMA or 0.45′ HMA over 0.65′ AB
	506+00 to 533+00	9.5	n/a	0.67	Crack, Seat and Overlay PCC with 0.20′ RHMA-G over SAMI-R over 0.10′ HMA Leveling Course	---
	533+00 to 571+00	9.5	0.13	0.71	Mill AC layer. Crack, Seat and Overlay PCC with 0.20′ RHMA-G over SAMI-R over 0.10′ HMA Leveling Course	---

1) Sta. 0+00 is set at the "From" street shown in the limits above.
2) The values reflect the calculation for the 80th percentile deflection after removing the high deflections to consider localized R&R. Locations showing relatively high deflections and possible localized failure are included but not limited to Stations shown in Table 5. Final locations and extent of R&R needs to be determined visually for any selected alternative.
3) Maximum allowable RHMA-G thickness is 0.20′. Place a layer of HMA under the 0.20′ RHMA-G layer.
4) Curb and gutter exist in this section.
5) Pavement is in poor condition, which was considered in the milling depth.
6) Reconstruction might be a better alternative due to the thick structural overlay required, pavement surface condition, increase in current pavement surface elevation, or practicality during reconstruction. HMA is Hot Mix Asphalt and AB is Class II Aggregate Base.

Table 6 (Cont'd): Final Rehabilitation Alternatives using TI_{20}

Street1)		TI_{20}	Existing Average AC Thickness (ft.)	Existing Average PCC Thickness (ft.)	Alternative 13)	Alternative 2
Golden State Blvd., Whitson St., & Simpson St. (American Ave. to Gilroy St.)						
SB Fast Lane	571+00 to 631+00	10.5	0.13	0.71	Mill AC layer. Crack, Seat and Overlay PCC with 0.20' RHMA-G over SAMI-R over 0.10' HMA Leveling Course	---
	631+00 to 637+50	10.5	n/a	0.67	Crack, Seat and Overlay PCC with 0.20' RHMA-G over SAMI-R over 0.10' HMA Leveling Course	Preservation including but not limited to spall repair, slab replacement, crack sealing, and grinding
	637+50 to 677+00	10	n/a	0.67	Crack, Seat and Overlay PCC with 0.20' RHMA-G over SAMI-R over 0.10' HMA Leveling Course	Preservation including but not limited to spall repair, slab replacement, crack sealing, and grinding
	677+00 to 683+50	9.5	n/a	0.67	Crack, Seat and Overlay PCC with 0.20' RHMA-G over SAMI-R over 0.10' HMA Leveling Course	Preservation including but not limited to spall repair, slab replacement, crack sealing, and grinding
	683+50 to End	9.5	0.70	unknown	Mill 0.40' and Overlay 0.20' RHMA-G over 0.25' HMA over SAMI-R5)	Reconstruction (R-Value=50)6) 0.80' HMA or 0.45' HMA over 0.65' AB

1) Sta. 0+00 is set at the "From" street shown in the limits above.
2) The values reflect the calculation for the 80th percentile deflection after removing the high deflections to consider localized R&R. Locations showing relatively high deflections and possible localized failure are included but not limited to Stations shown in Table 5. Final locations and extent of R&R needs to be determined visually for any selected alternative.
3) Maximum allowable RHMA-G thickness is 0.20'. Place a layer of HMA under the 0.20' RHMA-G layer.
4) Curb and gutter exist in this section.
5) Pavement is in poor condition, which was considered in the milling depth.
6) Reconstruction might be a better alternative due to the thick structural overlay required, pavement surface condition, increase in current pavement surface elevation, or practicality during reconstruction. HMA is Hot Mix Asphalt and AB is Class II Aggregate Base.

6.5 Reconstruction using New Section Structural Design

Twelve (12) subgrade R-values ranging from 28 to 50 were provided by Kleinfelder personnel to be used for the structural section design for the sections with high structural overlay required, poor pavement surface condition, increase in current pavement surface elevation, or practicality during construction. The recommended new structural section for option 1 (Full Depth HMA) is determined using the corresponding subgrade R-value and the provided TI_{20}. The recommended new structural section for option 2 is determined using the corresponding subgrade R-value and TI with a Class II aggregate base R-value of 78. The different structural sections required according to the Caltrans design procedure outlined in the Caltrans HDM 2012 are shown in Table 6. The new structural design calculations are shown in **Appendix E.**

It should be noted that if poorer quality subgrade or sections with weak spots are encountered during the construction process, the R-value and related structural section design should be re-evaluated.

7. General Remarks

The analyses presented are based on structural response and do not necessarily address surface roughness problems. The proposed rehabilitation alternatives should ensure an adequate structure for the expected traffic over the design period. However, it is expected that cracking may take place prior to the end of the desired design life. It is therefore assumed that routine maintenance and repair is carried out as required during the expected service life of the pavement.

In all overlay cases, it may be necessary to carry out header cuts up to any existing curb & gutter in order to accommodate the desired rehabilitation alternative for each specific roadway section. In addition, it will be necessary to properly prepare the pavement prior to placing new material on the existing pavement surface. This may include, but not necessarily be limited to, routing of existing wide cracks, adequate crack sealing, leveling and/or patching and any other surface preparation.

Proper materials design and construction inspection is vital to the success of any pavement rehabilitation project. If, for example, an interlayer is improperly placed, or crack sealing is not adequately carried out using sound procedures and good materials, the results of the rehabilitation project are likely to be unsatisfactory. Good quality control during construction, ensuring that all specifications are met or exceeded, will contribute significantly to the satisfactory performance of the designed pavement sections.

The Caltrans HDM 2012, Chapter 630, Topic 635, Section 635.1 (3) recommends that the deflection testing be done no more than 18 months prior to construction start in order to provide reliable recommendations strategies.

8. Disclaimer

All preceding rehabilitation analyses were based on field FWD test results, as well as other input and analysis assumptions as outlined herein. Dynatest has made every attempt to base their procedures on sound methodology. However, circumstances beyond the control of Dynatest could result in alterations to the above designs, which may be completely justifiable. For example, the type of analysis performed on the deflection data is sensitive to both layer thicknesses and traffic volumes, and variations in these values could have significant effect on results and recommendations provided in this report.

Please use the above data and information as guidelines, and not as the only considerations in the final rehabilitation decision(s) for the various streets analyzed and reported herein.

Report prepared by:	Philip Tohme, PE Senior Engineer
Report reviewed by:	Alvaro Ulloa-Calderon, PhD, PE Senior Engineer

Appendix A: Falling Weight Deflectometer

Dynatest FWD/HWD Test Systems

Dynatest, the original commercial developer of the Falling Weight Deflectometer (FWD) technology, is the world's largest supplier of FWD equipment. This highly accurate, well supported, reliable and continuously refined Dynatest product line is a proven load/deflection measurement solution for engineers worldwide.

The Dynatest FWD technology additionally provides a measurement foundation for the proprietary Dynatest "analytical-empirical" pavement engineering methodology, a system of advanced automated pavement measurement, analysis and management engineering services and products available only through Dynatest.

FALLING WEIGHT DEFLECTOMETER

Why a Falling Weight Deflectometer (FWD)?

The **Dynatest Model 8000 FWD** makes it possible to treat pavement structures in the same manner as other civil engineering structures by using mechanistically based design methods.

Selecting the type of rehabilitation to be implemented on a given pavement is of considerable economic significance. To reach that decision without an adequate knowledge of the structural condition of the pavement may have very costly consequences.

The use of a Dynatest FWD enables the engineer to determine a deflection basin caused by a controlled load with accuracy and resolution superior to other existing test methods. The FWD produces a dynamic impulse load that simulates a moving wheel load, rather than a static, semi-static or vibratory load. These developments allow the use of mechanistic approaches to analyse FWD data.

HEAVY WEIGHT DEFLECTOMETER

Heavy Weight Deflectometer (HWD)

Dynatest was also the first to introduce a heavier loading FWD, the Dynatest Model 8081 HWD. With an expanded loading range, simulating heavy aircraft such as the Boeing 747 (one wheel), the HWD can properly introduce anticipated load/deflection measurements on even heavy pavements such as airfields and very thick highway pavements. The wider loading range also provides the consultant with a load/ deflection instrument appropriate for both roads and airfields as required.

Dynatest FWD/HWD Test Systems

FWD Data Reduction

FWD/HWD generated data, combined with layer thickness, can be confidently used to obtain the "in-situ" resilient E-moduli of a pavement structure. This information can in turn be used in a structural analysis to determine the bearing capacity, estimate expected life, and calculate an overlay requirement, if applicable (over a desired design life).

Software Products for Structural Analysis and Design

For routine analysis purposes, **Dynatest** has developed a software system, ELMOD 5, for both flexible and rigid pavements.

This software application allows extremely rapid data reduction and analysis of FWD/HWD measurements, calculating the layer E-moduli for a typical drop sequence in one second or less. Seasonally adjusted E-moduli, residual life, and required overlay (if applicable) are also calculated within seconds.

For analysis of airfield pavements, **Dynatest** provides a programme, which calculates PCN-values in accordance with the ACN/PCN method, as described in the ICAO design manuals.

FWDWin for Windows™

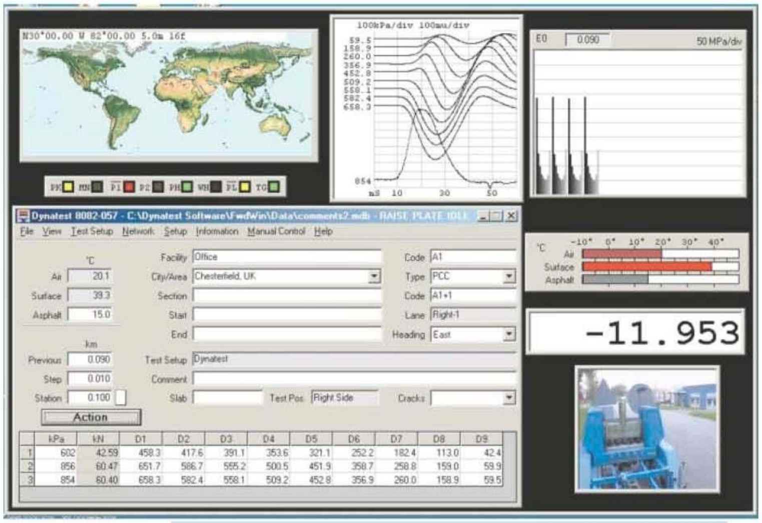
Support for multiple languages.

Data Files:

- Data is stored in Access(tm) (.mdb) databases for ease of processing.

The program can simultaneously generate various formats:

- .fwd, *.f20, *.f25, *.PDDX Pavement Deflection Data eXchange (PDDX by AASHTO) , *.XML eXtensible Markup Language (XML by W3C).
- 15 Active Sensor Capability (hardware required).
- Surface modulus plots can be graphed real time along road sections under test.
- Real Time Backcalculation.
- Network Database.



Dynatest 8082-057 - C:\Dynatest Software\FwdWin\Data\comments2.mdb - RAISE PLATE IDLE

°C

Air 20.1

Surface 39.3

Asphalt 15.0

km

Previous 0.090

Step 0.010

Station 0.100

Facility Office

City/Area Chesterfield, UK

Section

Start

End

Test Setup Dynatest

Comment

Slab

Test Pos. Right Side

Code A1

Type PCC

Code A1+1

Lane Right-1

Heading East

Cracks

	kPa	kN	D1	D2	D3	D4	D5	D6	D7	D8	D9
1	602	42.59	458.3	417.6	391.1	353.6	321.1	252.2	182.4	113.0	42.4
2	856	60.47	651.7	586.7	555.2	500.5	451.9	358.7	258.8	159.0	59.9
3	854	60.40	658.3	582.4	558.1	509.2	452.8	356.9	260.0	158.9	59.5

Advantages

- A non-destructive test device.
- One man operational.
- Accurate and fast (up to 60 test points/hr).
- Wide loading range.
  FWD: (7-120 kN) or (1,500-27,000 lbf).
  HWD: (30-240 kN) or (6,500-54,000 lbf).
- Designed for multi-purpose pavement applications, ranging from unpaved roads to airfields.
- Excellent repeatability.
- Ideal for mechanistic/analytical design approaches.

Requirements

Windows® XP

Appendix B: Caltrans 2012 Highway Design Manual Selected Tables

Reference – Caltrans 2012 Highway Design Manual

Table 635.1A
Tolerable Deflections at the Surface (TDS) in 0.001 inches

Exist. HMA thick (ft)	Traffic Index (TI)											
	5	6	7	8	9	10	11	12	13	14	15	16
0.00	66	51	41	34	29	25	22	19	17	15	14	13
0.05	61	47	38	31	27	23	20	18	16	14	13	12
0.10	57	44	35	29	25	21	19	16	15	13	12	11
0.15	53	41	33	27	23	20	17	15	14	12	11	10
0.20	49	38	31	25	21	18	16	14	13	12	10	10
0.25	46	35	28	24	20	17	15	13	12	11	10	9
0.30	43	33	27	22	19	16	14	12	11	10	9	8
0.35	40	31	25	20	17	15	13	12	10	9	8	8
0.40	37	29	23	19	16	14	12	11	10	9	8	7
0.45	35	27	21	18	15	13	11	10	9	8	7	7
0.50 (1)	32	25	20	17	14	12	11	9	8	8	7	6
TB (2)	27	21	17	14	12	10	9	8	7	6	6	5
	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	16.5
0.00	58	45	37	31	27	23	20	18	16	15	13	12
0.05	53	42	34	29	25	21	19	17	15	14	12	11
0.10	50	39	32	27	23	20	18	16	14	13	11	11
0.15	46	36	30	25	21	19	16	14	13	12	11	10
0.20	43	34	28	23	20	17	15	14	12	11	10	9
0.25	40	32	26	22	19	16	14	13	11	10	9	8
0.30	37	29	24	20	17	15	13	12	11	9	9	8
0.35	35	27	22	19	16	14	12	11	10	9	8	7
0.40	32	26	21	18	15	13	11	10	9	8	8	7
0.45	30	24	20	16	14	12	11	9	9	8	7	6
0.50 (1)	28	22	18	15	13	11	10	9	8	7	7	6
TB (2)	24	19	15	13	11	10	8	7	7	6	5	5

Notes:

(1) For an HMA thickness greater than 0.50 ft use the 0.50 ft depth.

(2) Use the TB (treated base) line to represent treated base materials, regardless of the thickness of HMA cover.

Reference (continued) – Caltrans 2012 Highway Design Manual

Table 635.1B

Gravel Equivalence Needed for Deflection Reduction

Percent Reduction In Deflection (PRD or PRM) (1)	GE (in feet) For HMA Overlay Design	Percent Reduction In Deflection (PRD or PRM) (1)	GE (in feet) For HMA Overlay Design
5	0.02	46	0.55
6	0.02	47	0.57
7	0.02	48	0.59
8	0.02	49	0.61
9	0.03	50	0.63
10	0.03	51	0.66
11	0.04	52	0.68
12	0.05	53	0.70
13	0.05	54	0.72
14	0.06	55	0.74
15	0.07	56	0.76
16	0.08	57	0.79
17	0.09	58	0.81
18	0.09	59	0.83
19	0.10	60	0.85
20	0.11	61	0.87
21	0.12	62	0.89
22	0.14	63	0.91
23	0.15	64	0.94
24	0.16	65	0.96
25	0.18	66	0.98
26	0.19	67	1.00
27	0.20	68	1.02
28	0.21	69	1.04
29	0.23	70	1.06
30	0.24	71	1.09
31	0.26	72	1.11
32	0.28	73	1.13
33	0.29	74	1.15
34	0.31	75	1.17
35	0.33	76	1.19
36	0.35	77	1.22
37	0.37	78	1.24
38	0.38	79	1.26
39	0.40	80	1.28
40	0.42	81	1.30
41	0.44	82	1.32
42	0.46	83	1.34
43	0.48	84	1.37
44	0.51	85	1.39
45	0.53	86	1.41

Note: (1) PRD is Percent Reduction in Deflection at the surface.
PRM is Percent Reduction in deflection at the Milled depth.

Table 633.1
Gravel Equivalents (GE) and Thickness of Structural Layers (ft)

Actual Layer Thickness (ft) (5)	HMA(1), (2)											Base and Subbase (3)					
	Traffic Index (TI)											TI is not a factor					
	5.0 & below	5.5 6.0	6.5 7.0	7.5 8.0	8.5 9.0	9.5 10.0	10.5 11.0	11.5 12.0	12.5 13.0	13.5 14.0	14.5 15.0	HMAB; LCB	CTPB; CTB (Cl. A)	ATPB	CTB (Cl. B)	AB	AS
	G_f (For HMA thickness equal to or less than 0.5 ft, G_f decreases with TI) (4)											G_f (Constant for any base or subbase material irrespective of TI or thickness)					
	2.54	2.32	2.14	2.01	1.89	1.79	1.71	1.64	1.57	1.52	1.46	1.9	1.7	1.4	1.2	1.1	1.0
	GE for HMA layer (ft)											GE for Base or Subbase layer (ft)					
0.10	0.25	0.23	0.21	0.20	0.19	0.18	0.17	0.16	0.16	0.15	0.15	--	--	--	--	--	--
0.15	0.38	0.35	0.32	0.30	0.28	0.27	0.26	0.25	0.24	0.23	0.22	--	--	--	--	--	--
0.20	0.51	0.46	0.43	0.40	0.38	0.36	0.34	0.33	0.31	0.30	0.29	--	--	--	--	--	--
0.25	0.63	0.58	0.54	0.50	0.47	0.45	0.43	0.41	0.39	0.38	0.37	--	--	0.35	--	--	--
0.30	0.76	0.69	0.64	0.60	0.57	0.54	0.51	0.49	0.47	0.45	0.44	--	--	0.42	--	--	--
0.35	0.89	0.81	0.75	0.70	0.66	0.63	0.60	0.57	0.55	0.53	0.51	0.67	0.60	0.49	0.42	0.39	0.35
0.40	1.01	0.93	0.86	0.80	0.76	0.72	0.68	0.65	0.63	0.61	0.59	0.76	0.68	0.56	0.48	0.44	0.40
0.45	1.14	1.04	0.96	0.90	0.85	0.81	0.77	0.74	0.71	0.68	0.66	0.86	0.77	0.63	0.54	0.50	0.45
0.50	1.27	1.16	1.07	1.00	0.94	0.90	0.85	0.82	0.79	0.76	0.73	0.95	0.85	0.70	0.60	0.55	0.50
0.55	1.41	1.29	1.19	1.12	1.05	1.00	0.95	0.91	0.87	0.84	0.81	1.05	0.94	0.77	0.66	0.61	0.55
0.60	1.58	1.45	1.34	1.25	1.18	1.12	1.07	1.02	0.98	0.95	0.91	1.14	1.02	0.84	0.72	0.66	0.60
0.65	1.76	1.61	1.49	1.39	1.31	1.25	1.19	1.14	1.09	1.05	1.02	1.24	1.11	0.91	0.78	0.72	0.65
0.70	--	1.78	1.64	1.54	1.45	1.38	1.31	1.26	1.21	1.16	1.12	1.33	1.19	--	0.84	0.77	0.70
0.75	--	1.95	1.80	1.69	1.59	1.51	1.44	1.38	1.32	1.27	1.23	1.43	1.28	--	0.90	0.83	0.75
0.80	--	2.12	1.96	1.84	1.73	1.64	1.57	1.50	1.44	1.39	1.34	1.52	1.36	--	0.96	0.88	0.80
0.85	--	--	2.13	1.99	1.88	1.78	1.70	1.63	1.56	1.51	1.46	1.62	1.45	--	1.02	0.94	0.85
0.90	--	--	2.30	2.15	2.03	1.92	1.83	1.76	1.69	1.63	1.57	1.71	1.53	--	1.08	0.99	0.90
0.95	--	--	--	2.31	2.18	2.07	1.97	1.89	1.81	1.75	1.69	1.81	1.62	--	1.14	1.05	0.95
1.00	--	--	--	2.47	2.33	2.21	2.11	2.02	1.94	1.87	1.81	1.90	1.70	--	1.20	1.10	1.00
1.05	--	--	--	2.64	2.49	2.36	2.25	2.16	2.07	2.00	1.93	2.00	1.79	--	1.26	1.16	1.05
1.10	--	--	--	--	2.65	2.51	2.40	2.29	2.20	2.12	2.05	--	--	--	--	--	1.10
1.15	--	--	--	--	2.81	2.67	2.54	2.43	2.34	2.25	2.18	--	--	--	--	--	1.15
1.20	--	--	--	--	2.98	2.82	2.69	2.58	2.48	2.39	2.30	--	--	--	--	--	1.20
1.25	--	--	--	--	--	2.98	2.84	2.72	2.61	2.52	2.43	--	--	--	--	--	1.25
1.30	--	--	--	--	--	3.14	2.99	2.87	2.75	2.65	2.56	--	--	--	--	--	1.30
1.35	--	--	--	--	--	3.30	3.15	3.01	2.90	2.79	2.70	--	--	--	--	--	--
1.40	--	--	--	--	--	--	3.31	3.16	3.04	2.93	2.83	--	--	--	--	--	--
1.45	--	--	--	--	--	--	3.46	3.32	3.19	3.07	2.97	--	--	--	--	--	--
1.50	--	--	--	--	--	--	3.62	3.47	3.33	3.21	3.10	--	--	--	--	--	--
1.55	--	--	--	--	--	--	--	3.62	3.48	3.36	3.24	--	--	--	--	--	--
1.60	--	--	--	--	--	--	--	3.78	3.63	3.50	3.38	--	--	--	--	--	--
1.65	--	--	--	--	--	--	--	3.94	3.79	3.65	3.52	--	--	--	--	--	--
1.70	--	--	--	--	--	--	--	--	3.94	3.80	3.67	--	--	--	--	--	--
1.75	--	--	--	--	--	--	--	--	4.09	3.95	3.81	--	--	--	--	--	--
1.80	--	--	--	--	--	--	--	--	4.25	4.10	3.96	--	--	--	--	--	--
1.85	--	--	--	--	--	--	--	--	--	4.25	4.10	--	--	--	--	--	--
1.90	--	--	--	--	--	--	--	--	--	4.40	4.25	--	--	--	--	--	--
1.95	--	--	--	--	--	--	--	--	--	4.56	4.40	--	--	--	--	--	--
2.00	--	--	--	--	--	--	--	--	--	--	4.55	--	--	--	--	--	--

Notes:

(1) Open Graded Friction Course (conventional and rubberized) is a non-structural wearing course and provides no structural value.

(2) Top portion of HMA surface layer (maximum 0.20 ft.) may be replaced with equivalent RHMA-G thickness. See Topic 631.3 for additional details.

(3) See Table 663.1B for additional information on Gravel Factors (G_f) and California R-values for base and subbase materials.

(4) These G_f values are for TIs shown and HMA thickness equal to or less than 0.5 foot only. For HMA thickness greater than 0.5 foot, appropriate G_f should be determined using the equation in Index 633.1(1)(c).

(5) For HMA layer, select TI range, then go down to the appropriate GE and across to the thickness column. For base and subbase layer, select material type, then go down to the appropriate GE and across to the thickness column.

Reference (continued) – Caltrans 2012 Highway Design Manual

Table 663.1B
Gravel Factor and California R-values for Bases and Subbases

Type of Material	Abbreviation	California R-value	Gravel Factor (G_f)
Aggregate Subbase	AS-Class 1	60	1.0
	AS-Class 2	50	1.0
	AS-Class 3	40	1.0
	AS-Class 4	specify	1.0
	AS-Class 5	specify	1.0
Aggregate Base	AB-Class 2	78	1.1
	AB-Class 3	specify	1.1(1)
Asphalt Treated Permeable Base	ATPB	NA	1.4
Cement Treated Base	CTB-Class A	NA	1.7
	CTB-Class B	80	1.2
Cement Treated Permeable Base	CTPB	NA	1.7
Lean Concrete Base	LCB	NA	1.9
Hot Mix Asphalt Base	HMAB	NA	(2)
Lime Treated Subbase	LTS	NA	0.9+UCS/1,000

Notes:

(1) Must conform to the quality requirements of AB-Class 2.

(2) When used with HMA, the HMAB is to be considered as part of the pavement layer. The HMAB will be assigned the same G_f as the remainder of the HMA in the pavement structure.

Legend:

NA = Not Applicable

UCS = Unconfined Compressive Strength in psi (minimum 300 psi per California Test 373)

Table 625.1

Minimum Standard Thicknesses for Crack, Seat, and Flexible Overlay(1)

TI <12.0	0.35′ HMA GPI or SAMI-R 0.10′ HMA (LC)	0.35′ HMA SAMI-F or SAMI-R 0.10′ HMA (LC)	0.20′ RHMA-G SAMI-R 0.10′ HMA (LC)
TI ≥12.0	0.40′ HMA GPI or SAMI-R 0.15′ HMA (LC)	0.20′ RHMA-G SAMI-R 0.15′ HMA (LC)	0.20′ RHMA-G 0.15′ HMA SAMI-F or SAMI-R 0.10′ HMA (LC)

NOTE:

(1) If the existing rigid pavement is not cracked and seated, add minimum of 0.10 foot HMA above the SAMI layer.

Legend:

HMA = Hot Mix Asphalt
HMA (LC) = Hot Mix Asphalt Leveling Course
RHMA-G = Rubberized Hot Mix Asphalt (Gap Graded)
GPI = Geosynthetic Pavement Interlayer
SAMI-R = Stress Absorbing Membrane Interlayer (Rubberized)

Appendix C: Layer Thicknesses and R-values Provided by Kleinfelder

PLOTTED: 09/01/2016 12:19 AM BY: MPalmer

SAMPLE/SAMPLER TYPE GRAPHICS

BULK / GRAB / BAG SAMPLE

MODIFIED CALIFORNIA SAMPLER
(2 or 2-1/2 in. (50.8 or 63.5 mm.) outer diameter)

CALIFORNIA SAMPLER
(3 in. (76.2 mm.) outer diameter)

STANDARD PENETRATION SPLIT SPOON SAMPLER
(2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

SHELBY TUBE SAMPLER

HOLLOW STEM AUGER

SOLID STEM AUGER

WASH BORING

NQ CORE SAMPLE
(1.874 in. (47.6 mm.) core diameter)

TEXAS CONE PENETRATION

GROUND WATER GRAPHICS

∇ WATER LEVEL (level where first observed)

▼ WATER LEVEL (level after exploration completion)

▼ WATER LEVEL (additional levels after exploration)

≋ OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	**GRAVELS** (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVEL WITH <5% FINES	Cu≥4 and 1≤Cc≤3	**GW**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu<4 and/ or 1>Cc>3	**GP**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5% TO 12% FINES	Cu≥4 and 1≤Cc≤3	**GW-GM**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
				GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu<4 and/ or 1>Cc>3	**GP-GM**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
				GP-GC	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH > 12% FINES		**GM**	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
				GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (More than half of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu≥6 and 1≤Cc≤3	**SW**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu<6 and/ or 1>Cc>3	**SP**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5% TO 12% FINES	Cu≥6 and 1≤Cc≤3	**SW-SM**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
				SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu<6 and/ or 1>Cc>3	**SP-SM**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
				SP-SC	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH > 12% FINES		**SM**	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
				SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES

FINE GRAINED SOILS (More than half of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)	**ML**	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid Limit greater than 50)	**MH**	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

GRAPHICS KEY

Golden State Corridor
Fresno, California

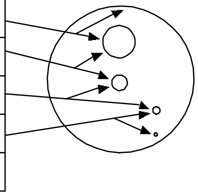
PLATE

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [GEO-LEG 1 (GRAPHICS KEY) WITH USCS - SQL]

PLOTTED: 09/01/2016 12:21 AM BY: MPalmer

GRAIN SIZE

DESCRIPTION		SIEVE SIZE	GRAIN SIZE	APPROXIMATE SIZE
Boulders		>12 in. (304.8 mm.)	>12 in. (304.8 mm.)	Larger than basketball-sized
Cobbles		3 - 12 in. (76.2 - 304.8 mm.)	3 - 12 in. (76.2 - 304.8 mm.)	Fist-sized to basketball-sized
Gravel	coarse	3/4 -3 in. (19 - 76.2 mm.)	3/4 -3 in. (19 - 76.2 mm.)	Thumb-sized to fist-sized
	fine	#4 - 3/4 in. (#4 - 19 mm.)	0.19 - 0.75 in. (4.8 - 19 mm.)	Pea-sized to thumb-sized
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)	Rock salt-sized to pea-sized
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)	Sugar-sized to rock salt-sized
	fine	#200 - #40	0.0029 - 0.017 in. (0.07 - 0.43 mm.)	Flour-sized to sugar-sized
Fines		Passing #200	<0.0029 in. (<0.07 mm.)	Flour-sized and smaller



SECONDARY CONSTITUENT

	AMOUNT	
Term of Use	Secondary Constituent is Fine Grained	Secondary Constituent is Coarse Grained
Trace	<5%	<15%
With	≥5 to <15%	≥15 to <30%
Modifier	≥15%	≥30%

MUNSELL COLOR

NAME	ABBR	NAME	ABBR
Red	R	Blue	B
Yellow Red	YR	Purple Blue	PB
Yellow	Y	Purple	P
Green Yellow	GY	Red Purple	RP
Green	G	Black	N
Blue Green	BG		

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CEMENTATION

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or slight finger pressure.
Moderately	Crumbles or breaks with considerable finger pressure.
Strongly	Will not crumble or break with finger pressure.

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	SPT - N_{60} (# blows / ft)	UNCONFINED COMPRESSIVE STRENGTH (Q_u)(psf)	VISUAL / MANUAL CRITERIA
Very Soft	<2	<500	Thumb will penetrate more than 1 inch (25 mm). Extrudes between fingers when squeezed.
Soft	2 - 4	500 - 1000	Thumb will penetrate soil about 1 inch (25 mm). Remolded by light finger pressure.
Medium	4 - 8	1000 - 2000	Thumb will penetrate soil about 1/4 inch (6 mm). Remolded by strong finger pressure.
Stiff	8 - 15	2000 - 4000	Can be imprinted with considerable pressure from thumb.
Very Stiff	15 - 30	4000 - 8000	Thumb will not indent soil but readily indented with thumbnail.
Hard	>30	>8000	Thumbnail will not indent soil.

FROM TERZAGHI AND PECK, 1948; LAMBE AND WHITMAN, 1969; FHWA, 2002; AND ASTM D2488

REACTION WITH HYDROCHLORIC ACID

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT-N_{60} (# blows/ft)	MODIFIED CA SAMPLER (# blows/ft)	CALIFORNIA SAMPLER (# blows/ft)	RELATIVE DENSITY (%)
Very Loose	<4	<4	<5	0 - 15
Loose	4 - 10	5 - 12	5 - 15	15 - 35
Medium Dense	10 - 30	12 - 35	15 - 40	35 - 65
Dense	30 - 50	35 - 60	40 - 70	65 - 85
Very Dense	>50	>60	>70	85 - 100

FROM TERZAGHI AND PECK, 1948

PLASTICITY

DESCRIPTION	LL	FIELD TEST
Non-plastic	NP	A 1/8-in. (3 mm.) thread cannot be rolled at any water content.
Low (L)	< 30	The thread can barely be rolled and the lump or thread cannot be formed when drier than the plastic limit.
Medium (M)	30 - 50	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump or thread crumbles when drier than the plastic limit.
High (H)	> 50	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump or thread can be formed without crumbling when drier than the plastic limit.

STRUCTURE

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. thick, note thickness.
Laminated	Alternating layers of varying material or color with the layer less than 1/4-in. thick, note thickness.
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.
Slickensided	Fracture planes appear polished or glossy, sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness.

ANGULARITY

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Particles are similar to angular description but have rounded edges.
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges.
Rounded	Particles have smoothly curved sides and no edges.

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SOIL DESCRIPTION KEY

Golden State Corridor
Fresno, California

PLATE

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [GEO-LEGEND 2 (SOIL DESC KEY) REV 072616]

PLOTTED: 09/01/2016 12:23 AM BY: MPalmer

BORING LOG B-1

Date Begin - End: 8/08/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 95° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

Latitude: 36.66313° N
Longitude: -119.71841° W
Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 4"											
		AGGREGATE BASE: 6"											
1		**CONCRETE**: 3"											
2		**Silty SAND (SM)**: fine to medium-grained sand, trace gravel, non-plastic, brown, moist, medium dense											
3													
4													
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 08, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
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DATE:
REVISED: -

BORING LOG B-1

Golden State Corridor
Fresno, California

PLATE

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-2

Date Begin - End: 8/10/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 97° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 7"											Need to come back to core
		CONCRETE: 5"											
1		**AGGREGATE BASE**: 2-3"											
		Silty SAND (SM): fine to medium-grained sand, non-plastic, brown, moist											
2			☒										
3													
4													
5				BC=4 4 5									
6													

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 10, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
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REVISED: -

BORING LOG B-2

Golden State Corridor
Fresno, California

PLATE

Date Begin - End: 8/08/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 95° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

BORING LOG B-3

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Latitude: 36.65310° N Longitude: -119.70727° W Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 5"											
		AGGREGATE BASE: 6"											
1		**Silty SAND (SM)**: fine to medium-grained sand, trace gravel, non-plastic, brown, moist, medium dense											
2			☒										
3													
4		- dark brown below 4 feet											
5													

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The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 08, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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BORING LOG B-3

Golden State Corridor
Fresno, California

PLATE

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BORING LOG B-4

Date Begin - End: 8/10/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 97° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 8"											Need to come back to core
1		**CONCRETE**: 4.5"											
		SLURRY: 2"											
2		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											
3													
4		- slightly darker brown below 4 feet											
5				BC=4 5 6									
6													

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The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 10, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
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BORING LOG B-4

Golden State Corridor
Fresno, California

PLATE

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Date Begin - End: 8/08/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 95° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-5

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 8"											Need to come back to core
		CONCRETE: 4.5"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, light brown, moist, medium dense	☒										
2													
3		- dark brown below 3 feet											
4													
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 08, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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BORING LOG B-5

Golden State Corridor
Fresno, California

PLATE

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BORING LOG B-6

Date Begin - End: 8/10/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 97° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

Surface Condition: Asphalt

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 6"											
1	▨	**CONCRETE**: 9"											Concrete was much softer at this location
2 3 4 5	░	**Silty SAND (SM)**: fine to medium-grained sand, trace fine-grained gravel, non-plastic, brown to dark brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 10, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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BORING LOG B-6

Golden State Corridor
Fresno, California

PLATE

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BORING LOG B-7

Date Begin - End: 8/08/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 95° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 6"											
1	▨	**CONCRETE**: 9"											Auger refusal on concrete
2 3	▨	**Silty SAND (SM)**: fine to medium-grained sand, trace fine-grained gravel, non-plastic, moist, medium dense	☒										
4	▨	- darker brown below 3.5 feet	☒										
5 6	▨		■	BC=13 12 10									

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The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 08, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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BORING LOG B-7

Golden State Corridor
Fresno, California

PLATE

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BORING LOG B-8

Date Begin - End: 8/10/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 97° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 5"											
	▒	**CONCRETE**: 6"											Concrete much softer
1	⁘	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
2	⁘												
3	⁘												
4	⁘	- slightly darker brown below 4 feet											
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The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 10, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
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BORING LOG B-8

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:24 AM BY: MPalmer

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End: 8/08/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 95° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-9

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 6"											
	▨	**CONCRETE**: 7"											Concrete was weaker here than at other locations
1 2 3 4 5	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

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The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 08, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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BORING LOG B-9

Golden State Corridor
Fresno, California

PLATE

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PLOTTED: 09/01/2016 12:24 AM BY: MPalmer

BORING LOG B-10

Date Begin - End: 8/10/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 97° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

Depth (feet)	Graphical Log	FIELD EXPLORATION Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9"											
1	▨	**Silty SAND (SM)**: fine to medium-grained sand, trace fine-grained gravel, non-plastic, brown, moist, medium dense	☒										
2	▨		☒										
3	▨		☒										
4	▨	- darker brown below 4 feet	☒										
5													
6													
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8													
9													
10													
11													
12													
13													
14													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 10, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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BORING LOG B-10

Golden State Corridor
Fresno, California

PLATE

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-11

Date Begin - End: 8/08/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 95° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 6"											
		AGGREGATE BASE: 3"											
1 2 3 4 5		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 08, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-11

Golden State Corridor
Fresno, California

PLATE

BORING LOG B-12

Date Begin - End: 8/10/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 97° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 9"											
1 2 3 4 5		**Silty SAND (SM)**: fine to medium-grained sand, trace fine-grained gravel, non-plastic, brown, moist, medium dense	☒										

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The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 10, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
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DATE:
REVISED: -

BORING LOG B-12

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:24 AM BY: MPalmer

BORING LOG B-13

Date Begin - End: 8/11/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9"											
1	⁝	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
2													
3													
4		- slightly darker brown below 4 feet											
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 11, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-13

Golden State Corridor
Fresno, California

PLATE

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	8/10/2016	**Drilling Company:**	All Well		**BORING LOG B-14**
Logged By:	NS	**Drill Crew:**	Miguel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny, 97° F	**Exploration Diameter:**	8 in. O.D.		

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 10"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
2													
3													
4													
5													
6													
7													
8													
9													
10													
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12													
13													
14													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 10, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-14

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:24 AM BY: MPalmer

Date Begin - End: 8/11/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-15

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9"											
1 2 3 4 5	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

6 7 8 9 10 11 12 13 14	The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 11, 2016.	GROUNDWATER LEVEL INFORMATION: Groundwater was not encountered during drilling or after completion. GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-15

Golden State Corridor
Fresno, California

PLATE

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	8/12/2016	**Drilling Company:**	All Well		**BORING LOG B-16**
Logged By:	NS	**Drill Crew:**	Miguel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny, 100° F	**Exploration Diameter:**	8 in. O.D.		

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9.5"											
1 2 3 4 5	⁙	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

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The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121	BORING LOG B-16		PLATE
DRAWN BY: MAP			
CHECKED BY:	Golden State Corridor Fresno, California		
DATE:			
REVISED: -			

PLOTTED: 09/01/2016 12:24 AM BY: MPalmer

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gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	8/11/2016	**Drilling Company:**	All Well	**BORING LOG B-17**
Logged By:	NS	**Drill Crew:**	Miguel	
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:** 140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	
Weather:	Sunny, 98° F	**Exploration Diameter:**	8 in. O.D.	

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9"											
1 2 3 4 5	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
6 7 8 9 10 11 12 13 14													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 11, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
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DATE:
REVISED: -

BORING LOG B-17

Golden State Corridor
Fresno, California

PLATE

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gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

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BORING LOG B-18

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

	FIELD EXPLORATION					LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 10"											
1 2 3 4 5	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-18

Golden State Corridor
Fresno, California

PLATE

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-19

Date Begin - End: 8/11/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 6"											
1 2 3 4 5		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

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The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 11, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
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DATE:
REVISED: -

BORING LOG B-19

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:24 AM BY: MPalmer

BORING LOG B-20

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

Depth (feet)	Graphical Log	FIELD EXPLORATION Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 8.5"											
1 2 3 4 5	▨	**Silty SAND (SM)**: fine-grained sand, non-plastic, dark brown, moist, medium dense	☒										

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The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-20

Golden State Corridor
Fresno, California

PLATE

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-21

Date Begin - End: 8/11/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9.5"											
1 2 3 4 5	▨	**Silty SAND (SM)**: fine-grained sand, non-plastic, brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 11, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
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DATE:
REVISED: -

BORING LOG B-21

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:24 AM BY: MPalmer

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
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PLOTTED: 09/01/2016 12:24 AM BY: MPalmer

BORING LOG B-22

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

Surface Condition: Asphalt

Depth (feet)	Graphical Log	FIELD EXPLORATION Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		CONCRETE: 8"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, dark brown, moist, medium dense											
2													
3													
4													
5				BC=5 7 8									
6													

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-22

Golden State Corridor
Fresno, California

PLATE

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End: 8/11/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

BORING LOG B-23

FIELD EXPLORATION | LABORATORY RESULTS

Surface Condition: Asphalt

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0		**ASPHALT**: 2.5"											Need to come back to core
		CONCRETE: 8"											
1		**Silty SAND (SM)**: fine to medium-grained sand, trace fine-grained gravel, non-plastic, brown, moist, medium dense											
2													
3													
4													
5				BC=4 4 7									
6													
7													
8													
9													
10													
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13													
14													

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 11, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-23

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:24 AM BY: MPalmer

BORING LOG B-24

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 2"											Need to come back to core
		CONCRETE: 8"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, dark brown, moist, medium dense											
2													
3													
4													
5				BC=14 27 34									
6		- dark reddish brown, moderately cemented below 5.5 feet											

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The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-24

Golden State Corridor
Fresno, California

PLATE

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-25

Date Begin - End: 8/11/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 2"											Need to come back to core
		CONCRETE: 8"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											
2													
3													
4		- dark brown below 4 feet											
5				BC=8 7 7									
6													

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 11, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
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BORING LOG B-25

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:24 AM BY: MPalmer

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gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-26

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

FIELD EXPLORATION / LABORATORY RESULTS

Surface Condition: Asphalt

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0		**ASPHALT**: 1"											
		CONCRETE: 9"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
5			■	BC=5 8 18									
6.3		- increase in fines, trace fine-grained gravel below 6.3 feet											

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-26

Golden State Corridor
Fresno, California

PLATE

BORING LOG B-27

Date Begin - End: 8/23/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

Depth (feet)	Graphical Log	FIELD EXPLORATION				LABORATORY RESULTS								
		Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		CONCRETE: 8.5"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											
2													
3													
4													
5				BC=12 30 41									
6		**Sandy SILT (ML)**: fine-grained sand, trace clay, non-plastic to low plasticity, light grayish brown, moist, medium dense											
7		The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 23, 2016.											
8													
9													
10													
11													
12													
13													
14													

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-27

Golden State Corridor
Fresno, California

PLATE

BORING LOG B-28

Date Begin - End: 8/24/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 99° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		CONCRETE: 8"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											
2													
3													
4													
5				BC=6 9 13									
6													

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 24, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-28

Golden State Corridor
Fresno, California

PLATE

BORING LOG B-31

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9"											Need to come back to core
1	▨	**CONCRETE**											
2													
3													
4													
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-31

Golden State Corridor
Fresno, California

PLATE

BORING LOG B-32

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9.5"											Need to come back to core
	▨	**CONCRETE**											
1													
2													
3													
4													
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
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DATE:
REVISED: -

BORING LOG B-32

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:24 AM BY: MPalmer
gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-33

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 7"											Need to come back to core
	▨	**CONCRETE**											
1													
2													
3													
4													
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-33

Golden State Corridor
Fresno, California

PLATE

BORING LOG B-34

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 8"											Need to come back to core
		CONCRETE: 4.5"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
2													
3													
4													
5		- increase in fines below 5 feet	■	BC=5 6 7									
6													

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The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

<u>GROUNDWATER LEVEL INFORMATION:</u>
Groundwater was not encountered during drilling or after completion.
<u>GENERAL NOTES:</u>

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PROJECT NO.: 20171121
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DATE:
REVISED: -

BORING LOG B-34

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:25 AM BY: MPalmer

Date Begin - End: 8/12/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-35

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 5"											Need to come back to core
	▨	**CONCRETE**: 7"											
1	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
2													
3													
4													
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 12, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
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DATE:
REVISED: -

BORING LOG B-35

Golden State Corridor
Fresno, California

PLATE

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-36

Date Begin - End: 8/15/2016
Drilling Company: All Well
Logged By: NS
Drill Crew: Miguel
Hor.-Vert. Datum: Not Available
Drilling Equipment: CME-75
Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge: -90 degrees
Drilling Method: Hollow Stem Auger
Weather: Sunny, 100° F
Exploration Diameter: 8 in. O.D.

	FIELD EXPLORATION					LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 7.5"											Need to come back to core
	▨	**CONCRETE**: 3", soft											
1	▨	**CONCRETE**: 5", hard											
	⁘	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, light brown, moist, loose											
2	⁘		☒										
3	⁘		☒										
4	⁘		☒										
5	⁘		■	BC=4 6 6									
6	⁘		■										
		Sandy SILT (ML): fine-grained sand, non-plastic to low plasticity, light brownish gray, moist, loose											

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
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CHECKED BY:
DATE:
REVISED: -

BORING LOG B-36

Golden State Corridor
Fresno, California

PLATE

BORING LOG B-37

Date Begin - End: 8/16/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9"											Need to come back to core
1	▨	**CONCRETE**: 5"											
2	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
3	▨												
4	▨												
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 16, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-37

Golden State Corridor
Fresno, California

PLATE

BORING LOG B-38

Date Begin - End: 8/15/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 101° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

FIELD EXPLORATION / LABORATORY RESULTS

Surface Condition: Asphalt

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 7"											Need to come back to core
		AGGREGATE BASE: 6"											
1		**CONCRETE**: 8"											
2		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											
5				BC=4 7 8									
6		**Sandy SILT (ML)**: fine-grained sand, trace clay, non-plastic to low plasticity, light brownish gray with red stain, moist, loose											

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
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DATE:
REVISED: -

BORING LOG B-38

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:25 AM BY: MPalmer

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-39

Date Begin - End: 8/16/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 9"											Need to come back to core
	▨	**CONCRETE**: 4"											
1	▒	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown to dark brown, moist, medium dense	☒										
2	▒												
3	▒												
4	▒												
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 16, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-39

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:25 AM BY: MPalmer

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 09/01/2016 12:25 AM BY: MPalmer

BORING LOG B-40

Date Begin - End: 8/15/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 101° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 8.5"											Need to come back to core
		CONCRETE: 4.5"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											
5		**Sandy SILT (ML)**: fine-grained sand, non-plastic to low plasticity, light brownish gray, moist, medium dense		BC=24 22 19									
6		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
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DATE:
REVISED: -

BORING LOG B-40

Golden State Corridor
Fresno, California

PLATE

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-41

Date Begin - End: 8/16/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 100° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 8"											
1	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
2	▨		☒										
3	▨		☒										
4	▨		☒										
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 16, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-41

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:25 AM BY: MPalmer

BORING LOG B-42

Date Begin - End: 8/15/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 101° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

Depth (feet)	Graphical Log	FIELD EXPLORATION Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 5"											
	▨	**CONCRETE**: 5"											Concrete was softer here than at other locations
1	▨	**Silty SAND (SM)**: fine-grained sand, non-plastic, brown to light brown, moist, medium dense	☒										
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-42

Golden State Corridor
Fresno, California

PLATE

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 09/01/2016 12:25 AM BY: MPalmer

BORING LOG B-43

Date Begin - End: 8/16/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 103° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

Depth (feet)	Graphical Log	FIELD EXPLORATION				LABORATORY RESULTS							
		Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 7"											
1 2 3 4 5	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, olive brown, moist, medium dense	☒										
6 7 8 9 10 11 12 13 14													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 16, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-43

Golden State Corridor
Fresno, California

PLATE

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-44

Date Begin - End: 8/15/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 101° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 5"											
		CONCRETE: 4"											Concrete was softer than other locations
1 2 3 4 5		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense											

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The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

KLEINFELDER
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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-44

Golden State Corridor
Fresno, California

PLATE

Date Begin - End: 8/16/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 103° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

BORING LOG B-45

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 8"											Need to come back to core
1	▨	**CONCRETE**: 6"											
2 3 4 5	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

6 7 8 9 10 11 12 13 14

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 16, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

KLEINFELDER
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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-45

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:25 AM BY: MPalmer
gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-46

Date Begin - End: 8/15/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 101° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

Depth (feet)	Graphical Log	FIELD EXPLORATION Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0–1	■	**ASPHALT**: 13"											
1–5	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, olive brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-46

Golden State Corridor
Fresno, California

PLATE

BORING LOG B-47

Date Begin - End: 8/16/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 103° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1	■	**ASPHALT**: 15"											
2 3 4 5	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, dark brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 16, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-47

Golden State Corridor
Fresno, California

PLATE

Date Begin - End: 8/15/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 101° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

BORING LOG B-48

Depth (feet)	Graphical Log	FIELD EXPLORATION Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1	■	**ASPHALT**: 17"											
2 3 4 5	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
6 7 8 9 10 11 12 13 14													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-48

Golden State Corridor
Fresno, California

PLATE

BORING LOG B-49

Date Begin - End: 8/16/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 103° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

FIELD EXPLORATION | LABORATORY RESULTS

Surface Condition: Asphalt

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 14"											
		CONCRETE: 2"											Concrete was softer
		Silty SAND (SM): fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 16, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-49

Golden State Corridor
Fresno, California

PLATE

BORING LOG B-50

Date Begin - End:	8/15/2016	**Drilling Company:**	All Well		
Logged By:	NS	**Drill Crew:**	Miguel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny, 101° F	**Exploration Diameter:**	8 in. O.D.		

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 12.5"											Need to come back to core
1		**CONCRETE**: 4", **ASPHALT**: 4"											
		Sandy SILT (ML): fine-grained sand, non-plastic, light brown, moist, medium dense											
2													
3													
4													
5				BC=7 10 10									
		- increase in fines, red stain below 5.5 feet											
6													

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
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BORING LOG B-50

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:25 AM BY: MPalmer

BORING LOG B-51

Date Begin - End: 8/16/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 103° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 11"											
1		**CONCRETE**: 3"											
		Silty SAND (SM): fine to medium-grained sand, non-plastic, brown to olive brown, moist, medium dense	☒										
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 16, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-51

Golden State Corridor
Fresno, California

PLATE

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 09/01/2016 12:25 AM BY: MPalmer

BORING LOG B-52

Date Begin - End: 8/15/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 101° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0		**ASPHALT**: 12"											
1		**Silty SAND (SM)**: fine-grained sand, non-plastic, brown, moist, medium dense											
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 15, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

Depth scale: 1 2 3 4 5 6 7 8 9 10 11 12 13 14

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

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REVISED: -

BORING LOG B-52

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:25 AM BY: MPalmer

BORING LOG B-52a

Date Begin - End: 8/25/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 12"											
1	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
2													
3													
4													
5			■	BC=3 3 6									
6		- lense of Sandy SILT (ML), ~70% fines, light brownish gray with red stain below 6 feet											
7													
8													
9													
10													
11													
12													
13													
14													

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 25, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

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PROJECT NO.: 20171121
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DATE:
REVISED: -

BORING LOG B-52a

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:25 AM BY: MPalmer

BORING LOG B-53

Date Begin - End: 8/17/2016
Logged By:
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 102° F

Drilling Company:
Drill Crew:
Drilling Equipment:
Drilling Method:
Exploration Diameter:

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 4"											Need to come back to core
		CONCRETE: 6"											
1		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
2													
3													
4													
5													

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 17, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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KLEINFELDER
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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-53

Golden State Corridor
Fresno, California

PLATE

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-54

Date Begin - End: 8/25/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

Depth (feet)	Graphical Log	FIELD EXPLORATION Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 7"											
1		**CONCRETE**: 8" (two 4" layers)											
2 3 4 5 6		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, dark brown, moist, medium dense		BC=3 3 5									

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 25, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-54

Golden State Corridor
Fresno, California

PLATE

Date Begin - End:	8/17/2016	**Drilling Company:**	All Well		**BORING LOG B-55**
Logged By:	NS	**Drill Crew:**	Miguel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny, 102° F	**Exploration Diameter:**	8 in. O.D.		

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 7"											Need to come back to core
1	▩	**CONCRETE**: 7.5"											
2 3 4 5	▥	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

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The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 17, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

KLEINFELDER
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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-55

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:25 AM BY: MPalmer

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-56

Date Begin - End: 8/25/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 10.5"											
1		**CONCRETE**: 5"											
		Silty SAND (SM): fine to medium-grained sand, non-plastic, brown, moist, medium dense											
2													
3													
4													
5				BC=5 6 9									
6													

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The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 25, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-56

Golden State Corridor
Fresno, California

PLATE

Date Begin - End:	8/17/2016	**Drilling Company:**	All Well		**BORING LOG B-57**
Logged By:	NS	**Drill Crew:**	Miguel		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	CME-75	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny, 102° F	**Exploration Diameter:**	8 in. O.D.		

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)=Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
1		**ASPHALT**: 13"											Need to come back to core
		CONCRETE: 4"											
2 3 4 5		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 17, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-57

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:25 AM BY: MPalmer

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-58

Date Begin - End: 8/25/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F

Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

FIELD EXPLORATION

Surface Condition: Asphalt

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 12"											
1		**CONCRETE**: 5.5"											
2 3 4		**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										
5			■	BC=11 18 18									
6		**Sandy SILT (ML)**: fine-grained sand, non-plastic, light brownish gray, red stain, moist, medium dense											

LABORATORY RESULTS

7

The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 25, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-58

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:25 AM BY: MPalmer

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-59

Date Begin - End: 8/17/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 102° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	■	**ASPHALT**: 16"											Need to come back to core
	▒	**CONCRETE**: 4"											
5	▨	**Silty SAND (SM)**: fine to medium-grained sand, non-plastic, brown, moist, medium dense	☒										

1 2 3 4 5 6 7 8 9 10 11 12 13 14

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 17, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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PROJECT NO.: 20171121
DRAWN BY: MAP
CHECKED BY:
DATE:
REVISED: -

BORING LOG B-59

Golden State Corridor
Fresno, California

PLATE

PLOTTED: 09/01/2016 12:25 AM BY: MPalmer

gINT FILE: PROJECTWISE: 20171121_golden State Corridor Project.gpj
gINT TEMPLATE: C:KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-60

Date Begin - End: 8/25/2016
Logged By: NS
Hor.-Vert. Datum: Not Available
Plunge: -90 degrees
Weather: Sunny, 98° F
Drilling Company: All Well
Drill Crew: Miguel
Drilling Equipment: CME-75
Drilling Method: Hollow Stem Auger
Exploration Diameter: 8 in. O.D.
Hammer Type - Drop: 140 lb. Auto - 30 in.

		FIELD EXPLORATION				LABORATORY RESULTS							
Depth (feet)	Graphical Log	Surface Condition: Asphalt Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 10"											
1		**CONCRETE**: 5"											
		Silty SAND (SM): fine to medium-grained sand, non-plastic, olive brown, moist, medium dense											
2													
3													
4													
5				BC=4 6 8									
6		- lense of Silty SAND (SM), fine-grained, non-plastic, light brownish gray with red stain, moist, ~70% fines below 6 feet											
7		The boring was terminated at approximately 6.5 ft. below ground surface. The boring was backfilled with auger cuttings and patched at surface on August 25, 2016.											
8													
9													
10													
11													
12													
13													
14													

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.
GENERAL NOTES:

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BORING LOG B-60

Golden State Corridor
Fresno, California

PLATE

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
B-1	0.0										**R-Value=** 69
B-2	0.0 - 5.0						22				SE = 23
B-2	5.0		3.9	105.0							
B-3	0.0 - 5.0										SE = 22
B-4	0.0 - 5.0										SE = 22
B-4	5.0		6.1	110.1							
B-5	0.0										**R-Value=** 35
B-6	0.0 - 5.0										SE = 32
B-7	0.0 - 5.0										SE = 16
B-7	5.0		6.1	115.0							
B-8	0.0 - 5.0										SE = 19
B-9	0.0										**R-Value=** 36
B-10	0.0 - 5.0						29				SE = 20
B-11	0.0 - 5.0										SE = 26
B-12	0.0 - 5.0										SE = 54
B-13	0.0										**R-Value=** 73
B-14	0.0 - 5.0										SE = 38
B-15	0.0 - 5.0										SE = 39
B-16	0.0 - 5.0										SE = 32
B-17	0.0										**R-Value=** 68
B-18	0.0 - 5.0						15				SE = 39
B-19	0.0 - 5.0										SE = 31
B-20	0.0 - 5.0							NP	NP	NP	SE = 14
B-21	0.0										**R-Value=** 70
B-22	0.0 - 5.0										SE = 21
											1557A=
											Maximum Dry Unit Weight: 131.9 pcf
											Optimum Water Content: 6.7%

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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PROJECT NO.: 20171121
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LABORATORY TEST
RESULT SUMMARY

Golden State Corridor
Fresno, California

FIGURE
B-1

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
B-22	5.0		6.5	108.8							
B-23	0.0 - 5.0										SE = 17
B-23	5.0		5.4	108.7							
B-24	0.0 - 5.0										SE = 17
B-24	5.0		5.5	128.2							
B-25	0.0										**R-Value=** 28
B-25	5.0		6.3	113.1							
B-26	0.0 - 5.0						33				SE = 20
B-26	5.0		12.1	105.6							
B-27	0.0 - 5.0										SE = 22
B-27	5.0		16.1	101.4							
B-28	0.0 - 5.0										SE = 30
B-28	5.0		4.1	112.6							
B-34	0.0										**R-Value=** 72
B-34	5.0		3.3	111.5							**Direct Shear=**
											Peak Cohesion: 157.14 psf
											Peak Friction Angle: 31.1°
B-35	0.0 - 5.0										SE = 46
B-36	0.0 - 5.0										SE = 26
B-36	5.0		3.4	102.9							
B-37	0.0 - 5.0						26				SE = 50
B-38	0.0						62				**R-Value=** 72
B-38	5.0		11.5	100.7							
B-39	0.0 - 5.0										SE = 27
B-40	0.0	SILTY SAND (SM)				100	45	NP	NP	NP	
B-40	5.0		7.7	104.6							
B-42	0.0							NP	NP	NP	**R-Value=** 71
B-45	0.0 - 5.0										SE = 53

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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LABORATORY TEST
RESULT SUMMARY

Golden State Corridor
Fresno, California

FIGURE
B-2

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
B-46	0.0										**R-Value=** 71
B-47	0.0						27				
B-50	0.0										**R-Value=** 72
B-50	5.0		15.6	100.0							**Direct Shear=**
											Peak Cohesion: 85.71 psf
											Peak Friction Angle: 33.2°
B-52a	5.0		8.2	103.1							
B-53	0.0 - 5.0										SE = 54
B-54	0.0										**R-Value=** 41
B-54	5.0		4.6	109.8							
B-55	0.0 - 5.0						24				SE = 38
B-56	0.0					100	31				**1557A=**
											Maximum Dry Unit Weight: 131.5 pcf
											Optimum Water Content: 6.3%
B-56	5.0		5.4	113.5							
B-57	0.0 - 5.0										SE = 30
B-58	5.0		14.5	101.1							
B-59	0.0 - 5.0										SE = 18
B-60	5.0		7.4	109.5							

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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LABORATORY TEST
RESULT SUMMARY

Golden State Corridor
Fresno, California

FIGURE
B-3

Appendix D: FWD Raw Data

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
NB Fast Lane	AC	0+29	8/5/2016	128.0	95.1	92.6	10,144	7.05	6.25	5.15	4.37	3.87	3.44	2.81	2.26	1.81	1.47
NB Fast Lane	AC	1+99	8/5/2016	125.9	95.2	96	10,516	5.94	5.08	4.89	4.51	4.03	3.63	2.92	2.26	1.80	1.43
NB Fast Lane	AC	4+07	8/5/2016	127.7	94.7	95.8	10,494	5.57	4.78	4.33	4.00	3.52	3.17	2.61	2.12	1.76	1.50
NB Fast Lane	AC	5+93	8/5/2016	126.5	96.0	95.7	10,483	6.16	5.29	5.02	4.61	4.05	3.58	2.84	2.20	1.77	1.41
NB Fast Lane	AC	8+03	8/5/2016	126.3	96.4	95.8	10,494	5.85	5.02	4.67	4.28	3.81	3.44	2.74	2.18	1.72	1.39
NB Fast Lane	AC	10+01	8/5/2016	126.8	98.3	96.3	10,549	6.12	5.22	4.80	4.27	3.72	3.31	2.70	2.18	1.79	1.45
NB Fast Lane	AC	11+90	8/5/2016	124.2	96.7	98.2	10,757	5.56	4.65	4.26	3.85	3.40	3.04	2.46	2.00	1.65	1.35
NB Fast Lane	AC	14+04	8/5/2016	124.7	97.0	96.5	10,571	5.68	4.84	4.14	3.71	3.21	2.82	2.19	1.70	1.33	1.07
NB Fast Lane	AC	15+96	8/5/2016	126.3	93.5	96.1	10,527	5.30	4.53	4.30	4.00	3.62	3.27	2.67	2.13	1.73	1.43
NB Fast Lane	AC	18+00	8/5/2016	124.2	94.8	98.3	10,768	6.06	5.07	4.61	4.09	3.42	2.87	2.15	1.66	1.35	1.13
NB Fast Lane	AC	19+99	8/5/2016	124.7	95.6	97.5	10,681	4.97	4.19	3.80	3.26	2.69	2.25	1.74	1.42	1.19	1.03
NB Fast Lane	AC	22+03	8/5/2016	126.4	96.3	96.9	10,615	4.70	3.98	3.82	3.38	2.92	2.56	2.01	1.61	1.29	1.06
NB Fast Lane	AC	24+07	8/5/2016	125.1	94.0	95.5	10,461	5.48	4.71	3.83	3.21	2.72	2.43	1.90	1.50	1.22	0.96
NB Fast Lane	AC	25+88	8/5/2016	126.5	94.6	95.1	10,418	4.95	4.28	3.62	3.24	2.86	2.63	2.21	1.86	1.58	1.30
NB Fast Lane	AC	28+01	8/5/2016	126.3	94.6	95.9	10,505	5.02	4.3	3.97	3.67	3.31	3.02	2.51	2.05	1.71	1.40
NB Fast Lane	AC	29+92	8/5/2016	127.6	96.6	95.5	10,461	5.91	5.08	4.70	4.24	3.65	3.27	2.69	2.18	1.79	1.47
NB Fast Lane	AC	32+06	8/5/2016	127.1	96.5	96.3	10,549	5.75	4.91	4.39	3.93	3.35	2.90	2.19	1.71	1.34	1.14
NB Fast Lane	AC	33+93	8/5/2016	130.8	93.5	92.6	10,144	8.91	7.91	6.49	5.61	4.66	3.90	2.81	2.14	1.64	1.31
NB Fast Lane	AC	35+91	8/5/2016	126.4	95.1	95	10,407	6.42	5.55	5.14	4.74	4.26	3.93	3.39	2.80	2.28	1.87
NB Fast Lane	AC	37+98	8/5/2016	129.0	94.3	95.9	10,505	7.81	6.69	6.63	5.93	4.93	4.05	3.04	2.29	1.87	1.51
NB Fast Lane	AC	40+00	8/5/2016	129.0	94.6	96.6	10,582	8.23	7	6.50	5.50	4.59	3.91	2.88	2.14	1.68	1.33
NB Fast Lane	AC	41+87	8/5/2016	127.4	94.4	97	10,626	6.24	5.29	4.66	4.09	3.53	3.10	2.45	1.96	1.56	1.26
NB Fast Lane	AC	43+96	8/5/2016	131.6	95.4	95.9	10,505	4.79	4.1	3.36	2.88	2.48	2.20	1.81	1.52	1.24	1.07
NB Fast Lane	AC	46+03	8/5/2016	126.1	93.2	95.8	10,494	5.71	4.9	4.29	3.67	2.97	2.50	1.92	1.45	1.24	1.00
NB Fast Lane	AC	47+93	8/5/2016	123.9	92.7	96.2	10,538	5.20	4.44	3.73	3.29	2.89	2.62	2.14	1.72	1.40	1.14
NB Fast Lane	AC	50+02	8/5/2016	128.1	96.6	96.2	10,538	4.21	3.6	3.00	2.67	2.33	2.06	1.62	1.28	1.05	0.87
NB Fast Lane	AC	52+03	8/5/2016	131.6	95.6	92.7	10,155	5.92	5.25	4.48	3.91	3.42	3.02	2.37	1.86	1.48	1.20
NB Fast Lane	AC	54+09	8/5/2016	124.3	94.3	96.5	10,571	5.61	4.78	3.75	3.18	2.74	2.43	1.97	1.60	1.32	1.13
NB Fast Lane	AC	55+94	8/5/2016	127.9	96.3	95.8	10,494	6.01	5.15	4.51	3.89	3.26	2.80	2.10	1.64	1.29	1.08
NB Fast Lane	AC	57+97	8/5/2016	124.0	95.2	95.6	10,472	7.05	6.06	5.57	4.71	3.83	3.22	2.36	1.71	1.29	1.00
NB Fast Lane	AC	60+02	8/5/2016	126.6	94.4	95.3	10,440	6.17	5.32	5.03	4.52	3.86	3.28	2.41	1.71	1.30	1.02
NB Fast Lane	AC	64+00	8/5/2016	126.4	94.9	94.9	10,396	6.11	5.29	4.95	4.46	3.85	3.23	2.54	1.94	1.54	1.28
NB Fast Lane	AC	66+04	8/5/2016	128.3	94.5	94.1	10,308	4.74	4.14	3.31	2.91	2.59	2.42	2.09	1.75	1.50	1.30
NB Fast Lane	AC	67+99	8/5/2016	128.5	94.7	93.4	10,231	5.96	5.24	4.81	4.31	3.75	3.31	2.64	2.06	1.58	1.19
NB Fast Lane	AC	69+90	8/5/2016	126.1	92.9	94.6	10,363	5.09	4.42	3.81	3.41	3.08	2.89	2.44	2.07	1.72	1.42
NB Fast Lane	AC	71+96	8/5/2016	125.8	92.5	93.3	10,220	5.15	4.54	4.07	3.70	3.29	3.00	2.52	2.07	1.77	1.44
NB Fast Lane	AC	73+98	8/5/2016	128.7	93.1	91.3	10,001	5.74	5.17	4.35	3.90	3.37	2.99	2.43	1.98	1.64	1.39
NB Fast Lane	AC	75+36	8/5/2016	131.2	92.2	91.9	10,067	4.56	4.08	3.56	3.26	2.94	2.69	2.20	1.82	1.44	1.22
NB Fast Lane	AC	78+03	8/5/2016	131.3	92.5	90.4	9,903	5.98	5.43	4.46	3.77	3.16	2.77	2.14	1.73	1.38	1.16
NB Fast Lane	AC	80+01	8/5/2016	128.7	92.9	94.5	10,352	8.51	7.4	6.52	5.52	4.20	3.21	2.15	1.64	1.37	1.13
NB Fast Lane	AC	81+89	8/5/2016	88.4	92.4	97.9	10,724	5.19	4.36	4.19	3.54	2.74	2.10	1.39	1.03	0.85	0.76
NB Fast Lane	AC	84+06	8/5/2016	130.1	94.6	96.4	10,560	3.50	2.98	2.54	2.35	2.14	2.02	1.63	1.46	1.19	1.02
NB Fast Lane	AC	85+79	8/5/2016	128.1	93.6	94.3	10,330	6.52	5.68	5.11	4.59	3.95	3.36	2.55	1.91	1.48	1.22
NB Fast Lane	AC	88+00	8/5/2016	129.4	92.5	95.8	10,494	7.15	6.13	6.00	5.59	4.98	4.46	3.44	2.56	1.93	1.54
NB Fast Lane	AC	90+01	8/5/2016	128.4	93.2	96.2	10,538	6.26	5.35	4.73	4.10	3.38	2.89	2.14	1.63	1.22	0.95
NB Fast Lane	AC	91+96	8/5/2016	128.3	94.9	95.9	10,505	4.89	4.19	3.67	3.36	2.99	2.78	2.30	1.87	1.57	1.33

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
NB Fast Lane	AC	93+90	8/5/2016	127.4	93.1	96.6	10,582	5.21	4.43	3.88	3.46	3.00	2.69	2.17	1.76	1.40	1.15
NB Fast Lane	AC	93+90	8/5/2016	125.6	92.2	95.9	10,505	5.11	4.38	3.80	3.39	2.93	2.62	2.15	1.71	1.37	1.09
NB Fast Lane	AC	95+91	8/5/2016	127.5	93.0	96.6	10,582	5.21	4.43	4.07	3.69	3.24	2.90	2.33	1.83	1.49	1.20
NB Fast Lane	AC	97+99	8/5/2016	127.9	93.2	97.1	10,637	5.80	4.91	4.39	3.94	3.49	3.15	2.58	2.03	1.67	1.32
NB Fast Lane	AC	99+94	8/5/2016	129.6	94.9	97.4	10,670	5.86	4.94	4.36	3.92	3.38	3.01	2.26	1.87	1.48	1.25
NB Fast Lane	AC	102+10	8/5/2016	127.8	95.7	96.2	10,538	5.23	4.47	3.93	3.54	3.08	2.71	2.17	1.72	1.39	1.12
NB Fast Lane	AC	104+23	8/5/2016	129.6	97.4	96.8	10,604	6.63	5.63	3.96	3.45	2.90	2.50	1.96	1.56	1.28	1.02
NB Fast Lane	AC	106+13	8/5/2016	127.1	93.3	97.1	10,637	3.95	3.34	2.99	2.78	2.51	2.30	1.87	1.54	1.30	1.03
NB Fast Lane	AC	108+02	8/5/2016	128.5	95.5	97.4	10,670	7.00	5.9	5.28	4.48	3.64	3.03	2.22	1.62	1.30	1.04
NB Fast Lane	AC	110+12	8/5/2016	127.9	94.6	96.7	10,593	6.21	5.28	4.67	4.00	3.22	2.74	2.07	1.61	1.29	1.13
NB Fast Lane	AC	112+07	8/5/2016	127.8	93.2	97.9	10,724	6.69	5.61	5.02	4.42	3.85	3.39	2.71	2.09	1.66	1.35
NB Fast Lane	AC	114+07	8/5/2016	129.0	93.5	97.8	10,713	6.50	5.46	4.94	4.53	3.91	3.41	2.65	2.01	1.57	1.29
NB Fast Lane	AC	116+05	8/5/2016	128.4	96.0	95.9	10,505	5.60	4.8	4.36	3.85	3.37	3.00	2.41	1.91	1.55	1.27
NB Fast Lane	AC	118+04	8/5/2016	128.1	95.8	97.7	10,702	5.96	5.01	4.64	4.23	3.69	3.09	2.41	1.87	1.45	1.20
NB Fast Lane	AC	120+15	8/5/2016	128.4	93.4	96.3	10,549	6.26	5.34	4.52	4.02	3.41	3.03	2.35	1.81	1.44	1.18
NB Fast Lane	AC	122+16	8/5/2016	124.2	91.5	98.2	10,757	5.32	4.45	3.89	3.26	2.78	2.46	1.99	1.59	1.31	1.13
NB Fast Lane	AC	123+95	8/5/2016	126.6	95.2	97.3	10,659	6.56	5.54	4.92	4.15	3.57	3.09	2.40	1.87	1.52	1.30
NB Fast Lane	AC	126+01	8/5/2016	127.2	92.3	94.4	10,341	7.57	6.59	5.69	5.04	4.23	3.60	2.73	2.10	1.67	1.39
NB Fast Lane	AC	128+04	8/5/2016	125.9	92.5	98.8	10,823	9.83	8.17	8.39	7.48	6.32	5.38	4.05	2.99	2.30	1.76
NB Fast Lane	AC	130+01	8/5/2016	126.9	93.8	98.8	10,823	9.71	8.07	7.71	6.89	5.90	5.16	4.02	3.06	2.36	1.75
NB Fast Lane	AC	132+05	8/5/2016	122.5	95.6	97.2	10,648	7.37	6.23	6.60	6.18	5.47	4.85	3.87	3.00	2.31	1.77
NB Fast Lane	AC	134+05	8/5/2016	129.5	94.9	97.3	10,659	9.61	8.11	7.99	7.21	6.22	5.35	3.97	2.67	1.93	1.42
NB Fast Lane	AC	136+03	8/5/2016	127.8	94.9	92.8	10,166	7.89	6.99	6.61	6.03	5.10	4.34	3.16	2.24	1.60	1.18
NB Fast Lane	AC	138+02	8/5/2016	124.6	91.9	90.6	9,925	5.25	4.76	4.28	3.89	3.38	3.04	2.46	1.91	1.52	1.21
NB Fast Lane	AC	139+94	8/5/2016	126.2	90.7	91.4	10,012	10.03	9.02	8.71	7.86	6.72	5.55	4.01	2.80	2.11	1.62
NB Fast Lane	AC	142+10	8/5/2016	126.1	91.9	90.5	9,914	4.62	4.19	3.67	3.34	2.96	2.66	2.16	1.66	1.37	1.09
NB Fast Lane	AC	144+01	8/5/2016	126.6	92.0	91.5	10,023	7.02	6.3	5.80	5.25	4.53	3.88	2.89	2.12	1.59	1.21
NB Fast Lane	AC	146+05	8/5/2016	122.8	93.3	94.1	10,308	5.91	5.16	4.99	4.61	4.10	3.67	2.90	2.37	1.99	1.66
NB Fast Lane	AC	148+04	8/5/2016	121.3	92.6	91.9	10,067	4.92	4.4	4.22	3.96	3.54	3.20	2.59	2.09	1.75	1.44
NB Fast Lane	AC	150+04	8/5/2016	123.6	94.8	90.3	9,892	6.08	5.53	5.27	4.95	4.30	3.77	2.80	2.07	1.54	1.17
NB Fast Lane	AC	151+87	8/5/2016	124.8	91.7	92.6	10,144	4.71	4.18	3.62	3.33	3.01	2.76	2.34	1.91	1.54	1.24
NB Fast Lane	AC	154+06	8/5/2016	121.9	91.3	95.2	10,429	5.85	5.05	4.30	3.73	3.32	2.98	2.41	1.98	1.62	1.39
NB Fast Lane	AC	156+08	8/5/2016	124.0	91.8	96.2	10,538	10.43	8.91	8.91	7.75	6.12	4.86	3.45	2.49	1.93	1.44
NB Fast Lane	AC	158+07	8/5/2016	123.4	91.2	93.5	10,242	5.96	5.24	3.84	3.17	2.86	2.58	2.13	1.71	1.40	1.12
NB Fast Lane	AC	160+09	8/5/2016	123.5	92.1	91.2	9,990	5.66	5.1	4.70	4.30	3.84	3.32	2.39	1.68	1.28	1.09
NB Fast Lane	AC	162+06	8/5/2016	125.7	89.9	92.1	10,089	6.00	5.35	4.47	4.05	3.62	3.26	2.57	1.86	1.39	1.13
NB Fast Lane	AC	164+02	8/5/2016	129.8	90.9	88.4	9,684	4.93	4.58	4.06	3.72	3.30	2.87	2.19	1.64	1.30	1.06
NB Fast Lane	AC	165+93	8/5/2016	128.6	91.6	90.1	9,870	4.91	4.48	4.12	3.82	3.39	3.04	2.46	1.96	1.58	1.25
NB Fast Lane	AC	168+11	8/5/2016	128.5	91.0	89.9	9,848	6.51	5.95	4.77	4.05	3.29	2.81	2.20	1.72	1.41	1.13
NB Fast Lane	AC	170+05	8/5/2016	128.8	90.1	89.6	9,815	3.87	3.55	3.04	2.80	2.51	2.26	1.89	1.48	1.24	1.07
NB Fast Lane	AC	171+98	8/5/2016	126.8	90.8	90.1	9,870	4.59	4.19	3.83	3.56	3.15	2.79	2.24	1.75	1.37	1.07
NB Fast Lane	AC	174+04	8/5/2016	124.8	91.8	92.2	10,100	5.59	4.98	4.75	4.30	3.91	3.10	2.31	1.75	1.38	1.10
NB Fast Lane	AC	175+91	8/5/2016	122.8	91.8	93	10,188	5.18	4.58	4.01	3.52	2.94	2.50	1.84	1.30	0.96	0.72
NB Fast Lane	AC	178+00	8/5/2016	122.8	90.4	90.9	9,958	4.20	3.8	3.09	2.83	2.55	2.24	1.81	1.42	1.15	0.92
NB Fast Lane	AC	180+03	8/5/2016	124.3	91.0	89.9	9,848	4.24	3.87	3.38	3.24	2.98	2.77	2.39	2.04	1.70	1.45
NB Fast Lane	AC	181+69	8/5/2016	121.4	90.2	90.9	9,958	5.43	4.91	3.90	3.36	3.01	2.73	2.12	1.73	1.43	1.21

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
NB Fast Lane	AC	183+59	8/5/2016	120.9	92.1	93.8	10,275	6.18	5.41	4.23	3.57	3.17	2.84	2.27	1.76	1.38	1.15
NB Fast Lane	AC	184+96	8/5/2016	120.7	93.9	91.5	10,023	6.49	5.83	5.62	5.21	4.61	3.87	2.57	1.62	1.26	0.94
NB Fast Lane	AC	187+87	8/5/2016	120.8	91.3	92.8	10,166	6.00	5.31	4.42	4.15	3.56	3.10	2.35	1.80	1.41	1.16
NB Fast Lane	AC	190+05	8/5/2016	120.6	92.4	92.9	10,177	7.70	6.81	6.30	5.66	4.83	4.09	3.04	2.25	1.73	1.37
NB Fast Lane	AC	191+96	8/5/2016	121.3	91.3	92.4	10,122	8.26	7.34	6.83	6.20	5.35	4.72	3.76	2.87	2.24	1.76
NB Fast Lane	AC	193+97	8/5/2016	121.5	93.8	94.9	10,396	8.57	7.42	6.89	5.85	4.81	3.88	2.74	1.97	1.57	1.16
NB Fast Lane	AC	196+02	8/5/2016	121.3	92.2	93.9	10,286	8.47	7.41	7.44	6.94	5.09	4.10	2.84	2.04	1.61	1.28
NB Fast Lane	AC	198+03	8/5/2016	121.1	90.6	94.3	10,330	7.50	6.53	6.59	6.16	5.54	4.87	3.32	2.22	1.58	1.17
NB Fast Lane	AC	200+03	8/5/2016	122.3	90.7	94.2	10,319	8.67	7.56	6.52	5.72	4.70	3.96	2.96	2.15	1.65	1.32
NB Fast Lane	AC	202+06	8/5/2016	120.3	92.0	93.6	10,253	7.35	6.45	6.07	5.48	4.79	4.21	3.27	2.47	1.97	1.56
NB Fast Lane	AC	203+98	8/5/2016	122.6	91.9	93.2	10,210	8.74	7.7	7.41	6.71	5.78	5.02	3.93	3.03	2.36	1.88
NB Fast Lane	AC	206+02	8/5/2016	123.1	90.3	97.1	10,637	8.37	7.08	6.35	5.65	4.82	4.09	3.09	2.28	1.76	1.38
NB Fast Lane	AC	208+07	8/5/2016	124.0	92.0	97.9	10,724	22.85	19.18	18.32	15.43	11.94	9.26	5.63	3.72	2.80	2.13
NB Fast Lane	AC	210+08	8/5/2016	122.2	90.8	92.4	10,122	13.33	11.85	12.36	11.30	9.36	7.81	5.68	4.07	2.87	2.22
NB Fast Lane	AC	212+06	8/5/2016	128.9	90.2	90.1	9,870	8.41	7.67	6.60	5.81	4.86	4.04	2.87	2.06	1.53	1.18
NB Fast Lane	AC	214+06	8/5/2016	123.6	90.8	97	10,626	7.14	6.05	5.97	5.41	4.67	4.07	2.94	2.15	1.65	1.33
NB Fast Lane	AC	216+06	8/5/2016	122.9	89.9	97.7	10,702	9.00	7.57	7.51	6.85	5.99	5.25	4.00	2.87	2.07	1.65
NB Fast Lane	AC	217+34	8/5/2016	121.7	91.6	97.6	10,692	13.93	11.73	11.79	10.19	7.93	6.57	4.51	3.02	2.17	1.60
NB Fast Lane	AC	220+02	8/5/2016	119.8	91.3	95	10,407	11.79	10.2	9.69	8.40	6.74	5.52	3.88	2.52	1.82	1.43
NB Fast Lane	AC	221+94	8/5/2016	124.1	91.3	94.5	10,352	11.90	10.35	9.75	8.50	6.80	5.50	3.91	2.72	1.99	1.50
NB Fast Lane	AC	223+97	8/5/2016	121.3	93.0	99	10,845	5.41	4.49	4.11	3.47	2.89	2.50	1.85	1.40	1.07	0.85
NB Fast Lane	AC	226+04	8/5/2016	122.4	91.2	96.7	10,593	8.11	6.89	6.55	5.65	4.57	3.80	2.72	1.94	1.37	1.08
NB Fast Lane	AC	228+05	8/5/2016	121.4	89.9	97	10,626	7.94	6.73	6.39	5.59	4.59	3.63	2.72	2.03	1.50	1.18
NB Fast Lane	AC	230+12	8/5/2016	122.1	92.7	96.7	10,593	8.47	7.2	6.74	5.78	4.78	3.76	2.47	1.60	1.11	0.79
NB Fast Lane	AC	231+94	8/5/2016	127.0	88.9	95.6	10,472	3.79	3.26	2.76	2.38	2.07	1.84	1.46	0.95	0.76	0.58
NB Fast Lane	AC	234+05	8/5/2016	106.0	87.6	96.9	10,615	7.16	6.07	6.17	5.76	5.24	4.70	3.68	2.73	2.02	1.45
NB Fast Lane	AC	236+61	8/5/2016	109.8	88.1	94.8	10,385	4.25	3.68	3.15	2.73	2.42	2.16	1.70	1.30	1.00	0.78
NB Fast Lane	AC	238+18	8/5/2016	120.1	89.6	95	10,407	3.32	2.87	2.32	2.01	1.70	1.52	1.22	0.99	0.81	0.64
NB Fast Lane	AC	240+02	8/5/2016	120.7	89.9	95.6	10,472	8.17	7.02	6.66	5.91	5.00	4.28	3.26	2.41	1.84	1.41
NB Fast Lane	AC	241+98	8/5/2016	126.0	90.7	95.6	10,472	6.56	5.64	4.89	4.38	3.77	3.29	2.56	1.92	1.54	1.23
NB Fast Lane	AC	244+01	8/5/2016	120.8	90.7	97	10,626	6.40	5.42	5.49	4.85	4.08	3.55	2.71	2.17	1.70	1.39
NB Fast Lane	AC	246+03	8/5/2016	117.4	91.3	98.6	10,801	5.05	4.21	4.21	3.75	3.33	3.14	2.64	2.10	1.69	1.31
NB Fast Lane	AC	247+97	8/5/2016	120.8	90.1	98.5	10,790	7.96	6.64	6.84	5.94	4.98	4.24	3.41	2.63	1.99	1.48
NB Fast Lane	AC	250+04	8/5/2016	118.9	90.0	98.4	10,779	10.36	8.65	8.67	7.53	6.65	5.78	4.40	3.26	2.39	1.71
NB Fast Lane	AC	252+03	8/5/2016	122.5	91.9	100.2	10,976	6.86	5.63	5.52	4.85	4.16	3.74	3.06	2.42	1.89	1.38
NB Fast Lane	AC	254+00	8/5/2016	115.2	91.1	99.3	10,878	7.47	6.18	5.91	5.03	4.37	3.99	3.16	2.56	1.99	1.57
NB Fast Lane	AC	256+08	8/5/2016	118.2	90.3	98.9	10,834	6.51	5.41	5.28	4.54	3.96	3.50	2.80	2.27	1.84	1.49
NB Fast Lane	AC	258+09	8/5/2016	118.3	89.7	97	10,626	8.42	7.13	7.02	6.16	5.03	4.46	3.39	2.78	2.20	1.75
NB Fast Lane	AC	260+26	8/5/2016	121.2	90.5	98	10,735	6.98	5.85	5.68	4.69	3.60	2.83	2.10	1.59	1.26	1.13
NB Fast Lane	AC	262+13	8/5/2016	117.2	88.7	97.6	10,692	8.11	6.83	6.77	5.78	4.51	3.67	2.96	2.29	1.72	1.34
NB Fast Lane	AC	264+01	8/5/2016	120.7	88.9	95.4	10,451	10.45	9	8.43	7.00	5.41	4.53	3.17	2.30	1.74	1.20
NB Fast Lane	AC	265+77	8/5/2016	119.8	89.3	96.2	10,538	9.18	7.84	7.03	5.30	4.12	3.30	2.35	1.78	1.46	1.18
NB Fast Lane	AC	267+98	8/5/2016	120.8	88.0	98.1	10,746	10.26	8.59	8.55	7.30	5.86	4.67	3.44	2.31	1.78	1.39
NB Fast Lane	AC	269+99	8/5/2016	118.8	89.9	97.1	10,637	10.69	9.04	8.66	7.17	5.26	3.81	3.11	2.29	1.83	1.51
NB Fast Lane	AC	271+94	8/5/2016	118.8	88.1	99.2	10,867	12.82	10.62	10.78	9.40	7.87	6.79	5.17	3.89	2.91	2.29
NB Fast Lane	AC	273+83	8/5/2016	119.0	88.9	96	10,516	9.31	7.97	8.33	7.51	6.54	5.74	4.53	3.42	2.54	1.87

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
NB Fast Lane	AC	275+37	8/5/2016	122.5	89.7	95.8	10,494	9.56	8.2	7.60	6.79	5.83	5.22	4.27	3.36	2.70	2.08
NB Fast Lane	AC	277+95	8/5/2016	116.7	89.9	98	10,735	7.96	6.67	6.85	6.13	5.11	4.43	3.32	2.67	2.13	1.69
NB Fast Lane	AC	279+99	8/5/2016	117.4	89.2	98.4	10,779	13.99	11.68	9.77	8.57	7.25	6.33	5.01	4.06	3.31	2.69
NB Fast Lane	AC	281+94	8/5/2016	120.6	87.1	93.8	10,275	6.81	5.96	5.52	4.86	4.11	3.63	3.00	2.44	2.04	1.69
NB Fast Lane	AC	284+60	8/5/2016	120.2	87.9	92.3	10,111	7.78	6.93	5.76	4.48	3.16	2.55	2.01	1.74	1.51	1.28
NB Fast Lane	AC	286+04	8/5/2016	122.2	87.4	93.8	10,275	8.45	7.4	6.14	5.18	4.26	3.82	3.15	2.55	2.10	1.63
NB Fast Lane	AC	288+06	8/5/2016	121.2	88.1	95.1	10,418	11.41	9.86	9.74	8.75	7.46	6.43	4.85	3.67	2.80	2.06
NB Fast Lane	AC	290+16	8/5/2016	124.8	87.4	95.9	10,505	11.84	10.14	8.96	7.97	6.97	6.20	4.94	3.87	3.04	2.33
NB Fast Lane	AC	291+95	8/5/2016	118.1	86.1	94.9	10,396	9.15	7.92	7.78	7.23	6.32	5.62	4.54	3.42	2.67	2.15
NB Fast Lane	AC	294+01	8/5/2016	118.1	86.6	97.3	10,659	6.91	5.83	5.69	5.23	4.72	4.50	3.77	3.19	2.63	2.10
NB Fast Lane	AC	295+98	8/5/2016	120.6	87.2	98.8	10,823	10.23	8.51	8.70	7.52	6.13	5.20	3.89	2.85	2.20	1.78
NB Fast Lane	AC	297+96	8/5/2016	115.8	86.0	96.7	10,593	10.32	8.77	8.65	7.56	6.25	5.19	3.80	2.77	2.09	1.49
NB Fast Lane	AC	300+01	8/5/2016	118.6	88.6	98.2	10,757	10.33	8.64	8.34	7.14	5.91	4.96	3.64	2.66	2.04	1.52
NB Fast Lane	AC	301+93	8/5/2016	121.6	90.3	95.9	10,505	10.38	8.89	9.07	8.17	7.04	5.90	4.17	3.11	2.43	1.91
NB Fast Lane	AC	303+86	8/5/2016	118.4	89.6	90.2	9,881	6.83	6.22	5.97	5.54	5.06	4.64	3.94	3.17	2.64	2.22
NB Fast Lane	AC	305+92	8/5/2016	121.5	87.5	91.3	10,001	7.78	7	6.50	5.81	4.94	4.22	3.25	2.48	1.86	1.35
NB Fast Lane	AC	307+99	8/5/2016	121.6	88.9	90.5	9,914	8.92	8.1	7.52	6.59	5.60	4.91	3.88	3.14	2.57	2.16
NB Fast Lane	AC	309+86	8/5/2016	121.7	88.6	91.7	10,045	7.91	7.09	6.80	6.07	4.99	4.12	3.13	2.41	1.91	1.54
NB Fast Lane	AC	311+98	8/5/2016	120.8	87.7	92.4	10,122	6.91	6.14	5.57	5.11	4.53	4.09	3.39	2.79	2.21	1.74
NB Fast Lane	AC	314+00	8/5/2016	119.8	87.0	91.2	9,990	8.53	7.68	7.50	6.94	6.08	5.47	4.40	3.52	2.82	2.18
NB Fast Lane	AC	315+97	8/5/2016	120.7	85.8	90.8	9,947	6.53	5.91	5.74	5.35	4.80	4.37	3.62	2.98	2.41	1.95
NB Fast Lane	AC	318+00	8/5/2016	120.1	85.8	90.8	9,947	6.24	5.65	5.31	4.78	4.24	3.84	3.15	2.50	2.03	1.66
NB Fast Lane	AC	320+16	8/5/2016	118.5	85.7	91.7	10,045	6.56	5.88	5.74	5.39	4.89	4.46	3.72	3.02	2.46	1.96
NB Fast Lane	AC	322+02	8/5/2016	117.3	85.6	90.7	9,936	6.78	6.14	6.00	5.53	5.00	4.57	3.75	3.01	2.42	2.00
NB Fast Lane	AC	323+92	8/5/2016	117.9	86.5	92.2	10,100	7.02	6.26	6.35	5.61	4.81	4.25	3.43	2.72	2.21	1.78
NB Fast Lane	AC	326+01	8/5/2016	119.0	84.4	92	10,078	6.52	5.82	5.48	5.02	4.35	3.76	3.07	2.39	1.89	1.48
NB Fast Lane	AC	327+96	8/5/2016	118.3	84.5	90.8	9,947	5.12	4.63	4.34	4.05	3.68	3.37	2.83	2.30	1.89	1.57
NB Fast Lane	AC	330+00	8/5/2016	118.4	85.3	90.7	9,936	5.49	4.97	4.93	4.65	4.31	3.98	3.37	2.78	2.30	1.88
NB Fast Lane	AC	332+06	8/5/2016	114.4	85.0	91.5	10,023	4.87	4.37	4.05	3.75	3.49	3.14	2.58	2.08	1.71	1.44
NB Fast Lane	AC	334+02	8/5/2016	117.9	85.7	91.3	10,001	5.77	5.19	4.91	4.43	3.96	3.59	2.94	2.30	1.79	1.41
NB Fast Lane	AC	336+05	8/5/2016	118.2	87.5	88.7	9,717	5.61	5.2	4.91	4.54	3.72	3.30	2.65	2.11	1.67	1.39
NB Fast Lane	AC	338+04	8/5/2016	117.0	85.8	91.6	10,034	4.42	3.96	3.67	3.26	2.87	2.55	2.06	1.64	1.29	1.02
NB Fast Lane	AC	339+98	8/5/2016	118.1	86.3	91.6	10,034	4.31	3.87	3.45	3.17	2.89	2.59	2.11	1.78	1.38	1.13
NB Fast Lane	AC	342+84	8/5/2016	120.0	87.9	91.2	9,990	4.63	4.17	3.87	3.54	3.13	2.81	2.27	1.83	1.46	1.15
NB Fast Lane	AC	344+02	8/5/2016	117.0	87.4	91.6	10,034	6.33	5.68	5.38	4.84	4.26	3.81	3.09	2.48	1.98	1.52
NB Fast Lane	AC	345+52	8/5/2016	114.4	87.8	89	9,749	7.66	7.07	6.64	6.11	5.37	4.84	3.85	3.04	2.33	1.75
NB Fast Lane	AC	347+95	8/5/2016	119.1	86.2	90.6	9,925	6.15	5.58	5.27	4.63	3.82	3.18	2.32	1.66	1.28	1.05
NB Fast Lane	AC	349+88	8/5/2016	119.0	86.7	92.5	10,133	7.77	6.9	6.28	5.31	4.29	3.48	2.52	1.84	1.50	1.26
NB Fast Lane	AC	351+99	8/5/2016	118.4	86.5	91.6	10,034	4.78	4.29	3.82	3.37	2.92	2.51	1.94	1.50	1.21	0.99
NB Fast Lane	AC	353+98	8/5/2016	118.4	86.0	92.4	10,122	6.64	5.9	5.19	4.36	3.46	2.83	2.02	1.49	1.19	0.98
NB Fast Lane	AC	355+96	8/5/2016	117.4	86.3	92.8	10,166	9.07	8.03	7.79	6.93	5.62	4.57	3.06	2.12	1.57	1.28
NB Fast Lane	AC	358+10	8/5/2016	117.6	86.7	93	10,188	9.81	8.67	8.89	7.89	6.20	5.33	4.15	3.20	2.58	2.03
NB Fast Lane	AC	359+94	8/5/2016	118.7	86.0	91.8	10,056	5.44	4.87	4.47	3.91	3.33	2.91	2.19	1.62	1.23	1.00
NB Fast Lane	AC	361+19	8/5/2016	117.9	84.4	92.1	10,089	6.02	5.37	5.17	4.62	3.93	3.37	2.61	2.00	1.61	1.26
NB Fast Lane	AC	364+00	8/5/2016	119.6	86.0	94.4	10,341	9.99	8.69	7.92	6.95	5.76	4.83	2.83	2.00	1.50	1.24
NB Fast Lane	AC	365+89	8/5/2016	118.8	85.7	92.2	10,100	7.06	6.29	6.13	5.52	4.69	3.96	2.96	2.23	1.79	1.49

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
NB Fast Lane	AC	368+03	8/5/2016	117.1	84.7	91.4	10,012	7.87	7.07	6.98	6.45	5.58	4.81	3.67	2.75	2.11	1.60
NB Fast Lane	AC	370+02	8/5/2016	120.1	84.5	90.1	9,870	5.30	4.83	4.77	4.55	4.32	3.80	3.12	2.47	1.98	1.58
NB Fast Lane	AC	372+00	8/5/2016	120.8	84.9	92.2	10,100	5.88	5.24	5.01	4.62	4.19	3.86	3.21	2.59	2.06	1.57
NB Fast Lane	AC	373+98	8/5/2016	117.9	84.9	91.8	10,056	4.27	3.82	3.23	2.96	2.58	2.47	2.03	1.71	1.41	1.18
NB Fast Lane	AC	375+99	8/5/2016	119.5	84.2	92.5	10,133	5.77	5.12	5.07	4.88	3.57	3.18	2.57	2.00	1.57	1.25
NB Fast Lane	AC	378+04	8/5/2016	118.5	86.1	88.5	9,695	4.98	4.62	4.04	3.63	3.26	2.94	2.38	1.87	1.50	1.17
NB Fast Lane	AC	380+02	8/5/2016	118.3	84.0	91.7	10,045	5.35	4.79	4.45	3.94	3.41	3.00	2.43	1.95	1.59	1.30
NB Fast Lane	AC	381+97	8/5/2016	115.6	84.3	92.1	10,089	5.71	5.09	5.08	4.80	4.38	4.03	3.38	2.74	2.22	1.87
NB Fast Lane	AC	384+06	8/5/2016	115.3	84.3	96.9	10,615	9.47	8.03	8.35	7.59	6.57	5.77	4.64	3.72	2.96	2.43
NB Fast Lane	AC	386+10	8/5/2016	114.5	85.8	93.6	10,253	7.11	6.24	5.88	5.20	4.58	4.09	3.28	2.66	2.11	1.65
NB Fast Lane	AC	388+02	8/5/2016	113.2	84.2	98.7	10,812	7.09	5.9	6.29	5.52	4.90	4.47	3.81	3.13	2.60	2.03
NB Fast Lane	AC	390+05	8/5/2016	114.9	83.7	98.4	10,779	10.81	9.03	9.64	8.21	6.80	5.91	4.87	4.20	3.32	3.03
NB Fast Lane	AC	392+08	8/5/2016	112.7	82.6	96.6	10,582	8.06	6.86	6.76	6.04	4.93	4.20	3.14	2.17	1.66	1.33
NB Fast Lane	AC	393+94	8/5/2016	110.2	84.2	95.4	10,451	7.05	6.07	6.46	6.07	5.60	4.43	3.35	2.48	1.90	1.48
NB Fast Lane	AC	396+20	8/5/2016	111.7	83.8	97.9	10,724	7.68	6.45	6.12	5.40	4.57	3.92	3.25	2.51	1.98	1.59
NB Fast Lane	AC	397+85	8/5/2016	114.8	85.3	96	10,516	6.04	5.17	5.32	4.95	4.41	4.04	3.37	2.69	2.16	1.82
NB Fast Lane	AC	399+08	8/5/2016	115.9	83.8	91.3	10,001	6.11	5.5	5.47	5.01	4.46	3.89	2.84	2.12	1.64	1.35
NB Fast Lane	AC	401+21	8/5/2016	115.8	83.6	91.2	9,990	8.97	8.08	7.19	6.21	4.98	3.84	2.62	1.79	1.43	1.11
NB Fast Lane	AC	402+02	8/5/2016	115.2	84.2	92.9	10,177	8.13	7.19	6.94	6.22	5.22	4.35	3.10	2.13	1.63	1.31
NB Fast Lane	AC	404+06	8/5/2016	110.6	85.6	95.6	10,472	13.71	11.78	10.86	9.36	7.35	5.54	3.36	2.23	1.69	1.37
NB Fast Lane	AC	406+02	8/5/2016	113.0	84.9	92.2	10,100	10.65	9.49	8.16	6.82	5.11	3.80	2.26	1.36	0.99	0.80
NB Fast Lane	AC	408+08	8/5/2016	116.5	85.0	94.1	10,308	7.71	6.73	5.74	4.52	3.14	2.25	1.36	0.94	0.77	0.76
NB Fast Lane	AC	409+84	8/5/2016	113.8	84.6	92.8	10,166	7.51	6.65	5.46	4.40	3.18	2.41	1.66	1.26	1.00	0.84
NB Fast Lane	AC	411+89	8/5/2016	113.2	84.6	93.6	10,253	14.14	12.41	11.71	9.99	7.76	6.07	3.63	2.22	1.54	1.17
NB Fast Lane	AC	413+96	8/5/2016	111.1	84.2	98.9	10,834	10.01	8.32	9.18	7.52	5.52	4.31	2.71	1.84	1.41	1.17
NB Fast Lane	AC	415+76	8/5/2016	109.6	83.4	100.4	10,998	13.80	11.29	10.79	8.91	6.71	5.06	3.20	2.12	1.57	1.27
NB Fast Lane	AC	418+05	8/5/2016	109.7	80.7	98.9	10,834	14.59	12.12	11.03	9.32	7.05	5.35	3.44	2.18	1.65	1.25
NB Fast Lane	AC	419+96	8/5/2016	107.9	80.7	98.5	10,790	16.33	13.62	11.87	9.76	7.38	5.60	3.47	2.17	1.59	1.36
NB Fast Lane	AC	421+19	8/5/2016	105.4	81.9	96.5	10,571	13.35	11.37	10.83	9.44	7.70	6.28	4.29	2.85	2.08	1.59
NB Fast Lane	AC	424+12	8/5/2016	112.9	81.6	91.3	10,001	8.25	7.42	6.50	5.44	4.17	3.34	2.31	1.65	1.28	1.03
NB Fast Lane	AC	425+91	8/5/2016	111.7	82.7	92	10,078	8.52	7.61	7.35	6.30	4.83	3.69	2.49	1.79	1.39	1.03
NB Fast Lane	AC	427+85	8/5/2016	108.8	83.8	92.1	10,089	10.48	9.35	8.65	7.67	6.44	5.35	3.87	2.70	1.93	1.43
NB Fast Lane	AC	429+87	8/5/2016	113.2	84.2	92.4	10,122	7.70	6.85	5.15	4.07	3.16	2.47	1.61	1.13	0.85	0.72
NB Fast Lane	AC	432+05	8/5/2016	111.3	79.9	92.5	10,133	11.32	10.05	8.89	7.85	6.44	5.26	3.69	2.54	1.87	1.48
NB Fast Lane	AC	434+03	8/5/2016	109.8	80.4	92.1	10,089	12.31	10.98	10.52	9.50	6.91	5.53	3.72	2.42	1.73	1.20
NB Fast Lane	AC	436+10	8/5/2016	108.6	83.0	92.4	10,122	8.28	7.36	6.93	6.24	5.41	4.64	3.36	2.26	1.51	1.05
NB Fast Lane	AC	438+07	8/5/2016	111.1	81.8	91.6	10,034	12.02	10.78	8.15	7.10	5.72	4.60	3.13	2.18	1.62	1.22
NB Fast Lane	AC	440+12	8/5/2016	111.0	80.1	91.9	10,067	6.80	6.08	5.94	5.48	4.77	4.11	3.06	2.23	1.68	1.33
NB Fast Lane	AC	441+72	8/5/2016	111.1	81.1	92.6	10,144	9.79	8.69	8.38	7.42	5.35	4.35	3.02	2.07	1.57	1.25
NB Fast Lane	AC	444+10	8/5/2016	112.1	81.4	91.6	10,034	7.85	7.04	6.30	5.58	4.59	3.86	2.74	2.06	1.63	1.28
NB Fast Lane	AC	446+08	8/5/2016	108.6	82.0	91.7	10,045	9.41	8.43	7.63	6.70	5.50	4.45	3.18	2.17	1.61	1.28
NB Fast Lane	AC	448+02	8/5/2016	110.8	81.7	92.2	10,100	7.63	6.8	6.36	5.70	4.79	4.02	2.89	2.02	1.50	1.14
NB Fast Lane	AC	450+01	8/5/2016	107.2	82.2	91.9	10,067	6.64	5.94	5.41	4.67	3.72	2.97	2.00	1.35	1.05	0.86
NB Fast Lane	AC	450+96	8/5/2016	109.8	82.0	92.4	10,122	7.82	6.95	6.52	5.75	4.85	4.11	2.99	2.19	1.63	1.33
NB Fast Lane	AC	453+34	8/5/2016	109.5	81.5	92	10,078	8.86	7.91	7.62	6.88	5.79	4.85	3.47	2.44	1.79	1.35
NB Fast Lane	AC	456+03	8/5/2016	111.6	79.9	92	10,078	7.67	6.85	5.78	4.85	3.83	3.03	2.01	1.32	0.99	0.74

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
NB Fast Lane	AC	457+97	8/5/2016	108.9	79.7	92.7	10,155	9.35	8.29	8.23	7.57	6.53	5.58	3.76	2.72	2.07	1.63
NB Fast Lane	AC	459+98	8/5/2016	109.2	79.4	92.7	10,155	5.64	5	4.55	4.04	3.43	2.91	2.10	1.46	1.11	0.87
NB Fast Lane	AC	462+00	8/5/2016	109.8	81.6	92.5	10,133	5.19	4.61	3.92	3.33	2.67	2.18	1.53	1.17	0.91	0.71
NB Fast Lane	AC	463+99	8/5/2016	107.1	80.0	92.8	10,166	10.91	9.66	8.56	7.31	5.79	4.52	2.90	1.90	1.40	1.08
NB Fast Lane	AC	465+95	8/5/2016	107.8	79.1	91.9	10,067	6.01	5.37	5.24	4.76	4.10	3.51	2.63	1.97	1.50	1.15
NB Fast Lane	AC	467+98	8/5/2016	108.9	79.1	92.9	10,177	11.98	10.59	10.15	8.90	7.11	5.56	3.69	2.52	1.83	1.41
NB Fast Lane	AC	470+02	8/5/2016	107.6	77.5	92.6	10,144	7.99	7.09	6.58	5.76	4.87	3.97	2.81	2.00	1.46	1.07
NB Fast Lane	AC	472+03	8/5/2016	107.9	78.2	92.2	10,100	4.16	3.71	3.51	3.20	2.11	1.60	1.22	0.92	0.76	0.63
NB Fast Lane	AC	473+38	8/5/2016	109.2	80.4	93.3	10,220	11.14	9.81	9.42	7.83	6.09	4.66	2.87	1.86	1.38	1.07
NB Fast Lane	AC	475+12	8/5/2016	108.4	78.5	91.6	10,034	17.09	15.33	11.73	9.67	7.45	5.76	3.84	2.70	2.06	1.57
NB Fast Lane	AC	476+23	8/5/2016	109.6	77.6	92.2	10,100	18.18	16.2	14.37	12.08	9.33	7.12	4.39	2.66	1.83	1.33
NB Fast Lane	AC	478+22	8/5/2016	107.2	78.4	93.1	10,199	10.93	9.65	9.42	8.19	6.66	5.33	3.22	2.28	1.65	1.30
NB Fast Lane	AC	480+54	8/5/2016	107.0	77.2	92.5	10,133	13.98	12.42	11.59	10.04	8.04	6.33	4.20	2.71	2.00	1.56
NB Fast Lane	AC	482+09	8/5/2016	105.8	77.4	92.1	10,089	8.99	8.02	7.06	5.91	4.67	3.68	2.52	1.80	1.42	1.23
NB Fast Lane	AC	484+16	8/5/2016	107.8	78.1	92.7	10,155	14.54	12.89	11.83	10.22	8.25	6.59	4.42	3.02	2.24	1.76
NB Fast Lane	AC	486+06	8/5/2016	108.0	77.2	93	10,188	9.71	8.58	7.64	6.34	4.98	3.92	2.63	1.83	1.40	1.13
NB Fast Lane	AC	488+13	8/5/2016	105.4	79.0	92.5	10,133	10.40	9.24	8.65	7.58	6.40	5.35	3.78	2.33	1.81	1.39
NB Fast Lane	AC	490+94	8/5/2016	106.4	78.0	93.3	10,220	13.08	11.52	11.32	9.43	7.11	5.35	3.26	2.00	1.40	1.07
NB Fast Lane	AC	492+06	8/5/2016	104.3	76.7	93.1	10,199	6.30	5.56	4.59	3.88	2.86	2.08	1.39	0.91	0.72	0.60
NB Fast Lane	AC	494+00	8/5/2016	106.4	78.1	93.1	10,199	11.18	9.87	8.57	7.19	5.61	4.41	2.61	1.84	1.37	1.03
NB Fast Lane	AC	496+03	8/5/2016	103.2	76.2	93.2	10,210	15.56	13.72	12.74	11.02	8.90	7.06	4.57	3.00	2.11	1.58
NB Fast Lane	AC	498+22	8/5/2016	106.3	77.2	92.7	10,155	11.83	10.48	9.64	8.28	6.68	5.41	3.75	2.49	1.93	1.54
NB Fast Lane	AC	500+18	8/5/2016	105.0	76.7	94.3	10,330	9.17	7.99	7.61	6.70	5.54	4.50	3.06	2.11	1.57	1.22
NB Fast Lane	AC	502+07	8/5/2016	101.1	75.8	93.6	10,253	9.21	8.08	7.20	6.33	5.54	4.94	3.89	3.00	2.31	1.76
NB Fast Lane	AC	504+03	8/5/2016	101.5	76.6	93.7	10,264	11.31	9.92	9.78	8.88	7.88	7.09	5.72	4.43	3.33	2.41
NB Fast Lane	AC	506+03	8/5/2016	104.6	76.4	94.2	10,319	11.62	10.13	9.31	8.47	7.82	7.35	3.92	2.97	2.27	1.66
NB Fast Lane	AC	508+03	8/5/2016	100.9	79.1	99.1	10,856	7.76	6.43	5.86	5.04	4.26	3.78	2.90	2.20	1.70	1.32
NB Fast Lane	AC	510+08	8/5/2016	101.0	78.9	99.1	10,856	8.36	6.93	6.33	5.17	4.31	3.79	2.89	2.01	1.61	1.21
NB Fast Lane	AC	511+97	8/5/2016	111.1	79.1	100.6	11,020	8.64	7.06	7.20	6.34	5.28	4.48	3.24	2.34	1.73	1.34
NB Fast Lane	AC	513+98	8/5/2016	99.6	77.7	98.6	10,801	13.27	11.06	10.88	9.88	8.82	7.99	6.01	4.33	3.13	2.33
NB Fast Lane	AC	516+22	8/5/2016	102.9	75.9	99.3	10,878	14.02	11.6	12.12	10.53	8.99	8.13	6.44	4.08	2.72	1.87
NB Fast Lane	AC	518+05	8/5/2016	104.8	76.0	100	10,954	10.15	8.34	8.20	7.45	6.70	5.97	4.72	3.59	2.69	1.94
NB Fast Lane	AC	520+08	8/5/2016	101.6	75.4	99.9	10,943	9.41	7.74	7.61	6.83	6.26	5.47	4.15	2.94	2.13	1.53
NB Fast Lane	AC	522+00	8/5/2016	97.7	78.0	92.4	10,122	7.92	7.04	5.93	4.98	4.19	3.59	2.77	2.11	1.69	1.28
NB Fast Lane	AC	524+04	8/5/2016	103.4	78.4	95.1	10,418	7.80	6.74	6.38	5.54	4.76	4.11	3.05	2.24	1.67	1.29
NB Fast Lane	AC	526+02	8/5/2016	101.6	76.7	95.3	10,440	11.31	9.75	9.07	8.06	6.84	5.82	4.13	2.96	2.22	1.70
NB Fast Lane	AC	528+00	8/5/2016	104.1	77.8	97.9	10,724	9.32	7.82	6.92	5.82	4.82	4.13	3.11	2.29	1.66	1.21
NB Fast Lane	AC	530+08	8/5/2016	102.8	76.3	93.4	10,231	10.35	9.1	8.34	7.02	5.78	4.85	3.57	2.58	1.91	1.47
NB Fast Lane	AC	531+87	8/5/2016	101.2	77.5	98.5	10,790	10.23	8.53	8.67	7.70	6.87	5.83	4.68	3.56	2.70	2.09
NB Fast Lane	AC	534+00	8/5/2016	105.0	76.8	97.7	10,702	13.16	11.07	9.43	9.04	7.96	6.93	5.38	4.06	3.11	2.35
NB Fast Lane	AC	536+14	8/5/2016	103.2	76.2	95.6	10,472	6.81	5.85	5.60	4.89	4.26	3.78	3.09	2.35	1.85	1.49
NB Fast Lane	AC	538+06	8/5/2016	100.6	77.9	96.7	10,593	6.46	5.49	5.36	4.89	4.34	3.94	3.11	2.52	1.90	1.51
NB Fast Lane	AC	540+04	8/5/2016	101.0	77.5	95.2	10,429	6.37	5.5	5.02	4.51	4.19	3.84	3.22	2.55	2.06	1.62
NB Fast Lane	AC	542+03	8/5/2016	100.1	76.6	95	10,407	8.23	7.12	6.45	5.64	4.91	4.32	3.43	2.72	2.15	1.67
NB Fast Lane	AC	544+02	8/5/2016	99.4	77.6	97.8	10,713	7.07	5.94	5.72	5.04	4.43	3.98	3.26	2.58	2.04	1.62
NB Fast Lane	AC	545+91	8/5/2016	99.6	77.3	97.6	10,692	5.01	4.22	3.85	3.46	3.08	2.74	2.22	1.80	1.43	1.20

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
NB Fast Lane	AC	548+04	8/5/2016	100.7	77.1	98.3	10,768	6.88	5.75	5.57	5.01	4.44	3.93	2.99	2.22	1.66	1.23
NB Fast Lane	AC	550+11	8/5/2016	101.9	78.8	96.2	10,538	4.88	4.17	3.63	3.26	2.86	2.51	1.92	1.43	1.14	0.90
NB Fast Lane	AC	552+01	8/5/2016	103.7	79.6	96.9	10,615	6.70	5.68	5.36	4.56	4.01	3.52	2.72	1.98	1.52	1.22
NB Fast Lane	AC	554+03	8/5/2016	100.8	78.1	97.9	10,724	6.03	5.06	3.59	2.67	2.28	2.01	1.52	1.16	0.95	0.72
NB Fast Lane	AC	555+95	8/5/2016	99.5	78.3	97	10,626	5.41	4.58	3.94	3.52	3.12	2.75	2.11	1.57	1.21	0.94
NB Fast Lane	AC	557+98	8/5/2016	102.9	78.6	94.8	10,385	5.40	4.68	4.21	3.66	3.22	2.82	2.19	1.62	1.27	0.96
NB Fast Lane	AC	560+00	8/5/2016	100.7	75.7	95.3	10,440	5.92	5.1	4.48	3.74	3.11	2.64	2.01	1.51	1.14	0.91
NB Fast Lane	AC	561+97	8/5/2016	97.6	75.0	95.7	10,483	4.92	4.22	3.90	3.47	3.00	2.65	2.08	1.65	1.35	1.07
NB Fast Lane	AC	563+98	8/5/2016	96.4	74.5	96.9	10,615	5.85	4.96	4.59	3.92	3.31	2.90	2.24	1.69	1.41	1.11
NB Fast Lane	AC	566+05	8/5/2016	95.3	74.5	94.4	10,341	3.77	3.28	2.76	2.33	1.96	1.72	1.41	1.10	0.93	0.83
NB Fast Lane	AC	568+04	8/5/2016	101.4	75.3	93.9	10,286	6.11	5.35	5.20	4.69	4.05	3.56	2.79	2.20	1.74	1.37
NB Fast Lane	AC	569+55	8/5/2016	100.8	76.6	93.5	10,242	5.13	4.51	4.40	3.81	3.12	2.61	2.00	1.61	1.36	1.17
NB Fast Lane	AC	572+04	8/5/2016	100.4	73.9	95.5	10,461	6.05	5.21	5.09	4.53	3.82	3.27	2.56	2.02	1.63	1.32
NB Fast Lane	AC	573+95	8/5/2016	99.2	73.9	97.1	10,637	10.08	8.53	8.54	7.73	6.88	6.17	5.00	3.69	2.56	1.94
NB Fast Lane	AC	575+96	8/5/2016	96.3	73.6	95.6	10,472	7.38	6.34	5.63	5.07	4.43	3.81	2.94	2.16	1.58	1.22
NB Fast Lane	AC	578+05	8/5/2016	97.3	76.6	95.2	10,429	5.68	4.9	4.84	4.30	3.82	3.42	2.74	2.10	1.55	1.17
NB Fast Lane	AC	580+98	8/5/2016	95.4	75.4	96.2	10,538	4.12	3.52	3.31	2.94	2.61	2.36	1.89	1.49	1.19	0.92
NB Fast Lane	AC	583+02	8/5/2016	96.6	74.4	98	10,735	9.12	7.65	7.20	6.26	5.38	4.59	3.43	2.46	1.79	1.39
NB Fast Lane	AC	585+90	8/5/2016	94.9	75.2	97.8	10,713	5.71	4.8	4.69	4.13	3.54	3.06	2.30	1.70	1.31	1.07
NB Fast Lane	AC	587+70	8/5/2016	99.9	77.4	98.4	10,779	6.32	5.28	5.10	4.36	3.68	3.14	2.41	1.84	1.39	1.03
NB Fast Lane	AC	589+98	8/5/2016	96.6	76.1	98.1	10,746	9.54	7.99	7.89	6.85	5.67	4.63	3.63	2.80	2.17	1.75
NB Fast Lane	AC	592+01	8/5/2016	93.9	76.4	98.2	10,757	8.05	6.74	6.87	6.28	5.52	4.85	3.81	2.88	2.13	1.61
NB Fast Lane	AC	594+01	8/5/2016	98.0	75.5	97	10,626	6.63	5.62	5.66	5.19	4.50	4.02	3.10	2.26	1.65	1.19
NB Fast Lane	AC	596+03	8/5/2016	96.4	74.6	96.4	10,560	7.00	5.97	5.66	4.95	4.30	3.85	3.13	2.46	1.93	1.49
NB Fast Lane	AC	598+04	8/5/2016	98.3	75.9	97.1	10,637	5.46	4.62	4.41	3.98	3.67	3.35	2.72	2.17	1.76	1.37
NB Fast Lane	AC	600+04	8/5/2016	97.4	75.6	96.9	10,615	6.88	5.83	6.06	5.56	5.02	4.60	3.74	2.93	2.24	1.69
NB Fast Lane	AC	602+05	8/5/2016	95.3	74.0	97.2	10,648	7.45	6.3	6.28	5.59	4.89	4.28	3.45	2.63	2.08	1.56
NB Fast Lane	AC	603+91	8/5/2016	94.6	75.5	97.5	10,681	6.89	5.81	5.42	4.78	4.19	3.71	2.87	2.15	1.65	1.24
NB Fast Lane	AC	606+02	8/5/2016	94.0	75.3	98.4	10,779	6.60	5.51	5.22	4.49	3.84	3.36	2.63	2.03	1.61	1.24
NB Fast Lane	AC	607+97	8/5/2016	95.1	74.9	96.6	10,582	7.19	6.12	6.14	5.64	5.09	4.54	3.54	2.58	1.95	1.42
NB Fast Lane	AC	610+10	8/5/2016	95.1	73.3	97.3	10,659	6.02	5.08	5.06	4.49	4.05	3.63	2.93	2.19	1.78	1.36
NB Fast Lane	AC	612+00	8/5/2016	96.5	75.5	97	10,626	6.91	5.85	5.95	5.49	4.93	4.36	3.46	2.65	2.04	1.50
NB Fast Lane	AC	614+02	8/5/2016	93.8	75.4	97.1	10,637	5.17	4.37	4.23	3.76	3.30	2.96	2.35	1.78	1.38	1.09
NB Fast Lane	AC	616+05	8/5/2016	97.0	75.0	96.4	10,560	5.32	4.53	4.38	3.87	3.45	3.02	2.40	1.75	1.39	1.17
NB Fast Lane	AC	617+99	8/5/2016	95.0	75.4	96.1	10,527	5.27	4.51	4.54	4.16	3.74	3.37	2.67	2.01	1.54	1.14
NB Fast Lane	AC	620+09	8/5/2016	96.8	76.2	96.3	10,549	5.22	4.45	4.23	3.79	3.40	2.95	2.29	1.69	1.30	0.99
NB Fast Lane	AC	622+07	8/5/2016	97.3	74.6	98	10,735	5.43	4.55	4.35	3.89	3.49	3.13	2.54	2.03	1.61	1.26
NB Fast Lane	AC	624+05	8/5/2016	96.2	75.9	97.5	10,681	6.09	5.13	4.89	4.38	3.78	3.36	2.54	1.81	1.42	1.11
NB Fast Lane	AC	626+03	8/5/2016	95.6	75.2	97.1	10,637	4.44	3.76	3.81	3.49	3.08	2.74	2.25	1.78	1.43	1.12
NB Fast Lane	AC	627+99	8/5/2016	93.6	74.0	96.6	10,582	5.78	4.92	4.52	3.93	3.28	2.81	2.17	1.67	1.31	0.97
NB Fast Lane	AC	630+04	8/5/2016	94.2	73.8	97.5	10,681	7.71	6.5	6.75	6.22	5.80	5.27	4.36	3.41	2.66	2.00
NB Fast Lane	AC	631+97	8/5/2016	94.4	73.9	94.6	10,363	8.40	7.3	7.42	6.93	6.29	5.56	4.07	3.13	2.43	1.91
NB Fast Lane	AC	634+05	8/5/2016	92.6	71.8	97.9	10,724	8.52	7.15	7.77	7.28	6.62	5.91	4.59	3.49	2.65	1.99
NB Fast Lane	AC	636+03	8/5/2016	91.8	73.1	98.4	10,779	8.03	6.7	7.29	6.91	6.40	5.85	4.89	3.67	2.90	2.28
NB Fast Lane	AC	638+12	8/5/2016	93.4	74.5	98.4	10,779	7.45	6.22	6.67	6.18	5.58	5.04	4.22	3.46	2.78	2.20
NB Fast Lane	AC	640+05	8/5/2016	93.2	73.8	95.8	10,494	5.86	5.03	5.22	4.89	4.47	4.09	3.36	2.68	2.08	1.63

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
NB Fast Lane	AC	642+03	8/5/2016	90.8	72.7	101.8	11,152	10.80	8.72	9.70	9.14	8.41	7.66	6.24	4.53	3.38	2.66
NB Fast Lane	AC	644+03	8/5/2016	91.5	74.4	102	11,174	9.04	7.28	7.41	6.69	5.79	4.91	3.70	2.70	2.01	1.52
NB Fast Lane	AC	646+03	8/5/2016	94.5	73.5	102.5	11,228	5.17	4.14	4.54	4.30	4.05	3.52	2.70	2.00	1.46	1.04
NB Fast Lane	AC	648+00	8/5/2016	89.9	71.5	104.4	11,436	7.64	6.01	6.61	6.21	5.74	5.21	4.24	3.37	2.71	2.21
NB Fast Lane	AC	650+20	8/5/2016	93.5	73.8	103	11,283	11.65	9.29	10.16	9.11	7.77	6.88	5.49	4.25	3.22	2.37
NB Fast Lane	AC	652+02	8/5/2016	93.4	72.8	99.5	10,900	9.11	7.52	7.83	7.28	6.54	5.76	4.30	3.02	2.15	1.49
NB Fast Lane	AC	654+01	8/5/2016	91.8	71.9	104.1	11,404	8.11	6.4	5.84	5.00	4.33	3.82	2.96	2.21	1.70	1.28
NB Fast Lane	AC	656+03	8/5/2016	78.6	70.7	101.7	11,141	5.59	4.52	4.86	4.55	4.04	3.65	2.68	1.97	1.47	1.10
NB Fast Lane	AC	658+03	8/5/2016	89.5	72.3	103.6	11,349	7.16	5.68	5.77	5.19	4.61	4.11	3.21	2.41	1.89	1.44
NB Fast Lane	AC	659+96	8/5/2016	90.3	71.6	99.8	10,933	6.63	5.46	5.83	4.70	4.14	3.52	2.64	2.05	1.67	1.27
NB Fast Lane	AC	660+81	8/5/2016	89.7	71.6	101.3	11,097	5.46	4.43	4.57	4.22	3.98	3.54	2.75	2.08	1.65	1.32
NB Fast Lane	AC	662+03	8/5/2016	90.7	71.0	101.4	11,108	9.13	7.4	8.83	8.60	8.35	7.96	6.93	5.42	4.23	3.64
NB Fast Lane	AC	663+76	8/5/2016	88.8	72.1	102.5	11,228	7.95	6.37	7.45	6.67	6.03	5.30	3.95	2.76	2.00	1.56
NB Fast Lane	AC	665+96	8/5/2016	88.3	71.8	102	11,174	5.43	4.37	4.76	4.39	3.96	3.37	2.61	1.90	1.44	1.11
NB Fast Lane	AC	668+09	8/5/2016	89.3	71.2	101	11,064	7.54	6.13	7.09	6.53	5.88	5.30	4.27	3.17	2.39	1.88
NB Fast Lane	AC	669+97	8/5/2016	77.8	71.4	100.8	11,042	8.11	6.61	6.62	5.93	5.29	4.77	3.76	2.81	2.08	1.55
NB Fast Lane	AC	671+99	8/5/2016	80.2	71.3	100.7	11,031	8.91	7.27	7.86	7.19	6.39	5.73	4.40	3.18	2.22	1.68
NB Fast Lane	AC	674+06	8/5/2016	82.4	69.6	100	10,954	10.72	8.81	9.89	9.54	9.09	8.16	6.73	5.17	3.81	2.55
NB Fast Lane	AC	676+03	8/5/2016	87.6	69.7	102.1	11,184	10.69	8.6	10.10	7.61	6.80	5.93	4.72	3.06	2.45	1.89
NB Fast Lane	AC	677+99	8/5/2016	88.3	69.3	99.7	10,922	9.61	7.92	9.21	8.02	7.18	6.33	4.94	3.71	2.72	1.98
NB Fast Lane	AC	680+10	8/5/2016	86.2	69.3	102	11,174	11.52	9.28	10.23	9.61	8.70	7.76	6.04	4.35	3.16	2.41
NB Fast Lane	AC	682+07	8/5/2016	85.4	70.2	100.1	10,965	11.34	9.31	10.09	9.43	8.55	7.52	5.80	4.30	3.14	2.41
NB Fast Lane	AC	684+10	8/5/2016	87.2	70.0	99	10,845	9.29	7.71	8.88	8.42	7.97	7.40	5.62	4.07	2.91	2.10
NB Fast Lane	AC	686+02	8/5/2016	85.6	69.5	98.3	10,768	10.13	8.47	7.47	5.91	4.31	3.27	2.41	1.91	1.54	1.15
NB Fast Lane	AC	688+10	8/5/2016	85.4	69.1	100.8	11,042	9.24	7.53	7.68	6.74	5.59	4.57	3.14	1.90	1.59	1.30
NB Fast Lane	AC	690+29	8/5/2016	81.7	67.3	101	11,064	21.43	17.43	15.16	11.62	6.42	5.07	3.33	2.11	1.64	1.27
NB Fast Lane	AC	690+29	8/5/2016	82.9	67.6	102	11,174	20.59	16.58	14.55	11.16	6.40	5.14	3.57	2.21	1.67	1.16
NB Slow Lane	AC	1+05	8/4/2016	132.1	101.4	89.4	9,793	8.81	8.1	6.08	5.37	4.59	3.97	3.02	2.23	1.75	1.38
NB Slow Lane	AC	3+03	8/4/2016	132.1	101.5	89.1	9,760	8.97	8.27	6.36	5.22	4.35	3.72	2.86	2.22	1.73	1.42
NB Slow Lane	AC	5+13	8/4/2016	130.3	101.2	92	10,078	6.98	6.23	4.35	3.76	3.11	2.63	1.97	1.49	1.18	1.00
NB Slow Lane	AC	7+41	8/4/2016	131.0	103.9	91.6	10,034	11.12	9.97	6.29	5.09	4.37	3.78	2.81	2.11	1.66	1.29
NB Slow Lane	AC	9+67	8/4/2016	131.0	101.8	90	9,859	9.09	8.3	6.35	5.32	4.19	3.45	2.52	1.88	1.48	1.19
NB Slow Lane	AC	11+96	8/4/2016	132.1	102.1	90.4	9,903	7.85	7.13	5.85	5.31	4.46	3.60	2.67	2.02	1.59	1.26
NB Slow Lane	AC	14+39	8/4/2016	131.8	102.6	92.4	10,122	6.71	5.97	5.19	4.43	3.38	2.82	2.08	1.56	1.24	1.02
NB Slow Lane	AC	17+03	8/4/2016	131.2	102.5	90.3	9,892	4.46	4.06	2.86	2.53	2.22	1.96	1.59	1.25	1.04	0.87
NB Slow Lane	AC	18+97	8/4/2016	132.3	101.5	91.9	10,067	4.72	4.22	3.03	2.66	2.38	2.08	1.61	1.20	1.02	0.86
NB Slow Lane	AC	21+03	8/4/2016	131.6	102.0	91.1	9,979	4.79	4.32	3.46	3.11	2.70	2.35	1.74	1.30	0.98	0.77
NB Slow Lane	AC	22+99	8/4/2016	132.4	101.2	88.4	9,684	6.53	6.07	3.71	3.05	2.67	2.31	1.74	1.35	1.05	0.88
NB Slow Lane	AC	25+03	8/4/2016	133.4	102.6	91	9,969	5.22	4.71	3.78	3.50	3.15	2.83	2.29	1.75	1.41	1.06
NB Slow Lane	AC	26+74	8/4/2016	133.1	103.0	87.7	9,607	8.17	7.65	5.79	5.20	4.46	3.77	2.83	2.09	1.63	1.35
NB Slow Lane	AC	28+86	8/4/2016	133.9	103.6	90.3	9,892	8.15	7.42	6.46	5.71	4.39	3.80	3.00	2.26	1.77	1.40
NB Slow Lane	AC	31+00	8/4/2016	134.0	102.8	89.8	9,837	7.26	6.64	4.96	4.24	3.54	2.99	2.24	1.61	1.26	1.04
NB Slow Lane	AC	32+94	8/4/2016	132.0	101.4	92.6	10,144	7.32	6.49	5.27	4.46	3.65	3.08	2.35	1.77	1.41	1.14
NB Slow Lane	AC	35+04	8/4/2016	130.3	101.6	91.4	10,012	5.79	5.2	4.18	3.87	3.48	3.17	2.50	1.93	1.59	1.30
NB Slow Lane	AC	36+92	8/4/2016	131.8	101.9	90.8	9,947	8.23	7.45	6.20	5.68	4.92	4.29	3.16	2.48	1.92	1.53
NB Slow Lane	AC	39+00	8/4/2016	132.1	102.6	91.4	10,012	5.44	4.89	3.84	3.47	3.12	2.84	2.31	1.80	1.48	1.19

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
NB Slow Lane	AC	40+99	8/4/2016	132.4	103.2	89.3	9,782	5.86	5.39	4.50	4.14	3.69	3.28	2.64	1.86	1.49	1.20
NB Slow Lane	AC	42+97	8/4/2016	133.8	104.5	90.6	9,925	5.66	5.13	3.80	3.47	3.09	2.74	2.17	1.65	1.25	1.02
NB Slow Lane	AC	44+95	8/4/2016	133.3	102.9	90.6	9,925	7.41	6.72	4.56	3.74	3.11	2.63	1.92	1.42	1.11	0.93
NB Slow Lane	AC	47+05	8/4/2016	134.1	104.5	89.7	9,826	6.76	6.19	4.48	3.72	2.99	2.49	1.85	1.37	1.10	0.89
NB Slow Lane	AC	49+03	8/4/2016	133.7	103.4	91.4	10,012	5.44	4.89	4.05	3.66	3.18	2.77	2.12	1.54	1.15	0.87
NB Slow Lane	AC	50+95	8/4/2016	132.2	103.4	91.8	10,056	7.06	6.32	4.85	4.02	3.24	2.71	1.98	1.50	1.20	0.96
NB Slow Lane	AC	53+04	8/4/2016	132.6	103.2	89.6	9,815	7.72	7.08	5.03	4.18	3.33	2.74	2.00	1.44	1.12	0.92
NB Slow Lane	AC	55+00	8/4/2016	132.3	102.7	93.5	10,242	5.28	4.64	3.67	3.26	2.87	2.54	2.00	1.57	1.27	1.03
NB Slow Lane	AC	57+03	8/4/2016	136.9	101.1	91.7	10,045	5.68	5.09	3.86	3.41	2.91	2.50	1.90	1.38	1.10	0.90
NB Slow Lane	AC	58+98	8/4/2016	137.4	102.5	89.3	9,782	5.25	4.83	3.14	2.78	2.44	2.20	1.78	1.41	1.13	0.93
NB Slow Lane	AC	61+05	8/4/2016	135.6	102.6	89	9,749	9.44	8.71	5.06	4.37	3.75	3.20	2.47	1.85	1.45	1.22
NB Slow Lane	AC	62+99	8/4/2016	135.5	102.4	91.1	9,979	6.16	5.56	4.40	3.82	3.15	2.63	1.97	1.48	1.18	0.93
NB Slow Lane	AC	64+73	8/4/2016	134.9	101.9	90.5	9,914	6.43	5.84	4.08	3.60	3.10	2.67	2.00	1.52	1.20	1.00
NB Slow Lane	AC	66+99	8/4/2016	136.9	101.7	87.9	9,629	6.28	5.87	4.21	3.89	3.46	3.10	2.46	1.84	1.44	1.15
NB Slow Lane	AC	69+08	8/4/2016	135.9	102.1	91.2	9,990	9.13	8.23	6.83	6.13	5.23	4.51	3.43	2.55	1.96	1.50
NB Slow Lane	AC	71+04	8/4/2016	134.3	101.8	91.1	9,979	7.30	6.58	5.87	5.28	4.63	4.10	3.25	2.46	1.93	1.52
NB Slow Lane	AC	72+90	8/4/2016	137.1	102.6	91.5	10,023	5.56	4.99	4.27	3.92	3.52	3.20	2.62	2.09	1.71	1.41
NB Slow Lane	AC	75+09	8/4/2016	134.2	101.6	91.6	10,034	6.71	6.02	4.83	4.24	3.61	3.17	2.41	1.88	1.47	1.20
NB Slow Lane	AC	76+91	8/4/2016	140.5	101.2	88.8	9,728	7.11	6.58	4.01	3.33	3.02	2.68	2.15	1.64	1.32	1.07
NB Slow Lane	AC	79+18	8/4/2016	140.3	101.5	88.1	9,651	4.82	4.49	3.32	2.88	2.49	2.21	1.77	1.37	1.11	0.82
NB Slow Lane	AC	81+05	8/4/2016	134.5	101.2	89.7	9,826	8.57	7.85	6.62	5.43	3.93	2.92	1.80	1.28	1.04	0.87
NB Slow Lane	AC	82+82	8/4/2016	128.4	101.9	93.8	10,275	12.98	11.37	8.28	5.80	4.11	2.91	1.85	1.37	1.18	1.00
NB Slow Lane	AC	84+98	8/4/2016	137.4	101.8	91.5	10,023	8.72	7.83	6.11	5.37	4.66	3.89	2.91	1.94	1.54	1.20
NB Slow Lane	AC	86+86	8/4/2016	135.5	102.8	94.7	10,374	10.36	8.99	6.63	5.45	4.68	4.04	2.97	2.05	1.60	1.26
NB Slow Lane	AC	89+03	8/4/2016	134.0	102.7	92	10,078	8.21	7.33	5.70	5.00	4.28	3.71	2.69	1.99	1.52	1.20
NB Slow Lane	AC	91+05	8/4/2016	138.6	101.1	92.5	10,133	8.30	7.37	5.26	3.85	3.15	2.69	2.11	1.56	1.30	1.17
NB Slow Lane	AC	93+02	8/4/2016	135.6	102.6	94.8	10,385	9.80	8.49	6.98	5.95	4.90	4.13	3.08	2.26	1.75	1.36
NB Slow Lane	AC	95+05	8/4/2016	135.2	102.8	94.1	10,308	6.54	5.71	4.15	3.65	3.32	3.01	2.39	1.86	1.49	1.15
NB Slow Lane	AC	97+04	8/4/2016	136.8	102.7	91.8	10,056	7.48	6.69	5.82	5.41	4.85	4.36	3.39	2.45	1.94	1.55
NB Slow Lane	AC	99+03	8/4/2016	135.0	103.3	92.6	10,144	6.18	5.48	4.13	3.69	3.24	2.85	2.27	1.76	1.40	1.15
NB Slow Lane	AC	101+03	8/4/2016	136.8	102.8	92.8	10,166	7.03	6.22	5.35	4.71	3.88	3.17	2.28	1.74	1.40	1.11
NB Slow Lane	AC	102+87	8/4/2016	116.3	102.8	94.5	10,352	6.41	5.57	4.32	3.92	3.42	3.00	2.32	1.78	1.39	1.15
NB Slow Lane	AC	104+35	8/4/2016	134.8	103.1	92.2	10,100	5.48	4.88	3.99	3.65	3.29	2.97	2.44	1.96	1.62	1.35
NB Slow Lane	AC	107+02	8/4/2016	134.8	103.1	90.4	9,903	8.82	8.02	6.56	5.40	4.37	3.71	2.81	2.08	1.60	1.25
NB Slow Lane	AC	109+02	8/4/2016	131.9	101.4	93.3	10,220	9.96	8.77	7.72	6.59	5.13	4.05	2.81	2.05	1.59	1.28
NB Slow Lane	AC	111+02	8/4/2016	136.5	101.2	91.6	10,034	5.36	4.81	3.98	3.64	3.24	2.90	2.33	1.84	1.46	1.18
NB Slow Lane	AC	112+84	8/4/2016	137.3	101.5	92.7	10,155	6.59	5.84	5.02	4.35	3.54	2.89	2.07	1.44	1.23	1.00
NB Slow Lane	AC	115+01	8/4/2016	137.9	102.0	92.6	10,144	8.03	7.12	6.17	5.22	3.91	3.02	2.15	1.54	1.22	0.99
NB Slow Lane	AC	116+98	8/4/2016	137.7	101.4	93.3	10,220	7.06	6.22	5.41	4.65	3.72	3.01	2.20	1.69	1.37	1.11
NB Slow Lane	AC	119+01	8/4/2016	138.1	101.3	91.4	10,012	5.94	5.34	4.47	3.96	3.27	2.78	2.10	1.57	1.23	1.01
NB Slow Lane	AC	121+05	8/4/2016	137.6	101.0	89.5	9,804	6.20	5.69	4.81	4.22	3.46	2.79	2.05	1.52	1.17	0.94
NB Slow Lane	AC	123+03	8/4/2016	137.8	98.6	89.9	9,848	8.38	7.66	6.18	5.39	4.36	3.62	2.58	1.84	1.44	1.18
NB Slow Lane	AC	125+07	8/4/2016	139.7	101.1	87.1	9,541	7.51	7.08	4.81	4.72	4.13	3.59	2.80	2.11	1.68	1.33
NB Slow Lane	AC	126+96	8/4/2016	141.5	100.0	87.5	9,585	6.98	6.55	5.84	5.59	4.54	3.42	2.57	1.96	1.57	1.28
NB Slow Lane	AC	129+03	8/4/2016	140.5	100.0	89.6	9,815	8.94	8.2	6.91	5.78	4.56	3.72	2.66	1.89	1.43	1.19
NB Slow Lane	AC	131+04	8/4/2016	136.1	100.2	89.6	9,815	10.79	9.89	9.39	7.05	5.42	4.04	2.77	1.88	1.38	1.10

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
NB Slow Lane	AC	133+04	8/4/2016	135.4	100.7	82.9	9,081	6.78	6.72	4.56	3.94	3.34	2.82	2.11	1.57	1.22	0.94
NB Slow Lane	AC	135+04	8/4/2016	136.8	101.6	90.5	9,914	10.49	9.52	8.71	7.52	6.27	5.25	3.67	2.43	1.60	1.06
NB Slow Lane	AC	137+02	8/4/2016	137.5	99.8	88	9,640	6.17	5.76	3.76	3.06	2.52	2.16	1.58	1.17	0.88	0.71
NB Slow Lane	AC	138+97	8/4/2016	140.7	99.6	88.4	9,684	9.68	9	6.67	5.43	4.46	3.72	2.65	1.91	1.41	1.09
NB Slow Lane	AC	140+11	8/4/2016	139.3	98.9	86.4	9,465	7.69	7.31	6.01	5.39	4.60	3.92	2.91	2.12	1.61	1.31
NB Slow Lane	AC	142+24	8/4/2016	141.6	99.3	86.8	9,508	6.20	5.87	4.51	3.97	3.40	2.92	2.19	1.61	1.23	0.98
NB Slow Lane	AC	143+04	8/4/2016	141.0	99.6	86.4	9,465	6.83	6.49	4.74	3.95	3.15	2.62	1.97	1.48	1.19	0.96
NB Slow Lane	AC	145+00	8/4/2016	139.5	99.6	87.9	9,629	7.41	6.93	5.51	4.59	3.72	3.14	2.30	1.68	1.29	0.98
NB Slow Lane	AC	146+98	8/4/2016	135.9	100.7	90.9	9,958	12.13	10.96	10.78	9.86	8.02	6.61	3.95	2.21	1.69	1.29
NB Slow Lane	AC	149+02	8/4/2016	135.7	99.3	92.4	10,122	8.69	7.73	7.05	6.02	4.82	3.86	2.83	1.98	1.55	1.26
NB Slow Lane	AC	151+04	8/4/2016	135.4	100.3	95.8	10,494	9.56	8.2	8.35	7.42	6.49	5.58	4.10	2.69	1.69	1.31
NB Slow Lane	AC	153+03	8/4/2016	136.0	100.1	95	10,407	11.62	10.05	9.74	8.25	6.40	5.13	3.52	2.31	1.73	1.26
NB Slow Lane	AC	155+01	8/4/2016	137.7	99.9	91	9,969	6.69	6.04	5.57	4.86	4.02	3.43	2.66	2.06	1.70	1.42
NB Slow Lane	AC	157+07	8/4/2016	134.7	100.8	89.3	9,782	9.70	8.92	6.66	5.67	4.91	4.01	2.74	1.88	1.45	1.11
NB Slow Lane	AC	158+96	8/4/2016	135.3	99.6	85.4	9,355	5.17	4.97	4.67	4.48	3.91	3.47	2.82	2.14	1.73	1.43
NB Slow Lane	AC	161+02	8/4/2016	136.1	101.0	85.7	9,388	5.55	5.32	4.23	4.02	3.59	3.15	2.27	1.56	1.19	0.95
NB Slow Lane	AC	162+98	8/4/2016	136.3	101.3	90.3	9,892	9.59	8.73	7.69	6.63	5.57	4.44	3.23	2.19	1.75	1.43
NB Slow Lane	AC	165+00	8/4/2016	140.8	101.5	87.2	9,552	7.37	6.94	5.72	4.75	3.85	3.30	2.58	2.01	1.62	1.27
NB Slow Lane	AC	166+45	8/4/2016	140.7	101.2	86.6	9,487	4.90	4.65	3.87	3.64	3.24	2.91	2.31	1.80	1.44	1.17
NB Slow Lane	AC	168+22	8/4/2016	142.0	102.2	85.5	9,366	5.91	5.68	5.08	4.91	4.57	4.22	3.29	2.39	1.85	1.43
NB Slow Lane	AC	168+96	8/4/2016	141.5	101.4	87.2	9,552	4.87	4.59	3.78	3.51	3.16	2.82	2.18	1.57	1.19	0.96
NB Slow Lane	AC	169+78	8/4/2016	141.1	102.9	85.5	9,366	5.30	5.09	4.25	3.88	3.39	2.98	2.33	1.75	1.39	1.13
NB Slow Lane	AC	172+96	8/4/2016	135.8	102.9	92.5	10,133	11.14	9.89	9.53	8.36	6.86	5.66	3.92	2.58	1.69	1.13
NB Slow Lane	AC	175+04	8/4/2016	131.6	100.6	94.6	10,363	15.91	13.82	14.47	12.56	9.19	7.24	4.81	3.38	2.20	1.56
NB Slow Lane	AC	177+02	8/4/2016	133.4	100.6	86	9,421	11.70	11.18	9.41	7.96	6.09	4.67	3.07	2.09	1.45	1.09
NB Slow Lane	AC	178+99	8/4/2016	134.2	99.8	90.6	9,925	9.33	8.46	7.83	6.77	5.66	4.78	3.54	2.50	1.73	1.25
NB Slow Lane	AC	180+98	8/4/2016	133.2	100.9	93.4	10,231	10.35	9.1	8.52	7.40	6.39	5.46	4.07	2.93	2.03	1.62
NB Slow Lane	AC	183+01	8/4/2016	131.7	99.5	97.6	10,692	15.72	13.23	13.87	11.18	8.69	6.81	4.64	3.24	2.33	1.81
NB Slow Lane	AC	185+04	8/4/2016	130.3	100.8	91	9,969	11.11	10.03	10.16	8.91	7.38	6.10	4.35	2.63	1.81	1.44
NB Slow Lane	AC	187+07	8/4/2016	132.5	101.2	90.9	9,958	11.54	10.43	9.86	8.61	7.09	6.03	3.87	2.48	1.67	1.23
NB Slow Lane	AC	188+82	8/4/2016	130.1	100.7	97.1	10,637	18.37	15.54	15.26	12.01	8.86	6.50	3.78	2.06	1.48	1.13
NB Slow Lane	AC	191+02	8/4/2016	131.8	99.1	94.8	10,385	16.01	13.87	13.67	11.63	9.26	7.07	4.77	2.74	2.06	1.37
NB Slow Lane	AC	192+91	8/4/2016	131.7	100.6	93.1	10,199	18.14	16.01	13.60	11.35	8.76	6.85	4.29	2.65	1.85	1.45
NB Slow Lane	AC	194+94	8/4/2016	131.2	99.9	93.4	10,231	21.50	18.91	18.90	15.61	11.14	7.84	4.96	2.83	1.98	1.40
NB Slow Lane	AC	196+96	8/4/2016	132.7	101.5	92.5	10,133	16.35	14.52	13.60	11.56	7.58	5.73	3.80	2.45	1.74	1.25
NB Slow Lane	AC	198+92	8/4/2016	130.8	100.4	95.4	10,451	20.61	17.75	17.76	15.47	11.46	8.56	4.46	2.82	1.87	1.27
NB Slow Lane	AC	201+02	8/4/2016	129.1	101.2	94.1	10,308	19.83	17.31	17.31	15.03	11.78	9.11	5.70	3.71	2.70	1.96
NB Slow Lane	AC	203+08	8/4/2016	132.9	100.6	90.5	9,914	12.93	11.74	11.71	9.97	7.97	6.62	4.86	3.41	2.40	1.83
NB Slow Lane	AC	204+99	8/4/2016	134.6	99.5	90.1	9,870	8.81	8.03	7.61	6.69	5.62	4.90	3.63	2.40	1.71	1.28
NB Slow Lane	AC	207+01	8/4/2016	134.8	100.4	90.9	9,958	8.81	7.96	7.14	6.24	4.99	4.11	2.85	2.00	1.50	1.19
NB Slow Lane	AC	208+89	8/4/2016	135.9	100.1	94.8	10,385	12.76	11.06	10.30	8.91	7.30	6.38	4.76	3.30	2.44	1.85
NB Slow Lane	AC	210+93	8/4/2016	135.2	99.6	88.2	9,662	9.50	8.85	8.41	7.91	6.74	5.57	4.16	2.83	2.14	1.67
NB Slow Lane	AC	212+71	8/4/2016	130.7	99.4	93.1	10,199	12.81	11.3	10.36	8.66	6.43	4.93	3.38	2.30	1.72	1.29
NB Slow Lane	AC	215+06	8/4/2016	131.8	99.5	92.4	10,122	13.22	11.75	11.48	9.46	7.43	6.02	4.06	2.72	1.91	1.37
NB Slow Lane	AC	217+03	8/4/2016	133.4	98.7	92.2	10,100	11.03	9.83	9.05	7.91	6.61	5.39	3.76	2.65	1.87	1.28
NB Slow Lane	AC	219+04	8/4/2016	132.5	99.8	87.6	9,596	11.68	10.95	9.65	8.26	6.66	5.50	3.74	2.59	1.74	1.26

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
NB Slow Lane	AC	221+05	8/4/2016	133.8	98.3	94.2	10,319	13.51	11.78	10.63	8.89	7.06	5.59	3.72	2.34	1.70	1.28
NB Slow Lane	AC	223+07	8/4/2016	136.4	100.2	88	9,640	7.20	6.72	5.60	4.91	4.07	3.33	2.37	1.54	1.12	0.82
NB Slow Lane	AC	224+98	8/4/2016	134.0	99.3	91.2	9,990	11.06	9.96	8.70	7.63	6.38	5.31	3.67	2.22	1.54	1.09
NB Slow Lane	AC	227+01	8/4/2016	134.0	99.4	92.7	10,155	8.14	7.21	6.73	5.93	4.78	4.06	2.95	2.15	1.53	1.22
NB Slow Lane	AC	228+99	8/4/2016	134.0	99.9	94.7	10,374	11.70	10.15	8.99	7.34	5.54	4.21	2.96	2.13	1.64	1.31
NB Slow Lane	AC	230+93	8/4/2016	131.9	99.7	94.5	10,352	11.45	9.95	9.90	6.87	4.74	3.69	2.22	1.26	0.87	0.69
NB Slow Lane	AC	232+91	8/4/2016	135.9	98.6	90.2	9,881	4.16	3.79	3.06	2.54	2.05	1.69	1.20	0.81	0.63	0.53
NB Slow Lane	AC	235+01	8/4/2016	137.1	96.7	85.2	9,333	5.07	4.89	3.71	2.99	2.37	1.88	1.25	0.88	0.68	0.54
NB Slow Lane	AC	237+04	8/4/2016	126.5	96.9	85.1	9,322	5.11	4.93	4.13	3.58	3.07	2.65	2.02	1.51	1.17	0.91
NB Slow Lane	AC	238+89	8/4/2016	132.4	98.5	91.4	10,012	6.85	6.16	5.46	4.43	3.46	2.81	2.07	1.51	1.08	0.89
NB Slow Lane	AC	241+00	8/4/2016	131.6	98.3	90	9,859	7.92	7.23	6.70	5.83	4.83	4.13	3.10	2.04	1.56	1.23
NB Slow Lane	AC	243+07	8/4/2016	133.0	99.3	85.6	9,377	9.04	8.68	7.37	6.59	5.50	4.55	3.39	2.32	1.78	1.46
NB Slow Lane	AC	245+02	8/4/2016	131.5	99.2	90.5	9,914	9.81	8.91	8.16	7.09	5.83	4.89	3.59	2.33	1.75	1.31
NB Slow Lane	AC	247+02	8/4/2016	133.6	98.9	86.2	9,443	7.14	6.81	5.71	5.08	3.94	3.20	2.28	1.61	1.21	0.93
NB Slow Lane	AC	249+03	8/4/2016	132.6	99.7	87.3	9,563	11.80	11.11	10.03	8.56	6.96	5.85	4.20	2.81	1.98	1.39
NB Slow Lane	AC	251+03	8/4/2016	131.1	100.5	88	9,640	13.62	12.72	11.82	10.08	7.96	6.43	4.23	2.47	1.65	1.11
NB Slow Lane	AC	253+02	8/4/2016	131.1	100.0	89.6	9,815	11.52	10.56	10.02	8.54	6.96	5.79	4.00	2.62	1.69	1.07
NB Slow Lane	AC	255+05	8/4/2016	131.5	99.6	87.5	9,585	9.22	8.66	7.33	6.27	5.27	4.57	3.50	2.55	1.95	1.51
NB Slow Lane	AC	256+97	8/4/2016	131.4	99.5	87.6	9,596	7.49	7.02	6.30	5.61	4.82	4.19	3.17	2.36	1.81	1.34
NB Slow Lane	AC	258+94	8/4/2016	129.7	100.9	93.2	10,210	7.37	6.5	5.62	4.73	3.83	3.19	2.42	1.82	1.46	1.22
NB Slow Lane	AC	261+06	8/4/2016	135.5	99.1	87.5	9,585	7.61	7.15	6.45	5.74	4.97	4.41	3.13	2.36	1.77	1.37
NB Slow Lane	AC	263+00	8/4/2016	131.5	100.0	84.5	9,256	7.78	7.56	5.69	4.73	3.87	3.30	2.48	1.84	1.35	1.01
NB Slow Lane	AC	265+00	8/4/2016	132.4	98.8	88.6	9,706	10.09	9.36	7.09	6.09	4.86	3.96	2.75	1.81	1.36	1.09
NB Slow Lane	AC	267+02	8/4/2016	131.8	97.9	85.5	9,366	5.30	5.09	3.98	3.58	3.08	2.70	2.04	1.59	1.27	0.91
NB Slow Lane	AC	268+87	8/4/2016	131.4	98.4	87	9,530	6.14	5.8	5.15	4.70	4.17	3.66	2.89	2.14	1.63	1.28
NB Slow Lane	AC	270+96	8/4/2016	131.4	99.8	87	9,530	7.46	7.05	6.43	5.63	4.80	4.23	3.32	2.51	1.96	1.54
NB Slow Lane	AC	272+72	8/4/2016	132.3	100.2	87.2	9,552	7.47	7.04	6.32	5.72	4.95	4.25	3.26	2.48	1.98	1.62
NB Slow Lane	AC	275+00	8/4/2016	133.2	98.2	86.6	9,487	8.70	8.25	7.26	6.39	5.47	4.81	3.65	2.77	2.07	1.54
NB Slow Lane	AC	277+00	8/4/2016	133.0	97.7	88	9,640	9.76	9.11	8.24	7.22	6.17	5.42	4.23	3.21	2.53	2.00
NB Slow Lane	AC	278+99	8/4/2016	132.6	98.0	88.1	9,651	10.25	9.56	7.96	6.92	6.02	5.18	3.94	2.93	2.29	1.83
NB Slow Lane	AC	280+97	8/4/2016	133.0	97.4	86.8	9,508	8.71	8.24	7.46	6.58	5.50	4.68	3.59	2.69	2.08	1.67
NB Slow Lane	AC	282+63	8/4/2016	134.1	98.6	86.9	9,519	8.51	8.05	6.58	5.04	3.32	2.39	1.86	1.50	1.28	1.03
NB Slow Lane	AC	284+99	8/4/2016	135.2	99.0	89.3	9,782	10.48	9.64	7.75	6.04	4.00	2.83	2.08	1.70	1.45	1.17
NB Slow Lane	AC	286+98	8/4/2016	135.5	98.7	88.3	9,673	6.44	5.99	5.60	5.17	4.47	3.82	3.09	2.38	1.92	1.52
NB Slow Lane	AC	288+98	8/4/2016	135.4	98.3	87.4	9,574	10.65	10.01	8.61	7.60	6.42	5.46	4.20	3.11	2.36	1.81
NB Slow Lane	AC	290+90	8/4/2016	131.9	99.3	88.3	9,673	11.10	10.33	9.32	8.22	7.02	6.06	4.56	3.36	2.54	1.98
NB Slow Lane	AC	293+00	8/4/2016	132.7	98.2	88.9	9,738	8.97	8.29	7.56	6.71	5.78	5.03	3.91	2.89	2.20	1.65
NB Slow Lane	AC	294+97	8/4/2016	133.6	99.9	87.2	9,552	10.13	9.54	8.42	7.57	6.50	5.61	3.96	2.88	2.14	1.61
NB Slow Lane	AC	297+05	8/4/2016	130.1	100.3	89.3	9,782	12.39	11.4	10.67	9.35	7.66	6.02	4.48	3.17	2.38	1.74
NB Slow Lane	AC	299+07	8/4/2016	131.5	100.0	93.9	10,286	11.61	10.16	8.48	7.32	6.09	5.02	3.48	2.39	1.82	1.42
NB Slow Lane	AC	301+01	8/4/2016	130.9	98.1	93.1	10,199	8.49	7.49	6.71	5.76	4.76	3.97	2.72	1.91	1.45	1.13
NB Slow Lane	AC	302+92	8/4/2016	130.4	99.7	89.7	9,826	11.24	10.3	9.79	8.44	7.04	6.00	4.53	3.42	2.64	2.04
NB Slow Lane	AC	304+36	8/4/2016	134.0	101.0	87.1	9,541	9.34	8.81	7.85	6.92	5.87	5.01	3.81	2.91	2.29	1.85
NB Slow Lane	AC	306+59	8/4/2016	133.2	101.9	87.4	9,574	9.83	9.24	8.15	7.28	6.33	5.57	3.90	2.95	2.28	1.77
NB Slow Lane	AC	308+90	8/4/2016	132.6	99.4	88.3	9,673	10.07	9.37	8.68	7.21	5.33	4.50	3.39	2.66	2.19	1.84
NB Slow Lane	AC	310+95	8/4/2016	133.1	99.2	88	9,640	7.50	7	5.84	5.13	4.40	3.76	2.71	1.80	1.18	0.74

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
NB Slow Lane	AC	313+07	8/4/2016	134.0	98.9	90.1	9,870	9.69	8.84	7.65	6.54	5.23	4.45	3.49	2.71	2.04	1.63
NB Slow Lane	AC	314+95	8/4/2016	132.1	99.0	88.5	9,695	9.07	8.42	7.24	6.40	5.39	4.62	3.60	2.62	2.01	1.44
NB Slow Lane	AC	317+01	8/4/2016	132.5	98.7	89.3	9,782	9.25	8.51	6.85	5.55	4.44	3.72	2.80	2.02	1.60	1.30
NB Slow Lane	AC	319+04	8/4/2016	132.0	98.6	89.2	9,771	11.02	10.15	9.39	8.29	6.98	5.91	4.25	3.17	2.39	1.87
NB Slow Lane	AC	320+95	8/4/2016	129.4	99.6	87.4	9,574	10.36	9.74	8.58	7.57	6.37	5.40	4.29	3.15	2.37	1.79
NB Slow Lane	AC	323+06	8/4/2016	131.8	100.5	87.6	9,596	11.35	10.65	9.78	8.62	7.22	6.09	4.57	3.24	2.40	1.86
NB Slow Lane	AC	325+01	8/4/2016	130.9	99.4	89	9,749	11.79	10.88	9.69	8.04	6.15	5.05	3.54	2.62	2.05	1.69
NB Slow Lane	AC	326+98	8/4/2016	132.1	99.8	86.7	9,497	9.56	9.06	8.02	7.05	5.79	4.98	3.74	2.84	2.11	1.76
NB Slow Lane	AC	328+84	8/4/2016	130.2	101.4	89.5	9,804	13.46	12.36	10.95	9.12	7.16	5.80	4.19	3.08	2.28	1.76
NB Slow Lane	AC	331+02	8/4/2016	131.3	99.7	86.9	9,519	10.81	10.22	8.87	7.72	6.50	5.58	4.41	3.22	2.50	1.97
NB Slow Lane	AC	333+01	8/4/2016	133.7	100.6	87.7	9,607	7.39	6.92	5.87	5.03	4.05	3.37	2.34	1.67	1.24	1.02
NB Slow Lane	AC	335+02	8/4/2016	131.8	99.8	87.7	9,607	9.13	8.55	5.74	5.02	4.11	3.40	2.54	1.85	1.37	1.05
NB Slow Lane	AC	336+97	8/4/2016	131.8	99.0	88.5	9,695	7.91	7.34	6.31	5.48	4.53	3.80	2.77	2.00	1.44	1.06
NB Slow Lane	AC	338+91	8/4/2016	131.6	100.1	88.4	9,684	6.37	5.92	4.91	4.08	3.28	2.72	2.08	1.46	1.11	0.86
NB Slow Lane	AC	341+03	8/4/2016	131.2	99.8	88	9,640	5.59	5.22	4.27	3.70	2.95	2.50	1.90	1.42	1.13	0.90
NB Slow Lane	AC	342+99	8/4/2016	131.8	98.8	88.7	9,717	8.82	8.17	7.27	6.32	5.25	4.43	3.31	2.39	1.80	1.41
NB Slow Lane	AC	345+73	8/4/2016	128.8	99.1	89.9	9,848	11.48	10.49	9.33	8.30	6.94	5.90	4.48	3.20	2.48	1.84
NB Slow Lane	AC	348+85	8/4/2016	123.1	97.3	87.8	9,618	5.16	4.83	3.92	3.07	2.32	1.85	1.32	1.01	0.82	0.70
NB Slow Lane	AC	351+11	8/4/2016	131.3	97.6	88.4	9,684	9.09	8.45	7.39	6.23	4.96	4.04	2.77	1.96	1.52	1.16
NB Slow Lane	AC	353+01	8/4/2016	130.9	99.2	88.2	9,662	7.93	7.39	6.11	5.30	4.26	3.52	2.53	1.85	1.43	1.13
NB Slow Lane	AC	354+72	8/4/2016	134.0	97.9	89.1	9,760	8.85	8.16	7.44	6.55	4.84	3.69	2.26	1.50	1.13	0.91
NB Slow Lane	AC	356+99	8/4/2016	130.4	99.0	91.8	10,056	11.86	10.61	10.08	8.52	6.76	5.37	3.78	2.61	2.05	1.57
NB Slow Lane	AC	359+03	8/4/2016	130.4	98.9	89.1	9,760	10.04	9.26	8.13	7.16	4.63	3.61	2.39	1.71	1.39	1.13
NB Slow Lane	AC	361+04	8/4/2016	132.6	98.1	89.4	9,793	10.30	9.47	8.29	6.96	5.47	4.39	2.76	1.89	1.40	1.12
NB Slow Lane	AC	362+67	8/4/2016	133.6	100.2	89.9	9,848	8.42	7.69	6.94	6.17	4.44	3.63	2.40	1.49	1.18	1.00
NB Slow Lane	AC	364+97	8/4/2016	129.5	98.8	89.2	9,771	11.72	10.8	9.78	8.52	6.96	5.61	3.82	2.65	1.97	1.57
NB Slow Lane	AC	366+90	8/4/2016	130.5	98.9	91.1	9,979	17.48	15.77	13.47	11.55	8.81	6.92	4.56	2.99	2.22	1.85
NB Slow Lane	AC	369+01	8/4/2016	131.6	97.8	88.9	9,738	13.04	12.05	11.07	9.50	7.75	6.11	4.17	2.78	1.88	1.41
NB Slow Lane	AC	370+98	8/4/2016	131.0	98.7	87.6	9,596	8.84	8.29	7.29	6.47	5.54	4.83	3.81	2.95	2.24	1.60
NB Slow Lane	AC	372+98	8/4/2016	131.9	96.4	89.2	9,771	9.71	8.94	7.88	7.38	6.12	5.24	3.89	2.85	2.13	1.61
NB Slow Lane	AC	374+95	8/4/2016	131.6	98.0	89.6	9,815	12.38	11.35	10.14	8.95	7.33	6.13	4.70	3.67	2.68	2.05
NB Slow Lane	AC	377+05	8/4/2016	130.9	98.4	87.7	9,607	8.99	8.42	7.71	6.71	5.72	4.98	3.86	2.88	2.24	1.81
NB Slow Lane	AC	379+04	8/4/2016	129.8	99.7	91.2	9,990	11.43	10.3	7.81	6.87	5.69	4.90	3.46	2.64	1.98	1.50
NB Slow Lane	AC	381+05	8/4/2016	128.1	97.7	88.2	9,662	7.40	6.89	5.54	4.87	4.20	3.70	2.93	2.20	1.81	1.45
NB Slow Lane	AC	382+86	8/4/2016	129.5	99.0	89.2	9,771	11.06	10.19	9.46	8.69	7.65	6.88	5.55	4.21	3.27	2.51
NB Slow Lane	AC	385+05	8/4/2016	127.8	98.4	92.7	10,155	10.20	9.04	8.73	7.69	6.62	5.38	4.06	3.16	2.58	2.00
NB Slow Lane	AC	387+03	8/4/2016	127.3	97.4	87.5	9,585	8.36	7.85	7.03	6.48	5.74	5.11	4.00	3.00	2.30	1.77
NB Slow Lane	AC	389+04	8/4/2016	129.8	97.5	87.2	9,552	9.26	8.72	7.02	6.35	5.72	5.11	4.01	2.98	2.28	1.76
NB Slow Lane	AC	390+86	8/4/2016	129.5	99.3	88	9,640	8.09	7.55	6.39	5.67	4.84	4.14	3.22	2.42	1.85	1.49
NB Slow Lane	AC	392+94	8/4/2016	128.8	98.9	90.3	9,892	8.99	8.18	7.88	7.15	6.33	5.67	4.39	3.35	2.53	1.85
NB Slow Lane	AC	395+05	8/4/2016	131.4	96.7	88.3	9,673	7.25	6.75	6.19	5.46	4.82	4.34	3.49	2.69	2.07	1.60
NB Slow Lane	AC	397+02	8/4/2016	128.5	96.7	88.7	9,717	7.15	6.62	5.85	5.33	4.84	4.44	3.68	2.90	2.29	1.82
NB Slow Lane	AC	398+94	8/4/2016	133.2	97.7	88.5	9,695	7.87	7.31	6.92	6.13	5.39	4.74	4.09	3.41	2.72	2.26
NB Slow Lane	AC	401+19	8/4/2016	129.2	97.2	88.4	9,684	8.78	8.16	6.54	5.60	4.31	3.34	2.28	1.57	1.22	0.92
NB Slow Lane	AC	402+79	8/4/2016	130.9	96.7	88.3	9,673	11.58	10.77	9.11	7.74	5.58	4.15	2.72	1.96	1.50	1.21
NB Slow Lane	AC	404+53	8/4/2016	127.1	97.1	90.8	9,947	13.49	12.21	9.86	8.01	5.69	4.21	2.77	2.02	1.61	1.37

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
NB Slow Lane	AC	406+98	8/4/2016	127.6	98.9	89.8	9,837	13.86	12.68	9.87	7.75	5.59	4.11	2.42	1.54	1.19	0.89
NB Slow Lane	AC	408+99	8/4/2016	130.4	97.4	89.8	9,837	13.98	12.79	10.29	8.35	6.04	4.32	2.52	1.65	1.20	0.98
NB Slow Lane	AC	410+96	8/4/2016	128.9	98.3	90.1	9,870	15.27	13.92	11.60	9.66	7.23	5.34	3.09	1.88	1.37	1.09
NB Slow Lane	AC	413+04	8/4/2016	128.9	98.9	89.5	9,804	18.18	16.69	14.15	11.72	8.43	5.94	3.35	1.99	1.43	1.11
NB Slow Lane	AC	415+03	8/4/2016	131.0	98.6	86.3	9,454	11.14	10.61	9.66	8.42	6.62	5.14	3.20	2.06	1.43	1.13
NB Slow Lane	AC	416+97	8/4/2016	130.3	96.1	94.1	10,308	16.00	13.97	12.85	10.50	7.89	5.93	3.52	2.11	1.49	1.18
NB Slow Lane	AC	419+02	8/4/2016	126.2	94.3	90.5	9,914	16.41	14.9	13.42	11.35	8.46	6.28	3.70	2.00	1.45	1.13
NB Slow Lane	AC	420+99	8/4/2016	86.3	92.4	91.9	10,067	12.89	11.52	10.39	8.50	6.45	5.02	3.52	2.33	1.71	1.42
NB Slow Lane	AC	420+99	8/4/2016	83.7	88.9	92.5	10,133	13.89	12.34	10.93	8.67	6.51	5.05	3.71	2.39	1.70	1.45
NB Slow Lane	AC	422+98	8/4/2016	121.8	90.6	89.3	9,782	18.91	17.4	15.58	13.01	9.71	7.27	4.36	2.69	1.93	1.43
NB Slow Lane	AC	424+99	8/4/2016	122.4	92.4	90.5	9,914	17.46	15.85	14.45	12.14	9.06	6.73	3.99	2.48	1.98	1.62
NB Slow Lane	AC	426+87	8/4/2016	120.7	92.7	89	9,749	10.77	9.94	8.73	7.33	5.63	4.33	2.98	2.08	1.56	1.20
NB Slow Lane	AC	429+02	8/4/2016	124.1	90.7	86.9	9,519	9.72	9.19	7.72	6.50	5.15	4.15	2.88	2.06	1.57	1.28
NB Slow Lane	AC	431+00	8/4/2016	122.3	91.5	89.5	9,804	14.97	13.74	11.74	8.85	6.37	4.67	3.12	2.05	1.57	1.23
NB Slow Lane	AC	431+97	8/4/2016	121.3	91.8	89	9,749	14.49	13.38	11.09	8.91	6.58	4.37	2.78	1.81	1.35	1.03
NB Slow Lane	AC	434+97	8/4/2016	122.2	91.4	88.7	9,717	14.91	13.81	11.10	8.93	6.61	5.01	3.09	1.85	1.37	1.04
NB Slow Lane	AC	436+97	8/4/2016	122.5	90.6	89.7	9,826	10.80	9.89	8.41	7.04	5.52	4.35	2.85	1.85	1.37	1.12
NB Slow Lane	AC	438+52	8/4/2016	122.0	91.6	86.7	9,497	16.09	15.25	10.32	8.59	6.48	4.87	3.06	1.95	1.43	1.09
NB Slow Lane	AC	440+98	8/4/2016	122.0	91.8	88.9	9,738	10.56	9.76	8.69	7.25	5.57	4.40	2.99	2.00	1.50	1.18
NB Slow Lane	AC	442+93	8/4/2016	122.4	92.2	88.7	9,717	17.63	16.33	14.04	11.44	8.56	6.37	3.85	2.39	1.75	1.35
NB Slow Lane	AC	445+23	8/4/2016	121.7	92.9	89	9,749	14.22	13.13	11.54	9.69	7.42	5.65	3.44	2.19	1.63	1.24
NB Slow Lane	AC	447+12	8/4/2016	124.9	91.9	90.2	9,881	15.26	13.9	11.81	9.81	7.56	5.75	3.56	2.31	1.62	1.26
NB Slow Lane	AC	449+00	8/4/2016	121.4	90.4	87.8	9,618	13.56	12.69	9.55	7.92	6.00	4.54	2.78	1.71	1.22	0.94
NB Slow Lane	AC	451+03	8/4/2016	122.3	91.0	89.4	9,793	15.41	14.16	13.34	11.68	7.54	5.72	3.84	2.43	1.72	1.36
NB Slow Lane	AC	453+00	8/4/2016	122.1	92.7	88.9	9,738	14.41	13.32	12.22	10.41	7.99	5.97	3.43	2.37	1.76	1.38
NB Slow Lane	AC	455+00	8/4/2016	122.1	92.0	87.9	9,629	14.54	13.59	11.69	9.98	7.78	6.01	3.98	2.74	2.10	1.59
NB Slow Lane	AC	457+06	8/4/2016	117.6	91.2	88.6	9,706	6.89	6.39	5.27	4.34	3.19	2.35	1.37	0.84	0.62	0.49
NB Slow Lane	AC	459+01	8/4/2016	120.2	91.0	88.6	9,706	6.58	6.1	5.16	3.76	2.57	1.92	1.31	1.06	0.90	0.74
NB Slow Lane	AC	461+02	8/4/2016	120.5	90.5	88.1	9,651	6.59	6.15	4.73	3.71	2.55	2.08	1.47	1.11	0.93	0.79
NB Slow Lane	AC	462+99	8/4/2016	117.1	90.5	88.4	9,684	11.00	10.22	8.63	6.85	4.87	3.44	2.31	1.63	1.26	1.07
NB Slow Lane	AC	465+07	8/4/2016	117.8	89.4	89.1	9,760	15.66	14.44	12.87	10.80	8.67	6.65	4.24	2.63	1.89	1.39
NB Slow Lane	AC	467+04	8/4/2016	119.6	89.2	88.5	9,695	19.42	18.03	14.16	11.67	8.74	6.50	4.01	2.58	1.88	1.42
NB Slow Lane	AC	468+63	8/4/2016	118.9	90.9	90.6	9,925	12.89	11.69	10.63	9.00	7.11	5.59	3.51	2.15	1.52	1.14
NB Slow Lane	AC	471+00	8/4/2016	119.7	89.7	88.8	9,728	10.79	9.98	8.50	7.09	5.35	3.87	2.28	1.43	1.02	0.80
NB Slow Lane	AC	473+07	8/4/2016	119.9	89.6	89.3	9,782	16.21	14.91	12.63	10.42	7.65	5.58	3.28	2.01	1.40	1.06
NB Slow Lane	AC	475+14	8/4/2016	112.4	89.9	90	9,859	22.12	20.19	16.86	14.28	10.83	8.23	5.19	3.15	2.12	1.64
NB Slow Lane	AC	477+00	8/4/2016	119.1	91.3	88.6	9,706	15.10	14	12.86	11.13	8.55	6.39	3.59	2.11	1.46	1.19
NB Slow Lane	AC	479+03	8/4/2016	118.8	90.0	90.3	9,892	17.52	15.94	13.47	10.54	7.50	5.34	3.04	2.03	1.58	1.28
NB Slow Lane	AC	480+96	8/4/2016	117.0	91.3	89.7	9,826	14.09	12.91	10.97	8.89	6.63	4.86	2.97	1.99	1.55	1.26
NB Slow Lane	AC	482+99	8/4/2016	116.9	90.7	90	9,859	24.81	22.65	19.76	16.35	12.18	8.72	4.94	2.64	1.95	1.59
NB Slow Lane	AC	485+02	8/4/2016	118.9	88.2	88.3	9,673	13.63	12.68	11.06	9.18	7.03	5.37	3.40	2.21	1.61	1.29
NB Slow Lane	AC	486+98	8/4/2016	117.5	89.5	89.7	9,826	11.73	10.74	9.12	7.61	5.91	4.57	3.04	2.04	1.52	1.21
NB Slow Lane	AC	488+98	8/4/2016	112.2	86.8	89.6	9,815	6.25	5.73	4.55	3.76	2.95	2.38	1.72	1.33	1.06	0.91
NB Slow Lane	AC	491+00	8/4/2016	116.7	88.8	90	9,859	10.04	9.17	7.74	6.49	5.12	4.01	2.55	1.70	1.25	0.98
NB Slow Lane	AC	493+01	8/4/2016	115.5	88.3	90.5	9,914	7.40	6.72	5.93	5.09	4.16	3.43	2.37	1.68	1.18	0.68
NB Slow Lane	AC	494+99	8/4/2016	116.6	87.8	91	9,969	8.64	7.8	7.00	5.82	4.37	3.37	2.06	1.38	1.08	0.88

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
NB Slow Lane	AC	496+96	8/4/2016	115.2	86.0	90.4	9,903	17.18	15.61	14.59	12.87	10.18	7.84	5.09	3.15	2.21	1.70
NB Slow Lane	AC	498+83	8/4/2016	117.4	88.3	90.1	9,870	10.31	9.4	7.93	6.26	4.60	3.57	2.52	1.82	1.52	1.28
NB Slow Lane	AC	501+09	8/4/2016	116.4	88.1	87.6	9,596	12.67	11.88	9.47	8.01	6.20	5.00	3.56	2.55	2.00	1.59
NB Slow Lane	AC	503+00	8/4/2016	114.1	87.6	86.6	9,487	9.00	8.54	7.50	6.70	5.74	4.87	3.20	2.21	1.65	1.24
NB Slow Lane	AC	505+01	8/4/2016	113.9	88.3	90	9,859	8.70	7.94	7.63	6.88	6.10	5.32	3.96	2.86	2.14	1.69
NB Slow Lane	AC	507+00	8/4/2016	111.8	87.0	88.9	9,738	15.43	14.26	12.52	10.83	9.26	7.76	5.74	4.19	3.07	2.29
NB Slow Lane	AC	509+03	8/4/2016	108.8	89.5	87.5	9,585	7.54	7.08	6.56	6.09	5.44	4.78	3.67	2.73	2.06	1.57
NB Slow Lane	AC	511+07	8/4/2016	111.1	88.5	88.9	9,738	5.35	4.94	4.94	4.61	4.09	3.59	2.70	1.91	1.39	1.06
NB Slow Lane	AC	512+59	8/4/2016	108.7	88.9	89.2	9,771	6.38	5.88	5.38	4.90	4.28	3.67	2.67	1.78	1.25	0.96
NB Slow Lane	AC	514+93	8/4/2016	90.1	88.4	89.2	9,771	6.74	6.21	5.38	4.76	4.29	3.78	2.89	2.06	1.52	1.14
NB Slow Lane	AC	517+01	8/4/2016	108.3	88.2	88.3	9,673	5.35	4.98	4.09	3.67	3.31	2.91	2.27	1.73	1.35	1.12
NB Slow Lane	AC	519+02	8/4/2016	110.1	88.7	88.1	9,651	6.94	6.47	5.13	4.64	4.20	3.69	2.85	2.09	1.56	1.18
NB Slow Lane	AC	521+02	8/4/2016	85.4	86.8	88.4	9,684	6.87	6.38	5.79	5.28	4.57	3.83	2.70	1.88	1.37	1.04
NB Slow Lane	AC	523+03	8/4/2016	100.9	88.2	88.2	9,662	9.55	8.9	9.39	9.05	8.81	8.25	7.13	5.50	4.10	3.06
NB Slow Lane	AC	525+03	8/4/2016	109.2	89.1	89.2	9,771	6.54	6.02	5.91	5.67	5.15	4.54	3.49	2.54	1.90	1.48
NB Slow Lane	AC	527+04	8/4/2016	100.9	87.7	87.9	9,629	7.21	6.74	5.50	4.92	4.50	3.97	3.05	2.18	1.56	1.11
NB Slow Lane	AC	529+03	8/4/2016	107.3	87.2	86	9,421	5.62	5.37	4.11	3.74	3.47	3.06	2.39	1.78	1.39	1.11
NB Slow Lane	AC	530+90	8/4/2016	107.3	86.3	88.8	9,728	10.21	9.45	9.10	8.49	7.52	6.59	4.96	3.51	2.52	1.89
NB Slow Lane	AC	532+96	8/4/2016	107.6	85.6	85.8	9,399	8.44	8.08	7.60	7.22	6.62	6.00	4.80	3.60	2.74	2.07
NB Slow Lane	AC	534+39	8/4/2016	99.5	86.4	86.1	9,432	8.70	8.3	7.10	6.60	6.08	5.43	4.22	3.24	2.44	1.85
NB Slow Lane	AC	537+01	8/4/2016	105.5	87.4	90.5	9,914	5.12	4.65	4.53	4.23	3.72	3.28	2.57	1.96	1.59	1.26
NB Slow Lane	AC	539+04	8/4/2016	105.5	88.2	91.2	9,990	8.32	7.5	7.16	6.63	5.92	5.39	4.56	3.78	3.02	2.27
NB Slow Lane	AC	541+07	8/4/2016	107.1	87.1	90.7	9,936	5.54	5.02	4.76	4.47	4.03	3.64	3.00	2.40	1.94	1.55
NB Slow Lane	AC	542+89	8/4/2016	105.9	87.0	90.9	9,958	5.11	4.62	4.19	3.66	3.24	2.88	2.34	1.81	1.45	1.15
NB Slow Lane	AC	544+99	8/4/2016	106.7	87.0	91.3	10,001	5.11	4.6	3.76	3.38	2.98	2.67	2.19	1.75	1.40	1.10
NB Slow Lane	AC	546+98	8/4/2016	97.3	88.0	90	9,859	7.23	6.6	5.79	5.19	4.54	3.97	3.06	2.27	1.71	1.33
NB Slow Lane	AC	548+98	8/4/2016	108.9	89.0	92.1	10,089	8.13	7.25	6.04	5.06	4.27	3.67	2.86	2.11	1.67	1.34
NB Slow Lane	AC	551+04	8/4/2016	109.2	87.1	90.6	9,925	6.78	6.15	5.23	4.55	3.93	3.44	2.64	1.96	1.50	1.18
NB Slow Lane	AC	552+96	8/4/2016	106.1	87.6	90.5	9,914	5.14	4.67	3.68	3.15	2.78	2.53	2.06	1.67	1.38	1.15
NB Slow Lane	AC	555+01	8/4/2016	101.7	88.9	92	10,078	5.26	4.7	3.89	3.33	2.86	2.53	1.94	1.48	1.21	1.04
NB Slow Lane	AC	556+50	8/4/2016	107.8	88.8	91.6	10,034	6.06	5.44	4.64	3.90	3.25	2.80	2.11	1.64	1.30	1.05
NB Slow Lane	AC	558+98	8/4/2016	106.5	87.9	90.4	9,903	7.41	6.73	5.33	4.54	3.87	3.37	2.63	1.96	1.50	1.19
NB Slow Lane	AC	560+89	8/4/2016	108.2	86.0	88.2	9,662	6.28	5.85	5.02	4.43	3.88	3.33	2.50	1.78	1.34	1.07
NB Slow Lane	AC	562+99	8/4/2016	109.6	85.3	89.3	9,782	6.33	5.82	4.66	4.07	3.67	3.27	2.59	1.98	1.60	1.27
NB Slow Lane	AC	565+03	8/4/2016	107.1	85.9	91	9,969	4.27	3.85	3.14	2.76	2.43	2.15	1.69	1.25	1.01	0.80
NB Slow Lane	AC	566+94	8/4/2016	107.5	88.6	88.4	9,684	4.50	4.18	3.04	2.66	2.37	2.13	1.65	1.25	0.97	0.76
NB Slow Lane	AC	568+83	8/4/2016	109.5	85.5	90	9,859	5.01	4.57	4.42	4.02	3.49	3.03	2.46	2.00	1.66	1.36
NB Slow Lane	AC	569+64	8/4/2016	108.9	87.1	89.4	9,793	5.22	4.8	4.35	3.84	3.20	2.73	2.16	1.76	1.48	1.27
NB Slow Lane	AC	572+69	8/4/2016	109.6	86.0	90.7	9,936	4.96	4.49	4.44	4.06	3.55	3.17	2.54	2.04	1.61	1.30
NB Slow Lane	AC	574+81	8/4/2016	107.6	86.7	90.9	9,958	6.44	5.82	5.56	5.02	4.39	3.91	3.15	2.41	1.86	1.48
NB Slow Lane	AC	577+03	8/4/2016	108.1	84.6	93.2	10,210	6.99	6.16	5.83	5.43	4.91	4.42	3.43	2.54	1.84	1.41
NB Slow Lane	AC	579+01	8/4/2016	107.1	85.0	91.4	10,012	4.52	4.06	3.50	3.18	2.73	2.39	1.89	1.42	1.13	0.83
NB Slow Lane	AC	581+05	8/4/2016	103.3	84.9	94	10,297	6.75	5.9	5.52	4.68	3.93	3.47	2.76	1.91	1.35	1.01
NB Slow Lane	AC	583+87	8/4/2016	107.4	85.3	93.3	10,220	6.75	5.94	5.39	4.69	4.06	3.61	2.87	2.09	1.56	1.15
NB Slow Lane	AC	585+04	8/4/2016	107.8	84.8	92.8	10,166	5.23	4.63	4.31	3.89	3.48	3.17	2.67	2.13	1.70	1.41
NB Slow Lane	AC	587+01	8/4/2016	107.9	85.7	91.7	10,045	3.59	3.22	2.77	2.39	2.04	1.77	1.35	0.97	0.72	0.56

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
NB Slow Lane	AC	588+96	8/4/2016	109.3	86.4	92.6	10,144	5.36	4.76	4.11	3.56	3.10	2.72	2.06	1.59	1.21	0.91
NB Slow Lane	AC	591+04	8/4/2016	107.4	85.6	93.4	10,231	7.56	6.65	5.57	4.72	4.02	3.56	2.79	2.09	1.60	1.21
NB Slow Lane	AC	592+97	8/4/2016	102.3	85.6	93.7	10,264	12.33	10.81	9.88	8.43	7.10	6.21	4.55	3.00	2.13	1.57
NB Slow Lane	AC	595+04	8/4/2016	107.8	85.1	92.2	10,100	4.40	3.92	3.71	3.41	2.85	2.44	1.92	1.61	1.29	1.08
NB Slow Lane	AC	597+03	8/4/2016	107.5	83.5	92	10,078	7.37	6.58	5.94	5.20	4.44	3.97	3.17	2.33	1.69	1.19
NB Slow Lane	AC	598+95	8/4/2016	107.5	84.4	92.1	10,089	5.09	4.54	4.51	4.30	3.83	3.50	2.76	2.09	1.69	1.40
NB Slow Lane	AC	601+04	8/4/2016	107.9	84.6	90	9,859	5.57	5.08	4.24	3.86	3.43	3.05	2.35	1.82	1.46	1.14
NB Slow Lane	AC	603+06	8/4/2016	107.7	85.3	91.4	10,012	7.31	6.57	6.00	5.40	4.67	4.01	2.83	1.99	1.46	1.13
NB Slow Lane	AC	604+95	8/4/2016	106.9	84.0	93.2	10,210	6.39	5.63	5.48	5.06	4.57	4.00	3.02	2.05	1.45	1.07
NB Slow Lane	AC	606+93	8/4/2016	106.0	84.8	91.3	10,001	5.93	5.34	4.89	4.41	3.87	3.35	2.59	1.85	1.40	1.02
NB Slow Lane	AC	609+00	8/4/2016	106.2	83.3	93	10,188	6.73	5.95	5.59	5.00	4.34	3.88	3.14	2.38	1.83	1.42
NB Slow Lane	AC	610+96	8/4/2016	104.1	83.5	92.7	10,155	6.03	5.34	5.36	5.03	4.53	4.05	3.24	2.48	1.92	1.50
NB Slow Lane	AC	612+91	8/4/2016	107.1	84.7	92.5	10,133	7.85	6.97	6.20	5.70	5.09	4.51	3.52	2.64	1.97	1.49
NB Slow Lane	AC	614+76	8/4/2016	105.5	84.3	92.9	10,177	9.06	8.01	7.76	7.16	6.30	5.39	3.91	2.67	1.97	1.50
NB Slow Lane	AC	616+97	8/4/2016	105.5	84.0	90.9	9,958	4.70	4.25	3.66	3.23	2.84	2.48	1.92	1.40	1.08	0.85
NB Slow Lane	AC	618+96	8/4/2016	107.5	83.6	92.9	10,177	5.08	4.49	4.12	3.61	3.05	2.60	1.92	1.45	1.16	0.94
NB Slow Lane	AC	620+99	8/4/2016	106.3	82.8	92.2	10,100	6.10	5.44	4.79	4.31	3.75	3.31	2.55	1.99	1.55	1.21
NB Slow Lane	AC	622+97	8/4/2016	106.4	83.2	92.2	10,100	7.98	7.11	6.44	5.78	5.13	4.50	3.49	2.50	1.78	1.29
NB Slow Lane	AC	624+94	8/4/2016	104.9	84.3	92.7	10,155	5.94	5.26	4.60	3.93	3.38	2.90	2.25	1.67	1.33	1.05
NB Slow Lane	AC	627+00	8/4/2016	104.5	83.5	92.3	10,111	4.75	4.23	3.89	3.51	3.09	2.61	2.02	1.52	1.16	0.87
NB Slow Lane	AC	629+02	8/4/2016	106.6	82.7	91.3	10,001	4.13	3.72	3.59	3.37	3.07	2.74	2.19	1.67	1.29	0.98
NB Slow Lane	AC	631+00	8/4/2016	105.0	82.1	90.1	9,870	5.90	5.38	5.30	4.94	4.41	3.70	2.92	2.21	1.66	1.28
NB Slow Lane	AC	633+01	8/4/2016	106.6	82.0	89.9	9,848	9.30	8.5	8.27	7.68	6.88	6.21	4.61	3.39	2.54	1.86
NB Slow Lane	AC	635+00	8/4/2016	106.3	82.2	89.8	9,837	12.31	11.26	10.91	9.76	8.78	7.79	6.13	4.52	3.39	2.57
NB Slow Lane	AC	636+93	8/4/2016	104.8	82.6	88.6	9,706	10.98	10.18	10.11	9.52	8.62	7.80	6.35	4.88	3.79	2.80
NB Slow Lane	AC	638+96	8/4/2016	106.3	82.4	89.7	9,826	8.65	7.92	7.41	7.02	6.07	5.21	3.92	2.85	2.13	1.63
NB Slow Lane	AC	641+03	8/4/2016	106.1	83.1	90	9,859	9.92	9.06	9.79	8.74	7.66	6.67	5.03	3.54	2.56	1.75
NB Slow Lane	AC	642+82	8/4/2016	103.9	83.1	91.6	10,034	10.50	9.42	8.78	8.21	7.47	6.76	5.46	4.29	3.26	2.48
NB Slow Lane	AC	645+02	8/4/2016	104.0	81.5	89.6	9,815	13.38	12.27	12.19	11.33	10.22	9.05	6.91	4.66	3.02	1.80
NB Slow Lane	AC	646+96	8/4/2016	103.9	82.3	88.8	9,728	8.56	7.92	7.13	6.58	5.83	5.04	3.65	2.65	2.05	1.57
NB Slow Lane	AC	649+03	8/4/2016	102.8	82.8	90.1	9,870	9.96	9.08	8.48	7.87	7.37	6.65	5.53	4.21	3.28	2.61
NB Slow Lane	AC	650+95	8/4/2016	103.4	82.7	91.2	9,990	12.06	10.86	11.03	9.87	8.89	7.89	6.19	4.56	3.44	2.54
NB Slow Lane	AC	653+01	8/4/2016	103.2	82.9	90.6	9,925	9.35	8.48	7.55	6.99	6.25	5.44	3.99	3.06	2.36	1.85
NB Slow Lane	AC	655+06	8/4/2016	102.4	82.0	91.2	9,990	8.60	7.75	7.88	6.70	5.88	5.18	4.13	3.18	2.44	1.89
NB Slow Lane	AC	656+99	8/4/2016	103.4	82.3	90.5	9,914	7.53	6.84	6.43	5.94	5.43	4.85	3.80	2.89	2.18	1.69
NB Slow Lane	AC	659+06	8/4/2016	101.4	82.0	91.2	9,990	6.90	6.22	5.95	5.48	4.74	3.96	2.83	1.93	1.39	1.01
NB Slow Lane	AC	661+01	8/4/2016	100.8	82.1	90.2	9,881	7.53	6.86	6.42	6.06	5.63	5.29	4.13	3.10	2.25	1.56
NB Slow Lane	AC	663+10	8/4/2016	84.3	80.6	92.1	10,089	5.96	5.32	4.72	4.29	3.74	3.24	2.50	1.82	1.32	1.04
NB Slow Lane	AC	665+02	8/4/2016	92.8	80.8	90.9	9,958	10.60	9.58	9.22	8.49	7.46	6.34	4.53	2.98	2.04	1.45
NB Slow Lane	AC	666+99	8/4/2016	82.1	79.1	90.1	9,870	9.09	8.29	7.93	7.47	6.74	5.91	4.51	3.26	2.48	1.78
NB Slow Lane	AC	669+03	8/4/2016	83.9	81.4	90	9,859	8.88	8.11	7.32	6.78	6.24	5.47	4.10	3.00	2.24	1.67
NB Slow Lane	AC	670+84	8/4/2016	101.7	81.9	94.2	10,319	12.64	11.02	11.11	10.16	9.03	7.93	6.07	4.38	3.19	2.30
NB Slow Lane	AC	673+02	8/4/2016	100.9	80.5	91.1	9,979	10.30	9.29	9.43	9.08	8.32	7.49	5.95	4.30	3.02	2.07
NB Slow Lane	AC	675+05	8/4/2016	101.5	79.9	90.9	9,958	9.28	8.39	8.17	7.57	7.00	6.26	4.94	3.69	2.83	2.15
NB Slow Lane	AC	676+93	8/4/2016	101.4	79.8	90.4	9,903	9.39	8.53	8.39	7.95	7.23	6.43	5.02	3.62	2.62	1.86
NB Slow Lane	AC	679+00	8/4/2016	101.1	79.9	88.4	9,684	9.88	9.18	8.30	7.63	6.96	6.29	4.93	3.71	2.71	1.97

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
NB Slow Lane	AC	681+02	8/4/2016	101.7	81.9	91.8	10,056	12.74	11.4	11.44	10.97	9.29	8.10	5.70	3.54	1.97	1.41
NB Slow Lane	AC	683+05	8/4/2016	101.3	79.9	86.9	9,519	8.95	8.46	7.06	6.37	5.78	4.93	3.73	2.69	2.04	1.56
NB Slow Lane	AC	685+02	8/4/2016	98.1	79.4	90.5	9,914	7.24	6.57	6.87	5.43	4.01	3.52	2.70	2.07	1.62	1.30
NB Slow Lane	AC	687+03	8/4/2016	100.3	79.8	93.5	10,242	11.50	10.11	8.40	6.71	5.01	3.97	3.11	2.50	1.97	1.54
NB Slow Lane	AC	689+04	8/4/2016	98.1	81.3	96.4	10,560	15.84	13.5	12.60	9.04	6.17	4.74	2.68	1.97	1.41	1.28
NB Slow Lane	AC	690+94	8/4/2016	99.2	80.1	95.1	10,418	17.25	14.9	13.00	9.84	6.55	4.57	2.94	2.09	1.59	1.29
NB Slow Lane	AC	693+00	8/4/2016	95.5	79.0	91.8	10,056	15.09	13.51	11.03	8.39	5.39	3.84	2.38	1.59	1.22	1.01
NB Slow Lane	AC	695+02	8/4/2016	99.4	77.9	92.2	10,100	15.20	13.54	11.39	9.12	6.83	5.23	3.45	2.44	1.87	1.50
NB Slow Lane	AC	696+95	8/4/2016	99.2	78.7	90.9	9,958	10.98	9.92	9.28	8.48	7.53	6.72	5.45	4.13	3.14	2.46
NB Slow Lane	AC	699+02	8/4/2016	97.2	78.4	90.1	9,870	11.94	10.89	10.03	8.80	7.57	6.55	5.13	3.67	2.61	1.94
NB Slow Lane	AC	701+06	8/4/2016	97.9	79.0	87.9	9,629	10.20	9.53	7.87	6.72	5.63	4.89	3.84	2.96	2.34	1.85
NB Slow Lane	AC	703+00	8/4/2016	95.5	78.5	90.9	9,958	7.07	6.39	6.24	5.82	5.19	4.62	3.68	2.69	2.11	1.65
NB Slow Lane	AC	705+03	8/4/2016	96.9	79.0	90.9	9,958	8.07	7.29	6.02	5.26	4.41	3.67	2.93	2.32	1.91	1.56
NB Slow Lane	AC	706+85	8/4/2016	97.3	81.1	91	9,969	5.62	5.07	4.98	4.56	4.03	3.54	2.81	2.17	1.67	1.44
NB Slow Lane	AC	708+93	8/4/2016	96.6	79.7	89.3	9,782	7.33	6.74	5.66	4.98	4.25	3.65	2.69	2.01	1.63	1.37
NB Slow Lane	AC	710+91	8/4/2016	96.1	79.0	93.4	10,231	9.41	8.28	6.76	5.26	3.92	3.26	2.61	2.04	1.61	1.26
NB Slow Lane	AC	713+63	8/4/2016	94.9	77.5	92.1	10,089	5.26	4.69	4.56	4.11	3.24	2.68	2.06	1.59	1.31	1.03
NB Slow Lane	AC	715+01	8/4/2016	95.2	78.3	90.8	9,947	8.75	7.92	6.72	5.51	4.25	3.40	2.42	1.83	1.43	1.13
NB Slow Lane	AC	717+05	8/4/2016	96.7	79.6	90.9	9,958	6.25	5.65	4.96	4.10	3.15	2.39	1.69	1.28	1.01	0.85
NB Slow Lane	AC	719+03	8/4/2016	95.3	81.0	91.1	9,979	5.04	4.55	3.82	3.07	2.35	1.92	1.44	1.15	0.94	0.74
NB Slow Lane	AC	720+97	8/4/2016	94.9	79.8	91.1	9,979	6.07	5.47	4.64	3.98	2.85	2.39	1.78	1.33	0.98	0.76
NB Slow Lane	AC	722+97	8/4/2016	96.1	79.1	91.8	10,056	8.23	7.37	6.35	5.51	4.63	3.95	2.93	2.26	1.72	1.32
NB Slow Lane	AC	724+81	8/4/2016	94.8	78.8	92.2	10,100	9.89	8.81	7.07	5.86	4.48	3.38	2.17	1.38	0.98	0.83
NB Slow Lane	AC	727+01	8/4/2016	97.3	79.2	91.5	10,023	6.81	6.11	5.50	4.63	3.76	3.09	2.29	1.59	1.20	1.01
NB Slow Lane	AC	729+01	8/4/2016	86.2	78.7	92.1	10,089	8.20	7.31	7.00	6.24	4.50	3.72	2.65	1.88	1.41	1.08
NB Slow Lane	AC	731+03	8/4/2016	85.5	78.5	90.2	9,881	6.35	5.78	5.11	4.43	3.69	3.02	2.17	1.59	1.19	0.95
NB Slow Lane	AC	732+99	8/4/2016	94.4	78.3	93	10,188	9.81	8.67	7.40	6.74	6.18	5.56	4.52	3.39	2.48	1.81
NB Slow Lane	AC	734+95	8/4/2016	94.3	78.0	91.9	10,067	8.02	7.17	6.57	5.62	4.54	3.76	2.57	1.71	1.15	0.83
NB Slow Lane	AC	737+03	8/4/2016	85.4	78.5	92.1	10,089	6.64	5.92	5.33	4.25	3.14	2.43	1.67	1.27	1.06	0.89
NB Slow Lane	AC	739+03	8/4/2016	83.6	77.2	92.5	10,133	8.15	7.24	6.29	5.18	3.83	2.77	1.89	1.42	1.17	1.02
NB Slow Lane	AC	741+01	8/4/2016	94.0	77.8	92.3	10,111	9.92	8.83	8.16	6.87	5.24	4.06	2.72	1.76	1.29	1.02
NB Slow Lane	AC	743+06	8/4/2016	92.3	76.1	93.8	10,275	13.04	11.42	10.74	8.67	6.17	4.18	2.35	1.65	1.25	1.02
NB Slow Lane	AC	745+06	8/4/2016	89.9	77.2	93.4	10,231	7.91	6.96	6.60	5.67	4.50	3.63	2.69	2.04	1.61	1.31
NB Slow Lane	AC	746+99	8/4/2016	90.5	77.1	92.2	10,100	7.83	6.98	6.29	5.22	4.26	3.66	2.88	2.23	1.72	1.37
NB Slow Lane	AC	748+87	8/4/2016	90.9	77.3	92.9	10,177	8.95	7.91	7.77	6.95	5.87	4.58	3.42	2.50	1.83	1.49
NB Slow Lane	AC	750+02	8/4/2016	90.0	77.1	93.9	10,286	8.00	7	6.49	5.48	4.11	3.20	2.34	1.72	1.33	1.08
NB Slow Lane	AC	750+99	8/4/2016	91.2	76.4	95	10,407	9.57	8.28	7.98	7.09	6.01	5.04	3.67	2.61	1.85	1.34
SB Fast Lane	AC	0+12	8/2/2016	91.4	76.6	85.5	9,350	5.87	5.65	4.42	3.81	3.31	2.83	2.05	1.51	1.17	0.94
SB Fast Lane	AC	1+20	8/2/2016	91.8	76.6	85.6	9,361	4.81	4.62	3.66	3.31	3.06	2.77	2.19	1.60	1.26	0.93
SB Fast Lane	AC	3+17	8/2/2016	90.7	76.9	85.2	9,317	5.07	4.9	3.91	3.50	3.08	2.72	2.18	1.68	1.32	1.11
SB Fast Lane	AC	4+97	8/2/2016	88.6	77.2	85.5	9,350	4.38	4.22	3.60	3.31	2.95	2.65	2.08	1.61	1.29	1.00
SB Fast Lane	AC	6+99	8/2/2016	79.7	77.2	85.9	9,394	5.51	5.28	4.15	3.67	3.15	2.73	2.11	1.60	1.27	0.98
SB Fast Lane	AC	9+03	8/2/2016	90.9	78.8	86.1	9,416	4.96	4.74	3.56	3.10	2.80	2.54	2.08	1.67	1.33	1.02
SB Fast Lane	AC	11+07	8/2/2016	90.8	78.8	83.5	9,131	4.03	3.97	3.15	2.86	2.56	2.34	1.88	1.54	1.22	0.94
SB Fast Lane	AC	13+03	8/2/2016	91.1	78.6	84.1	9,197	4.27	4.18	3.48	3.08	2.72	2.39	1.84	1.41	1.11	0.86
SB Fast Lane	AC	15+05	8/2/2016	90.9	79.4	87.1	9,525	5.35	5.06	3.52	3.08	2.74	2.44	1.99	1.41	1.07	0.86

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
SB Fast Lane	AC	17+02	8/2/2016	89.6	78.0	84.2	9,208	4.40	4.3	3.15	2.84	2.57	2.29	1.91	1.52	1.20	0.97
SB Fast Lane	AC	19+18	8/2/2016	91.4	77.9	85.7	9,372	4.89	4.7	3.75	3.38	2.99	2.66	2.12	1.59	1.30	1.03
SB Fast Lane	AC	21+18	8/2/2016	91.3	79.1	85.1	9,306	4.24	4.1	3.35	2.99	2.62	2.38	1.92	1.55	1.30	1.15
SB Fast Lane	AC	23+01	8/2/2016	91.5	78.2	85.2	9,317	5.04	4.87	4.01	3.39	2.80	2.41	1.81	1.37	1.09	0.86
SB Fast Lane	AC	25+00	8/2/2016	92.1	79.4	84.8	9,274	4.38	4.25	3.40	3.11	2.81	2.52	2.09	1.68	1.36	1.12
SB Fast Lane	AC	27+05	8/2/2016	86.1	79.0	84.4	9,230	4.40	4.29	3.37	3.04	2.68	2.39	1.96	1.60	1.36	1.13
SB Fast Lane	AC	29+03	8/2/2016	87.2	78.3	84.2	9,208	4.67	4.56	3.63	3.22	2.83	2.49	2.02	1.60	1.28	1.10
SB Fast Lane	AC	31+00	8/2/2016	92.0	78.3	85.2	9,317	3.71	3.58	2.88	2.69	2.44	2.26	1.89	1.60	1.35	1.07
SB Fast Lane	AC	33+14	8/2/2016	91.9	80.0	82.7	9,044	4.07	4.05	3.15	2.80	2.37	2.00	1.61	1.27	1.05	0.84
SB Fast Lane	AC	35+10	8/2/2016	94.4	77.8	83.1	9,088	4.35	4.31	2.96	2.54	2.28	2.07	1.70	1.39	1.21	0.95
SB Fast Lane	AC	37+03	8/2/2016	91.8	78.5	84.4	9,230	3.42	3.33	2.83	2.66	2.43	2.22	1.84	1.55	1.33	1.13
SB Fast Lane	AC	39+05	8/2/2016	92.2	80.1	83.7	9,153	2.89	2.84	2.54	2.29	2.10	1.92	1.64	1.38	1.19	0.96
SB Fast Lane	AC	41+02	8/2/2016	92.9	79.5	84.7	9,263	4.13	4.01	3.25	3.00	2.76	2.44	1.99	1.59	1.28	1.04
SB Fast Lane	AC	43+04	8/2/2016	92.1	79.3	84.3	9,219	3.51	3.43	2.82	2.61	2.36	2.10	1.72	1.35	1.10	0.89
SB Fast Lane	AC	45+06	8/2/2016	95.1	78.3	84.3	9,219	2.85	2.78	2.44	2.27	2.07	1.91	1.65	1.33	1.09	0.63
SB Fast Lane	AC	47+09	8/2/2016	95.5	79.0	84.5	9,241	4.69	4.57	3.44	2.93	2.43	2.04	1.55	1.10	0.88	0.73
SB Fast Lane	AC	49+06	8/2/2016	93.7	79.4	84.2	9,208	4.46	4.36	3.40	3.06	2.67	2.36	1.85	1.44	1.11	0.89
SB Fast Lane	AC	51+05	8/2/2016	95.3	79.2	85.4	9,339	4.39	4.23	3.38	2.95	2.52	2.17	1.61	1.20	0.93	0.68
SB Fast Lane	AC	53+04	8/2/2016	94.5	78.9	83.9	9,175	4.16	4.08	3.38	3.00	2.63	2.28	1.78	1.38	1.05	0.81
SB Fast Lane	AC	55+04	8/2/2016	95.3	77.7	84.6	9,252	5.09	4.95	3.80	3.30	2.81	2.40	1.80	1.34	1.05	0.78
SB Fast Lane	AC	57+04	8/2/2016	96.2	77.6	84.4	9,230	5.76	5.62	4.26	3.65	2.99	2.47	1.80	1.23	0.93	0.73
SB Fast Lane	AC	59+04	8/2/2016	93.9	79.6	85.6	9,361	3.92	3.77	2.99	2.69	2.42	2.16	1.78	1.43	1.15	0.91
SB Fast Lane	AC	61+03	8/2/2016	95.0	80.0	86.1	9,416	5.38	5.14	4.37	3.86	3.32	2.89	2.17	1.46	1.06	0.85
SB Fast Lane	AC	63+03	8/2/2016	97.6	80.0	84.6	9,252	7.89	7.68	6.54	5.63	4.57	3.71	2.60	1.75	1.33	1.02
SB Fast Lane	AC	65+01	8/2/2016	97.4	79.7	84.2	9,208	3.93	3.84	2.86	2.49	2.21	1.96	1.52	1.22	0.95	0.82
SB Fast Lane	AC	67+02	8/2/2016	96.6	80.6	84.5	9,241	3.63	3.54	2.54	2.32	2.13	1.99	1.72	1.48	1.24	1.00
SB Fast Lane	AC	68+95	8/2/2016	96.9	79.5	83.9	9,175	5.93	5.82	5.28	4.98	4.57	4.15	3.26	2.36	1.70	1.19
SB Fast Lane	AC	71+01	8/2/2016	97.2	81.3	83.2	9,099	3.61	3.57	2.77	2.49	2.24	2.04	1.69	1.37	1.17	0.96
SB Fast Lane	AC	73+03	8/2/2016	97.0	79.8	83.5	9,131	4.75	4.68	3.53	3.01	2.54	2.22	1.73	1.44	1.17	0.82
SB Fast Lane	AC	75+00	8/2/2016	96.7	80.2	83.6	9,142	3.30	3.25	2.51	2.34	2.09	1.92	1.56	1.35	1.11	0.89
SB Fast Lane	AC	77+33	8/2/2016	99.0	79.5	80.6	8,814	5.44	5.55	4.07	3.63	3.22	2.86	2.30	1.85	1.46	1.18
SB Fast Lane	AC	79+09	8/2/2016	81.2	80.4	83.3	9,110	3.67	3.63	2.93	2.71	2.46	2.25	1.86	1.50	1.19	0.97
SB Fast Lane	AC	81+03	8/2/2016	88.5	79.7	83.9	9,175	4.57	4.48	3.76	3.46	3.09	2.70	2.03	1.56	1.27	1.03
SB Fast Lane	AC	83+07	8/2/2016	86.6	81.0	82.9	9,066	3.29	3.27	2.56	2.41	2.22	2.00	1.62	1.28	1.04	0.89
SB Fast Lane	AC	85+08	8/2/2016	90.9	80.8	84.1	9,197	4.17	4.08	3.33	3.03	2.61	2.27	1.76	1.49	1.24	0.92
SB Fast Lane	AC	87+01	8/2/2016	95.2	80.4	84.7	9,263	5.02	4.88	3.76	3.33	2.90	2.54	1.99	1.54	1.24	0.97
SB Fast Lane	AC	89+00	8/2/2016	98.9	79.9	84.3	9,219	4.80	4.69	3.83	3.39	2.93	2.53	1.88	1.49	1.22	0.99
SB Fast Lane	AC	91+08	8/2/2016	86.7	81.4	84.2	9,208	5.04	4.93	3.75	3.19	2.69	2.36	1.82	1.47	1.16	0.96
SB Fast Lane	AC	93+04	8/2/2016	99.9	80.6	83	9,077	3.67	3.64	2.91	2.69	2.42	2.18	1.68	1.34	1.11	0.88
SB Fast Lane	AC	95+01	8/2/2016	96.3	81.3	84.7	9,263	6.02	5.85	4.60	3.58	2.99	2.62	1.96	1.50	1.13	0.85
SB Fast Lane	AC	97+02	8/2/2016	99.1	82.1	83.4	9,121	4.51	4.45	3.48	3.11	2.78	2.43	1.93	1.50	1.24	1.00
SB Fast Lane	AC	99+08	8/2/2016	98.6	80.9	83.8	9,164	5.16	5.07	3.72	3.25	2.76	2.36	1.78	1.30	1.09	0.85
SB Fast Lane	AC	101+08	8/2/2016	98.1	81.5	83.2	9,099	3.35	3.31	2.47	2.28	2.03	1.80	1.39	1.13	0.96	0.78
SB Fast Lane	AC	103+01	8/2/2016	91.8	80.1	82.3	9,000	4.62	4.62	3.57	3.12	2.64	2.29	1.76	1.34	1.03	0.77
SB Fast Lane	AC	105+02	8/2/2016	100.6	79.5	83.1	9,088	4.83	4.78	3.58	3.16	2.77	2.41	1.87	1.48	1.17	0.93
SB Fast Lane	AC	107+02	8/2/2016	83.7	78.8	84	9,186	4.44	4.35	3.41	3.16	2.86	2.54	1.91	1.40	1.07	0.85

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
SB Fast Lane	AC	109+05	8/2/2016	81.0	79.8	83.9	9,175	6.02	5.91	4.93	4.40	3.79	3.25	2.43	1.76	1.38	1.02
SB Fast Lane	AC	111+18	8/2/2016	84.9	80.3	84.1	9,197	4.83	4.73	3.88	3.50	3.15	2.85	2.31	1.71	1.21	1.00
SB Fast Lane	AC	113+13	8/2/2016	81.7	81.1	82.6	9,033	5.12	5.1	4.05	3.69	3.30	2.95	2.36	1.83	1.42	1.13
SB Fast Lane	AC	115+02	8/2/2016	85.9	80.0	82.8	9,055	3.83	3.81	2.98	2.73	2.39	2.11	1.67	1.32	1.09	0.89
SB Fast Lane	AC	117+16	8/2/2016	93.2	81.0	84.6	9,252	5.29	5.15	4.48	3.95	3.34	2.82	2.17	1.57	1.23	0.97
SB Fast Lane	AC	119+05	8/2/2016	101.0	82.0	82.7	9,044	5.05	5.03	3.76	3.35	2.94	2.52	1.95	1.48	1.15	0.92
SB Fast Lane	AC	121+07	8/2/2016	101.2	82.1	83.8	9,164	5.03	4.94	3.96	3.65	3.24	2.82	2.07	1.52	1.19	0.93
SB Fast Lane	AC	123+06	8/2/2016	100.6	80.5	84	9,186	4.74	4.64	4.12	3.81	3.45	3.10	2.47	1.97	1.59	1.32
SB Fast Lane	AC	125+07	8/2/2016	102.5	80.4	82.4	9,011	7.99	7.98	6.60	5.91	4.98	4.09	2.93	2.17	1.68	1.38
SB Fast Lane	AC	127+16	8/2/2016	102.0	81.1	82.6	9,033	9.68	9.64	7.09	5.92	4.70	3.80	2.68	1.90	1.46	1.15
SB Fast Lane	AC	129+05	8/2/2016	98.8	80.4	81.1	8,869	5.34	5.42	4.16	3.83	3.41	3.00	2.35	1.65	1.25	1.02
SB Fast Lane	AC	131+05	8/2/2016	100.0	82.3	79.1	8,650	4.87	5.07	4.47	4.20	3.75	3.36	2.62	1.94	1.50	1.20
SB Fast Lane	AC	133+06	8/2/2016	99.8	82.1	80.9	8,847	6.17	6.28	5.06	4.58	4.06	3.53	2.70	1.94	1.40	0.98
SB Fast Lane	AC	135+06	8/2/2016	100.6	81.8	82.3	9,000	7.32	7.32	5.78	5.22	4.56	3.98	3.02	1.99	1.53	1.04
SB Fast Lane	AC	137+07	8/2/2016	98.9	82.7	78.1	8,541	2.47	2.6	1.97	1.84	1.65	1.53	1.31	1.08	0.91	0.76
SB Fast Lane	AC	139+02	8/2/2016	101.3	82.5	80.7	8,825	8.43	8.6	6.84	5.78	4.30	3.16	1.83	1.16	0.87	0.65
SB Fast Lane	AC	140+27	8/2/2016	100.9	81.0	79.6	8,705	7.85	8.12	6.69	5.74	4.51	3.45	2.15	1.46	1.12	0.92
SB Fast Lane	AC	142+40	8/2/2016	100.7	80.9	78.6	8,596	4.14	4.33	3.78	3.47	3.03	2.67	2.06	1.59	1.29	1.01
SB Fast Lane	AC	143+13	8/2/2016	101.1	80.8	78.1	8,541	3.00	3.16	2.41	2.17	1.94	1.75	1.42	1.17	0.99	0.74
SB Fast Lane	AC	145+14	8/2/2016	99.9	81.1	77.6	8,486	1.91	2.03	1.56	1.39	1.24	1.16	1.01	0.87	0.75	0.66
SB Fast Lane	AC	147+17	8/2/2016	102.3	81.8	80.8	8,836	4.07	4.15	3.29	2.93	2.50	2.15	1.60	1.22	0.99	0.78
SB Fast Lane	AC	149+13	8/2/2016	101.7	82.3	79.8	8,727	6.08	6.27	4.13	3.39	2.81	2.41	1.83	1.38	1.10	0.76
SB Fast Lane	AC	151+05	8/2/2016	102.0	82.7	79.6	8,705	4.64	4.8	3.58	3.23	2.80	2.41	1.81	1.35	1.04	0.85
SB Fast Lane	AC	153+04	8/2/2016	100.6	81.8	81.5	8,913	4.11	4.15	3.35	3.09	2.85	2.44	1.91	1.33	1.13	0.93
SB Fast Lane	AC	155+05	8/2/2016	101.6	81.8	80.6	8,814	4.22	4.31	3.26	2.94	2.57	2.32	1.83	1.52	1.20	0.89
SB Fast Lane	AC	157+01	8/2/2016	100.9	82.6	79.8	8,727	4.42	4.56	3.36	3.02	2.69	2.37	1.85	1.42	1.13	0.91
SB Fast Lane	AC	159+11	8/2/2016	101.2	83.9	81.3	8,891	4.74	4.8	3.72	3.21	2.76	2.44	1.92	1.55	1.28	1.03
SB Fast Lane	AC	160+94	8/2/2016	100.3	83.5	79.8	8,727	4.44	4.58	3.23	2.93	2.58	2.25	1.71	1.26	1.00	0.81
SB Fast Lane	AC	162+91	8/2/2016	102.3	83.5	78.9	8,628	6.87	7.17	5.59	4.96	4.17	3.57	2.70	1.93	1.47	1.03
SB Fast Lane	AC	165+16	8/2/2016	103.5	83.8	77.9	8,519	3.39	3.58	2.67	2.36	2.03	1.81	1.46	1.24	1.00	0.80
SB Fast Lane	AC	166+89	8/2/2016	106.7	85.4	76.9	8,410	2.75	2.94	2.56	2.34	2.08	1.85	1.49	1.19	0.97	0.76
SB Fast Lane	AC	169+04	8/2/2016	107.3	83.3	79	8,639	5.46	5.69	4.69	4.15	3.63	3.21	2.49	2.01	1.54	1.19
SB Fast Lane	AC	171+13	8/2/2016	102.3	84.2	78.1	8,541	3.62	3.81	3.37	3.14	2.79	2.50	2.02	1.61	1.27	0.89
SB Fast Lane	AC	173+07	8/2/2016	105.8	84.9	80.3	8,782	5.25	5.38	4.76	4.39	3.83	3.34	2.53	1.84	1.26	0.89
SB Fast Lane	AC	175+07	8/2/2016	105.5	85.3	80.6	8,814	4.85	4.95	3.56	3.18	2.83	2.48	1.95	1.51	1.16	0.91
SB Fast Lane	AC	177+01	8/2/2016	102.4	84.3	80.8	8,836	6.76	6.89	5.07	4.27	3.35	2.71	1.77	1.38	1.00	0.60
SB Fast Lane	AC	179+08	8/2/2016	103.5	83.8	81.8	8,946	7.52	7.57	6.25	5.46	4.74	4.06	2.85	1.92	1.41	0.95
SB Fast Lane	AC	181+05	8/2/2016	104.8	84.1	80.2	8,771	6.20	6.36	5.39	5.13	4.14	3.44	2.44	1.73	1.33	1.04
SB Fast Lane	AC	183+20	8/2/2016	105.0	85.2	81.1	8,869	6.25	6.34	5.00	4.46	3.85	3.34	2.58	1.89	1.44	1.13
SB Fast Lane	AC	185+09	8/2/2016	103.2	84.1	80.3	8,782	5.09	5.22	4.61	4.11	3.52	3.04	2.26	1.67	1.22	0.94
SB Fast Lane	AC	187+26	8/2/2016	103.9	83.6	79.5	8,694	4.19	4.34	3.44	3.08	2.68	2.40	1.93	1.53	1.25	1.03
SB Fast Lane	AC	189+10	8/2/2016	102.6	83.0	79.2	8,661	5.15	5.35	4.50	4.15	3.61	3.17	2.51	1.70	1.32	1.04
SB Fast Lane	AC	191+07	8/2/2016	103.0	82.3	80	8,749	7.63	7.85	6.33	5.65	4.95	4.30	3.34	2.55	1.90	1.52
SB Fast Lane	AC	193+10	8/2/2016	104.5	83.9	80.5	8,803	8.49	8.68	6.93	5.96	4.76	3.76	2.73	2.01	1.53	1.19
SB Fast Lane	AC	195+05	8/2/2016	103.6	85.0	80.1	8,760	5.15	5.29	3.93	3.41	2.80	2.33	1.67	1.26	1.00	0.76
SB Fast Lane	AC	197+03	8/2/2016	103.9	84.0	81	8,858	6.45	6.55	5.68	4.50	3.69	2.86	1.85	1.22	0.85	0.58

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
SB Fast Lane	AC	199+05	8/2/2016	102.7	83.1	81.6	8,924	7.52	7.58	6.30	5.57	4.64	3.81	2.58	1.71	1.14	0.69
SB Fast Lane	AC	201+04	8/2/2016	103.2	82.3	80.8	8,836	9.05	9.22	7.59	6.85	5.90	5.02	3.69	2.68	1.96	1.53
SB Fast Lane	AC	203+14	8/2/2016	103.9	83.3	83.5	9,131	8.72	8.59	7.31	6.58	5.56	4.79	3.52	2.15	1.69	1.31
SB Fast Lane	AC	205+09	8/2/2016	103.0	83.7	82.6	9,033	12.75	12.7	9.22	7.84	6.29	5.02	3.26	2.20	1.62	1.21
SB Fast Lane	AC	207+19	8/2/2016	105.9	86.1	81	8,858	8.94	9.08	6.69	5.62	4.49	3.54	2.65	1.94	1.52	1.15
SB Fast Lane	AC	209+09	8/2/2016	104.7	85.3	82.1	8,978	6.32	6.34	5.31	4.80	4.14	3.59	2.73	2.02	1.52	1.11
SB Fast Lane	AC	211+03	8/2/2016	106.1	83.5	80	8,749	7.22	7.43	5.22	4.45	3.79	3.33	2.67	2.09	1.70	1.37
SB Fast Lane	AC	213+07	8/2/2016	108.5	84.2	83.1	9,088	12.39	12.27	10.20	8.94	7.42	6.11	3.80	2.48	1.76	1.22
SB Fast Lane	AC	215+05	8/2/2016	104.1	84.1	85.4	9,339	10.78	10.39	8.66	7.52	5.90	4.76	3.07	2.07	1.52	1.21
SB Fast Lane	AC	217+04	8/2/2016	104.9	83.7	85.5	9,350	8.23	7.92	7.28	6.74	5.87	5.04	3.75	2.74	2.03	1.38
SB Fast Lane	AC	219+10	8/2/2016	104.5	84.1	85.3	9,328	9.94	9.59	7.78	6.53	5.16	4.02	2.38	1.61	1.21	0.98
SB Fast Lane	AC	221+03	8/2/2016	107.6	83.3	83.6	9,142	10.30	10.14	8.50	7.17	5.63	4.41	2.79	1.93	1.48	1.19
SB Fast Lane	AC	223+03	8/2/2016	104.4	83.4	83.6	9,142	10.25	10.09	7.88	6.50	5.07	3.91	2.48	1.58	1.17	0.92
SB Fast Lane	AC	225+02	8/2/2016	103.6	83.7	82.4	9,011	10.74	10.73	8.81	7.60	6.26	4.84	3.21	2.03	1.40	1.04
SB Fast Lane	AC	227+03	8/2/2016	106.2	83.8	85.6	9,361	11.28	10.84	9.28	8.10	6.44	5.02	3.00	1.85	1.27	1.03
SB Fast Lane	AC	229+09	8/2/2016	109.0	82.7	80.9	8,847	11.12	11.31	9.37	8.15	6.61	5.19	3.24	2.06	1.52	1.16
SB Fast Lane	AC	231+10	8/2/2016	92.2	84.0	83.8	9,164	11.19	10.99	9.06	7.75	6.07	4.63	2.65	1.35	0.81	0.63
SB Fast Lane	AC	233+02	8/2/2016	85.0	84.6	82.6	9,033	6.69	6.67	4.64	3.64	2.63	1.87	1.02	0.65	0.47	0.37
SB Fast Lane	AC	235+04	8/2/2016	83.7	82.9	83.2	9,099	6.85	6.78	5.54	4.65	3.47	2.69	1.64	0.99	0.72	0.55
SB Fast Lane	AC	237+09	8/2/2016	86.5	82.6	81.9	8,956	9.52	9.57	7.21	5.81	4.35	3.24	1.82	1.17	0.87	0.62
SB Fast Lane	AC	239+19	8/2/2016	108.7	84.3	79.8	8,727	5.03	5.19	3.95	3.30	2.61	2.00	1.35	0.95	0.77	0.63
SB Fast Lane	AC	241+08	8/2/2016	106.7	84.4	81.2	8,880	10.18	10.32	8.52	6.63	5.24	4.12	2.63	1.78	1.33	1.06
SB Fast Lane	AC	243+01	8/2/2016	112.7	85.2	79.9	8,738	10.28	10.59	8.96	7.97	6.50	5.15	3.26	2.01	1.44	1.07
SB Fast Lane	AC	244+97	8/2/2016	85.6	85.2	82.9	9,066	11.15	11.07	9.13	7.78	6.07	4.82	3.09	2.02	1.37	0.92
SB Fast Lane	AC	247+06	8/2/2016	106.0	84.1	83.7	9,153	10.05	9.88	8.74	7.89	6.56	5.34	3.40	2.30	1.65	1.15
SB Fast Lane	AC	249+09	8/2/2016	106.2	84.3	83	9,077	9.30	9.22	6.36	5.33	4.09	3.14	1.99	1.32	0.93	0.72
SB Fast Lane	AC	251+05	8/2/2016	108.8	84.4	83.4	9,121	9.00	8.88	8.07	7.00	5.69	4.54	2.65	1.75	1.16	0.86
SB Fast Lane	AC	253+12	8/2/2016	109.1	84.7	81.7	8,935	10.83	10.91	8.54	6.84	5.13	3.88	2.36	1.38	0.92	0.66
SB Fast Lane	AC	255+03	8/2/2016	110.4	85.3	81.3	8,891	11.77	11.91	9.52	7.78	6.05	4.58	3.09	2.11	1.61	1.28
SB Fast Lane	AC	257+08	8/2/2016	109.2	84.8	83.2	9,099	8.87	8.77	6.87	5.71	4.40	3.39	2.20	1.54	1.19	0.94
SB Fast Lane	AC	259+03	8/2/2016	110.4	84.4	84.3	9,219	10.61	10.36	8.58	6.67	5.17	3.98	2.50	1.62	1.21	0.95
SB Fast Lane	AC	261+07	8/2/2016	106.8	85.9	83.5	9,131	10.19	10.04	8.87	8.11	6.77	5.61	3.96	2.62	1.94	1.34
SB Fast Lane	AC	263+04	8/2/2016	105.2	87.1	82.9	9,066	10.62	10.54	9.50	8.68	7.37	6.16	4.43	2.42	1.74	1.19
SB Fast Lane	AC	265+04	8/2/2016	109.2	86.9	81.6	8,924	13.06	13.17	10.73	9.23	7.37	5.86	3.86	2.54	1.85	1.34
SB Fast Lane	AC	267+13	8/2/2016	107.7	87.4	83.2	9,099	8.85	8.75	6.50	5.43	4.16	3.29	2.19	1.56	1.20	0.94
SB Fast Lane	AC	269+72	8/2/2016	108.4	88.2	74.7	8,169	10.57	11.65	8.52	7.84	5.23	3.88	2.49	1.75	1.37	1.09
SB Fast Lane	AC	271+06	8/2/2016	106.9	87.7	83.3	9,110	13.68	13.51	10.33	8.65	6.65	5.14	3.33	2.35	1.84	1.40
SB Fast Lane	AC	273+11	8/2/2016	110.1	86.6	83.1	9,088	11.89	11.77	9.26	7.92	6.22	4.87	3.23	2.28	1.78	1.46
SB Fast Lane	AC	277+01	8/2/2016	109.7	86.8	81.9	8,956	12.02	12.08	9.66	8.28	6.65	5.25	3.54	2.44	1.91	1.52
SB Fast Lane	AC	279+03	8/2/2016	112.3	87.6	80.6	8,814	11.02	11.25	8.85	7.38	5.67	4.32	2.80	2.07	1.56	1.21
SB Fast Lane	AC	281+02	8/2/2016	112.8	87.8	82.9	9,066	11.93	11.84	9.70	8.16	6.42	5.09	3.37	2.44	1.85	1.42
SB Fast Lane	AC	282+33	8/2/2016	112.1	87.4	79.5	8,694	10.01	10.36	8.18	6.91	5.49	4.36	2.88	2.04	1.52	1.19
SB Fast Lane	AC	284+65	8/2/2016	112.1	88.9	80.9	8,847	15.42	15.69	12.30	10.63	8.36	6.69	4.33	2.70	2.04	1.54
SB Fast Lane	AC	285+56	8/2/2016	113.9	89.0	83.2	9,099	14.29	14.13	11.29	9.45	7.41	5.87	3.65	2.28	1.69	1.27
SB Fast Lane	AC	287+11	8/2/2016	110.5	88.1	82.8	9,055	13.89	13.81	10.79	9.22	7.19	5.61	3.61	2.36	1.76	1.30
SB Fast Lane	AC	290+84	8/2/2016	112.1	85.3	82.1	8,978	13.34	13.37	10.90	9.33	7.48	5.56	3.59	2.36	1.72	1.30

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
SB Fast Lane	AC	293+08	8/2/2016	112.5	86.9	81.7	8,935	11.72	11.81	9.58	8.10	6.30	4.90	3.17	2.07	1.55	1.24
SB Fast Lane	AC	295+10	8/2/2016	111.4	87.0	81	8,858	12.33	12.53	10.30	8.93	7.24	5.74	3.24	2.24	1.74	1.29
SB Fast Lane	AC	297+10	8/2/2016	110.5	87.6	83	9,077	12.50	12.39	10.16	8.67	6.85	5.38	3.51	2.39	1.82	1.43
SB Fast Lane	AC	299+12	8/2/2016	108.7	88.9	83.6	9,142	10.94	10.77	8.31	6.98	5.39	4.25	2.74	1.75	1.31	1.04
SB Fast Lane	AC	301+35	8/2/2016	110.5	88.4	79.6	8,705	10.81	11.18	8.94	7.63	6.10	4.79	3.15	2.08	1.56	1.17
SB Fast Lane	AC	303+00	8/2/2016	109.8	88.2	77.9	8,519	11.41	12.05	9.34	8.01	6.35	4.92	3.17	2.13	1.56	1.25
SB Fast Lane	AC	305+35	8/2/2016	113.1	86.7	78.6	8,596	8.80	9.21	7.39	6.54	5.34	4.17	3.04	2.07	1.53	1.15
SB Fast Lane	AC	307+21	8/2/2016	113.4	87.4	78.3	8,563	9.68	10.17	8.24	7.17	5.83	4.75	3.29	2.22	1.55	1.10
SB Fast Lane	AC	309+04	8/2/2016	109.3	88.8	77.4	8,464	9.67	10.28	8.50	7.47	6.02	4.93	3.41	2.46	1.93	1.51
SB Fast Lane	AC	311+06	8/2/2016	112.7	87.4	78.7	8,607	8.81	9.21	7.66	6.70	5.50	4.52	2.92	1.96	1.41	1.01
SB Fast Lane	AC	313+17	8/2/2016	113.2	87.6	79.3	8,672	9.35	9.7	8.07	7.21	6.23	5.36	3.77	2.71	1.50	1.18
SB Fast Lane	AC	315+08	8/2/2016	110.5	87.0	77.6	8,486	8.87	9.41	7.44	6.57	5.40	4.47	3.17	2.29	1.74	1.32
SB Fast Lane	AC	317+12	8/2/2016	110.0	87.2	78.8	8,617	8.94	9.34	7.18	6.13	4.96	4.04	2.88	1.97	1.50	1.13
SB Fast Lane	AC	319+01	8/2/2016	113.7	87.9	79.4	8,683	7.42	7.69	6.11	5.25	4.28	3.50	2.46	1.91	1.46	1.15
SB Fast Lane	AC	321+11	8/2/2016	118.2	87.4	79.3	8,672	9.53	9.89	7.65	6.48	5.11	3.96	2.31	1.52	1.14	0.94
SB Fast Lane	AC	323+02	8/2/2016	115.2	87.8	75.7	8,278	9.24	10.05	7.83	6.69	5.48	4.48	3.18	2.28	1.72	1.29
SB Fast Lane	AC	325+04	8/2/2016	114.6	87.3	79.9	8,738	10.10	10.4	8.14	6.91	5.61	4.56	3.24	2.33	1.78	1.35
SB Fast Lane	AC	327+05	8/2/2016	114.2	88.3	79	8,639	8.97	9.34	7.70	6.42	5.28	4.37	3.10	2.20	1.75	1.36
SB Fast Lane	AC	329+03	8/2/2016	116.4	89.3	78.1	8,541	7.21	7.6	5.80	5.08	4.27	3.58	2.66	1.98	1.58	1.29
SB Fast Lane	AC	331+15	8/2/2016	114.6	89.0	78.7	8,607	9.36	9.79	7.48	6.41	5.23	4.20	2.94	2.01	1.56	1.21
SB Fast Lane	AC	333+03	8/2/2016	115.2	89.2	79	8,639	8.72	9.08	7.12	6.21	4.97	4.01	2.69	1.86	1.36	1.13
SB Fast Lane	AC	335+03	8/2/2016	115.3	88.4	78.3	8,563	6.82	7.17	5.41	4.61	3.74	3.06	2.16	1.48	1.12	0.85
SB Fast Lane	AC	337+02	8/2/2016	114.0	88.4	79.4	8,683	8.37	8.68	6.80	5.66	4.50	3.66	2.37	1.44	1.00	0.88
SB Fast Lane	AC	339+11	8/2/2016	115.2	88.7	78.9	8,628	7.17	7.48	5.66	4.72	3.76	3.08	2.19	1.55	1.17	0.93
SB Fast Lane	AC	341+05	8/2/2016	113.5	88.7	78.5	8,585	7.02	7.36	5.36	4.66	3.84	3.20	2.30	1.62	1.24	1.08
SB Fast Lane	AC	343+22	8/2/2016	115.4	88.2	78.8	8,617	7.44	7.77	5.80	5.14	4.35	3.65	2.65	1.87	1.35	1.02
SB Fast Lane	AC	345+02	8/2/2016	96.4	90.2	78.3	8,563	11.69	12.29	10.32	7.82	6.00	4.63	3.05	2.11	1.58	1.25
SB Fast Lane	AC	347+04	8/2/2016	113.5	89.2	82.4	9,011	8.00	7.99	6.65	5.87	4.74	3.80	2.46	1.61	1.11	0.88
SB Fast Lane	AC	349+04	8/2/2016	112.3	88.9	81.1	8,869	8.34	8.46	6.54	5.39	3.87	2.77	1.59	1.03	0.74	0.67
SB Fast Lane	AC	351+01	8/2/2016	114.1	88.9	79.1	8,650	9.73	10.12	7.91	6.74	5.23	3.59	2.25	1.43	0.99	0.77
SB Fast Lane	AC	353+07	8/2/2016	115.3	89.3	81.3	8,891	11.88	12.03	9.81	8.34	6.57	4.94	2.99	1.85	1.38	1.08
SB Fast Lane	AC	355+05	8/2/2016	115.6	88.4	82.9	9,066	13.32	13.22	10.00	8.28	6.44	4.60	2.80	1.87	1.45	1.07
SB Fast Lane	AC	357+07	8/2/2016	116.2	89.9	82	8,967	11.41	11.45	9.62	8.61	6.22	4.85	3.09	2.11	1.50	1.24
SB Fast Lane	AC	359+08	8/2/2016	115.6	90.3	82.8	9,055	10.02	9.96	7.84	6.61	5.21	3.77	2.37	1.55	1.19	0.96
SB Fast Lane	AC	361+22	8/2/2016	115.0	91.2	83.5	9,131	8.34	8.22	6.38	5.39	4.19	3.22	2.09	1.43	1.16	0.95
SB Fast Lane	AC	363+08	8/2/2016	112.5	91.6	84.8	9,274	8.22	7.98	6.60	5.76	4.68	3.41	2.20	1.47	1.15	0.88
SB Fast Lane	AC	365+04	8/2/2016	113.8	89.2	85.2	9,317	9.63	9.3	7.67	6.81	5.56	4.46	2.98	2.00	1.56	1.22
SB Fast Lane	AC	367+06	8/2/2016	112.3	90.0	81.4	8,902	10.49	10.61	8.66	7.37	5.76	4.57	2.96	2.08	1.65	1.31
SB Fast Lane	AC	369+05	8/2/2016	113.9	90.7	80.9	8,847	10.03	10.2	8.44	7.20	5.42	4.29	2.91	2.05	1.55	1.23
SB Fast Lane	AC	371+02	8/2/2016	115.0	92.3	83.4	9,121	13.83	13.65	9.48	7.59	5.81	4.36	2.85	1.98	1.59	1.32
SB Fast Lane	AC	373+06	8/2/2016	115.3	92.2	83.4	9,121	11.26	11.11	9.02	7.15	5.26	3.98	2.44	1.65	1.22	0.99
SB Fast Lane	AC	375+02	8/2/2016	114.7	92.4	84.5	9,241	10.59	10.31	8.00	7.01	5.65	4.47	2.83	1.91	1.37	1.03
SB Fast Lane	AC	377+03	8/2/2016	114.7	92.7	83.9	9,175	8.50	8.34	7.00	6.34	5.32	4.51	3.15	2.17	1.54	1.10
SB Fast Lane	AC	379+05	8/2/2016	114.8	92.3	83.5	9,131	11.99	11.82	9.65	8.17	6.46	4.82	3.02	2.02	1.43	1.05
SB Fast Lane	AC	381+25	8/2/2016	115.0	92.6	83.8	9,164	11.29	11.09	8.85	7.41	5.72	4.44	2.73	1.80	1.32	1.04
SB Fast Lane	AC	383+06	8/2/2016	115.2	90.7	84	9,186	11.96	11.72	9.48	8.03	6.28	4.89	3.25	2.26	1.80	1.56

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
SB Fast Lane	AC	385+41	8/2/2016	115.2	92.7	83.9	9,175	10.71	10.51	8.47	7.28	5.81	4.65	3.09	2.09	1.60	1.31
SB Fast Lane	AC	387+02	8/2/2016	115.6	93.3	86.1	9,416	9.81	9.38	7.80	6.54	5.02	3.86	2.45	1.63	1.24	1.00
SB Fast Lane	AC	389+04	8/2/2016	114.0	91.2	83.8	9,164	12.11	11.89	9.54	8.05	6.16	4.69	2.95	1.98	1.44	1.14
SB Fast Lane	AC	391+08	8/2/2016	114.0	90.8	80.5	8,803	9.69	9.91	7.57	6.38	5.15	4.03	2.55	1.54	1.16	0.91
SB Fast Lane	AC	393+05	8/2/2016	115.1	91.1	83	9,077	9.83	9.75	7.33	6.01	4.66	3.62	2.34	1.60	1.23	0.97
SB Fast Lane	AC	395+05	8/2/2016	115.7	91.6	83	9,077	8.62	8.55	6.74	5.65	4.13	3.31	1.98	1.49	1.22	0.98
SB Fast Lane	AC	397+11	8/2/2016	115.0	92.3	81.2	8,880	10.22	10.36	8.00	6.85	5.40	4.27	2.53	1.85	1.37	1.07
SB Fast Lane	AC	399+06	8/2/2016	118.3	91.4	81.7	8,935	11.03	11.11	8.83	7.57	5.94	4.58	2.81	1.75	1.26	0.98
SB Fast Lane	AC	401+84	8/2/2016	124.2	90.9	77.2	8,442	6.97	7.43	5.43	4.75	3.99	3.29	2.36	1.68	1.31	1.01
SB Fast Lane	AC	403+32	8/2/2016	119.2	89.9	77.1	8,432	10.01	10.68	8.18	7.26	5.95	4.84	3.25	2.13	1.52	1.20
SB Fast Lane	AC	405+14	8/2/2016	117.9	90.9	80.8	8,836	4.91	5	3.88	3.37	2.67	2.13	1.42	1.00	0.81	0.66
SB Fast Lane	AC	407+02	8/2/2016	120.7	92.4	79.2	8,661	5.48	5.69	3.84	3.09	2.19	1.65	1.12	0.78	0.67	0.61
SB Fast Lane	AC	409+04	8/2/2016	114.7	92.0	81.4	8,902	6.36	6.43	5.25	4.68	3.87	3.17	2.15	1.48	1.13	0.87
SB Fast Lane	AC	411+17	8/2/2016	118.0	92.7	83.9	9,175	11.94	11.71	8.56	7.28	5.76	4.62	3.05	2.07	1.41	1.07
SB Fast Lane	AC	413+02	8/2/2016	117.8	93.8	58.5	9,000	13.09	13.09	9.38	7.22	5.71	4.62	3.08	2.02	1.33	1.09
SB Fast Lane	AC	415+11	8/2/2016	119.0	93.8	58.2	9,000	7.99	7.99	6.45	5.90	5.01	4.26	2.61	1.76	1.25	0.85
SB Fast Lane	AC	417+09	8/2/2016	119.7	91.9	55.9	9,000	9.41	9.41	7.84	6.80	5.32	4.38	2.83	1.98	1.42	1.04
SB Fast Lane	AC	419+05	8/2/2016	121.0	92.6	54.1	9,000	9.75	9.75	8.09	7.06	5.74	4.58	2.96	1.83	1.28	1.05
SB Fast Lane	AC	421+05	8/2/2016	121.4	92.6	58.6	9,000	12.93	12.93	9.00	7.54	5.95	4.73	3.11	2.03	1.56	1.20
SB Fast Lane	AC	422+29	8/2/2016	123.3	91.7	75.5	9,000	6.31	6.31	5.29	4.57	3.59	2.95	1.88	1.35	1.03	0.78
SB Fast Lane	AC	424+29	8/2/2016	125.7	93.7	53.4	9,000	6.52	6.52	4.97	4.45	3.72	3.13	2.24	1.64	1.27	0.98
SB Fast Lane	AC	425+31	8/2/2016	127.7	92.9	54.7	9,000	6.72	6.72	5.11	4.30	3.43	2.81	2.00	1.48	1.20	1.00
SB Fast Lane	AC	428+15	8/2/2016	125.3	95.2	51.7	9,000	6.71	6.71	5.28	4.76	3.97	3.26	2.28	1.60	1.20	0.94
SB Fast Lane	AC	429+29	8/2/2016	125.6	92.9	53.5	9,000	7.39	7.39	5.97	5.20	4.26	3.37	2.43	1.73	1.33	1.08
SB Fast Lane	AC	431+12	8/2/2016	123.9	91.1	55.4	9,000	5.93	5.93	5.14	4.57	3.78	3.14	2.18	1.55	1.17	0.94
SB Fast Lane	AC	433+26	8/2/2016	92.9	92.8	51.9	9,000	6.57	6.57	5.10	4.56	3.74	3.05	2.18	1.60	1.24	1.01
SB Fast Lane	AC	435+52	8/2/2016	124.7	92.6	54.4	9,000	8.09	8.09	6.04	5.09	3.74	2.99	1.94	1.36	1.04	0.83
SB Fast Lane	AC	437+47	8/2/2016	125.3	93.0	52.6	9,000	7.80	7.8	5.99	5.20	4.24	3.50	2.42	1.69	1.30	1.00
SB Fast Lane	AC	439+07	8/2/2016	122.6	94.0	52.7	9,000	8.15	8.15	6.12	5.02	3.85	3.06	2.14	1.60	1.26	1.04
SB Fast Lane	AC	441+75	8/2/2016	126.4	93.0	53.4	9,000	8.32	8.32	6.31	5.26	4.09	3.29	2.26	1.63	1.20	0.93
SB Fast Lane	AC	443+05	8/2/2016	126.3	93.0	52.8	9,000	8.70	8.7	6.48	5.24	4.04	3.20	2.19	1.55	1.24	0.98
SB Fast Lane	AC	444+21	8/2/2016	124.5	93.5	52.2	9,000	7.15	7.15	5.69	5.07	4.07	3.29	2.31	1.61	1.24	0.95
SB Fast Lane	AC	445+86	8/2/2016	128.0	94.1	52.6	9,000	9.77	9.77	7.38	6.06	4.81	3.89	2.64	1.84	1.38	1.07
SB Fast Lane	AC	447+02	8/2/2016	126.9	93.2	52.9	9,000	9.07	9.07	7.17	6.02	4.56	3.56	2.37	1.61	1.21	0.92
SB Fast Lane	AC	449+08	8/2/2016	92.3	94.8	53	9,000	6.57	6.57	5.31	4.57	3.59	2.81	1.80	1.23	0.87	0.64
SB Fast Lane	AC	451+10	8/2/2016	122.3	94.3	52.6	9,000	6.65	6.65	5.16	4.41	3.48	2.77	1.93	1.37	1.11	0.94
SB Fast Lane	AC	453+10	8/2/2016	125.7	93.4	71.9	9,000	10.04	10.04	8.06	6.88	5.48	4.32	2.85	1.98	1.54	1.22
SB Fast Lane	AC	455+09	8/2/2016	127.1	95.7	52.4	9,000	7.53	7.53	6.06	5.19	4.12	3.34	2.26	1.65	1.26	1.01
SB Fast Lane	AC	457+17	8/2/2016	128.2	93.4	53.3	9,000	4.99	4.99	3.85	3.29	2.52	1.91	1.17	0.76	0.55	0.41
SB Fast Lane	AC	457+53	8/5/2016	138.0	95.8	91.5	10,023	13.78	12.37	10.05	8.06	6.20	4.85	3.30	2.29	1.75	1.39
SB Fast Lane	AC	460+27	8/5/2016	132.9	96.9	91.1	9,979	6.67	6.02	4.46	3.39	2.54	1.99	1.32	1.02	0.85	0.72
SB Fast Lane	AC	462+43	8/5/2016	129.5	96.3	90.4	9,903	18.19	16.53	12.78	10.19	7.29	5.21	3.05	1.93	1.36	1.11
SB Fast Lane	AC	465+44	8/5/2016	131.6	96.8	91	9,969	14.22	12.84	10.09	7.93	5.90	4.51	2.90	1.93	1.44	1.19
SB Fast Lane	AC	467+80	8/5/2016	132.1	95.3	91	9,969	13.51	12.2	9.52	7.46	5.52	4.11	2.65	1.74	1.33	1.09
SB Fast Lane	AC	470+36	8/5/2016	134.6	95.1	91	9,969	6.66	6.01	4.59	3.78	2.76	2.17	1.52	1.13	0.94	0.82
SB Fast Lane	AC	472+72	8/5/2016	137.2	94.5	90.6	9,925	11.72	10.63	8.21	6.47	4.74	3.54	2.23	1.52	1.18	0.93

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
SB Fast Lane	AC	475+36	8/5/2016	136.5	96.7	90.4	9,903	17.39	15.8	13.64	11.35	8.57	6.57	4.22	2.57	1.81	1.42
SB Fast Lane	AC	477+80	8/5/2016	133.0	97.0	91.7	10,045	14.15	12.68	11.42	10.00	7.84	6.03	3.82	2.37	1.68	1.32
SB Fast Lane	AC	480+55	8/5/2016	136.2	97.2	91.5	10,023	11.09	9.96	8.77	7.67	6.11	4.89	3.30	2.22	1.68	1.34
SB Fast Lane	AC	482+88	8/5/2016	135.3	96.1	92.5	10,133	16.00	14.21	11.26	8.88	6.42	4.78	2.99	2.08	1.58	1.33
SB Fast Lane	AC	485+45	8/5/2016	136.4	95.9	91.4	10,012	16.33	14.68	11.57	9.08	6.72	5.07	3.38	2.29	1.73	1.40
SB Fast Lane	AC	487+94	8/5/2016	132.6	97.0	92	10,078	12.89	11.51	9.37	7.91	6.16	4.85	3.23	2.19	1.61	1.28
SB Fast Lane	AC	490+36	8/5/2016	135.0	94.7	91.5	10,023	11.22	10.07	8.51	7.17	5.57	4.33	2.82	1.86	1.34	1.03
SB Fast Lane	AC	492+73	8/5/2016	137.0	95.1	92.3	10,111	14.33	12.76	9.94	7.76	5.63	4.15	2.68	1.74	1.30	1.07
SB Fast Lane	AC	495+30	8/5/2016	131.8	96.2	92.2	10,100	12.63	11.25	10.20	8.78	6.99	5.59	3.74	2.47	1.78	1.46
SB Fast Lane	AC	497+88	8/5/2016	135.4	96.2	91.7	10,045	12.42	11.13	10.09	8.81	7.16	5.76	3.83	2.51	1.81	1.48
SB Fast Lane	AC	500+38	8/5/2016	131.9	95.9	91	9,969	11.18	10.09	8.11	6.63	5.19	4.11	2.73	1.74	1.31	1.06
SB Fast Lane	AC	502+83	8/5/2016	133.8	94.8	91.4	10,012	18.42	16.56	13.54	11.12	8.61	6.64	4.32	2.76	2.03	1.60
SB Fast Lane	AC	505+36	8/5/2016	133.6	96.0	94.5	10,352	19.29	16.77	14.22	11.74	9.17	7.13	4.54	3.02	2.13	1.68
SB Fast Lane	PCC	507+78	8/5/2016	126.7	95.8	91.6	10,034	9.48	8.5	9.18	8.84	8.17	7.60	6.59	5.35	4.21	3.01
SB Fast Lane	PCC	510+64	8/5/2016	126.5	96.1	91.4	10,012	6.19	5.56	6.09	5.96	5.51	5.17	4.49	3.68	2.97	2.31
SB Fast Lane	PCC	512+95	8/5/2016	126.0	95.9	94.8	10,385	6.55	5.68	6.25	6.02	5.51	5.04	4.13	3.14	2.27	1.62
SB Fast Lane	PCC	515+32	8/5/2016	124.4	97.0	91.4	10,012	11.46	10.3	11.69	11.71	11.36	11.09	10.39	9.32	8.13	6.81
SB Fast Lane	PCC	517+60	8/5/2016	123.7	96.5	90.9	9,958	7.00	6.33	6.36	5.97	5.31	4.72	3.74	2.94	2.28	1.76
SB Fast Lane	PCC	520+36	8/5/2016	123.4	96.8	92.1	10,089	8.10	7.23	7.80	7.43	6.72	6.03	4.75	3.30	2.19	1.48
SB Fast Lane	PCC	522+88	8/5/2016	123.5	97.0	91.7	10,045	10.38	9.3	10.40	10.26	9.80	9.40	8.56	7.45	6.30	5.07
SB Fast Lane	PCC	525+47	8/5/2016	122.7	96.4	90.5	9,914	5.59	5.07	5.39	5.19	4.74	4.36	3.70	2.93	2.32	1.78
SB Fast Lane	PCC	527+89	8/5/2016	124.8	96.4	91.9	10,067	6.83	6.11	6.46	6.20	5.63	5.15	4.37	3.51	2.77	2.10
SB Fast Lane	PCC	530+49	8/5/2016	124.1	96.7	90.3	9,892	5.59	5.09	5.30	5.09	4.61	4.21	3.52	2.83	2.30	1.87
SB Fast Lane	PCC	532+75	8/5/2016	126.0	96.6	90.4	9,903	9.13	8.3	9.01	8.85	8.34	7.86	6.93	5.79	4.66	3.64
SB Fast Lane	AC	535+38	8/5/2016	128.1	97.6	95.8	10,494	5.32	4.56	4.82	4.53	3.98	3.47	2.69	2.09	1.68	1.28
SB Fast Lane	AC	537+79	8/5/2016	127.7	98.7	95.5	10,461	8.39	7.22	7.76	7.43	6.71	6.06	4.89	3.80	2.95	2.34
SB Fast Lane	AC	540+36	8/5/2016	128.3	96.8	94.8	10,385	9.03	7.83	8.24	7.71	6.76	5.88	4.41	3.18	2.32	1.62
SB Fast Lane	AC	542+82	8/5/2016	126.7	96.7	96.6	10,582	7.41	6.3	6.79	6.56	5.98	5.50	4.66	3.80	3.11	2.54
SB Fast Lane	AC	545+30	8/5/2016	127.6	96.9	94.1	10,308	12.25	10.7	11.87	11.68	10.98	10.40	9.09	7.42	5.84	4.35
SB Fast Lane	AC	547+82	8/5/2016	125.8	96.0	96.4	10,560	10.35	8.82	10.06	9.96	9.45	9.02	8.24	7.33	6.44	5.61
SB Fast Lane	AC	550+26	8/5/2016	128.5	96.8	92.4	10,122	10.04	8.93	9.74	9.56	9.03	8.56	7.61	6.48	5.35	4.30
SB Fast Lane	AC	552+63	8/5/2016	126.8	97.3	97.7	10,702	5.64	4.74	5.19	5.16	4.93	4.74	4.31	3.81	3.37	2.97
SB Fast Lane	AC	555+29	8/5/2016	127.5	96.5	94.3	10,330	10.65	9.28	9.89	9.57	8.79	8.12	6.78	5.30	4.06	3.17
SB Fast Lane	AC	557+84	8/5/2016	127.5	96.3	94.4	10,341	11.16	9.71	10.26	10.04	9.35	8.77	7.59	6.26	5.03	3.86
SB Fast Lane	AC	560+37	8/5/2016	128.0	97.3	95.1	10,418	8.74	7.55	8.59	8.61	8.33	8.11	7.52	6.75	5.92	5.05
SB Fast Lane	AC	560+44	8/5/2016	127.6	96.2	93.1	10,199	9.86	8.7	9.11	8.70	7.97	7.30	6.11	4.84	3.86	3.10
SB Fast Lane	AC	562+82	8/5/2016	129.0	97.7	94.9	10,396	11.90	10.3	11.35	11.17	10.60	10.14	9.07	7.65	6.28	4.99
SB Fast Lane	AC	565+41	8/5/2016	129.2	96.8	95.8	10,494	9.20	7.89	8.57	8.17	7.26	6.51	5.00	3.27	1.90	0.96
SB Fast Lane	AC	567+94	8/5/2016	131.2	96.9	97.1	10,637	6.49	5.49	5.95	5.72	5.24	4.80	4.08	3.37	2.78	2.25
SB Fast Lane	AC	571+53	8/5/2016	128.0	99.3	93.5	10,242	5.57	4.89	5.43	5.44	5.17	4.92	4.39	3.76	3.24	2.74
SB Fast Lane	AC	571+61	8/5/2016	128.7	98.3	92.2	10,100	9.79	8.72	9.47	9.33	8.79	8.33	7.44	6.44	5.47	4.61
SB Fast Lane	AC	573+60	8/5/2016	127.4	98.1	96	10,516	6.29	5.38	5.76	5.42	4.78	4.22	3.24	2.45	1.87	1.47
SB Fast Lane	AC	575+36	8/5/2016	128.4	98.1	95.8	10,494	9.37	8.04	9.11	8.92	8.41	8.00	7.17	6.21	5.33	4.51
SB Fast Lane	AC	577+80	8/5/2016	126.8	97.4	95.1	10,418	10.19	8.8	9.85	9.58	8.93	8.32	7.22	5.97	4.84	3.89
SB Fast Lane	AC	580+38	8/5/2016	127.6	97.3	96.1	10,527	8.96	7.66	8.63	8.44	7.90	7.41	6.46	5.46	4.53	3.77
SB Fast Lane	AC	582+86	8/5/2016	126.7	96.1	96.2	10,538	9.36	7.99	9.39	9.34	9.03	8.81	8.19	7.39	6.44	5.50

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
SB Fast Lane	AC	585+47	8/5/2016	127.0	98.0	94.9	10,396	10.70	9.26	10.17	9.91	9.27	8.60	7.36	5.81	4.41	3.15
SB Fast Lane	AC	587+78	8/5/2016	124.5	96.9	97.4	10,670	6.28	5.3	5.63	5.19	4.45	3.78	2.72	1.91	1.37	0.90
SB Fast Lane	AC	590+50	8/5/2016	126.4	96.9	97.8	10,713	8.99	7.55	8.29	7.98	7.33	6.75	5.60	4.52	3.66	2.94
SB Fast Lane	AC	592+79	8/5/2016	128.0	97.9	99.1	10,856	7.04	5.84	6.55	6.25	5.70	5.27	4.53	3.80	3.22	2.69
SB Fast Lane	AC	595+37	8/5/2016	127.2	98.9	95.6	10,472	4.75	4.08	4.48	4.39	4.09	3.89	3.46	2.99	2.62	2.25
SB Fast Lane	AC	597+95	8/5/2016	128.1	99.3	96.9	10,615	10.08	8.55	9.71	9.46	8.87	8.37	7.42	6.38	5.46	4.71
SB Fast Lane	AC	600+35	8/5/2016	123.8	96.5	96.2	10,538	6.97	5.95	6.59	6.34	5.87	5.46	4.74	3.91	3.20	2.60
SB Fast Lane	AC	602+86	8/5/2016	126.3	95.3	94.1	10,308	12.52	10.93	11.92	11.57	10.72	9.94	8.36	6.53	4.87	3.49
SB Fast Lane	AC	605+48	8/5/2016	123.1	96.4	95.8	10,494	6.45	5.53	5.98	5.74	5.24	4.85	4.17	3.45	2.88	2.41
SB Fast Lane	AC	607+77	8/5/2016	125.9	97.0	97	10,626	6.39	5.41	6.01	5.84	5.46	5.12	4.39	3.70	3.04	2.49
SB Fast Lane	AC	610+36	8/5/2016	125.1	96.4	96.5	10,571	8.44	7.19	8.54	8.58	8.36	8.22	7.78	7.22	6.49	5.77
SB Fast Lane	AC	610+48	8/5/2016	125.9	96.1	95.6	10,472	5.92	5.09	5.31	5.19	4.83	4.56	4.07	3.53	3.05	2.61
SB Fast Lane	AC	612+91	8/5/2016	124.8	96.2	97.1	10,637	7.19	6.08	6.97	6.96	6.67	6.44	5.96	5.39	4.80	4.25
SB Fast Lane	AC	615+27	8/5/2016	125.7	96.4	94.6	10,363	11.74	10.2	10.91	10.47	9.52	8.55	6.73	4.85	3.21	2.13
SB Fast Lane	AC	617+82	8/5/2016	119.3	96.1	95	10,407	9.97	8.62	9.58	9.24	8.57	7.88	6.63	5.23	3.99	3.04
SB Fast Lane	AC	620+39	8/5/2016	128.4	95.9	92.5	10,133	11.18	9.93	10.71	10.39	9.62	8.89	7.42	5.79	4.31	3.00
SB Fast Lane	AC	622+78	8/5/2016	124.2	96.6	94	10,297	10.79	9.43	10.79	10.67	10.20	9.81	8.89	7.61	6.41	5.17
SB Fast Lane	AC	625+26	8/5/2016	126.4	96.9	95.6	10,472	8.60	7.39	7.98	7.59	6.83	6.20	5.00	3.94	3.09	2.48
SB Fast Lane	AC	627+82	8/5/2016	125.5	96.2	94.2	10,319	10.96	9.56	10.37	10.03	9.28	8.54	7.25	5.85	4.66	3.61
SB Fast Lane	AC	630+45	8/5/2016	124.4	95.6	96.4	10,560	6.96	5.93	7.07	7.11	6.91	6.78	6.41	5.92	5.38	4.82
SB Fast Lane	PCC	632+90	8/5/2016	121.9	97.1	89.5	9,804	3.97	3.64	3.70	3.48	3.12	2.83	2.37	1.98	1.73	1.50
SB Fast Lane	PCC	633+53	8/2/2016	129.4	98.1	77.8	8,508	9.49	10.04	9.57	9.09	8.17	7.39	5.94	4.39	3.20	2.20
SB Fast Lane	PCC	635+11	8/2/2016	128.3	98.5	74	8,093	3.98	4.43	3.70	3.57	3.30	3.06	2.72	2.38	2.04	1.76
SB Fast Lane	PCC	635+35	8/5/2016	123.8	97.1	90.4	9,903	4.91	4.46	4.71	4.58	4.26	4.02	3.56	3.06	2.62	2.17
SB Fast Lane	PCC	637+89	8/5/2016	124.8	97.2	89.8	9,837	4.15	3.8	3.92	3.70	3.30	2.97	2.47	2.00	1.71	1.43
SB Fast Lane	PCC	638+29	8/2/2016	131.2	99.8	76.4	8,355	3.76	4.05	3.53	3.36	3.08	2.87	2.44	2.04	1.67	1.39
SB Fast Lane	PCC	640+45	8/5/2016	122.7	97.8	89.9	9,848	5.00	4.57	4.50	4.14	3.56	3.07	2.35	1.74	1.36	1.11
SB Fast Lane	PCC	642+73	8/5/2016	122.0	97.2	90	9,859	3.96	3.61	3.55	3.30	2.93	2.61	2.09	1.72	1.40	1.13
SB Fast Lane	PCC	645+45	8/5/2016	119.5	97.7	90.3	9,892	3.94	3.58	3.42	3.16	2.70	2.34	1.79	1.37	1.11	0.90
SB Fast Lane	PCC	648+58	8/5/2016	119.9	96.5	89.6	9,815	4.34	3.98	3.99	3.81	3.41	3.14	2.62	2.19	1.81	1.53
SB Fast Lane	PCC	650+54	8/5/2016	119.8	97.0	89.7	9,826	4.24	3.88	3.83	3.58	3.15	2.83	2.30	1.89	1.57	1.29
SB Fast Lane	PCC	652+49	8/5/2016	118.5	95.8	90.7	9,936	4.52	4.09	4.24	4.07	3.71	3.42	2.84	2.32	1.84	1.50
SB Fast Lane	PCC	655+24	8/5/2016	120.2	95.1	90.5	9,914	4.35	3.95	4.06	3.87	3.51	3.21	2.67	2.15	1.72	1.33
SB Fast Lane	PCC	657+79	8/5/2016	118.5	95.5	90.8	9,947	5.02	4.54	4.46	4.10	3.49	2.99	2.22	1.65	1.27	1.00
SB Fast Lane	PCC	660+65	8/5/2016	121.7	94.8	89.8	9,837	4.23	3.87	3.85	3.65	3.28	2.98	2.45	1.97	1.63	1.29
SB Fast Lane	PCC	663+24	8/5/2016	119.5	95.2	89.8	9,837	3.50	3.2	3.23	3.03	2.67	2.37	1.93	1.52	1.26	1.04
SB Fast Lane	PCC	665+36	8/5/2016	118.7	95.2	89.9	9,848	3.60	3.29	3.33	3.14	2.80	2.50	2.04	1.61	1.35	1.09
SB Fast Lane	PCC	667+62	8/5/2016	120.0	95.6	90.1	9,870	3.83	3.49	3.57	3.35	3.01	2.73	2.28	1.90	1.63	1.35
SB Fast Lane	PCC	670+49	8/5/2016	117.1	95.5	89.8	9,837	5.30	4.85	4.85	4.54	4.01	3.57	2.87	2.29	1.92	1.59
SB Fast Lane	PCC	672+56	8/5/2016	119.1	95.5	90.3	9,892	4.43	4.03	4.25	4.04	3.71	3.37	2.80	2.32	1.90	1.56
SB Fast Lane	PCC	673+11	8/2/2016	129.0	100.6	85.6	9,361	6.66	6.4	6.30	6.08	5.52	5.06	4.27	3.43	2.70	2.09
SB Fast Lane	PCC	675+44	8/5/2016	119.8	95.9	89.2	9,771	4.29	3.95	4.02	3.84	3.52	3.22	2.79	2.37	2.04	1.76
SB Fast Lane	PCC	676+12	8/2/2016	129.0	100.3	84.9	9,285	7.03	6.81	6.39	6.01	5.37	4.85	4.05	3.35	2.80	2.33
SB Fast Lane	PCC	676+20	8/2/2016	126.8	101.8	85.4	9,339	15.30	14.74	15.42	15.04	13.34	11.92	9.44	6.93	4.91	3.35
SB Fast Lane	PCC	677+47	8/2/2016	129.2	101.3	83.9	9,175	6.75	6.62	6.04	5.61	4.91	4.31	3.44	2.67	2.19	1.71
SB Fast Lane	PCC	677+85	8/5/2016	120.5	95.7	89.8	9,837	3.83	3.5	3.56	3.33	2.99	2.70	2.24	1.86	1.60	1.35

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
SB Fast Lane	PCC	679+28	8/2/2016	127.1	100.5	84	9,186	6.87	6.73	6.12	5.70	4.92	4.30	3.35	2.58	2.06	1.73
SB Fast Lane	PCC	679+37	8/2/2016	128.6	100.3	86.1	9,416	13.99	13.37	14.26	13.94	12.53	11.33	9.13	6.81	4.91	3.39
SB Fast Lane	PCC	680+56	8/5/2016	119.7	95.8	90.3	9,892	4.61	4.19	4.29	4.05	3.63	3.27	2.73	2.22	1.84	1.56
SB Fast Lane	PCC	681+29	8/2/2016	128.5	100.4	83.6	9,142	6.42	6.32	6.10	5.87	5.44	5.06	4.37	3.67	2.98	2.33
SB Fast Lane	PCC	682+83	8/5/2016	118.0	95.6	91.3	10,001	6.46	5.81	6.34	6.14	5.63	5.18	4.29	3.33	2.59	1.98
SB Fast Lane	PCC	683+07	8/2/2016	129.5	101.1	82.2	8,989	8.56	8.57	7.93	7.53	6.79	6.12	5.05	4.05	3.28	2.63
SB Fast Lane	PCC	683+15	8/2/2016	127.2	101.8	85.3	9,328	7.27	7.01	7.00	6.67	5.97	5.46	4.54	3.70	2.96	2.42
SB Fast Lane	AC	683+98	8/2/2016	134.2	101.7	85.2	9,317	13.59	13.13	12.90	12.51	11.67	11.08	10.15	8.59	6.93	5.32
SB Fast Lane	AC	685+17	8/2/2016	134.2	101.6	87.2	9,536	7.00	6.61	6.00	5.59	5.12	4.74	4.07	3.34	2.72	2.13
SB Fast Lane	AC	685+32	8/5/2016	122.2	96.2	94.1	10,308	9.74	8.5	8.60	8.04	7.09	6.24	4.72	3.12	2.10	1.48
SB Fast Lane	AC	687+03	8/2/2016	133.9	102.6	92.6	10,127	20.92	18.59	14.94	11.93	8.71	6.75	4.54	3.18	2.47	2.01
SB Fast Lane	AC	687+78	8/5/2016	126.2	96.3	99.8	10,933	23.58	19.41	17.44	13.53	9.14	6.37	3.72	2.45	2.06	1.69
SB Fast Lane	AC	688+78	8/5/2016	121.4	96.5	94.7	10,374	10.99	9.53	6.72	4.73	3.29	2.62	2.03	1.60	1.22	0.91
SB Fast Lane	AC	689+02	8/2/2016	139.2	102.5	132.6	14,501	14.69	9.12	10.50	8.11	5.23	3.64	2.10	1.43	1.08	0.87
SB Fast Lane	AC	691+23	8/2/2016	136.2	102.2	91.2	9,974	19.37	17.48	14.82	10.82	7.32	4.97	3.03	2.20	1.75	1.37
SB Slow Lane	AC	0+87	8/1/2016	102.0	82.1	84.4	9,230	9.27	9.04	8.47	7.47	5.29	4.28	2.99	2.07	1.56	1.22
SB Slow Lane	AC	2+28	8/1/2016	109.0	82.3	83.6	9,142	7.34	7.23	5.63	4.99	4.32	3.60	2.57	1.78	1.36	1.10
SB Slow Lane	AC	4+04	8/1/2016	108.4	82.6	84.1	9,197	6.22	6.09	4.52	3.93	3.39	2.88	2.19	1.72	1.39	1.13
SB Slow Lane	AC	6+02	8/1/2016	107.8	82.5	84.6	9,252	10.49	10.2	8.50	7.35	6.05	5.03	3.69	2.53	1.71	1.35
SB Slow Lane	AC	8+02	8/1/2016	107.3	82.3	82.7	9,044	7.54	7.5	6.20	5.28	4.40	3.69	2.45	1.87	1.45	1.15
SB Slow Lane	AC	10+05	8/1/2016	108.1	83.0	85.4	9,339	11.59	11.17	9.09	7.28	5.04	3.54	2.65	2.09	1.71	1.29
SB Slow Lane	AC	12+21	8/1/2016	106.9	83.1	80.5	8,803	7.11	7.27	5.43	4.64	3.96	3.34	2.41	1.69	1.26	0.94
SB Slow Lane	AC	13+17	8/1/2016	107.3	83.1	81.2	8,880	6.89	6.98	5.62	4.84	4.09	3.48	2.65	1.93	1.55	1.15
SB Slow Lane	AC	16+09	8/1/2016	107.4	83.0	82.2	8,989	6.24	6.25	5.18	4.67	4.19	3.70	2.81	1.82	1.32	1.11
SB Slow Lane	AC	18+04	8/1/2016	107.5	83.3	82.6	9,033	8.13	8.1	6.35	5.58	4.70	4.08	3.12	2.28	1.80	1.38
SB Slow Lane	AC	20+08	8/1/2016	109.1	82.0	80.7	8,825	7.08	7.22	5.42	4.79	4.08	3.46	2.62	1.92	1.52	1.19
SB Slow Lane	AC	22+09	8/1/2016	106.7	83.7	83.7	9,153	9.65	9.49	7.82	6.86	5.80	4.89	3.57	2.54	2.00	1.55
SB Slow Lane	AC	24+25	8/1/2016	108.7	84.7	82.9	9,066	9.34	9.27	7.58	6.31	5.07	4.08	2.50	1.82	1.39	1.07
SB Slow Lane	AC	26+04	8/1/2016	108.5	84.1	83	9,077	9.34	9.26	6.67	5.37	4.03	3.35	2.65	2.15	1.74	1.45
SB Slow Lane	AC	28+09	8/1/2016	103.9	83.3	82.2	8,989	9.14	9.15	7.36	5.89	4.76	4.11	3.17	2.40	1.91	1.43
SB Slow Lane	AC	30+01	8/1/2016	110.6	84.2	83.5	9,131	8.71	8.59	6.66	5.68	4.65	3.70	2.44	1.81	1.40	1.20
SB Slow Lane	AC	32+06	8/1/2016	111.7	84.8	81.9	8,956	9.38	9.43	7.43	6.65	5.79	4.85	3.26	2.30	1.74	1.37
SB Slow Lane	AC	34+06	8/1/2016	107.7	85.0	81.1	8,869	5.21	5.29	4.03	3.56	3.16	2.81	2.30	1.85	1.48	1.21
SB Slow Lane	AC	36+04	8/1/2016	108.6	84.0	83.5	9,131	11.72	11.55	8.77	7.02	5.41	4.26	3.11	2.26	1.76	1.41
SB Slow Lane	AC	38+15	8/1/2016	108.7	84.4	82.5	9,022	7.52	7.5	6.50	5.72	4.78	4.22	3.11	2.42	1.96	1.67
SB Slow Lane	AC	40+17	8/1/2016	109.0	86.7	83.2	9,099	7.80	7.72	6.88	6.29	4.86	4.02	2.97	2.27	1.83	1.46
SB Slow Lane	AC	42+04	8/1/2016	107.4	85.0	82	8,967	10.20	10.24	8.47	7.63	5.82	4.94	3.59	2.73	2.20	1.71
SB Slow Lane	AC	44+02	8/1/2016	109.1	84.9	82.3	9,000	6.05	6.05	4.87	3.91	3.01	2.52	1.99	1.47	1.19	0.97
SB Slow Lane	AC	46+03	8/1/2016	109.9	85.2	82.4	9,011	7.54	7.53	6.12	5.42	4.57	3.85	2.42	1.59	1.19	0.93
SB Slow Lane	AC	48+17	8/1/2016	109.8	86.7	81.9	8,956	11.77	11.83	10.29	8.93	7.85	6.77	5.13	3.51	2.39	1.42
SB Slow Lane	AC	50+07	8/1/2016	108.6	84.7	82.6	9,033	10.29	10.25	8.58	7.44	6.06	4.86	3.54	2.13	1.55	1.21
SB Slow Lane	AC	52+05	8/1/2016	110.7	83.7	81.5	8,913	8.03	8.11	6.38	5.43	4.31	3.46	2.39	1.58	1.19	0.98
SB Slow Lane	AC	54+02	8/1/2016	111.2	84.1	83	9,077	10.80	10.71	7.85	6.64	4.96	3.52	2.63	1.96	1.55	1.19
SB Slow Lane	AC	56+04	8/1/2016	110.3	84.2	82.7	9,044	10.62	10.57	8.24	6.99	5.60	4.57	3.23	2.22	1.47	1.14
SB Slow Lane	AC	58+05	8/1/2016	110.3	84.2	82.3	9,000	9.10	9.1	7.31	5.21	3.94	3.06	2.02	1.43	1.11	0.93
SB Slow Lane	AC	60+00	8/1/2016	109.7	85.5	84.2	9,208	11.00	10.75	8.83	7.27	5.53	4.18	2.91	2.15	1.69	1.26

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
SB Slow Lane	AC	62+02	8/1/2016	111.8	85.2	82.3	9,000	7.11	7.11	5.89	5.02	4.06	3.37	2.76	2.07	1.56	1.20
SB Slow Lane	AC	64+14	8/1/2016	112.9	85.4	82.4	9,011	6.87	6.86	5.24	4.50	3.87	3.34	2.49	2.00	1.49	1.13
SB Slow Lane	AC	66+05	8/1/2016	112.9	84.5	83.2	9,099	8.70	8.61	6.83	4.99	3.87	3.17	2.27	1.77	1.46	1.13
SB Slow Lane	AC	68+14	8/1/2016	112.1	86.2	82	8,967	6.02	6.04	4.99	4.46	3.94	3.54	2.93	2.32	1.85	1.45
SB Slow Lane	AC	69+99	8/1/2016	114.1	86.3	80.6	8,814	9.81	10.02	8.11	6.82	5.64	4.86	3.69	2.73	2.15	1.69
SB Slow Lane	AC	72+14	8/1/2016	114.3	87.5	81.8	8,946	7.78	7.83	6.29	5.49	4.36	3.47	2.47	1.76	1.27	0.96
SB Slow Lane	AC	74+08	8/1/2016	116.3	86.3	81.3	8,891	9.28	9.39	7.53	6.33	4.84	3.94	2.86	1.96	1.27	0.99
SB Slow Lane	AC	76+01	8/1/2016	117.1	87.0	78.7	8,607	6.72	7.03	5.48	4.63	3.68	2.94	2.14	1.62	1.30	1.04
SB Slow Lane	AC	77+99	8/1/2016	114.9	86.7	81.1	8,869	9.02	9.15	7.04	5.71	4.54	3.64	2.65	1.90	1.42	1.12
SB Slow Lane	AC	80+08	8/1/2016	115.6	86.5	82.3	9,000	10.43	10.43	8.32	7.01	5.66	4.63	3.13	2.20	1.69	1.33
SB Slow Lane	AC	82+23	8/1/2016	84.6	86.4	81.1	8,869	6.13	6.22	4.53	4.01	3.52	2.98	2.31	1.79	1.41	1.10
SB Slow Lane	AC	84+05	8/1/2016	115.8	86.9	81.7	8,935	7.72	7.78	6.46	5.73	4.81	3.94	2.77	1.95	1.52	1.22
SB Slow Lane	AC	86+05	8/1/2016	114.7	86.1	81.9	8,956	7.56	7.6	6.26	5.74	5.13	4.50	3.46	2.51	1.88	1.43
SB Slow Lane	AC	89+51	8/1/2016	113.3	85.6	83.1	9,088	6.49	6.43	5.59	4.85	3.83	3.24	2.24	1.65	1.34	1.10
SB Slow Lane	AC	90+44	8/1/2016	114.3	85.9	82.2	8,989	8.80	8.81	6.95	5.86	4.80	4.09	3.07	2.29	1.76	1.35
SB Slow Lane	AC	92+04	8/1/2016	114.1	85.6	84.9	9,285	12.35	11.97	9.56	7.57	5.51	4.16	2.50	1.91	1.52	1.25
SB Slow Lane	AC	94+09	8/1/2016	115.9	85.9	81.6	8,924	10.27	10.36	8.76	7.44	5.63	4.33	2.73	1.80	1.31	1.02
SB Slow Lane	AC	96+05	8/1/2016	115.5	85.3	81.7	8,935	6.59	6.64	4.81	4.11	3.38	2.77	1.94	1.51	1.19	0.93
SB Slow Lane	AC	98+20	8/1/2016	115.4	86.7	82.9	9,066	10.53	10.45	8.69	6.72	5.15	4.00	2.52	1.87	1.45	1.07
SB Slow Lane	AC	100+05	8/1/2016	115.2	87.1	83.9	9,175	11.20	10.99	7.03	5.65	4.45	3.50	2.40	1.64	1.20	0.91
SB Slow Lane	AC	102+11	8/1/2016	114.6	86.2	82.5	9,022	9.98	9.96	8.25	7.17	5.93	4.96	3.50	2.32	1.54	1.07
SB Slow Lane	AC	104+28	8/1/2016	114.4	87.7	83.1	9,088	7.75	7.67	6.23	5.39	4.26	3.37	2.30	1.60	1.27	1.06
SB Slow Lane	AC	106+12	8/1/2016	113.3	86.0	82.8	9,055	8.34	8.29	6.87	5.11	3.99	3.15	2.24	1.65	1.30	1.07
SB Slow Lane	AC	108+06	8/1/2016	112.5	86.4	81.9	8,956	8.58	8.62	6.43	5.26	4.07	3.22	2.27	1.71	1.34	1.07
SB Slow Lane	AC	110+04	8/1/2016	114.2	86.3	82.6	9,033	7.53	7.5	6.13	5.13	4.22	3.54	2.46	1.67	1.31	1.01
SB Slow Lane	AC	112+09	8/1/2016	114.6	89.2	81.7	8,935	8.12	8.18	5.60	4.69	3.66	2.95	2.12	1.64	1.30	1.10
SB Slow Lane	AC	114+06	8/1/2016	112.7	88.2	83.6	9,142	8.05	7.92	5.63	4.83	4.16	3.58	2.69	1.94	1.49	1.16
SB Slow Lane	AC	116+11	8/1/2016	114.3	87.1	82.3	9,000	6.88	6.88	5.89	4.87	3.94	3.29	2.44	1.69	1.37	1.08
SB Slow Lane	AC	118+02	8/1/2016	114.8	88.4	82.2	8,989	8.34	8.35	7.24	6.28	5.26	4.33	3.09	2.10	1.48	1.13
SB Slow Lane	AC	120+05	8/1/2016	114.4	88.0	81.6	8,924	5.49	5.54	3.97	3.55	3.08	2.71	2.11	1.64	1.28	0.94
SB Slow Lane	AC	122+04	8/1/2016	113.0	89.9	82.2	8,989	5.53	5.54	4.23	3.74	3.29	2.89	2.29	1.79	1.41	1.11
SB Slow Lane	AC	124+08	8/1/2016	116.4	85.9	80.4	8,792	10.94	11.2	9.87	9.11	7.78	6.78	5.27	3.49	2.44	1.64
SB Slow Lane	AC	126+10	8/1/2016	116.2	87.5	81.4	8,902	9.79	9.9	8.41	7.64	6.81	5.91	3.20	2.56	2.13	1.69
SB Slow Lane	AC	128+11	8/1/2016	115.7	86.7	82	8,967	8.08	8.11	5.94	5.18	4.40	3.69	2.72	2.01	1.56	1.26
SB Slow Lane	AC	130+09	8/1/2016	117.4	86.3	80.6	8,814	8.01	8.18	6.57	5.91	5.29	4.74	3.95	2.42	1.92	1.43
SB Slow Lane	AC	132+09	8/1/2016	112.6	85.9	79	8,639	7.15	7.45	6.12	5.06	4.28	3.69	2.84	2.03	1.54	1.13
SB Slow Lane	AC	134+05	8/1/2016	114.4	86.4	80.8	8,836	11.19	11.4	9.04	8.00	6.50	5.17	3.63	2.50	1.76	1.24
SB Slow Lane	AC	136+06	8/1/2016	115.8	86.9	81.2	8,880	10.74	10.89	8.96	8.22	7.07	6.01	3.87	2.42	1.72	1.32
SB Slow Lane	AC	138+07	8/1/2016	114.9	86.9	77.9	8,519	2.93	3.1	2.40	2.05	1.69	1.44	1.12	0.92	0.73	0.59
SB Slow Lane	AC	140+31	8/1/2016	115.5	86.8	77.4	8,464	5.74	6.1	3.76	3.19	2.78	2.42	1.91	1.47	1.17	0.99
SB Slow Lane	AC	142+12	8/1/2016	116.6	88.0	78	8,530	2.59	2.73	1.99	1.83	1.68	1.57	1.34	1.07	0.87	0.72
SB Slow Lane	AC	144+06	8/1/2016	115.5	86.9	77.2	8,442	2.48	2.64	2.11	1.92	1.69	1.56	1.30	1.06	0.89	0.70
SB Slow Lane	AC	146+05	8/1/2016	117.2	87.4	77.4	8,464	4.98	5.3	4.07	3.76	3.28	2.93	2.38	1.92	1.57	1.26
SB Slow Lane	AC	148+05	8/1/2016	113.0	86.3	80.6	8,814	4.25	4.34	3.17	2.87	2.54	2.25	1.66	1.34	0.99	0.77
SB Slow Lane	AC	150+03	8/1/2016	115.0	86.0	81.5	8,913	5.38	5.43	4.15	3.61	2.97	2.45	1.67	1.10	0.78	0.58
SB Slow Lane	AC	152+05	8/1/2016	115.5	86.3	81.8	8,946	4.33	4.36	3.26	2.79	2.44	2.13	1.69	1.31	1.06	0.85

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
SB Slow Lane	AC	154+06	8/1/2016	116.1	86.4	80	8,749	7.03	7.23	5.61	5.04	4.33	3.76	2.90	2.07	1.46	1.15
SB Slow Lane	AC	156+06	8/1/2016	118.0	86.9	82.2	8,989	6.36	6.37	5.50	4.78	4.00	3.41	2.52	1.81	1.39	1.07
SB Slow Lane	AC	158+04	8/1/2016	115.8	88.1	81	8,858	35.82	36.39	5.90	5.08	3.91	2.82	2.02	1.37	1.00	0.72
SB Slow Lane	AC	160+06	8/1/2016	113.4	87.2	80.1	8,760	6.32	6.49	5.27	4.64	3.65	2.86	1.89	1.39	1.05	0.76
SB Slow Lane	AC	162+08	8/1/2016	117.3	86.8	82.2	8,989	6.93	6.94	5.84	5.22	4.59	4.01	3.10	2.40	1.84	1.39
SB Slow Lane	AC	164+04	8/1/2016	119.9	87.6	76.9	8,410	4.76	5.09	3.86	3.59	3.20	2.87	2.33	1.84	1.48	1.18
SB Slow Lane	AC	166+08	8/1/2016	118.3	87.1	75.9	8,300	4.32	4.68	3.91	3.59	3.25	2.85	2.26	1.65	1.30	1.00
SB Slow Lane	AC	168+61	8/1/2016	121.5	88.7	76.9	8,410	4.16	4.45	3.74	3.46	3.06	2.63	1.94	1.48	1.18	0.92
SB Slow Lane	AC	170+05	8/1/2016	120.2	87.6	77.4	8,464	5.65	6.01	5.06	4.67	4.07	3.54	2.64	1.85	1.39	0.97
SB Slow Lane	AC	172+03	8/1/2016	120.3	86.9	77.5	8,475	6.17	6.55	5.22	4.83	4.26	3.74	2.88	1.65	1.28	0.96
SB Slow Lane	AC	174+07	8/1/2016	117.4	88.4	81.4	8,902	10.54	10.66	7.96	6.95	5.82	4.67	3.05	1.84	1.26	0.93
SB Slow Lane	AC	176+08	8/1/2016	117.8	88.8	80.2	8,771	8.82	9.05	6.32	5.53	4.61	3.93	2.74	1.94	1.41	1.01
SB Slow Lane	AC	178+08	8/1/2016	117.3	88.8	80.5	8,803	8.34	8.53	6.15	5.31	4.38	3.59	2.56	1.85	1.37	0.88
SB Slow Lane	AC	180+30	8/1/2016	117.2	91.2	78.7	8,607	7.22	7.55	5.49	5.09	4.37	3.60	2.40	1.61	1.24	0.96
SB Slow Lane	AC	182+31	8/1/2016	116.9	90.7	80.5	8,803	12.50	12.78	11.05	9.51	7.56	6.13	4.45	2.32	1.70	1.17
SB Slow Lane	AC	184+04	8/1/2016	118.5	89.6	78.8	8,617	8.23	8.6	6.90	6.14	5.24	4.47	3.26	2.41	1.80	1.36
SB Slow Lane	AC	186+03	8/1/2016	117.6	89.6	85.4	9,339	12.22	11.78	7.77	7.07	5.79	5.07	3.45	2.35	1.41	1.06
SB Slow Lane	AC	188+13	8/1/2016	118.2	89.1	76.9	8,410	6.66	7.13	6.60	6.19	5.35	4.46	3.04	1.93	1.45	1.21
SB Slow Lane	AC	190+09	8/1/2016	119.4	91.4	77	8,421	7.37	7.88	6.83	6.61	6.00	4.73	3.40	2.16	1.32	1.13
SB Slow Lane	AC	192+06	8/1/2016	119.6	90.9	76.4	8,355	7.40	7.97	6.47	5.89	5.19	4.54	3.60	2.77	2.17	1.70
SB Slow Lane	AC	194+13	8/1/2016	120.7	90.3	78.3	8,563	6.14	6.45	5.12	4.32	3.49	2.92	2.19	1.65	1.29	0.93
SB Slow Lane	AC	196+09	8/1/2016	116.5	89.1	80.1	8,760	7.38	7.58	6.40	5.78	5.01	4.28	2.82	1.76	1.19	0.92
SB Slow Lane	AC	198+20	8/1/2016	115.8	89.1	81.8	8,946	13.84	13.92	12.20	11.33	7.99	6.33	4.20	2.65	1.83	1.46
SB Slow Lane	AC	200+19	8/1/2016	118.5	89.7	82.1	8,978	14.91	14.95	11.50	9.75	7.60	5.84	3.81	2.64	1.83	1.50
SB Slow Lane	AC	202+25	8/1/2016	120.1	90.6	80.8	8,836	8.98	9.15	7.01	6.24	5.46	4.64	3.47	2.48	1.80	1.33
SB Slow Lane	AC	204+06	8/1/2016	118.1	89.9	82.7	9,044	14.97	14.9	13.07	11.90	8.19	6.93	4.95	3.37	2.33	1.67
SB Slow Lane	AC	206+12	8/1/2016	118.5	89.0	79.8	8,727	10.09	10.41	8.07	7.09	6.00	5.10	3.70	2.71	2.04	1.60
SB Slow Lane	AC	208+05	8/1/2016	119.2	89.4	80.7	8,825	13.50	13.77	11.07	9.31	7.22	5.43	3.21	2.21	1.62	1.30
SB Slow Lane	AC	210+08	8/1/2016	119.1	91.1	81	8,858	13.41	13.62	10.95	9.54	7.37	6.00	3.94	2.54	1.84	1.35
SB Slow Lane	AC	211+94	8/1/2016	118.4	90.3	78	8,530	8.42	8.88	8.28	7.89	7.20	6.32	4.72	3.38	2.52	1.93
SB Slow Lane	AC	214+12	8/1/2016	122.1	91.1	80.5	8,803	12.88	13.17	10.39	8.76	6.52	4.77	2.87	1.54	1.09	0.76
SB Slow Lane	AC	216+11	8/1/2016	121.5	90.8	79.7	8,716	12.98	13.4	10.51	8.52	6.16	4.28	2.52	1.44	1.02	0.76
SB Slow Lane	AC	218+08	8/1/2016	123.1	92.5	81.2	8,880	11.64	11.8	8.78	6.87	5.02	3.95	2.39	1.52	1.15	0.83
SB Slow Lane	AC	220+05	8/1/2016	122.1	91.8	79.3	8,672	13.19	13.69	11.20	9.65	7.09	5.53	3.48	2.15	1.62	1.39
SB Slow Lane	AC	222+14	8/1/2016	121.5	90.4	78.8	8,617	14.12	14.75	11.27	9.04	6.90	5.08	3.07	1.91	1.32	1.00
SB Slow Lane	AC	224+10	8/1/2016	122.2	89.7	80.2	8,771	13.43	13.78	11.53	9.67	7.09	4.89	2.81	1.54	0.99	0.67
SB Slow Lane	AC	226+15	8/1/2016	120.3	89.7	79.7	8,716	12.83	13.25	10.16	8.34	6.00	4.26	2.44	1.54	1.11	0.83
SB Slow Lane	AC	228+18	8/1/2016	121.4	88.3	82.1	8,978	11.19	11.22	8.53	7.02	5.14	3.73	1.96	1.10	0.78	0.61
SB Slow Lane	AC	230+09	8/1/2016	120.1	90.0	79.8	8,727	15.03	15.5	12.22	10.54	8.22	6.07	3.63	2.10	1.43	1.06
SB Slow Lane	AC	232+16	8/1/2016	120.2	89.8	84.7	9,263	10.43	10.13	7.57	5.38	3.16	2.10	0.89	0.50	0.39	0.32
SB Slow Lane	AC	234+07	8/1/2016	108.6	88.3	81.3	8,891	9.03	9.14	6.42	5.05	3.57	2.54	1.36	0.62	0.35	0.28
SB Slow Lane	AC	236+10	8/1/2016	96.3	90.5	82	8,967	9.42	9.45	7.02	5.63	4.00	2.56	1.37	0.87	0.64	0.59
SB Slow Lane	AC	238+12	8/1/2016	117.0	91.3	80.5	8,803	9.37	9.58	7.95	5.91	4.15	2.63	1.09	0.51	0.36	0.32
SB Slow Lane	AC	240+07	8/1/2016	122.1	92.9	82	8,967	13.23	13.28	10.59	8.92	6.75	4.48	2.62	1.56	1.12	0.83
SB Slow Lane	AC	242+14	8/1/2016	123.4	92.0	80	8,749	14.17	14.58	11.01	9.24	7.13	5.12	2.56	1.64	1.24	0.97
SB Slow Lane	AC	244+19	8/1/2016	121.7	92.1	80.2	8,771	12.34	12.66	10.26	9.11	7.33	5.83	3.76	2.45	1.71	1.27

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
SB Slow Lane	AC	246+20	8/1/2016	121.6	91.3	78.8	8,617	14.47	15.11	11.55	9.68	7.02	4.85	2.96	1.74	1.25	0.89
SB Slow Lane	AC	248+04	8/1/2016	120.0	91.8	80.9	8,847	13.89	14.13	11.19	8.87	5.83	3.94	1.96	1.21	0.91	0.68
SB Slow Lane	AC	250+02	8/1/2016	120.4	92.3	77.8	8,508	9.88	10.45	7.69	6.68	5.20	3.96	2.37	1.52	1.06	0.83
SB Slow Lane	AC	252+08	8/1/2016	122.7	91.3	78.7	8,607	10.04	10.5	7.56	6.27	4.62	3.26	1.80	1.04	0.70	0.54
SB Slow Lane	AC	254+10	8/1/2016	122.2	91.8	81.6	8,924	10.13	10.22	7.09	5.39	3.59	2.26	0.89	0.46	0.31	0.31
SB Slow Lane	AC	256+14	8/1/2016	123.4	92.0	77.1	8,432	13.67	14.59	11.42	9.56	7.35	5.34	3.07	2.06	1.56	1.33
SB Slow Lane	AC	258+06	8/1/2016	124.6	90.9	81	8,858	16.13	16.39	13.17	10.68	7.72	5.46	2.97	1.95	1.51	1.13
SB Slow Lane	AC	260+14	8/1/2016	120.7	91.1	80.6	8,814	17.25	17.61	14.19	12.09	9.19	6.12	3.11	1.87	1.27	0.86
SB Slow Lane	AC	262+13	8/1/2016	123.5	90.7	79.8	8,727	16.07	16.57	12.77	10.49	8.29	6.35	3.81	2.33	1.72	1.34
SB Slow Lane	AC	264+18	8/1/2016	125.0	90.9	78.8	8,617	15.29	15.97	12.33	10.25	7.75	5.42	3.07	1.90	1.39	1.00
SB Slow Lane	AC	266+07	8/1/2016	124.3	91.9	78.5	8,585	11.04	11.57	8.81	6.63	5.03	3.65	2.17	1.45	1.07	0.86
SB Slow Lane	AC	268+05	8/1/2016	122.6	90.9	79.8	8,727	12.58	12.97	10.25	8.50	6.04	4.38	2.73	1.77	1.31	1.09
SB Slow Lane	AC	270+01	8/1/2016	124.0	91.4	78	8,530	11.94	12.6	9.86	8.32	6.34	4.98	2.96	1.86	1.46	1.11
SB Slow Lane	AC	272+04	8/1/2016	123.4	91.4	77.3	8,453	14.74	15.69	12.12	9.82	7.38	5.42	3.38	2.26	1.80	1.50
SB Slow Lane	AC	274+03	8/1/2016	124.4	91.4	78	8,530	13.18	13.91	10.45	9.21	7.04	5.25	3.39	2.24	1.78	1.36
SB Slow Lane	AC	276+07	8/1/2016	124.0	92.7	79.6	8,705	17.32	17.91	13.96	11.73	8.99	6.61	4.00	2.57	1.96	1.49
SB Slow Lane	AC	278+11	8/1/2016	125.1	93.9	77.5	8,475	15.80	16.78	12.96	10.91	7.90	6.07	3.67	2.50	1.87	1.35
SB Slow Lane	AC	280+10	8/1/2016	124.0	93.9	79	8,639	18.02	18.77	14.19	12.03	9.16	6.63	3.80	2.39	1.69	1.35
SB Slow Lane	AC	282+10	8/1/2016	125.6	93.4	78.4	8,574	15.82	16.61	13.35	10.54	7.87	5.01	3.14	2.18	1.61	1.21
SB Slow Lane	AC	284+41	8/1/2016	127.5	92.1	79.7	8,716	14.53	15	11.86	9.84	7.20	5.40	3.27	2.08	1.49	1.12
SB Slow Lane	AC	286+05	8/1/2016	124.5	91.2	77.4	8,464	13.96	14.84	10.87	8.95	6.99	5.16	3.08	2.00	1.51	1.24
SB Slow Lane	AC	288+06	8/1/2016	124.6	90.5	77.8	8,508	13.19	13.95	10.84	8.64	6.65	5.05	3.02	2.06	1.46	1.02
SB Slow Lane	AC	290+06	8/1/2016	125.3	89.8	78.5	8,585	16.30	17.09	12.81	10.67	7.96	5.57	3.19	1.96	1.42	1.12
SB Slow Lane	AC	292+45	8/1/2016	124.6	90.9	79	8,639	15.16	15.79	11.94	9.77	7.03	5.39	3.01	1.94	1.44	1.11
SB Slow Lane	AC	294+14	8/1/2016	124.0	92.2	80.5	8,803	12.90	13.19	9.94	7.93	5.72	4.19	2.51	1.67	1.26	0.98
SB Slow Lane	AC	296+15	8/1/2016	124.4	93.0	80.9	8,847	13.77	14.01	10.61	8.26	6.17	4.13	2.43	1.52	1.16	0.92
SB Slow Lane	AC	298+03	8/1/2016	125.0	94.1	81.1	8,869	15.31	15.54	12.06	9.50	7.51	5.45	3.11	1.94	1.41	1.23
SB Slow Lane	AC	300+18	8/1/2016	126.0	93.1	77.9	8,519	13.26	14.01	9.88	8.21	6.02	4.54	2.68	1.84	1.46	1.08
SB Slow Lane	AC	302+20	8/1/2016	125.2	91.5	78.6	8,596	14.48	15.16	12.09	10.31	7.17	5.42	3.09	1.89	1.47	1.13
SB Slow Lane	AC	304+02	8/1/2016	125.5	92.3	79.5	8,694	18.08	18.72	15.00	11.11	8.57	6.11	3.57	2.29	1.74	1.35
SB Slow Lane	AC	306+10	8/1/2016	127.0	92.5	77.9	8,519	13.90	14.68	11.85	10.30	8.25	5.67	2.99	1.72	1.23	0.92
SB Slow Lane	AC	308+06	8/1/2016	128.7	94.4	79.3	8,672	14.62	15.17	12.89	10.33	8.11	6.41	3.73	2.33	1.53	1.03
SB Slow Lane	AC	310+05	8/1/2016	130.2	95.1	77.7	8,497	14.22	15.06	11.66	9.96	7.00	5.33	2.97	1.87	1.43	1.12
SB Slow Lane	AC	312+06	8/1/2016	127.5	94.5	79.3	8,672	15.51	16.1	12.49	9.85	7.50	5.46	3.07	2.03	1.41	1.02
SB Slow Lane	AC	314+02	8/1/2016	129.0	93.2	79.2	8,661	14.78	15.36	11.43	9.13	6.95	5.33	3.31	2.12	1.55	1.13
SB Slow Lane	AC	316+05	8/1/2016	129.3	92.6	78.7	8,607	14.38	15.04	11.28	9.35	7.04	5.25	2.98	1.85	1.31	1.07
SB Slow Lane	AC	318+27	8/1/2016	128.4	94.0	76.8	8,399	11.39	12.21	8.78	7.14	5.39	4.02	2.21	1.57	1.22	0.97
SB Slow Lane	AC	320+19	8/1/2016	129.1	93.4	77.2	8,442	11.90	12.69	9.48	7.94	6.29	4.96	3.39	2.23	1.58	1.22
SB Slow Lane	AC	322+13	8/1/2016	127.6	93.3	78	8,530	13.46	14.2	10.48	8.88	6.93	5.38	3.42	2.16	1.59	1.20
SB Slow Lane	AC	324+11	8/1/2016	127.7	93.9	77.1	8,432	14.46	15.43	12.17	10.70	7.60	5.99	4.02	2.50	1.81	1.26
SB Slow Lane	AC	326+13	8/1/2016	129.0	94.1	78.2	8,552	14.90	15.68	11.52	9.61	7.42	5.72	3.64	2.39	1.75	1.30
SB Slow Lane	AC	328+08	8/1/2016	129.0	93.9	76.8	8,399	15.34	16.44	12.70	10.63	8.21	6.26	3.86	2.40	1.84	1.35
SB Slow Lane	AC	330+43	8/1/2016	129.6	94.8	78.9	8,628	13.60	14.19	11.30	9.18	7.04	5.42	3.39	2.09	1.49	1.15
SB Slow Lane	AC	332+06	8/1/2016	133.1	93.5	80.9	8,847	16.78	17.07	13.38	11.13	7.45	5.64	3.19	2.05	1.48	1.12
SB Slow Lane	AC	334+05	8/1/2016	126.9	93.8	77.3	8,453	12.70	13.52	10.47	8.24	6.50	4.85	2.86	1.82	1.46	1.14
SB Slow Lane	AC	336+04	8/1/2016	127.8	93.3	78.5	8,585	14.58	15.28	11.91	10.23	8.02	5.63	3.02	1.65	1.19	0.98

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
SB Slow Lane	AC	338+15	8/1/2016	128.9	93.9	79.9	8,738	12.41	12.78	10.08	8.45	6.94	5.54	3.51	2.18	1.56	1.20
SB Slow Lane	AC	340+50	8/1/2016	127.6	93.2	78.2	8,552	13.16	13.85	10.61	8.62	6.54	5.07	2.96	1.66	1.23	1.06
SB Slow Lane	AC	342+25	8/1/2016	128.7	93.1	76.9	8,410	10.44	11.17	8.64	7.39	5.80	4.52	2.48	1.46	1.11	0.89
SB Slow Lane	AC	344+02	8/1/2016	126.4	93.7	79.1	8,650	13.00	13.53	10.41	8.39	6.35	4.56	2.39	1.44	1.17	0.94
SB Slow Lane	AC	346+02	8/1/2016	129.4	92.5	78.7	8,607	12.53	13.1	10.72	8.87	6.48	4.73	2.52	1.70	1.36	1.03
SB Slow Lane	AC	348+07	8/1/2016	127.6	93.7	80.5	8,803	12.47	12.75	10.15	8.57	6.61	4.78	2.48	1.33	0.92	0.78
SB Slow Lane	AC	350+26	8/1/2016	126.4	94.2	81.1	8,869	14.18	14.39	11.37	9.19	7.58	4.42	2.55	1.47	1.04	0.80
SB Slow Lane	AC	352+07	8/1/2016	124.6	94.0	80.9	8,847	19.30	19.63	15.55	12.49	8.95	6.45	3.26	1.89	1.37	1.09
SB Slow Lane	AC	354+06	8/1/2016	126.0	93.5	81.1	8,869	15.64	15.87	12.31	10.11	7.75	5.54	3.13	1.80	1.27	0.99
SB Slow Lane	AC	356+02	8/1/2016	127.3	92.9	80.8	8,836	17.93	18.26	14.68	11.07	8.04	5.67	2.96	1.91	1.47	1.18
SB Slow Lane	AC	358+04	8/1/2016	128.2	93.6	79.2	8,661	14.91	15.49	12.69	9.76	7.39	5.52	3.38	2.13	1.59	1.18
SB Slow Lane	AC	360+01	8/1/2016	127.0	93.2	78.8	8,617	13.49	14.09	11.09	9.43	7.07	5.33	2.94	1.84	1.30	1.01
SB Slow Lane	AC	362+12	8/1/2016	127.9	95.2	79.6	8,705	15.23	15.75	12.88	10.40	8.14	5.49	2.64	1.77	1.43	1.12
SB Slow Lane	AC	364+11	8/1/2016	128.0	95.3	80	8,749	12.02	12.36	9.47	8.16	6.20	4.55	2.48	1.73	1.30	0.97
SB Slow Lane	AC	366+06	8/1/2016	128.0	96.4	79.4	8,683	14.99	15.54	13.31	11.32	8.66	6.02	3.69	2.52	1.93	1.62
SB Slow Lane	AC	368+00	8/1/2016	126.3	95.4	79.2	8,661	19.17	19.92	15.00	12.33	9.05	6.57	3.99	2.52	1.83	1.57
SB Slow Lane	AC	370+08	8/1/2016	127.3	95.5	81.4	8,902	17.24	17.43	14.42	12.35	9.32	6.83	4.20	2.64	1.96	1.50
SB Slow Lane	AC	372+06	8/1/2016	127.5	95.9	80	8,749	14.45	14.86	11.37	9.70	7.44	5.43	3.58	2.29	1.76	1.37
SB Slow Lane	AC	374+09	8/1/2016	128.2	96.9	79.5	8,694	14.03	14.52	11.06	9.11	6.83	4.91	2.63	1.55	1.11	0.81
SB Slow Lane	AC	376+09	8/1/2016	127.0	98.0	80.3	8,782	16.36	16.77	13.28	10.99	8.41	6.04	3.21	1.85	1.33	0.84
SB Slow Lane	AC	378+30	8/1/2016	129.1	96.5	79.5	8,694	17.18	17.78	14.29	10.24	7.35	5.26	2.90	1.69	1.21	1.06
SB Slow Lane	AC	380+04	8/1/2016	128.2	95.6	80.8	8,836	16.44	16.75	14.14	11.31	7.37	5.08	2.87	1.72	1.24	0.88
SB Slow Lane	AC	382+02	8/1/2016	126.4	96.3	79.2	8,661	17.71	18.4	13.66	12.29	7.93	5.55	3.12	1.98	1.52	1.23
SB Slow Lane	AC	384+05	8/1/2016	128.6	96.4	78.5	8,585	16.59	17.39	13.70	11.47	8.33	6.16	3.80	2.59	2.00	1.53
SB Slow Lane	AC	386+05	8/1/2016	129.5	95.7	78.4	8,574	16.61	17.44	13.81	11.72	9.30	7.05	4.00	2.53	1.87	1.43
SB Slow Lane	AC	388+03	8/1/2016	128.8	96.4	82.6	9,033	18.20	18.13	13.60	11.16	7.99	5.88	3.47	2.13	1.52	1.18
SB Slow Lane	AC	389+99	8/1/2016	128.3	96.1	79.5	8,694	17.30	17.91	14.41	12.63	9.47	6.77	3.69	2.22	1.53	1.19
SB Slow Lane	AC	392+12	8/1/2016	128.2	96.8	79	8,639	13.84	14.42	11.75	9.48	6.89	4.92	3.01	1.94	1.54	1.25
SB Slow Lane	AC	394+05	8/1/2016	127.0	96.3	79.7	8,716	13.68	14.13	10.90	9.09	6.83	4.83	2.54	1.57	1.20	0.96
SB Slow Lane	AC	396+08	8/1/2016	128.8	96.7	80.3	8,782	6.11	6.26	4.30	3.59	2.90	2.45	1.81	1.48	1.28	0.95
SB Slow Lane	AC	398+06	8/1/2016	128.5	96.4	79	8,639	14.61	15.22	12.13	10.00	7.70	5.72	3.18	2.09	1.50	1.21
SB Slow Lane	AC	400+03	8/1/2016	131.5	95.9	76	8,311	8.70	9.42	7.09	5.89	4.70	3.70	2.52	1.74	1.32	1.07
SB Slow Lane	AC	402+47	8/1/2016	133.1	95.2	77.2	8,442	7.50	8	6.01	5.24	4.19	3.41	2.23	1.57	1.22	0.98
SB Slow Lane	AC	404+12	8/1/2016	130.6	95.6	78.7	8,607	12.65	13.23	9.21	7.96	6.39	5.14	3.37	2.05	1.46	1.09
SB Slow Lane	AC	406+12	8/1/2016	129.9	96.5	78.8	8,617	8.76	9.15	6.72	5.77	4.57	3.57	2.27	1.43	1.09	0.78
SB Slow Lane	AC	408+10	8/1/2016	131.3	97.1	80	8,749	7.13	7.33	5.56	4.73	3.65	2.80	1.80	1.19	0.91	0.76
SB Slow Lane	AC	410+05	8/1/2016	130.0	97.2	81.9	8,956	11.89	11.95	9.67	7.70	5.91	4.60	2.92	1.91	1.32	1.09
SB Slow Lane	AC	412+05	8/1/2016	129.8	97.2	77.1	8,432	12.65	13.5	10.10	8.45	6.76	5.20	3.16	2.01	1.44	1.09
SB Slow Lane	AC	414+05	8/1/2016	128.1	96.3	79.4	8,683	6.45	6.69	4.94	3.83	3.19	2.57	1.83	1.32	0.99	0.76
SB Slow Lane	AC	416+05	8/1/2016	129.9	95.9	77.5	8,475	8.41	8.93	6.62	5.93	4.80	3.84	2.59	1.68	1.20	0.91
SB Slow Lane	AC	418+19	8/1/2016	129.0	95.8	78.7	8,607	12.72	13.3	10.05	8.53	6.45	4.78	2.79	1.92	1.36	1.04
SB Slow Lane	AC	420+06	8/1/2016	132.5	96.1	78.9	8,628	10.78	11.24	8.88	7.56	5.78	4.39	2.59	1.66	1.26	0.95
SB Slow Lane	AC	422+06	8/1/2016	137.7	98.2	75.3	8,235	9.64	10.54	7.52	6.52	5.09	3.93	2.52	1.65	1.22	0.95
SB Slow Lane	AC	424+46	8/1/2016	137.7	97.2	76.5	8,366	6.48	6.97	5.14	4.57	3.74	3.13	2.24	1.61	1.23	0.94
SB Slow Lane	AC	426+66	8/1/2016	137.2	96.4	76.1	8,322	7.29	7.88	5.50	4.73	3.79	2.97	1.94	1.33	1.02	0.75
SB Slow Lane	AC	428+19	8/1/2016	136.4	96.0	75.2	8,224	6.62	7.24	4.68	3.67	2.51	2.06	1.44	1.07	0.87	0.70

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
SB Slow Lane	AC	430+24	8/1/2016	137.8	97.7	76.4	8,355	7.82	8.42	6.30	5.59	4.54	3.64	2.44	1.57	1.14	0.89
SB Slow Lane	AC	432+38	8/1/2016	127.8	95.9	76.6	8,377	11.06	11.88	9.04	7.49	5.72	4.03	2.37	1.58	1.17	0.76
SB Slow Lane	AC	434+17	8/1/2016	136.6	96.3	76.2	8,333	10.44	11.28	8.41	7.16	5.74	4.58	3.09	2.09	1.56	1.35
SB Slow Lane	AC	436+23	8/1/2016	136.1	98.1	76.4	8,355	8.13	8.76	6.07	5.18	4.18	3.27	2.18	1.49	1.12	0.85
SB Slow Lane	AC	438+06	8/1/2016	137.2	98.3	76.1	8,322	11.56	12.5	9.55	7.81	6.04	4.83	3.17	2.11	1.54	1.17
SB Slow Lane	AC	440+04	8/1/2016	136.7	98.2	76.6	8,377	10.52	11.3	8.31	7.26	5.86	4.74	3.20	2.14	1.57	1.19
SB Slow Lane	AC	442+09	8/1/2016	136.8	99.4	77.2	8,442	6.50	6.93	4.79	4.07	3.20	2.47	1.59	1.07	0.85	0.73
SB Slow Lane	AC	444+31	8/1/2016	137.2	99.0	77	8,421	9.30	9.94	7.04	5.91	4.24	3.24	2.08	1.41	1.13	0.90
SB Slow Lane	AC	446+19	8/1/2016	139.5	97.1	75.9	8,300	17.13	18.57	13.16	10.06	6.81	4.75	2.72	1.74	1.31	1.07
SB Slow Lane	AC	448+08	8/1/2016	138.7	98.1	76.9	8,410	13.20	14.13	9.96	8.02	5.84	4.34	2.60	1.60	1.13	0.87
SB Slow Lane	AC	450+10	8/1/2016	137.7	98.4	76.6	8,377	13.24	14.22	9.69	7.65	5.50	4.06	2.46	1.50	1.03	0.81
SB Slow Lane	AC	452+17	8/1/2016	137.8	99.0	77.7	8,497	18.39	19.48	13.22	10.22	7.50	5.52	3.46	2.30	1.74	1.34
SB Slow Lane	AC	454+26	8/1/2016	135.7	97.4	78.2	8,552	16.09	16.93	12.07	9.51	6.82	4.91	2.98	2.05	1.63	1.28
SB Slow Lane	AC	456+22	8/1/2016	137.4	95.9	77.5	8,475	16.54	17.56	12.22	9.47	6.66	4.93	2.90	1.94	1.39	1.06
SB Slow Lane	AC	458+18	8/1/2016	137.7	98.6	76.9	8,410	13.75	14.71	9.70	7.77	5.80	4.40	2.90	1.98	1.51	1.20
SB Slow Lane	AC	460+18	8/1/2016	138.5	99.7	77	8,421	6.95	7.43	4.46	3.67	2.69	2.06	1.38	1.04	0.88	0.72
SB Slow Lane	AC	462+14	8/1/2016	139.1	99.7	77.8	8,508	6.01	6.36	3.99	3.04	2.26	1.70	1.11	0.81	0.70	0.56
SB Slow Lane	AC	464+12	8/1/2016	138.4	100.4	77.5	8,475	12.31	13.07	8.42	6.47	4.63	3.35	1.96	1.22	0.93	0.73
SB Slow Lane	AC	466+03	8/1/2016	139.7	99.1	76.5	8,366	12.50	13.45	8.97	7.22	5.57	4.34	2.72	1.80	1.28	0.96
SB Slow Lane	AC	468+18	8/1/2016	140.1	99.0	80	8,749	23.74	24.42	17.45	13.35	9.04	5.97	3.02	1.69	1.22	0.93
SB Slow Lane	AC	470+05	8/1/2016	138.6	97.7	78.1	8,541	20.56	21.66	15.44	12.33	8.91	6.33	3.53	2.10	1.53	1.05
SB Slow Lane	AC	472+06	8/1/2016	140.0	98.6	79.5	8,694	12.57	13.01	8.24	5.81	3.39	2.13	1.24	0.91	0.76	0.64
SB Slow Lane	AC	474+02	8/1/2016	141.9	98.3	80.4	8,792	26.96	27.6	19.85	13.93	8.80	5.50	2.81	1.78	1.47	1.19
SB Slow Lane	AC	476+23	8/1/2016	142.3	97.8	77.9	8,519	22.50	23.77	16.74	13.17	9.18	6.41	3.52	2.14	1.57	1.20
SB Slow Lane	AC	478+23	8/1/2016	142.8	96.1	78.8	8,617	17.24	18.01	13.20	10.72	8.04	5.81	3.34	2.01	1.47	1.16
SB Slow Lane	AC	479+95	8/1/2016	144.8	98.2	78.7	8,607	25.13	26.28	19.11	15.31	10.61	7.13	3.27	1.86	1.37	1.13
SB Slow Lane	AC	482+11	8/1/2016	139.9	99.0	78.7	8,607	10.27	10.74	7.28	5.81	4.40	3.32	2.07	1.43	1.10	0.84
SB Slow Lane	AC	484+07	8/1/2016	143.2	99.9	78.3	8,563	12.76	13.41	8.88	7.00	5.15	3.80	2.37	1.65	1.32	1.12
SB Slow Lane	AC	486+15	8/1/2016	143.3	99.2	77.6	8,486	14.96	15.87	10.52	8.50	6.33	4.77	3.00	2.01	1.50	1.19
SB Slow Lane	AC	488+06	8/1/2016	141.2	99.6	76.4	8,355	11.83	12.74	8.33	6.65	5.09	3.92	2.53	1.70	1.19	0.96
SB Slow Lane	AC	490+29	8/1/2016	110.1	98.3	76.8	8,399	7.25	7.77	5.62	4.93	4.12	3.48	2.53	1.91	1.46	1.13
SB Slow Lane	AC	492+13	8/1/2016	141.5	98.9	77.2	8,442	8.44	9	6.30	5.29	4.07	3.14	1.87	1.22	0.93	0.74
SB Slow Lane	AC	493+99	8/1/2016	141.2	100.3	77.3	8,453	7.30	7.77	5.23	4.22	3.25	2.44	1.58	1.17	0.93	0.77
SB Slow Lane	AC	496+11	8/1/2016	143.0	99.0	78.1	8,541	14.37	15.14	9.85	7.65	5.41	3.90	2.27	1.50	1.15	0.94
SB Slow Lane	AC	498+12	8/1/2016	139.2	100.6	77.6	8,486	13.38	14.19	9.09	6.91	4.81	3.45	2.13	1.51	1.18	0.92
SB Slow Lane	AC	499+97	8/1/2016	142.3	101.6	80	8,749	21.90	22.53	15.20	10.83	7.32	5.00	2.85	1.91	1.56	1.30
SB Slow Lane	AC	502+13	8/1/2016	146.4	100.4	79	8,639	14.93	15.55	9.28	7.06	5.06	3.76	2.40	1.60	1.17	0.94
SB Slow Lane	AC	504+13	8/1/2016	142.7	102.0	79.4	8,683	13.67	14.17	10.07	8.28	5.26	3.78	2.19	1.46	1.12	0.87
SB Slow Lane	AC	506+16	8/1/2016	142.2	102.7	80.1	8,760	15.15	15.57	10.65	8.98	6.61	4.78	2.78	1.80	1.28	1.04
SB Slow Lane	PCC	507+13	8/1/2016	134.5	98.7	78	8,530	6.81	7.19	6.14	5.86	5.35	4.75	3.83	2.99	2.35	1.80
SB Slow Lane	PCC	507+21	8/1/2016	133.0	97.3	78.3	8,563	6.98	7.34	6.24	6.03	5.54	4.64	3.78	2.93	2.29	1.69
SB Slow Lane	PCC	507+22	8/1/2016	134.1	98.1	78.5	8,585	7.29	7.64	6.99	5.95	5.24	4.61	3.65	2.76	2.06	1.50
SB Slow Lane	PCC	510+02	8/1/2016	133.0	97.4	75.8	8,289	7.65	8.31	7.39	7.23	6.85	6.52	5.79	4.92	4.10	3.23
SB Slow Lane	PCC	510+10	8/1/2016	132.0	96.7	75.4	8,246	6.55	7.15	6.22	5.84	5.13	4.58	3.68	2.82	2.25	1.74
SB Slow Lane	PCC	511+99	8/1/2016	134.6	100.6	76.7	8,388	9.30	9.98	8.86	8.60	8.08	7.58	6.59	5.34	4.20	3.11
SB Slow Lane	PCC	512+05	8/1/2016	130.2	98.4	78	8,530	6.14	6.48	5.57	5.21	4.61	4.10	3.24	2.49	1.98	1.57

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
SB Slow Lane	PCC	514+07	8/1/2016	136.1	101.1	76.4	8,355	8.30	8.94	8.11	7.95	7.54	7.17	6.43	5.43	4.48	3.48
SB Slow Lane	PCC	515+88	8/1/2016	131.7	103.5	76	8,311	7.37	7.98	7.15	6.96	6.52	6.14	5.41	4.52	3.70	2.90
SB Slow Lane	PCC	515+96	8/1/2016	132.0	100.4	76.3	8,344	7.33	7.91	6.91	6.67	5.99	5.45	4.52	3.67	2.99	2.46
SB Slow Lane	PCC	517+98	8/1/2016	133.6	100.6	75.7	8,278	8.99	9.77	8.80	8.62	8.15	7.70	6.82	5.69	4.62	3.52
SB Slow Lane	PCC	518+06	8/1/2016	131.5	100.7	76.6	8,377	5.61	6.03	5.09	4.81	4.35	3.97	3.32	2.78	2.33	1.94
SB Slow Lane	PCC	519+92	8/1/2016	131.3	98.6	76.4	8,355	8.50	9.16	8.57	8.43	7.99	7.63	6.84	5.79	4.78	3.75
SB Slow Lane	PCC	522+18	8/1/2016	132.4	100.8	74.9	8,191	5.15	5.66	4.89	4.80	4.56	4.37	3.98	3.50	3.05	2.64
SB Slow Lane	PCC	522+26	8/1/2016	131.1	100.8	75.5	8,257	10.18	11.1	10.14	9.87	9.10	8.32	6.93	5.65	4.41	3.47
SB Slow Lane	PCC	523+97	8/1/2016	135.1	102.4	75.6	8,268	11.36	12.37	10.89	10.63	10.06	9.58	8.62	7.45	6.35	5.29
SB Slow Lane	PCC	525+93	8/1/2016	135.3	102.3	76.7	8,388	5.44	5.84	5.21	5.01	4.64	4.33	3.76	3.13	2.55	1.97
SB Slow Lane	PCC	526+02	8/1/2016	134.9	100.5	74.2	8,114	5.63	6.24	4.91	4.57	4.04	3.61	2.89	2.19	1.71	1.39
SB Slow Lane	PCC	527+90	8/1/2016	135.3	101.7	75.8	8,289	4.14	4.5	3.88	3.70	3.31	3.02	2.50	1.96	1.61	1.28
SB Slow Lane	PCC	530+00	8/1/2016	133.3	102.1	76.7	8,388	5.89	6.32	5.64	5.42	4.98	4.59	3.87	3.11	2.50	1.93
SB Slow Lane	PCC	530+10	8/1/2016	132.2	101.6	76.2	8,333	5.41	5.84	5.09	4.25	3.72	3.24	2.54	1.88	1.45	1.13
SB Slow Lane	PCC	531+98	8/1/2016	134.3	102.9	78.9	8,628	9.54	9.95	8.44	8.02	7.26	6.61	5.52	4.43	3.48	2.57
SB Slow Lane	PCC	534+07	8/1/2016	135.4	103.1	76.9	8,410	7.65	8.19	7.38	7.09	6.55	6.06	5.17	4.18	3.36	2.50
SB Slow Lane	PCC	534+15	8/1/2016	134.7	101.0	72	7,874	6.15	7.03	6.26	3.84	3.47	3.15	2.64	2.14	1.81	1.56
SB Slow Lane	AC	536+02	8/1/2016	139.8	99.9	79.7	8,716	4.93	5.09	4.50	4.46	4.22	4.00	3.48	2.94	2.52	2.11
SB Slow Lane	AC	538+17	8/1/2016	140.7	101.3	75.8	8,289	11.88	12.9	11.25	11.17	10.64	10.22	9.22	7.85	6.43	4.98
SB Slow Lane	AC	540+08	8/1/2016	138.5	99.9	79.1	8,650	5.98	6.22	5.48	5.44	5.13	4.88	4.39	3.89	3.46	3.00
SB Slow Lane	AC	542+10	8/1/2016	137.9	101.3	76.6	8,377	10.85	11.66	11.02	10.93	10.50	10.10	9.22	8.01	6.78	5.43
SB Slow Lane	AC	545+02	8/1/2016	138.5	101.3	79.5	8,694	8.56	8.86	7.71	7.44	6.80	6.23	5.14	4.03	3.17	2.41
SB Slow Lane	AC	546+47	8/1/2016	139.3	101.1	78.4	8,574	7.26	7.62	7.00	6.92	6.57	6.22	5.61	4.78	4.05	3.28
SB Slow Lane	AC	549+87	8/1/2016	139.1	100.8	79.2	8,661	7.13	7.41	6.37	6.04	5.38	4.72	3.65	2.69	2.02	1.46
SB Slow Lane	AC	552+18	8/1/2016	137.9	101.0	79	8,639	7.79	8.12	7.22	7.11	6.75	6.41	5.79	5.05	4.37	3.66
SB Slow Lane	AC	554+16	8/1/2016	138.0	100.4	80.6	8,814	7.62	7.78	7.11	7.02	6.66	6.38	5.76	4.99	4.28	3.51
SB Slow Lane	AC	556+29	8/1/2016	138.8	100.6	79.3	8,672	8.91	9.25	8.19	8.06	7.62	7.27	6.51	5.54	4.61	3.68
SB Slow Lane	AC	558+10	8/1/2016	139.8	101.3	78.5	8,585	10.29	10.79	9.87	9.77	9.34	8.93	8.16	7.10	6.04	5.01
SB Slow Lane	AC	560+02	8/1/2016	138.3	100.6	79.6	8,705	8.28	8.56	7.83	7.66	7.30	6.91	6.26	5.48	4.78	4.14
SB Slow Lane	AC	562+05	8/1/2016	139.5	100.3	77.7	8,497	13.13	13.91	12.37	12.09	11.31	10.55	9.01	7.08	5.35	3.68
SB Slow Lane	AC	564+16	8/1/2016	141.6	101.6	77.8	8,508	9.80	10.37	9.54	9.40	8.93	8.49	7.47	6.21	4.96	3.78
SB Slow Lane	AC	566+31	8/1/2016	140.2	102.2	77.5	8,475	8.88	9.43	8.22	7.98	7.37	6.84	5.85	4.69	3.77	3.01
SB Slow Lane	AC	568+09	8/1/2016	141.6	101.4	77.2	8,442	8.70	9.28	8.12	7.93	7.41	6.94	6.03	4.95	3.94	3.02
SB Slow Lane	AC	569+70	8/1/2016	140.1	102.0	77.6	8,486	6.93	7.35	6.85	6.68	6.24	5.88	5.17	4.40	3.68	3.09
SB Slow Lane	AC	572+26	8/1/2016	140.8	102.3	78	8,530	6.67	7.04	6.03	5.93	5.63	5.30	4.73	4.08	3.50	2.94
SB Slow Lane	AC	574+07	8/1/2016	140.0	101.9	78	8,530	7.77	8.2	7.15	6.98	6.50	6.05	5.27	4.37	3.61	2.93
SB Slow Lane	AC	577+54	8/1/2016	137.3	102.1	80.7	8,825	5.91	6.03	5.20	5.10	4.73	4.43	3.85	3.28	2.78	2.30
SB Slow Lane	AC	580+21	8/1/2016	138.1	101.3	79	8,639	9.31	9.7	8.28	8.04	7.39	6.83	5.67	4.52	3.50	2.69
SB Slow Lane	AC	582+26	8/1/2016	138.5	101.0	77.4	8,464	9.39	9.98	9.24	9.09	8.66	8.26	7.37	6.28	5.23	4.19
SB Slow Lane	AC	584+32	8/1/2016	137.5	101.8	79.8	8,727	6.07	6.26	5.84	5.65	5.22	4.82	4.13	3.41	2.83	2.31
SB Slow Lane	AC	586+04	8/1/2016	137.8	101.7	77.8	8,508	8.30	8.78	7.87	7.72	7.26	6.85	5.99	5.00	4.09	3.15
SB Slow Lane	AC	588+14	8/1/2016	138.4	102.1	77.5	8,475	8.81	9.36	8.49	8.41	7.93	7.56	6.78	5.85	5.01	4.12
SB Slow Lane	AC	590+18	8/1/2016	137.7	102.2	79.3	8,672	6.74	6.99	6.63	6.47	6.04	5.59	4.68	3.74	2.96	2.29
SB Slow Lane	AC	592+05	8/1/2016	138.3	101.8	78.1	8,541	7.35	7.74	7.18	7.19	6.89	6.63	5.99	5.24	4.52	3.74
SB Slow Lane	AC	592+10	8/1/2016	137.1	101.3	77.9	8,519	8.66	9.15	8.34	8.19	7.57	7.05	5.96	4.70	3.52	2.46
SB Slow Lane	AC	592+10	8/1/2016	139.2	101.6	78.4	8,574	8.98	9.43	8.34	8.13	7.54	7.00	5.92	4.65	3.50	2.43

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
SB Slow Lane	AC	594+08	8/1/2016	139.1	102.0	78.8	8,617	8.42	8.79	7.95	7.72	7.00	6.32	5.09	3.60	2.43	1.59
SB Slow Lane	AC	596+00	8/1/2016	137.2	102.8	79.9	8,738	8.24	8.49	7.91	7.85	7.54	7.22	6.56	5.70	4.87	3.99
SB Slow Lane	AC	598+03	8/1/2016	137.0	101.6	78.1	8,541	6.80	7.17	6.32	6.12	5.52	5.00	4.07	3.19	2.54	2.00
SB Slow Lane	AC	600+04	8/1/2016	137.9	101.1	79.3	8,672	6.89	7.15	6.37	6.27	5.85	5.47	4.83	4.16	3.58	2.97
SB Slow Lane	AC	602+03	8/1/2016	136.5	100.0	80.1	8,760	5.71	5.87	5.61	5.54	5.20	4.89	4.34	3.70	3.16	2.67
SB Slow Lane	AC	604+06	8/1/2016	137.2	101.0	78.2	8,552	7.34	7.72	6.71	6.48	5.89	5.30	4.24	3.14	2.28	1.64
SB Slow Lane	AC	606+14	8/1/2016	136.3	100.4	79.3	8,672	8.81	9.14	8.74	8.59	8.10	7.68	6.80	5.70	4.68	3.68
SB Slow Lane	AC	608+00	8/1/2016	137.6	100.0	79.2	8,661	8.38	8.71	7.60	7.34	6.65	6.06	4.95	3.83	3.00	2.24
SB Slow Lane	AC	610+00	8/1/2016	136.7	99.9	81.6	8,924	6.06	6.11	5.31	4.99	4.55	4.16	3.52	2.92	2.43	2.01
SB Slow Lane	AC	612+02	8/1/2016	136.3	100.5	78.4	8,574	7.20	7.56	7.11	7.03	6.75	6.48	5.95	5.22	4.48	3.74
SB Slow Lane	AC	612+04	8/1/2016	137.5	100.0	77.6	8,486	8.64	9.16	8.02	7.93	7.44	7.02	6.14	5.11	4.13	3.17
SB Slow Lane	AC	614+02	8/1/2016	136.5	99.8	78.1	8,541	9.81	10.34	9.00	8.77	8.09	7.51	6.26	4.83	3.57	2.41
SB Slow Lane	AC	616+01	8/1/2016	137.5	99.7	77.7	8,497	8.41	8.91	7.67	7.41	6.65	5.96	4.64	3.29	2.44	1.77
SB Slow Lane	AC	618+04	8/1/2016	135.3	101.2	78.4	8,574	6.91	7.25	6.57	6.55	6.27	6.03	5.52	4.91	4.30	3.65
SB Slow Lane	AC	620+06	8/1/2016	137.5	100.7	77.2	8,442	8.84	9.42	8.29	8.09	7.43	6.86	5.67	4.36	3.23	2.18
SB Slow Lane	AC	622+38	8/1/2016	137.6	100.8	79	8,639	6.06	6.31	5.54	5.40	4.94	4.52	3.83	3.15	2.57	2.13
SB Slow Lane	AC	624+35	8/1/2016	136.7	101.0	79.7	8,716	6.31	6.52	6.29	6.15	5.63	5.22	4.47	3.74	3.13	2.61
SB Slow Lane	AC	626+03	8/1/2016	137.2	101.9	80.4	8,792	7.22	7.39	6.52	6.33	5.80	5.36	4.61	3.81	3.17	2.62
SB Slow Lane	AC	628+01	8/1/2016	137.4	101.4	80.1	8,760	6.30	6.47	5.91	5.84	5.45	5.15	4.55	3.91	3.29	2.74
SB Slow Lane	AC	630+02	8/1/2016	135.2	101.0	77.7	8,497	6.53	6.92	6.48	6.43	5.98	5.59	4.85	3.98	3.22	2.44
SB Slow Lane	AC	632+05	8/1/2016	137.2	101.2	78.3	8,563	6.38	6.71	6.20	5.99	5.48	5.02	4.23	3.41	2.78	2.19
SB Slow Lane	PCC	632+45	8/1/2016	131.5	102.4	77.7	8,497	5.14	5.44	4.65	4.41	4.04	3.75	3.13	2.55	2.06	1.63
SB Slow Lane	PCC	634+11	8/1/2016	128.7	103.7	74.2	8,114	3.98	4.41	3.47	3.35	3.02	2.76	2.36	1.94	1.64	1.36
SB Slow Lane	PCC	634+19	8/1/2016	128.9	102.4	75.1	8,213	3.88	4.25	3.60	3.45	3.17	2.93	2.55	2.19	1.89	1.63
SB Slow Lane	PCC	636+07	8/1/2016	131.8	102.8	74.6	8,158	4.57	5.04	4.24	4.04	3.76	3.53	3.05	2.52	2.09	1.65
SB Slow Lane	PCC	638+18	8/1/2016	131.4	102.8	74.4	8,136	4.34	4.8	3.94	3.80	3.50	3.22	2.73	2.24	1.83	1.44
SB Slow Lane	PCC	638+26	8/1/2016	131.8	102.5	77	8,421	4.38	4.68	3.93	3.70	3.35	3.03	2.50	1.96	1.58	1.26
SB Slow Lane	PCC	640+12	8/1/2016	133.4	103.9	76.3	8,344	3.60	3.88	3.12	2.99	2.74	2.54	2.08	1.85	1.52	1.29
SB Slow Lane	PCC	641+93	8/1/2016	133.5	103.6	75.1	8,213	3.93	4.31	3.70	3.55	3.25	2.99	2.52	2.06	1.67	1.31
SB Slow Lane	PCC	641+99	8/1/2016	128.5	104.3	74.9	8,191	4.79	5.26	4.30	4.02	3.55	3.14	2.43	1.81	1.32	0.96
SB Slow Lane	PCC	644+17	8/1/2016	128.6	102.0	75	8,202	2.90	3.18	2.83	2.67	2.34	2.06	1.65	1.28	1.02	0.82
SB Slow Lane	PCC	645+98	8/1/2016	127.5	104.2	75.2	8,224	3.61	3.95	3.15	2.99	2.68	2.42	1.96	1.56	1.22	0.97
SB Slow Lane	PCC	646+07	8/1/2016	126.7	104.5	74.8	8,180	3.39	3.73	2.91	2.80	2.42	2.20	1.83	1.49	1.27	1.07
SB Slow Lane	PCC	647+91	8/1/2016	128.7	102.4	76.4	8,355	6.51	7.01	6.21	6.05	5.61	5.26	4.43	3.56	2.69	1.84
SB Slow Lane	PCC	649+99	8/1/2016	128.7	102.0	75.2	8,224	4.14	4.53	4.09	3.87	3.52	3.25	2.74	2.30	1.91	1.53
SB Slow Lane	PCC	650+08	8/1/2016	129.3	101.0	74.2	8,114	4.80	5.32	4.40	4.14	3.68	3.32	2.75	2.26	1.87	1.61
SB Slow Lane	PCC	652+09	8/1/2016	129.1	101.0	75.2	8,224	6.31	6.91	6.34	6.21	5.85	5.55	4.98	4.22	3.48	2.72
SB Slow Lane	PCC	653+89	8/1/2016	129.5	101.2	76.6	8,377	7.10	7.63	6.92	6.84	6.46	6.12	5.44	4.58	3.76	2.87
SB Slow Lane	PCC	656+01	8/1/2016	128.5	101.8	74.7	8,169	4.38	4.83	3.97	3.81	3.49	3.21	2.72	2.24	1.77	1.34
SB Slow Lane	PCC	656+09	8/1/2016	127.6	101.0	75.1	8,213	3.72	4.08	3.33	3.10	2.76	2.48	2.07	1.69	1.43	1.20
SB Slow Lane	PCC	657+96	8/1/2016	128.5	101.6	75.4	8,246	5.83	6.36	5.55	5.40	5.03	4.75	4.13	3.45	2.80	2.10
SB Slow Lane	PCC	659+92	8/1/2016	128.1	100.7	76.9	8,410	7.91	8.46	7.63	7.43	6.91	6.48	5.58	4.52	3.57	2.58
SB Slow Lane	PCC	659+99	8/1/2016	127.6	100.6	75	8,202	4.44	4.87	3.87	3.55	3.10	2.74	2.15	1.65	1.29	0.99
SB Slow Lane	PCC	661+87	8/1/2016	131.1	99.9	75.3	8,235	3.16	3.45	2.99	2.83	2.52	2.28	1.85	1.50	1.20	0.95
SB Slow Lane	PCC	663+98	8/1/2016	129.9	100.9	75.1	8,213	2.97	3.25	2.74	2.62	2.36	2.17	1.85	1.54	1.29	1.03
SB Slow Lane	PCC	664+04	8/1/2016	129.9	100.9	77.6	8,486	6.28	6.66	5.90	5.62	5.03	4.52	3.57	2.63	1.91	1.34

Section Name	Surface Type	Station	Date	Surface Temperature (°F)	Air Temperature (°F)	Stress (psi)	Load (lb)	D1 at 0"	Normalized D1 @ 9kips	D2 at 8"	D3 at 12"	D4 at 18"	D5 at 24"	D6 at 36"	D7 at 48"	D8 at 60"	D9 at 72"
SB Slow Lane	PCC	665+91	8/1/2016	126.7	100.6	74.7	8,169	3.61	3.98	3.27	3.15	2.88	2.65	2.29	1.93	1.58	1.31
SB Slow Lane	PCC	668+01	8/1/2016	128.3	101.7	74.4	8,136	3.55	3.93	3.40	3.26	2.97	2.72	2.31	1.93	1.61	1.28
SB Slow Lane	PCC	668+09	8/1/2016	128.3	101.4	75.1	8,213	4.54	4.98	4.22	4.00	3.55	3.17	2.56	1.95	1.53	1.21
SB Slow Lane	PCC	669+97	8/1/2016	128.1	101.5	74.7	8,169	4.10	4.52	3.66	3.54	3.25	3.02	2.57	2.13	1.75	1.39
SB Slow Lane	PCC	671+86	8/1/2016	127.5	102.2	74.6	8,158	3.89	4.29	3.68	3.54	3.23	2.98	2.55	2.13	1.75	1.42
SB Slow Lane	PCC	671+95	8/1/2016	128.1	101.9	75.2	8,224	4.02	4.4	3.45	3.19	2.83	2.54	2.09	1.71	1.45	1.23
SB Slow Lane	PCC	673+82	8/1/2016	127.5	102.8	74.9	8,191	3.52	3.87	3.19	3.01	2.69	2.44	2.04	1.66	1.41	1.13
SB Slow Lane	PCC	675+94	8/1/2016	127.3	101.2	75.6	8,268	4.59	5	4.39	4.22	3.85	3.54	2.99	2.43	1.96	1.51
SB Slow Lane	PCC	676+02	8/1/2016	127.3	101.8	73.9	8,082	4.08	4.54	3.72	3.52	3.09	2.76	2.20	1.70	1.31	1.01
SB Slow Lane	PCC	677+88	8/1/2016	128.3	101.6	74.5	8,147	3.41	3.77	3.22	3.06	2.74	2.48	2.06	1.66	1.40	1.13
SB Slow Lane	PCC	679+84	8/1/2016	129.0	101.4	74.8	8,180	4.13	4.54	3.77	3.58	3.20	2.91	2.40	1.96	1.62	1.31
SB Slow Lane	PCC	679+93	8/1/2016	128.0	101.7	75.5	8,257	5.13	5.59	4.66	4.45	3.96	3.55	2.84	2.19	1.65	1.26
SB Slow Lane	PCC	681+80	8/1/2016	126.2	101.8	74.3	8,125	4.56	5.05	4.35	4.18	3.85	3.59	3.06	2.57	2.14	1.73
SB Slow Lane	PCC	683+14	8/1/2016	126.3	102.4	75	8,202	4.98	5.46	4.87	4.69	4.31	4.03	3.43	2.87	2.37	1.90
SB Slow Lane	PCC	683+23	8/1/2016	126.6	102.0	75.1	8,213	5.17	5.67	4.92	4.58	4.08	3.69	3.01	2.44	2.00	1.62
SB Slow Lane	PCC	684+05	8/1/2016	132.4	102.3	83.9	9,175	7.15	7.01	6.50	6.29	5.85	5.47	4.84	3.96	3.19	2.39
SB Slow Lane	PCC	686+10	8/1/2016	134.8	103.2	80.7	8,825	5.58	5.69	4.13	3.57	3.20	2.84	2.48	2.07	1.69	1.32
SB Slow Lane	AC	689+11	8/1/2016	134.5	102.9	83.8	9,164	16.39	16.1	12.35	9.63	6.03	4.27	2.26	1.35	1.06	0.81
SB Slow Lane	AC	692+29	8/1/2016	132.3	102.7	85.1	9,306	18.77	18.15	12.10	8.04	4.71	3.27	1.81	1.33	1.04	0.79
SB Slow Lane	AC	694+07	8/1/2016	133.1	102.7	84.5	9,241	16.79	16.35	11.40	7.91	4.53	3.27	2.05	1.43	1.15	0.93
SB Slow Lane	AC	696+38	8/1/2016	139.2	104.0	77.3	8,453	15.69	16.71	10.72	8.10	5.52	3.87	2.37	1.66	1.35	1.07
SB Slow Lane	AC	698+22	8/1/2016	138.9	102.8	75.2	8,224	10.62	11.62	8.40	7.35	6.00	4.84	3.36	2.31	1.78	1.42
SB Slow Lane	AC	700+11	8/1/2016	138.9	103.0	76.6	8,377	10.06	10.81	7.75	6.86	5.57	4.56	3.19	2.20	1.64	1.22
SB Slow Lane	AC	702+13	8/1/2016	138.0	103.6	78.1	8,541	16.74	17.64	13.18	10.81	7.98	6.06	3.85	2.68	2.10	1.66
SB Slow Lane	AC	704+22	8/1/2016	129.8	103.1	77.3	8,453	12.48	13.29	10.33	9.17	7.54	6.17	4.28	2.87	2.12	1.55
SB Slow Lane	AC	705+88	8/1/2016	135.0	103.2	83.1	9,088	10.89	10.78	8.71	7.52	5.87	4.57	3.06	2.11	1.67	1.33
SB Slow Lane	AC	708+36	8/1/2016	125.7	105.3	80.3	8,782	12.46	12.77	8.30	6.13	4.14	2.97	1.91	1.41	1.15	0.94
SB Slow Lane	AC	710+10	8/1/2016	138.9	105.1	76.6	8,377	15.34	16.48	11.12	8.88	6.70	5.20	3.28	2.30	1.77	1.34
SB Slow Lane	AC	711+77	8/1/2016	139.8	104.5	75.2	8,224	9.31	10.19	6.24	4.72	3.44	2.63	1.92	1.49	1.26	1.09
SB Slow Lane	AC	714+31	8/1/2016	137.9	104.0	78.5	8,585	17.31	18.15	13.33	10.65	7.55	5.50	3.29	2.28	1.74	1.38
SB Slow Lane	AC	716+20	8/1/2016	135.8	103.1	77.6	8,486	16.16	17.14	11.83	9.39	6.69	4.92	3.02	2.21	1.66	1.35
SB Slow Lane	AC	718+04	8/1/2016	133.8	103.9	75.8	8,289	14.06	15.27	10.11	7.83	5.70	4.29	2.74	1.94	1.54	1.28
SB Slow Lane	AC	720+04	8/1/2016	134.2	103.5	77.2	8,442	11.68	12.45	7.48	5.19	3.25	2.31	1.63	1.22	1.02	0.85
SB Slow Lane	AC	722+15	8/1/2016	130.7	103.0	74.5	8,147	8.20	9.06	6.64	5.94	5.02	4.24	3.16	2.22	1.63	1.26
SB Slow Lane	AC	724+22	8/1/2016	136.9	102.5	77	8,421	11.07	11.83	7.69	6.04	4.50	3.49	2.35	1.62	1.19	0.90
SB Slow Lane	AC	730+18	8/1/2016	133.5	102.3	76.3	8,344	10.51	11.34	7.18	5.38	3.72	2.76	1.79	1.23	0.91	0.71
SB Slow Lane	AC	732+59	8/1/2016	112.7	102.1	76	8,311	7.00	7.58	5.04	3.79	2.60	1.96	1.39	1.04	0.85	0.71
SB Slow Lane	AC	735+03	8/1/2016	116.2	102.3	76.9	8,410	14.35	15.36	10.20	7.70	5.31	3.89	2.48	1.64	1.16	0.89
SB Slow Lane	AC	738+35	8/1/2016	133.6	102.1	74.8	8,180	6.69	7.36	4.69	4.07	3.57	3.17	2.50	1.94	1.53	1.20
SB Slow Lane	AC	740+17	8/1/2016	116.7	102.5	75.9	8,300	11.59	12.57	8.26	6.41	4.49	3.13	2.00	1.39	1.11	0.97
SB Slow Lane	AC	742+32	8/1/2016	115.2	103.9	77.5	8,475	14.30	15.19	10.17	8.08	6.20	5.13	3.83	3.00	2.53	1.98
SB Slow Lane	AC	745+24	8/1/2016	114.3	102.1	76.7	8,388	12.85	13.79	8.66	6.56	4.35	3.09	2.03	1.49	1.16	0.93
SB Slow Lane	AC	746+16	8/1/2016	132.1	103.5	76.3	8,344	16.59	17.89	10.84	7.73	4.90	3.44	2.27	1.62	1.27	1.09
SB Slow Lane	AC	748+19	8/1/2016	136.1	103.2	76.8	8,399	22.52	24.13	15.55	11.19	6.94	4.69	2.68	1.84	1.48	1.15
SB Slow Lane	AC	750+24	8/1/2016	139.2	103.4	77.7	8,497	19.48	20.63	14.77	11.84	8.15	5.60	3.35	2.32	1.71	1.30

Appendix E: Sample Reconstruction using New Section Structural Design

Caltrans New HMA Design
Based on Caltrans 2012 Highway Design Manual

New Structural Section (Option 1: Full Depth HMA)

TI = **11.0**

$R_{Subgrade}$ = **50** [Limit to R-Value = 50] HDM Section 614.3

GE_{Total} (ft) = 1.76

GE_{AC} (ft) = 1.86 [Includes 0.1-ft safety factor]

Gf = 2.04

		Rounded		
Required HMA Thickness over Subgrade (ft) =	0.91	**0.90**	[Min = 0.15-ft]	HDM Section 633.1
Required HMA Thickness over Subgrade (in) =	10.9	**11.0**	[Min = 2"]	

New Structural Section (Option 2: HMA over Class II Aggregate Base)

R_{Base} = 78

GE_{AC} (ft) = 0.97 [Includes 0.2-ft safety factor]

		Rounded		
Required HMA Thickness (ft) =	0.56	**0.55**	[Min = 0.15-ft]	HDM Section 633.1
Required HMA Thickness (in) =	6.7	**6.5**	[Min = 2"]	

	"ft" Calc	"in" Calc
Gf =	1.73	1.72
GE_{Base} (ft) =	0.81	0.83

		Rounded		
Required Class II Agg. Base Thickness (ft) =	0.74	**0.75**	[Min = 0.35-ft]	HDM Section 633.1
Required Class II Agg. Base Thickness (in) =	9.0	**9.0**	[Min = 4.5"]	

Caltrans New HMA Design
Based on Caltrans 2012 Highway Design Manual

New Structural Section (Option 1: Full Depth HMA)

TI = **11.0**

$R_{Subgrade}$ = **41** [Limit to R-Value = 50] HDM Section 614.3

GE_{Total} (ft) = 2.08

GE_{AC} (ft) = 2.18 [Includes 0.1-ft safety factor]

Gf = 2.13

		Rounded		
Required HMA Thickness over Subgrade (ft) =	1.02	**1.00**	[Min = 0.15-ft]	HDM Section 633.1
Required HMA Thickness over Subgrade (in) =	12.3	**12.5**	[Min = 2"]	

New Structural Section (Option 2: HMA over Class II Aggregate Base)

R_{Base} = 78

GE_{AC} (ft) = 0.97 [Includes 0.2-ft safety factor]

		Rounded		
Required HMA Thickness (ft) =	0.56	**0.55**	[Min = 0.15-ft]	HDM Section 633.1
Required HMA Thickness (in) =	6.7	**6.5**	[Min = 2"]	

	"ft" Calc	"in" Calc
Gf =	1.73	1.72
GE_{Base} (ft) =	1.13	1.14

		Rounded		
Required Class II Agg. Base Thickness (ft) =	1.02	**1.00**	[Min = 0.35-ft]	HDM Section 633.1
Required Class II Agg. Base Thickness (in) =	12.5	**12.5**	[Min = 4.5"]	

Caltrans New HMA Design
Based on Caltrans 2012 Highway Design Manual

New Structural Section (Option 1: Full Depth HMA)

TI = **12.0**

$R_{Subgrade}$ = **36** [Limit to R-Value = 50] HDM Section 614.3

GE_{Total} (ft) = 2.46

GE_{AC} (ft) = 2.56 [Includes 0.1-ft safety factor]

Gf = 2.14

		Rounded		
Required HMA Thickness over Subgrade (ft) =	1.19	**1.20**	[Min = 0.15-ft]	HDM Section 633.1
Required HMA Thickness over Subgrade (in) =	14.3	**14.5**	[Min = 2"]	

New Structural Section (Option 2: HMA over Class II Aggregate Base)

R_{Base} = 78

GE_{AC} (ft) = 1.04 [Includes 0.2-ft safety factor]

		Rounded		
Required HMA Thickness (ft) =	0.61	**0.60**	[Min = 0.15-ft]	HDM Section 633.1
Required HMA Thickness (in) =	7.3	**7.5**	[Min = 2"]	

	"ft" Calc	"in" Calc
Gf =	1.70	1.73
GE_{Base} (ft) =	1.43	1.38

		Rounded		
Required Class II Agg. Base Thickness (ft) =	1.30	**1.30**	[Min = 0.35-ft]	HDM Section 633.1
Required Class II Agg. Base Thickness (in) =	15.0	**15.0**	[Min = 4.5"]	

APPENDIX 13.6

Laboratory Test Results

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
B-1	0.0 - 5.0	SILTY SAND (SM)									**R-Value=** 69
B-2	0.0 - 5.0	SILTY SAND (SM)					22				SE = 23
B-2	5.0		3.9	105.0							
B-3	0.0 - 5.0	SILTY SAND (SM)									SE = 22
B-4	0.0 - 5.0	SILTY SAND (SM)									SE = 22
B-4	5.0		6.1	110.1							
B-5	0.0 - 5.0	SILTY SAND (SM)									SE = 20
											R-Value= 35
B-6	0.0 - 5.0	SILTY SAND (SM)									SE = 32
B-7	0.0 - 5.0	SILTY SAND (SM)									SE = 16
B-7	5.0		6.1	115.0							
B-8	0.0 - 5.0	SILTY SAND (SM)									SE = 19
B-9	0.0 - 5.0	SILTY SAND (SM)									SE = 24
											R-Value= 36
B-10	0.0 - 5.0	SILTY SAND (SM)					29				SE = 20
B-11	0.0 - 5.0	SILTY SAND (SM)									SE = 26
B-12	0.0 - 5.0	SILTY SAND (SM)									SE = 54
B-13	0.0 - 5.0	SILTY SAND (SM)									**R-Value=** 73
B-14	0.0 - 5.0	SILTY SAND (SM)									SE = 38
B-15	0.0 - 5.0	SILTY SAND (SM)									SE = 39
B-16	0.0 - 5.0	SILTY SAND (SM)									SE = 32
B-17	0.0 - 5.0	SILTY SAND (SM)									**R-Value=** 68
B-18	0.0 - 5.0	SILTY SAND (SM)					15				SE = 39
B-19	0.0 - 5.0	SILTY SAND (SM)									SE = 31
B-20	0.0 - 5.0	SILTY SAND (SM)						NP	NP	NP	SE = 14
B-21	0.0 - 5.0	SILTY SAND (SM)									**R-Value=** 70

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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LABORATORY TEST RESULT SUMMARY

Golden State Corridor
Fresno, California

APPENDIX

13.6-1

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
B-22	0.0 - 5.0	SILTY SAND (SM)									SE = 21
											1557A=
											Maximum Dry Unit Weight: 131.9 pcf
											Optimum Water Content: 6.7%
B-22	5.0		6.5	108.8							
B-23	0.0 - 5.0	SILTY SAND (SM)									SE = 17
B-23	5.0		5.4	108.7							
B-24	0.0 - 5.0	SILTY SAND (SM)									SE = 17
B-24	5.0		5.5	128.2							
B-25	0.0 - 5.0	SILTY SAND (SM)									SE = 22
											R-Value= 28
B-25	5.0		6.3	113.1							
B-26	0.0 - 5.0	SILTY SAND (SM)					33				SE = 20
B-26	5.0		12.1	105.6							
B-27	0.0 - 5.0	SILTY SAND (SM)									SE = 22
B-27	5.0		16.1	101.4							
B-28	0.0 - 5.0	SILTY SAND (SM)									SE = 30
B-28	5.0		4.1	112.6							
B-34	0.0 - 5.0	SILTY SAND (SM)									**R-Value=** 72
B-34	5.0		3.3	111.5							**Direct Shear=**
											Peak Cohesion: 157.14 psf
											Peak Friction Angle: 31.1°
B-35	0.0 - 5.0	SILTY SAND (SM)									SE = 46
B-36	0.0 - 5.0	SILTY SAND (SM)									SE = 26
B-36	5.0		3.4	102.9							
B-37	0.0 - 5.0	SILTY SAND (SM)					26				SE = 50
B-38	0.0 - 5.0	SILTY SAND (SM)					62				**R-Value=** 72
B-38	5.0	SANDY SILT (ML)	11.5	100.7							

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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LABORATORY TEST
RESULT SUMMARY

Golden State Corridor
Fresno, California

APPENDIX

13.6-2

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
B-39	0.0 - 5.0	SILTY SAND (SM)									SE = 27
B-40	0.0	SILTY SAND (SM)				100	45	NP	NP	NP	
B-40	5.0		7.7	104.6							
B-42	0.0 - 5.0	SILTY SAND (SM)						NP	NP	NP	**R-Value=** 71
B-45	0.0 - 5.0	SILTY SAND (SM)									SE = 53
B-46	0.0 - 5.0	SILTY SAND (SM)									**R-Value=** 71
B-47	0.0	SILTY SAND (SM)					27				
B-50	0.0 - 5.0	SANDY SILT (ML)									**R-Value=** 72
B-50	5.0		15.6	100.0							**Direct Shear=**
											Peak Cohesion: 85.71 psf
											Peak Friction Angle: 33.2°
B-52a	5.0		8.2	103.1							
B-53	0.0 - 5.0	SILTY SAND (SM)									SE = 54
B-54	0.0 - 5.0	SILTY SAND (SM)									SE = 29
											R-Value= 41
B-54	5.0		4.6	109.8							
B-55	0.0 - 5.0	SILTY SAND (SM)					24				SE = 38
B-56	0.0 - 5.0	SILTY SAND (SM)				100	31				**1557A=**
											Maximum Dry Unit Weight: 131.5 pcf
											Optimum Water Content: 6.3%
B-56	5.0		5.4	113.5							
B-57	0.0 - 5.0	SILTY SAND (SM)									SE = 30
B-58	5.0		14.5	101.1							
B-59	0.0 - 5.0	SILTY SAND (SM)									SE = 18
B-60	5.0		7.4	109.5							

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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LABORATORY TEST
RESULT SUMMARY

Golden State Corridor
Fresno, California

APPENDIX

13.6-3

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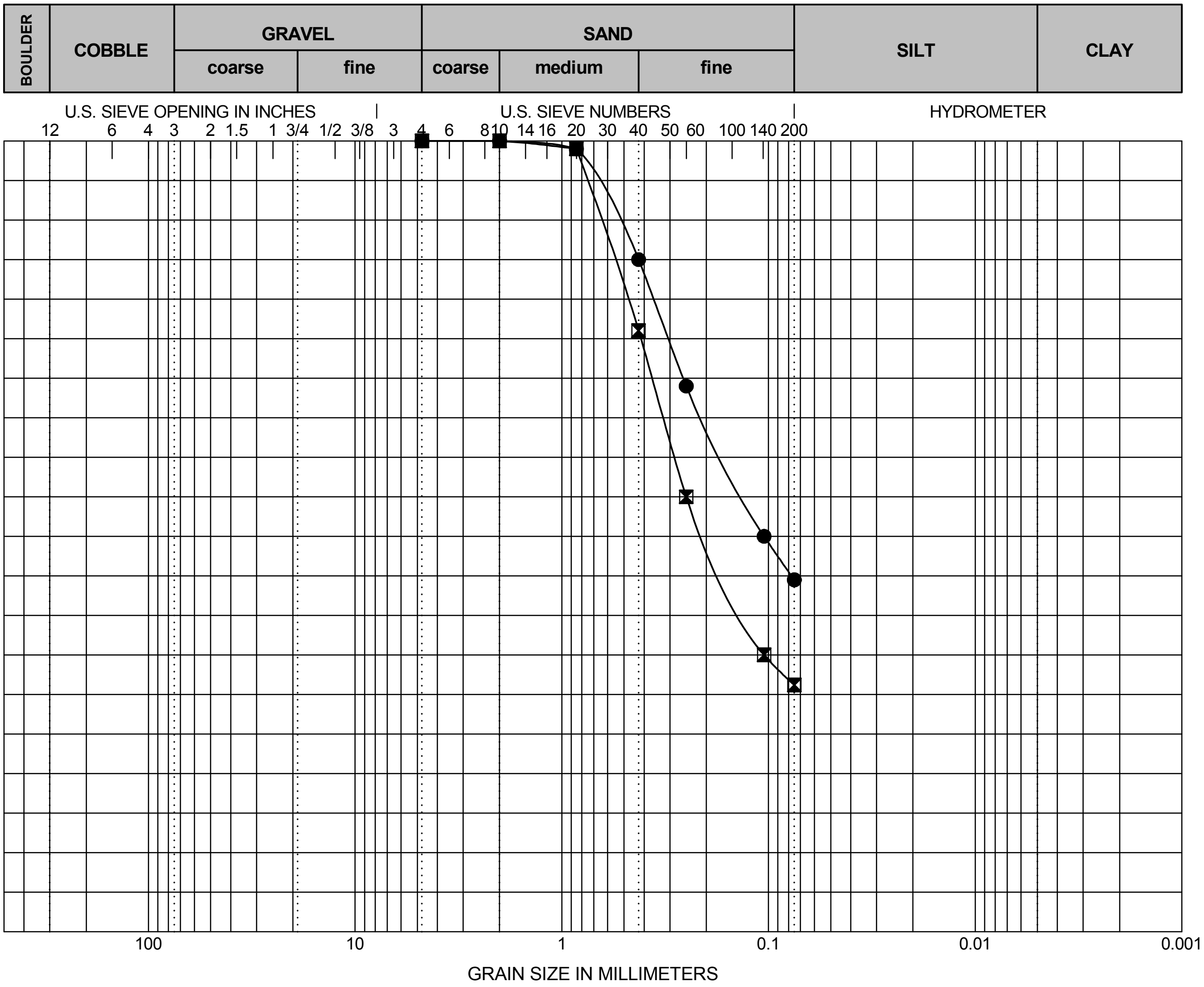

Exploration ID		Depth (ft.)	Sample Description	LL	PL	PI
●	B-40	0 - 5	SILTY SAND (SM)	NP	NP	NP
☒	B-56	0 - 5	SILTY SAND (SM)	NM	NM	NM

Exploration ID		Depth (ft.)	D_{100}	D_{60}	D_{30}	D_{10}	Cc	Cu	Passing 3/4"	Passing #4	Passing #200	%Silt	%Clay
●	B-40	0 - 5	4.75	0.166	NM	NM	NM	NM		100	45	NM	NM
☒	B-56	0 - 5	4.75	0.284	NM	NM	NM	NM		100	31	NM	NM

Coefficients of Uniformity - $C_u = D_{60} / D_{10}$
Coefficients of Curvature - $C_C = (D_{30})^2 / D_{60}\ D_{10}$
D_{60} = Grain diameter at 60% passing
D_{30} = Grain diameter at 30% passing
D_{10} = Grain diameter at 10% passing

Sieve Analysis and Hydrometer Analysis testing performed in general accordance with ASTM D422.
NP = Nonplastic
NM = Not Measured

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SIEVE ANALYSIS

Golden State Corridor
Fresno, California

APPENDIX

13.6-4

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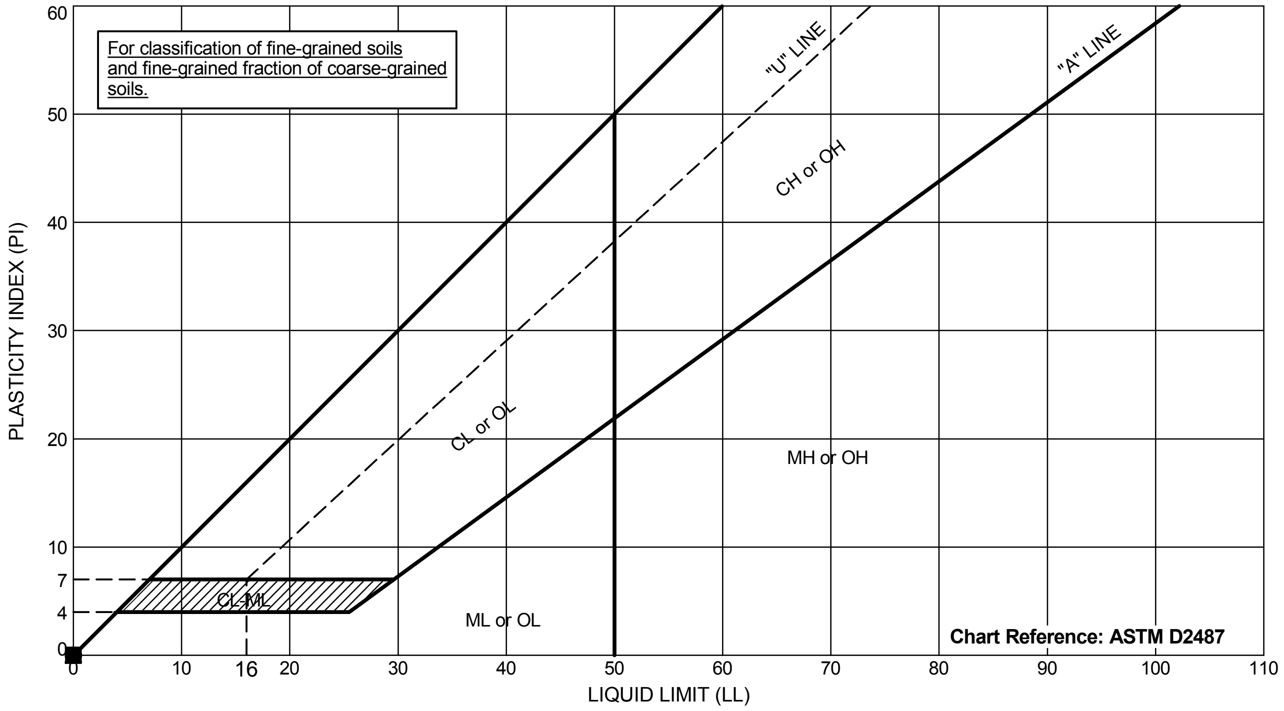

Exploration ID		Depth (ft.)	Sample Description	Passing #200	LL	PL	PI
●	B-20	0 - 5	SILTY SAND (SM)	NM	NP	NP	NP
☒	B-40	0 - 5	SILTY SAND (SM)	45	NP	NP	NP
▲	B-42	0 - 5	SILTY SAND (SM)	NM	NP	NP	NP

Testing perfomed in general accordance with ASTM D4318.
NP = Nonplastic
NM = Not Measured

KLEINFELDER
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DATE: 1/17/2017
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ATTERBERG LIMITS

Golden State Corridor
Fresno, California

APPENDIX

13.6-5

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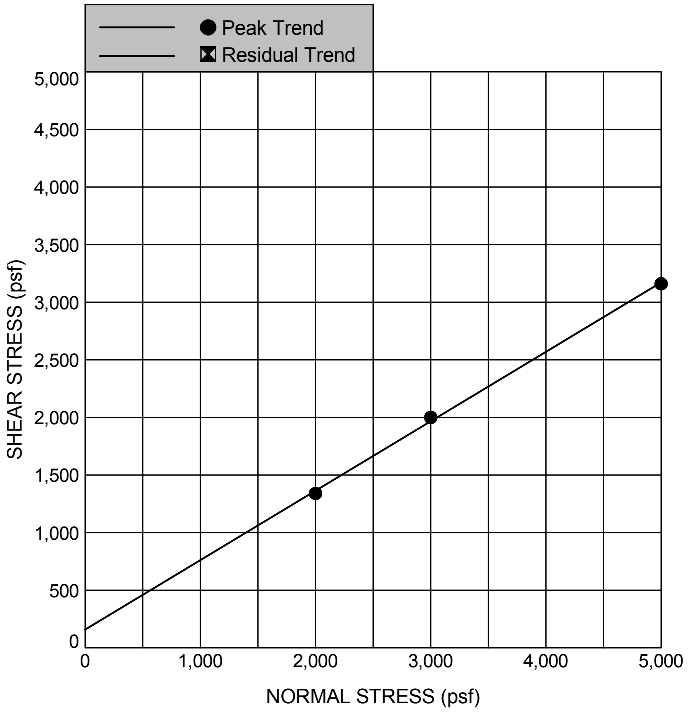

Exploration ID	Depth (ft.)	Sample Description
B-34	5	

Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plastic Limit	Plasticity Index	Specific Gravity
NM	NM	NM	NM	NM	

	Specimen No.	Water Content (%)	Dry Unit Weight (pcf)	Saturation (%)	Void Ratio	Area (in^2)	Height (in)
Initial	1	2.3	106.9	11.1	0.547	4.60	0.96
	2	1.6	106.8	7.6	0.548	4.60	0.96
	3	1.5	107.7	7.2	0.536	4.60	0.96

	Specimen No.	Water Content (%)	Dry Unit Weight (pcf)	Saturation (%)	Void Ratio	Area (in^2)	Height (in)
At Test	1	15.5	116.8	90.0	0.455	4.60	0.90
	2	15.8	117.8	99.8	0.418	4.60	0.88
	3	15.5	120.4	100.2	0.409	4.60	0.88

Specimen No.	Peak Shear Stress (psf)	Residual Shear Stress (psf)	Horizontal Displacement (in)	Normal Stress (psf)	Strain Rate (in/min)
1	1340		0.5500	2000	0.02
2	2000		0.1800	3000	0.02
3	3160		0.1400	5000	0.02

Results	Cohesion (psf)	Friction ϕ (deg)	Tan ϕ (deg)
Peak	157.14	31.08	
Residual			

Testing perfomed in general accordance with ASTM D3080.
NP = Nonplastic
NM = Not Measured

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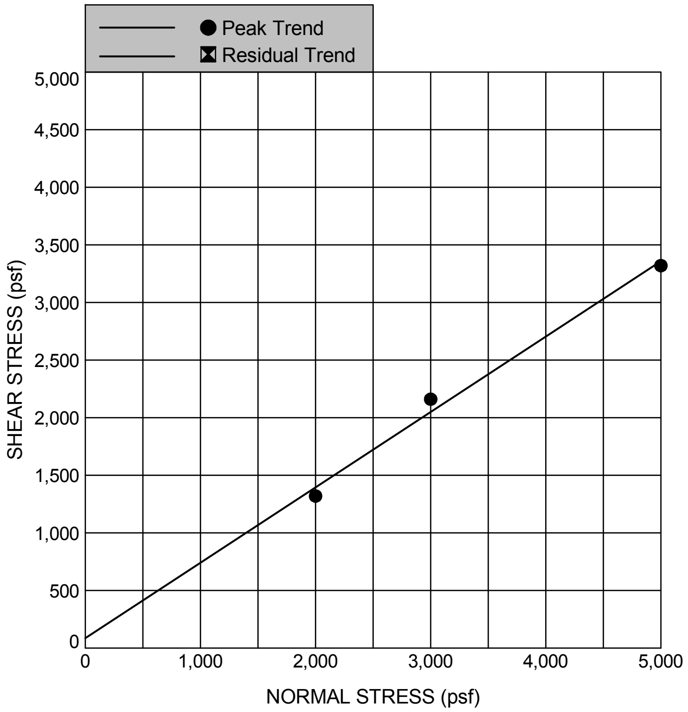
DIRECT SHEAR

Golden State Corridor
Fresno, California

APPENDIX

13.6-6



Exploration ID	Depth (ft.)	Sample Description
B-50	5	

Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plastic Limit	Plasticity Index	Specific Gravity
NM	NM	NM	NM	NM	

	Specimen No.	Water Content (%)	Dry Unit Weight (pcf)	Saturation (%)	Void Ratio	Area (in^2)	Height (in)
Initial	1	10.2	99.8	38.8	0.719	4.60	0.98
	2	11.1	98.6	41.3	0.740	4.60	0.98
	3	10.4	100.6	40.4	0.705	4.60	0.98
At Test	Specimen No.	Water Content (%)	Dry Unit Weight (pcf)	Saturation (%)	Void Ratio	Area (in^2)	Height (in)
	1	23.3	105.1	100.1	0.640	4.60	0.94
	2	23.1	104.8	98.0	0.647	4.60	0.93
	3	22.5	107.2	99.6	0.622	4.60	0.94

Specimen No.	Peak Shear Stress (psf)	Residual Shear Stress (psf)	Horizontal Displacement (in)	Normal Stress (psf)	Strain Rate (in/min)
1	1320		0.1000	2000	0.02
2	2160		0.2400	3000	0.02
3	3320		0.3500	5000	0.02

Results	Cohesion (psf)	Friction ϕ (deg)	Tan ϕ (deg)
Peak	85.71	33.2	
Residual			

Testing perfomed in general accordance with ASTM D3080.
NP = Nonplastic
NM = Not Measured

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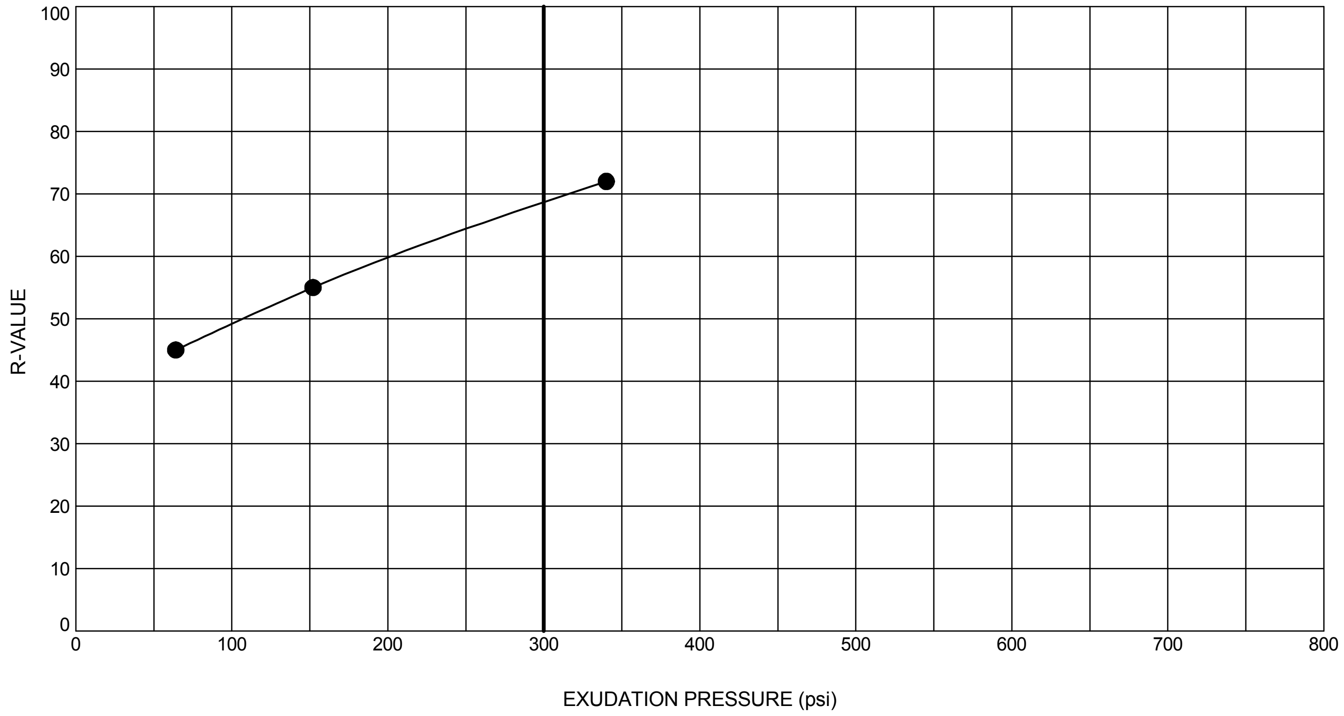
DIRECT SHEAR

Golden State Corridor
Fresno, California

APPENDIX

13.6-7



Exploration ID	**Depth (ft.)**	**Sample Description**	**R-Value @ 300 psi Exudation Pressure**
B-1	0 - 5	SILTY SAND (SM)	69

Specimen No.	**Moisture at Time of Test (%)**	**Dry Unit Weight (pcf)**	**Expansion Pressure (psi)**	**Exudation Pressure (psi)**	**Corrected Resistance Value**
1	10.6	123.3	0	64	45
2	8.9	124.8	0	340	72
3	9.8	124.5	0	152	55

Testing perfomed in general accordance with ASTM D2844.

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DATE:	1/17/2017
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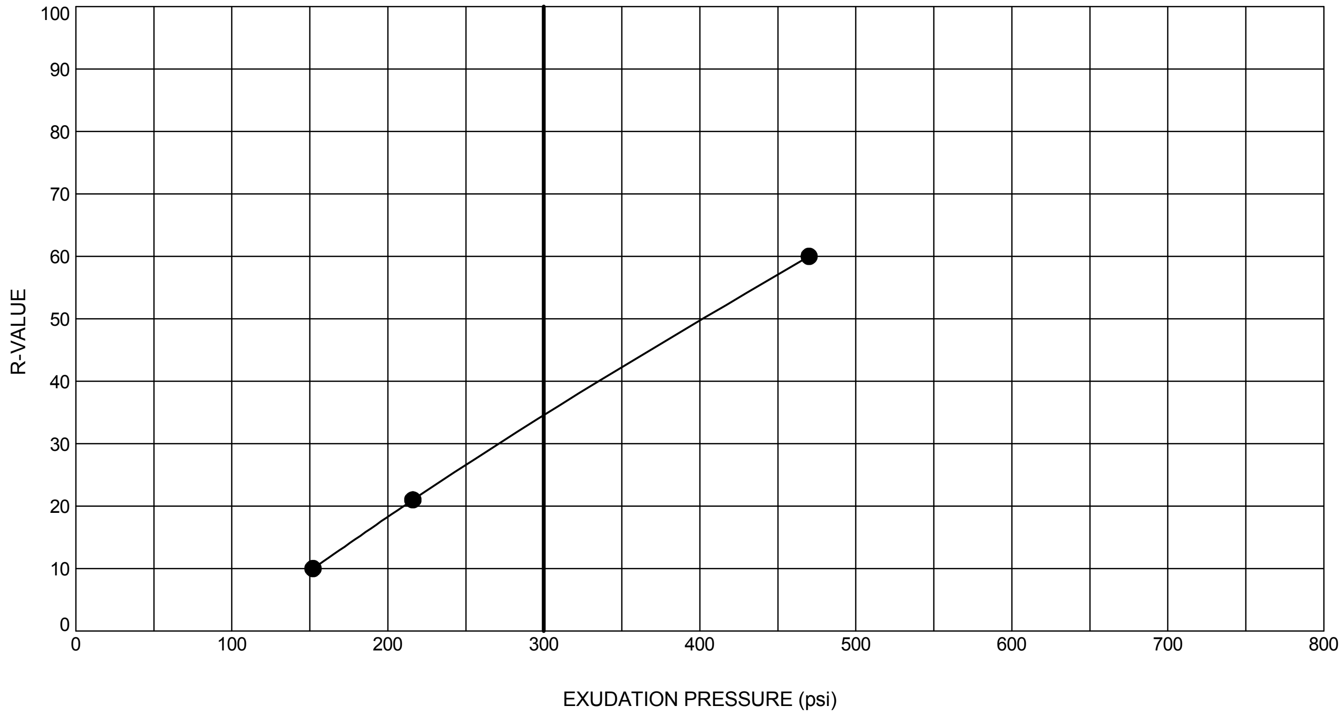
R-VALUE

Golden State Corridor
Fresno, California

APPENDIX

13.6-8



Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
B-5	0 - 5	SILTY SAND (SM)	35

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	11.6	123.7	0	152	10
2	9.9	126.8	0	216	21
3	8.1	128.6	0	470	60

Testing perfomed in general accordance with ASTM D2844.

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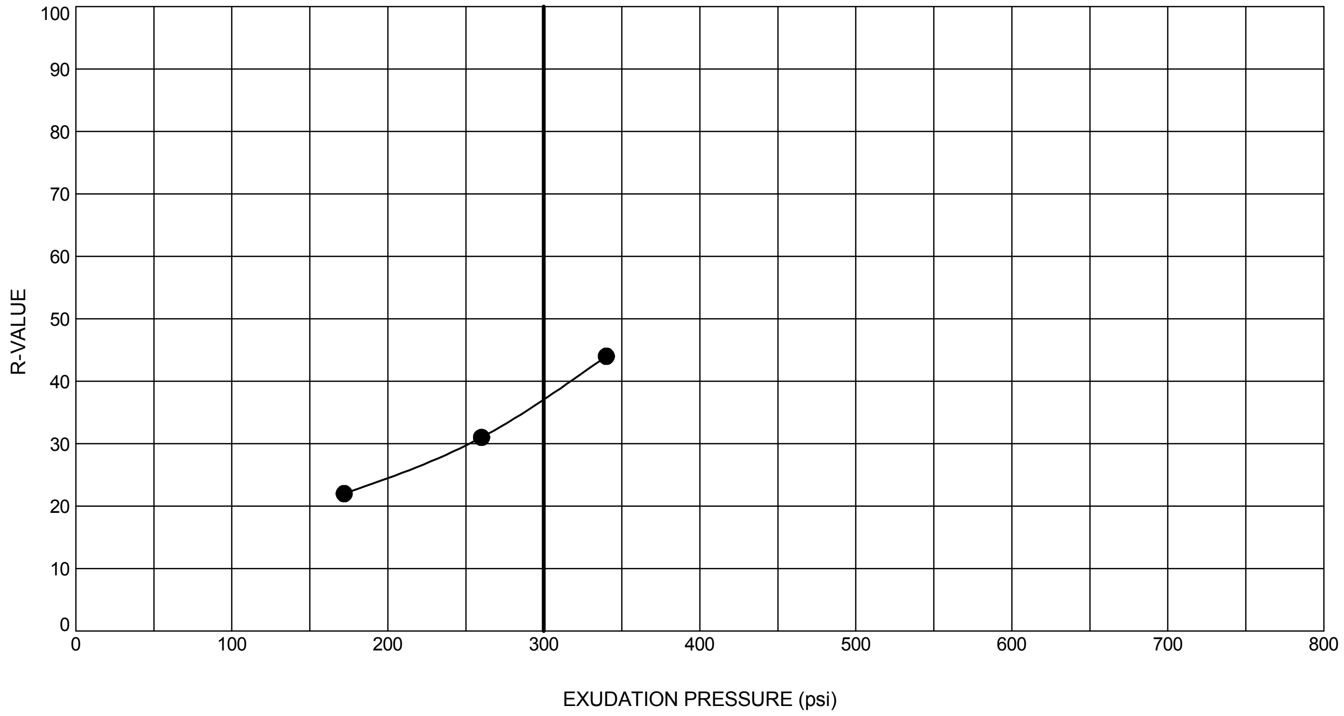
R-VALUE

Golden State Corridor
Fresno, California

APPENDIX
13.6-9



Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
B-9	0 - 5	SILTY SAND (SM)	36

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	11.1	122.4	0	172	22
2	10.2	124.1	0	260	31
3	9.4	125.4	0	340	44

Testing perfomed in general accordance with ASTM D2844.

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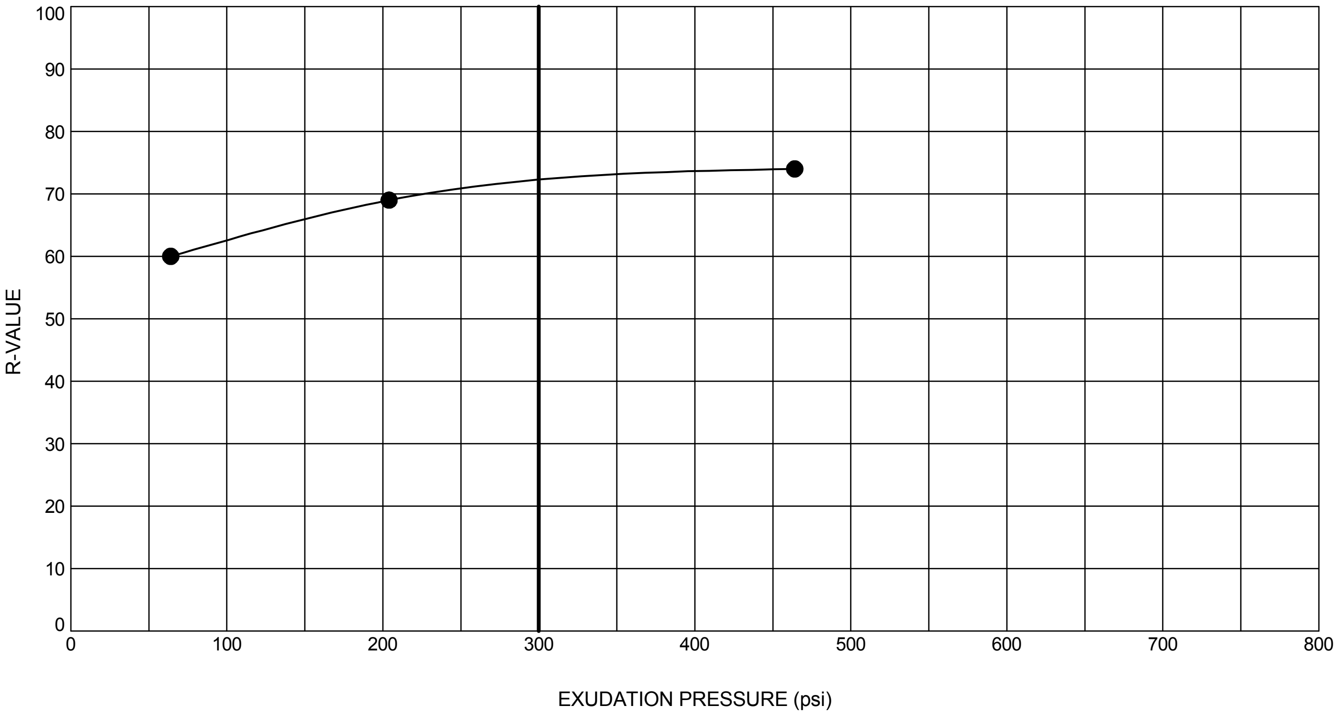
Golden State Corridor
Fresno, California

APPENDIX

13.6-10



Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
B-13	0 - 5	SILTY SAND (SM)	73

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	11.0	118.4	0	64	60
2	9.3	118.7	0	464	74
3	10.2	118.6	0	204	69

Testing perfomed in general accordance with ASTM D2844.

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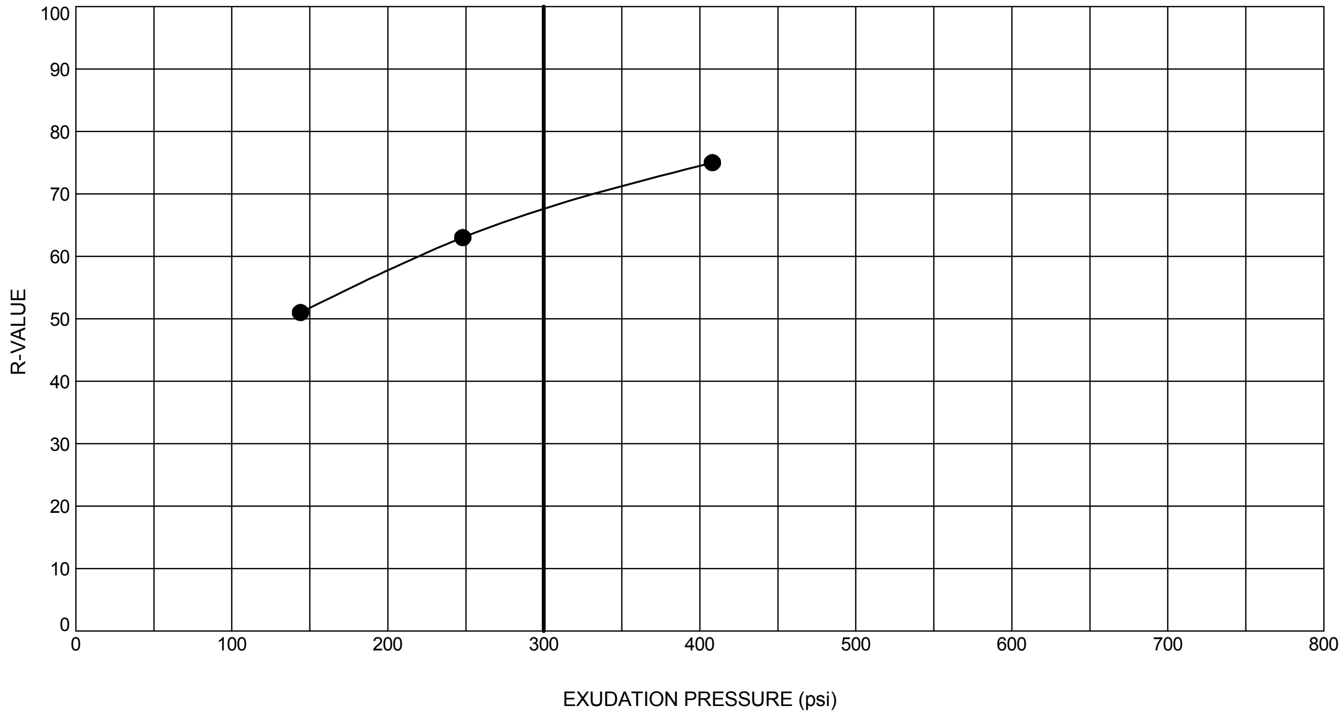
R-VALUE

Golden State Corridor
Fresno, California

APPENDIX

13.6-11



Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
B-17	0 - 5	SILTY SAND (SM)	68

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	10.5	121.5	0	144	51
2	8.8	124.3	0	408	75
3	9.7	122.9	0	248	63

Testing perfomed in general accordance with ASTM D2844.

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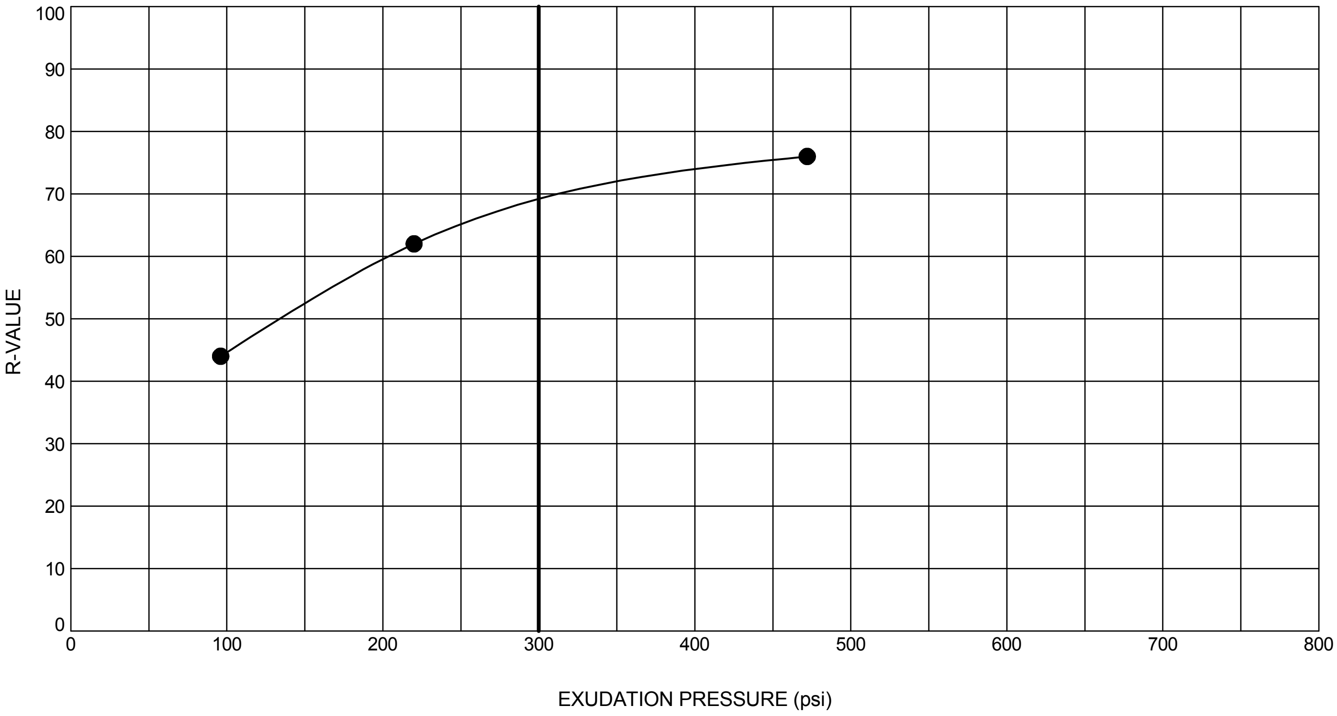
CHECKED BY: NP
DATE: 1/17/2017
REVISED: -

R-VALUE

Golden State Corridor
Fresno, California

APPENDIX

13.6-12



Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
B-21	0 - 5	SILTY SAND (SM)	70

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	11.1	119.1	0	96	44
2	10.2	121.0	0	220	62
3	9.4	121.3	1	472	76

Testing perfomed in general accordance with ASTM D2844.

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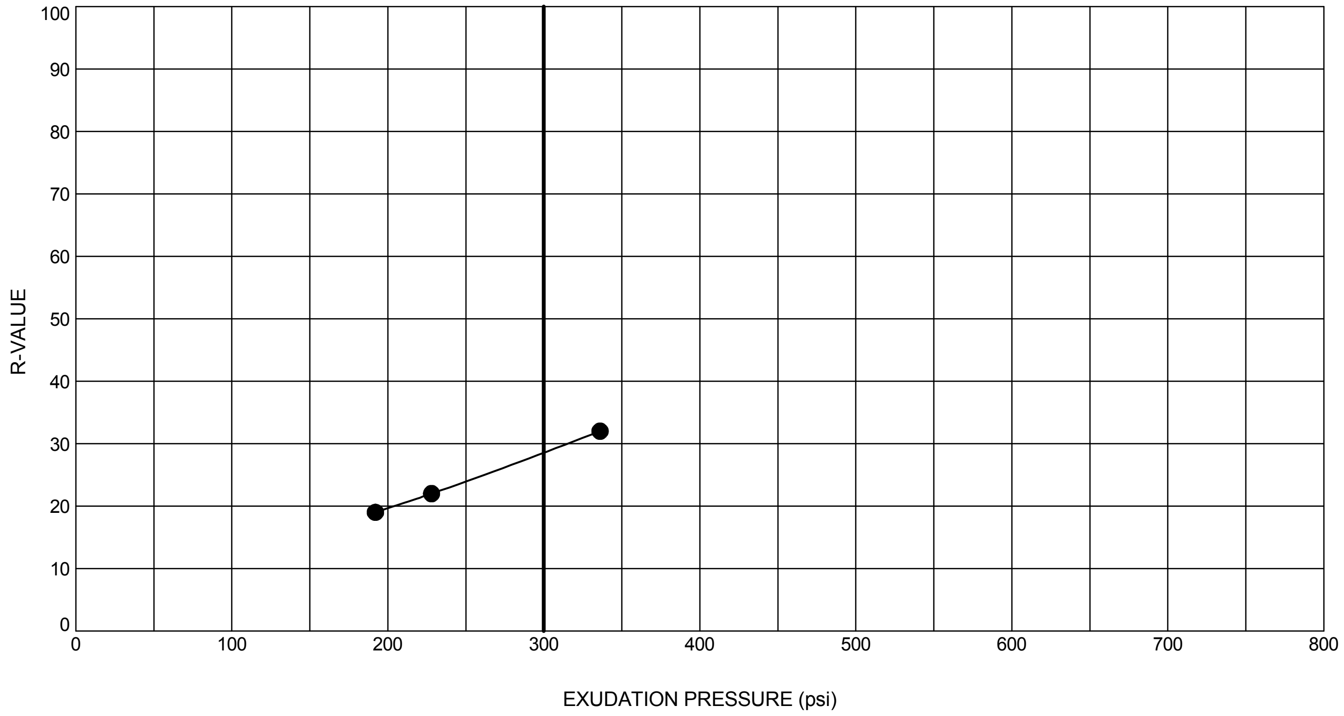
Golden State Corridor
Fresno, California

APPENDIX

13.6-13



Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
B-25	0 - 5	SILTY SAND (SM)	28

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	11.6	121.1	0	192	19
2	9.9	125.3	0	336	32
3	10.7	122.8	0	228	22

Testing perfomed in general accordance with ASTM D2844.

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Golden State Corridor
Fresno, California

APPENDIX

13.6-14

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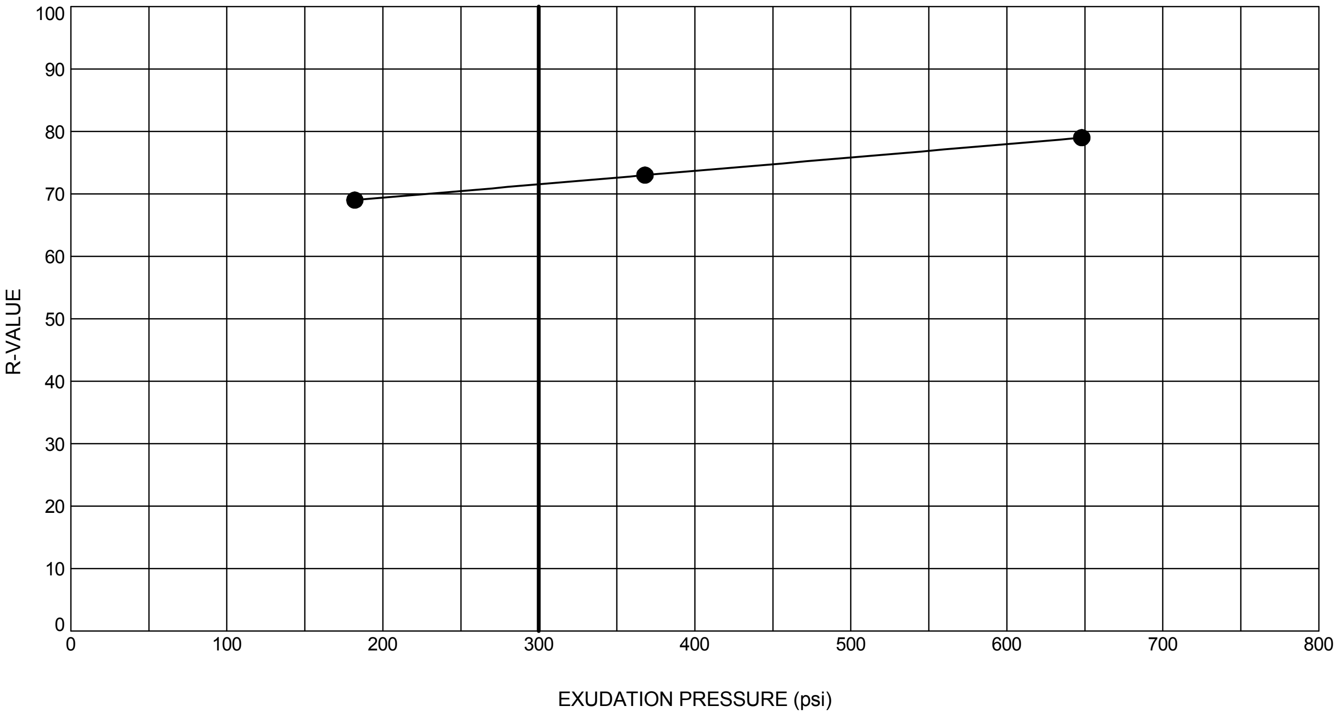

Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
B-34	0 - 5	SILTY SAND (SM)	72

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	9.6	122.6	0	182	69
2	7.9	124.0	0	648	79
3	8.7	123.4	0	368	73

Testing perfomed in general accordance with ASTM D2844.

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Golden State Corridor
Fresno, California

APPENDIX

13.6-15

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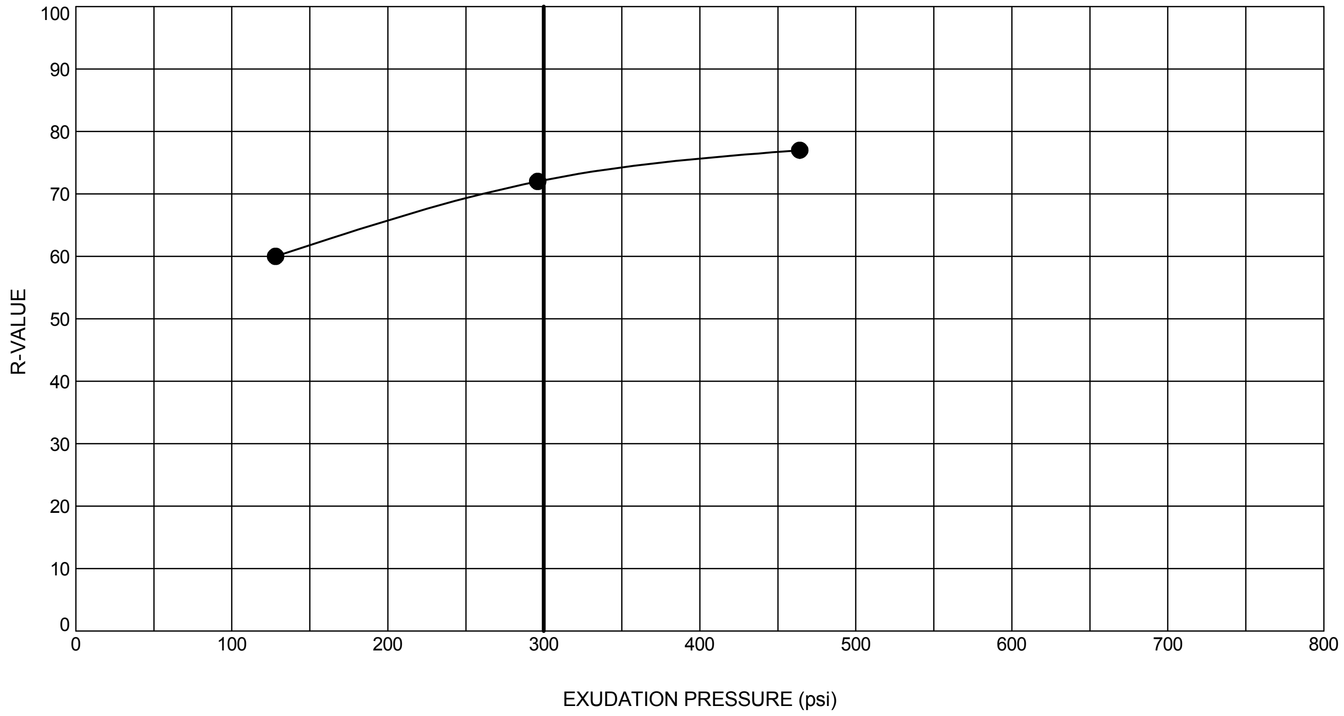

Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
B-38	0 - 5	SILTY SAND (SM)	72

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	10.7	119.7	0	128	60
2	9.0	122.8	0	464	77
3	9.9	121.5	0	296	72

Testing perfomed in general accordance with ASTM D2844.

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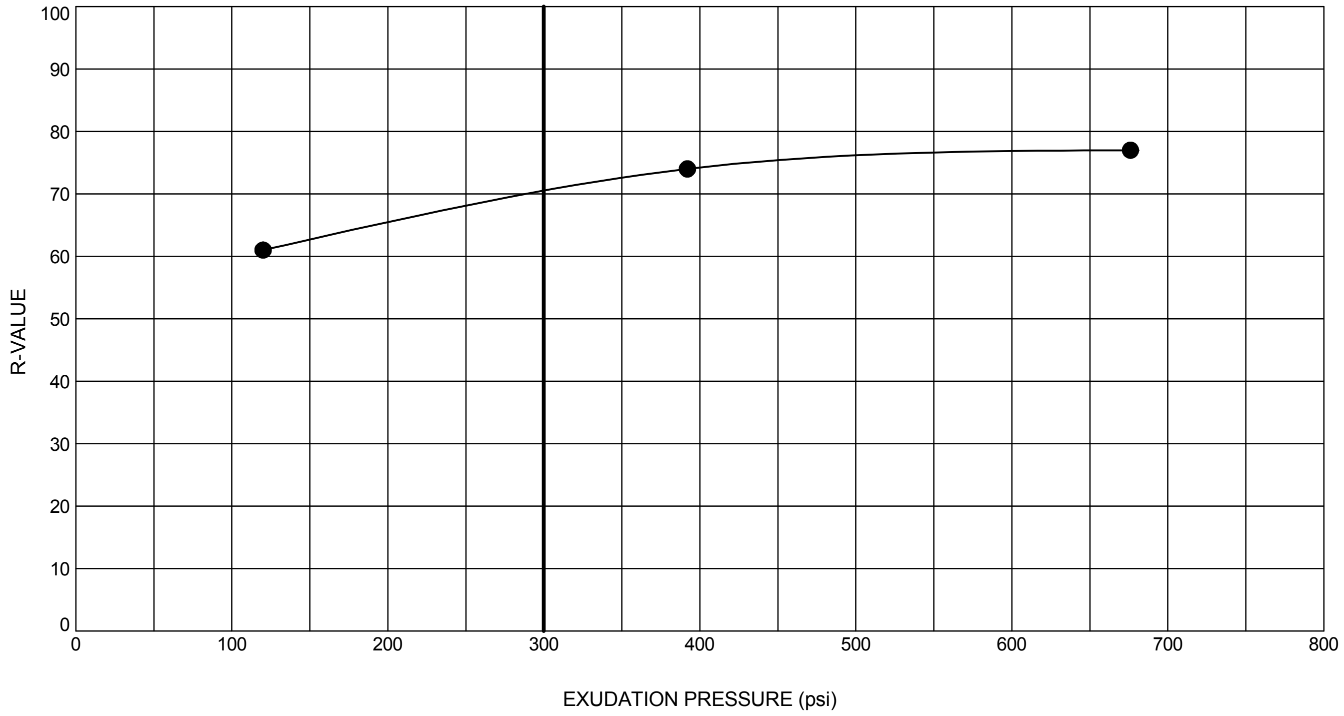
R-VALUE

Golden State Corridor
Fresno, California

APPENDIX

13.6-16



Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
B-42	0 - 5	SILTY SAND (SM)	71

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	9.7	122.0	0	120	61
2	8.0	124.0	0	676	77
3	8.9	122.6	0	392	74

Testing perfomed in general accordance with ASTM D2844.

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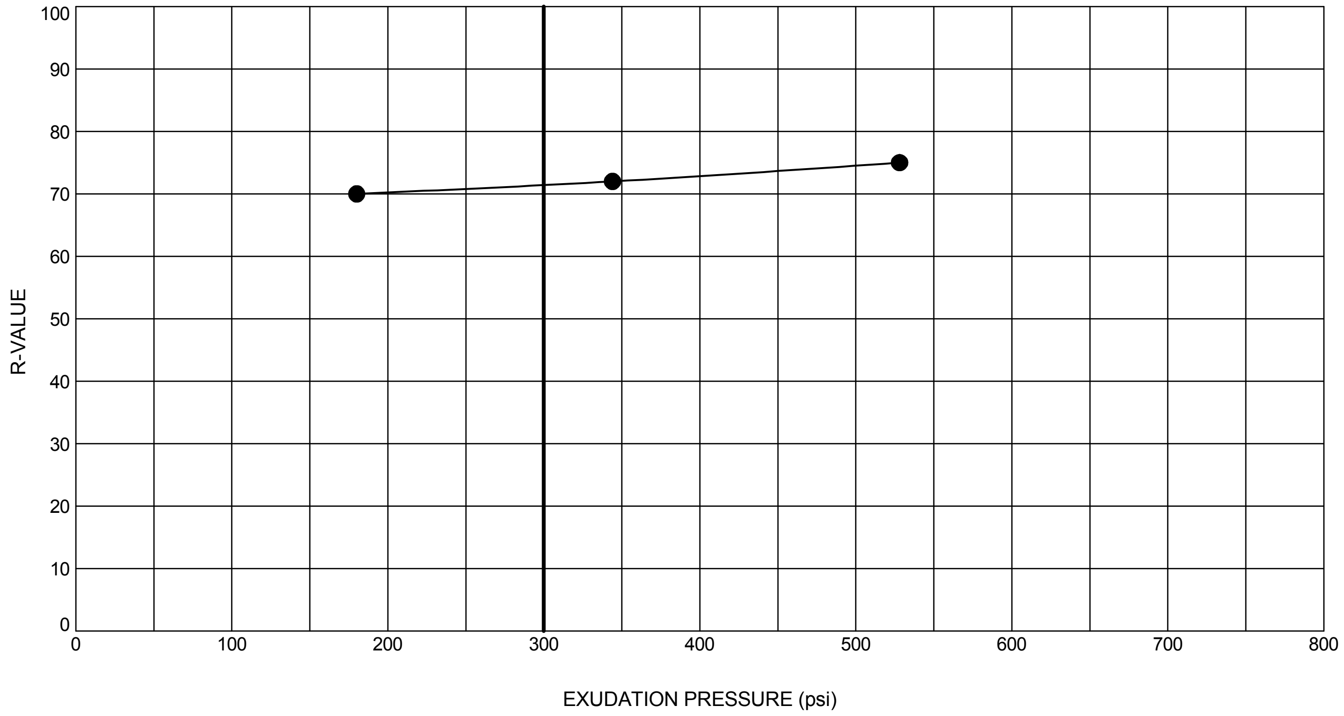
Golden State Corridor
Fresno, California

APPENDIX

13.6-17



Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
B-46	0 - 5	SILTY SAND (SM)	71

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	10.9	118.8	0	180	70
2	10.1	120.1	0	528	75
3	10.5	119.0	0	344	72

Testing perfomed in general accordance with ASTM D2844.

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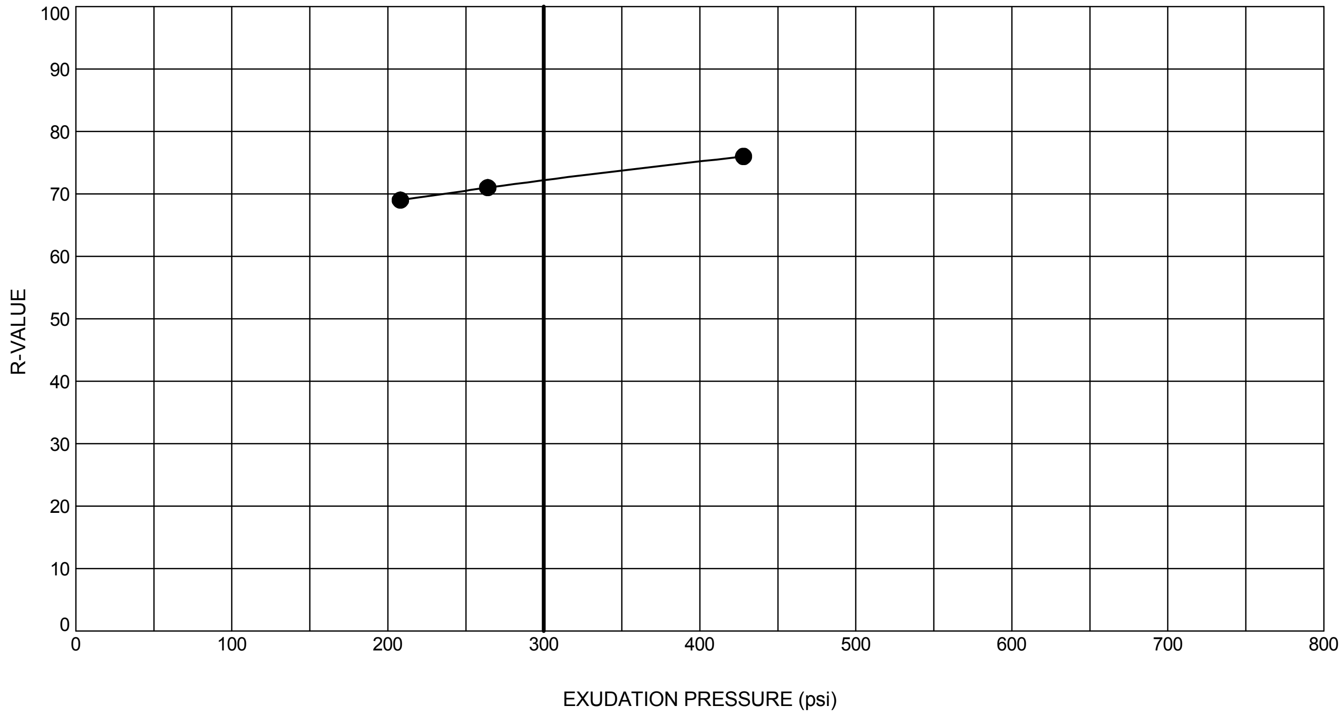
Golden State Corridor
Fresno, California

APPENDIX

13.6-18



Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
B-50	0 - 5	SANDY SILT (ML)	72

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	11.4	117.2	0	208	69
2	10.6	118.9	0	428	76
3	11.0	118.4	0	264	71

Testing perfomed in general accordance with ASTM D2844.

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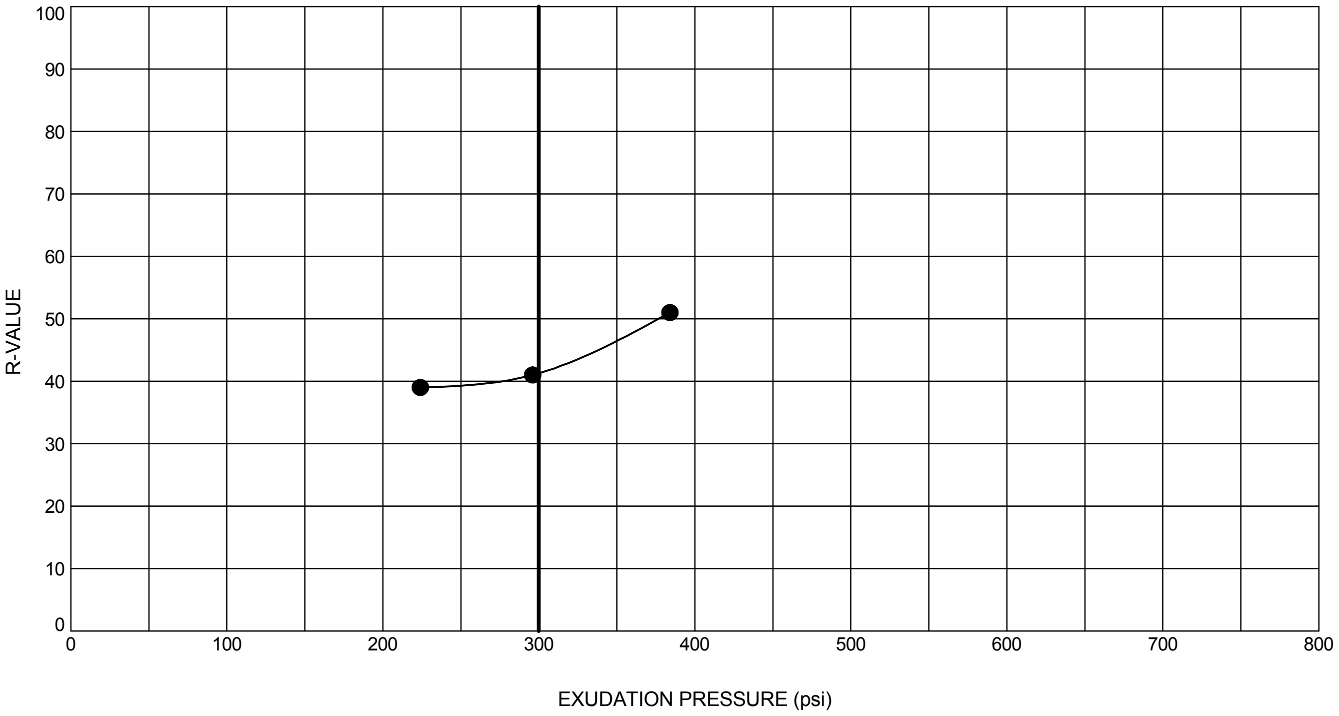
Golden State Corridor
Fresno, California

APPENDIX

13.6-19



Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
B-54	0 - 5	SILTY SAND (SM)	41

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	10.5	121.7	0	384	51
2	10.9	121.0	0	296	41
3	11.4	120.4	0	224	39

Testing perfomed in general accordance with ASTM D2844.

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Golden State Corridor
Fresno, California

APPENDIX

13.6-20

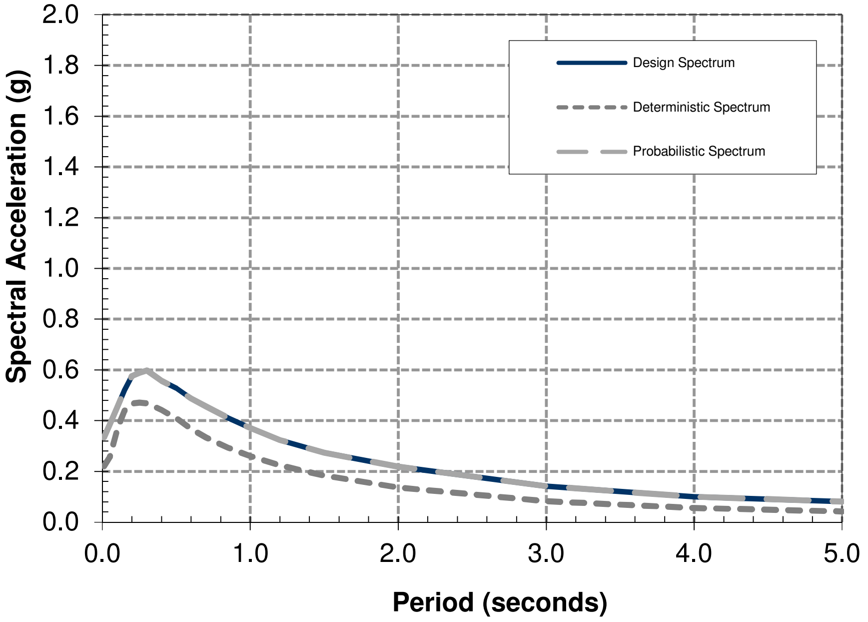
APPENDIX 13.7

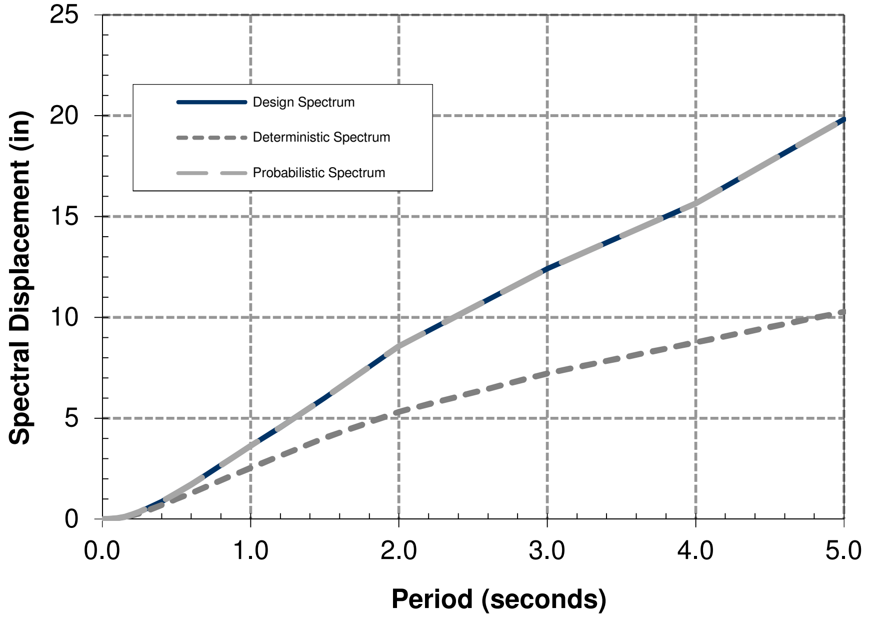
ARS Curve

SITE DATA

Latitude:	36.6630	Shear Wave Velocity	200 m/s
Longitude:	-119.7190	Depth to Vs = 1.0 km/s:	N/A
		Depth to Vs = 2.5 km/s:	N/A

Period (s)	SA (g)	SD (in)
0.01 (PGA)	0.334	0.00
0.05	0.385	0.01
0.1	0.452	0.04
0.15	0.520	0.11
0.2	0.576	0.23
0.25	0.588	0.36
0.3	0.598	0.53
0.4	0.557	0.87
0.5	0.528	1.29
0.6	0.487	1.72
0.7	0.456	2.19
0.85	0.410	2.90
1	0.371	3.63
1.2	0.323	4.55
1.5	0.273	6.01
2	0.219	8.57
3	0.141	12.42
4	0.100	15.66
5	0.081	19.82





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DRAWN: 11/28/16
DRAWN BY: NS
CHECKED BY: NMP

CALTRANS ARS CURVES

GOLDEN STATE CORRIDOR
FRESNO COUNTY, CALIFORNIA

ATTACHMENT

13.7-1

APPENDIX 13.8

FDR-C Specifications

30-4 FULL-DEPTH RECLAMATION-CEMENT

30-4.01 GENERAL

30 – 4.01A Summary

Section 30-4 includes specifications for constructing a subgrade using full-depth reclamation-cement (FDR-C)

FDR-C consists of:

1. Pulverizing any existing asphalt concrete (AC)
2. Thoroughly blending any pulverized AC, aggregate base, subgrade soil and, if specified, supplementary aggregate, to the specified treatment depth
3. Thoroughly mixing the blended material with water and cement
4. Compacting and grading the mixture
5. Curing the compacted mixture

30-4.01B Related Documents and sections

1. Geotechnical Report for Golden State Boulevard Corridor, prepared by Kleinfelder, Inc., dated _____________.
2. Sections ________, __________, and __________
3. ASTM Testing Methods (latest revisions):
    - 3.1 ASTM C136
    - 3.2 ASTM C150
    - 3.3 ASTM D1557
    - 3.4 ASTM D1633
    - 3.5 ASTM D2216
    - 3.6 ASTM D6938
4. Caltrans Testing Methods (latest revisions)
    - 4.1 CT 373
    - 4.2 CT 417
    - 4.3 CT 422

30-4.04C – Definitions

Cement: Type II/V portland cement for general use specified in ASTM C150
Spreader: Motorized vane fed spreader which can control cement application rate to measure lbs/ft^2 ±5%
Mixer: Cross-shafted mixer with a mixing depth of 1.5 feet and capable of controlled introduction of water
Drop Pan: Rectangular metal box with minimum area of 3 square feet and height which allow passage of spreader
Optimum Moisture: Moisture content associated with maximum dry density determined by ASTM D1557
Relative Compaction: In-place compacted dry density divided by ASTM D1557 maximum dry density.
Unconfined Compressive Strength: Strength determined from ASTM D1633, Method A, using a 7-day oven cure per CT 373 H(2), (3). For curing only, test specimen must by tightly wrapped with two layers of plastic with minimum thickness of 4-mil, seal all seams with duct tape to prevent moisture loss.

30-4.01D Submittals

30-4.01D(1) Products

At least 20 days prior to work, submit product data and certificates of compliance for all materials proposed under this section.

30-4.01D(2) Mix Design

After review of the Owner's mix design, the Contractor may either concur with the design or submit a mix design to optimize the cement content or adjust materials. Any proposed mix design must be submitted for approval at least 20 days before the start of work. Each mix design submittal must be signed and sealed by a civil or geotechnical engineer who is registered in the State of California.

Each mix design submittal must include:
1. Area represented by sample by stationing
2. Gradation of mixture before addition of cement
3. Cement content percentage by dry weight
4. Maximum dry density and optimum moisture of FDR-C mix
5. Mixing moisture and relative compaction of test specimens
6. Unconfined compressive strength of test specimens (3 minimum)
7. Completed test results, with time at start of mixing, compaction, oven-curing and compression testing and any worksheets, photographs and graphs

30-4.01E Quality Control and Assurance

30-4.01E(1) Quality Assurance

1. The Owner will employ and pay for the services of an independent testing laboratory to perform testing to verify compliance with the contract documents.
2. Daily testing of the constructed materials and work of the Contractor will be made during construction
3. Cement application rate, mixing uniformity, mixing depth, moisture and relative compaction tests will be made at locations determined by the Owner's representative. When tests indicated the specified requirements have not been achieved or work has not been performed within the allowable time, that portion of the work shall be reworked until the specified requirements have been attained.
4. Relative compaction will be determined based on dry density using the maximum dry density at optimum moisture content determined by ASTM D1557. Compacted field in-place density and moisture will be determined by ASTM D6938. Mixing moisture, and nuclear gauge or direct source heating (ASTM D4959) moisture content corrections will be made periodically by ASTM D2216.
5. The uniformity of the mix and mixing depth will be confirmed by visual observation and sprayed phenolphthalein alcohol indicator solution.

30-4.01E(2) Field Quality Control, Sampling and Testing

1. The Owner will retain the services of an independent testing agency to perform field quality control testing.
2. The testing agency shall perform sampling and testing, as a minimum, in accordance with the following table. Additional testing may be performed as necessitated by field conditions or as determined by the Owner's representative.

Quality Control Testing Requirements

Quality Characteristic	Tested Method	Minimum Frequency	Sampling Location
Water Sulfates (ppm)	CT 417[a]	1 per source	Source
Water Chlorides (ppm)	CT 422[a]	1 per source	Source
Maximum Dry Density (pcf)	ASTM D1557[b, c, f]	60,000 ft^2	Loose Completed Mix
In-Place Dry Density (pcf)	ASTM D6938[d]	7,500 ft^2	Compacted Mix
In-Place Dry Moisture (%)	ASTM D6938[d]	7,500 ft^2	Compacted Mix
Moisture Bias (%)	ASTM D2216[e]	Weekly	ASTM D6938 and Composite Moisture
Composite Mix Moisture (%)	ASTM D2216 [b, f] or ASTM D4959	15,000 ft^2	Loose Completed Mix
Cement Application (lbs/ft^2)	Drop Pan[g]	60,000 ft^2	Working Spread
Mix Thickness Verification (in)	Phenolphthalein[h,i]	15,000 ft^2	Loose Completed Mix
Mix Uniformity	Visual and Phenolphthaelein[i]	15,000 ft^2	Loose Completed Mix

[a] Only required for non-potable water sources

[b] Sample immediately after mixing is completed

[c] Test to be completed within 2 hours of sampling

[d] If lift thickness exceeds 1-foot, at least one-third of tests shall be a depth of 0.5 foot to designated treatment depth

[e] For bias to nuclear gauge, test at beginning of each work week on sample obtained from ASTM D6938 test location. For bias to direct heat source, test on composite sample of loose mix

[f] Direct heat source must have temperature control to allow for repeatable procedure

[g] At least one test per day

[h] Initial thickness verification to be taken in loose mix and at the same location in compacted mix to provide correlation for required loose mix thickness to result in specified compacted mix thickness. At least one comparison between loose and compacted mix thickness shall be made at the beginning of each work week or with any change to mixing and/or compaction procedures.

[i] At least two per day (one beginning of shift and one at mid-shift), thickness and uniformity at same location.

30-4.01E(3) Acceptance Criteria

FDR Acceptance shall be based on:

1. Compliance with the quality characteristics shown in the following table

FDR-C Acceptance Criteria

Quality Characteristic	Requirement
Cement Application (lb/ft^2)	Mix Design (-5%, +10%)
Relative Compaction (min)	95%
Moisture Content (min)	4% above optimum
Thickness (ft)	Design (-0.05’, +0.10’)

2. Visual inspection of the following:
   2.1 Uniformity of soil/cement mix
   2.2 Segregation, raveling or loose material
   2.3 Uniform surface texture and consistency
3. Finish grade ±0.05 foot of design and within 0.05 foot of bottom edge of a 12-foot straight edge.

30-4.02 MATERIALS

30-4.02A Cement

Cement must be normal Type II/V portland cement for general use as specified in ASTM C150.

30-4.02B Water

If available, potable water shall be used for mixing the FDR-C. The Engineer shall be notified if a water source other than potable water is to be used. Water, other than potable water, shall:
1. Contain no more than 500 ppm chlorides as Cl and no more than 1000 ppm sulfates as SO_4.
2. Not contain an amount of impurities that will cause a reduction in the strength of the FDR-C.

Prior to approval of a non-potable water source, a mix design shall be submitted which utilizes the non-potable water source.

30-4.02C Supplemental Aggregate/Soil

Any aggregate or soil proposed to supplement the on-site asphalt concrete, aggregate base, aggregate subbase, or subgrade within the specified treatment depth shall be free of organics or deleterious matter. A mix design shall be provided, which utilized the supplemental materials in the same proportion to on-site materials proposed for construction.

30-4.02D Cure Seal

Curing seal shall comply with Section 94 of the Caltrans Standard Specification for asphaltic emulsions Grade SS1h or CSS1h.

30-4.03 CONSTRUCTION

30-4.03A General

Do not start FDR-C activities if the ambient air temperature is below 40ºF or if the road or ground surface is below 35ºF. If the ambient air temperature drops below 40ºF during the FDR-C activities, the Contractor may only complete compaction and finishing of FDR-C already mixed.

Deliver cement in full loads unless it is the last load of the work shift.

FDR-C treatment shall be to the design depth below the specified subgrade elevation. Treatment shall extend to the outer edge of the proposed pavement, unless otherwise specified on the approved plans or directed by the Owner's representative.

30-4.03B Utility Preparation

Prior to mixing, positively identify the horizontal and vertical location of utilities within the proposed FDR-C area. At a minimum, pothole each utility at the crossing with the proposed or existing lip of gutter and at 300 foot intervals for lines running parallel the roadway. Any conflicts with existing utilities and a theoretical surface 12 inches below the bottom of the FDR-C limits shall be reported to the Engineer immediately and prior to the mixing process. Coordinating the relocation of any utilities as a result of these findings, as deemed necessary by the Engineer, shall be the responsibility of the Contractor.

Surface utilities (manholes, water valves, etc) which conflict with the FDR-C section shall be adjusted below the FDR-C conflict prior to mixing, and re-adjusted to finished grade prior to placing HMA (double adjustment). Adjusting utilities to grade, including the double adjustments, are considered part of the FDR-C bid item and no separate payment will be made. If private utilities need to be "double adjusted" the Contractor is responsible for coordinating the adjustments with the respective utility companies or self-perform the adjustment with the approval of the respective utility company. With the approval of the Engineer, the Contractor may work around utilities which cannot be "double adjusted". Any damage to utilities shall be repaired or replaced at the Contractor's expense, to the extent that is acceptable to the Engineer and the utility Owner.

At all times, the Contractor must maintain access to water valves. When the water valves are adjusted below grade, the Contractor shall provide swing ties, located outside the FDR-C section, identifying the exact location of the water valves. If requested by the Engineer, Owner or ____________________, the Contractor shall expose the valve for service.

30-4.03C Surface/Treatment Zone Preparation

Before FDR-C activities start, prepare the surface and treatment zone by:

1. Clear foreign matter including vegetation.
2. Remove standing water.
3. Referencing the profile and cross slope.
4. Marking the proposed longitudinal cut lines on the existing pavement as follows:
    - 4.1 Cut lines must coincide with points where the existing cross slope changes, approximately at the centerline and edge of traveled way
    - 4.2 Cut lines must indicate the sequence of the cuts
5. The FDR-C material to be treated shall be essentially free of irreducible particles greater than 6 inches in maximum dimension, contain less than about 10% irreducible particles greater than 3 inches in maximum dimensions and be determined by the Contractor to be satisfactory to not damage the mixer.
6. Provide a rough grade within ±0.1 foot of the specified finish subgrade elevation.
7. Clear and dispose of any vegetation, debris or other deleterious matter from any area used to store excess material.

30-4.03D Pulverizing

Do not pulverize more material than can be mixed with cement, uniformly moisture conditioned, compacted and finish graded within one work shift.

No unpulverized material shall be left in-place. The 1st cut width must be the full width of the pulverizing drum. Subsequent cuts must overlap previous cuts at least 4 inches, but not more than 12 inches.

Where the pulverizing drum stops in a longitudinal cut, the position of the drum shall be marked and a subsequent cut on that longitudinal alignment shall start at least 2 feet behind the mark.

If the pulverization encounters unstable conditions or material inconsistent with item 3 of Section 30-4.03B, notify the Engineer. The Engineer, with the Contractor's assistance, will determine the extent of the problem area and the correction measures to be taken.

30-4.03E Applying Cement

Cement shall be applied in dry form.

Cement shall be uniformly spread over the work area. The design spread rate is _____ pounds/square foot, which is based on a dry soil weight of _____ pcf and a mix design of _____% cement.

Spreader speed shall be controlled based on the pan test speed to maintain an application rate of _____ to ______ pounds/square foot.

The spread area should not exceed the area which can be initially mixed, uniformly moisture conditioned and compacted within 2 hours.

30-4.03F Mixing

The FDR-C material shall be uniformly mixed at least twice to the specified treatment depth. Mix until the mixture is visibly uniform with no streaks or pockets of cement. The mixed material shall have a uniform color reaction with sprayed phenolphthalein alcohol indicator for the full specified treatment depth.

Water must be injected through the mixer. The injection rate of mixing water must be sufficient to produce a workable FDR-C material moisture content that is at least 4% above the optimum moisture content determined by ASTM D1557. A composite sample from 5 random locations shall be taken after initial mixing and tested under ASTM D2216 or D4959 (calibrated to ASTM D2216) to confirm the moisture prior to compaction.

Mixing shall occur in a series of parallel lanes of convenient width and length. Mixing of adjoining lanes shall overlap the previous lane by at least 4 inches, but not more than 1 foot, to provide continuity. Where the mixing drum stops at the end of a lane, the position of the drum shall be marked and a subsequent lane on that longitudinal alignment shall start at least 2 feet behind the mark.

30-4.03G Compaction

Begin compaction within 0.5 hour of initial mixing.

Compact using equipment capable of uniform compaction throughout the thickness of the treated zone. For treatment depths greater than 0.65 feet, use an open hub/ring wheel compactor (e.g. Rex 760). Complete compaction with non-vibrating steel drum rollers or pneumatic-tired rollers. Compact to at least 95% relative compaction.

Use other compaction methods, as necessary, in areas not accessible to heavy equipment (e.g. around manholes or drain inlets).

The total time from final mixing of the pulverized material with cement to completion of compaction shall not exceed 2 hours.

30-4.03H Finishing Grading

Maintain the moisture of the FDR-C surface at, or above, the optimum moisture throughout the entire finish grading operation.

The finish grade of the FDR-C surface shall be ±0.05 foot of the specified subgrade elevation and within ±0.05 foot of the bottom edge of a 12-foot straight edge laid in directions parallel and perpendicular with the centerline.

If the FDR-C surface is above the allowable tolerance, trim, remove and dispose of excess material.

If the FDR-C surface is below the allowable tolerance, or is damaged prior to placing HMA, the low or damaged area shall be repaired with minor HMA. Any necessary leveling HMA is considered part of the FDR-C bid item and no separate payment will be made.

The finish FDR-C surface shall be free of ruts, bumps, indentations, segregation, raveling and any loose materials and shall be rolled with at least one complete coverage of a non-vibrating smooth-drum or pneumatic tired roller.

Finish grading shall be completed within 2 hours of completion of FDR-C compaction.

30-4.03I Curing

Curing shall consist of a water cure or curing seal. Curing shall begin the same day as finish grading.

Water curing shall keep the finished FDR-C surface at, or above, the optimum moisture content until paving with HMA begins.

Curing seal shall be applied to the finished FDR-C surface in conformance with Section 94-1.03 of the California Standard Specifications. Apply the curing seal:

1. At a rate of 0.1 to 0.2 gallon per square yard
2. When the ambient temperature is above 40ºF and rising

30-4.03J Microcracking

During the period from 48 to 72 hours after completion of compation, microcrack the FDR-C surface by applying 3 single passes with a 12-ton vibratory smooth steel drum roller at maximum amplitude traveling from 2 to 3 mph.

30-4.03K Traffic

Traffic may be placed onto the finished FDR-C surface after final grading. Any damage prior to placing HMA shall be replaired with minor HMA, as indicated in Section 30-4.03H.

30-4.04 Payment

The contract price paid per square foot for Full Depth Reclamation Cement includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the Full Depth Reclamation Cement, including utility work or leveling HMA as described in this section, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.