Western Technologies Inc.

FINAL GEOTECHNICAL-PAVEMENT EVALUATION REPORT

THORNTON ROAD/SELMA HIGHWAY ROADWAY IMPROVEMENTS
Thornton Road, Between I-8 and SR 84
Selma Highway from Thornton Road to 3,000 Feet West
Pinal County, Arizona
WT Reference No. 2127JY002

PREPARED FOR:
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Phoenix, Arizona 85020-4667
Attn: Susan H. Detwiler, P.E.

June 28, 2017

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June 28, 2017

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Attn: Susan H. Detwiler, P.E.

Re: Final Geotechnical-Pavement Evaluation Report
Thornton Road/Selma Highway Roadway improvements
Pinal County, Arizona
WT Reference No. 2127JY002

Western Technologies Inc. (WT) has completed this Final report as an aid to the designers for the proposed improvements to the above referenced roadways. At the time of this report, final site grading plans for Thornton Road and Selma Highway were not available. A traffic study has been performed or is being performed by Wilson & Company, Inc. and traffic count information collected from two stations located along Thornton Road on April 26 and 27, 2017 were provided to us for estimation of 18-Kip Equivalent Single Axle Loads (ESALs).

If you have any questions concerning this report and the findings and recommendations herein, please give us a call.

Respectfully submitted,
WESTERN TECHNOLOGIES INC.
Geotechnical Engineering Services

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Senior Geotechnical Engineer

Cc: Addressee (1-emailed)

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SELMA HIGHWAY FROM THORNTON ROAD TO 3,000 FEET WEST
PINAL COUNTY, ARIZONA
WT NO. 2127JY002

1.0 PURPOSE

This report contains the results of our geotechnical evaluation for the proposed roadway improvements to Thornton Road from I-8 to State Route (SR) 84 and Selma Highway from Thornton Road up to about 3,000 feet west of the intersection. The purpose of our services is to provide information and recommendations regarding:

- Subsurface conditions
- Geologic hazards
- Foundation design parameters for utility crossing structures
- Lateral earth pressures
- Seismic considerations
- Drainage
- Corrosivity to concrete or Corrugated Metal Pipes (CMPs)
- Pavements sections
- Excavation conditions
- Groundwater
- Earthwork, including site preparation, fill placement, and suitability of existing soils for fill materials, and compaction

Results of the field exploration, field and laboratory tests are presented in the Appendices.

2.0 PROJECT DESCRIPTION

Based on information provided by Dibble Engineering, the proposed Pinal County project will consist of the widening of Thornton Road from Interstate 8 north to the intersection with SR 84, a distance of 3½ miles; and the paving of Selma Highway from Thornton Road to approximately 3,000 feet to the west. Thornton Road is currently a two lane highway and is to be widened into a four-lane Major Arterial; Selma Highway is currently a gravel surfaced low volume road. The finished roadway grades will be within a foot or so of the existing roadway grade. There are four known roadway utility crossings, a 30" CMP at Cornman Road, a 108" canal crossing at the Casa Grande Canal, 3-28" CMPs at Selma Highway, and two 40" to 48" concrete pipes at Peters Road.

A traffic study is being performed by Wilson & Company, Inc. (Wilson) and traffic count information at two locations along Thornton Road has been provided to us in order to estimate 18-Kip Equivalent Single Axle Load (ESAL) for pavement design purposes; the traffic study did not include Selma Highway. Final site grading plans for Thornton Road and Selma Highway were not available at the time of preparation of this report. Should our assumptions not be correct, we should be notified immediately.

Based on as-built plans prepared by Carter-Burgess for the Thornton Road Reconstruction project and dated 12/31/09, the pavement structural section #1 consists of 5.5" of Asphalt Concrete (AC) over 6" of aggregate base course (ABC) over a Synteen Geogrid (SF-12) over prepared subgrade.

3.0 SCOPE OF SERVICES

3.1 Field Exploration

Eighteen (18) borings were drilled to depths ranging from 5 to 16 feet below existing site grade along the proposed Thornton Road and Selma Highway alignments. The borings were at the approximate locations shown on the attached Boring Location Diagram. A field log was prepared for each boring. These logs contain visual classifications of the materials encountered during drilling as well as interpolation of the subsurface conditions between samples. Final logs, included in Appendix A, represent our interpretation of the field logs and may include modifications based on laboratory observations and tests of the field samples. The final logs describe the materials encountered, their thicknesses, and the locations where samples were obtained.

The Unified Soil Classification System was used to classify soils. The soil classification symbols appear on the boring logs and are briefly described in Appendix A. Local and regional geologic characteristics were used to estimate the seismic design criteria.

3.2 Laboratory Analyses

Laboratory analyses were performed on representative soil samples to aid in material classification and to estimate pertinent engineering properties of the on-site soils for preparation of this report. The following tests were performed in general accordance with applicable procedures, and the results are presented in Appendix B.

- Field moisture content
- In-situ soil density
- Maximum density-optimum moisture relationship (Proctor)

- Swell potential
- Sieve analysis
- Liquid limit and plasticity index
- R-Value
- pH and resistivity
- Water soluble chloride and sulfate content

3.3 Analyses and Report

This geotechnical engineering report includes a description of the project, a discussion of the field and laboratory testing programs, a discussion of the subsurface conditions, and design recommendations as appropriate to its purpose. The scope of services does not include any environmental assessment of the site, discovery of UST's or other underground structures, or identification of contaminated or hazardous materials or conditions. If the Client is concerned about the possibility of such contamination, we are available to discuss the scope of such other and further studies with you.

4.0 SITE CONDITIONS

4.1 Surface

At the time of our exploration, the proposed alignments are relatively flat terrain with sparse to moderate growth of desert brush and native trees. There are overhead and underground utilities along Thornton Road and alignment. Selma Highway is currently a gravel surface road. There is overhead powerlines along the Selma Highway alignment. Thornton Road is currently a two lane roadway.

There are four known roadway utility crossings along Thornton Road, a 30" CMP at Cornman Road, a 108" canal crossing at the Casa Grande Canal, 3-28" CMPs at Selma Highway, and two 40" to 48" concrete pipes at Peters Road. There is a Walmart Distribution Warehouse facility on the northeast corner of Thornton Road and Peters Road that provides traffic to Thornton Road.

4.2 Subsurface

As presented on the borings logs, surface soils to the full depth of exploration consist of predominantly medium dense to very dense Clayey SAND (SC), Silty SAND (SM), Sandy SILT (ML), medium dense Poorly-graded SAND (SP) at depths of about 13 ft to 14 ft below

existing site grade at the location of the deeper borings B-9 and B-16, and one isolated encounter of Sandy Fat CLAY (CH) at the location of Boring No. 17. The near surface soils are predominantly non-plastic to medium plasticity with the exception of the high plasticity clay encountered at the location of Boring No. 17. Groundwater was not encountered in any of the borings at the time of exploration. A detailed description of the soils encountered can be found on the boring logs in Appendix A.

4.3 Earth Fissures

No known or mapped earth subsidence fissures, due to regional groundwater withdrawal, are on or adjacent to the site. No evidence has been noted of distress arising from areal subsidence due to regional groundwater withdrawal. The closest mapped earth fissure study zone is located approximately two miles to the east, and the nearest confirmed earth fissure is six miles to the southwest of the Site.

5.0 GEOTECHNICAL PROPERTIES & ANALYSIS

Collected subgrade samples from the borings yielded plasticity indices (PI) ranging from non-plastic to 54, with percent passing the No. 200 sieve ranging from 23 to 77. These soils exhibit low to medium expansion potential when recompacted and saturated with swell potential ranging from 0.7% to 2.9%; the swell potential for the high plasticity clay encountered at the location of Boring No. 17 is 8.9%.

Maximum dry density and optimum moisture content (Proctor test) were determined on eight of the subgrade samples collected from the test borings. The maximum dry density values range from 114.2 to 121.0 pounds-per-cubic-foot (pcf) with optimum moisture contents ranging from 10.4% to 13.7%. R-value tests were also performed on these samples yielding values ranging from 12 to 48.

Chemical tests were performed on representative soil samples at the location of utility crossings to determine the amount of water-soluble sulfates and chlorides. The test results indicate that the soils are negligibly corrosive to moderate corrosive to concrete. The test was performed by Arizona Department of Transportation methods and the result is presented in Appendix B.

Laboratory minimum resistivity and pH tests were also conducted on samples obtained from the borings located at the utility crossings (Borings No. 9, 14, and 16). The pH of the soils tested ranged from 7.8 to 8.5, which is in the range of typical values for desert soils. Minimum resistivity values ranged from 560 to 2,601 ohm-cm. The test results are shown on Plate B-3.

6.0 ENGINEERING ANALYSIS FOR THORNTON ROAD/SELMA HIGHWAY

6.1 R-Values and Resilient Modulus (M_R) for Pavement Design

A total of eighteen borings were advanced within the proposed Thornton Road and Selma Highway alignments. Seven R-value tests were performed on selected samples as indicated on Plate B-1.

The measured percentages passing the No. 200 sieve and PIs of the samples collected from depths between existing surface and approximately three feet below existing surface on each of the borings were entered into the equations on Section 10.2.2.1.1.*2 Initial Evaluation of Sieve Analysis and Plasticity Index* (page 10-11) in the MCDOT *Roadway Design Manual* to obtain correlated R-values which are shown on the table below.

Test Boring	Depth (feet)	USCS	Minus 200	Plasticity Index	R-values	
					Correlated	Tested
B-2	0 – 5	SC	35	10	39	
B-4	0 – 5	ML	53	3	48	24
B-6	0 – 5	CL-ML	64	7	33	12
B-8	0 – 5	SC	38	10	37	26
B-9	0 – 5	SC	42	12	32	
B-11	0 – 5	SC	46	13	29	19
B-13	0 – 5	SM	23	NP	70	48
B-14	0 – 5	SC	46	15	26	
B-15	0 – 5	SC	30	10	41	16
B-16	0 – 5	SC	43	15	26	
B-17	0 - 5	CH	77	54	7	18
B-18	0 – 5	SC	45	16	24	
Number					12	7
Mean					34.38	23.29
Standard Deviation					15.32	11.87

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The overall mean R-value was calculated to be 24, using the means and standard deviations of the respective measured and correlated R-values according to the equation on Section 10.2.2.1.1.3 *R-value Analysis* (page 10-13) of the MCDOT manual. When this mean R-value was entered into the MCDOT equation for converting between R-value and resilient modulus, with the Seasonal Variation Factor (SVF) of 1.0 for Casa Grande (ADOT Manual), the result was an M_R of **14,340 psi**.

6.2 Pavement Design Parameters

Laboratory measurement of R-value for site soils yielded values of 12 and 48. Correlated R-values yielded values ranging from 7 to 70. The overall mean R-value of site pavement subgrade soils was calculated to be 24, using the means and standard deviations of the respective measured and correlated R-values according to the MCDOT equation. The corresponding subgrade resilient modulus (M_R) value is 14,340 psi, according to calculations using the Casa Grande SVF of 1.0.

Thornton Road ESAL calculations

Traffic data was obtained from a traffic study being performed by Wilson & Company, Inc. Traffic count information collected at two locations along Thornton Road on April 26 and 27, 2017 was provided to us for estimation of the 18-Kip ESAL needed for pavement design purposes. The location of the traffic count stations were north of I-8 and south of AZ-84 roadway. The Average Daily Traffic (ADT) at these locations were **4,300** vehicles for the south of AZ-84 station and **2,300** for the north of I-8 station. A future traffic volume value of **10,500** vehicles for the south of AZ-84 station was also provided by Wilson. A traffic growth rate (GR) value of **4.565%** is obtained based on the existing and future traffic volume values provided to us by Wilson. This same GR value will be used for estimating future volume at the other traffic count station.

Based on the traffic count information for both stations, the directional distribution factor is estimated to be 50%. The number of lanes per direction for Thornton Road is two which yields a Lane Factor of 0.9; Selma Highway will have one lane of traffic per direction which yields a Lane Factor of 1.0. Traffic composition information was available for both roads on the traffic count reports. The traffic count followed FWHA 13-vehicle classes composition.

Directional distribution factor (0.5) times the average ADT for the 20-year design life of the project times the lane factor were used to estimate a value for the total vehicles to use the design lane during its design life (20-yr). Total vehicles on the design lane for the south of AZ-84 station (ADT 4,300 vehicles) was **24,309,000** and **12,975,750** for the north of I-8 station (ADT 2,300 vehicles). The total vehicle value on the design lane along with the traffic composition and ESAL factors were used to compute values for the total ESALs. ESALs factors were obtained from AASHTO/MCDOT tables (MCDOT Roadway Design Manual: Table 10.2.2 – Traffic Equivalency Factors). Calculations of Total ESALs to use the roads during their design life are presented in the following tables and in the appendices.

Design ESAL for Thornton Road – South of AZ-84 Station

Vehicle Type	Total Vehicles	Percent	ESAL Factor	Design ESAL
Bikes	24,309,000	1.26	0.0000	0
Cars & Trailers	24,309,000	56.78	0.0008	11,041
2-Axle Long	24,309,000	22.93	0.0122	68,016
Buses	24,309,000	1.24	0.6806	204,375
2 Axle-6 Tire	24,309,000	0.69	0.1890	31,590
3 Axle Single	24,309,000	2.69	0.1303	85,268
4 Axle Single	24,309,000	0.13	0.1303	4,060
<5 Axle Double	24,309,000	0.78	0.8646	164,104
5 Axle Double	24,309,000	11.28	2.3719	6,504,305
>5 Axle Double	24,309,000	1.14	2.3719	658,494
<6 Axle Multi	24,309,000	0.22	2.3187	124,804
6 Axle Multi	24,309,000	0.02	2.3187	13,137
>6 Axle Multi	24,309,000	0.84	2.3187	472,940
Total ESAL				**8,342,135**

Design ESAL for Thornton Road – North of I-8 Station

Vehicle Type	Total Vehicles	Percent	ESAL Factor	Design ESAL
Bikes	12,975,750	1.34	0.0000	0
Cars & Trailers	12,975,750	44.68	0.0008	4,638
2-Axle Long	12,975,750	24.92	0.0122	39,448
Buses	12,975,750	1.75	0.6806	154,333
2 Axle-6 Tire	12,975,750	1.04	0.1890	25,397
3 Axle Single	12,975,750	1.10	0.1303	18,604
4 Axle Single	12,975,750	0.09	0.1303	1,459
<5 Axle Double	12,975,750	1.06	0.8646	118,603

5 Axle Double	12,975,750	20.99	2.3719	6,460,884
>5 Axle Double	12,975,750	1.83	2.3719	564,414
<6 Axle Multi	12,975,750	0.60	2.3187	181,755
6 Axle Multi	12,975,750	0.11	2.3187	32,456
>6 Axle Multi	12,975,750	0.50	2.3187	149,298
Total ESAL				**7,751,289**

It should be noticed that even though there is a significant difference in the current ADT value for both stations and consequently on Total Vehicles in Design Lane (almost a 2:1 ratio), the difference in Total ESALs is not that significant. This is mainly attributed to the difference in Percent of 5 Axle Double vehicles which for the lower ADT station is almost twice (20.99%) than the value for the higher ADT station (11.28%). For pavement design purposes on Thornton Road, the higher ESAL value of **8,342,135** will be used.

Selma Highway ESAL calculation

No traffic count information was available at this time for Selma Highway. For pavement design purposes, traffic count information was obtained from the Pinal County website: 2-Day Average Traffic Counts for Selma Highway, east of SR 84. The traffic counts were performed on December 3 and 4, 2014. The results of the traffic count indicates an Average Daily Traffic (ADT – two-way) of **1,736** with a Directional Distribution factor (DD) of approximately 50 percent. The 2-Day Average traffic counts are presented in Appendix C. A Growth Rate values of **3%** will be used for pavement design purposes. A truck percent value of **10%** will be used for pavement design. The corresponding Growth Factor (GF) for a design life of 20 years and a growth rate of 3.0% is 26.87. Section 10.2.1.2.1.1 *Determination of Truck Load Factors* of MCDOT manual indicates that when vehicle classification data is not available in sufficient detail, a vehicle equivalency factor of 1.2 should be applied to the percentage of vehicles considered to be heavy trucks. The remaining percentage of vehicles can be considered cars with an assigned factor of 0.0008.

The total vehicles trafficking Selma Highway during the design life is obtained by multiplying the initial ADT value (1,736) times 365 times the GF of 26.87. The total vehicles trafficking the design lane is obtained by multiplying the total vehicles on the roadway times the Directional Distribution factor (0.5) times the lane factor (1.0). These values along with the traffic composition and ESAL factors were used to compute values for the total 18-kip Equivalent Single Axle Load (ESAL). Calculation of Total ESALs to use the road's design lane during its design life is presented in the following tables (ESAL Computation tables are presented in Appendix C):

Design ESAL: Selma Highway from Thornton Road to 3,000 ft West

Vehicle Type	Total Vehicles	Percent	ESAL Factor	Design ESAL
Automobiles	8,513,072	90	0.0008	6,129
Trucks	8,513,072	10	1.2	1,021,569
Total ESAL				**1,027,698**

Other parameters utilized in the pavement design are presented below. The selection of the parameters was based on a functional classification for Thornton Road and Selma Highway corresponding to Major and Minor Arterial roadway, respectively.

Level of Reliability, R (%)	95
Initial Serviceability Index, Po	4.5
Terminal Serviceability Index, Pt	2.5
Overall Standard Deviation	0.45
Seasonal Variation Factor – Casa Grande	1.0
Drainage Coefficient	1.0

7.0 RECOMMENDATIONS

7.1 General

Recommendations contained in this report are based on our understanding of the project criteria described in **Section 2.0**, and the assumption that the soil and subsurface conditions are those disclosed by the borings. Others may change the plans, roadway location, and/or final elevations during design or construction. Substantially different subsurface conditions from those described herein may be encountered or become known. Any changes in the project criteria or subsurface conditions shall be brought to our attention in writing. This report does not encompass the effects, if any, of underlying geologic hazards or regional groundwater withdrawal and expresses no opinion regarding their effects on surface movements at the project site.

7.2 Pavement Design for Thornton Road

The pavement design at this site was based upon a M_R of 14,340 psi. The design for this roadway section is presented on the attached computer flexible pavement thickness design output sheet (Appendix C). Additional design parameters used are shown on the output sheet. Layer coefficients used were 0.42 for Asphaltic Concrete (AC), and 0.12 for Aggregate Base (AB). A drainage coefficient factor of 1.0 was used in the analysis.

The pavement design resulted in a structural number (SN) of **3.93** with a corresponding section consisting of **6.0** inches of Asphalt Concrete (AC) over **12** inches of Aggregate Base Course (ABC) over prepared subgrade.

Alternative reinforced pavement sections were prepared based on the required SN value of **3.93** and the SpectraPave4 software by Tensar Corporation. The first alternative reinforced pavement section consists of **6** inches of AC over **7** inches of ABC over a TriAX TX5 geogrid over prepared subgrade. The second alternative section consists of **6** inches of AC over **6** inches of ABC over a TriAX TX7 geogrid over prepared subgrade

These sections satisfy the minimum AC thickness requirement of **6** inches of AC for Major Arterials and the reduction in the section is obtained on the thickness of the ABC layer; it is reduced from 10 inches to 7 inches for the TX5 reinforcement and from 10 inches to 6 inches for the TX7 reinforcement. The resulting SNs for these alternative sections are **3.95** and **4.014**, respectively . The alternative pavement sections are presented in the following table. Appendix C presents the output of the SpectraPave4 software.

Alternative No.	**AC (in.)**	**ABC (in.)**	**TriAX**	**Total Thickness (in.)**
1	6	10	No	16
2	6	7	TX5	13
3	6	6	TX7	12

Bituminous surfacing (AC) should be constructed of dense-graded, central plant-mix, asphalt concrete conforming to the requirements of MAG Specifications Section 321 "*Placement and Construction of Asphalt Concrete Pavement*" for the conditions presented on the table.

Base course material should conform to specification requirements for Untreated Base, Aggregate Base of the MAG specifications.

7.3 Pavement Design for Selma Highway

The pavement design at this site was based upon a M_R of 14,340 psi. The design for this roadway section is presented on the attached computer flexible pavement thickness design output sheet (Appendix C). Additional design parameters used are shown on the output sheet. Layer coefficients used were 0.42 for Asphaltic Concrete (AC), and 0.12 for Aggregate Base (AB). A drainage coefficient factor of 1.0 was used in the analysis.

The pavement design resulted in a structural number (SN) of **2.88** with a corresponding section consisting of **4** inches of AC over **10** inches ABC over prepared subgrade. This SN is the same as the minimum recommended value of **2.88** for Minor Arterial roadway as presented in Pinal County's "*Substructure & Infrastructure Design Manual*," Section 6.7 **Pavement Cross Section**. Based on this analysis, the minimum pavement section is the recommended for preliminary design.

An alternative reinforced pavement section was prepared based on the minimum required SN value of **2.88** and the SpectraPave4 software by Tensar Corporation. This alternative section consists of **4** inches of AC over **6** inches of ABC over a TriAX TX5 geogrid over prepared subgrade. This section satisfies the minimum AC thickness requirement of **4** inches of AC for Minor Arterials and the reduction in the section is obtained on the thickness of the ABC layer; it is reduced from 10 inches to 6 inches. The resulting SN for this alternative section is **3.04**. The alternative pavement sections are presented in the following table. Appendix C presents the output of the SpectraPave4 software.

Alternative No.	AC (in.)	ABC (in.)	TriAX - TX 5	Total Thickness (in.)
1	4	10	No	16
2	4	6	Yes	12

Bituminous surfacing (AC) should be constructed of dense-graded, central plant-mix, asphalt concrete conforming to the requirements of MAG Specifications Section 321 "*Placement and Construction of Asphalt Concrete Pavement*" for the conditions presented on the table.

Base course material should conform to specification requirements for Untreated Base, Aggregate Base of the MAG specifications.

7.4 Foundations

The proposed bottom of CMPs and box culverts can be supported on native material and/or properly compacted engineered fill. The CMPs and box culverts should bear at least 2 feet below final site grades and may be designed to impose a maximum dead load plus live load pressure of up to 2000 pounds-per-square-foot (psf).

The allowable bearing capacities apply to dead loads plus design live load conditions. The allowable bearing capacity may be increased by one-third when considering total loads that include wind or seismic. Recommended minimum widths of wall footings is 16 inches. We anticipate that total movement of the proposed structures, supported as recommended, should be less than 1 inch.

We recommend that the geotechnical engineer or his representative observe the site preparation procedures and CMP and box culvert excavations before streel and concrete are placed. This observation is to assess whether the soils exposed are similar to those anticipated for support of the CMPs and box culverts. Any soft, loose or unacceptable soils should be undercut to suitable materials and backfilled with approved fill materials or lean concrete. Soil backfill should be properly compacted.

7.5 Lateral Design Criteria

Lateral loads may be resisted by concrete interface friction and by passive resistance. For shallow foundations bearing on properly compacted fill at this site, we recommend the following lateral resistance criteria:

- Passive Pressure ....350 psf/ft
- Coefficient of base friction 0.40
- Coefficient of base friction when combined with passive pressure 0.30

Earth retaining structures less than 10 feet in height, above any free water surface, with level backfill and no surcharge loads, may be designed using the equivalent fluid pressure method. Recommended active equivalent fluid pressures and coefficients of base friction for unrestrained elements are:

- Active:
  Undisturbed subsoil..35 psf/ft
  Compacted granular backfill ....30 psf/ft
  Compacted site soils ....35 psf/ft

- At-rest:
  Undisturbed subsoil....................55 psf/ft
  Compacted granular backfill....................50 psf/ft
  Compacted site soils....................55 psf/ft

The equivalent fluid pressures presented herein do not include the lateral pressures arising from the presence of:

- hydrostatic conditions, submergence or partial submergence
- sloping backfill, positively or negatively
- surcharge loading, permanent or temporary
- seismic or dynamic conditions

We recommend a free-draining soil layer or manufactured geosynthetic material, be constructed adjacent to the back of any retaining walls. A filter may be required between the soil backfill and drainage layer. This drainage zone should help prevent development of hydrostatic pressure on the wall. This vertical drainage zone should be tied into a gravity drainage system at the base of the wall. It is important that all backfill be properly placed and compacted. Backfill should be mechanically compacted in layers. Flooding or jetting should not be permitted. Care should be taken to not damage the walls when placing the backfill. Backfills should be observed and tested during placement.

Fill against any retaining walls, pipes, and box culverts should be compacted to densities specified in ADOT specifications. Medium to high plasticity clay soils should not be used as backfill against retaining walls. Compaction of each lift adjacent to walls should be accomplished with hand-operated tampers or other lightweight compactors. Overcompaction may cause excessive lateral earth pressures that could result in wall movements.

7.6 Drainage

Positive drainage of the pavement structure should be provided during construction and maintained afterward. Infiltration of water into utility excavations and subgrade should be prevented during construction.

7.7 Corrosivity to Concrete

The chemical test results indicate that the soils at the site classify as "Not Applicable (S0)" and "Moderate (S1)" in accordance with Table 4.2.1 of ACI 318-11. However, in order to

be consistent with standard local practice and for reasons of material availability, we recommend that Type II Portland cement be used for all concrete on and below grade.

7.7.1 Metals

Laboratory minimum resistivity and pH tests were conducted on samples of the site soils. The results indicate that the site soils, especially when of elevated moisture content, are potentially corrosive to buried ferrous metals. Therefore, special protection may be warranted for buried metal piping or other conduits that would be in contact with the native soils. In addition, special protection may be necessary where dissimilar metals are placed in close proximity or are joined. A corrosion expert should be part of the project design team to prepare recommendations for corrosion protection of buried utilizes and conduits.

8.0 EARTHWORK

8.1 General

The validity of the conclusions contained in this report is based on compliance with the recommendations presented in this section. Any excavating, trenching, or disturbance that occurs after completion of the earthwork must be backfilled, compacted and tested in accordance with City of Casa Grande, Pinal County and MAG Standard Specifications.

8.2 Site Clearing

Strip and remove existing vegetation, debris, demolition debris, and any other deleterious materials from the pavement areas. All exposed surfaces should be free of mounds and depressions that could prevent uniform compaction.

8.3 Excavation

We anticipate that excavations for shallow foundations and utility trenches for the proposed construction can be accomplished with conventional equipment. On-site clayey soils will pump or become unworkable at high water contents. Workability may be improved by scarifying and drying. Over-excavation of wet zones and replacement with granular materials may be necessary. The use of lightweight excavation and compaction equipment may be required to minimize subgrade pumping.

Our soil classifications are based solely on the materials encountered in widely spaced exploratory test borings. The contractor should verify that similar conditions exist throughout the proposed area of excavation. If different subsurface conditions are found at the time of construction, we should be contacted immediately to evaluate the conditions encountered.

8.3.1 Temporary Excavations and Slopes

Excavations into the on-site soils may encounter a variety of conditions. Caving soils such as silty sands may be encountered. The individual contractor should be made responsible for designing and constructing stable, temporary excavations as required to maintain stability of the excavation sides. All excavations should be sloped or shored in the interest of safety following local, and federal regulations, including current OSHA excavation and trench safety standards.

8.4 Foundation Preparation

Specialized treatment of existing soils within CMPs and box culverts areas is not required and should bear upon undisturbed on-site soils.

8.5 Pavement Preparation

Compacted clayey subgrade soils expand when moisture content is increased. The greatest potential for pavement distress is typically in areas where construction equipment has inadvertently densified clayey subgrade soils. Therefore, pavement subgrade areas should be protected from over-compaction during site work. The subgrade should then be scarified, moisture conditioned as required, and recompacted for a minimum depth of 10 inches in accordance with MAG.

8.6 Materials

Clean on-site native soils or imported materials may be used as fill material for pavement areas and backfill. Imported soils and base course should comply with MAG Specifications.

8.7 Placement and Compaction

Placement and compaction of soils and aggregate shall be in accordance with MAG Uniform Standard Specifications for Public Works Construction and to the following general procedures.

a. Place and compact fill in horizontal lifts, using equipment and procedures that will produce recommended water contents and densities throughout the lift.
b. Uncompacted fill lifts should not exceed 10 inches.
c. Materials should be compacted to the following:

Material	Minimum Percent Compaction (ASTM D698)
• On-site soil, reworked and fill below pavements	95
• Imported soil below pavements	95
• Aggregate base below pavement	100

On-site and imported soils should be compacted within a water content range specified by MAG and City of Casa Grande Supplements to MAG.

8.8 Shrinkage and Ground Compaction Factors

For earthwork estimates for pavement construction using the Clayey SAND, Silty SAND/Sandy SILT site subgrade soils, we recommend using the following:

- Shrinkage Factor = 15 percent
- Ground Compaction Factor = 0.15 foot

8.9 Compliance

Recommendations for prepared subgrade depend upon compliance with **EARTHWORK** recommendations. To assess compliance, observation and testing should be performed under the direction of a geotechnical engineer.

9.0 LIMITATIONS

This preliminary report has been prepared assuming the project criteria described in **Section 2.0**. If changes in the project criteria occur, or if different subsurface conditions are encountered or become known, the conclusions and recommendations presented herein shall become invalid. To assess compliance, observation and testing should be performed under the direction of a WT geotechnical engineer. Please contact us to provide these observation and testing services.

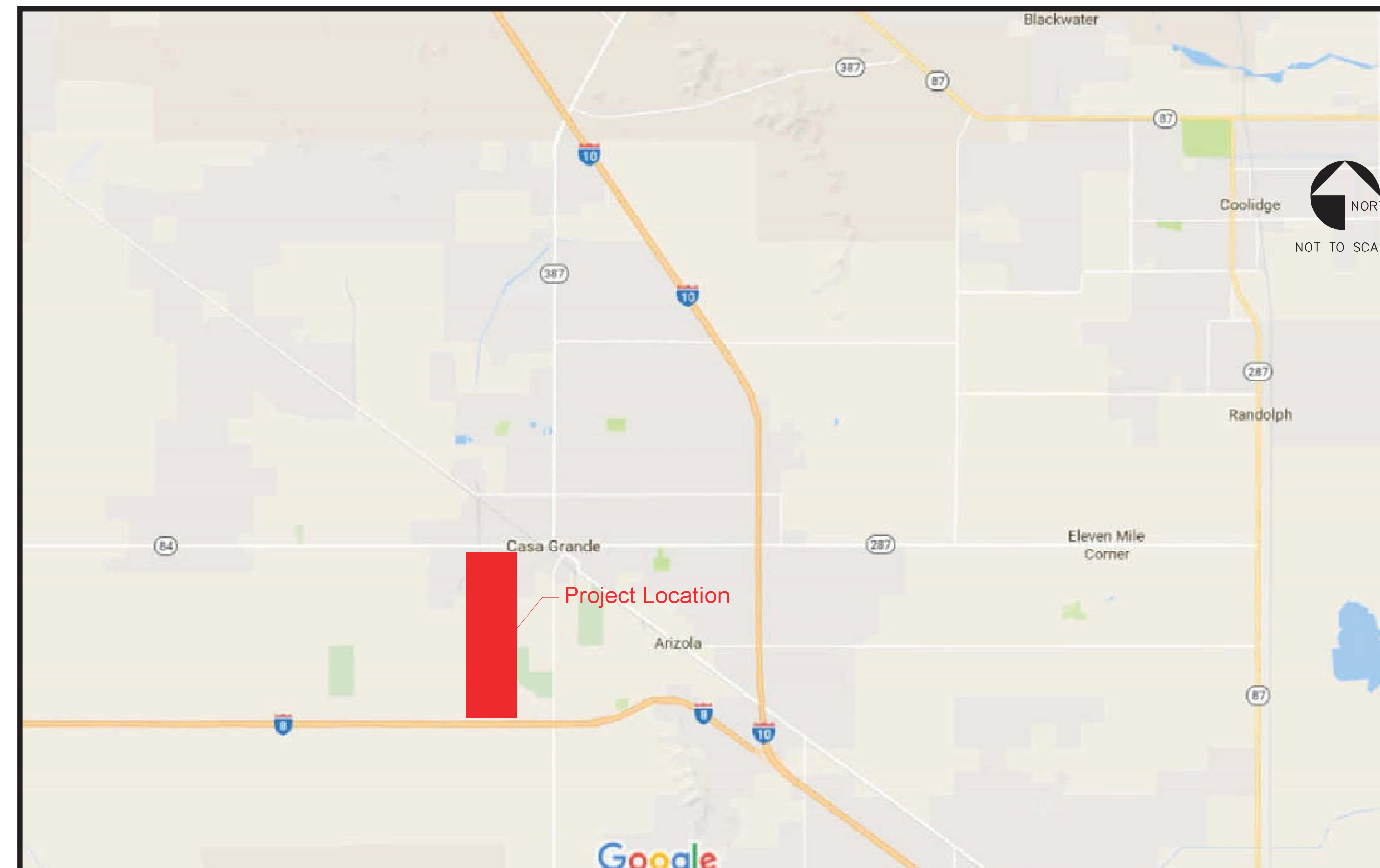
The recommendations presented are based entirely upon data derived from a limited number of samples obtained from widely spaced borings. The attached logs are indicators of subsurface conditions only at the specific locations and times noted. This report assumes the uniformity of the geology and soil structure between borings, however variations can and often do exist. Whenever any deviation, difference or change is encountered or becomes known, WT should be contacted.

This report is for the exclusive benefit of our client alone. There are no intended third-party beneficiaries of our contract with the client or this report., and nothing contained in the contract or this report shall create any express or implied contractual or any other relationship with, or claim or cause of action for, any third party against WT.

This report is valid for the earlier of one year from the date of issuance, a change in circumstances, or discovered variations. After expiration, no person or entity shall rely on this report without the express written authorization of WT.

10.0 CLOSURE

We prepared this preliminary report as an aid to the designers of the proposed project. The comments, statements, recommendations and conclusions set forth in this report reflect the opinions of the authors. These opinions are based upon data obtained at the location of the borings, and from laboratory tests. Work on your project was performed in accordance with generally accepted standards and practices utilized by professionals providing similar services in this locality. No other warranty, express or implied, is made.



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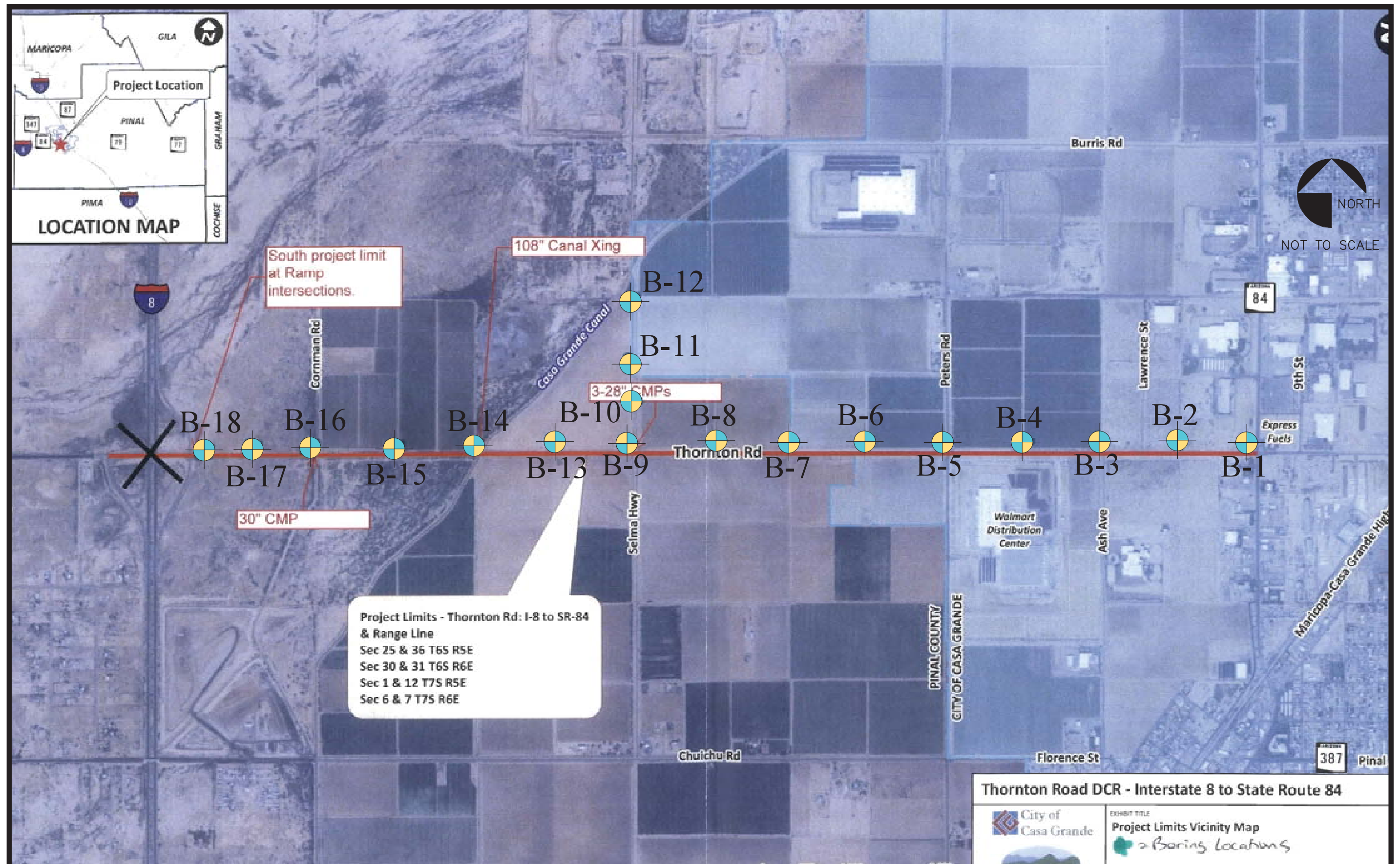
PROJECT VICINITY MAP
THORNTON ROAD
THORNTON ROAD/SELMA HIGHWAY
Casa Grande, Arizona
WT Job No. 2127JY002

PLATE 1



LEGEND

Approximate Boring Location

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BORING LOCATION DIAGRAM

THORNTON ROAD
THORNTON ROAD/SELMA HIGHWAY
Casa Grande, Arizona

WT Job No. 2127JY002

PLATE 2

Allowable Soil Bearing Capacity	The recommended maximum contact stress developed at the interface of the foundation element and the supporting material.
Backfill	A specified material placed and compacted in a confined area.
Base Course	A layer of specified aggregate material placed on a subgrade or subbase.
Base Course Grade	Top of base course.
Bench	A horizontal surface in a sloped deposit.
Caisson/Drilled Shaft	A concrete foundation element cast in a circular excavation which may have an enlarged base (or belled caisson).
Concrete Slabs-On-Grade	A concrete surface layer cast directly upon base course, subbase or subgrade.
Crushed Rock Base Course	A base course composed of crushed rock of a specified gradation.
Differential Settlement	Unequal settlement between or within foundation elements of a structure.
Engineered Fill	Specified soil or aggregate material placed and compacted to specified density and/or moisture conditions under observations of a representative of a soil engineer.
Existing Fill	Materials deposited through the action of man prior to exploration of the site.
Existing Grade	The ground surface at the time of field exploration.
Expansive Potential	The potential of a soil to expand (increase in volume) due to absorption of moisture.
Fill	Materials deposited by the actions of man.
Finished Grade	The final grade created as a part of the project.
Gravel Base Course	A base course composed of naturally occurring gravel with a specified gradation.
Heave	Upward movement.
Native Grade	The naturally occurring ground surface.
Native Soil	Naturally occurring on-site soil.
Rock	A natural aggregate of mineral grains connected by strong and permanent cohesive forces. Usually requires drilling, wedging, blasting or other methods of extraordinary force for excavation.
Sand and Gravel Base Course	A base course of sand and gravel of a specified gradation.
Sand Base Course	A base course composed primarily of sand of a specified gradation.
Scarify	To mechanically loosen soil or break down existing soil structure.
Settlement	Downward movement.
Soil	Any unconsolidated material composed of discrete solid particles, derived from the physical and/or chemical disintegration of vegetable or mineral matter, which can be separated by gentle mechanical means such as agitation in water.
Strip	To remove from present location.
Subbase	A layer of specified material placed to form a layer between the subgrade and base course.
Subbase Grade	Top of subbase.
Subgrade	Prepared native soil surface.

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DEFINITION OF TERMINOLOGY

PLATE
A-1

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COARSE-GRAINED SOILS

LESS THAN 50% FINES

GROUP SYMBOLS	DESCRIPTION	MAJOR DIVISIONS
GW	WELL-GRADED GRAVEL OR WELL-GRADED GRAVEL WITH SAND, LESS THAN 5% FINES	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE
GP	POORLY-GRADED GRAVEL OR POORLY-GRADED GRAVEL WITH SAND, LESS THAN 5% FINES	
GM	SILTY GRAVEL OR SILTY GRAVEL WITH SAND, MORE THAN 12% FINES	
GC	CLAYEY GRAVEL OR CLAYEY GRAVEL WITH SAND, MORE THAN 12% FINES	
SW	WELL-GRADED SAND OR WELL-GRADED SAND WITH GRAVEL, LESS THAN 5% FINES	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE
SP	POORLY-GRADED SAND OR POORLY-GRADED SAND WITH GRAVEL, LESS THAN 5% FINES	
SM	SILTY SAND OR SILTY SAND WITH GRAVEL, MORE THAN 12% FINES	
SC	CLAYEY SAND OR CLAYEY SAND WITH GRAVEL, MORE THAN 12% FINES	

NOTE: Coarse-grained soils receive dual symbols if they contain 5% to 12% fines (e.g., SW-SM, GP-GC).

FINE-GRAINED SOILS

MORE THAN 50% FINES

GROUP SYMBOLS	DESCRIPTION	MAJOR DIVISIONS
ML	SILT, SILT WITH SAND OR GRAVEL, SANDY SILT, OR GRAVELLY SILT	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50
CL	LEAN CLAY OF LOW TO MEDIUM PLASTICITY, SANDY CLAY, OR GRAVELLY CLAY	
OL	ORGANIC SILT OR ORGANIC CLAY OF LOW TO MEDIUM PLASTICITY	
MH	ELASTIC SILT, SANDY ELASTIC SILT, OR GRAVELLY ELASTIC SILT	SILTS AND CLAYS LIQUID LIMIT MORE THAN 50
CH	FAT CLAY OF HIGH PLASTICITY, SANDY FAT CLAY, OR GRAVELLY FAT CLAY	
OH	ORGANIC SILT OR ORGANIC CLAY OF HIGH PLASTICITY	
PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	HIGHLY ORGANIC SOILS

NOTE: Fine-grained soils may receive dual classification based upon plasticity characteristics (e.g. CL-ML).

SOIL SIZES

COMPONENT	SIZE RANGE
BOULDERS	Above 12 in.
COBBLES	3 in. – 12 in.
GRAVEL	No. 4 – 3 in.
Coarse	¾ in. – 3 in.
Fine	No. 4 – ¾ in.
SAND	No. 200 – No. 4
Coarse	No. 10 – No. 4
Medium	No. 40 – No. 10
Fine	No. 200 – No. 40
Fines (Silt or Clay)	Below No. 200

NOTE: Only sizes smaller than three inches are used to classify soils

CONSISTENCY

CLAYS & SILTS	BLOWS PER FOOT
VERY SOFT	0 – 2
SOFT	3 – 4
FIRM	5 – 8
STIFF	9 – 15
VERY STIFF	16 – 30
HARD	OVER 30

RELATIVE DENSITY

SANDS & GRAVELS	BLOWS PER FOOT
VERY LOOSE	0 – 4
LOOSE	5 – 10
MEDIUM DENSE	11 – 30
DENSE	31 – 50
VERY DENSE	OVER 50

NOTE: Number of blows using 140-pound hammer falling 30 inches to drive a 2-inch-OD (1⅜-inch ID) split-barrel sampler (ASTM D1586).

PLASTICITY OF FINE GRAINED SOILS

PLASTICITY INDEX	TERM
0	NON-PLASTIC
1 – 7	LOW
8 – 20	MEDIUM
Over 20	HIGH

DEFINITION OF WATER CONTENT

DRY
SLIGHTLY DAMP
DAMP
MOIST
WET
SATURATED

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METHOD OF CLASSIFICATION

PLATE **A-2**

The number shown in **"BORING NO."** refers to the approximate location of the same number indicated on the "Boring Location Diagram" as positioned in the field by pacing or measurement from property lines and/or existing features, or through the use of Global Positioning System (GPS) devices. The accuracy of GPS devices is somewhat variable.

"DRILLING TYPE" refers to the exploratory equipment used in the boring wherein **HSA = hollow stem auger**, and the dimension presented is the outside diameter of the HSA used.

"N" in "BLOW COUNTS" refers to a 2-inch outside diameter split-barrel sampler driven into the ground with a 140 pound drop-hammer dropped 30 inches repeatedly until a penetration of 18 inches is achieved or until refusal. The number of blows, or "blow count", of the hammer is recorded for each of three 6-inch increments totaling 18 inches. The number of blows required for advancing the sampler for the last 12 inches (2^{nd} and 3^{rd} increments) is defined as the Standard Penetration Test (SPT) "**N**"-Value. Refusal to penetration is considered more than 50 blows per 6 inches. (Ref. ASTM D1586).

"R" in "BLOW COUNTS" refers to a 3-inch outside diameter ring-lined split barrel sampler driven into the ground with a 140 pound drop-hammer dropped 30 inches repeatedly until a penetration of 12 inch is achieved or until refusal. The number of blows required to advance the sampler 12 inches is defined as the "**R**" blow count. The "**R**" blow count requires an engineered conversion to an equivalent SPT N-Value. Refusal to penetration is considered more than 50 blows per foot. (Ref. ASTM D3550).

"CS" in "BLOWS/FT." refers to a 2½-in. outside diameter California style split-barrel sampler, lined with brass sleeves, driven into the ground with a 140-pound hammer dropped 30 inches repeatedly until a penetration of 18 inches is achieved or until refusal. The number of blows of the hammer is recorded for each of the three 6-inch increments totaling 18 inches. The number of blows required for advancing the sampler for the last 12 inches (2^{nd} and 3^{rd} increments) is defined as the "CS" blow count. The "CS" blow count requires an engineered conversion to an equivalent SPT N-Value. Refusal to penetration is considered more than 50 blows for a 6-inch increment. (Ref. ASTM D 3550)

"SAMPLE TYPE" refers to the form of sample recovery, in which **N** = Split-barrel sample, **R** = Ring-lined sample, **"CS"** = California style split-barrel sample, **G** = Grab sample, **B** = Bucket sample, **C** = Core sample (ex. diamond bit rock coring).

"DRY DENSITY (LBS/CU FT)" refers to the laboratory-determined dry density in pounds per cubic foot. The symbol **"NR"** indicates that no sample was recovered.

"WATER (MOISTURE) CONTENT" (% of Dry Wt.) refers to the laboratory-determined water content in percent using the standard test method ASTM D2216.

"USCS" refers to the "Unified Soil Classification System" Group Symbol for the soil type as defined by ASTM D2487 and D2488. The soils were classified visually in the field, and where appropriate, classifications were modified by visual examination of samples in the laboratory and/or by appropriate tests.

These notes and boring logs are intended for use in conjunction with the purposes of our services defined in the text. Boring log data should not be construed as part of the construction plans nor as defining construction conditions.

Boring logs depict our interpretations of subsurface conditions at the locations and on the date(s) noted. Variations in subsurface conditions and characteristics may occur between borings. Groundwater levels may fluctuate due to seasonal variations and other factors.

The stratification lines shown on the boring logs represent our interpretation of the approximate boundary between soil or rock types based upon visual field classification at the boring location. The transition between materials is approximate and may be more or less gradual than indicated.

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BORING LOG NOTES

PLATE **A-3**

DATE DRILLED: 4-5-17
LOCATION: See Location Diagram
ELEVATION: Not Determined

BORING NO. 1

EQUIPMENT TYPE: CME-75
DRILLING TYPE: 7" H.S.A
FIELD ENGINEER: M. Kleinholz

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		G				SC		Clayey SAND; brown, damp
					5			**Boring Terminated at 5 Feet**
					10			
					15			

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

PLATE **A-4**

BORING LOG

DATE DRILLED: 4-5-17
LOCATION: See Location Diagram
ELEVATION: Not Determined

BORING NO. 2

EQUIPMENT TYPE: CME-75
DRILLING TYPE: 7" H.S.A
FIELD ENGINEER: M. Kleinholz

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		B				SC		Clayey SAND; brown, damp
					5			**Boring Terminated at 5 Feet**
					10			
					15			

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

PLATE **A-5**

BORING LOG

DATE DRILLED: 4-5-17
LOCATION: See Location Diagram
ELEVATION: Not Determined

BORING NO. 3

EQUIPMENT TYPE: CME-75
DRILLING TYPE: 7" H.S.A
FIELD ENGINEER: M. Kleinholz

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		G			0	SC		Clayey SAND; brown, damp
					5			**Boring Terminated at 5 Feet**
					10			
					15			

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

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PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

BORING LOG

PLATE **A-6**

DATE DRILLED: 4-5-17
LOCATION: See Location Diagram
ELEVATION: Not Determined

BORING NO. 4

EQUIPMENT TYPE: CME-75
DRILLING TYPE: 7" H.S.A
FIELD ENGINEER: M. Kleinholz

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		B			0	ML		Sandy SILT; brown, damp
					5			**Boring Terminated at 5 Feet**
					10			
					15			

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

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PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

BORING LOG

PLATE **A-7**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **4-5-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 5

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		G				ML		Sandy SILT; brown, damp
					5			**Boring Terminated at 5 Feet**
					10			
					15			

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

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PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

BORING LOG

PLATE **A-8**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **4-5-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 6

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		B				CL-ML		Sandy SILT and CLAY; brown, damp
					5			**Boring Terminated at 5 Feet**
					10			
					15			

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

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PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

BORING LOG

PLATE **A-9**

DATE DRILLED: 4-5-17
LOCATION: See Location Diagram
ELEVATION: Not Determined

BORING NO. 7

EQUIPMENT TYPE: CME-75
DRILLING TYPE: 7" H.S.A
FIELD ENGINEER: M. Kleinholz

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		G			0–5	SC		Clayey SAND; brown, damp
					5			**Boring Terminated at 5 Feet**

Depth scale: 5, 10, 15

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

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PROJECT: THORNTON ROAD
LOCATION: CASA GRANDE, ARIZONA
PROJECT NO.: 2127JY002

PLATE A-10

BORING LOG

DATE DRILLED: 4-5-17
LOCATION: See Location Diagram
ELEVATION: Not Determined

BORING NO. 8

EQUIPMENT TYPE: CME-75
DRILLING TYPE: 7" H.S.A
FIELD ENGINEER: M. Kleinholz

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		B			0–5	SC		Clayey SAND; brown, damp
					5			**Boring Terminated at 5 Feet**

Depth scale: 5, 10, 15

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

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PROJECT: THORNTON ROAD
LOCATION: CASA GRANDE, ARIZONA
PROJECT NO.: 2127JY002

PLATE A-11

BORING LOG

DATE DRILLED: **4-5-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 9

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	BLOWS/FT.	DEPTH (FEET)	USCS	SOIL DESCRIPTION
		G		0	SC	Clayey SAND; brown, medium dense, damp
6.1	97	R	37			
6.2	100	R	65			dense
				5		
5.7	104	R	36			medium dense
				10		
					SP	Poorly-graded SAND, tan, medium dense, damp
		R	22	15		
				16		**Boring Terminated at 16 Feet**

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

BORING LOG

PLATE **A-12**

DATE DRILLED: **4-5-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 10

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	BLOWS/FT.	DEPTH (FEET)	USCS	SOIL DESCRIPTION
		G		0	SC	Clayey SAND; brown, damp
				5		**Boring Terminated at 5 Feet**

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

BORING LOG

PLATE **A-13**

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **4-5-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 11

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		B				SC		Clayey SAND; brown, damp
					5			**Boring Terminated at 5 Feet**
					10			
					15			

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

Geotechnical Environmental Inspections Materials **Western Technologies Inc.** The Quality People Since 1955

PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

PLATE **A-14**

BORING LOG

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **4-5-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 12

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		G				SM		Silty SAND; brown, damp
					5			**Boring Terminated at 5 Feet**
					10			
					15			

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

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PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

PLATE **A-15**

BORING LOG

DATE DRILLED: 4-5-17
LOCATION: See Location Diagram
ELEVATION: Not Determined

BORING NO. 13

EQUIPMENT TYPE: CME-75
DRILLING TYPE: 7" H.S.A
FIELD ENGINEER: M. Kleinholz

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	BLOWS/FT.	DEPTH (FEET)	USCS	SOIL DESCRIPTION
		B		0–5	SM	Silty SAND; brown, damp
				5		Boring Terminated at 5 Feet

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

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PROJECT: THORNTON ROAD
LOCATION: CASA GRANDE, ARIZONA
PROJECT NO.: 2127JY002

PLATE A-16

BORING LOG

DATE DRILLED: 4-5-17
LOCATION: See Location Diagram
ELEVATION: Not Determined

BORING NO. 14

EQUIPMENT TYPE: CME-75
DRILLING TYPE: 7" H.S.A
FIELD ENGINEER: M. Kleinholz

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	BLOWS/FT.	DEPTH (FEET)	USCS	SOIL DESCRIPTION
		G		0	SC	Clayey SAND; with gravel, brown, medium dense, damp
10.0	97	R	16	2		
7.4	106	R	47	4		dense
5.3	102	R	32	9		medium dense
		R	67	15		dense
				16		Boring Terminated at 16 Feet

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

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PROJECT: THORNTON ROAD
LOCATION: CASA GRANDE, ARIZONA
PROJECT NO.: 2127JY002

PLATE A-17

BORING LOG

DATE DRILLED: **4-5-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 15

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		B				SC		Clayey SAND; brown, damp
					5			**Boring Terminated at 5 Feet**
					10			
					15			

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

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PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

BORING LOG

PLATE **A-18**

DATE DRILLED: **4-5-17**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 16

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7" H.S.A**
FIELD ENGINEER: **M. Kleinholz**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		G				SC		Clayey SAND; brown, very dense, damp
10.0	106	R		92-9"				
8.9	104	R		28				medium dense
					5			
12.3	101	R		64-11"				very dense
					10			
						SP		Poorly-graded SAND, tan, medium dense, damp
		R		19	15			
								Boring Terminated at 16 Feet

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

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PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

BORING LOG

PLATE **A-19**

DATE DRILLED: 4-5-17
LOCATION: See Location Diagram
ELEVATION: Not Determined

BORING NO. 17

EQUIPMENT TYPE: CME-75
DRILLING TYPE: 7" H.S.A
FIELD ENGINEER: M. Kleinholz

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		B				CH		Sandy Fat CLAY; brown, damp
					5			**Boring Terminated at 5 Feet**
					10			
					15			

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

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PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

BORING LOG

PLATE **A-20**

DATE DRILLED: 4-5-17
LOCATION: See Location Diagram
ELEVATION: Not Determined

BORING NO. 18

EQUIPMENT TYPE: CME-75
DRILLING TYPE: 7" H.S.A
FIELD ENGINEER: M. Kleinholz

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		G				SC		Clayey SAND; brown, damp
					5			**Boring Terminated at 5 Feet**
					10			
					15			

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

N- STANDARD SAMPLER
R- RING SAMPLER
B- BULK SAMPLE
G- GRAB SAMPLE
M- MODIFIED SAMPLER - (no rings)

NOTES: **Groundwater Not Encountered**

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PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

BORING LOG

PLATE **A-21**

Boring No.	Depth (ft)	USCS Class.	Particle Size Distribution (%) Passing by Weight						Atterberg Limits		Moisture-Density Relationship			R-Value	Remarks
			3"	¾"	#4	#10	#40	#200	LL	PI	Dry Density (pcf)	Optimum Moisture (%)	Method		
2	0-5	SC	100	100	98	96	80	35	24	10	119.5	11.4	A		4
4	0-5	ML	100	100	97	95	88	53	21	3	117.7	11.9	A	24	4
6	0-5	CL-ML	100	100	100	99	93	64	24	7	114.2	13.6	A	12	4
8	0-5	SC	100	100	94	90	73	38	26	10	120.2	12.0	A	26	4
9	0-5	SC						42	28	12					3
11	0-5	SC	100	100	99	96	83	46	29	13	114.5	13.7	A	19	4
13	0-5	SM	100	100	100	99	84	23	---	NP	121.0	10.4	A	48	4
14	0-3	SC						46	31	15					3
14	5-10	SC						47	36	20					3
15	0-5	SC	100	99	97	95	78	30	27	10	117.2	12.2	A	16	4
16	0-5	SC						43	30	15					3
17	0-5	CH	100	99	97	96	92	77	73	54	115.0	12.8	A	18	4
18	0-5	SC						45	31	16					3

NOTE: NP = Non-plastic
REMARKS
Classification / Particle Size / Moisture-Density Relationship
1. Visual
2. Laboratory Tested
3. Minus #200 Only
4. Test Method ASTM D698/AASHTO T99

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PROJECT: THORNTON ROAD
JOB NO.: 2127JY002

SOIL PROPERTIES

PLATE
B-1

Boring No.	Depth (ft.)	USCS Class.	Initial Dry Density (pcf)	Initial Water Content (%)	Compression Properties			Swell Properties		Plasticity		Percent Passing #200	Soluble		Remarks
					Surcharge (ksf)	Total Compression (%) In-Situ	Total Compression (%) After Saturation	Surcharge (ksf)	Swell (%)	LL	PI		Sulfate (ppm)	Chloride (ppm)	
2	0-5	SC						0.144	0.7	24	10	35			1,2
8	0-5	SC						0.144	0.9	26	10	38			1,2
11	0-5	SC						0.144	1.5	29	13	46			1,2
14	0-3	SC						0.144	2.9	31	15	46	81	44	1,2
17	0-5	CH						0.144	8.9	73	54	77			1,2

Notes: Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
NP = Non-Plastic

Remarks
1. Compacted density (approx. 95% of ASTM D698 max. density at moisture content slightly below optimum.)
2. Submerged to approximate saturation.
3. Slight rebound after saturation.
4. Sample disturbance observed.

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PROJECT: THORNTON ROAD
JOB NO.: 2127JY002

SOIL PROPERTIES

PLATE
B-2

Boring No.	Depth (ft)	Moisture Content	pH[1]	Soluble Chloride[2] (ppm)	Soluble Sulfate[3] (ppm)	Minimum Resistivity[4] (Ohm-Cm)
9	0-5		8.3	7	26	2601
14	0-3		7.8	44	81	560
14	5-10		8.5	11	97	1247
16	0-5		8.5	122	323	1014

[1] pH (ARIZ 237b)
[2] Chloride Content (ARIZ 736a)
[3] Sulfate Content (ARIZ 733a)
[4] Minimum Resistivity (ARIZ 236c)

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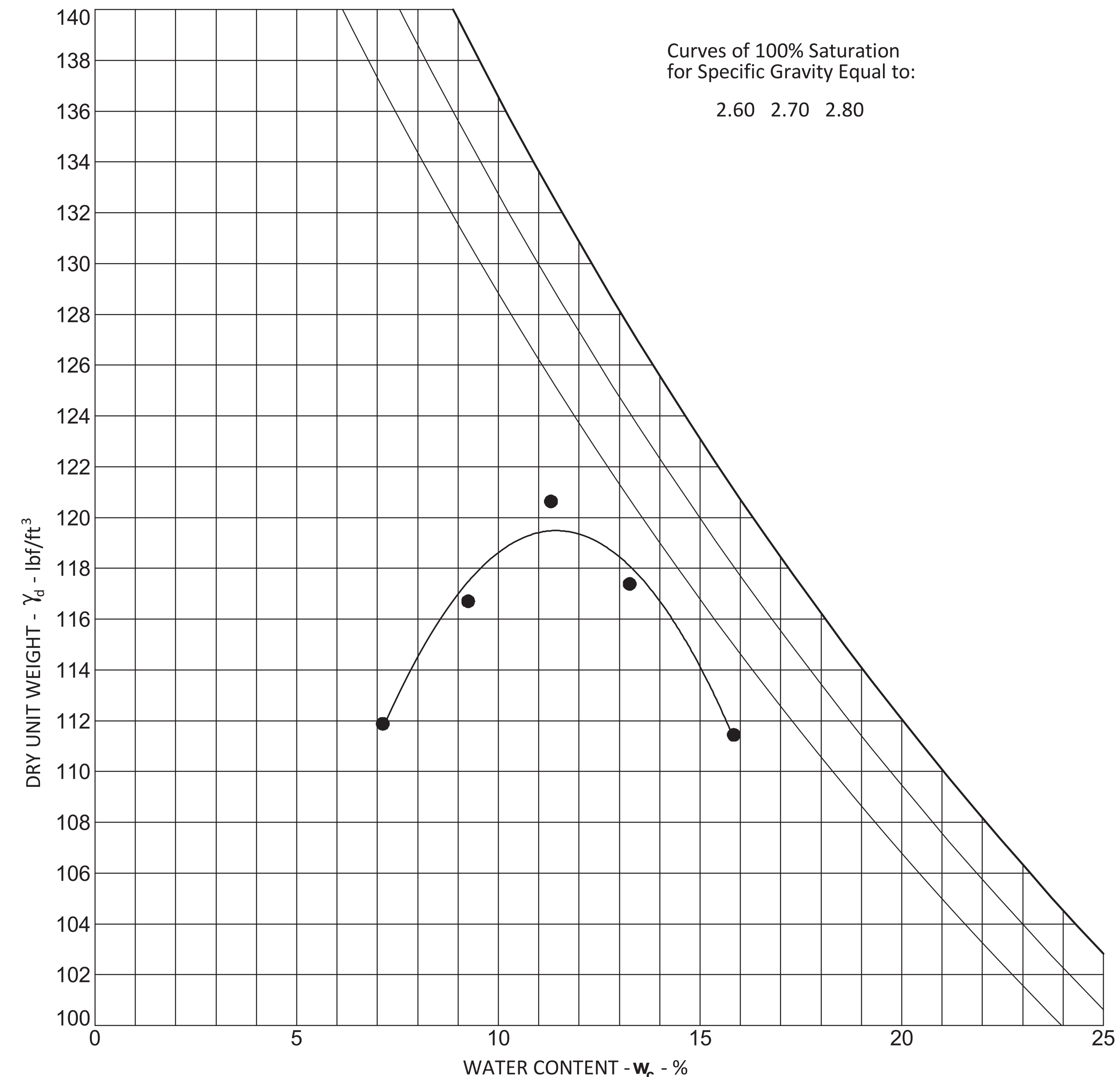
PROJECT: THORNTON ROAD
JOB NO.: 2127JY002

PLATE B-3

SOIL PROPERTIES

PHX-Soil Properties v2.3

LABORATORY COMPACTION CHARACTERISTICS - STANDARD EFFORT



TEST RESULTS

Source of Material	B-2 at 2.5 ft
Description of Material	Clayey SAND
	35% Passing No. 200 Sieve
Test Method	ASTM D698 Method A

ATTERBERG LIMITS

LL	PL	PI
24	14	10

Maximum Dry Density 119.5 PCF
Optimum Water Content 11.4 %

ASTM Rock Corrected Maximum Density= 120.5 pcf at 11.1% Moisture Content

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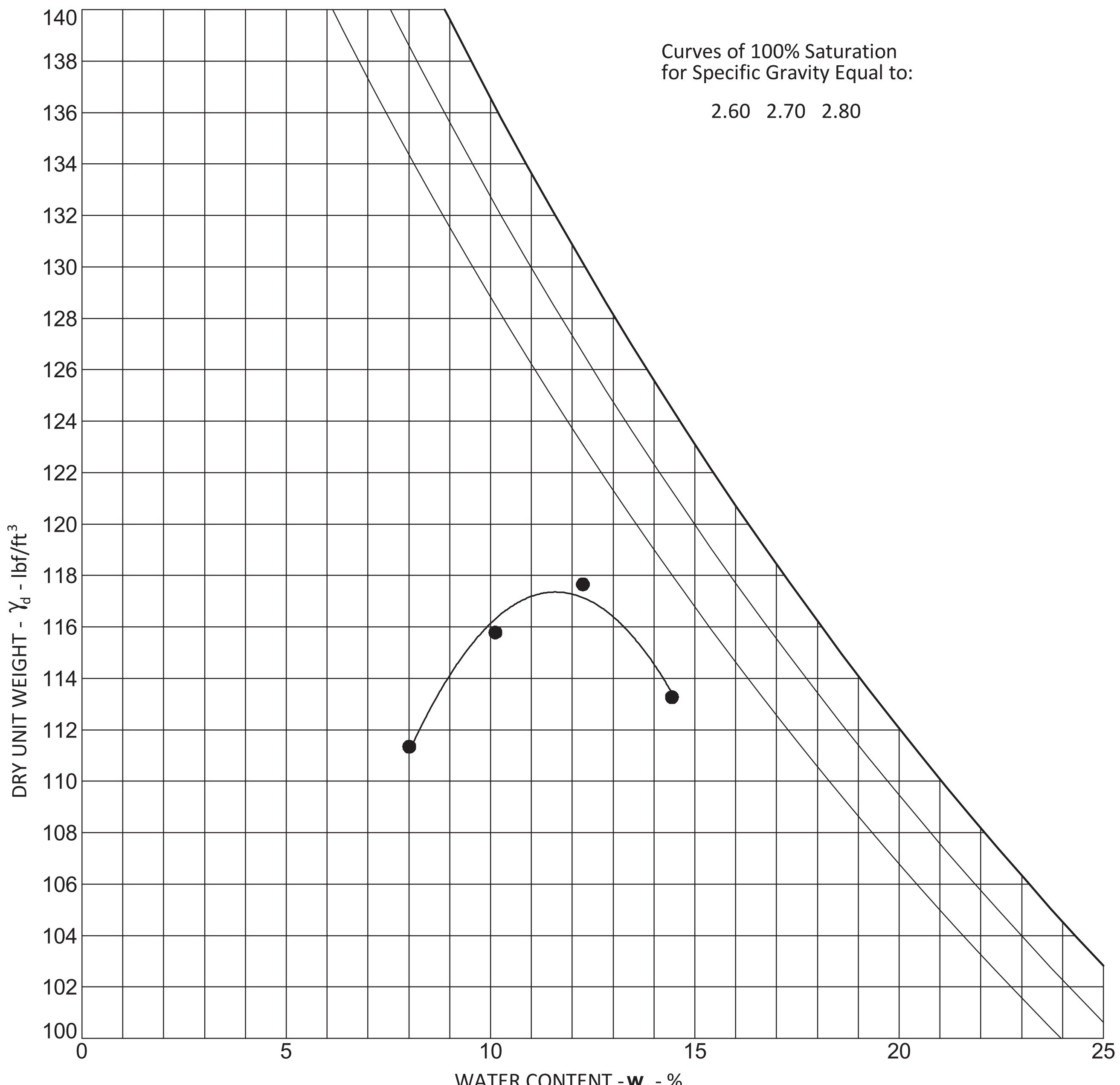
PROJECT: THORNTON ROAD
LOCATION: CASA GRANDE, ARIZONA
PROJECT NO.: 2127JY002

PLATE B-4

COMPACTION CURVE

LABORATORY COMPACTION CHARACTERISTICS - STANDARD EFFORT



TEST RESULTS

Source of Material	B-4 at 2.5 ft
Description of Material	Sandy SILT
	53% Passing No. 200 Sieve
Test Method	ASTM D698 Method A

Maximum Dry Density **117.7** **PCF**

Optimum Water Content **11.9** **%**

ASTM Rock Corrected Maximum Density= 118.4 pcf at 11.7% Moisture Content

ATTERBERG LIMITS

LL	PL	PI
21	**18**	**3**

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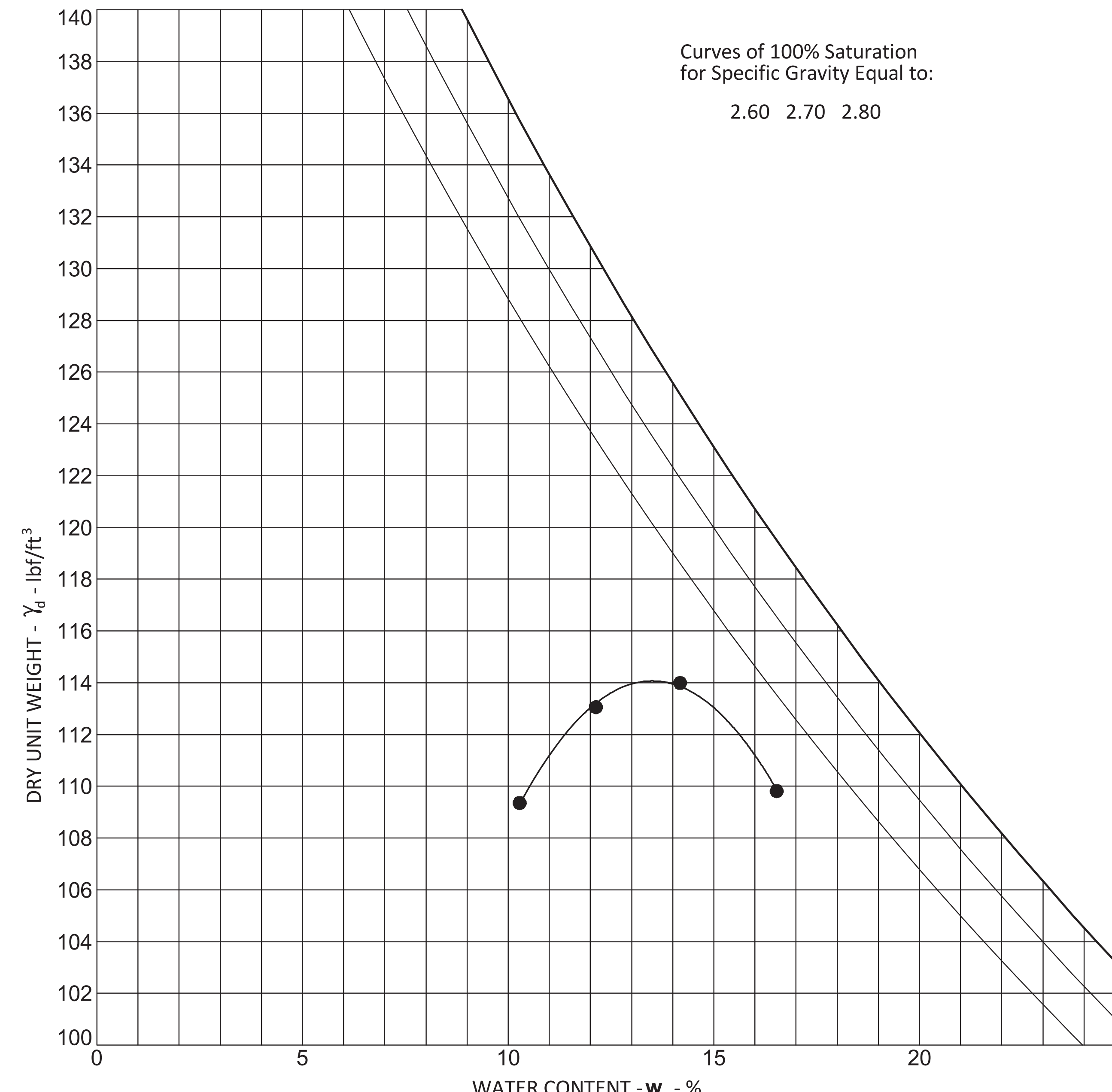
PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

COMPACTION CURVE

PLATE **B-5**

LABORATORY COMPACTION CHARACTERISTICS - STANDARD EFFORT



TEST RESULTS

Source of Material	B-6 at 2.5 ft
Description of Material	Sandy Silty CLAY
	64% Passing No. 200 Sieve
Test Method	ASTM D698 Method A

Maximum Dry Density **114.2** **PCF**

Optimum Water Content **13.6** **%**

ASTM Rock Corrected Maximum Density= 114.2 pcf at 13.6% Moisture Content

ATTERBERG LIMITS

LL	PL	PI
24	**17**	**7**

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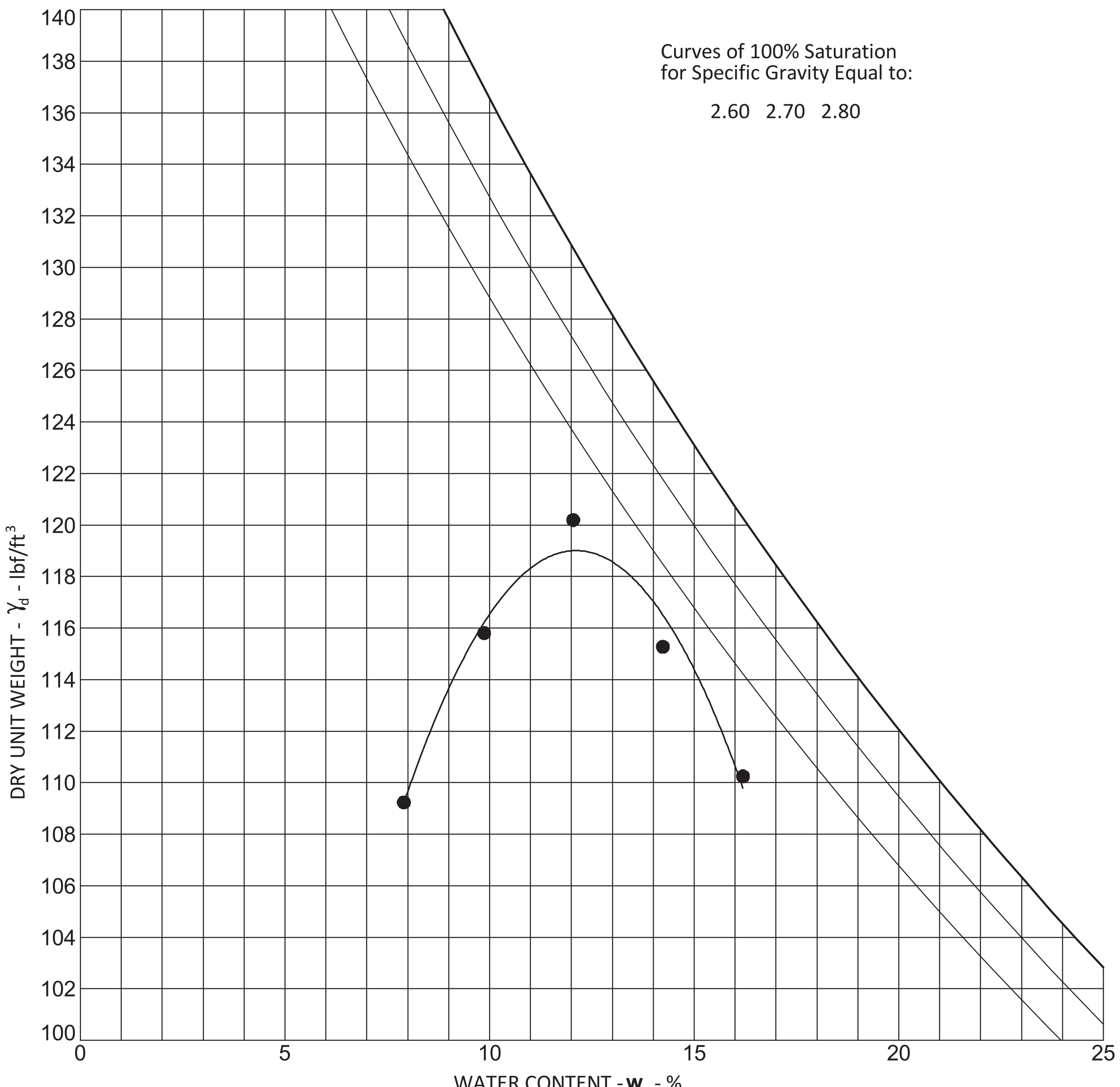
PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

COMPACTION CURVE

PLATE **B-6**

LABORATORY COMPACTION CHARACTERISTICS - STANDARD EFFORT



TEST RESULTS

Source of Material	B-8 at 2.5 ft
Description of Material	Clayey SAND
	38% Passing No. 200 Sieve
Test Method	ASTM D698 Method A

Maximum Dry Density 120.2 PCF

Optimum Water Content 12.0 %

ASTM Rock Corrected Maximum Density= 122.5 pcf at 11.2% Moisture Content

ATTERBERG LIMITS

LL	PL	PI
26	16	10

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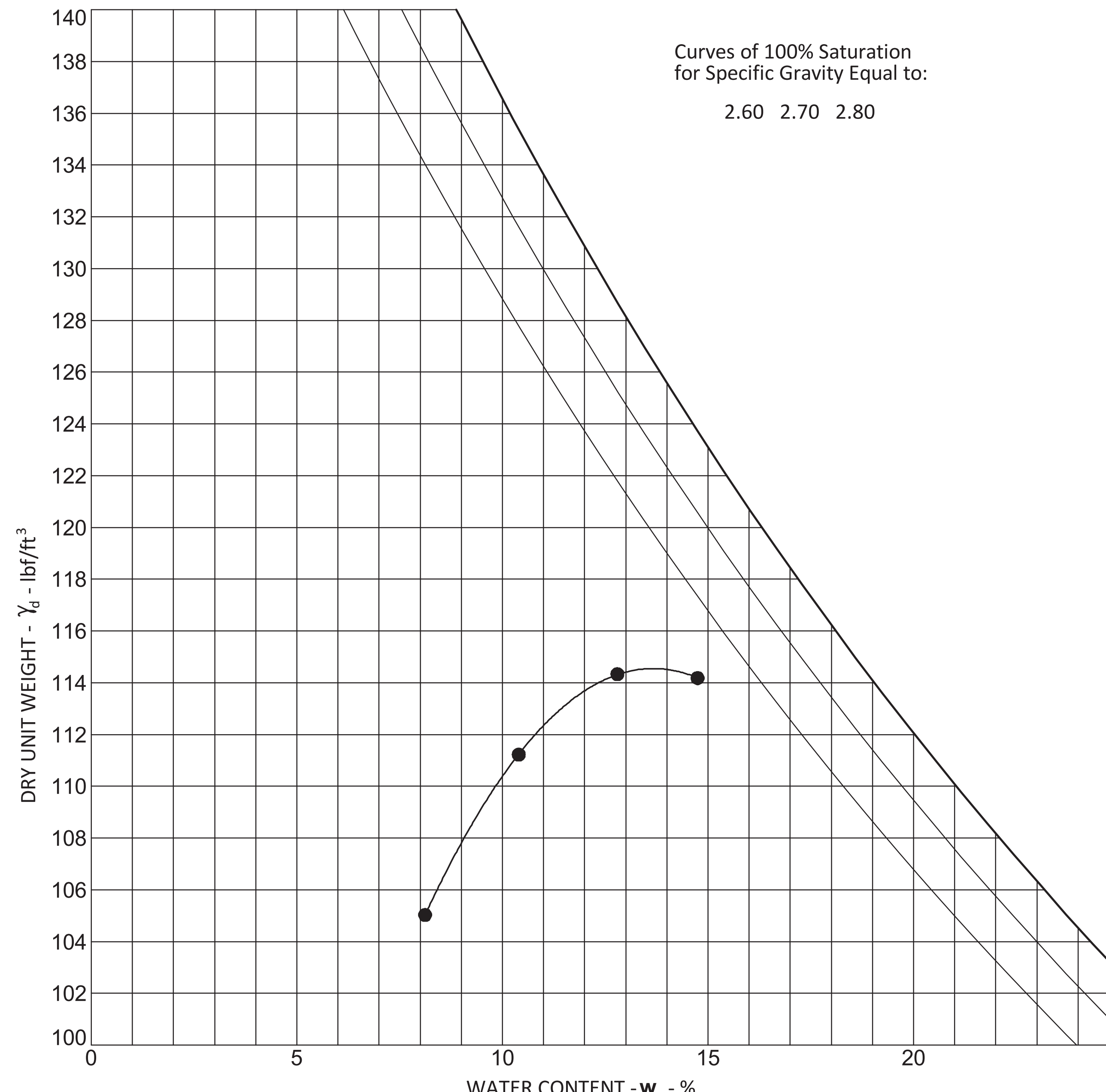
PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

COMPACTION CURVE

PLATE **B-7**

LABORATORY COMPACTION CHARACTERISTICS - STANDARD EFFORT



TEST RESULTS

Source of Material	B-11 at 2.5 ft
Description of Material	Clayey SAND
	46% Passing No. 200 Sieve
Test Method	ASTM D698 Method A

Maximum Dry Density 114.5 PCF

Optimum Water Content 13.7 %

ASTM Rock Corrected Maximum Density= 114.8 pcf at 13.6% Moisture Content

ATTERBERG LIMITS

LL	PL	PI
29	16	13

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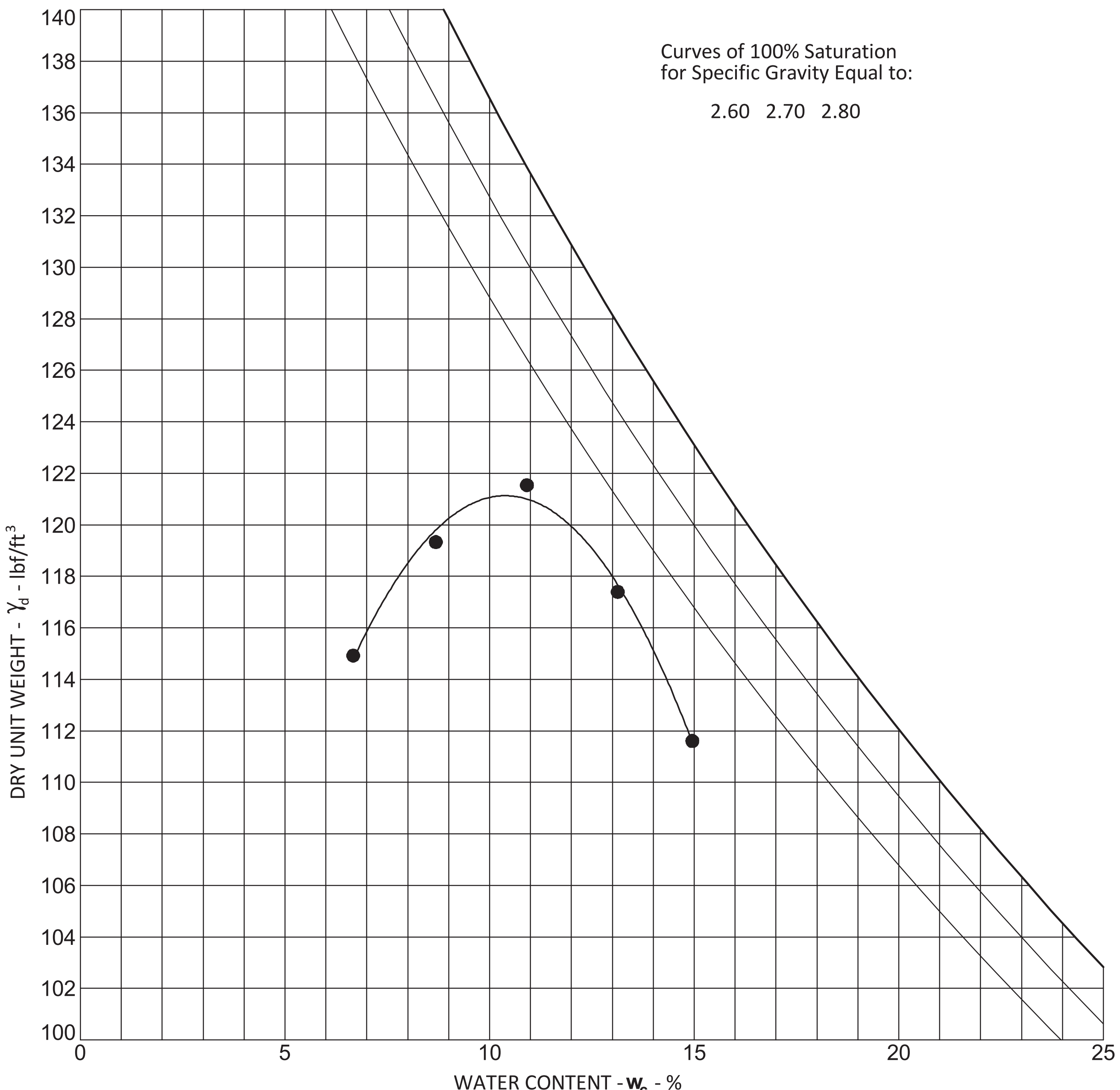
PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

COMPACTION CURVE

PLATE **B-8**

LABORATORY COMPACTION CHARACTERISTICS - STANDARD EFFORT



TEST RESULTS

Source of Material	**B-13 at 2.5 ft**
Description of Material	**Silty SAND**
	23% Passing No. 200 Sieve
Test Method	**ASTM D698 Method A**

Maximum Dry Density **121.0** PCF

Optimum Water Content **10.4** %

ASTM Rock Corrected Maximum Density= 122.0 pcf at 10.1% Moisture Content

ATTERBERG LIMITS

LL	PL	PI
---	**NP**	**---**

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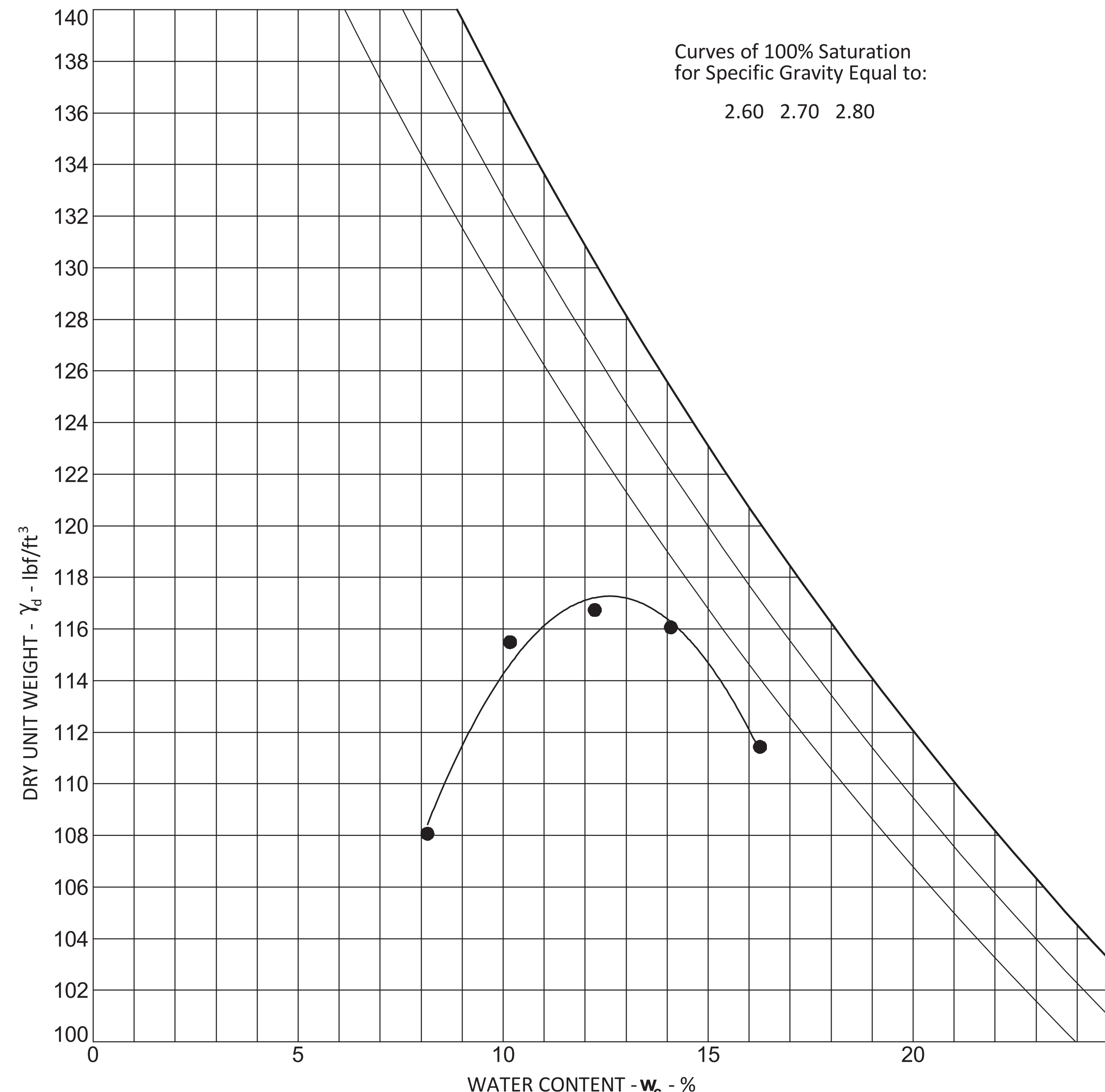
PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

COMPACTION CURVE

PLATE **B-9**

LABORATORY COMPACTION CHARACTERISTICS - STANDARD EFFORT



TEST RESULTS

Source of Material	**B-15 at 2.5 ft**
Description of Material	**Clayey SAND**
	30% Passing No. 200 Sieve
Test Method	**ASTM D698 Method A**

Maximum Dry Density **117.2** PCF

Optimum Water Content **12.2** %

ASTM Rock Corrected Maximum Density= 118.6 pcf at 11.8% Moisture Content

ATTERBERG LIMITS

LL	PL	PI
27	**17**	**10**

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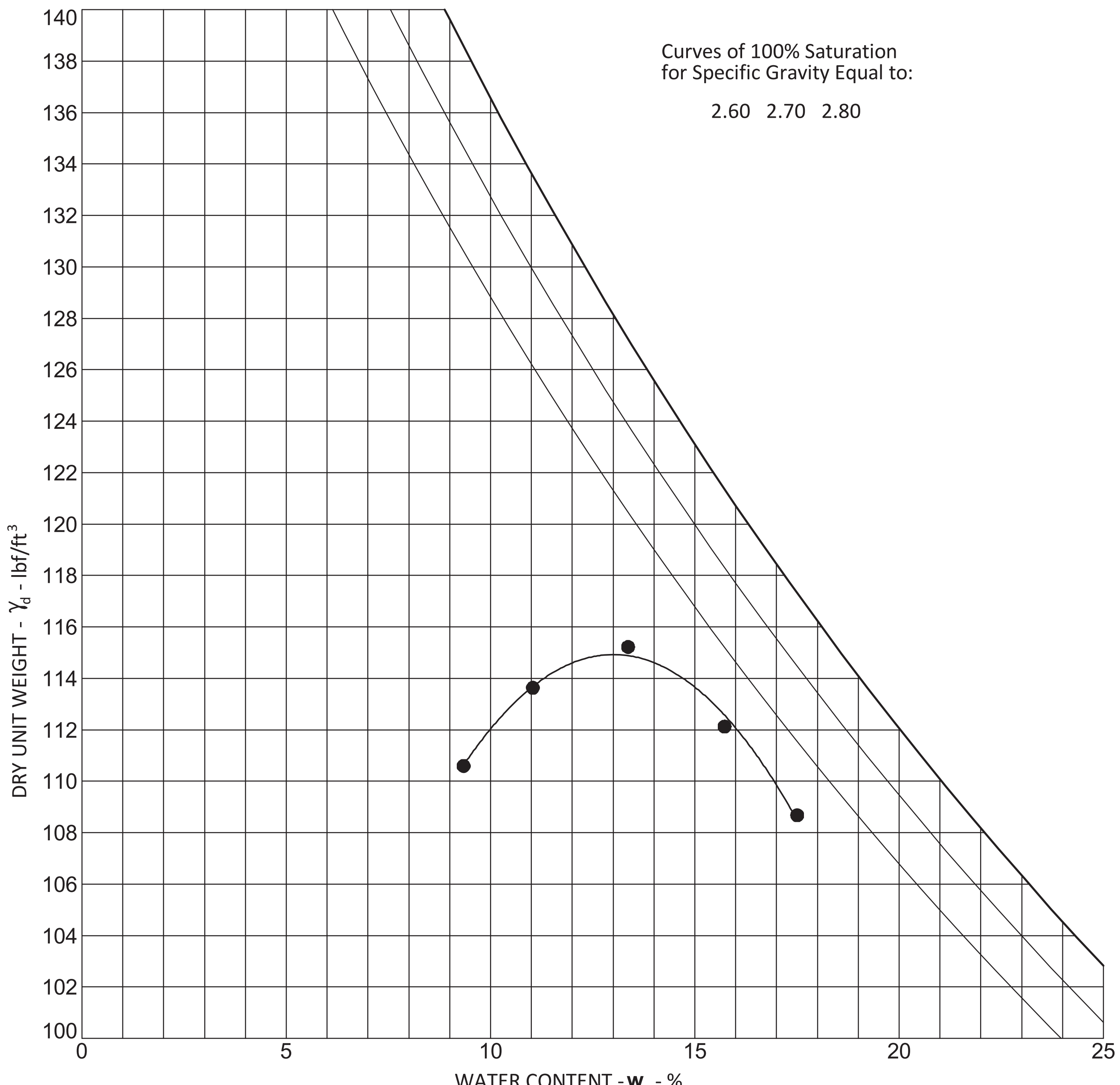
PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

COMPACTION CURVE

PLATE **B-10**

LABORATORY COMPACTION CHARACTERISTICS - STANDARD EFFORT



Source of Material	**B-17 at 2.5 ft**
Description of Material	**Sandy Fat CLAY**
	77% Passing No. 200 Sieve
Test Method	**ASTM D698 Method A**

ATTERBERG LIMITS

LL	PL	PI
73	**19**	**54**

TEST RESULTS

Maximum Dry Density **115.0** PCF

Optimum Water Content **12.8** %

ASTM Rock Corrected Maximum Density= 119.4 pcf at 11.4% Moisture Content

Geotechnical Environmental Inspections Materials **Western Technologies Inc.** The Quality People Since 1955

PROJECT: **THORNTON ROAD**
LOCATION: **CASA GRANDE, ARIZONA**
PROJECT NO.: **2127JY002**

COMPACTION CURVE

PLATE **B-11**

COMPUTATION OF RESILIENT MODULUS

MCDOT Procedure

PROJECT: Thornton Road Widening
JOB No. : 2127JY002

Rmean = (2*Nt*Rt*SIGc^2 + Nc*Rc*SIGt^2) / (2*Nt*SIGc^2 + Nc*SIGt^2)

Mr = (1815 + 225*Rmean + 2.40*Rmean^2) / (0.6*SVF^0.6)

Nt = Number of tested R-values = 7
Nc = Number of Correlated R-values = 12
Rt = Mean of tested of R-values (adjusted if SIGt>10) = 21.42
Rc = Mean of Correlated R-values (Adjusted if SIGc > 10) = 29.06
SIGt = Standard Deviation of tested R-values = 11.87
SIGc = Standard Deviation of Correlated R-values = 15.32

Seasonal Variation Factor, SVF (Select a location) Casa Grande 1

Rmean = 24

Mr = 14337 psi **Mr - DESIGN =** **14337 psi**

CONSTRUCTION CONTROL R-value DETERMINATION AND SUBGRADE ACCEPTANCE CHART LIMITS

No. of Degrees of Freedom (No. Tests - 1) = 11
Critical "t" value (From Table 202.02-5, P. 95) = 1.363
Construction Control R-value = 8

For -200 = 0 PI = 64

For PI = 0 -200 = > 100
PI for (-200 = 100) = 29
For -200 = 100 PI = 29

R-VALUE TESTED	R-VALUE <--- RAW DATA ---> -200	R-VALUE <--- RAW DATA ---> PI	R-VALUE CORREL.	Boring No.
(*) FOR MATERIAL WITH -200=PI=0 (*) ENTER AS: -200=PI=0.01				
	35	10	39	B-2
24	53	3	48	B-4
12	64	7	33	B-6
26	38	10	37	B-8
	42	12	32	B-9
19	46	13	29	B-11
48	23	0.01	70	B-13
	46	15	26	B-14
16	30	10	41	B-15
	43	15	26	B-16
18	77	54	7	B-17
	45	16	24	B-18
MEAN AND ST. DEV.				
23.29			34.38	
11.87			15.32	

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3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

Site ID	File Name	Route	Location	Direction	Count Type	Count Dur	Start Date	Start Time	Avg Vol	AM PkHr	AM PkVol	AM PHF	PM PkHr	PM PkVol	PM PHF	Day Corr	Dir Split	pctSU	pctCB	Avg Spd
1	1703904	N THORNTON RD	S of AZ-84	NB	CLS	48	4/26/2017	0:00	2132	6:30	172	0.6719	15:00	172	0.7566	0.8825	49.7%	5.3%	13.0%	47.800
1	1703905	N THORNTON RD	S of AZ-84	SB	CLS	48	4/26/2017	0:00	2158	6:00	208	0.7629	15:00	182	0.9217	0.8773	50.3%	4.2%	15.6%	48.500
2	1703906	S THORNTON RD	N of I-8	NB	CLS	48	4/26/2017	0:00	1182	6:00	118	0.7630	13:30	81	0.8617	0.7882	51.0%	4.1%	23.8%	51.300
2	1703907	S THORNTON RD	N of I-8	SB	CLS	48	4/26/2017	0:00	1136	6:30	80	0.9302	15:30	106	0.7571	0.7416	49.0%	3.8%	26.4%	56.800

Traffic Research and Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

Site ID	File Name	Route	Location	Direction	Spd 50pct	Spd 85pct	Latitude	Longitude	Comments
1	1703904	N THORNTON RD	S of AZ-84	NB	0.0	0.0	32.8751	-111.7744	
1	1703905	N THORNTON RD	S of AZ-84	SB	0.0	0.0	32.8751	-111.7744	
2	1703906	S THORNTON RD	N of I-8	NB	0.0	0.0	32.8345	-111.7745	
2	1703907	S THORNTON RD	N of I-8	SB	0.0	0.0	32.8345	-111.7745	

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

Client: Wilson & Co
File Number: 1703904
Route: N THORNTON RD
Location: S of AZ-84

Site Ref: 1
Direction: NB
Latitude: 32.87514
Longitude: -111.77444

Date/Time	Total	cls01	cls02	cls03	cls04	cls05	cls06	cls07	cls08	cls09	cls10	cls11	cls12	cls13	pct SU	pct CB
4/26/2017 0:00	8	0	6	1	0	0	0	0	0	1	0	0	0	0	0.0%	12.5%
4/26/2017 0:15	8	0	7	0	0	0	0	0	0	1	0	0	0	0	0.0%	12.5%
4/26/2017 0:30	7	0	4	1	0	0	0	0	0	1	0	0	0	1	0.0%	28.6%
4/26/2017 0:45	14	0	12	0	0	0	0	0	0	1	0	1	0	0	0.0%	14.3%
4/26/2017 1:00	8	0	6	0	0	0	0	0	0	1	0	0	0	1	0.0%	25.0%
4/26/2017 1:15	11	0	7	3	0	0	1	0	0	0	0	0	0	0	9.1%	0.0%
4/26/2017 1:30	19	0	15	3	0	0	0	0	0	0	1	0	0	0	0.0%	5.3%
4/26/2017 1:45	8	0	4	2	0	0	0	0	0	2	0	0	0	0	0.0%	25.0%
4/26/2017 2:00	7	0	5	1	0	0	0	0	0	1	0	0	0	0	0.0%	14.3%
4/26/2017 2:15	4	0	2	0	0	0	2	0	0	0	0	0	0	0	50.0%	0.0%
4/26/2017 2:30	8	0	6	2	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 2:45	9	0	6	0	0	0	0	0	0	3	0	0	0	0	0.0%	33.3%
4/26/2017 3:00	8	0	6	1	0	0	0	0	0	0	1	0	0	0	0.0%	12.5%
4/26/2017 3:15	7	0	5	1	0	0	0	0	0	0	1	0	0	0	0.0%	14.3%
4/26/2017 3:30	5	0	2	2	0	0	0	0	0	1	0	0	0	0	0.0%	20.0%
4/26/2017 3:45	6	2	2	1	0	0	1	0	0	0	0	0	0	0	16.7%	0.0%
4/26/2017 4:00	8	0	5	1	0	0	0	1	0	0	1	0	0	0	12.5%	12.5%
4/26/2017 4:15	6	0	2	3	0	0	1	0	0	0	0	0	0	0	16.7%	0.0%
4/26/2017 4:30	8	0	2	6	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 4:45	10	0	7	1	0	0	1	0	0	1	0	0	0	0	10.0%	10.0%
4/26/2017 5:00	15	0	10	1	0	0	0	0	0	3	1	0	0	0	0.0%	26.7%
4/26/2017 5:15	27	0	17	8	0	0	0	0	0	1	1	0	0	0	0.0%	7.4%
4/26/2017 5:30	31	0	16	14	0	0	0	0	0	0	0	0	0	1	0.0%	3.2%
4/26/2017 5:45	36	0	19	10	0	0	1	0	0	5	0	0	0	1	2.8%	16.7%
4/26/2017 6:00	21	0	15	5	0	0	0	0	0	1	0	0	0	0	0.0%	4.8%
4/26/2017 6:15	28	1	14	5	0	0	1	0	0	3	1	1	0	2	3.6%	25.0%
4/26/2017 6:30	33	0	19	8	0	0	1	0	0	2	1	0	0	2	3.0%	15.2%
4/26/2017 6:45	36	0	26	7	0	1	1	0	0	0	1	0	0	0	5.6%	2.8%
4/26/2017 7:00	67	0	50	15	0	0	1	0	0	1	0	0	0	0	1.5%	1.5%
4/26/2017 7:15	24	1	10	8	1	0	0	0	0	3	0	0	0	1	4.2%	16.7%
4/26/2017 7:30	36	0	23	10	2	0	0	0	0	1	0	0	0	0	5.6%	2.8%
4/26/2017 7:45	35	0	14	12	0	1	0	0	2	4	1	0	0	1	2.9%	22.9%
4/26/2017 8:00	33	0	20	6	2	1	1	0	0	3	0	0	0	0	12.1%	9.1%
4/26/2017 8:15	25	0	14	5	0	0	1	1	1	2	1	0	0	0	8.0%	16.0%
4/26/2017 8:30	28	0	15	6	0	0	1	0	0	3	2	0	0	1	3.6%	21.4%
4/26/2017 8:45	23	1	8	6	0	1	1	0	0	6	0	0	0	0	8.7%	26.1%
4/26/2017 9:00	31	1	13	5	0	1	1	0	0	4	3	1	0	2	6.5%	32.3%
4/26/2017 9:15	25	0	13	6	1	0	1	0	0	4	0	0	0	0	8.0%	16.0%
4/26/2017 9:30	20	0	11	2	1	1	0	0	0	3	0	0	0	2	10.0%	25.0%
4/26/2017 9:45	35	0	15	8	0	1	2	0	2	4	1	0	0	2	8.6%	25.7%
4/26/2017 10:00	23	2	12	7	0	0	0	0	0	2	0	0	0	0	0.0%	8.7%
4/26/2017 10:15	23	1	10	3	0	0	1	0	0	4	3	0	0	1	4.3%	34.8%
4/26/2017 10:30	35	1	19	3	1	0	2	0	0	6	3	0	0	0	8.6%	25.7%
4/26/2017 10:45	36	2	16	8	0	1	2	0	0	6	1	0	0	0	8.3%	19.4%
4/26/2017 11:00	27	0	15	4	0	0	2	0	0	4	2	0	0	0	7.4%	22.2%
4/26/2017 11:15	24	0	15	2	0	0	2	1	0	3	0	1	0	0	12.5%	16.7%
4/26/2017 11:30	33	0	20	9	0	1	1	0	0	2	0	0	0	0	6.1%	6.1%
4/26/2017 11:45	21	0	9	4	1	0	1	0	0	2	3	0	0	1	9.5%	28.6%

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Site Ref: 1
Direction: NB
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Date/Time	Total	cls01	cls02	cls03	cls04	cls05	cls06	cls07	cls08	cls09	cls10	cls11	cls12	cls13	pct SU	pct CB
4/26/2017 12:00	29	0	15	10	0	0	0	0	0	4	0	0	0	0	0.0%	13.8%
4/26/2017 12:15	18	0	8	5	0	1	2	0	0	1	0	1	0	0	16.7%	11.1%
4/26/2017 12:30	27	1	16	4	0	0	4	0	0	1	1	0	0	0	14.8%	7.4%
4/26/2017 12:45	34	0	22	7	0	0	1	0	0	1	1	0	0	2	2.9%	11.8%
4/26/2017 13:00	37	1	21	6	0	0	2	0	3	3	0	0	0	1	5.4%	18.9%
4/26/2017 13:15	31	2	16	5	1	1	1	0	0	3	1	1	0	0	9.7%	16.1%
4/26/2017 13:30	29	0	13	6	0	0	1	0	1	4	3	1	0	0	3.4%	31.0%
4/26/2017 13:45	33	0	14	12	0	0	1	0	0	3	1	0	0	2	3.0%	18.2%
4/26/2017 14:00	39	1	25	6	0	2	2	0	0	0	1	0	0	2	10.3%	7.7%
4/26/2017 14:15	24	0	14	6	1	0	2	0	0	1	0	0	0	0	12.5%	4.2%
4/26/2017 14:30	42	0	23	12	0	1	2	0	1	1	1	0	0	1	7.1%	9.5%
4/26/2017 14:45	31	0	19	7	2	0	0	0	0	3	0	0	0	0	6.5%	9.7%
4/26/2017 15:00	54	1	43	8	0	0	1	0	0	1	0	0	0	0	1.9%	1.9%
4/26/2017 15:15	36	1	19	13	1	0	0	0	0	1	0	0	0	1	2.8%	5.6%
4/26/2017 15:30	35	2	18	10	0	0	3	0	0	2	0	0	0	0	8.6%	5.7%
4/26/2017 15:45	34	0	19	9	1	0	1	0	0	4	0	0	0	0	5.9%	11.8%
4/26/2017 16:00	44	0	27	9	1	0	2	0	0	5	0	0	0	0	6.8%	11.4%
4/26/2017 16:15	33	1	19	7	1	0	1	1	1	1	0	0	0	1	9.1%	9.1%
4/26/2017 16:30	26	0	19	2	0	0	2	0	1	1	1	0	0	0	7.7%	11.5%
4/26/2017 16:45	27	0	18	5	1	0	1	0	0	2	0	0	0	0	7.4%	7.4%
4/26/2017 17:00	26	1	17	4	0	0	1	0	0	3	0	0	0	0	3.8%	11.5%
4/26/2017 17:15	23	1	13	5	1	0	1	0	0	1	0	0	0	1	8.7%	8.7%
4/26/2017 17:30	23	0	13	6	0	0	2	0	0	2	0	0	0	0	8.7%	8.7%
4/26/2017 17:45	28	1	23	3	0	0	0	0	0	0	0	0	0	1	0.0%	3.6%
4/26/2017 18:00	19	0	11	5	0	0	1	0	0	2	0	0	0	0	5.3%	10.5%
4/26/2017 18:15	21	0	16	1	0	0	0	0	0	3	1	0	0	0	0.0%	19.0%
4/26/2017 18:30	19	0	13	3	0	0	1	0	0	2	0	0	0	0	5.3%	10.5%
4/26/2017 18:45	13	0	7	3	0	0	1	0	0	1	0	0	0	1	7.7%	15.4%
4/26/2017 19:00	6	0	5	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 19:15	12	0	11	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 19:30	23	0	18	3	0	0	0	0	0	1	0	1	0	0	0.0%	8.7%
4/26/2017 19:45	16	0	11	3	0	0	0	0	0	2	0	0	0	0	0.0%	12.5%
4/26/2017 20:00	21	0	14	5	0	1	0	0	0	1	0	0	0	0	4.8%	4.8%
4/26/2017 20:15	8	0	2	4	0	0	1	0	0	0	1	0	0	0	12.5%	12.5%
4/26/2017 20:30	11	0	8	0	0	0	0	0	0	1	1	0	0	1	0.0%	27.3%
4/26/2017 20:45	7	0	3	3	0	0	0	0	0	1	0	0	0	0	0.0%	14.3%
4/26/2017 21:00	11	0	7	2	0	0	1	0	0	1	0	0	0	0	9.1%	9.1%
4/26/2017 21:15	6	0	3	1	0	0	0	0	0	2	0	0	0	0	0.0%	33.3%
4/26/2017 21:30	12	0	8	2	1	0	1	0	0	0	0	0	0	0	16.7%	0.0%
4/26/2017 21:45	10	0	5	2	0	0	0	0	0	2	1	0	0	0	0.0%	30.0%
4/26/2017 22:00	6	1	2	0	0	0	3	0	0	0	0	0	0	0	50.0%	0.0%
4/26/2017 22:15	12	0	8	3	0	0	0	0	0	1	0	0	0	0	0.0%	8.3%
4/26/2017 22:30	10	0	6	1	0	0	1	0	0	2	0	0	0	0	10.0%	20.0%
4/26/2017 22:45	9	0	6	0	0	0	1	0	0	2	0	0	0	0	11.1%	22.2%
4/26/2017 23:00	9	0	8	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 23:15	5	0	4	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 23:30	11	1	6	0	0	0	2	0	0	1	1	0	0	0	18.2%	18.2%
4/26/2017 23:45	7	1	4	2	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Day Totals	**2047**	**28**	**1209**	**430**	**20**	**15**	**76**	**4**	**12**	**168**	**44**	**8**	**0**	**33**	**5.6%**	**12.9%**

AM Peak Hr	**6:15 AM**
AM Peak Vol	**164**
AM PHF	**0.612**
PM Peak Hr	**2:30 PM**
PM Peak Vol	**163**

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Date/Time	Total	cls01	cls02	cls03	cls04	cls05	cls06	cls07	cls08	cls09	cls10	cls11	cls12	cls13	pct SU	pct CB
4/27/2017 0:00	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 0:15	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 0:30	5	0	1	1	0	0	1	0	0	1	1	0	0	0	20.0%	40.0%
4/27/2017 0:45	8	0	7	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 1:00	11	0	8	2	0	0	0	0	0	1	0	0	0	0	0.0%	9.1%
4/27/2017 1:15	12	0	7	2	0	0	1	0	0	2	0	0	0	0	8.3%	16.7%
4/27/2017 1:30	8	0	5	1	0	0	1	0	0	1	0	0	0	0	12.5%	12.5%
4/27/2017 1:45	15	0	11	2	0	0	0	0	0	0	2	0	0	0	0.0%	13.3%
4/27/2017 2:00	4	0	3	0	0	0	0	0	0	0	1	0	0	0	0.0%	25.0%
4/27/2017 2:15	7	1	3	3	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 2:30	10	0	7	2	0	0	0	0	0	0	1	0	0	0	0.0%	10.0%
4/27/2017 2:45	8	0	6	0	0	0	0	0	0	2	0	0	0	0	0.0%	25.0%
4/27/2017 3:00	7	1	3	2	0	0	0	0	0	0	1	0	0	0	0.0%	14.3%
4/27/2017 3:15	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 3:30	5	0	3	2	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 3:45	6	1	5	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 4:00	10	0	7	3	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 4:15	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 4:30	10	0	3	5	0	0	1	0	0	1	0	0	0	0	10.0%	10.0%
4/27/2017 4:45	18	0	12	4	0	0	1	0	0	1	0	0	0	0	5.6%	5.6%
4/27/2017 5:00	13	0	8	4	0	0	0	0	0	1	0	0	0	0	0.0%	7.7%
4/27/2017 5:15	20	0	10	7	0	0	1	0	1	0	1	0	0	0	5.0%	10.0%
4/27/2017 5:30	41	0	21	14	0	0	0	0	0	4	2	0	0	0	0.0%	14.6%
4/27/2017 5:45	34	0	26	4	0	1	0	0	0	3	0	0	0	0	2.9%	8.8%
4/27/2017 6:00	28	1	18	6	0	0	0	0	0	1	2	0	0	0	0.0%	10.7%
4/27/2017 6:15	26	0	16	7	0	1	0	0	0	1	0	0	0	1	3.8%	7.7%
4/27/2017 6:30	38	0	24	7	0	1	1	0	0	2	1	0	0	2	5.3%	13.2%
4/27/2017 6:45	40	0	25	11	0	1	1	0	2	0	0	0	0	0	5.0%	5.0%
4/27/2017 7:00	61	1	50	5	0	0	0	0	1	4	0	0	0	0	0.0%	8.2%
4/27/2017 7:15	45	0	26	12	0	0	2	0	0	2	0	0	0	3	4.4%	11.1%
4/27/2017 7:30	33	0	20	6	0	0	2	0	0	4	1	0	0	0	6.1%	15.2%
4/27/2017 7:45	39	0	22	12	1	1	0	0	0	1	0	0	0	2	5.1%	7.7%
4/27/2017 8:00	36	0	14	12	1	1	0	1	0	5	2	0	0	0	8.3%	19.4%
4/27/2017 8:15	29	0	12	7	1	1	3	0	0	3	1	0	0	1	17.2%	17.2%
4/27/2017 8:30	33	0	15	9	0	0	1	0	0	4	2	1	1	0	3.0%	24.2%
4/27/2017 8:45	26	1	12	4	0	0	3	0	0	4	0	0	0	2	11.5%	23.1%
4/27/2017 9:00	33	1	16	5	0	1	1	0	1	6	2	0	0	0	6.1%	27.3%
4/27/2017 9:15	33	1	18	6	0	0	2	0	1	3	2	0	0	0	6.1%	18.2%
4/27/2017 9:30	24	0	12	4	0	1	1	0	0	5	0	0	0	1	8.3%	25.0%
4/27/2017 9:45	30	0	14	7	1	1	1	0	0	4	2	0	0	0	10.0%	20.0%
4/27/2017 10:00	33	0	16	8	2	0	0	0	0	5	0	0	0	2	6.1%	21.2%
4/27/2017 10:15	26	0	19	4	0	0	0	0	0	2	0	0	0	1	0.0%	11.5%
4/27/2017 10:30	36	2	18	7	0	0	1	0	0	7	1	0	0	0	2.8%	22.2%
4/27/2017 10:45	41	0	27	5	0	0	1	3	0	4	1	0	0	0	9.8%	12.2%
4/27/2017 11:00	32	0	16	8	0	1	1	0	0	4	2	0	0	0	6.3%	18.8%
4/27/2017 11:15	20	2	9	6	1	0	1	0	0	1	0	0	0	0	10.0%	5.0%
4/27/2017 11:30	26	0	12	5	0	0	4	0	1	3	0	0	0	1	15.4%	19.2%
4/27/2017 11:45	31	0	17	5	0	0	4	0	0	3	1	0	0	1	12.9%	16.1%

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Date/Time	Total	cls01	cls02	cls03	cls04	cls05	cls06	cls07	cls08	cls09	cls10	cls11	cls12	cls13	pct SU	pct CB
4/27/2017 12:00	39	0	26	5	0	0	1	0	1	6	0	0	0	0	2.6%	17.9%
4/27/2017 12:15	29	1	19	5	0	0	1	0	1	1	1	0	0	0	3.4%	10.3%
4/27/2017 12:30	23	0	14	4	0	0	1	0	0	2	1	1	0	0	4.3%	17.4%
4/27/2017 12:45	34	0	19	7	0	1	0	0	0	7	0	0	0	0	2.9%	20.6%
4/27/2017 13:00	29	0	15	9	0	0	0	0	0	2	2	0	0	1	0.0%	17.2%
4/27/2017 13:15	22	0	11	6	1	0	0	0	0	3	0	1	0	0	4.5%	18.2%
4/27/2017 13:30	30	0	18	5	0	1	3	0	1	2	0	0	0	0	13.3%	10.0%
4/27/2017 13:45	52	0	34	10	0	0	3	0	2	2	0	0	0	1	5.8%	9.6%
4/27/2017 14:00	31	1	16	8	0	0	1	0	2	2	1	0	0	0	3.2%	16.1%
4/27/2017 14:15	40	0	25	11	0	0	1	0	0	1	2	0	0	0	2.5%	7.5%
4/27/2017 14:30	34	0	18	9	1	0	0	0	2	4	0	0	0	0	2.9%	17.6%
4/27/2017 14:45	31	0	26	3	1	0	0	0	0	1	0	0	0	0	3.2%	3.2%
4/27/2017 15:00	60	2	42	11	0	1	2	0	1	1	0	0	0	0	5.0%	3.3%
4/27/2017 15:15	47	0	27	14	0	0	1	0	0	4	1	0	0	0	2.1%	10.6%
4/27/2017 15:30	41	0	22	11	0	0	2	0	0	5	0	0	0	1	4.9%	14.6%
4/27/2017 15:45	38	0	27	7	1	0	0	0	0	2	0	0	0	1	2.6%	7.9%
4/27/2017 16:00	54	0	38	7	2	1	3	0	1	2	0	0	0	0	11.1%	5.6%
4/27/2017 16:15	24	0	18	0	0	0	3	0	1	1	1	0	0	0	12.5%	12.5%
4/27/2017 16:30	27	0	14	8	1	0	2	0	1	0	0	0	0	1	11.1%	7.4%
4/27/2017 16:45	23	2	10	5	0	0	2	0	0	3	0	0	0	1	8.7%	17.4%
4/27/2017 17:00	34	0	21	6	1	0	3	0	0	2	0	1	0	0	11.8%	8.8%
4/27/2017 17:15	35	0	22	6	2	0	1	0	0	3	1	0	0	0	8.6%	11.4%
4/27/2017 17:30	22	0	17	2	0	0	1	0	0	2	0	0	0	0	4.5%	9.1%
4/27/2017 17:45	22	1	14	5	0	0	0	0	0	2	0	0	0	0	0.0%	9.1%
4/27/2017 18:00	24	0	13	6	0	0	0	0	0	3	1	0	0	1	0.0%	20.8%
4/27/2017 18:15	15	1	9	2	0	0	1	0	0	1	1	0	0	0	6.7%	13.3%
4/27/2017 18:30	14	0	6	2	0	0	2	0	0	4	0	0	0	0	14.3%	28.6%
4/27/2017 18:45	12	0	8	1	0	0	1	0	0	2	0	0	0	0	8.3%	16.7%
4/27/2017 19:00	15	1	8	3	0	0	1	0	0	2	0	0	0	0	6.7%	13.3%
4/27/2017 19:15	21	1	14	2	0	0	1	0	0	3	0	0	0	0	4.8%	14.3%
4/27/2017 19:30	21	1	13	2	0	0	0	0	0	5	0	0	0	0	0.0%	23.8%
4/27/2017 19:45	26	0	16	7	0	0	0	0	0	2	1	0	0	0	0.0%	11.5%
4/27/2017 20:00	11	0	10	0	0	0	0	0	0	0	1	0	0	0	0.0%	9.1%
4/27/2017 20:15	16	0	11	5	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 20:30	10	0	8	0	0	0	0	0	0	1	0	0	1	0	0.0%	20.0%
4/27/2017 20:45	9	0	6	2	0	0	0	0	0	0	0	0	0	1	0.0%	11.1%
4/27/2017 21:00	22	0	11	7	0	0	1	0	0	1	2	0	0	0	4.5%	13.6%
4/27/2017 21:15	12	1	10	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 21:30	6	0	3	2	0	0	0	0	0	0	0	0	0	1	0.0%	16.7%
4/27/2017 21:45	8	0	6	1	0	0	0	0	0	1	0	0	0	0	0.0%	12.5%
4/27/2017 22:00	18	1	14	0	0	0	0	0	0	2	0	0	0	1	0.0%	16.7%
4/27/2017 22:15	12	0	12	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 22:30	8	0	8	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 22:45	5	0	3	1	0	0	0	0	0	0	1	0	0	0	0.0%	20.0%
4/27/2017 23:00	8	0	5	2	0	0	0	0	0	1	0	0	0	0	0.0%	12.5%
4/27/2017 23:15	7	0	3	1	0	0	0	0	0	2	1	0	0	0	0.0%	42.9%
4/27/2017 23:30	13	1	8	1	0	0	1	0	0	0	0	0	0	2	7.7%	15.4%
4/27/2017 23:45	8	1	4	0	0	0	1	0	0	2	0	0	0	0	12.5%	25.0%
Day Totals	**2217**	**27**	**1350**	**439**	**17**	**15**	**76**	**4**	**20**	**187**	**47**	**4**	**2**	**29**	**5.1%**	**13.0%**

AM Peak Hr	**6:30 AM**
AM Peak Vol	**184**
AM PHF	**0.754**
PM Peak Hr	**3:00 PM**
PM Peak Vol	**186**

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

Client: Wilson & Co
File Number: 1703905
Route: N THORNTON RD
Location: S of AZ-84

Site Ref: 1
Direction: SB
Latitude: 32.87514
Longitude: -111.77444

Date/Time	Total	cls01	cls02	cls03	cls04	cls05	cls06	cls07	cls08	cls09	cls10	cls11	cls12	cls13	pct SU	pct CB
4/26/2017 0:00	8	0	5	3	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 0:15	6	1	2	1	0	0	0	0	0	2	0	0	0	0	0.0%	33.3%
4/26/2017 0:30	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0.0%	100.0%
4/26/2017 0:45	8	0	4	4	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 1:00	3	0	2	0	0	0	1	0	0	0	0	0	0	0	33.3%	0.0%
4/26/2017 1:15	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 1:30	6	0	4	1	0	0	0	0	0	1	0	0	0	0	0.0%	16.7%
4/26/2017 1:45	6	0	4	0	0	0	1	0	0	1	0	0	0	0	16.7%	16.7%
4/26/2017 2:00	12	0	8	2	0	0	0	0	0	2	0	0	0	0	0.0%	16.7%
4/26/2017 2:15	6	0	4	0	0	0	0	0	0	2	0	0	0	0	0.0%	33.3%
4/26/2017 2:30	11	0	5	3	0	0	0	0	0	2	0	0	0	1	0.0%	27.3%
4/26/2017 2:45	6	0	4	1	0	0	0	0	0	1	0	0	0	0	0.0%	16.7%
4/26/2017 3:00	9	0	5	2	0	0	0	0	0	2	0	0	0	0	0.0%	22.2%
4/26/2017 3:15	6	0	4	1	0	0	0	0	0	1	0	0	0	0	0.0%	16.7%
4/26/2017 3:30	15	0	11	2	0	0	0	0	0	2	0	0	0	0	0.0%	13.3%
4/26/2017 3:45	27	0	19	6	0	0	0	0	0	2	0	0	0	0	0.0%	7.4%
4/26/2017 4:00	16	0	11	3	0	0	0	0	0	2	0	0	0	0	0.0%	12.5%
4/26/2017 4:15	28	0	12	9	0	0	0	0	0	7	0	0	0	0	0.0%	25.0%
4/26/2017 4:30	16	0	9	5	0	0	0	0	0	2	0	0	0	0	0.0%	12.5%
4/26/2017 4:45	24	0	13	7	0	0	0	0	0	4	0	0	0	0	0.0%	16.7%
4/26/2017 5:00	17	0	8	5	0	0	1	0	1	2	0	0	0	0	5.9%	17.6%
4/26/2017 5:15	25	1	12	4	0	2	0	0	0	6	0	0	0	0	8.0%	24.0%
4/26/2017 5:30	19	0	11	6	0	0	0	0	0	2	0	0	0	0	0.0%	10.5%
4/26/2017 5:45	24	2	14	2	3	0	0	0	0	3	0	0	0	0	12.5%	12.5%
4/26/2017 6:00	51	0	25	19	1	1	0	0	1	4	0	0	0	0	3.9%	9.8%
4/26/2017 6:15	33	1	17	9	0	0	0	1	0	5	0	0	0	0	3.0%	15.2%
4/26/2017 6:30	65	0	42	18	3	0	0	0	0	1	0	0	0	1	4.6%	3.1%
4/26/2017 6:45	58	0	36	15	3	0	1	0	0	3	0	0	0	0	6.9%	5.2%
4/26/2017 7:00	30	1	19	8	1	0	0	0	0	1	0	0	0	0	3.3%	3.3%
4/26/2017 7:15	27	0	8	8	2	1	2	0	0	6	0	0	0	0	18.5%	22.2%
4/26/2017 7:30	30	0	19	6	0	0	0	0	0	5	0	0	0	0	0.0%	16.7%
4/26/2017 7:45	30	0	12	8	3	0	1	0	0	6	0	0	0	0	13.3%	20.0%
4/26/2017 8:00	25	1	13	3	0	1	1	0	0	5	1	0	0	0	8.0%	24.0%
4/26/2017 8:15	24	1	12	4	1	0	2	0	0	4	0	0	0	0	12.5%	16.7%
4/26/2017 8:30	23	0	12	5	1	0	2	0	0	3	0	0	0	0	13.0%	13.0%
4/26/2017 8:45	27	1	7	11	0	1	2	0	0	5	0	0	0	0	11.1%	18.5%
4/26/2017 9:00	28	0	16	5	1	0	0	0	0	6	0	0	0	0	3.6%	21.4%
4/26/2017 9:15	33	0	11	9	0	0	2	0	1	10	0	0	0	0	6.1%	33.3%
4/26/2017 9:30	31	0	12	7	2	0	0	0	1	9	0	0	0	0	6.5%	32.3%
4/26/2017 9:45	19	0	8	4	3	0	0	0	0	4	0	0	0	0	15.8%	21.1%
4/26/2017 10:00	29	0	12	10	0	0	2	0	0	5	0	0	0	0	6.9%	17.2%
4/26/2017 10:15	30	0	9	8	0	0	1	0	0	12	0	0	0	0	3.3%	40.0%
4/26/2017 10:30	29	0	11	12	0	0	0	0	0	6	0	0	0	0	0.0%	20.7%
4/26/2017 10:45	32	0	11	11	2	1	4	0	0	2	0	0	0	1	21.9%	9.4%
4/26/2017 11:00	23	0	12	5	1	0	1	0	0	4	0	0	0	0	8.7%	17.4%
4/26/2017 11:15	23	1	7	5	0	1	3	0	0	6	0	0	0	0	17.4%	26.1%
4/26/2017 11:30	22	0	5	9	1	0	0	0	1	5	0	1	0	0	4.5%	31.8%
4/26/2017 11:45	23	0	11	6	0	1	0	0	1	4	0	0	0	0	4.3%	21.7%

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

Client: Wilson & Co
File Number: 1703905
Route: N THORNTON RD
Location: S of AZ-84

Site Ref: 1
Direction: SB
Latitude: 32.87514
Longitude: -111.77444

Date/Time	Total	cls01	cls02	cls03	cls04	cls05	cls06	cls07	cls08	cls09	cls10	cls11	cls12	cls13	pct SU	pct CB
4/26/2017 12:00	27	0	14	6	0	0	1	0	0	5	0	1	0	0	3.7%	22.2%
4/26/2017 12:15	32	0	14	10	0	0	1	0	0	6	0	1	0	0	3.1%	21.9%
4/26/2017 12:30	27	0	8	9	0	1	1	0	0	8	0	0	0	0	7.4%	29.6%
4/26/2017 12:45	22	0	12	5	0	0	0	0	1	4	0	0	0	0	0.0%	22.7%
4/26/2017 13:00	34	0	19	8	1	1	0	0	1	4	0	0	0	0	5.9%	14.7%
4/26/2017 13:15	32	2	12	14	0	0	0	0	0	4	0	0	0	0	0.0%	12.5%
4/26/2017 13:30	23	0	9	7	0	0	1	0	0	6	0	0	0	0	4.3%	26.1%
4/26/2017 13:45	23	0	9	7	2	1	0	0	0	4	0	0	0	0	13.0%	17.4%
4/26/2017 14:00	26	1	14	5	0	0	0	0	1	4	0	0	0	1	0.0%	23.1%
4/26/2017 14:15	33	0	19	8	0	0	0	0	0	6	0	0	0	0	0.0%	18.2%
4/26/2017 14:30	36	1	16	15	0	0	1	0	1	2	0	0	0	0	2.8%	8.3%
4/26/2017 14:45	42	1	23	11	0	0	0	0	1	6	0	0	0	0	0.0%	16.7%
4/26/2017 15:00	39	1	17	13	1	1	0	0	1	5	0	0	0	0	5.1%	15.4%
4/26/2017 15:15	49	1	29	11	1	0	0	0	0	7	0	0	0	0	2.0%	14.3%
4/26/2017 15:30	44	0	28	12	0	0	0	0	0	3	0	0	0	1	0.0%	9.1%
4/26/2017 15:45	48	0	27	11	1	0	0	0	0	9	0	0	0	0	2.1%	18.8%
4/26/2017 16:00	32	0	18	11	0	0	0	0	0	2	0	1	0	0	0.0%	9.4%
4/26/2017 16:15	35	1	22	7	1	0	0	0	0	3	1	0	0	0	2.9%	11.4%
4/26/2017 16:30	25	1	15	4	0	0	1	0	1	2	0	1	0	0	4.0%	16.0%
4/26/2017 16:45	20	0	8	7	0	0	0	0	1	4	0	0	0	0	0.0%	25.0%
4/26/2017 17:00	23	0	14	5	0	0	0	0	0	4	0	0	0	0	0.0%	17.4%
4/26/2017 17:15	21	0	9	9	0	0	0	0	0	3	0	0	0	0	0.0%	14.3%
4/26/2017 17:30	14	0	9	3	0	0	0	0	0	2	0	0	0	0	0.0%	14.3%
4/26/2017 17:45	26	0	20	4	0	0	0	0	0	2	0	0	0	0	0.0%	7.7%
4/26/2017 18:00	21	1	9	6	0	1	1	0	0	3	0	0	0	0	9.5%	14.3%
4/26/2017 18:15	16	0	12	3	0	0	0	0	0	1	0	0	0	0	0.0%	6.3%
4/26/2017 18:30	29	0	17	11	0	0	0	0	0	1	0	0	0	0	0.0%	3.4%
4/26/2017 18:45	18	1	5	7	0	0	0	0	1	4	0	0	0	0	0.0%	27.8%
4/26/2017 19:00	16	0	5	6	0	0	1	0	0	4	0	0	0	0	6.3%	25.0%
4/26/2017 19:15	13	0	10	1	0	0	0	0	0	2	0	0	0	0	0.0%	15.4%
4/26/2017 19:30	8	0	3	3	0	0	0	0	0	2	0	0	0	0	0.0%	25.0%
4/26/2017 19:45	15	0	10	3	0	0	0	0	0	2	0	0	0	0	0.0%	13.3%
4/26/2017 20:00	18	0	15	2	0	0	0	0	0	1	0	0	0	0	0.0%	5.6%
4/26/2017 20:15	17	1	8	5	1	0	0	0	0	2	0	0	0	0	5.9%	11.8%
4/26/2017 20:30	15	1	8	3	0	0	1	0	0	2	0	0	0	0	6.7%	13.3%
4/26/2017 20:45	12	0	5	3	0	0	0	0	0	4	0	0	0	0	0.0%	33.3%
4/26/2017 21:00	13	1	8	3	0	0	1	0	0	0	0	0	0	0	7.7%	0.0%
4/26/2017 21:15	15	0	7	5	0	0	0	0	0	3	0	0	0	0	0.0%	20.0%
4/26/2017 21:30	41	1	38	1	0	0	0	0	0	1	0	0	0	0	0.0%	2.4%
4/26/2017 21:45	22	0	11	7	0	0	0	0	0	4	0	0	0	0	0.0%	18.2%
4/26/2017 22:00	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 22:15	6	0	3	0	0	0	0	0	0	3	0	0	0	0	0.0%	50.0%
4/26/2017 22:30	15	1	10	3	0	0	0	0	0	1	0	0	0	0	0.0%	6.7%
4/26/2017 22:45	8	0	5	1	0	0	0	0	0	2	0	0	0	0	0.0%	25.0%
4/26/2017 23:00	8	0	3	3	0	0	0	0	0	2	0	0	0	0	0.0%	25.0%
4/26/2017 23:15	3	0	2	0	0	0	0	0	0	1	0	0	0	0	0.0%	33.3%
4/26/2017 23:30	5	0	4	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 23:45	7	1	5	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Day Totals	**2125**	**27**	**1113**	**552**	**36**	**14**	**37**	**1**	**15**	**318**	**2**	**5**	**0**	**5**	**4.1%**	**16.2%**

AM Peak Hr	**6:00 AM**
AM Peak Vol	**207**
AM PHF	**0.796**
PM Peak Hr	**3:00 PM**
PM Peak Vol	**180**

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

Client:	Wilson & Co	Site Ref:	1
File Number:	1703905	Direction:	SB
Route:	N THORNTON RD	Latitude:	32.87514
Location:	S of AZ-84	Longitude:	-111.77444

Date/Time	Total	cls01	cls02	cls03	cls04	cls05	cls06	cls07	cls08	cls09	cls10	cls11	cls12	cls13	pct SU	pct CB
4/27/2017 0:00	11	0	9	1	0	0	0	0	0	1	0	0	0	0	0.0%	9.1%
4/27/2017 0:15	5	0	4	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 0:30	5	1	3	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 0:45	4	0	2	2	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 1:00	7	0	4	1	0	0	0	0	0	2	0	0	0	0	0.0%	28.6%
4/27/2017 1:15	4	1	2	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 1:30	6	0	3	2	0	0	0	0	0	1	0	0	0	0	0.0%	16.7%
4/27/2017 1:45	7	0	5	0	0	0	0	0	0	2	0	0	0	0	0.0%	28.6%
4/27/2017 2:00	7	0	5	0	0	0	0	0	0	2	0	0	0	0	0.0%	28.6%
4/27/2017 2:15	5	0	4	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 2:30	5	0	3	1	0	0	0	0	0	1	0	0	0	0	0.0%	20.0%
4/27/2017 2:45	7	0	3	2	0	0	0	0	0	2	0	0	0	0	0.0%	28.6%
4/27/2017 3:00	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 3:15	7	0	2	2	0	0	0	0	0	3	0	0	0	0	0.0%	42.9%
4/27/2017 3:30	18	0	14	2	0	0	0	0	0	2	0	0	0	0	0.0%	11.1%
4/27/2017 3:45	28	0	19	4	0	0	0	0	0	5	0	0	0	0	0.0%	17.9%
4/27/2017 4:00	22	0	15	6	0	0	1	0	0	0	0	0	0	0	4.5%	0.0%
4/27/2017 4:15	20	1	11	8	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 4:30	19	0	5	7	0	0	0	0	0	6	0	0	0	1	0.0%	36.8%
4/27/2017 4:45	25	0	13	10	0	0	0	0	0	2	0	0	0	0	0.0%	8.0%
4/27/2017 5:00	11	0	2	6	0	0	0	0	0	3	0	0	0	0	0.0%	27.3%
4/27/2017 5:15	13	0	7	2	1	0	1	0	0	2	0	0	0	0	15.4%	15.4%
4/27/2017 5:30	26	0	20	6	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 5:45	30	2	18	3	2	0	0	0	0	5	0	0	0	0	6.7%	16.7%
4/27/2017 6:00	30	1	20	6	1	0	1	0	0	1	0	0	0	0	6.7%	3.3%
4/27/2017 6:15	36	1	18	9	2	0	1	1	1	3	0	0	0	0	11.1%	11.1%
4/27/2017 6:30	71	2	50	13	1	0	1	0	0	4	0	0	0	0	2.8%	5.6%
4/27/2017 6:45	71	0	51	15	2	0	0	0	2	1	0	0	0	0	2.8%	4.2%
4/27/2017 7:00	38	0	20	9	0	2	2	0	0	5	0	0	0	0	10.5%	13.2%
4/27/2017 7:15	24	0	18	3	0	0	1	0	0	2	0	0	0	0	4.2%	8.3%
4/27/2017 7:30	20	0	10	5	0	0	2	0	0	2	1	0	0	0	10.0%	15.0%
4/27/2017 7:45	33	1	17	7	3	0	1	0	0	4	0	0	0	0	12.1%	12.1%
4/27/2017 8:00	31	0	16	8	2	0	0	0	0	5	0	0	0	0	6.5%	16.1%
4/27/2017 8:15	32	0	17	11	1	0	1	0	0	2	0	0	0	0	6.3%	6.3%
4/27/2017 8:30	40	0	20	8	1	0	4	0	0	7	0	0	0	0	12.5%	17.5%
4/27/2017 8:45	30	0	12	9	0	0	1	0	1	7	0	0	0	0	3.3%	26.7%
4/27/2017 9:00	28	0	15	4	0	0	0	0	0	9	0	0	0	0	0.0%	32.1%
4/27/2017 9:15	35	1	14	2	2	2	4	0	0	10	0	0	0	0	22.9%	28.6%
4/27/2017 9:30	36	0	16	13	0	0	2	0	0	5	0	0	0	0	5.6%	13.9%
4/27/2017 9:45	25	1	15	7	0	0	0	0	1	1	0	0	0	0	0.0%	8.0%
4/27/2017 10:00	35	0	13	12	2	0	2	0	1	5	0	0	0	0	11.4%	17.1%
4/27/2017 10:15	23	0	11	7	1	0	3	0	0	1	0	0	0	0	17.4%	4.3%
4/27/2017 10:30	20	0	7	5	0	0	0	0	0	8	0	0	0	0	0.0%	40.0%
4/27/2017 10:45	30	0	16	7	0	1	0	0	0	5	1	0	0	0	3.3%	20.0%
4/27/2017 11:00	28	2	12	8	0	0	0	1	0	5	0	0	0	0	3.6%	17.9%
4/27/2017 11:15	30	0	12	11	0	1	3	0	1	2	0	0	0	0	13.3%	10.0%
4/27/2017 11:30	26	1	13	7	0	0	1	0	1	3	0	0	0	0	3.8%	15.4%
4/27/2017 11:45	39	1	15	15	0	0	4	0	2	2	0	0	0	0	10.3%	10.3%

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

Client:	Wilson & Co	Site Ref:	1
File Number:	1703905	Direction:	SB
Route:	N THORNTON RD	Latitude:	32.87514
Location:	S of AZ-84	Longitude:	-111.77444

Date/Time	Total	cls01	cls02	cls03	cls04	cls05	cls06	cls07	cls08	cls09	cls10	cls11	cls12	cls13	pct SU	pct CB
4/27/2017 12:00	41	1	18	9	1	2	1	0	1	8	0	0	0	0	9.8%	22.0%
4/27/2017 12:15	19	0	9	9	0	0	1	0	0	0	0	0	0	0	5.3%	0.0%
4/27/2017 12:30	19	0	10	4	0	1	0	0	0	4	0	0	0	0	5.3%	21.1%
4/27/2017 12:45	30	0	10	10	0	0	1	0	1	8	0	0	0	0	3.3%	30.0%
4/27/2017 13:00	34	1	12	8	1	1	0	0	1	8	1	0	0	1	5.9%	32.4%
4/27/2017 13:15	27	0	12	6	1	2	1	0	1	3	1	0	0	0	14.8%	18.5%
4/27/2017 13:30	21	0	11	6	0	0	0	0	0	4	0	0	0	0	0.0%	19.0%
4/27/2017 13:45	36	0	18	8	0	0	0	0	0	9	0	1	0	0	0.0%	27.8%
4/27/2017 14:00	45	0	24	10	1	0	0	0	1	9	0	0	0	0	2.2%	22.2%
4/27/2017 14:15	29	0	17	9	0	0	0	0	0	3	0	0	0	0	0.0%	10.3%
4/27/2017 14:30	37	0	20	12	0	0	0	0	1	4	0	0	0	0	0.0%	13.5%
4/27/2017 14:45	42	0	26	7	1	0	0	0	0	7	0	1	0	0	2.4%	19.0%
4/27/2017 15:00	44	0	23	15	1	1	0	0	0	4	0	0	0	0	4.5%	9.1%
4/27/2017 15:15	50	0	31	14	1	0	0	0	0	4	0	0	0	0	2.0%	8.0%
4/27/2017 15:30	51	0	30	13	1	0	1	0	0	6	0	0	0	0	3.9%	11.8%
4/27/2017 15:45	40	1	24	8	1	0	0	0	3	2	0	0	0	1	2.5%	15.0%
4/27/2017 16:00	31	1	20	7	0	0	0	0	0	3	0	0	0	0	0.0%	9.7%
4/27/2017 16:15	28	0	12	14	0	0	0	0	0	1	1	0	0	0	0.0%	7.1%
4/27/2017 16:30	35	0	23	7	1	0	0	0	0	3	0	0	0	1	2.9%	11.4%
4/27/2017 16:45	20	0	7	7	0	0	1	0	0	5	0	0	0	0	5.0%	25.0%
4/27/2017 17:00	22	0	12	6	0	0	0	0	0	4	0	0	0	0	0.0%	18.2%
4/27/2017 17:15	22	0	16	4	0	0	0	0	0	2	0	0	0	0	0.0%	9.1%
4/27/2017 17:30	21	0	16	3	0	0	0	0	0	2	0	0	0	0	0.0%	9.5%
4/27/2017 17:45	15	0	8	6	1	0	0	0	0	0	0	0	0	0	6.7%	0.0%
4/27/2017 18:00	21	1	9	7	0	1	0	0	0	3	0	0	0	0	4.8%	14.3%
4/27/2017 18:15	14	0	9	4	0	0	0	0	0	1	0	0	0	0	0.0%	7.1%
4/27/2017 18:30	17	0	11	2	0	0	0	0	0	4	0	0	0	0	0.0%	23.5%
4/27/2017 18:45	23	0	11	7	0	0	0	0	0	5	0	0	0	0	0.0%	21.7%
4/27/2017 19:00	8	0	2	4	0	0	0	0	0	1	0	0	0	1	0.0%	25.0%
4/27/2017 19:15	8	0	3	4	0	0	0	0	0	1	0	0	0	0	0.0%	12.5%
4/27/2017 19:30	18	1	8	4	0	0	0	0	1	4	0	0	0	0	0.0%	27.8%
4/27/2017 19:45	16	0	11	3	0	0	0	0	0	2	0	0	0	0	0.0%	12.5%
4/27/2017 20:00	13	0	2	6	0	0	0	0	0	5	0	0	0	0	0.0%	38.5%
4/27/2017 20:15	15	0	7	2	1	0	0	0	0	5	0	0	0	0	6.7%	33.3%
4/27/2017 20:30	11	2	5	2	0	0	0	0	0	2	0	0	0	0	0.0%	18.2%
4/27/2017 20:45	9	0	4	3	0	1	0	0	0	1	0	0	0	0	11.1%	11.1%
4/27/2017 21:00	14	0	8	2	0	0	0	0	0	4	0	0	0	0	0.0%	28.6%
4/27/2017 21:15	13	1	10	2	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 21:30	38	1	27	5	0	0	0	0	0	5	0	0	0	0	0.0%	13.2%
4/27/2017 21:45	20	0	17	1	0	0	0	0	0	2	0	0	0	0	0.0%	10.0%
4/27/2017 22:00	9	0	5	2	0	0	0	0	0	2	0	0	0	0	0.0%	22.2%
4/27/2017 22:15	7	0	4	3	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 22:30	21	0	15	3	0	0	0	0	0	3	0	0	0	0	0.0%	14.3%
4/27/2017 22:45	9	0	4	5	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 23:00	5	0	2	1	0	0	0	0	0	2	0	0	0	0	0.0%	40.0%
4/27/2017 23:15	3	0	2	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 23:30	6	0	4	0	0	0	0	0	0	2	0	0	0	0	0.0%	33.3%
4/27/2017 23:45	7	0	5	2	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Day Totals	**2192**	**26**	**1200**	**547**	**33**	**15**	**42**	**2**	**20**	**295**	**5**	**2**	**0**	**5**	**4.2%**	**14.9%**

AM Peak Hr	**6:15 AM**
AM Peak Vol	**216**
AM PHF	**0.761**
PM Peak Hr	**2:45 PM**
PM Peak Vol	**187**

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

Client: Wilson & Co
File Number: 1703906
Route: S THORNTON RD
Location: N of I-8

Site Ref: 2
Direction: NB
Latitude: 32.83447
Longitude: -111.77445

Date/Time	Total	cls01	cls02	cls03	cls04	cls05	cls06	cls07	cls08	cls09	cls10	cls11	cls12	cls13	pct SU	pct CB
4/26/2017 0:00	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0.0%	100.0%
4/26/2017 0:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--
4/26/2017 0:30	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0.0%	100.0%
4/26/2017 0:45	4	0	1	0	0	0	1	0	0	2	0	0	0	0	25.0%	50.0%
4/26/2017 1:00	3	0	0	1	0	0	0	0	0	2	0	0	0	0	0.0%	66.7%
4/26/2017 1:15	3	0	2	0	0	0	0	0	0	1	0	0	0	0	0.0%	33.3%
4/26/2017 1:30	3	0	1	1	0	0	0	0	0	1	0	0	0	0	0.0%	33.3%
4/26/2017 1:45	5	0	0	0	0	0	1	0	0	4	0	0	0	0	20.0%	80.0%
4/26/2017 2:00	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0.0%	100.0%
4/26/2017 2:15	4	0	1	0	0	0	0	0	0	3	0	0	0	0	0.0%	75.0%
4/26/2017 2:30	4	0	3	0	0	0	0	0	0	1	0	0	0	0	0.0%	25.0%
4/26/2017 2:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--
4/26/2017 3:00	3	0	0	1	0	0	0	0	0	2	0	0	0	0	0.0%	66.7%
4/26/2017 3:15	7	0	1	1	0	0	0	0	0	4	0	0	0	1	0.0%	71.4%
4/26/2017 3:30	3	1	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	33.3%
4/26/2017 3:45	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 4:00	6	0	3	2	0	0	0	0	0	1	0	0	0	0	0.0%	16.7%
4/26/2017 4:15	8	1	4	1	0	0	0	0	0	2	0	0	0	0	0.0%	25.0%
4/26/2017 4:30	6	0	2	3	0	0	0	0	0	1	0	0	0	0	0.0%	16.7%
4/26/2017 4:45	9	1	4	2	0	0	1	0	0	0	0	1	0	0	11.1%	11.1%
4/26/2017 5:00	12	1	8	2	0	0	0	0	0	1	0	0	0	0	0.0%	8.3%
4/26/2017 5:15	21	0	15	4	0	0	0	0	0	1	1	0	0	0	0.0%	9.5%
4/26/2017 5:30	27	0	13	10	0	0	1	0	0	3	0	0	0	0	3.7%	11.1%
4/26/2017 5:45	20	0	12	6	0	0	0	0	0	1	1	0	0	0	0.0%	10.0%
4/26/2017 6:00	22	0	11	4	1	0	0	0	0	6	0	0	0	0	4.5%	27.3%
4/26/2017 6:15	21	0	10	5	0	1	2	0	0	3	0	0	0	0	14.3%	14.3%
4/26/2017 6:30	28	0	15	10	1	0	0	0	0	2	0	0	0	0	3.6%	7.1%
4/26/2017 6:45	33	0	19	9	0	1	0	0	1	3	0	0	0	0	3.0%	12.1%
4/26/2017 7:00	14	1	8	2	0	0	1	0	1	1	0	0	0	0	7.1%	14.3%
4/26/2017 7:15	12	1	3	3	0	0	1	0	0	3	1	0	0	0	8.3%	33.3%
4/26/2017 7:30	28	0	10	13	0	1	0	0	0	3	1	0	0	0	3.6%	14.3%
4/26/2017 7:45	20	0	10	6	0	0	0	0	2	2	0	0	0	0	0.0%	20.0%
4/26/2017 8:00	19	0	8	5	1	0	1	0	0	4	0	0	0	0	10.5%	21.1%
4/26/2017 8:15	10	0	2	4	0	0	0	0	0	4	0	0	0	0	0.0%	40.0%
4/26/2017 8:30	18	0	9	3	0	0	0	0	0	5	0	1	0	0	0.0%	33.3%
4/26/2017 8:45	18	1	9	3	0	1	0	0	0	2	2	0	0	0	5.6%	22.2%
4/26/2017 9:00	19	0	5	5	0	0	0	1	0	7	0	1	0	0	5.3%	42.1%
4/26/2017 9:15	25	0	9	6	1	2	1	0	0	6	0	0	0	0	16.0%	24.0%
4/26/2017 9:30	11	0	5	1	0	0	0	0	0	5	0	0	0	0	0.0%	45.5%
4/26/2017 9:45	20	0	12	4	0	0	1	0	0	3	0	0	0	0	5.0%	15.0%
4/26/2017 10:00	11	0	5	1	0	0	0	0	0	5	0	0	0	0	0.0%	45.5%
4/26/2017 10:15	16	1	7	4	0	0	0	0	0	2	2	0	0	0	0.0%	25.0%
4/26/2017 10:30	13	0	6	3	0	0	1	0	1	2	0	0	0	0	7.7%	23.1%
4/26/2017 10:45	16	1	4	8	0	0	0	0	0	2	0	0	0	1	0.0%	18.8%
4/26/2017 11:00	10	0	5	4	0	0	0	0	0	1	0	0	0	0	0.0%	10.0%
4/26/2017 11:15	10	0	4	3	0	0	0	0	0	2	0	1	0	0	0.0%	30.0%
4/26/2017 11:30	15	0	6	3	0	0	0	0	1	3	1	1	0	0	0.0%	40.0%
4/26/2017 11:45	12	0	2	4	0	0	0	0	0	6	0	0	0	0	0.0%	50.0%

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

Client: Wilson & Co
File Number: 1703906
Route: S THORNTON RD
Location: N of I-8

Site Ref: 2
Direction: NB
Latitude: 32.83447
Longitude: -111.77445

Date/Time	Total	cls01	cls02	cls03	cls04	cls05	cls06	cls07	cls08	cls09	cls10	cls11	cls12	cls13	pct SU	pct CB
4/26/2017 12:00	17	0	9	5	0	1	0	0	0	2	0	0	0	0	5.9%	11.8%
4/26/2017 12:15	9	1	7	0	0	0	0	0	0	0	0	1	0	0	0.0%	11.1%
4/26/2017 12:30	15	0	9	3	0	0	0	0	0	2	0	0	0	1	0.0%	20.0%
4/26/2017 12:45	18	0	7	5	0	0	0	0	1	5	0	0	0	0	0.0%	33.3%
4/26/2017 13:00	14	1	6	2	0	0	0	0	1	3	1	0	0	0	0.0%	35.7%
4/26/2017 13:15	17	0	10	4	1	0	1	0	0	1	0	0	0	0	11.8%	5.9%
4/26/2017 13:30	20	0	7	3	0	0	0	0	2	8	0	0	0	0	0.0%	50.0%
4/26/2017 13:45	22	0	6	5	0	1	1	0	0	9	0	0	0	0	9.1%	40.9%
4/26/2017 14:00	18	0	11	2	1	1	0	0	0	2	0	0	0	1	11.1%	16.7%
4/26/2017 14:15	19	1	9	5	0	1	0	0	0	3	0	0	0	0	5.3%	15.8%
4/26/2017 14:30	26	0	11	3	2	0	1	0	1	7	1	0	0	0	11.5%	34.6%
4/26/2017 14:45	16	0	9	2	0	0	1	0	0	2	0	0	1	1	6.3%	25.0%
4/26/2017 15:00	17	0	11	4	0	0	0	0	0	2	0	0	0	0	0.0%	11.8%
4/26/2017 15:15	17	0	7	7	0	0	0	0	0	2	1	0	0	0	0.0%	17.6%
4/26/2017 15:30	13	0	3	6	1	0	1	0	0	2	0	0	0	0	15.4%	15.4%
4/26/2017 15:45	15	1	7	2	1	0	2	0	0	2	0	0	0	0	20.0%	13.3%
4/26/2017 16:00	21	0	10	4	0	0	0	0	1	6	0	0	0	0	0.0%	33.3%
4/26/2017 16:15	13	0	3	4	0	0	0	0	1	4	0	1	0	0	0.0%	46.2%
4/26/2017 16:30	11	0	7	1	1	0	1	0	0	1	0	0	0	0	18.2%	9.1%
4/26/2017 16:45	11	0	6	2	0	0	0	0	0	3	0	0	0	0	0.0%	27.3%
4/26/2017 17:00	8	2	4	2	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 17:15	16	1	9	1	1	2	0	0	0	2	0	0	0	0	18.8%	12.5%
4/26/2017 17:30	23	1	15	3	0	0	0	0	0	4	0	0	0	0	0.0%	17.4%
4/26/2017 17:45	8	0	5	1	0	0	0	0	0	2	0	0	0	0	0.0%	25.0%
4/26/2017 18:00	16	0	6	4	0	0	1	0	0	5	0	0	0	0	6.3%	31.3%
4/26/2017 18:15	20	0	11	2	0	0	0	0	0	7	0	0	0	0	0.0%	35.0%
4/26/2017 18:30	11	0	7	3	0	0	0	0	0	1	0	0	0	0	0.0%	9.1%
4/26/2017 18:45	7	0	2	2	0	0	1	0	0	2	0	0	0	0	14.3%	28.6%
4/26/2017 19:00	6	0	2	0	0	0	0	0	0	4	0	0	0	0	0.0%	66.7%
4/26/2017 19:15	9	1	7	0	0	0	0	0	0	1	0	0	0	0	0.0%	11.1%
4/26/2017 19:30	16	0	10	2	0	0	0	0	1	3	0	0	0	0	0.0%	25.0%
4/26/2017 19:45	9	0	6	3	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 20:00	12	0	4	5	0	1	0	0	0	2	0	0	0	0	8.3%	16.7%
4/26/2017 20:15	7	0	4	1	0	0	0	0	0	2	0	0	0	0	0.0%	28.6%
4/26/2017 20:30	2	0	0	1	0	0	0	0	0	0	0	0	1	0	0.0%	50.0%
4/26/2017 20:45	4	0	2	1	0	0	0	0	0	0	1	0	0	0	0.0%	25.0%
4/26/2017 21:00	7	0	3	1	0	0	0	0	0	3	0	0	0	0	0.0%	42.9%
4/26/2017 21:15	5	0	4	0	1	0	0	0	0	0	0	0	0	0	20.0%	0.0%
4/26/2017 21:30	11	0	6	4	0	0	0	0	1	0	0	0	0	0	0.0%	9.1%
4/26/2017 21:45	7	1	3	3	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 22:00	7	0	5	1	0	0	0	0	0	1	0	0	0	0	0.0%	14.3%
4/26/2017 22:15	9	0	6	1	0	0	0	0	0	2	0	0	0	0	0.0%	22.2%
4/26/2017 22:30	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 22:45	10	0	9	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 23:00	4	0	2	0	0	0	0	0	0	2	0	0	0	0	0.0%	50.0%
4/26/2017 23:15	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 23:30	2	0	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	50.0%
4/26/2017 23:45	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Day Totals	**1146**	**19**	**550**	**260**	**13**	**13**	**22**	**1**	**15**	**226**	**13**	**7**	**2**	**5**	**4.3%**	**23.4%**

AM Peak Hr	**6:00 AM**
AM Peak Vol	**104**
AM PHF	**0.788**
PM Peak Hr	**1:45 PM**
PM Peak Vol	**85**

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

Client: Wilson & Co
File Number: 1703906
Route: S THORNTON RD
Location: N of I-8

Site Ref: 2
Direction: NB
Latitude: 32.83447
Longitude: -111.77445

Date/Time	Total	cls01	cls02	cls03	cls04	cls05	cls06	cls07	cls08	cls09	cls10	cls11	cls12	cls13	pct SU	pct CB
4/27/2017 0:00	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 0:15	4	0	1	1	0	0	0	0	0	2	0	0	0	0	0.0%	50.0%
4/27/2017 0:30	3	0	1	0	0	0	0	0	0	1	1	0	0	0	0.0%	66.7%
4/27/2017 0:45	2	0	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	50.0%
4/27/2017 1:00	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 1:15	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 1:30	4	0	2	0	0	0	0	0	0	2	0	0	0	0	0.0%	50.0%
4/27/2017 1:45	3	0	1	0	0	0	0	0	0	2	0	0	0	0	0.0%	66.7%
4/27/2017 2:00	5	0	1	0	0	0	0	0	0	3	0	0	0	1	0.0%	80.0%
4/27/2017 2:15	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0.0%	100.0%
4/27/2017 2:30	6	0	1	0	0	0	0	0	0	5	0	0	0	0	0.0%	83.3%
4/27/2017 2:45	2	0	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	50.0%
4/27/2017 3:00	4	1	0	1	0	0	0	0	0	2	0	0	0	0	0.0%	50.0%
4/27/2017 3:15	5	0	3	0	0	0	0	0	0	2	0	0	0	0	0.0%	40.0%
4/27/2017 3:30	4	0	3	0	0	0	0	0	0	1	0	0	0	0	0.0%	25.0%
4/27/2017 3:45	4	1	2	0	0	0	0	0	0	1	0	0	0	0	0.0%	25.0%
4/27/2017 4:00	7	0	4	1	0	0	0	0	0	2	0	0	0	0	0.0%	28.6%
4/27/2017 4:15	8	0	5	2	0	0	0	0	0	1	0	0	0	0	0.0%	12.5%
4/27/2017 4:30	8	0	3	4	0	0	0	0	0	0	0	1	0	0	0.0%	12.5%
4/27/2017 4:45	11	1	4	3	0	0	0	0	0	1	1	1	0	0	0.0%	27.3%
4/27/2017 5:00	15	0	9	4	0	0	0	0	0	2	0	0	0	0	0.0%	13.3%
4/27/2017 5:15	19	1	12	3	0	0	1	0	0	2	0	0	0	0	5.3%	10.5%
4/27/2017 5:30	37	1	17	14	0	1	0	0	1	3	0	0	0	0	2.7%	10.8%
4/27/2017 5:45	22	0	17	2	0	0	0	0	0	3	0	0	0	0	0.0%	13.6%
4/27/2017 6:00	26	1	14	7	0	0	0	0	0	4	0	0	0	0	0.0%	15.4%
4/27/2017 6:15	26	0	11	8	1	0	0	0	0	5	1	0	0	0	3.8%	23.1%
4/27/2017 6:30	35	2	20	8	1	0	0	0	0	4	0	0	0	0	2.9%	11.4%
4/27/2017 6:45	44	0	25	11	0	0	1	0	0	5	1	0	0	1	2.3%	15.9%
4/27/2017 7:00	14	0	7	2	0	0	0	0	1	3	0	0	0	1	0.0%	35.7%
4/27/2017 7:15	30	0	15	6	0	0	0	0	0	7	2	0	0	0	0.0%	30.0%
4/27/2017 7:30	17	0	4	4	0	1	0	0	0	7	1	0	0	0	5.9%	47.1%
4/27/2017 7:45	23	0	7	8	1	0	0	0	0	7	0	0	0	0	4.3%	30.4%
4/27/2017 8:00	13	0	5	3	1	1	0	0	0	2	1	0	0	0	15.4%	23.1%
4/27/2017 8:15	15	0	7	6	0	0	0	0	0	2	0	0	0	0	0.0%	13.3%
4/27/2017 8:30	22	0	5	11	0	0	0	0	0	5	1	0	0	0	0.0%	27.3%
4/27/2017 8:45	17	1	8	2	0	0	1	0	0	5	0	0	0	0	5.9%	29.4%
4/27/2017 9:00	12	0	7	2	1	0	0	0	0	2	0	0	0	0	8.3%	16.7%
4/27/2017 9:15	13	0	6	3	0	0	0	0	0	4	0	0	0	0	0.0%	30.8%
4/27/2017 9:30	17	0	6	1	0	1	0	0	0	7	0	0	0	2	5.9%	52.9%
4/27/2017 9:45	13	0	2	6	0	1	0	0	1	3	0	0	0	0	7.7%	30.8%
4/27/2017 10:00	11	1	2	1	2	2	0	0	0	2	1	0	0	0	36.4%	27.3%
4/27/2017 10:15	13	0	8	2	1	0	0	0	0	2	0	0	0	0	7.7%	15.4%
4/27/2017 10:30	19	0	10	6	1	1	0	0	0	1	0	0	0	0	10.5%	5.3%
4/27/2017 10:45	17	0	6	4	0	0	1	1	0	5	0	0	0	0	11.8%	29.4%
4/27/2017 11:00	13	0	5	4	2	0	1	0	0	1	0	0	0	0	23.1%	7.7%
4/27/2017 11:15	6	0	1	3	0	0	0	0	0	0	1	1	0	0	0.0%	33.3%
4/27/2017 11:30	11	0	2	6	0	0	0	0	0	2	1	0	0	0	0.0%	27.3%
4/27/2017 11:45	19	0	8	5	0	0	1	0	0	4	0	0	0	1	5.3%	26.3%

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

Client: Wilson & Co
File Number: 1703906
Route: S THORNTON RD
Location: N of I-8

Site Ref: 2
Direction: NB
Latitude: 32.83447
Longitude: -111.77445

Date/Time	Total	cls01	cls02	cls03	cls04	cls05	cls06	cls07	cls08	cls09	cls10	cls11	cls12	cls13	pct SU	pct CB
4/27/2017 12:00	20	0	13	2	0	0	0	0	1	3	1	0	0	0	0.0%	25.0%
4/27/2017 12:15	13	0	9	1	0	0	0	0	1	2	0	0	0	0	0.0%	23.1%
4/27/2017 12:30	16	0	5	3	1	1	0	0	0	5	1	0	0	0	12.5%	37.5%
4/27/2017 12:45	18	0	10	3	0	0	0	0	0	5	0	0	0	0	0.0%	27.8%
4/27/2017 13:00	17	0	9	7	0	0	0	0	0	1	0	0	0	0	0.0%	5.9%
4/27/2017 13:15	15	0	7	2	1	0	0	0	0	5	0	0	0	0	6.7%	33.3%
4/27/2017 13:30	25	0	11	6	0	1	0	0	0	7	0	0	0	0	4.0%	28.0%
4/27/2017 13:45	25	0	14	5	0	0	0	0	2	3	0	0	0	1	0.0%	24.0%
4/27/2017 14:00	12	0	5	1	0	0	0	0	1	3	1	0	0	1	0.0%	50.0%
4/27/2017 14:15	21	1	9	3	0	0	1	0	1	4	1	1	0	0	4.8%	33.3%
4/27/2017 14:30	18	0	7	6	2	0	0	0	1	1	0	0	0	1	11.1%	16.7%
4/27/2017 14:45	15	0	9	1	2	0	0	0	0	3	0	0	0	0	13.3%	20.0%
4/27/2017 15:00	19	0	8	4	0	2	0	0	1	3	1	0	0	0	10.5%	26.3%
4/27/2017 15:15	13	0	10	1	0	0	0	0	0	2	0	0	0	0	0.0%	15.4%
4/27/2017 15:30	23	0	10	6	0	0	1	0	1	4	1	0	0	0	4.3%	26.1%
4/27/2017 15:45	15	0	9	5	1	0	0	0	0	0	0	0	0	0	6.7%	0.0%
4/27/2017 16:00	14	0	8	3	1	1	0	0	0	1	0	0	0	0	14.3%	7.1%
4/27/2017 16:15	8	0	5	2	0	0	0	0	0	1	0	0	0	0	0.0%	12.5%
4/27/2017 16:30	8	0	4	2	0	0	0	0	1	1	0	0	0	0	0.0%	25.0%
4/27/2017 16:45	19	0	12	4	0	0	0	0	0	3	0	0	0	0	0.0%	15.8%
4/27/2017 17:00	14	0	8	1	1	0	0	0	1	3	0	0	0	0	7.1%	28.6%
4/27/2017 17:15	16	0	9	2	2	0	0	0	0	2	0	0	0	1	12.5%	18.8%
4/27/2017 17:30	15	1	8	1	0	0	1	0	0	3	1	0	0	0	6.7%	26.7%
4/27/2017 17:45	19	0	10	2	0	0	2	0	0	4	1	0	0	0	10.5%	26.3%
4/27/2017 18:00	17	0	7	2	0	0	0	0	0	7	1	0	0	0	0.0%	47.1%
4/27/2017 18:15	9	0	4	3	0	0	0	0	0	2	0	0	0	0	0.0%	22.2%
4/27/2017 18:30	12	0	6	1	0	0	0	0	0	5	0	0	0	0	0.0%	41.7%
4/27/2017 18:45	7	0	3	1	0	0	0	0	0	3	0	0	0	0	0.0%	42.9%
4/27/2017 19:00	7	0	5	0	0	0	0	0	1	1	0	0	0	0	0.0%	28.6%
4/27/2017 19:15	11	1	6	2	0	0	0	0	0	2	0	0	0	0	0.0%	18.2%
4/27/2017 19:30	7	1	4	1	0	0	0	0	0	1	0	0	0	0	0.0%	14.3%
4/27/2017 19:45	12	0	7	0	0	0	0	0	0	3	2	0	0	0	0.0%	41.7%
4/27/2017 20:00	5	0	4	0	0	0	0	0	0	1	0	0	0	0	0.0%	20.0%
4/27/2017 20:15	12	0	7	3	0	0	0	0	1	1	0	0	0	0	0.0%	16.7%
4/27/2017 20:30	7	0	4	0	0	0	0	0	0	2	0	0	1	0	0.0%	42.9%
4/27/2017 20:45	7	0	4	1	0	0	0	0	0	2	0	0	0	0	0.0%	28.6%
4/27/2017 21:00	14	0	7	4	0	0	0	0	1	2	0	0	0	0	0.0%	21.4%
4/27/2017 21:15	10	0	6	1	0	0	1	0	0	2	0	0	0	0	10.0%	20.0%
4/27/2017 21:30	7	0	2	3	0	0	0	0	0	1	0	0	0	1	0.0%	28.6%
4/27/2017 21:45	12	1	7	2	0	0	0	0	0	0	2	0	0	0	0.0%	16.7%
4/27/2017 22:00	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 22:15	8	0	6	2	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 22:30	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 22:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--
4/27/2017 23:00	4	0	3	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 23:15	4	0	1	1	0	0	0	0	0	1	1	0	0	0	0.0%	50.0%
4/27/2017 23:30	7	0	4	1	0	0	0	0	0	2	0	0	0	0	0.0%	28.6%
4/27/2017 23:45	3	0	2	0	0	0	0	0	0	1	0	0	0	0	0.0%	33.3%
Day Totals	**1217**	**15**	**603**	**256**	**22**	**13**	**12**	**1**	**17**	**236**	**26**	**4**	**1**	**11**	**3.9%**	**24.2%**

AM Peak Hr	**6:00 AM**
AM Peak Vol	**131**
AM PHF	**0.744**
PM Peak Hr	**1:30 PM**
PM Peak Vol	**83**

Traffic Research & Analysis, Inc.
3844 East Indian School Road
Phoenix, AZ 85018
(602) 840-1500

Client: Wilson & Co
File Number: 1703907
Route: S THORNTON RD
Location: N of I-8

Site Ref: 2
Direction: SB
Latitude: 32.83447
Longitude: -111.77445

Date/Time	Total	cls01	cls02	cls03	cls04	cls05	cls06	cls07	cls08	cls09	cls10	cls11	cls12	cls13	pct SU	pct CB
4/26/2017 0:00	7	0	3	3	0	0	0	0	0	1	0	0	0	0	0.0%	14.3%
4/26/2017 0:15	3	0	1	0	0	0	0	0	0	2	0	0	0	0	0.0%	66.7%
4/26/2017 0:30	3	0	1	1	0	0	0	0	0	1	0	0	0	0	0.0%	33.3%
4/26/2017 0:45	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 1:00	2	0	0	1	0	0	0	0	0	1	0	0	0	0	0.0%	50.0%
4/26/2017 1:15	2	0	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	50.0%
4/26/2017 1:30	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 1:45	2	0	1	0	0	0	1	0	0	0	0	0	0	0	50.0%	0.0%
4/26/2017 2:00	4	0	3	0	0	0	0	0	0	1	0	0	0	0	0.0%	25.0%
4/26/2017 2:15	4	0	3	0	0	0	0	0	0	1	0	0	0	0	0.0%	25.0%
4/26/2017 2:30	4	0	1	1	0	0	0	0	0	2	0	0	0	0	0.0%	50.0%
4/26/2017 2:45	2	0	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	50.0%
4/26/2017 3:00	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 3:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--
4/26/2017 3:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--
4/26/2017 3:45	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0.0%	100.0%
4/26/2017 4:00	5	0	2	2	0	0	0	0	0	1	0	0	0	0	0.0%	20.0%
4/26/2017 4:15	10	0	5	1	0	0	1	0	0	3	0	0	0	0	10.0%	30.0%
4/26/2017 4:30	5	0	1	2	0	0	0	0	0	2	0	0	0	0	0.0%	40.0%
4/26/2017 4:45	6	0	2	1	0	0	0	0	0	3	0	0	0	0	0.0%	50.0%
4/26/2017 5:00	9	0	1	5	0	0	0	0	0	3	0	0	0	0	0.0%	33.3%
4/26/2017 5:15	18	2	8	2	0	3	0	0	0	2	1	0	0	0	16.7%	16.7%
4/26/2017 5:30	7	0	1	1	0	1	0	0	0	4	0	0	0	0	14.3%	57.1%
4/26/2017 5:45	12	0	4	2	3	0	0	0	0	3	0	0	0	0	25.0%	25.0%
4/26/2017 6:00	14	1	7	4	0	1	0	0	0	1	0	0	0	0	7.1%	7.1%
4/26/2017 6:15	10	0	4	4	0	0	0	0	0	2	0	0	0	0	0.0%	20.0%
4/26/2017 6:30	16	0	9	4	0	0	0	0	0	3	0	0	0	0	0.0%	18.8%
4/26/2017 6:45	17	0	5	6	1	0	1	0	0	4	0	0	0	0	11.8%	23.5%
4/26/2017 7:00	19	0	12	3	0	0	0	0	0	3	0	1	0	0	0.0%	21.1%
4/26/2017 7:15	18	1	8	4	1	1	0	0	0	2	0	0	0	1	11.1%	16.7%
4/26/2017 7:30	17	0	8	5	0	0	0	0	0	4	0	0	0	0	0.0%	23.5%
4/26/2017 7:45	17	0	3	5	2	0	0	0	0	7	0	0	0	0	11.8%	41.2%
4/26/2017 8:00	26	1	10	2	0	0	0	0	0	10	2	1	0	0	0.0%	50.0%
4/26/2017 8:15	19	1	5	4	1	0	0	0	0	8	0	0	0	0	5.3%	42.1%
4/26/2017 8:30	12	0	4	3	0	0	0	0	0	5	0	0	0	0	0.0%	41.7%
4/26/2017 8:45	20	0	7	4	1	1	0	0	0	6	0	0	0	1	10.0%	35.0%
4/26/2017 9:00	15	0	5	4	0	0	0	0	0	6	0	0	0	0	0.0%	40.0%
4/26/2017 9:15	15	1	6	3	0	0	0	0	0	5	0	0	0	0	0.0%	33.3%
4/26/2017 9:30	17	0	5	1	1	0	0	0	1	9	0	0	0	0	5.9%	58.8%
4/26/2017 9:45	20	1	5	3	2	1	0	0	0	8	0	0	0	0	15.0%	40.0%
4/26/2017 10:00	19	0	7	6	0	0	0	0	0	4	0	2	0	0	0.0%	31.6%
4/26/2017 10:15	16	0	4	6	0	0	0	1	0	4	1	0	0	0	6.3%	31.3%
4/26/2017 10:30	17	0	1	8	1	1	0	0	0	6	0	0	0	0	11.8%	35.3%
4/26/2017 10:45	17	0	5	6	1	0	1	0	0	3	1	0	0	0	11.8%	23.5%
4/26/2017 11:00	15	0	3	6	1	0	0	0	0	5	0	0	0	0	6.7%	33.3%
4/26/2017 11:15	16	0	4	2	1	0	0	0	1	7	1	0	0	0	6.3%	56.3%
4/26/2017 11:30	9	0	1	5	0	0	0	0	0	0	2	1	0	0	0.0%	33.3%
4/26/2017 11:45	11	0	3	4	1	0	0	0	0	3	0	0	0	0	9.1%	27.3%

Traffic Research & Analysis, Inc.
3844 East Indian School Road
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Client: Wilson & Co
File Number: 1703907
Route: S THORNTON RD
Location: N of I-8

Site Ref: 2
Direction: SB
Latitude: 32.83447
Longitude: -111.77445

Date/Time	Total	cls01	cls02	cls03	cls04	cls05	cls06	cls07	cls08	cls09	cls10	cls11	cls12	cls13	pct SU	pct CB
4/26/2017 12:00	24	0	11	3	0	0	1	0	0	7	1	1	0	0	4.2%	37.5%
4/26/2017 12:15	20	0	6	8	1	1	0	0	0	3	1	0	0	0	10.0%	20.0%
4/26/2017 12:30	12	0	1	5	0	0	0	0	1	5	0	0	0	0	0.0%	50.0%
4/26/2017 12:45	6	0	1	0	0	0	0	0	1	4	0	0	0	0	0.0%	83.3%
4/26/2017 13:00	18	0	7	8	0	0	0	0	1	1	0	1	0	0	0.0%	16.7%
4/26/2017 13:15	16	1	2	11	0	0	0	0	0	2	0	0	0	0	0.0%	12.5%
4/26/2017 13:30	21	1	11	4	0	0	0	0	0	5	0	0	0	0	0.0%	23.8%
4/26/2017 13:45	14	0	6	5	1	0	0	0	0	2	0	0	0	0	7.1%	14.3%
4/26/2017 14:00	19	2	4	5	0	0	0	0	0	7	1	0	0	0	0.0%	42.1%
4/26/2017 14:15	14	0	8	4	0	0	1	0	0	1	0	0	0	0	7.1%	7.1%
4/26/2017 14:30	20	0	7	9	0	0	0	0	1	3	0	0	0	0	0.0%	20.0%
4/26/2017 14:45	18	1	7	5	0	0	0	0	0	5	0	0	0	0	0.0%	27.8%
4/26/2017 15:00	16	1	5	8	0	0	1	0	0	1	0	0	0	0	6.3%	6.3%
4/26/2017 15:15	20	0	11	6	0	0	0	0	0	3	0	0	0	0	0.0%	15.0%
4/26/2017 15:30	23	1	13	8	0	0	0	0	0	0	1	0	0	0	0.0%	4.3%
4/26/2017 15:45	24	0	15	8	1	0	0	0	0	0	0	0	0	0	4.2%	0.0%
4/26/2017 16:00	37	0	21	12	0	0	0	0	0	2	0	1	1	0	0.0%	10.8%
4/26/2017 16:15	17	0	6	4	0	0	0	0	0	6	1	0	0	0	0.0%	41.2%
4/26/2017 16:30	13	1	3	4	1	0	0	0	1	2	1	0	0	0	7.7%	30.8%
4/26/2017 16:45	18	0	8	4	0	0	0	0	1	3	2	0	0	0	0.0%	33.3%
4/26/2017 17:00	18	0	8	5	0	0	0	0	0	5	0	0	0	0	0.0%	27.8%
4/26/2017 17:15	19	0	10	5	0	0	0	0	0	4	0	0	0	0	0.0%	21.1%
4/26/2017 17:30	7	0	5	2	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 17:45	22	1	11	7	0	0	0	0	0	3	0	0	0	0	0.0%	13.6%
4/26/2017 18:00	15	0	8	5	0	1	0	0	0	1	0	0	0	0	6.7%	6.7%
4/26/2017 18:15	11	0	6	4	0	0	0	0	0	1	0	0	0	0	0.0%	9.1%
4/26/2017 18:30	22	0	9	11	0	0	0	0	0	2	0	0	0	0	0.0%	9.1%
4/26/2017 18:45	13	1	4	5	0	0	0	0	0	3	0	0	0	0	0.0%	23.1%
4/26/2017 19:00	9	0	1	4	0	0	1	0	0	3	0	0	0	0	11.1%	33.3%
4/26/2017 19:15	12	0	5	3	0	0	0	0	0	4	0	0	0	0	0.0%	33.3%
4/26/2017 19:30	13	0	3	3	0	0	0	0	0	7	0	0	0	0	0.0%	53.8%
4/26/2017 19:45	13	0	7	1	0	0	0	0	0	5	0	0	0	0	0.0%	38.5%
4/26/2017 20:00	12	0	7	4	0	0	0	0	0	1	0	0	0	0	0.0%	8.3%
4/26/2017 20:15	12	0	7	3	1	0	0	0	0	1	0	0	0	0	8.3%	8.3%
4/26/2017 20:30	5	0	3	2	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 20:45	8	0	1	3	0	0	1	0	0	3	0	0	0	0	12.5%	37.5%
4/26/2017 21:00	13	0	1	3	0	0	0	0	1	8	0	0	0	0	0.0%	69.2%
4/26/2017 21:15	5	0	3	2	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 21:30	6	0	5	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 21:45	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/26/2017 22:00	7	0	3	1	0	0	0	0	0	3	0	0	0	0	0.0%	42.9%
4/26/2017 22:15	3	0	1	0	0	0	0	0	0	2	0	0	0	0	0.0%	66.7%
4/26/2017 22:30	6	0	4	1	0	0	0	0	0	1	0	0	0	0	0.0%	16.7%
4/26/2017 22:45	5	0	3	1	0	1	0	0	0	0	0	0	0	0	20.0%	0.0%
4/26/2017 23:00	6	0	3	2	0	0	0	0	0	1	0	0	0	0	0.0%	16.7%
4/26/2017 23:15	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0.0%	100.0%
4/26/2017 23:30	3	0	0	2	0	0	0	0	0	1	0	0	0	0	0.0%	33.3%
4/26/2017 23:45	8	0	4	3	0	0	0	0	0	1	0	0	0	0	0.0%	12.5%
Day Totals	**1151**	**18**	**449**	**332**	**22**	**12**	**9**	**1**	**9**	**272**	**16**	**8**	**1**	**2**	**3.8%**	**26.8%**

AM Peak Hr	**7:30 AM**
AM Peak Vol	**79**
AM PHF	**0.760**
PM Peak Hr	**3:15 PM**
PM Peak Vol	**104**

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Site Ref: 2
Direction: SB
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Longitude: -111.77445

Date/Time	Total	cls01	cls02	cls03	cls04	cls05	cls06	cls07	cls08	cls09	cls10	cls11	cls12	cls13	pct SU	pct CB
4/27/2017 0:00	8	0	6	2	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 0:15	5	0	2	1	0	0	0	0	0	2	0	0	0	0	0.0%	40.0%
4/27/2017 0:30	2	0	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	50.0%
4/27/2017 0:45	5	0	1	1	0	0	0	0	0	3	0	0	0	0	0.0%	60.0%
4/27/2017 1:00	3	0	1	1	0	0	0	0	0	1	0	0	0	0	0.0%	33.3%
4/27/2017 1:15	3	0	2	0	0	0	0	0	0	1	0	0	0	0	0.0%	33.3%
4/27/2017 1:30	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 1:45	6	0	5	0	0	0	0	0	0	1	0	0	0	0	0.0%	16.7%
4/27/2017 2:00	2	0	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	50.0%
4/27/2017 2:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--
4/27/2017 2:30	2	0	1	0	0	0	1	0	0	0	0	0	0	0	50.0%	0.0%
4/27/2017 2:45	2	0	0	1	0	0	0	0	0	1	0	0	0	0	0.0%	50.0%
4/27/2017 3:00	2	0	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	50.0%
4/27/2017 3:15	2	0	1	0	0	0	1	0	0	0	0	0	0	0	50.0%	0.0%
4/27/2017 3:30	3	0	0	1	0	0	0	0	0	2	0	0	0	0	0.0%	66.7%
4/27/2017 3:45	3	0	1	0	0	0	0	0	0	2	0	0	0	0	0.0%	66.7%
4/27/2017 4:00	5	0	1	1	0	0	0	0	0	2	1	0	0	0	0.0%	60.0%
4/27/2017 4:15	2	0	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	50.0%
4/27/2017 4:30	8	0	2	3	0	0	0	0	0	3	0	0	0	0	0.0%	37.5%
4/27/2017 4:45	9	0	4	3	0	0	0	0	0	2	0	0	0	0	0.0%	22.2%
4/27/2017 5:00	7	0	0	5	0	0	0	0	0	2	0	0	0	0	0.0%	28.6%
4/27/2017 5:15	6	0	3	2	0	0	0	0	0	1	0	0	0	0	0.0%	16.7%
4/27/2017 5:30	15	0	8	4	0	0	0	0	0	2	1	0	0	0	0.0%	20.0%
4/27/2017 5:45	12	0	4	1	1	0	0	0	0	5	0	0	0	1	8.3%	50.0%
4/27/2017 6:00	18	1	9	3	1	0	0	0	0	4	0	0	0	0	5.6%	22.2%
4/27/2017 6:15	18	1	7	3	1	0	1	0	0	4	1	0	0	0	11.1%	27.8%
4/27/2017 6:30	24	1	14	6	0	0	1	0	0	2	0	0	0	0	4.2%	8.3%
4/27/2017 6:45	22	0	10	7	1	0	0	0	1	1	0	1	0	1	4.5%	18.2%
4/27/2017 7:00	24	0	10	8	0	2	0	0	1	3	0	0	0	0	8.3%	16.7%
4/27/2017 7:15	20	1	11	5	0	1	0	0	0	2	0	0	0	0	5.0%	10.0%
4/27/2017 7:30	14	0	5	3	1	0	0	0	0	4	1	0	0	0	7.1%	35.7%
4/27/2017 7:45	18	1	6	3	3	0	0	0	0	3	2	0	0	0	16.7%	27.8%
4/27/2017 8:00	13	0	5	3	2	0	0	0	0	2	1	0	0	0	15.4%	23.1%
4/27/2017 8:15	14	0	7	4	1	0	0	0	0	2	0	0	0	0	7.1%	14.3%
4/27/2017 8:30	20	0	7	5	1	1	0	0	0	6	0	0	0	0	10.0%	30.0%
4/27/2017 8:45	20	0	5	6	0	0	0	0	0	8	1	0	0	0	0.0%	45.0%
4/27/2017 9:00	11	0	6	1	0	1	0	0	0	2	0	0	1	0	9.1%	27.3%
4/27/2017 9:15	17	0	2	2	1	0	0	0	0	9	2	1	0	0	5.9%	70.6%
4/27/2017 9:30	10	0	4	2	1	0	0	0	0	2	0	1	0	0	10.0%	30.0%
4/27/2017 9:45	19	0	3	6	0	0	0	0	0	8	1	0	0	1	0.0%	52.6%
4/27/2017 10:00	14	0	6	1	1	0	0	1	0	4	0	0	0	1	14.3%	35.7%
4/27/2017 10:15	12	0	2	6	0	0	1	0	0	3	0	0	0	0	8.3%	25.0%
4/27/2017 10:30	20	0	7	5	1	1	0	0	0	6	0	0	0	0	10.0%	30.0%
4/27/2017 10:45	8	0	3	1	0	1	0	0	0	3	0	0	0	0	12.5%	37.5%
4/27/2017 11:00	12	1	4	3	0	0	0	0	0	4	0	0	0	0	0.0%	33.3%
4/27/2017 11:15	12	0	2	4	0	0	0	0	0	4	1	1	0	0	0.0%	50.0%
4/27/2017 11:30	15	0	5	5	1	0	0	0	0	3	1	0	0	0	6.7%	26.7%
4/27/2017 11:45	22	1	7	5	0	0	1	0	1	6	1	0	0	0	4.5%	36.4%

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Date/Time	Total	cls01	cls02	cls03	cls04	cls05	cls06	cls07	cls08	cls09	cls10	cls11	cls12	cls13	pct SU	pct CB
4/27/2017 12:00	15	0	3	6	1	0	0	0	0	5	0	0	0	0	6.7%	33.3%
4/27/2017 12:15	14	0	8	3	0	1	0	0	0	1	1	0	0	0	7.1%	14.3%
4/27/2017 12:30	9	0	5	3	0	0	0	0	0	0	0	1	0	0	0.0%	11.1%
4/27/2017 12:45	17	0	4	7	0	0	0	0	0	5	0	1	0	0	0.0%	35.3%
4/27/2017 13:00	13	0	3	2	2	1	0	0	0	2	3	0	0	0	23.1%	38.5%
4/27/2017 13:15	11	0	5	5	0	0	0	0	0	1	0	0	0	0	0.0%	9.1%
4/27/2017 13:30	13	0	5	5	0	0	0	0	0	2	1	0	0	0	0.0%	23.1%
4/27/2017 13:45	21	0	8	6	0	0	1	0	0	5	0	1	0	0	4.8%	28.6%
4/27/2017 14:00	23	0	10	6	0	0	0	0	0	5	2	0	0	0	0.0%	30.4%
4/27/2017 14:15	19	0	10	8	0	0	0	0	0	1	0	0	0	0	0.0%	5.3%
4/27/2017 14:30	15	0	5	7	0	0	0	0	0	3	0	0	0	0	0.0%	20.0%
4/27/2017 14:45	18	0	7	4	1	0	0	0	0	5	0	1	0	0	5.6%	33.3%
4/27/2017 15:00	13	0	9	3	0	0	0	0	0	1	0	0	0	0	0.0%	7.7%
4/27/2017 15:15	17	0	11	4	0	0	0	0	0	2	0	0	0	0	0.0%	11.8%
4/27/2017 15:30	28	1	15	8	0	0	0	0	0	2	1	1	0	0	0.0%	14.3%
4/27/2017 15:45	26	0	12	7	0	0	0	0	2	3	2	0	0	0	0.0%	26.9%
4/27/2017 16:00	33	0	16	9	1	0	0	0	0	5	2	0	0	0	3.0%	21.2%
4/27/2017 16:15	24	0	13	8	0	0	0	0	0	3	0	0	0	0	0.0%	12.5%
4/27/2017 16:30	22	0	9	10	0	0	0	0	0	3	0	0	0	0	0.0%	13.6%
4/27/2017 16:45	15	0	5	6	0	0	1	0	0	2	1	0	0	0	6.7%	20.0%
4/27/2017 17:00	16	0	8	4	0	0	0	0	0	2	1	0	0	1	0.0%	25.0%
4/27/2017 17:15	13	0	7	2	0	0	0	0	0	4	0	0	0	0	0.0%	30.8%
4/27/2017 17:30	19	0	16	2	0	0	0	0	0	1	0	0	0	0	0.0%	5.3%
4/27/2017 17:45	16	0	5	6	0	0	0	0	0	5	0	0	0	0	0.0%	31.3%
4/27/2017 18:00	21	1	9	4	0	0	0	0	0	7	0	0	0	0	0.0%	33.3%
4/27/2017 18:15	10	0	5	4	0	0	0	0	0	1	0	0	0	0	0.0%	10.0%
4/27/2017 18:30	8	0	5	0	0	0	0	0	0	3	0	0	0	0	0.0%	37.5%
4/27/2017 18:45	12	0	7	5	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 19:00	9	0	1	4	0	0	0	0	0	2	2	0	0	0	0.0%	44.4%
4/27/2017 19:15	6	0	2	2	0	0	0	0	1	1	0	0	0	0	0.0%	33.3%
4/27/2017 19:30	10	0	3	3	0	0	0	0	1	3	0	0	0	0	0.0%	40.0%
4/27/2017 19:45	9	0	5	4	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 20:00	5	0	1	0	0	0	0	0	0	4	0	0	0	0	0.0%	80.0%
4/27/2017 20:15	12	0	4	5	1	0	0	0	0	2	0	0	0	0	8.3%	16.7%
4/27/2017 20:30	3	0	2	0	0	0	0	0	0	1	0	0	0	0	0.0%	33.3%
4/27/2017 20:45	6	1	1	1	0	1	0	0	1	1	0	0	0	0	16.7%	33.3%
4/27/2017 21:00	9	0	6	0	0	0	0	0	0	3	0	0	0	0	0.0%	33.3%
4/27/2017 21:15	6	0	3	2	0	0	0	0	0	1	0	0	0	0	0.0%	16.7%
4/27/2017 21:30	7	0	4	3	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 21:45	10	0	6	3	0	0	0	0	0	1	0	0	0	0	0.0%	10.0%
4/27/2017 22:00	4	0	1	1	0	0	0	0	0	2	0	0	0	0	0.0%	50.0%
4/27/2017 22:15	6	0	1	1	0	0	0	0	0	4	0	0	0	0	0.0%	66.7%
4/27/2017 22:30	5	0	3	2	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 22:45	7	0	2	2	1	0	0	0	0	2	0	0	0	0	14.3%	28.6%
4/27/2017 23:00	5	0	2	3	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 23:15	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
4/27/2017 23:30	5	0	2	0	0	0	0	0	0	3	0	0	0	0	0.0%	60.0%
4/27/2017 23:45	4	0	1	2	0	0	0	0	0	1	0	0	0	0	0.0%	25.0%
Day Totals	**1121**	**10**	**469**	**307**	**24**	**10**	**8**	**1**	**8**	**239**	**30**	**9**	**1**	**5**	**3.8%**	**26.0%**

AM Peak Hr	**6:30 AM**
AM Peak Vol	**90**
AM PHF	**0.938**
PM Peak Hr	**3:30 PM**
PM Peak Vol	**111**

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Wednesday, December 03, 2014 & Thursday, December 04, 2014 **City:** Casa Grande **Project#** 14-1351-012

Location : Selma Hwy East of SR-84

2-DAY AVERAGE

AM Period	NB		SB		EB		WB			PM Period	NB		SB		EB		WB		
00:00	0		0		1		0			12:00	0		0		15		16		
00:15	0		0		1		0			12:15	0		0		14		13		
00:30	0		0		0		1			12:30	0		0		17		10		
00:45	0	0	0	0	0	2	1	1	3	12:45	0	0	0	0	17	62	11	49	111
01:00	0		0		0		1			13:00	0		0		16		12		
01:15	0		0		0		1			13:15	0		0		18		16		
01:30	0		0		0		1			13:30	0		0		22		19		
01:45	0	0	0	0	0	0	1	3	3	13:45	0	0	0	0	21	77	16	62	139
02:00	0		0		1		0			14:00	0		0		14		17		
02:15	0		0		1		0			14:15	0		0		19		22		
02:30	0		0		1		0			14:30	0		0		15		23		
02:45	0	0	0	0	0	2	0	0	2	14:45	0	0	0	0	12	59	23	83	142
03:00	0		0		0		1			15:00	0		0		16		23		
03:15	0		0		1		2			15:15	0		0		20		19		
03:30	0		0		1		2			15:30	0		0		19		24		
03:45	0	0	0	0	2	3	2	6	9	15:45	0	0	0	0	22	76	25	91	167
04:00	0		0		1		1			16:00	0		0		21		29		
04:15	0		0		3		1			16:15	0		0		14		26		
04:30	0		0		2		3			16:30	0		0		19		25		
04:45	0	0	0	0	2	6	3	8	14	16:45	0	0	0	0	13	67	17	96	163
05:00	0		0		4		3			17:00	0		0		17		16		
05:15	0		0		2		3			17:15	0		0		17		12		
05:30	0		0		7		2			17:30	0		0		15		11		
05:45	0	0	0	0	7	18	5	12	30	17:45	0	0	0	0	13	60	12	51	111
06:00	0		0		10		4			18:00	0		0		15		15		
06:15	0		0		13		6			18:15	0		0		14		14		
06:30	0		0		17		11			18:30	0		0		15		8		
06:45	0	0	0	0	21	61	11	31	91	18:45	0	0	0	0	13	56	8	44	99
07:00	0		0		21		14			19:00	0		0		14		10		
07:15	0		0		15		15			19:15	0		0		13		10		
07:30	0		0		11		20			19:30	0		0		9		11		
07:45	0	0	0	0	9	56	26	74	130	19:45	0	0	0	0	6	42	8	38	79
08:00	0		0		10		21			20:00	0		0		7		7		
08:15	0		0		12		14			20:15	0		0		11		4		
08:30	0		0		9		19			20:30	0		0		8		7		
08:45	0	0	0	0	12	42	13	67	109	20:45	0	0	0	0	7	32	4	20	52
09:00	0		0		7		15			21:00	0		0		4		3		
09:15	0		0		8		12			21:15	0		0		5		2		
09:30	0		0		9		13			21:30	0		0		3		3		
09:45	0	0	0	0	9	33	13	52	84	21:45	0	0	0	0	4	15	1	8	23
10:00	0		0		8		14			22:00	0		0		2		2		
10:15	0		0		9		8			22:15	0		0		3		1		
10:30	0		0		8		13			22:30	0		0		2		4		
10:45	0	0	0	0	4	28	15	49	77	22:45	0	0	0	0	2	8	2	8	16
11:00	0		0		8		14			23:00	0		0		3		1		
11:15	0		0		5		12			23:15	0		0		1		1		
11:30	0		0		9		9			23:30	0		0		1		1		
11:45	0	0	0	0	14	34	7	42	76	23:45	0	0	0	0	2	6	1	4	10
Total Vol.						284		343	**627**							558		552	**1109**

GPS Coordinates: 0

				Daily Totals		
			NB	SB		**Combined**
				841	895	**1736**

	AM			PM		
Split %	45.3%	54.7%	**36.1%**	50.3%	49.7%	**63.9%**
Peak Hour	06:30	07:15	**07:00**	15:15	15:45	**15:45**
Volume	74	82	**130**	81	104	**180**
P.H.F.	0.88	0.78	**0.93**	0.92	0.91	**0.91**

ESAL COMPUTATIONS

Project: Thorton Road Widening **Date:** 6/12/2017

Project No.: 2127JY002

South AZ-84 Traffic Count Station

ADT initial =	4300
ADT final =	10500
ADT average =	7400
Directional Distribution Factor =	0.5
Number of Lanes =	2
Lane Factor =	0.9
Design Life (years) =	20

Clear Values

Compute ADT average

Total Vehicles Design Lane = 24,309,000

Vehicle Type	4/26/2017 NBL	4/26/2017 SBL	4/27/2017 NBL	4/27/2017 SBL	Total	Daily Avrg	Total Vehicles Design Lane	Percent Traffic	Load Equiv Factor	Design ESALs
Bikes	28	27	27	26	108	54	24,309,000	1.26	0	0
Cars/Trls 2 Axle	1209	1113	1350	1200	4872	2436	24,309,000	56.78	0.0008	11,041
2 Axle Long	430	552	439	547	1968	984	24,309,000	22.93	0.0122	68,016
Buses	20	36	17	33	106	53	24,309,000	1.24	0.6806	204,375
2 Axle-6 Tires	15	14	15	15	59	30	24,309,000	0.69	0.189	31,590
3 Axle Single	76	37	76	42	231	116	24,309,000	2.69	0.1303	85,268
4 Axle Single	4	1	4	2	11	6	24,309,000	0.13	0.1303	4,060
<5 Axle Double	12	15	20	20	67	34	24,309,000	0.78	0.8646	164,104
5 Axle Double	168	318	187	295	968	484	24,309,000	11.28	2.3719	6,504,305
>5 Axle Double	44	2	47	5	98	49	24,309,000	1.14	2.3719	658,494
<6 Axle Multi	8	5	4	2	19	10	24,309,000	0.22	2.3187	124,804
6 Axle Multi	0	0	2	0	2	1	24,309,000	0.02	2.3187	13,137
>6 Axle Multi	33	5	29	5	72	36	24,309,000	0.84	2.3187	472,940
Total	2047	2125	2217	2192		4291		100		8,342,135
DD	0.51		0.50							

ESAL COMPUTATIONS

Project: Thorton Road Widening **Date:** 6/12/2017
Project No.: 2127JY002

North I-8 Traffic Count Station

Clear Values

Compute ADT average

ADT initial =	2300
ADT final =	5600
ADT average =	3950
Directional Distribution Factor	0.5
Number of Lanes =	2
Lane Factor =	0.9
Design Life (years) =	20

Total Vehicles Design Lane = 12,975,750

Vehicle Type	4/26/2017 NBL	4/26/2017 SBL	4/27/2017 NBL	4/27/2017 SBL	Total	Daily Avrg	Total Vehicles Design Lane	Percent Traffic	Load Equiv Factor	Design ESALs
Bikes	19	18	15	10	62	31	12,975,750	1.34	0	0
Cars/Trls 2 Axle	550	449	603	469	2071	1036	12,975,750	44.68	0.0008	4,638
2 Axle Long	260	332	256	307	1155	578	12,975,750	24.92	0.0122	39,448
Buses	13	22	22	24	81	41	12,975,750	1.75	0.6806	154,333
2 Axle-6 Tires	13	12	13	10	48	24	12,975,750	1.04	0.189	25,397
3 Axle Single	22	9	12	8	51	26	12,975,750	1.10	0.1303	18,604
4 Axle Single	1	1	1	1	4	2	12,975,750	0.09	0.1303	1,459
<5 Axle Double	15	9	17	8	49	25	12,975,750	1.06	0.8646	118,603
5 Axle Double	226	272	236	239	973	487	12,975,750	20.99	2.3719	6,460,884
>5 Axle Double	13	16	26	30	85	43	12,975,750	1.83	2.3719	564,414
<6 Axle Multi	7	8	4	9	28	14	12,975,750	0.60	2.3187	181,755
6 Axle Multi	2	1	1	1	5	3	12,975,750	0.11	2.3187	32,456
>6 Axle Multi	5	2	11	5	23	12	12,975,750	0.50	2.3187	149,298
Total	1146	1151	1217	1121		2318		100		**7,751,289**
DD	0.50		0.52							

ESAL COMPUTATIONS

Project: Thornton Road Widening: Selma Hwy **Date:** 5/15/2017
Project No.: 2127JY002

ADT initial =	1736
ADT final =	3135
Growth Rate =	3 %
GF =	26.87
Directional Distribution Factor =	0.5
Number of Lanes =	1
Lane Factor =	1
Design Life (years) =	20

Vehicle Type	Total Vehicles	% Distri.	ESAL Factor	Design ESAL
Automobiles	8,513,072	90	0.0008	6,129
Light Trucks	8,513,072	2.5	1.2	255,392
Medium Truck	8,513,072	2.5	1.2	255,392
Heavy Truck	8,513,072	5	1.2	510,784
			TOTAL	**1,027,698**

SpectraPave4 PRO™
Paved Road Design Analysis

Design Parameters for AASHTO (1993) Equation

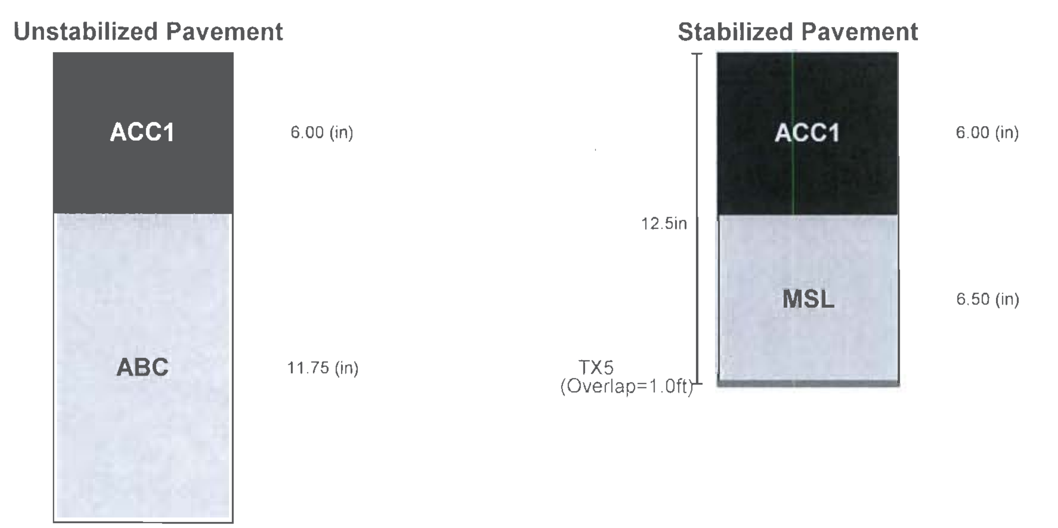
Reliability (%)	= 95	Initial Serviceability	= 4.5
Standard Normal Deviate	= -1.645	Terminal Serviceability	= 2.5
Standard Deviation	= 0.45	Change in Serviceability	= 2

Unstabilized Section Material Properties

Layer	Description	Cost ($/CY)	Layer coefficient	Drainage factor
ACC1	Asphalt Wearing Course	140	0.420	N/A
ABC	Aggregate Base Course	36	0.120	1.0

Stabilized Section Material Properties

Layer	Description	Cost ($/CY)	Layer coefficient	Drainage factor
ACC1	Asphalt Wearing Course	140	0.420	N/A
MSL	Mechanically Stabilized Base Cour	36	0.220	1.0



Subgrade Modulus = 14,340 (psi)
Structural Number = 3.930
Calculated Traffic (ESALs) = 8,427,000

Subgrade Modulus = 14,340 (psi)
Structural Number = 3.950
Calculated Traffic (ESALs) = 8,719,000

LIMITATIONS OF THE REPORT

The designs, illustrations, information and other content included in this report are necessarily general and conceptual in nature, and do not constitute engineering advice or any design intended for actual construction. Specific design recommendations can be provided as the project develops.

Project Name	Thorton Road Widening		
Company Name	Western Technologies, Inc.		
Designer	AdIR	Date	6/13/17

SpectraPave4 PRO™
Paved Road Design Analysis

Design Parameters for AASHTO (1993) Equation

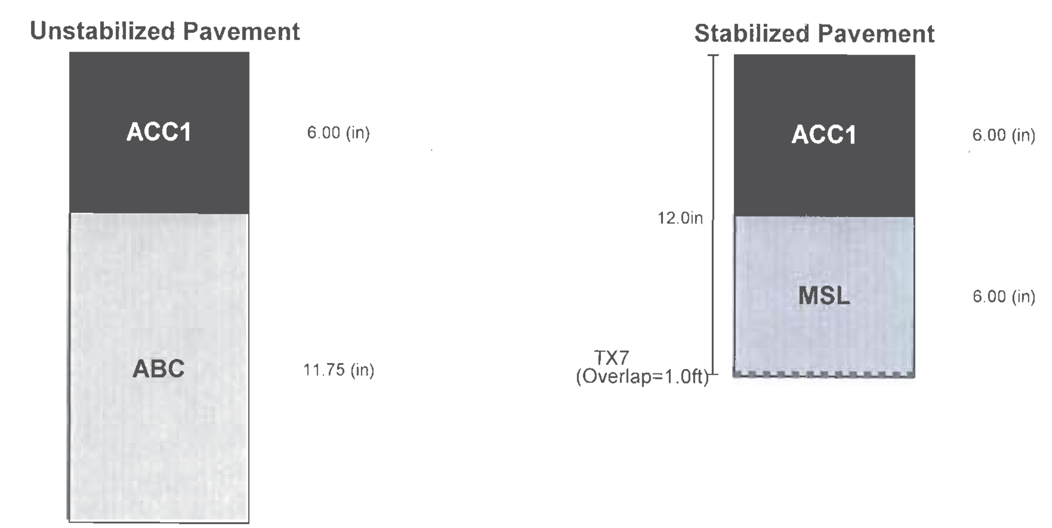
Reliability (%)	= 95	Initial Serviceability	= 4.5
Standard Normal Deviate	= -1.645	Terminal Serviceability	= 2.5
Standard Deviation	= 0.45	Change in Serviceability	= 2

Unstabilized Section Material Properties

Layer	Description	Cost ($/CY)	Layer coefficient	Drainage factor
ACC1	Asphalt Wearing Course	140	0.420	N/A
ABC	Aggregate Base Course	36	0.120	1.0

Stabilized Section Material Properties

Layer	Description	Cost ($/CY)	Layer coefficient	Drainage factor
ACC1	Asphalt Wearing Course	140	0.420	N/A
MSL	Mechanically Stabilized Base Cour	36	0.249	1.0



Subgrade Modulus = 14,340 (psi)
Structural Number = 3.930
Calculated Traffic (ESALs) = 8,427,000

Subgrade Modulus = 14,340 (psi)
Structural Number = 4.014
Calculated Traffic (ESALs) = 9,716,000

LIMITATIONS OF THE REPORT

The designs, illustrations, information and other content included in this report are necessarily general and conceptual in nature, and do not constitute engineering advice or any design intended for actual construction. Specific design recommendations can be provided as the project develops.

Project Name	Thornton Road Widening		
Company Name	Western Technologies, Inc.		
Designer	AdIR	Date	6/13/17

SpectraPave4 PRO™
Paved Road Design Analysis

Design Parameters for AASHTO (1993) Equation

Reliability (%)	= 95	Initial Serviceability	= 4.5
Standard Normal Deviate	= -1.645	Terminal Serviceability	= 2.5
Standard Deviation	= 0.45	Change in Serviceability	= 2

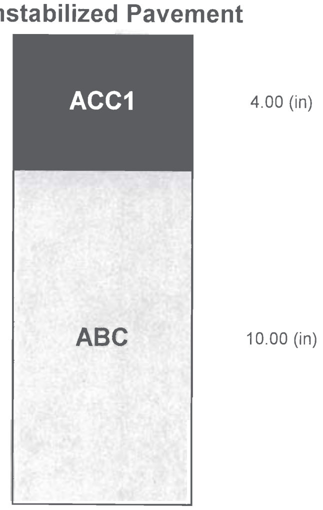
Unstabilized Section Material Properties

Layer	Description	Cost ($/CY)	Layer coefficient	Drainage factor
ACC1	Asphalt Wearing Course	140	0.420	N/A
ABC	Aggregate Base Course	36	0.120	1.0

Stabilized Section Material Properties

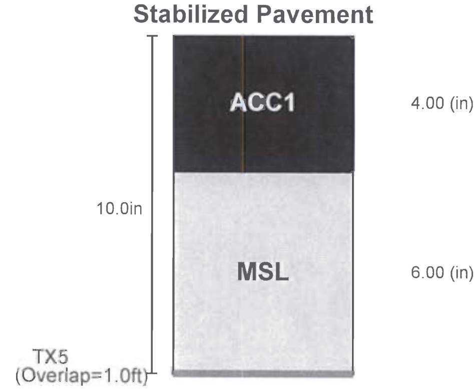
Layer	Description	Cost ($/CY)	Layer coefficient	Drainage factor
ACC1	Asphalt Wearing Course	140	0.420	N/A
MSL	Mechanically Stabilized Base Cour	36	0.227	1.0

Unstabilized Pavement



Subgrade Modulus = 14,340 (psi)
Structural Number = 2.880
Calculated Traffic (ESALs) = 1,119,000

Stabilized Pavement



Subgrade Modulus = 14,340 (psi)
Structural Number = 3.042
Calculated Traffic (ESALs) = 1,585,000

LIMITATIONS OF THE REPORT

The designs, illustrations, information and other content included in this report are necessarily general and conceptual in nature, and do not constitute engineering advice or any design intended for actual construction. Specific design recommendations can be provided as the project develops.

Project Name	Thornton Road Widening: Selma Highway		
Company Name	Western Technologies, Inc.		
Designer	AdIR	Date	5/16/17

This document was prepared using SpectraPave4 PRO™ Software Version 4.3
Developed by Tensar International Corporation