

TOWN OF GILBERT

ADDENDUM NO. 2

TO BID DOCUMENTS FOR

Project Name: Greenfield Road: Germann Road to Pecos Road Improvements

CIP Project Number: ST057

Contract Number: 2011-7003-0119

March 29, 2011

This Addendum contains a total of 62 pages with Attachments.

The following revisions to the Bid Documents and/or Drawings for the project shall become a part of the Contract Documents. Only these items are to be altered. The remainder of the original Bid Documents and/or Drawings maintains validity in their entirety. The Bidder shall acknowledge receipt of this Addendum on the Bid Form.

1. Bid Deadline/Opening Date shall remain:
April 5th, 2011 at 10:00AM, MST. Bid Opening location remains 50 E. Civic Center Drive, Conference Room 300.
2. Attached Final Geotechnical Investigation Report dated March 30, 2009 shall be a part of the bid package. (45 pages)
3. Attached table of Contractor Questions and Designer's Disposition and Response addresses questions raised during the specified period. (5 pages)
4. Attached Revised March 29, 2011 Town of Gilbert Bid Schedule, pages A-3 through A-10 to **replace** Town of Gilbert Bid Schedule originally provided in Bid Documents, pages A-3 through A-10. (8 pages)
5. Attached Addenda No. 2, Technical Specifications Revisions and Revised Notes on Plan Sheets 10, 40, 43 dated March 29, 2011 to amend Technical Specifications dated March 8, 2011 and Plans dated July 30, 2010. (2 pages)
6. The language in Section 1.1.2 Eligibility of CONTRACTOR and subsection 1.1.2.1 of the General Conditions shall revised to read as follows:
 - 1.1.2 Eligibility of CONTRACTOR
 - 1.1.2.1 The BIDDER must have a minimum of five (5) years experience in similar projects. A "similar project" is one that is similar in both nature and scope to this PROJECT. At least two (2) of the BIDDER'S

Key Personnel must have a minimum of three (3) years experience in similar projects. The BIDDER must demonstrate successful completion of at least two (2) similar projects, one of which must have a dollar value of at least seventy-five percent (75%) of the value bid for this PROJECT, both within the past five (5) years. The BIDDER must demonstrate that it has an experienced employee who will serve as the scheduler, who is dedicated to this PROJECT, and who has successfully employed scheduling techniques appropriate for this PROJECT. "Key Personnel" is defined as individuals who will be directly assigned to this PROJECT and includes, but is not limited to, the owner, the Principals of the BIDDER, the Project Manager, the Project Superintendent, the scheduler, the BIDDER'S construction engineer, and supervisory personnel such as the foremen who will be directly assigned to this PROJECT. **Resumes of Key Personnel shall be submitted upon request by the Owner.** "Successful completion" means completion of a project within the established schedule and budget.

Bidders shall acknowledge receipt of Addendum No. 2 on the Bid Form.
Failure to do so will result in the Bid being declared non-responsive.

End of Addendum No. 2



**Final Geotechnical Investigation Report
Greenfield Road, Pecos Road to Germann Road
Gilbert, Arizona
CIP Project No. ST057**

Submitted to:

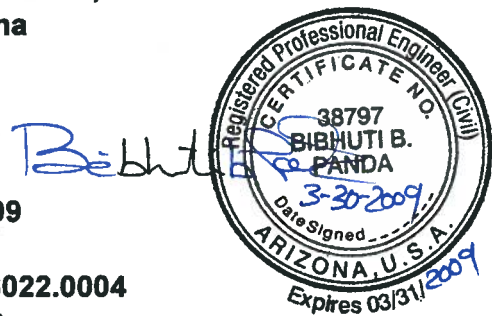
**Town of Gilbert
Gilbert, Arizona**

Submitted by:

**AMEC Earth & Environmental, Inc.
Tempe, Arizona**

March 30, 2009

**AMEC Job No. 12008022.0004
Report No. 2**



March 30, 2009
AMEC Job No. 12008022.0004
Report No.2

Pinnacle One
1620 West Fountainhead Pkwy.
Tempe, Arizona 85282

Attn: Ron Nadzieja
Program Manager

**Re: Final Geotechnical Investigation Report
Greenfield Road, Pecos Road to Germann Road
Gilbert, Arizona
CIP Project No. ST057**

Submitted herein is our Final Geotechnical Investigation Report for the above referenced project. Included are the results of test drilling and laboratory analyses, and recommended criteria for site grading, backfill and excavation.

Should you have any questions concerning the recommendations presented in this report, please do not hesitate in contacting us.

Respectfully submitted,

AMEC Earth & Environmental, Inc.



Vishal Jakkaraju, E.I.T.
Staff Professional

Reviewed by:



Bibhuti B. Panda, Ph.D., P.E.
Senior Geotechnical Engineer

c: Addressee (2)

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1.0 INTRODUCTION

This report presents the results of a geotechnical investigation performed by AMEC Earth & Environmental, Inc. (AMEC) at the proposed roadways (see Appendix A). The purpose of the investigation was to examine the geotechnical profile beneath the roadway and to evaluate the engineering properties of the subsurface materials. This information was used to prepare recommendations related to site grading, excavation and other aspects of the project where soil properties or behavior should be considered.

2.0 PROJECT DESCRIPTION

Greenfield Road from Pecos Road to Germann Road and from Germann Road south to the north entrance into the Gilbert Soccer Complex is a two-lane roadway with no bike lanes, no curb and no sidewalk. Due to increasing residential and commercial development in the surrounding area in recent years, the existing Greenfield Road is not sufficient to handle the increasing traffic in the area. The planned improvements include; four lanes and a striped median, bike lanes, curb and gutter, sidewalks, street lighting from Pecos Road to Germann Road; traffic signal improvements at the intersections of Greenfield Road and Germann Road; from Germann Road south to the north entrance into the Gilbert Soccer complex. A 16-inch waterline will be included in Germann Road from 156th Street to 164th Street. Based on the preliminary plans for the project site it is estimated that the waterline will be about 5 to 7 feet below existing site grades.

3.0 INVESTIGATION

3.1 Subsurface Exploration

Ten (10) borings were advanced to depths of 7.5 feet to 15 feet below existing site grade. The borings were advanced using a CME-75 drill rig equipped with a 6 5/8-inch O.D. hollow stem auger. Standard penetration testing and sampling were performed at selected intervals in each boring. The soils encountered during drilling were continuously examined, visually classified and logged. Results of the field investigation are presented in Appendix A, including a brief description of drilling and sampling equipment and procedures. A site plan showing the boring locations is presented as Figure-1 in Appendix A. Atish Nadkarni, Staff Engineer of this firm, supervised the field investigation.

3.2 Laboratory Testing

Moisture content, sieve analysis (-#200 wash), plasticity index, R-value, pH and resistivity, and remolded swell tests were performed on selected samples. Results of the laboratory testing are summarized in Table B-1 in Appendix B; the individual test data sheets follow the summary table in Appendix B.

4.0 SITE CONDITIONS AND GEOTECHNICAL PROFILE

4.1 Site Conditions

The site is located just east of the Santan Freeway Loop 202 at the Pecos Road exit (see Figure 1). The site is bounded primarily by agricultural lands and single-family residential homes along the east and west sides of Greenfield Road. A dairy and some industrial facilities are also present on the east side of Greenfield Road. The current roadways were paved with asphalt concrete at the time of our site visit.

4.2 Geotechnical Profile

The subsurface soils encountered along the project alignment, to the full depths of investigation, generally consist of sandy clay, silty sand and clayey sand with rare to trace amounts of fine-grained gravel. The sands are predominantly fine-grained, and the clayey materials are generally low to medium in plasticity. The upper 10 feet of soils, measured from existing site grade are predominantly fine-grained, consisting of silty sand, sandy clay and clayey sand. Very loose to medium dense soils were encountered (blow counts < 10) in the upper five feet at most locations. The soils were loose to very dense type beyond a depth of 10 feet.

4.3 Groundwater and Soil Moisture Condition

No free groundwater was encountered in the borings. The moisture contents of the soil samples obtained from split spoon samples at varying depths ranged from 2.9 percent to 19.5 percent.

5.0 DISCUSSION AND RECOMMENDATIONS

5.1 Site Grading

Recommendations presented in this report apply to roadway installation specifications for the project in accordance with Article 3: Street Specifications of Public Works and Engineering Standards and Details of the Town of Gilbert.

5.1.1 Roadway Excavation and Subgrade Preparation

Roadway excavation shall consist of excavation involved in the grading and construction of roadways, except structure excavation, trench excavation and any other excavation separately designated.

5.1.1.1 Subgrade Preparation

Areas over which fills are to be placed shall be cleared of all vegetation, debris and/or rubble and scarified to a depth of six (6) inches to provide a bond between the existing ground and the material to be deposited thereon. The original ground area upon which fills are to be constructed shall be brought to within the range of optimum to plus three percent of optimum moisture content and compacted to at least 95 percent of maximum dry density in accordance with ASTM D-698.

During compaction of the ground surface, a representative of the geotechnical engineer should be present to observe for any loose or soft zones. If loose, collapsible soils or soft zones are encountered, they should be removed only at the discretion of the engineer.

5.1.1.2 Placement and Compaction of Fill

The moisture content of subgrade materials shall be brought to that required for compaction by the addition of water, by the addition and blending of dry, suitable material or by the drying of existing material. The material shall then be compacted to a minimum percent of maximum dry density as determined in accordance with ASTM D-698. The moisture content shall be within the range of optimum to plus three percent of optimum. Subgrade containing soft or excessively wet areas shall be removed and replaced with suitable materials under the direction of the Town Engineer. In this event the AMEC's Geotechnical Engineer should also be notified. The loose thickness of each layer of fill material before compacting shall not exceed eight (8) inches. At the time of compaction, the specified compaction shall be obtainable and the fill be firm and unyielding.

5.1.2 Roadway Base Course

Untreated base, i.e., select or aggregate base course, shall comply with Maricopa Association of Governments (MAG) Standards and Specifications (1998) unless the use of a different type of material is specifically authorized by the Town Engineer. Untreated base of six (6) inches or less in compacted thickness may be placed in a single layer. Untreated base more than six (6) inches in thickness shall be built up in successive layers of approximately equal compacted thickness, not to exceed a maximum thickness of six (6) inches.

5.1.2.1 Placement and Compaction

After distribution, the base material shall first be watered and then immediately bladed to a uniform layer that will net, after compaction, the required thickness. If the materials deposited are not uniformly blended together, the blading operation shall be continued to such extent as may be necessary to eliminate segregation. The quantity of water applied shall be an amount which will assure proper compaction resulting in a maximum density of not less than 100 percent of maximum dry density as determined by ASTM D-698. Care shall be exercised in connection with watering operations to avoid wetting the subgrade or any underlying base course to a detrimental extent. Upon completion, the base surface shall be true, even and uniform conforming to the grade and cross-section specified by the Town Engineer.

5.1.3 Curb, Gutter, Sidewalk Subgrade Preparation

5.1.3.1 Curb Subgrade

The subgrade shall be constructed and compacted true to grades and lines as shown on the plans and as specified by the Town of Gilbert. All soft or unsuitable materials shall be removed to a depth of not less than six (6) inches below subgrade elevation and replaced with material satisfactory to the Town Engineer. Subgrade materials shall be moistened or dried to optimum moisture content plus or minus two (2) percent and compacted to a minimum of 90 percent of the maximum density in accordance with ASTM D-698.

5.1.3.2 Sidewalk Subgrade

Materials having expansive potentials of four (4) percent or less shall be moisture conditioned and compacted to the following specifications. Subgrade materials shall be moisturized to a moisture content of two (2) percent to four (4) percent above optimum for a minimum depth of eight (8) inches and compacted to a density of 90 to 95 percent of maximum dry density as determined by ASTM D-698 a minimum of twenty-four (24) hours prior to concrete placement. Subgrade conditions shall be maintained in this condition until the time of concrete placement. Subgrade materials having an expansive potential greater than four (4) percent shall be moisture conditioned two (2) percent to five (5) percent above optimum for a minimum depth of twelve (12) inches and compacted to a density of 90 to 95 percent, between thirty-six (36) and forty-eight (48) hours prior to concrete placement. These conditions shall be maintained until the time of concrete placement. In no case shall curb subgrade consist of existing base materials and/or surfacing material already in place. Granular base materials or clean sands shall not be permitted for use as curb subgrade or be utilized as fill below bottom of curb, unless approved by the Town Engineer in writing.

5.2 Pipe Bedding and Backfill

Excavation, bedding, backfilling, and compaction of the water line in Germann Road should be in accordance with (MAG). The native soils are acceptable for use as trench backfill over the

bedding material. The following table summarizes the backfill compaction requirements for trench backfill:

Backfill Type	Location	From Surface to 2 feet Below Surface	From 2 feet Below Surface to 1 Foot Above Top of Pipe	From 1 Foot Above Top of Pipe to Bottom of Trench
I	Under existing or proposed pavement, curb, gutter, sidewalk or when any part of trench is within 2 feet of the above.	100% for ABC, 95% for native soils	90%	90%
II	Under any utility easement, alley outside of I.	85%	85%	90%
III	Around any structures or exposed utilities.	95% in all cases.		

Relative compaction values presented in the table are based on the maximum dry density as determined in accordance with ASTM D698. The moisture content during placement should be within 2 percent below to 2 percent above the optimum moisture content. Water settlement of the trench backfill should not be allowed.

5.3 Structural Backfill

All fill required to raise the site to subgrade elevation should be free of vegetation, debris and other deleterious materials, and should not contain no particles larger than 6 inch. The plasticity index as determined by ASTM D4318, should not exceed 15. The percentage of the fill finer than the No. 200 sieve should not exceed 40 percent. It appears that native soils are acceptable for use as fill provided fine grained soils, debris and other deleterious materials are removed. Some sorting or processing of the existing soils may be necessary. The backfill under any intersection should be carefully examined to place similar backfill around the area.

5.4 Temporary Slopes and Excavation Properties

It is recommended that temporary cut slopes be made no steeper than 1.5H:1V (horizontal to vertical). These recommended slopes are based on the weakly cemented to un-cemented non-cohesive materials encountered in the borings and OSHA requirements. Classification of these soils, as based on OSHA requirements, is Type C. Steeper temporary excavations, including those to employ trench shoring, should be made only if based on stability analyses by a registered geotechnical engineer. The analysis should take into account the slope angles, trench geometries, and any surcharge loadings due to equipment and spoil piles.

Based on the in situ condition of the soils, it appears that standard equipment will be able to excavate to the full depth. However, during excavation moderate to significant caving or sloughing of soils should be anticipated, particularly in areas where uncemented sandy soils were encountered.

Should the excavations be made in or near the vicinity of roadways, temporary vertical shoring will be required to limit the width of the pipeline excavations. Temporary shoring utilizing trench shields likely will be the most cost-effective means of trench stabilization. Vehicle traffic should not be permitted adjacent to any areas of open (non-shored) trench. A minimum clear distance of 8.0 feet is required adjacent to shored trenches where vehicle traffic is necessary. Excavation spoils should be maintained a minimum distance of 5.0 feet from any open excavation. Construction equipment should be located no closer than 8.0 feet from the top edge of any excavation.

The excavation should be protected from stormwater runoff or other sources of moisture. Small berms may be necessary to protect the excavation from storm runoff. The appropriate OSHA and Arizona Division of Occupational Safety and Health regulations must be followed.

5.5 Pipe Corrosion Potential

To assess the corrosive potential of site soils to support design of CMPs, Resistivity and pH tests were performed in accordance with the Arizona Test Method AZ236b, on three bulk samples recovered from selected test borings. Results of the laboratory testing are summarized in Table B-1 in Appendix B. The resistivity of the site soils ranged from 1,286 (ohms-cm) to 2,031 (ohm-cm) with an average of approximately 1,579 (ohms-cm) and a standard deviation of 397 (ohm-cm). The pH of the site soils ranged from 8.3 to 8.6 with an average of 8.4 and a standard deviation of 0.2.

Based on the average test results, an Aluminum Alloy AASHTO M-196 or Bituminous Coated AASHTO M-190 type of pipe is recommended. For site soils with resistivity value exceeding 2000 (ohm-cm) a galvanized coated steel pipe AASHTO M-36 can be used.

5.6 Earthwork Factors

An earthwork factor of 15 percent shrink is recommended for the project. However, it is anticipated that the actual excavation factor may fluctuate depending on the relative quantity of material processed for use as base fill.

5.7 Ground Compaction

In general, a ground compaction factor of 0.3 foot should be accounted for in areas outside of existing roadways. In areas where there is existing roadway or in areas where the ground has been compacted by previous parking and vehicles, a ground compaction factor of 0.05 foot is recommended.

5.8 Water for Compaction

Approximately 75 gallons of water per cubic yard should be estimated for compaction of aggregate base materials. Approximately 75 gallons of water per cubic yard should be estimated for prewetting and compaction of subgrade materials. Additional water will be required for dust control during construction.

6.0 REFERENCES

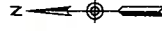
Town of Gilbert- Article 3: Street Specifications, Public Works and Engineering Standards and Details.

Arizona Department of Transportation (ADOT), 1989, Materials Section, Preliminary Engineering and Design Manual, ADOTM-XII-TWO-C, 3rd Edition, March.

Maricopa Association of Governments (MAG), 1998, Uniform Standard Specifications for Public Works Construction, Arizona.

Occupational Safety and Health Association, 1990, Construction Standard for Excavations (29 CFR Part 1926.650-.652), Subpart P.

APPENDIX A
FIELD INVESTIGATION



KEY

1  BORING IDENTIFIER & LOCATION

JOB NO. 012008022.0004
 DESIGN: AN
 DRAWN: GWH
 DATE: 2/2009
 SCALE: AS SHOWN

SITE MAP
 SHOWING BORING LOCATIONS

GREENFIELD ROAD
 PECOS ROAD TO GERMANN

FIGURE
 1



TEST DRILLING EQUIPMENT AND PROCEDURES

Description of Subsurface Exploration Methods

Auger Boring Drilling through overburden soils is performed with 6 5/8-inch O.D., 3 1/4-inch I.D. hollow stem auger or 4 1/2-inch solid stem continuous flight auger. Carbide insert teeth are normally used on bits so they can penetrate soft rock or very strongly cemented soils. A CME-75 truck-mounted drill rig is used to advance the auger. The drill rigs are powered with six-cylinder Cummins diesel engines capable of delivering about 11.4 kN-m torque to the drill spindle. The spindle is advanced with twin hydraulic rams capable of exerting 90 kN (20,000 pounds) downward force.

Generally, refusal to penetration of the auger is adopted as top of the SGC or "river-run" material or harder bedrock, which require other techniques for penetration. Grab samples or auger cuttings may be taken as necessary. Standard penetration tests or 2.42-inch diameter ring samples are taken in conjunction with the auger borings as needed, with the sampling interval and type being indicated on the boring logs.

Hammer Drill Drilling with the Hammer drill is accomplished with a Drill Systems AP-1000 drill rig advancing a double-walled drive casing with a link-belt 180 diesel pile driving hammer, having a rated energy of 8,100 foot-pounds per blow. Where noted on the boring log, the hammer is equipped with a supercharger which can boost the energy to approximately 12,000 foot-pounds per blow. The supercharger is used only in portions of the boring where blow counts are relatively high.

Cuttings are removed with compressed air by a reverse circulation process, and are collected in a cyclone from which grab samples are obtained. The drive casing is either 9-inch O.D. by 6-inch I.D. or 6 5/8-inch O.D. by 4-inch I.D. and employs an expendable bit of slightly larger diameter than the O.D. of the casing. Hammer blows required to advance the drive casing are recorded in 1-foot increments, as noted on the boring logs. Standard penetration tests or 2.42-inch diameter ring samples taken are noted on the boring logs.

Core Boring Rock core samples are retrieved using a CME-75 drill rig, SAITECH GH 3 rig or Burley 2500, 4500 or 4000. The GH 3 is a portable hydraulic core drill. The GH 3 is powered by a Kohler two-cylinder 25-horsepower engine. The hydraulics motor which feeds a two-speed transmission and powers the BW spindle. This unit has a 3-foot stroke and is hand-fed with a 2,000 pound push-pull capability. The GH 3 has the capability of drilling with either B- or N-size core steel using standard or wireline systems. N-size core is the preferred size and it has a nominal O.D. of about 2 inches. The Burley 2500 and 4500 series are portable hydraulic core drills. The 4500 series is capable of a track-mounted or skid-type chassis. The Burley 2500 and 4500 series are powered by 44 and 75 HP power units, respectively, provide up to 2,000 foot-pounds (ft.-lbs.) of torque and in excess of 1,000 revolutions per minute (RPM) of spindle speed. Both rigs are capable of retrieving either N- or H-sized core using wireline systems. The N-size core has a nominal O.D. of about 2 inches and the H-size of about 2.4 inches. The Burley 4000 is a track-mounted core drill.

The CME-75 utilizes a wireline core drilling system that takes N-size cores. Using the NQ wireline system, core is recovered quickly by retrieving the core-laden inner tube through the drill string.

TEST DRILLING EQUIPMENT AND PROCEDURES (Cont.)

Sampling Procedures Dynamically driven tube samples are usually obtained at selected intervals in the borings by the ASTM D1586 test procedure. In many cases, 2-inch O.D., 1 3/8-inch I.D. samples are used to obtain the standard penetration resistance. "Undisturbed" samples of firmer soils are often obtained with 3-inch O.D. samples lined with 2.42-inch I.D. brass rings. The driving energy is generally recorded as the number of blows of a 140-pound, 30-inch free fall drop hammer required to advance the samples in 6-inch increments. However, in stratified soils, driving resistance is sometimes recorded in 2- or 3-inch increments so that soil changes and the presence of scattered gravel or cemented layers can be readily detected and the realistic penetration values obtained for consideration in design. These values are expressed in blows per 6 inches on the boring logs. "Undisturbed" sampling of softer soils is sometimes performed with thin walled Shelby tubes (ASTM D1587), pitcher samplers, Denison samplers or continuous CME samplers. Where samples of rock are required, they are obtained by NQ diamond core drilling (ASTM D2113). Tube samples are labeled and placed in watertight containers to maintain field moisture contents for testing. When necessary for testing, larger bulk samples are taken from auger cuttings. Also, representative samples are obtained from the cuttings from the hammer and Schramm drill rig.

Boring Records Drilling operations are directed by our field engineer or geologist who examines soil recovery and prepares the boring logs. Soils are visually classified in accordance with the Unified Soil Classification System (ASTM D2487), with appropriate group symbols being shown on the boring logs.

**TERMINOLOGY USED TO DESCRIBE THE RELATIVE DENSITY,
CONSISTENCY OR FIRMNESS OF SOILS**

The terminology used on the boring logs to describe the relative density, consistency or firmness of soils relative to the standard penetration resistance is presented below. The standard penetration resistance (N) in blows per foot is obtained by the ASTM D1586 procedure using 2" O.D., 1 3/8" I.D. samplers.

1. **Relative Density.** Terms for description of relative density of cohesionless, uncemented sands and sand-gravel mixtures.

<u>N</u>	<u>Relative Density</u>
0-4	Very loose
5-10	Loose
11-30	Medium dense
31-50	Dense
50+	Very dense

2. **Relative Consistency.** Terms for description of clays which are saturated or near saturation.

<u>N</u>	<u>Relative Consistency</u>	<u>Remarks</u>
0-2	Very soft	Easily penetrated several inches with fist.
3-4	Soft	Easily penetrated several inches with thumb.
5-8	Medium stiff	Can be penetrated several inches with thumb with moderate effort.
9-15	Stiff	Readily indented with thumb, but penetrated only with great effort.
16-30	Very stiff	Readily indented with thumbnail.
30+	Hard	Indented only with difficulty by thumbnail.

3. **Relative Firmness.** Terms for description of partially saturated and/or cemented soils which commonly occur in the Southwest including clays, cemented granular materials, silts and silty and clayey granular soils.

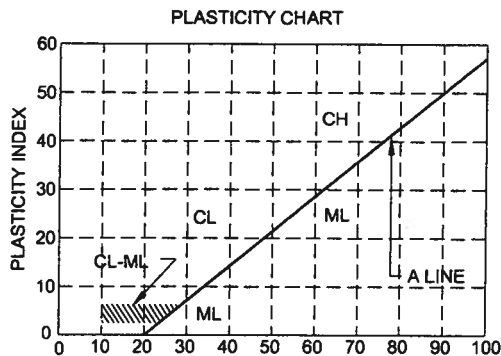
<u>N</u>	<u>Relative Firmness</u>
0-4	Very soft
5-8	Soft
9-15	Moderately firm
16-30	Firm
31-50	Very firm
50+	Hard

UNIFIED CLASSIFICATION SYSTEM FOR SOILS

Soils are visually classified by the United Soil Classification System on the boring logs presented in this report. Grain-size analysis and Atterberg Limits Tests are often performed on selected samples to aid in classification. The classification system is briefly outlined on this chart. For a more detailed description of the system, see "The Unified Soil Classification System" ASTM Designation: D2487

MAJOR DIVISION		GRAPH SYMBOL	GROUP SYMBOL	TYPICAL DESCRIPTION
COARSE-GRAINED SOILS (Less than 50% passes No. 200 sieve)	GRAVELS (50% or less of coarse fraction passes No. 4 sieve)	CLEAN GRAVELS (Less than 5% passes No. 200 sieve)	GW	Well graded gravels, gravel-sized mixtures or sand-gravel-cobble mixture.
		GRAVELS WITH FINES (More than 12% passes No. 200 sieve)	GP	Poorly graded gravels, gravel-sized mixtures or sand-gravel-cobble mixture.
		Limits plot below "A" line & hatched zone on plasticity chart	GM	Silty gravels, gravel-sand-silt mixture.
		Limits plot below "A" line & hatched zone on plasticity chart	GC	Clayey gravels, gravel-sand-clay mixture.
	SANDS (More than 50% of coarse fraction passes No. 4 sieve)	CLEAN SANDS (Less than 5% passes No. 200 sieve)	SW	Well graded sands, gravelly sands.
		SANDS WITH FINES (More than 12% passes No. 200 sieve)	SP	Poorly graded sands, gravelly sands.
		Limits plot below "A" line & hatched zone on plasticity chart	SM	Silty sands, sand-silt mixtures.
		Limits plot below "A" line & hatched zone on plasticity chart	SC	Clayey sands, sand-clay mixtures.
FINE-GRAINED SOILS (50% or more passes No. 200 sieve)	SILTS LIMITS PLOT BELOW "A" LINE & HATCHED ZONE ON PLASTICITY CHART	SILTS OF LOW PLASTICITY (Liquid limit less than 50)	ML	Inorganic silts, clayey silts with slight plasticity.
		SILTS OF HIGH PLASTICITY (Liquid limit more than 50)	MH	Inorganic silts of high plasticity, silty soils, elastic silts.
	CLAYS LIMITS PLOT BELOW "A" LINE & HATCHED ZONE ON PLASTICITY CHART	CLAYS OF LOW PLASTICITY (Liquid limit less than 50)	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
		CLAYS OF HIGH PLASTICITY (Liquid limit more than 50)	CH	Inorganic clays of high plasticity, fat clays, silty and sandy clays of high plasticity.

NOTE: Coarse-grained soils with between 5% to 12% passing the No. 200 sieve and fine-grained soils with limits plotting in the hatched zone on the plasticity chart to have dual symbol.



DEFINITIONS OF SOIL FRACTIONS

SOIL COMPONENT	PARTICLE SIZE RANGE
Boulders	Above 300mm (12in.)
Cobbles	300mm to 75mm (12in. to 3in.)
Gravel	75mm (3in.) to No. 4 sieve
Coarse gravel	75mm to 19mm (3in to 3/4in.)
Fine gravel	19mm (3/4in.) to No. 4 sieve
Sand	No. 4 to No. 200
Coarse	No. 4 to No. 10
Medium	No. 10 to No. 40
Fine	No. 40 to No. 200
Fines (silt or clay)	Below No. 200 sieve



JOB NO. 012008022 DATE 2/11/09

LOCATION Greenfield Road, Sta. 160+00 (approx)

RIG TYPE CME75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. 1296' +/-

DATUM _____

Depth in Feet	Blows Per Foot	Graphical Log	Sample	Sample Type	Blow Count (S) Per 6-inches (U) Per 12-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification or Rock Unit	REMARKS	VISUAL CLASSIFICATION
0				S	7-8-7			SM	slightly moist loose to medium dense	SILTY SAND, rare gravel, predominantly fine grained sand, well graded, subangular gravel, weakly lime cemented, nonplastic to low plasticity, brown
			A							
				S	2-3-2		15.3	CL		SANDY CLAY, predominantly fine grained sand, weakly lime cemented, low to medium plasticity, brown
5				S	7-12-17			SC/CL	slightly moist medium dense	SANDY CLAY TO CLAYEY SAND, occasional gravel, predominantly fine grained sand, well graded, subangular to subrounded gravel, weakly lime cemented, low to medium plasticity, reddish-brown
10									Stopped Auger at 10'	
15										
20										
25										

GROUNDWATER		
DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

SAMPLE TYPE
 A - Drill cuttings
 S - 2" O.D. 1.38" I.D. tube sample
 U - 3" O.D. 2.42" I.D. tube sample
 T - Thin Walled Shelby tube sample
 R - Rotosonic Core Barrel
 NR - No Recovery

LOG OF TEST BORING NO. 1



JOB NO. 012008022 DATE 2/11/09

LOCATION Greenfield Road, Sta. 182+00 (approx)

RIG TYPE CME75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. 1293' +/-

DATUM _____

Depth in Feet	Blows Per Foot	Graphical Log	Sample	Sample Type	Blow Count (S) Per 6-inches (U) Per 12-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification or Rock Unit	REMARKS	VISUAL CLASSIFICATION
0			S	4-5-7			11.0	SC/CL	slightly moist to moist loose to medium dense	CLAYEY SAND TO SANDY CLAY, trace gravel, predominantly fine grained sand, well graded, subangular to subrounded gravel, weakly lime cemented, low to medium plasticity, brown
			A							
			S	4-4-4						
5			S	3-2-3						
10									Stopped Auger at 10'	
15										
20										
25										

GROUNDWATER		
DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

- SAMPLE TYPE
- A - Drill cuttings
 - S - 2" O.D. 1.38" I.D. tube sample
 - U - 3" O.D. 2.42" I.D. tube sample
 - T - Thin Walled Shelby tube sample
 - R - Rotosonic Core Barrel
 - NR - No Recovery

LOG OF TEST BORING NO. 2



JOB NO. 012008022 DATE 2/11/09

LOCATION Greenfield Road, Sta. 230+00 (approx)

RIG TYPE CME75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. 1290' +/-

DATUM _____

Depth in Feet	Blows Per Foot	Graphical Log	Sample	Sample Type	Blow Count (S) Per 6-inches (U) Per 12-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification or Rock Unit	REMARKS	VISUAL CLASSIFICATION
0				S	6-8-11			SM	loose to medium dense	SILTY SAND, rare gravel, predominantly fine to medium grained sand, well graded, subangular to subrounded gravel, weakly lime cemented, nonplastic to low plasticity, light brown
				A						
				S	2-3-3					
5				S	2-2-2		9.3	SC	slightly moist loose to very dense	CLAYEY SAND WITH GRAVEL, predominantly fine to medium grained sand, well graded, subangular to subrounded gravel, weakly lime cemented, low to medium plasticity, light brown to brown
				A						
				S	4-5-5					
10				S	8-23-29					
15									Stopped Auger at 15'	
20										
25										

GROUNDWATER		
DEPTH(ft)	HOUR	DATE
∇	none	
∇		
∇		
∇		

SAMPLE TYPE
 A - Drill cuttings
 S - 2" O.D. 1.38" I.D. tube sample
 U - 3" O.D. 2.42" I.D. tube sample
 T - Thin Walled Shelby tube sample
 R - Rotosonic Core Barrel
 NR - No Recovery

LOG OF TEST BORING NO. 3

PROJECT Greenfield Road - Pecos To Germann



JOB NO. 012008022 DATE 2/11/09

LOCATION Greenfield Road, Sta. 220+00 (approx)

RIG TYPE CME75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. 1288' +/-

DATUM _____

Depth in Feet	Blows Per Foot	Graphical Log	Sample	Sample Type	Blow Count (S) Per 6-inches (U) Per 12-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification or Rock Unit	REMARKS	VISUAL CLASSIFICATION
0				A						6" Asphaltic Concrete
				S	3-5-2		13.3	CL	slightly moist loose to medium dense	SANDY CLAY, rare gravel, predominantly fine grained sand, well graded, subangular to subrounded gravel, weakly lime cemented, medium to high plasticity, brown
				S	4-7-9					
				S	5-8-10					
5										
10										
15										
20										
25										Stopped Auger at 12'6"

GROUNDWATER

DEPTH(ft)	HOUR	DATE
	none	

- SAMPLE TYPE
- A - Drill cuttings
 - S - 2" O.D. 1.38" I.D. tube sample
 - U - 3" O.D. 2.42" I.D. tube sample
 - T - Thin Walled Shelby tube sample
 - R - Rotosonic Core Barrel
 - NR - No Recovery

LOG OF TEST BORING NO. 4

PROJECT Greenfield Road - Pecos To Germann



JOB NO. 012008022 DATE 2/11/09

LOCATION Greenfield Road, Sta. 213+00 (approx)

RIG TYPE CME75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. 1288' +/-

DATUM _____

Depth in Feet	Blows Per Foot	Graphical Log	Sample	Sample Type	Blow Count (S) Per 6-inches (U) Per 12-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification or Rock Unit	REMARKS	VISUAL CLASSIFICATION
0				S	8-9-8			CL	slightly moist loose to medium dense	SANDY CLAY, rare gravel, predominantly fine grained sand, well graded, subangular to subrounded gravel, weakly lime cemented, low to medium plasticity, light brown to brown
	A									
	S			3-5-4						
5				S	2-1-9		12.6		slightly moist loose	SANDY CLAY, some gravel, predominantly fine grained sand, well graded, subangular to subrounded gravel, weakly lime cemented, low to medium plasticity, light brown to brown
	A							CL		
10									Stopped Auger at 7'6"	
25										

GROUNDWATER		
DEPTH(ft)	HOUR	DATE
	none	

- SAMPLE TYPE
- A - Drill cuttings
 - S - 2" O.D. 1.38" I.D. tube sample
 - U - 3" O.D. 2.42" I.D. tube sample
 - T - Thin Walled Shelby tube sample
 - R - Rotosonic Core Barrel
 - NR - No Recovery

LOG OF TEST BORING NO. 5

PROJECT Greenfield Road - Pecos To Germann



JOB NO. 012008022 DATE 2/11/09

LOCATION Greenfield Road, Sta. 193+00 (approx)

RIG TYPE CME75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. 1292' +/-

DATUM _____

Depth in Feet	Blows Per Foot	Graphical Log	Sample	Sample Type	Blow Count (S) Per 6-inches (U) Per 12-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification or Rock Unit	REMARKS	VISUAL CLASSIFICATION
0			S 6-14-8	A				CL/SC	slightly moist loose to medium dense	SANDY CLAY TO CLAYEY SAND , trace gravel, predominantly fine grained sand, well graded, subangular to subrounded gravel, weakly lime cemented, low to medium plasticity, brown
	S 2-3-3					10.3				
5			S 4-5-8	A						
	S 4-8-7									
10			S 4-6-7				4.9	SM	slightly moist loose to very dense	SILTY SAND , predominantly fine grained sand, weakly lime cemented, low to medium plasticity, brown
	S 8-4-50/1"									
15									Stopped Auger at 14'6" Stopped Sampler at 15'7"	
20										
25										

DEPTH(ft)	HOUR	DATE
	none	

SAMPLE TYPE
 A - Drill cuttings
 S - 2" O.D. 1.38" I.D. tube sample
 U - 3" O.D. 2.42" I.D. tube sample
 T - Thin Walled Shelby tube sample
 R - Rotosonic Core Barrel
 NR - No Recovery

LOG OF TEST BORING NO. 6

PROJECT Greenfield Road - Pecos To Germann



JOB NO. 012008022 DATE 2/12/09

LOCATION Greenfield Road, Sta. 175+00 (approx)

RIG TYPE CME75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. 1294' +/-

DATUM _____

Depth in Feet	Blows Per Foot	Graphical Log	Sample	Sample Type	Blow Count (S) Per 6-inches (U) Per 12-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification or Rock Unit	REMARKS	VISUAL CLASSIFICATION
									0	
				S	3-3-2				loose to medium dense	
5				S	3-4-4					
				A						
10				S	11-8-10					
15										Stopped Auger at 9'6"
20										Stopped Sampler at 11'
25										

GROUNDWATER		
DEPTH(ft)	HOUR	DATE
	none	

- SAMPLE TYPE
- A - Drill cuttings
 - S - 2" O.D. 1.38" I.D. tube sample
 - U - 3" O.D. 2.42" I.D. tube sample
 - T - Thin Walled Shelby tube sample
 - R - Rotosonic Core Barrel
 - NR - No Recovery

LOG OF TEST BORING NO. 7

PROJECT Greenfield Road - Pecos To Germann



JOB NO. 012008022 DATE 2/11/09

LOCATION Germann Road, Sta. 70+00 (approx)

RIG TYPE CME75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. 1297' +/-

DATUM _____

Depth in Feet	Blows Per Foot	Graphical Log	Sample	Sample Type	Blow Count (S) Per 6-inches (U) Per 12-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification or Rock Unit	REMARKS	VISUAL CLASSIFICATION
0				S	8-7-7					4" Aggregate Base Course
				A				CL/SC		CLAYEY SAND TO SILTY SAND, rare gravel, predominantly fine grained sand, well graded, subangular to subrounded gravel, weakly lime cemented, low to medium plasticity, brown
				S	1-2-1		13.1		slightly moist to moist	
				S	16-2-1				very loose to medium dense	
				S	3-4-6					
5				A						
				S	3-4-6					
				S	3-5-6					
10				A			19.5			
15										Stopped Auger at 15'
20										
25										

DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

SAMPLE TYPE
 A - Drill cuttings
 S - 2" O.D. 1.38" I.D. tube sample
 U - 3" O.D. 2.42" I.D. tube sample
 T - Thin Walled Shelby tube sample
 R - Rotosonic Core Barrel
 NR - No Recovery

LOG OF TEST BORING NO. 8



JOB NO. 012008022 DATE 2/12/09

LOCATION Germann Road, Sta. 61+00 (approx)

RIG TYPE CME75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. 1294' +/-

DATUM _____

Depth in Feet	Blows Per Foot	Graphical Log	Sample	Sample Type	Blow Count (S) Per 6-inches (U) Per 12-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification or Rock Unit	REMARKS	VISUAL CLASSIFICATION
0				S	5-9-7				slightly moist	6" Asphaltic Concrete
				A				SC	loose to medium dense	CLAYEY SAND, rare gravel, predominantly fine grained sand, well graded, subangular to subrounded gravel, weakly lime cemented, low to medium plasticity, brown
				S	3-2-10					
5				S	6-5-4		15.5			
				A						
				S	4-6-6					
10				S	3-5-6			SP-SM	slightly moist	SAND WITH SILT, predominantly fine grained sand, weakly lime cemented, nonplastic, light brown
				A					loose to medium dense	
				S	6-7-11		2.9			
15				S	3-7-8					
				A						
20										
25										

GROUNDWATER

DEPTH(ft)	HOUR	DATE
▽	none	
▽		
▽		
▽		

SAMPLE TYPE

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- T - Thin Walled Shelby tube sample
- R - Rotasonic Core Barrel
- NR - No Recovery

LOG OF TEST BORING NO. 9

PROJECT Greenfield Road - Pecos To Germann



JOB NO. 012008022 DATE 2/11/09

LOCATION Germann Road, Sta. 57+00 (approx)

RIG TYPE CME75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. 1293' +/-

DATUM _____

Depth in Feet	Blows Per Foot	Graphical Log	Sample	Sample Type	Blow Count (S) Per 6-inches (U) Per 12-inches	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification or Rock Unit	REMARKS	VISUAL CLASSIFICATION
0									slightly moist	6" Asphaltic Concrete
				S A	7-4-6			CL/SC	loose to medium dense	SANDY CLAY TO CLAYEY SAND, rare gravel, predominantly fine grained sand, well graded, subangular to subrounded gravel, weakly lime cemented, low to medium plasticity, brown
				S	2-5-4					
5				S A	5-5-5		14.1			
				S	4-6-7					
				S	6-12-18					
10									Stopped Auger at 10'	
15										
20										
25										

GROUNDWATER

DEPTH(ft)	HOUR	DATE
	none	

SAMPLE TYPE

- A - Drill cuttings
- S - 2" O.D. 1.38" I.D. tube sample
- U - 3" O.D. 2.42" I.D. tube sample
- T - Thin Walled Shelby tube sample
- R - Rotosonic Core Barrel
- NR - No Recovery

LOG OF TEST BORING NO. 10

APPENDIX B

LABORATORY TEST RESULTS



TABLE B-1 - TABULATION OF ROADWAY SUBGRADE LABORATORY TEST RESULTS

Boring/Test Pit Number	Stationing	Existing Ground Elevation (ft)	Sample Interval (ft)		USCS/Group Symbol	Percent Fines (minus 200)	Plasticity Index	Correlated R-Value	Tested R-Value ¹ (at 300 psi)	Moisture Content (%)	Maximum Dry Density (pcf) (ASTM D698A)	Optimum Moisture Content (%)	Remolded Swell ² (%)	Resistivity (Ohm-cm)	pH
			Begin	End											
Greenfield Road															
1	160+00	1296	2.0	3.5	CL	65	11	26		15.3					
2	182+00	1293	0.0	1.5	SC	40	10	37		11.0					
3	203+00	1290	4.5	6.0	SC	46	15	26	10	9.3					
3	203+00	1290	0.0	5.0							122.3	11.2	0.1		
4	220+00	1288	2.5	4.0	CL	55	25	14	12	13.3					
5	213+00	1288	4.5	6.0	CL	51	13	27		12.6					
6	193+00	1292	0.0	5.0							120.1	13.3	2.0		
6	193+00	1292	2.0	3.5	SC	47	10	34	13	10.3					
6	193+00	1292	9.5	11.0	SM	14	NP			4.9					
7	175+00	1294	0.0	1.5	CL	73	11	24		9.2					
Germann Road															
8	70+00	1297	0.0	5.0										1,286	8.6
8	70+00	1297	2.0	3.5	SC-SM	44	6	45		13.1					
8	70+00	1297	9.5	11.0	SC	34	8			19.5					
9	61+00	1294	0.0	5.0							111.5	16.5			
9	61+00	1294	4.6	6.0	SC	41	18	23	14	15.5					
9	61+00	1294	5.0	10.0											
9	61+00	1294	12.0	13.5	SP-SM	6.3	NP			2.9				1,422	8.3
10	57+00	1293	0.0	5.0							118.4	13.7	0.1	2,031	8.4
10	57+00	1293	4.5	6.0	CL	51	19	20		14.1					

Notes: 1. psi - pounds per square inch

2. Remolded to 95% max dry density and -3% optimum moisture



JOB NO: 12008022.0004
 WORK ORDER NO: 1
 DATE ASSIGNED: 2/16/09

PROJECT: Greenfield Road, Pecos Road to Germann Road
 LOCATION: Gilbert, AZ
 SAMPLE SOURCE: SEE BELOW

MECHANICAL SIEVE ANALYSIS
 GROUP SYMBOL, USCS (ASTM D-2487)

Location & Depth	USCS	LL	PI	SAND										GRAVEL				COBBLES	Lab #						
				Fine			Medium			Coarse				Fine						Coarse					
				#200	#100	#60	#40	#30	#16	#10	#6	#4	1/4"	3/8"	1/2"	3/4"	1"			1 1/4"	1 1/2"	2"	3"	6"	
#8 @ 2.0-3.5'	SC-SM	26	6	44	54	66	71	73	79	82	84	88	89	92	96	100	100	100	100	100	100	100	100	100	39
#8 @ 9.5-11.0'	SC	25	8	34	43	60	71	78	86	91	92	99	99	100	100	100	100	100	100	100	100	100	100	100	42
#9 @ 4.5-6.0'	SC	40	18	41	56	79	87	81	96	98	98	100	100	100	100	100	100	100	100	100	100	100	100	100	48
#9 @ 12.0-13.5'	SP-SM	NV	NP	6.3	16	50	73	88	99	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	51
#10 @ 4.5-6.0'	CL	36	19	51	69	87	93	96	99	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	58

PERCENT PASSING BY WEIGHT

Location & Depth	USCS	LL	PI	#200	#100	#60	#40	#30	#16	#10	#6	#4	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	3"	6"	Lab #		
#8 @ 2.0-3.5'	SC-SM	26	6	44	54	66	71	73	79	82	84	88	89	92	96	100	100	100	100	100	100	100	100	100	39
#8 @ 9.5-11.0'	SC	25	8	34	43	60	71	78	86	91	92	99	99	100	100	100	100	100	100	100	100	100	100	100	42
#9 @ 4.5-6.0'	SC	40	18	41	56	79	87	81	96	98	98	100	100	100	100	100	100	100	100	100	100	100	100	100	48
#9 @ 12.0-13.5'	SP-SM	NV	NP	6.3	16	50	73	88	99	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	51
#10 @ 4.5-6.0'	CL	36	19	51	69	87	93	96	99	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	58



REVIEWED BY *[Signature]*



PROJECT: Greenfield Road , Pecos Road to Germann Road
LOCATION: Gilbert, AZ
MATERIAL: See Below
SAMPLE SOURCE: See Below

JOB NO: 12008022.0004
WORK ORDER NO: 1
LAB NO: See Below
DATE ASSIGNED: 2/12/09

MOISTURE CONTENT OF SOIL (ASTM D2216)

LAB #	BORING & DEPTH	WET WT. (gram)	DRY WT. (gram)	MOISTURE CONTENT
2	#1 @ 2.0 -3.5'	232.0	201.3	15.3%
5	#2 @ 0.0-1.5'	374.6	337.4	11.0%
11	#3 @ 4.5-6.0'	230.3	210.7	9.3%
17	#4 @ 2.5-4.0'	325.6	287.3	13.3%
22	#5 @ 4.5-6.0'	300.0	266.4	12.6%
26	#6 @ 2.0-3.5'	352.1	319.3	10.3%
29	#6 @ 9.5-11.0'	255.6	243.6	4.9%
33	#7 @ 0.0-1.5'	239.4	219.3	9.2%



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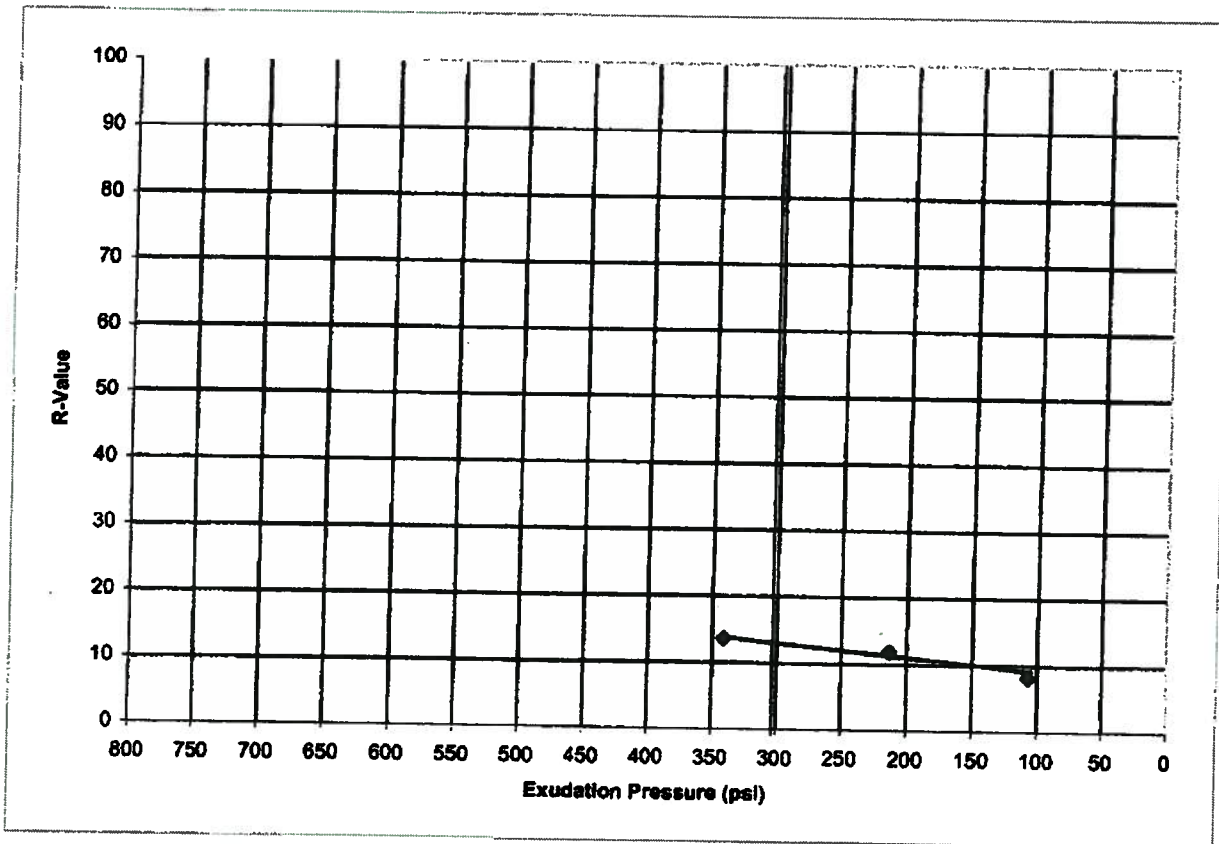


PROJECT: Greenfield Road , Pecos Road to Germann Road
LOCATION: Gilbert, AZ
MATERIAL: Silt w/ Clay
SAMPLE SOURCE: #9 @ 0.0-5.0'

JOB NO: 12008022.0004
WORK ORDER NO: 1
LAB NO: 53
DATE SAMPLED: 02/16/09

RESISTANCE R-VALUE AND EXPANSION PRESSURE OF COMPACTED SOILS (ASTM D2844)

SPECIMEN I. D.	A	B	C
Moisture Content	17.5%	16.6%	15.8%
Compaction Pressure (psi)	100	150	250
Specimen Height (inches)	2.50	2.50	2.41
Dry Density (pcf)	115.4	114.1	118.7
Horiz. Pres. @ 1000lbs (psi)	60.0	54.0	55.0
Horiz. Pres. @ 2000lbs (psi)	136.0	129.0	125.0
Displacement	4.95	4.45	4.05
Expansion Pressure (psi)	1.2	1.4	1.3
Exudation Pressure (psi)	107	213	341
R Value	8	12	14



R Value at 300 PSI = 14



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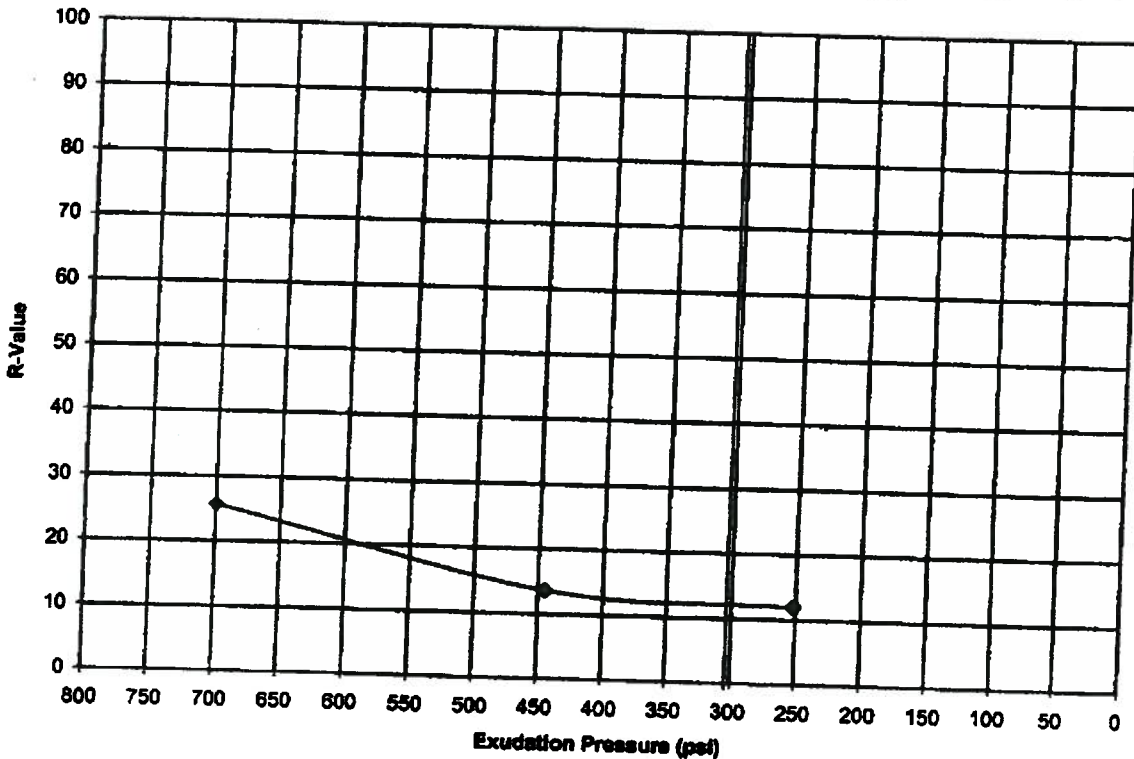
PROJECT: Greenfield Road , Pecos Road to Germann Road
LOCATION: Gilbert, AZ
MATERIAL: Clay
SAMPLE SOURCE: #4 @ 1.0-6.0'

JOB NO: 12008022.0004
WORK ORDER NO: 1
LAB NO: 19
DATE SAMPLED: 02/16/09

RESISTANCE R-VALUE AND EXPANSION PRESSURE OF COMPACTED SOILS (ASTM D2844)

SPECIMEN I. D.	A	B	C
Moisture Content	20.5%	19.5%	16.6%
Compaction Pressure (psi)	*	*	175
Specimen Height (inches)	2.60	2.60	2.50
Dry Density (pcf)	107.3	111.4	113.9
Horiz. Pres. @ 1000lbs (psi)	55.0	55.0	40.0
Horiz. Pres. @ 2000lbs (psi)	132.0	131.0	111.0
Displacement	4.30	3.86	3.19
Expansion Pressure (psi)	1.3	1.4	2.8
Exudation Pressure (psi)	252	445	700
R Value	12	14	26

* HAND TAMPED



R Value at 300 PSI = 12



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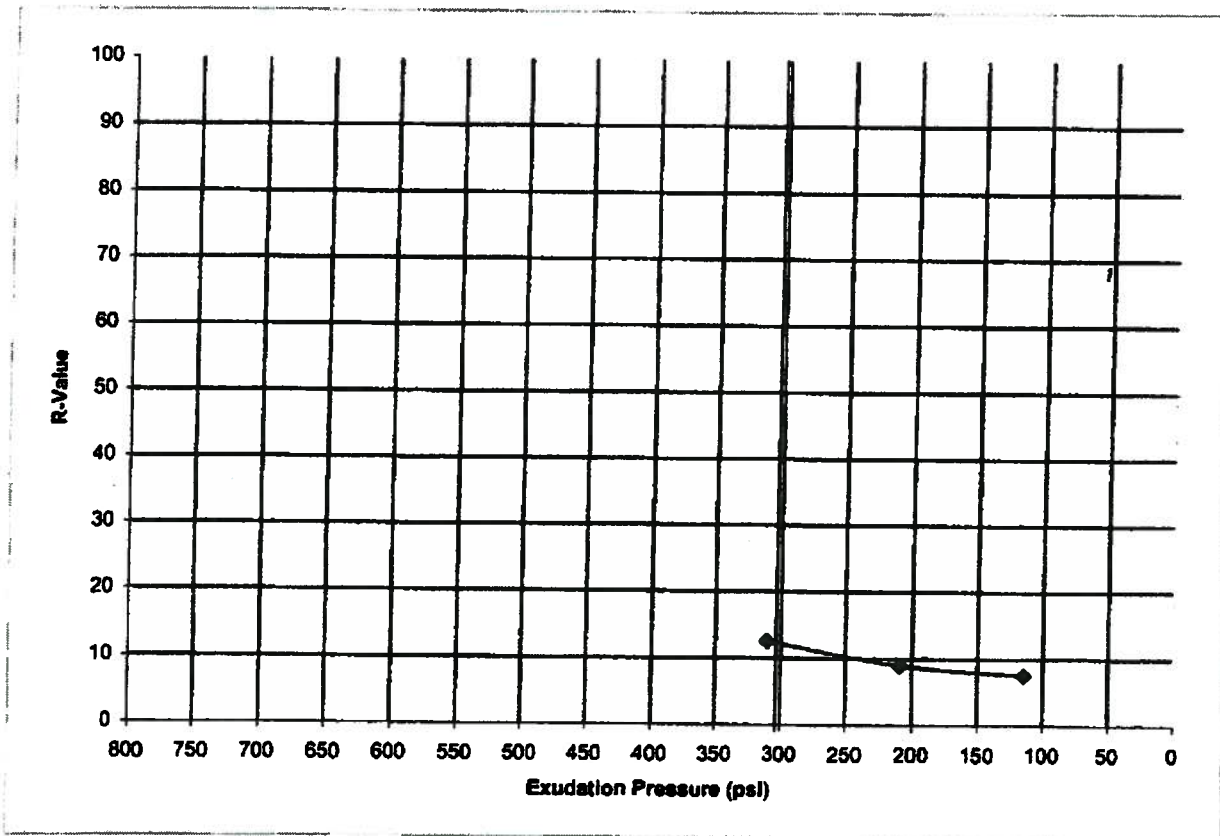


PROJECT: Greenfield Road , Pecos Road to Germann Road
LOCATION: Gilbert, AZ
MATERIAL: Clay w/ some Silt
SAMPLE SOURCE: #6 @ 0.0-5.0'

JOB NO: 12008022.0004
WORK ORDER NO: 1
LAB NO: 31
DATE SAMPLED: 02/16/09

RESISTANCE R-VALUE AND EXPANSION PRESSURE OF COMPACTED SOILS (ASTM D2844)

SPECIMEN I. D.	A	B	C
Moisture Content	15.0%	14.1%	13.4%
Compaction Pressure (psi)	75	125	175
Specimen Height (inches)	2.41	2.42	2.40
Dry Density (pcf)	118.4	121.2	122.3
Horiz. Pres. @ 1000lbs (psi)	61.0	59.0	54.0
Horiz. Pres. @ 2000lbs (psi)	136.0	134.0	127.0
Displacement	4.92	4.52	4.09
Expansion Pressure (psi)	0.0	0.3	0.7
Exudation Pressure (psi)	115	209	310
R Value	8	9	13



R Value at 300 PSI = 13



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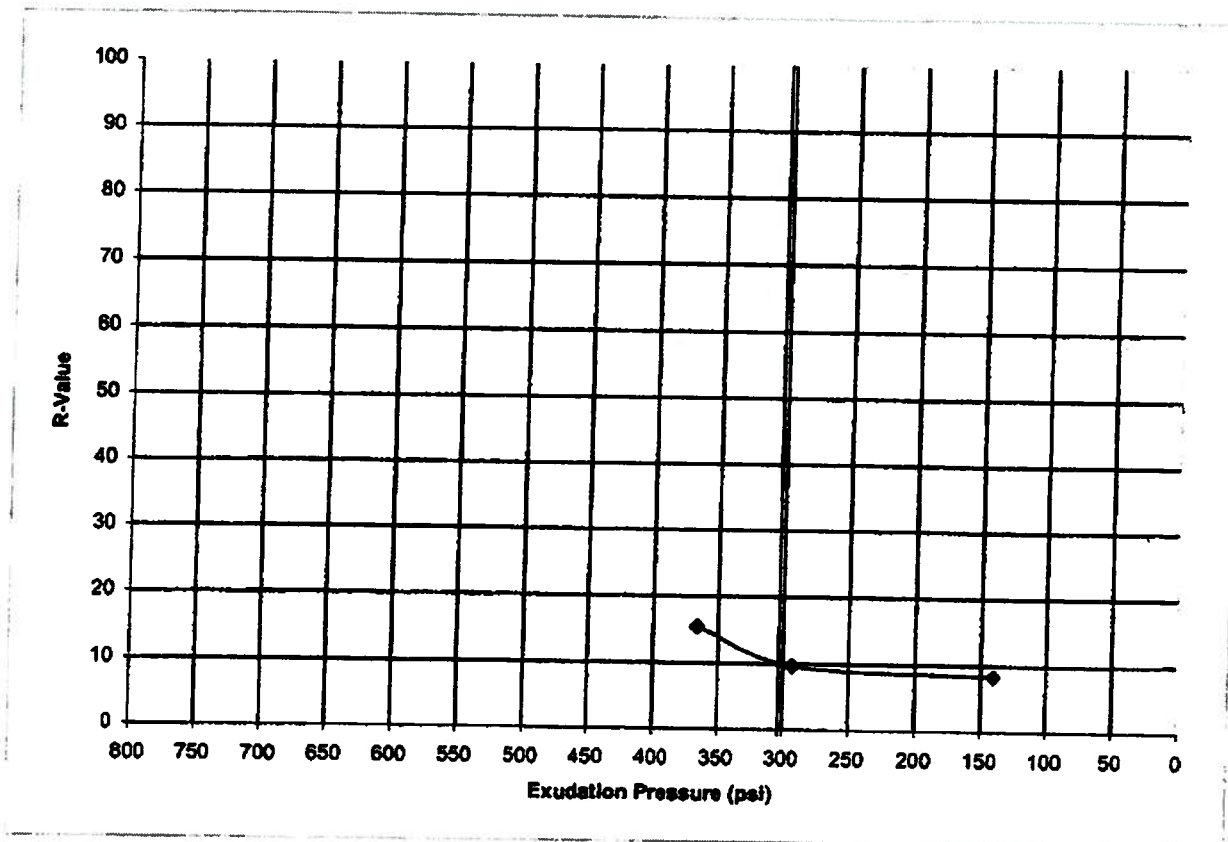


PROJECT: Greenfield Road , Pecos Road to Germann Road
LOCATION: Gilbert, AZ
MATERIAL: Clay with Some Gravel
SAMPLE SOURCE: #2 @ 0.0-5.0'

JOB NO: 12008022.0004
WORK ORDER NO: 1a
LAB NO: 8
DATE SAMPLED: 02/16/09

RESISTANCE R-VALUE AND EXPANSION PRESSURE OF COMPACTED SOILS (ASTM D2844)

SPECIMEN I. D.	A	B	C
Moisture Content	14.7%	13.8%	12.9%
Compaction Pressure (psi)	75	100	150
Specimen Height (inches)	2.41	2.41	2.39
Dry Density (pcf)	118.8	121.9	124.1
Horiz. Pres. @ 1000lbs (psi)	60.0	60.0	51.0
Horiz. Pres. @ 2000lbs (psi)	136.0	134.0	123.0
Displacement	4.43	4.13	3.68
Expansion Pressure (psi)	0.8	1.0	1.3
Exudation Pressure (psi)	140	293	366
R Value	8	10	15



R Value at 300 PSI = 10



REVIEWED BY



PROJECT: Greenfield Road , Pecos Road to Germann Road
 LOCATION: Gilbert Az
 MATERIAL: Native Soil

JOB NO: 012008022,000
 WORK ORDER NO: 1
 LAB NO: See Below
 DATE SAMPLED: 2/16/08

THICKNESS OR HEIGHT OF COMPACTED BITUMINOUS PAVING MIXTURE SPECIMENS (ASTM D3649-03)
 as applicable

LAB NO.	SAMPLE SOURCE	HEIGHT (in)
63	AMEC #4, Greenfield Rd.	5.99
68	AMEC #6, Greenfield Rd.	7.25
66	AMEC #8, Greenfield Rd.	7.96
67	AMEC #7, Greenfield Rd.	4.63
	Average	6.46
64	AMEC #9, Germann Rd.	5.07
65	AMEC #10, Germann Rd.	5.36
	Average	5.21



REVIEWED BY JK

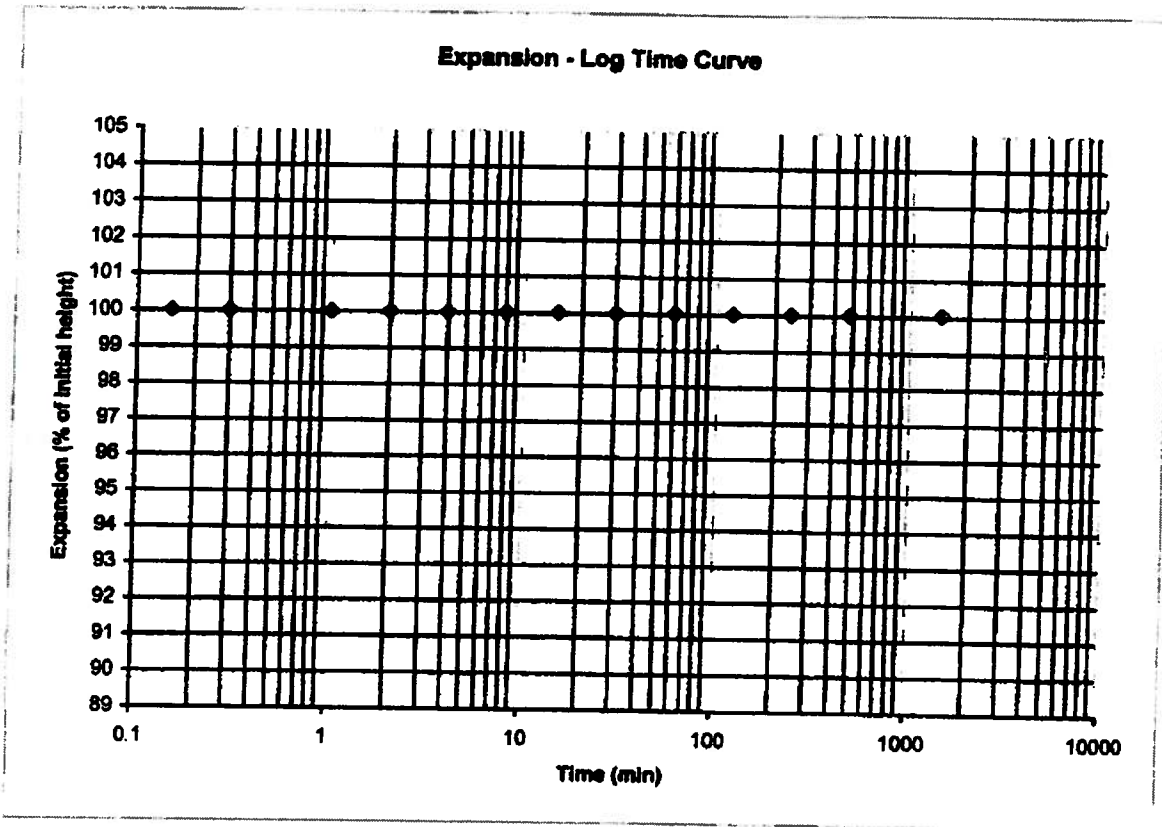


PROJECT: Greenfield Road , Pecos Road to Germann Road
LOCATION: Gilbert, AZ
MATERIAL: Native Soil
SAMPLE SOURCE: #3 @ 0.0-5.0'
SAMPLE PREP: Remolded to 95% max dry density and -3% optimum moisture
Max dry density D698A 122.3 pcf @ 11.2% opt. moisture

JOB NO: 12008022.0004
WORK ORDER NO: 1a
LAB NO: 14
DATE SAMPLED: 2/25/09
LOAD: 144 pcf

ONE DIMENSIONAL SWELL OR SETTLEMENT POTENTIAL OF COHESIVE SOILS (ASTM D-4546)

INITIAL DRY DENSITY	116.4 pcf
FINAL DRY DENSITY	116.3 pcf
INITIAL MOISTURE CONTENT	8.1%
FINAL MOISTURE CONTENT	15.8%
MOIST. PICK-UP (% DRY WT.)	7.7%
MOIST. PICK-UP (% IN. VOL.)	14.4%
SWELL (% INITIAL HT.)	0.1%
TYPE OF WATER USED	TAP WATER



REVIEWED BY C4

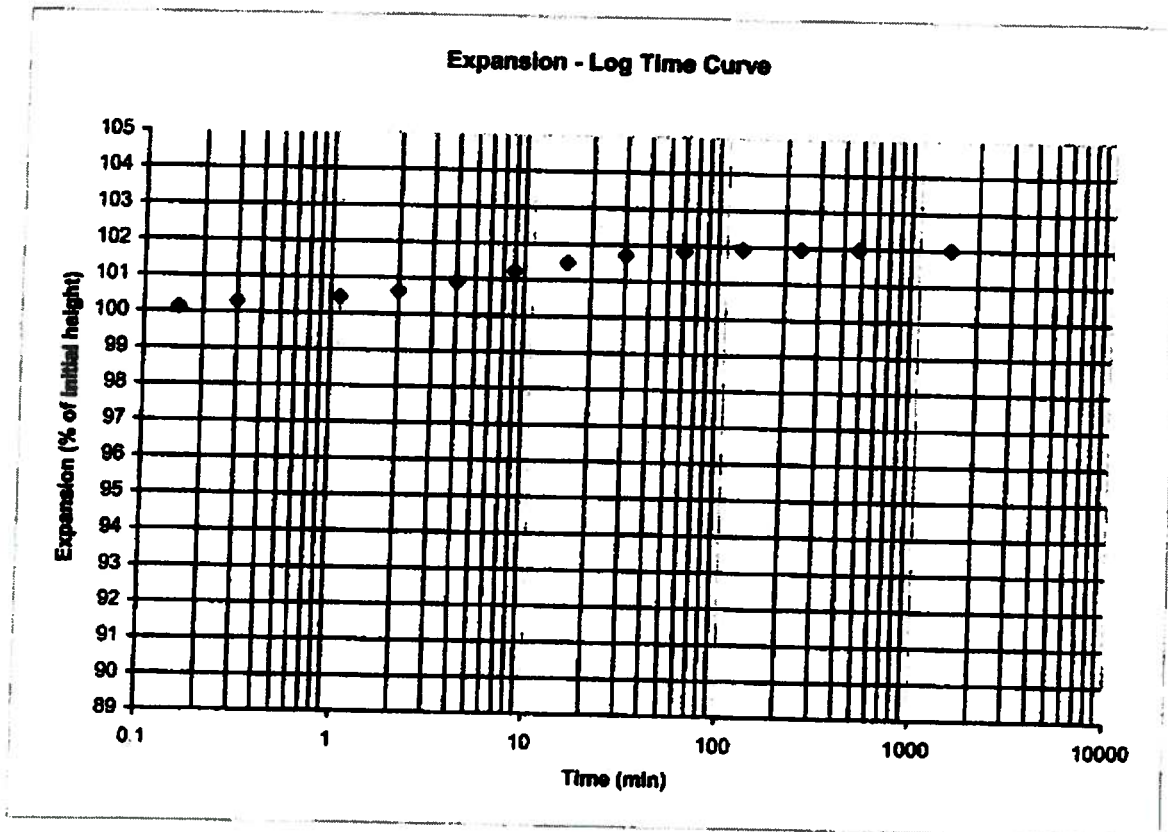


PROJECT: Greenfield Road , Pecos Road to Germann Road
LOCATION: Gilbert, AZ
MATERIAL: Native Soil
SAMPLE SOURCE: #6 @ 0.0-5.0'
SAMPLE PREP: Remolded to 95% max dry density and -3% optimum moisture
Max dry density D698A 120.1 pcf @ 13.3% opt. moisture

JOB NO: 12008022.0004
WORK ORDER NO: 1a
LAB NO: 31
DATE SAMPLED: 2/25/09
LOAD: 144 psf

ONE DIMENSIONAL SWELL OR SETTLEMENT POTENTIAL OF COHESIVE SOILS (ASTM D-4548)

INITIAL DRY DENSITY	114.8 pcf
FINAL DRY DENSITY	112.5 pcf
INITIAL MOISTURE CONTENT	9.8%
FINAL MOISTURE CONTENT	16.6%
MOIST. PICK-UP (% DRY WT.)	6.8%
MOIST. PICK-UP (% IN. VOL.)	12.6%
SWELL (% INITIAL HT.)	2.0%
TYPE OF WATER USED	TAP WATER



REVIEWED BY Cy

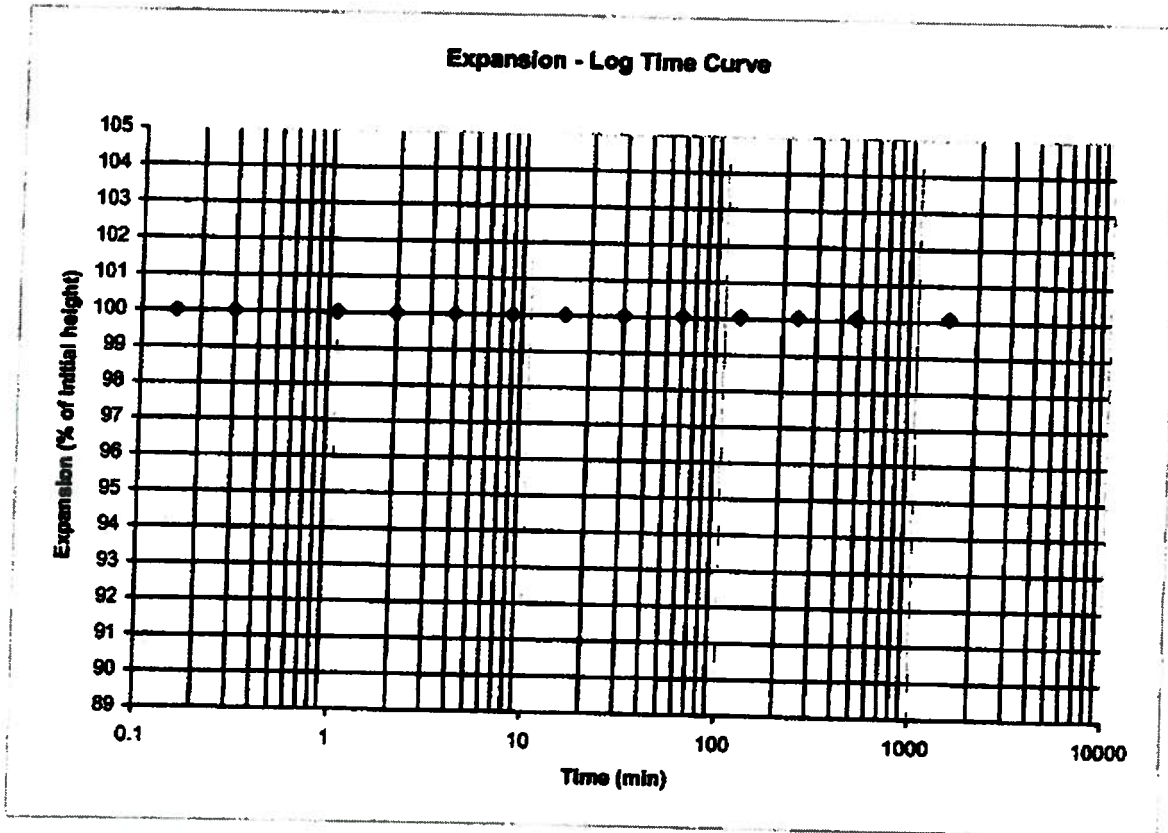


PROJECT: Greenfield Road , Pecos Road to Germann Road
LOCATION: Gilbert, AZ
MATERIAL: Native Soil
SAMPLE SOURCE: #10 @ 0.0-5.0'
SAMPLE PREP: Remolded to 95% max dry density and -3% optimum moisture
Max dry density D698A 118.4 pcf @ 13.7% opt. moisture

JOB NO: 12008022.0004
WORK ORDER NO: 1a
LAB NO: 43
DATE SAMPLED: 2/25/09
LOAD: 144 psf

ONE DIMENSIONAL SWELL OR SETTLEMENT POTENTIAL OF COHESIVE SOILS (ASTM D-4546)

INITIAL DRY DENSITY	112.6 pcf
FINAL DRY DENSITY	112.6 pcf
INITIAL MOISTURE CONTENT	10.8%
FINAL MOISTURE CONTENT	17.0%
MOIST. PICK-UP (% DRY WT.)	6.2%
MOIST. PICK-UP (% IN. VOL.)	11.2%
SWELL (% INITIAL HT.)	0.1%
TYPE OF WATER USED	TAP WATER



REVIEWED BY Cyf



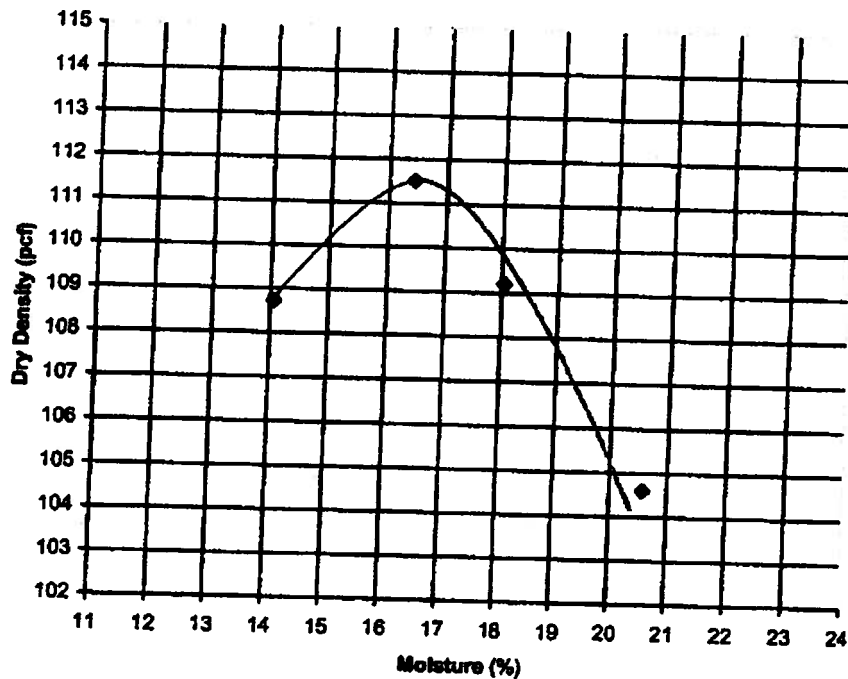
PROJECT: Greenfield Road , Pecos Road to Germann Road
LOCATION: Gilbert, AZ
MATERIAL: Native Soil
SAMPLE SOURCE: #9 @ 5.0-10.0'

JOB NO: 12008022.0004
WORK ORDER NO: 1
LAB NO: 54
DATE SAMPLED: 2/12/09

LABORATORY COMPACTION CHARACTERISTICS OF SOILS USING
STANDARD EFFORTS (12,400ft-lb-ft/cu.ft) (ASTM D698A)

MAXIMUM DRY DENSITY (pcf):
OPTIMUM MOISTURE (%):

111.5
16.5



NOTE: THE ZERO AIR VOIDS CURVE REPRESENTS A SPECIFIC GRAVITY OF ASSUMED.

THIS IS A SUMMARIZED REPORT OF THE REFERENCED PROCEDURES AND DOES NOT INCLUDE ALL REPORTING REQUIREMENTS. ADDITIONAL DATA CAN BE PROVIDED AT CLIENT'S REQUEST.



REVIEWED BY



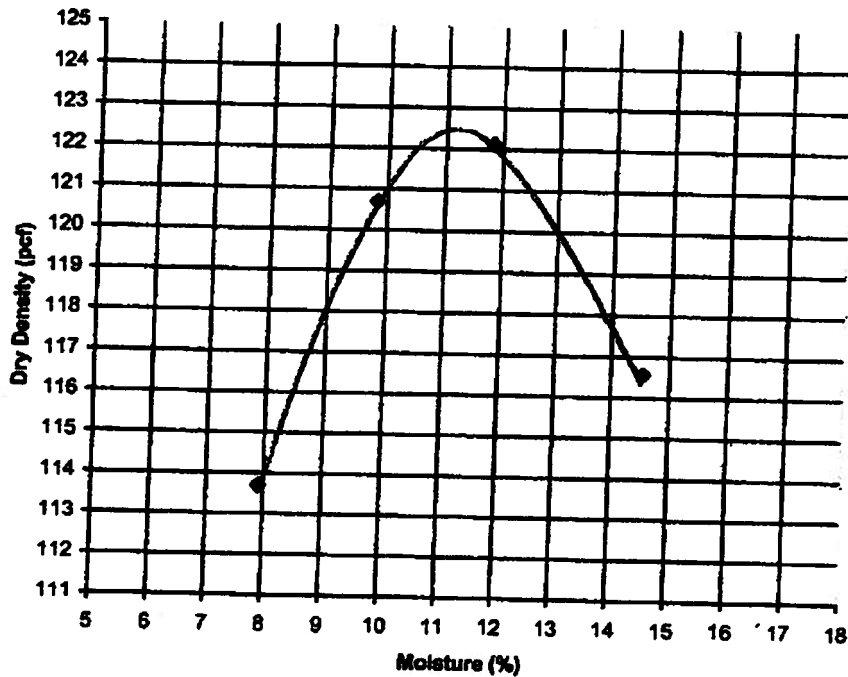
PROJECT: Greenfield Road , Pecos Road to Germann Road
LOCATION: Gilbert, AZ
MATERIAL: Native Soil
SAMPLE SOURCE: #3 @ 0.0-5.0'

JOB NO: 12008022.0004
WORK ORDER NO: 1
LAB NO: 14
DATE SAMPLED: 2/12/09

LABORATORY COMPACTION CHARACTERISTICS OF SOILS USING
STANDARD EFFORTS (12,400ft-lb-ft/cu.ft) (ASTM D698A)

MAXIMUM DRY DENSITY (pcf):
OPTIMUM MOISTURE (%):

122.3
11.2



NOTE: THE ZERO AIR VOIDS CURVE REPRESENTS A SPECIFIC GRAVITY OF: ASSUMED.

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REVIEWED BY



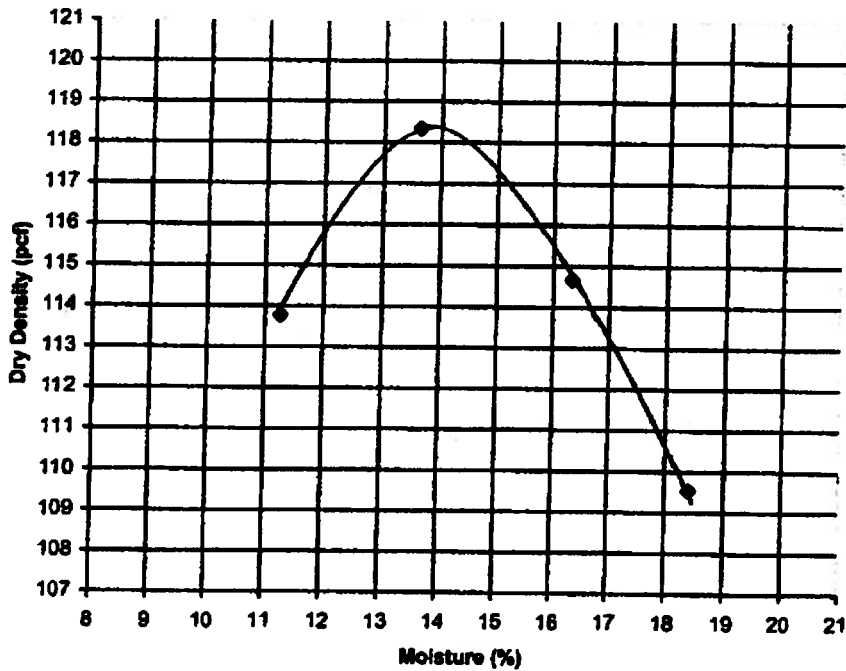
PROJECT: Greenfield Road , Pecos Road to Germann Road
LOCATION: Gilbert, AZ
MATERIAL:
SAMPLE SOURCE: #10 @ 0.0-5.0'

JOB NO: 12006022.0004
WORK ORDER NO: 1a
LAB NO: 43
DATE SAMPLED: 2/25/09

LABORATORY COMPACTION CHARACTERISTICS OF SOILS USING
STANDARD EFFORTS (12,400ft-lb-ft/cu.ft) (ASTM D698A)

MAXIMUM DRY DENSITY (pcf):
OPTIMUM MOISTURE (%):

118.4
13.7



NOTE THE ZERO AIR VOIDS CURVE REPRESENTS A SPECIFIC GRAVITY OF: ASSUMED.

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REVIEWED BY



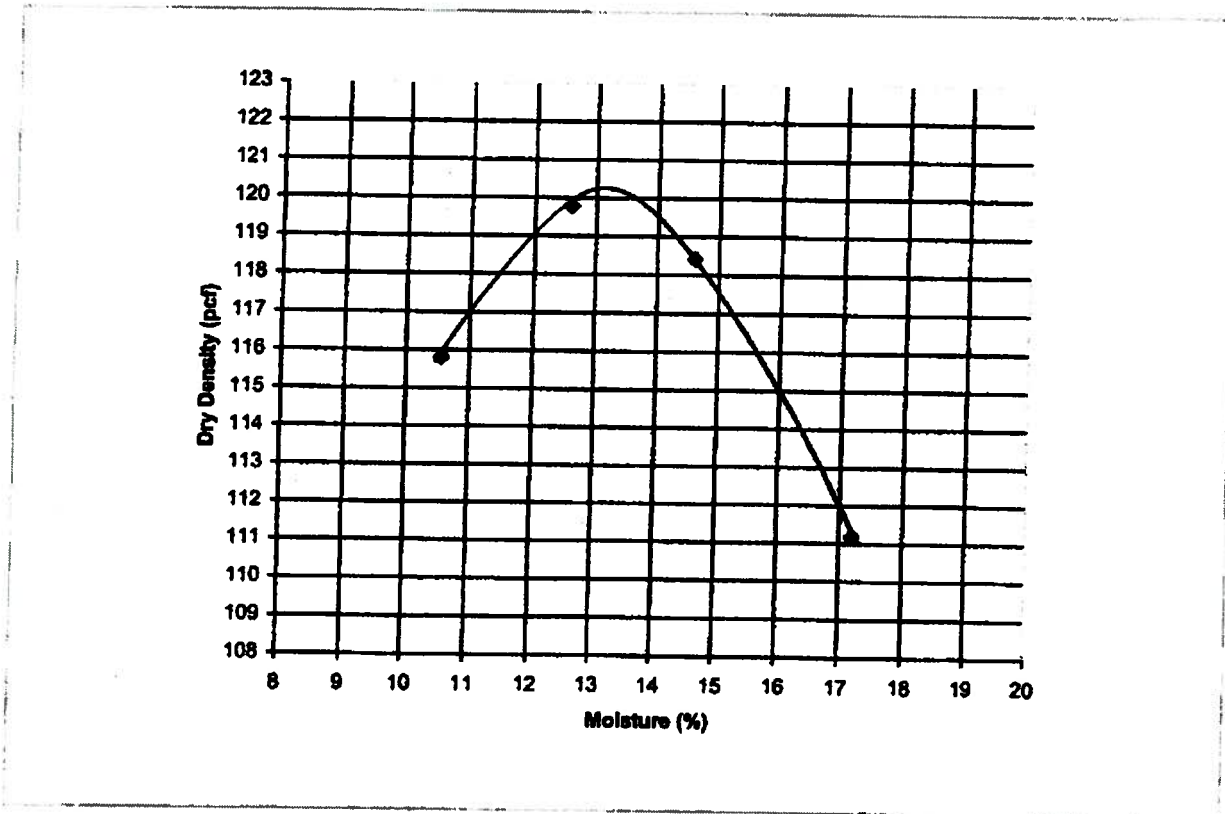
PROJECT: Greenfield Road , Pecos Road to Germann Road
LOCATION: Gilbert, AZ
MATERIAL: Clay w/ some Silt
SAMPLE SOURCE: #6 @ 0.0-5.0'

JOB NO: 12008022.0004
WORK ORDER NO: 1a
LAB NO: 31
DATE SAMPLED: 2/25/09

LABORATORY COMPACTION CHARACTERISTICS OF SOILS USING
STANDARD EFFORTS (12,400ft-lb-ft/cu.ft) (ASTM D698A)

MAXIMUM DRY DENSITY (pcf):
OPTIMUM MOISTURE (%):

120.1
13.3



NOTE THE ZERO AIR VOIDS CURVE REPRESENTS A SPECIFIC GRAVITY OF: ASSUMED.

THIS IS A SUMMARIZED REPORT OF THE REFERENCED PROCEDURES AND DOES NOT INCLUDE ALL REPORTING REQUIREMENTS. ADDITIONAL DATA CAN BE PROVIDED AT CLIENT'S REQUEST.



REVIEWED BY



PROJECT: Greenfield Road , Pecos Road to Germann Road
LOCATION: Gilbert, AZ
MATERIAL: Native Soil
SAMPLE SOURCE: See Below

JOB NO: 12008022.0004
WORK ORDER NO: 1
LAB NO: See Below
DATE ASSIGNED: 02/16/09

pH & RESISTIVITY (AZ 236)

LAB NO	SAMPLE SOURCE	RESISTIVITY (Ohm-cm)	pH
43	#8 @ 0.0-5.0'	1,286	8.6
54	#9 @ 5.0-10.0'	1,422	8.3
61	#10 @ 0.0-5.0'	2,031	8.4

REVIEWED BY

ST057 Pre Bid Questions and Disposition

Contractor Questions Prior to Pre-bid	Designer Disposition and Response
1. Item 464-01 Sign Post 1 ¾" bid schedule calls for 406 LF and the Sign Summary on sheets 63-71 calls for a total of 383 LF	383 LF is correct. A revised Bid Schedule is included with this Addenda.
2. Item 464-02 Sign Post 2" bid schedule calls for 11 LF and the Sign Summary on sheets 66 & 68 call for a total of 23 LF	23 LF is correct. A revised Bid Schedule is included with this Addenda.
3. In the Sign Summary sheets there are a number of Sign removals and relocates identified on sheets 63-71. We did not see in the Special Provisions or in the Bid Schedule how this work will be paid. Please clarify.	TS No. 464-05, a Lump Sum Bid Item has been added to Technical Specifications and Revised Bid Schedule to pay for relocation and removal of signs as indicated on the plans. A revised Bid Schedule is included with this Addenda.
4. Bid Schedule appears to have duplicate items. Please clarify. 477-07.1 Luminaires Heads TOG Dtl F1 (39) EACH and 477-09 250 WATT Luminaires (Shoe Box) (39) EACH 477-08 Luminaire Heads TOG Dtl F2 (10) EACH and 477-10 250 WATT Luminaires (Cobra Head) (10) EACH	Bid Items 477-09 and 477-10 are duplicates and will be removed from the bid schedule. TS Section 477-09 and 477-10 are deleted from the Technical Specifications. A revised Bid Schedule is included with this Addenda.
5. Item 471-05 - Sch 40 PVC SRP Street Lighting Conduit, (2") (Trench) 225 LF. We cannot find in the Street Lighting plans. The only reference to conduit for the street lighting is called out for on sheets 73 to 78 is note #10 which states 2 ½" conduit and is only shown to be installed on sheet 75 of 86. This appears to be approx. 525 LF.	TS No. 471-05 and Bid Item 471-05 will be revised to: (1") (Trench) per Note 2 on Sheet 73 of 86 to Sheet 76 of 86. Additionally, 2 ½ conduit quantity per Note 10 on Sheet 75 of 86 will be added as TS No. 471-05A to the Technical Specifications and Bid Schedule. A revised Bid Schedule is included with this Addenda.
6. On plan sheet 75 of 86 at Sta. 221+28, 68' RT, is call out #1 correct or should this be call out #9? If #1 is correct, then all the following listed pay items need to increase by one from (39) each to (40) each. Items 477-01, 477-02, 477-05, 477-07 or 477-09.	Call out No. 1 is correct. The contractor will provide and install this street light. The Bid Schedules (477-01, 477-02, 477-05 & 477-07) will be revised. A revised Bid Schedule is included with this Addenda.
7. Item 471-03 – No. 5 Pull Box (SRP Street Light J-Box) bid schedule is calling for (49) EACH. We counted a total of (50) EACH using pages 73-78.	The actual quantity is 50. A revised Bid Schedule is included with this Addenda.
8. In the Technical Specifications on page TS-30 it states "Removal of existing street lights... shall be measured and paid for as a unit EACH..." . In the bid schedule Item 350-17 Removal of Existing Street Lighting states (1) LS. Please	The Technical Specifications will be revised to measure and pay for removal of existing street lights as LS.

clarify.	
9. In the Technical Specifications on page TS-38 the last paragraph under items 477-07 & 477-08 Luminaire Heads TOG Dtl F1 & F2 it states “The heads shall be equipped with shorting caps, not photocells.” The Street Lighting plans are calling for photocells. Please clarify / confirm that any luminaire shoe box or cobra head installed on a street lighting pole requires a photocell and any luminaire installed on a traffic signal pole mast arm requires a shorting cap.	Technical Specifications will be revised. Luminaire shoe box or cobra head on a street light will be equipped with photocell and luminaire on a traffic signal pole will be equipped with shorting cap.
10. Will there be any plant salvage or landscaping on this project?	There is no plant salvage on this project. Landscaping is limited to the application of decomposed granite.
Contractor Questions at Pre-bid	Designer Disposition and Response
1. On Sheet 40- there is a tapping sleeve and valve shown at Station 46+14. What work is specifically required here: capping the tee or a valve and tee and not a tapping sleeve?	A tee and valve should be used in lieu of the tapping sleeve and valve. Note 30 on Sheet 40 of 86 will be changed to read INSTALL TEE AND VALVE PER MAG STD. DTL. 340. Bid Schedule Items No. 630-02 will be decreased by one, 630-01 will increase by one, TS No. 610-23A will be added to the Technical Specifications and Bid Schedule. A revised Bid Schedule is included with this Addenda.
2. What kind of pipe is the existing 30” Reclaimed waterline on Sheet 49A where the tapping sleeve and valve are shown?	Per the potholes, 30” RW is DIP. Emptying the pipe and filling the pipe is incidental to the work.
3. What kind of pipe is specified for the 30” reclaimed waterline, how much of that 30” reclaimed waterline must be drained to complete the realignment shown on Sheet 48?	Per the potholes, 30” RW is DIP. Emptying the pipe and filling the pipe is incidental to the work. The 30” reclaimed water main can be shut down for 3 days maximum. Shut downs are to be coordinated with the Town.
4. What is the pipe type of the 16” waterline that is to be realigned on Sheet 43, how much of it has to be drained to realign it, and how long can it be shut down?	On Sheet 43 of 86 the 16” waterline is DIP, per the potholes. Emptying the pipe and filling the pipe is incidental to the work. The 16” water main can be shut down for 4 hours beginning at midnight. Shut downs are to be coordinated with the Town.
5. What type of pipe is the 16” and 10” force mains that are to be realigned on Sheet 43, how much of the pipe must be drained to complete the realignment, and how long can the pipes be shut down for?	Per the potholes, 16” & 10” FMs are DIP. Emptying the pipe and filling the pipe is incidental to the work. The 16” and 10” FMs can be shut down for 24 hours at a time. Shut downs are to be coordinated with Town.

6. What is the diameter of the irrigation standpipe called out on Sheets 51, 52 and 53? MAG 501 doesn't specify a size.	The diameter of the irrigation standpipe shall be 48".
7. What size are the alfalfa valves to be installed throughout the project?	All alfalfa valves shall be 10".
8. On Sheet 10, the drywell is shown as a Max Well Plus, in Bid Item No. 505-12 for the drywell, it is called out as a Max Well IV. Which is correct?	The drywell on shown on the plans is correct, Max Well Plus will be used. Bid Item No. 505-12 and TS No. 505-12 will be changed to Max Well Plus. A revised Bid Schedule is included with this Addenda.
9. On Sheet 10, the CMP Underground Retention detail cross section appears to require an overexcavation of 2'. It appears that it is drawn incorrectly in the detail. The pipe is shown smaller than the dimensions that are given in the detail. Is overexcavation required for the pipe?	The CMP Underground Retention Pipe in the detail is not drawn to scale. A 2 foot overexcavation as called out in the detail is required.
10. Bid Item No. 340-08 calls for 3' wide valley gutter. MAG 240 changed in 2010 from 3' wide to 6' wide. Which is called for?	A 6' valley gutter will be used. TS No. 340-08 and Bid Item No. 340-08 will be changed to 6' wide. A revised Bid Schedule is included with this Addenda.
11. Is an off duty police officer to be in the bid items and a pay item?	No, the Town will pay for this item.
12. Bid Item No. 350-17 calls for the removal of streetlights. Are these to be salvaged or disposed of?	Streetlights are to be returned to the Town of Gilbert per construction Note #6 on Sheet 72.
13. Bid Item No. 505-14 calls for a 24" deep concrete lined ditch. The detail shown on Sheet 13 shows a concrete lined ditch that is 30" deep. What depth is the concrete lined ditch to be constructed at?	The concrete lined ditch shall be constructed to a depth of 30". TS505-14 and Bid Item No. 505-14 will be changed to 30" deep. A revised Bid Schedule is included with this Addenda.
14. Is a soils report going to be provided?	The soils report for this project is included with this Addenda.
15. Are the CADD files available for the project?	No, CADD files are not available.
16. The street light conduit shown in the specifications is Schedule 40. Will the conduit be placed per the plans and specifications or will it be installed per SRP standards? Bid Item No. 471-02 is different than SRP's standard. Will SRP or the contractor be providing the pull boxes?	The street light conduits will be installed per SRP standards. Pull boxes are to be provided by contractor per Construction Note 3 on Sheet 72 of 86 through Sheet 76 of 86 .
17. In the Bid Schedule the poles and mast arms are called out to be painted and installed. Who is responsible for transporting the poles and mast arms and where is possession of this	Contractor is responsible for transporting. Contractor is to take possession of poles and mast arms at the Town of Gilbert South Area Service Center at Greenfield and Queen

equipment to be exchanged?	Creek Roads. Per TS 476, Contractor is to contact Town to arrange picking up equipment.
18. All of the Right of Way has been acquired for the project. Is there any relocation assistance required for property owners impacted by the project?	No relocation assistance is required for property owners.
19. Is the permit required for RWCD work provided at no cost to the contractor?	RWCD Permit is required. Contractor to obtain RWCD Permit.
20. Is borrow material available for the project from the Town's Southeast Recharge Facility?	No.
21. Will the dairy be operating during construction?	The livestock on the dairy farm at the SE corner of Greenfield and Germann will be relocated by the dairy farmer from the ROW, Drainage Easements and Temporary Construction Easements along Greenfield Road further to the east to allow roadway improvements. Livestock will be relocated by May 31, 2011.
Contractor Questions Post Pre-bid Meeting	Designer Disposition and Response
1. Can you make the cross sections available for this project, or existing grade contours, or other information that will allow us to do an earthmoving analysis for the project? This question applies to almost all of the Earthwork bid items: 205-01, 211-01, 211-02, and 215-01. The plans do not provide enough information to verify the quantities provided.	Cross sections were included in the plan set provided.
2. The color for the decomposed granite (bid item number 430-02) is not specified on the plans or specs. Does this material need to be a specific color?	Color of Decomposed Granite to be determined during submittal review.
3. Sheet 48 – The contractor is to tie-in to an existing manhole – what is the flow rates on the existing 18" & 21" sewerlines?	This data is unavailable at this time.
4. Sheet 47 – The contractor is to tie-in to an existing manhole – this appears to be part of the Okland project – is this manhole already installed?	Yes, this manhole has been installed by Okland
5. Item No. 477-07 & 477-09 are both 250W Shoe-Box Luminaires, Item 477-08 & 477-10 are both 250W Cobra Head Luminaires. Are these duplications?	Yes, they are duplicates. Please see previous response to Contractor Questions prior to Pre-bid Meeting, No. 4.
6. Item 477-03 – G Pole, 6 EA, and Item 477.06 – 20' Tapered Mast Arm, are these TOG Supplied and are they to be painted?	G Pole per plans and 20' Tapered MA are to be provided and painted by Contractor per specifications and TOG details.

7. Will Qwest Conduit be supplied and installed by Qwest forces or will the Qwest conduit be contractor supplied and installed?	The conduit will be supplied and installed by Qwest. The contractor is responsible for coordinating with Qwest.
8. The plans do not call out to remove the existing asphalt roadway and there is not a bid item for this work. Is the removal of the existing road considered incidental to subgrade prep or do you plan to add a bid item?	Bid item 350-01 Sawcut and Remove Existing Pavement is only for isolated areas where new pavement is matching existing pavement at locations noted on the plans. The remainder of the pavement removal is included in bid item 205-01 Roadway Excavation.
9. The plans don't show the existing grades outside of the roadway. Can we get a set of plans that has these existing contours?	Cross sections for the project are included in the plan set.
10. Decomposed granite.	TS No. 430-02 and Bid Item No. 430-02 to be changed to 1/4" DG 4" thickness. TS No. 430-03 and Bid Item No. 430-03 to be added for 1/2" DG 2" thickness. Color to be coordinated during Submittal Review. A revised Bid Schedule is included with this Addenda.

NAME OF BIDDER: _____

**TOWN OF GILBERT
 BID SCHEDULE
 REVISED BY ADDENDUM NO. 2
 March 29, 2011**

No.	Description	Unit	Est. Qty.	Unit Price	Extended Price
General Conditions					
105-01	Construction Surveying & As-Builts	LS	1		
107-01	Community Relations Support	LS	1		
107-02	A.Z.P.D.E.S.	LS	1		
109-01	Mobilization / Demobilization	LS	1		
109-02	Project Field Office	LS	1		
SC-1.05	Temporary Construction Fence	LF	4,700		
GC-5.9	Contractor Testing	LS	1		
Earthwork					
205-01	Roadway Excavation	CY	7,546		
211-01	Place & Compact All Fill	CY	16,840		
211-02	Construct Earthen Berm	LF	3,527		
215-01	Drainage Excavation	CY	5,470		
220-01	Dumped Riprap D50=6"	CY	23		
Streets and Related Work					
301-01	Subgrade Preparation	SY	55,056		
<p>NOTE: Contractor shall provide the lowest bid ONLY from the two pavement alternatives defined in No. 321-01 and No. 321-02. Meaning, only the lowest alternative shall be carried out to the total used in the final bid.</p> <p style="text-align: center;"><u>Failure to comply shall result in bid being considered non responsive.</u></p>					
321-01 Alternate Bid Item	Pavement Structural Section #1 (5" AC, 4" Aggregate, 8" Soil Cement Base Course)	SY	45,537		
321-02 Alternate Bid Item	Pavement Structural Section #2 (5" AC, 4" Aggregate, 10" Lime Stabilized Subgrade)	SY	45,537		
<p>NOTE: Contractor shall provide the lowest bid ONLY from the two pavement alternatives defined in No. 321-01 and No. 321-02. Meaning, only the lowest alternative shall be carried out to the total used in the final bid.</p> <p style="text-align: center;"><u>Failure to comply shall result in bid being considered non responsive.</u></p>					

321-03	Pavement Structural Section #3 (4" AC, 12" Aggregate, Geogrid)	SY	7,587		
321-04	Pavement Structural Section #4 (2 1/2" AC, 8" Aggregate)	SY	1,932		
321-05	Thickened Pavement Edge, MAG Dtl 201, Type B	LF	2,754		
321-06	Mill & Overlay Existing Pavement	SY	674		
336-01	Pavement Replacement	SY	4,462		
336-02	Pavement Sawcutting	LF	508		
340-01	Curb & Gutter Per MAG Std Dtl 220, Type A	LF	12,464		
340-02	Vertical Curb MAG Std Dtl 222, Type A	LF	1,963		
340-03	6' Meandering Sidewalk Per TOG Std Dtl 42	SF	67,926		
340-04	Sidewalk Ramp per MAG Std Dtl 231	EA	11		
340-05	Sidewalk Ramp per Detail 1	EA	1		
340-06	Sidewalk Ramp per Detail 2	EA	4		
340-07	Driveway Per City of Mesa Detail M-42	SF	5,858		
340-08	Valley Gutter & Apron, 6' Width, MAG Dtl 240	SF	3,255		
342-01	Stamped Concrete Asphalt (In Roadway Median)	SF	2,166		
345-01	Adjust & Clean Water/Gas Valve, Frame, Cover per MAG Dtl 270	EA	48		
345-02	Adjust & Clean Manhole Frame & Cover per MAG Dtl 422	EA	15		
350-01	Sawcut & Remove Existing Pavement	SY	244		
350-02	Remove Existing Steel Post	EA	10		
350-03	Remove Existing Curb & Gutter	LF	52		
350-04	Remove Existing Sidewalk	SF	43		
350-05	Remove, Clean & Reset Survey Mon. MAG Dtl 120-2 "E"	EA	2		
350-06	Remove Existing Plug w/ Flushing Pipe & Connect	EA	3		
350-07	Remove Existing Concrete Irrigation Ditch	LF	2,555		
350-08	Remove Existing Irrigation Pipe	LF	156		
350-10	Remove Existing Irrigation Catch Basin	EA	2		
350-11	Remove Existing Water Meter	EA	1		
350-12	Remove Tree	EA	25		
350-13	Remove Existing Concrete Bridge	EA	1		
350-14	Remove Existing Concrete Pad	EA	2		
350-15	Remove Existing Fence	LF	3,107		

350-16	Remove Existing Trough	LF	589		
350-17	Removal of Existing Street Lighting	LS	1		
350-18	Remove, Salvage Existing Traffic Signal Equipment	LS	1		
350-19	Relocate Existing Mailbox	EA	5		
350-20	Remove Existing Mailbox	EA	3		
350-21	Replace Block Wall In Kind (Approx Sta 203+00, Lt)	LF	145		
350-22	Replace Wire Fence and Gates In Kind (Approx Sta 204+00, Lt)	LF	112		
350-23	Replace Pipe Fence In Kind (Approx Sta 198+00, Lt)	LF	119		
350-24	Remove Existing Retaining Wall	LF	145		
	Right-of-Way and Traffic Control				
401-01	Traffic Control	LS	1		
405-01	Survey Marker Per MAG Std Dtl 120-1, Type B	EA	12		
420-01	Chain Link Fence (6 foot height)(MAG Std Dtl 160)	LF	108		
424-01	Parkway Grading to Right-of-way	SY	6,750		
430-01	6-inch Wide Concrete Header	LF	3,400		
430-02	Decomposed Granite, 1/4", (4" thickness, color: Tuscan Gold)	SY	6,438		
430-03	Decomposed Granite, 1/2", (2" thickness, color: Express Brown)	SY	34,900		
440-01	4" Irrigation Sleeve, Sch 40 PVC, w/ 2" Wire Sleeve	LF	67		
	Traffic Related Work				
461-01	Permanent Pavement Marking (White) 4" Equivalent	LF	38,517		
461-02	Permanent Pavement Marking (Yellow) 4" Equivalent	LF	18,940		
461-03	Paint Median Island End (TOG Dtl 304A & 304B)	LF	200		
462-01	Remove/obliteration of Existing Pavement Markings (4" Equiv)	LF	18,699		
462-02	Remove/Obliterate Existing Pavement Symbol	EA	7		
462-03	White Thermoplastic (ALKYD) (90 Mil) (4" Equiv)	LF	4,847		
462-04	Thermoplastic Pavement Symbol (left/right) (alkyd) (90 mil)	EA	19		
462-05	Thermoplastic Pavement Symbol (arrow & rider)	EA	39		
463-01	Raised Pavement Markers, Type D	EA	434		
463-02	Raised Pavement Markers, Type G	EA	578		

463-03	Raised Pavement Markers, Type M	EA	15		
463-04	Raised Pavement Markers, Type H	EA	471		
464-01	Sign Post (12 Guage 1-3/4" Square Steel Tubing)	LF	383		
464-02	Sign Post (12 Guage 2" Square Steel Tubing)	LF	23		
464-03	Foundation for sign posts	EA	50		
464-04	Regulatory, Warning or Marker Sign Panel (Type XI Sheet)	SF	293		
464-05	Sign Removal and Relocations	LS	1		
471-01	Electrical Meter Pedestal (Tesco) (TOG Detail-01)	EA	1		
471-02	Meter Pedestal Foundation	EA	1		
471-03	No. 5 Pull Box (SRP Street Light J Box)	EA	50		
471-04	No. 7 Pull Box w/extension, Per TOG Dtl # 94, 95 & 96	EA	4		
471-05	Sch 40 PVC SRP Street Lighting Conduit, (1") (Trench)	LF	225		
471-05a	Sch 40 PVC SRP Street Lighting Conduit, (2 1/2") (Trench)	LF	525		
471-06	Sch 40 PVC SRP Signal Service Conduit, (2 1/2") Trench	LF	200		
471-07	Sch 40 PVC Electrical Conduit, (3") Trench	LF	40		
471-08	Sch 40 PVC Electrical Conduit, (2-3") Trench	LF	1,305		
471-09	Traffic Signal Conductors	LS	1		
472-01	ADOT Signal Pole Foundations, Type R (T.S.4-11 SHT 1 OF 2)	EA	2		
472-01.1	ADOT Signal Pole Foundations, Type R-65 (T.S. 4-11 SHT 2 OF 2)	EA	2		
472-02	ADOT Signal Pole, Type R (Painting and Install Only)	EA	2		
472-02.2	ADOT Signal Pole, Type R-65 (Painting and Install Only)	EA	2		
472-03	ADOT Signal Mast Arm, 45 foot (Painting and Install Only)	EA	1		
472-04	ADOT Signal Mast Arm, 50 Foot (Painting and Install Only)	EA	1		
472-05	ADOT Signal Mast Arm, 60 Foot (Painting and Install Only)	EA	2		
472-06	ADOT Luminaire Mast Arm, 25 Foot (Painting and Install Only)	EA	4		
475-01	Signal Control Cabinet Foundation (Econolite TS2)	EA	1		
475-02	Signal Controller & Cabinet (Econolite ASC-2S/1000) (Install Only)	EA	1		
475-03	RUGGEDCOM RS900G-H1-N-2LC25 Shelf Mount Unit	EA	1		

475-04	Emergency Vehicle Detection (Strobecom II)	LS	1		
476-01	Traffic Signal Face (Type F) LED (Install Only)	EA	12		
476-02	Traffic Signal Face (Type Q) LED (Install Only)	EA	12		
476-03	Pedestrian Push Button Signs R-10(L) (Install Only)	EA	4		
476-04	Pedestrian Push Button Signs R-10(R) (Install Only)	EA	6		
476-05	Pedestrian Signal Face (LED) (Install Only)	EA	8		
476-06	Pedestrian Push Buttons (Install Only)	EA	12		
476-07	Traffic Signal Mounting Assembly (Type II) Install Only	EA	12		
476-08	Traffic Signal Mounting Assembly (Type VII) Install Only	EA	4		
476-09	Traffic Signal Mounting Assembly (Type VIII) Install Only	EA	6		
477-01	TOG Street Light Pole Foundation (TOG Dtl PF3)	EA	40		
477-02	TOG Street Light Pole (TOG Dtl P9)	EA	40		
477-03	ADOT Std Type 'G' Pole (ADOT Std Dtl. T.S. 4-4)	EA	6		
477-04	ADOT Std Type 'G' Pole Foundation (T.S. 4-4)	EA	6		
477-05	TOG 12'x8' High Rise Arm (TOG Dtl A1)	EA	40		
477-06	ADOT Std Mast Arm (20 FT) (Tapered)	EA	6		
477-07	Luminaire Heads (TOG Dtl F1)	EA	40		
477-08	Luminaire Heads (TOG Dtl F2)	EA	10		
477-11	Internally Illuminated Street Name Signs	EA	4		
481-01	Fiber Optic Pull Box No. 7, Per TOG Dtl #94	EA	18		
481-02	Fiber Optic Pull Box No. 9, Per TOG Dtl #102	EA	4		
481-03	Fiber Optic Sch 40 PVC Conduit, (2") Trench	LF	91		
481-04	Fiber Optic Sch 40 PVC Conduit, (2-4") (Trench)	LF	2,164		
481-05	Fiber Optic Sch 40 Conduit, (2- 4" & 1-2-1/2") (Joint Trench)	LF	6,274		
482-01	Fiber Optic Cable, Single Mode (96 Strand)	LF	10,833		
482-02	Fiber Optic Slice Closures	EA	7		
482-03	Fiber Optic Patch Panel	EA	4		
483-01	CCTV System	LS	1		

485-01	Video Detection System (4 Cameras)	LS	1		
	Structures				
505-01	Irrigation Standpipe: MAG 503, Type B	EA	3		
505-02	Headwall: MAG 501-1 'Straight Type' (No Trashrack)	EA	2		
505-04	Headwall: MAG 502-1 with Trashrack	EA	4		
505-05	Fullerman Canal Gate with Crank	EA	2		
505-06	Headgate: Waterman C-8 or Approved Equal	EA	1		
505-07	Waterman Alfalfa Valve (Sunshine Type)	EA	20		
505-08	Connect to Exist Irrigation Ditch	EA	6		
505-09	Catch Basin MAG 533	EA	15		
505-10	Catch Basin MAG 535, Modified	EA	3		
505-11	Concrete Headwall MAG 501-1, Type "U"	EA	9		
505-12	Maxwell Plus Drywell	EA	7		
505-13	Concrete Pipe Collar, per MAG Std Dtl 505	EA	11		
505-14	30" Deep Conc. Lined Ditch	LF	2,393		
505-15	Port Valve	EA	45		
505-16	Relocate Irrigation Gate	EA	3		
505-17	Headgate: Waterman C-10 or Approved Equal	EA	2		
510-01	Block Wall Fence (per Detail 5)	LF	61		
	Water and Sewer				
602-01	Jack and Bore 30" Casing	LF	149		
610-01	Relocate Fire Hydrant, Install Per TOG Dtl 60	EA	3		
610-02	Relocate Existing Water Meter Box	EA	7		
610-03	Relocate Existing Curb Stop with flushing Pipe	EA	1		
610-04	Relocate Existing Air Release Vault	EA	6		
610-05	Relocate Existing Valve	EA	5		
610-06	Furnish & Install New Fire Hydrant	EA	6		
610-07	6" Polyethylene Wrapped DIP Per TOG Dtl 60 & 60A	LF	173		
610-08	8" Polyethylene Wrapped DIP Waterline with Restrained Joints and Fittings	LF	116		
610-09	10" PVC C-900 CL 235 Waterline	LF	56		
610-11	16" PVC C-905 CL 235 Waterline	LF	3,768		

610-12	16" Polyethylene Wrapped DIP Waterline with Restrained Joints and Fittings	LF	219		
610-13	Pavement Sawcut (Related to Water only)	LF	3,262		
610-14	Water Plug with Flushing Pipe	EA	2		
610-15	Plug Pipe: Blind Flange & Mechanical Joint	EA	1		
610-16	Concrete Encasement per MAG Dtl 404-3	LF	251		
610-17	8"x6" M.J. Reducer	EA	1		
610-18	8" 45 Degree M.J. Bend	EA	10		
610-19	10" 45 Degree M.J. Bend	EA	2		
610-21	16" 22.5 Degree M.J. Bend	EA	2		
610-22	16" 45 Degree M.J. Bend	EA	8		
610-23	16" x 16" M.J. Cross	EA	1		
610-23a	16" x 6" M.J. Tee	EA	1		
610-24	Air Release Valve	EA	2		
610-25	Vertically Re-align 6-inch Water (DIP)	EA	1		
610-26	Vertically Re-align 16-inch Water (DIP)	EA	1		
610-27	6" PVC C-905 Waterline	LF	60		
615-02	8" PVC (SDR-35) Sewer	LF	144		
615-03	12" PVC (SDR-35) Sewer	LF	816		
615-04	Plug Pipe: MAG 427	EA	1		
615-05	Remove Exist 10-inch Stub & Connect to Exst Manhole	EA	1		
615-06	Vertically Re-align 16-inch Force Main (DIP)	EA	1		
615-07	Vertically Re-align 10-inch Force Main (DIP)	EA	2		
616-01	8" DIP Reclaimed Waterline	LF	85		
616-03	Vertically Re-align Existing 30" Reclaimed Water	EA	1		
618-01	15" RGRCP Storm Drain CL IV	LF	482		
618-03	18" Class IV RGRCP Irrigation Pipe	LF	1,037		
618-04	18" Class V RGRCP Irrigation Pipe	LF	143		
618-05	24" Class III RGRCP Irrigation Pipe	LF	16		
618-06	24" Class IV RGRCP Irrigation Pipe	LF	178		
618-07	18" RGRCP Storm Drain CL V	LF	25		
621-01	96" CMP Underground Storage Pipe	LF	600		
625-01	Rebuild Existing Manhole Cone	EA	1		
625-02	Relocate Existing Manhole	EA	1		
625-03	5-foot Diameter Manhole	EA	1		
630-01	16" Gate Valve, Valve Box & Cover	EA	11		

630-02	Tapping Sleeve and Valve	EA	6		
630-03	Relocate Existing ARV, install per TOG Dtl 83A	EA	4		
	Allowances				
	Town of Gilbert Controlled Allowance	LS	1	\$500,000	\$500,000

TOTAL BID PRICE

(Items 105-01 to 630-03 and Town of Gilbert Controlled Allowance Inclusive).

Contractor shall provide the lowest bid ONLY from the two pavement alternatives defined in No. 321-01 and No. 321-02. Meaning, only the lowest alternative shall be carried out to the total used in the final bid. Failure to comply shall result in bid being considered non responsive.

\$ _____
 (In Numbers)

Dollars

(In Words)

_____ Cents

Addendum No. 2
March 29, 2011

Technical Specifications Revisions

ITEM 340 VERTICAL CURB, GUTTER, SIDEWALK, SIDEWALK RAMPS, DRIVEWAYS & ALLEY ENTRANCE

Revise: 340-08 Valley Gutter & Apron, 6' Width, MAG Dtl 240

ITEM 350 REMOVAL OF EXISTING IMPROVEMENTS

Revise: 350-17 Removal of Existing Street Lighting – LS

ITEM 430 LANDSCAPING AND PLANTING

Revise 1st Paragraph: Decomposed Granite on the west side of Greenfield Road behind sidewalk at locations (per hexagon note 50 on plans) shown on the plans shall be ¼" minus (color: Tuscan Gold). Decomposed granite (½" screened, 2" depth, color: Express Brown) material shall be placed on all other bare surfaces within the right-of-way and all drainage basins. CONTRACTOR to submit a sample of decomposed granite to the ENGINEER for approval, prior to ordering material.

Revise: 430-02 Decomposed Granite, ¼", 4" thickness
Add: 430-03 Decomposed Granite, ½", 2" thickness

ITEM 464 SIGNING - DESCRIPTION

Add: 464-05 Sign Removal and Relocations – LS

ITEM 471 ELECTRICAL UNDERGROUND

Revise: 471-05 Sch 40 PVC SRP Street Lighting Conduit (1") (Trench)
Add: 471-05a Sch 40 PVC SRP Street Lighting Conduit (2 ½") (Trench)

ITEM 477 STREET AND INTERSECTION LIGHTING

Revise 2nd Paragraph: The CONTRACTOR shall be responsible for supplying the luminaire heads. The heads shall be equipped with photocells. The luminaire heads shall be painted brown to match the traffic signal poles. Prior to painting of luminaire heads, the CONTRACTOR shall contact Traffic Engineering at 480-503-6933 to obtain exact color. CONTRACTOR is responsible for touching up any painted surfaces as requested by the Town of Gilbert.

Luminaires on traffic signal poles shall be GE M-250AZ POWR/DOOR (Cobra Head) or approved equivalent. Luminaires shall have shorting caps installed.

Delete: references to 477-09 and 477-10

ITEM 505 CONCRETE STRUCTURES

Revise: 505-12 Maxwell Plus Drywell

Revise : 505-14 30" Deep Conc Lined Ditch

ITEM 602 ENCASEMENT OF WATER OR SEWER PIPE BY JACKING OR TUNNELING OPERATIONS

Add this section:

GENERAL: Comply with MAG Section 602 except as modified herein.

Measurement and payment will be for:
602-01 Jack and Bore 30" Casing

ITEM 610 WATER LINE CONSTRUCTION

Add: 610-23a 16" x 6" M.J. Tee

Revised Notes on Plan Sheets 10, 40, 43 (revised plans will not be issued)

Sheet 10 of 86 – revise decomposed granite depth on "10' Wide Decomposed Granite Area" detail to 4" minimum.

Sheet 40 of 86 – revise note 30 to: Install Tee and Valve per MAG Std Dtl 340.

Sheet 43 of 86 - add hexagon note 103 referencing same location as hexagon note 20A (16" waterline), Jack and Bore 30" Casing, 149 LF.