CITY OF PHOENIX, ARIZONA

OFFICE OF THE CITY ENGINEER

PROJECT SPECIFICATIONS AND CONTRACT DOCUMENTS

PINNACLE PEAK ROAD: 45TH AVENUE TO 35TH AVENUE PAVING AND STORM DRAIN IMPROVEMENTS
PROJECT NO. ST85100400-1

MAYOR

GREG STANTON

CITY COUNCIL

DISTRICT NO. 1 – THELDA WILLIAMS
DISTRICT NO. 2 – JIM WARING
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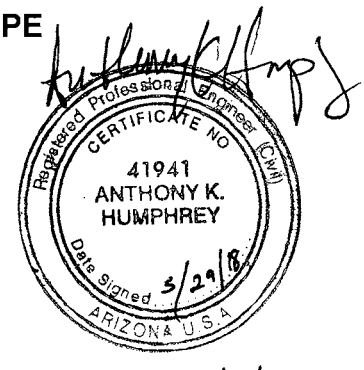
DISTRICT NO. 8 – KATE GALLEGO

CITY MANAGEMENT

CITY MANAGER – ED ZUERCHER
CITY ENGINEER – KINI L. E. KNUDSON, PE



Expires 3/31/20

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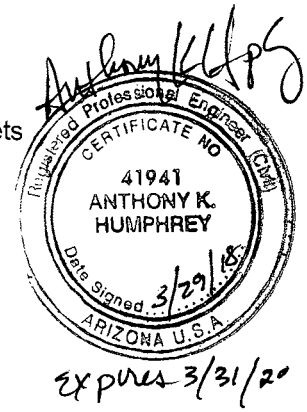

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CALL FOR BIDS

CITY OF PHOENIX
PINNACLE PEAK ROAD: 45TH AVENUE TO 35TH AVENUE
PAVING AND STORM DRAIN IMPROVEMENTS
DESIGN-BID-BUILD

PROJECT NO. ST85100400-1

BIDS WILL BE DUE: TUESDAY, APRIL 24, 2018 AT 2:00 P.M., PHOENIX TIME
PHOENIX CITY HALL
200 W. WASHINGTON STREET, 6th FLOOR
PHOENIX, AZ 85003-1611

The City of Phoenix is seeking a qualified construction contractor to perform the project listed below.

SCOPE OF WORK

Pinnacle Peak Road: 45th Avenue to 35th Avenue project consists of constructing new roadway paving and storm drain improvements on Pinnacle Peak Road from 45th Avenue to just west of 35th Avenue, and constructing a new storm drain on 43rd Avenue extending north from Pinnacle Peak Road to Misty Willow Lane. The work includes: subgrade preparation and constructing new asphaltic concrete roadway pavement; new concrete curb and gutter, ADA compliant concrete sidewalk, curb returns, concrete driveway entrances; new concrete box culvert crossings, concrete wing walls, concrete headwalls with brick veneer facing, concrete channel lining, new storm drain mainline pipe, storm drain manholes, storm drain connector pipes and catch basins; trenching for underground street light circuits; installation of new traffic signal poles, signal equipment, and traffic signal conduits; installation of new LED street lights and LED luminaires; new landscaping and irrigation system, decomposed granite landscape ground cover; and other required work items.

The Engineer's Estimate is $6,739,153 to $8,236,741

A Small Business Enterprise goal of 15% has been established for this project.

PRE-BID MEETING

A pre-bid meeting will be held on Friday, April, 6 2018, at 10:00 a.m., Phoenix time, at Design and Construction Management (DCM), Gecko Conference Room, located at 1034 E. Madison Street, Phoenix, AZ 85034. At this meeting, staff will discuss the scope of work, general contract issues and respond to questions from the attendees. As City staff will not be available to respond to individual inquiries regarding the project scope outside of this pre-bid meeting, it is strongly recommended that interested firms send a representative to the pre-bid meeting.

REQUEST FOR BID PACKET

The bid packet will be available for download on the City of Phoenix Design and Construction Procurement's "Current Opportunities" web page as of Thursday, March 29, 2018. The web address is:

https://www.phoenix.gov/streets/procurement/current-opportunities

Firms receiving a copy of the bid packet through any other means must download the bid packet from the City webpage and register as a plan holder for the project. The plan holder list is available for viewing within the project folder.

GENERAL INFORMATION

The City reserves the right to award the contract to the lowest responsible responsive bidder or all bids will be rejected, as soon as practicable after the date of opening bids.

The City of Phoenix will provide reasonable accommodations for alternate formats of the bid packet by calling Michael Soto III at (602) 256-5692 or calling TTY System (602) 256-4286. Requests will only be honored if made within the first week of the advertising period. Please allow a minimum of seven calendar days for production.

Questions pertaining to process or contract issues should be directed to Michael Soto III, Contracts Specialist at (602) 256 -5692 or email (preferred) michael.soto@phoenix.gov

Ed Zuercher, City Manager

Kini L. E. Knudson, PE, City Engineer

Published: Arizona Business Gazette
Date: March 29, 2018
Date: April 5, 2018
(District 1)

INFORMATION FOR BIDDERS

1. 102 BIDDING REQUIREMENTS AND CONDITIONS, Add the following to MAG and COP Supplement to MAG Section 102 BIDDING REQUIREMENTS AND CONDITIONS:

INFORMATION FOR BIDDERS

A. QUESTIONS ON PLANS AND SPECIFICATIONS

Neither the Engineer nor the City of Phoenix will be held responsible for any oral instructions. Any changes to the plans and specifications will be in the form of an addendum. All Addenda will be posted online within the project folder at the following website:

https://www.phoenix.gov/streets/procurement/current-opportunities

A Planholder List is available within the *project folder on the Street Transportation Department website under "Current Opportunities". The web address* is:

https://www.phoenix.gov/streets/procurement/current-opportunities

For additional information prior to submitting your bid, contact:

Plans, Technical/Special Provisions, Proposal or Specifications:
NAME: Michael Soto III, Design and Construction Procurement
ADDRESS: 200 W. Washington Street, 6th Floor, Phoenix, AZ 85003-1611
PHONE: (602) 256-5692 E-MAIL: michael.soto@phoenix.gov

SBE Utilization contact:
Equal Opportunity Department: (602) 262-6790

All questions regarding the plans and specifications must be received (in writing) at a minimum seven calendar days prior to bid opening. Questions received after that time may not be given any consideration.

B. REQUEST FOR SUBSTITUTIONS

Paragraph A, B, and C of MAG Section 106.4 are deleted and the following paragraphs substituted:

1. The Engineer will consider written request(s), by a prime bidder only, for substitution(s) which is/are considered equivalent to the item(s) specified in the Contract documents. The written request will be considered only if it is received at least twelve (12) calendar days prior to the established bid date. Notification of acceptable substitutions will be made by addendum issued no fewer than seven calendar days prior to the established bid date. (A.R.S. 34-104)

2. The prime bidder, at his own expense, will furnish the necessary data of substitution and validate that the physical, chemical, and operational qualities of each substitute item is such that this item will fulfill the originally specified required function.

3. The substitution, if approved, will be authorized by a written addendum to the Contract documents and will be made available to all bidders. The bid date and the scheduled completion time will not be affected by any circumstances developing from this substitution.

4. The request will be submitted to Design and Construction Procurement, Attention Michael Soto III, Sixth Floor, Phoenix City Hall, 200 W. Washington Street, Phoenix, Arizona 85003-1611 or via email to michael.soto@phoenix.gov.

C. BID BOND

Bidders must submit a properly completed proposal guarantee, certified check, cashier's check or on the surety bond provided, for an amount not less than ten (10) percent of the total amount bid included in the proposal as a guarantee that the contractor will enter into a contract to perform the proposal in accordance with the plans and specifications. Surety bonds submitted for this project will be provided by a company which has been rated "A- or better for the prior four quarters" by the A.M. Best Company. *A bid will be deemed non-responsive if not accompanied by this guarantee.*

The surety bond will be executed solely by a surety company or companies holding a certificate of authority to transact surety business in the State of Arizona, issued by the Director of the Department of Insurance pursuant to Title 20, Chapter 2, Article 1. The surety bond will not be executed by an individual surety or sureties even if the requirements of Section 7-101 are satisfied. The City Clerk will return the certified check, cashiers check, or surety bond to the contractors whose proposals are not accepted, and to the successful contractor upon the execution of a satisfactory bond and contract.

When providing a Surety Bond, *failure to provide an "A- or better for the prior four quarters" bond will result in bid rejection.*

D. LIST OF MAJOR SUBCONTRACTORS AND SUPPLIERS & LIST OF ALL SUBCONTRACTORS AND SUPPLIERS

A bid will be deemed non-responsive if not accompanied by a properly completed and signed "List of Major Subcontractors and Suppliers" form.

To assist in eliminating the practice of bid shopping on City construction projects, the bidder will list all Major Subcontractors and Suppliers (including SBE) to whom the bidder intends to contract with that are equal to or greater than 5% of the base bid. The list of major subcontractors and suppliers will be provided on the "List of Major Subcontractors" form. *Failure to properly complete and sign this form will result in bid rejection*. This form is due with the bid.

If substantial evidence exists that bid shopping occurred on this project, the Bidder will be ineligible to bid on City construction projects for a period of one year.

The list of All Subcontractors and Suppliers will be provided on the "List of All Subcontractors and Suppliers" form. *Failure to properly complete and sign this form will result in bid rejection.* This form is due three calendar days after bid opening by 5:00 p.m. A bid will be deemed non-responsive if a properly completed and signed "List of All Subcontractors and Suppliers" form is not submitted.

E. BID SUBMITTAL

The properly completed bid documents along with the ten (10) percent bid guarantee will be submitted in a sealed envelope. The outside of the envelope will be marked as follows:

Bid of (Firm's Name, Address and Phone Number)_____
For: Pinnacle Peak Road: 45th Avenue to 35th Avenue Paving and Storm Drain Improvements

City of Phoenix Project Number: ST85100400-1
Sealed bids will be submitted to the bid box located by the Street Transportation Department Reception Desk located on the Sixth Floor of the Phoenix City Hall Building, 200 W. Washington Street, Phoenix, Arizona, 85003 prior to the time and date specified for bid opening.

F. BID WITHDRAWALS

MAG Section 102-10, Withdrawal or Revision of Proposal, is herby deleted and the following paragraph is submitted:

"No bidder may withdraw or revise a proposal after it has been deposited with the City except as provided in Phoenix City Code Chapter 2, Section 190.2. Proposals, read or unread, will not be returned to the bidders until after determination of award has been made.

G. ADDENDA

Acknowledge all addenda; a bid will be deemed non-responsive if all issued addenda for this project are not acknowledged in writing on Page P. -1.

The City of Phoenix will not be responsible for any oral responses or instructions made by any employees or officers of the City of Phoenix regarding bidding instructions, plans, drawings, specifications or contract documents. A verbal reply to an inquiry does not constitute a modification of the Invitation for Bid (IFB). Any changes to the plans, drawings and specifications will be in the form of an addendum.

It will be the responsibility of the prospective bidder to determine, prior to the submittal of its bid, if any addenda to the project have been issued by the Street Transportation Department Contract Procurement Section. All addenda issued will be acknowledged by the bidder on Page P-1. All addenda (if any) will be available online within each project's folder at the following website:

https://www.phoenix.gov/streets/procurement/current-opportunities

The contractors and/or consultants are responsible for ensuring they have all addenda and/or notifications for all projects they are submitting on. Prospective bidders are strongly encouraged to check the Street Transportation Department Contract Procurement website in order to ascertain if any addenda have been issued for the project.

H. BID SUBMITTAL CHECKLIST

BID SUBMITTAL CHECKLIST

This checklist is provided to remind bidders of several of the required elements of the bid packages. It is not intended to be a comprehensive list of all of the contract documents. Bidders are encouraged to review all of the Bid Instructions to determine compliance therein.

ALL FIRMS MUST BE REGISTERED IN THE CITY'S VENDOR MANAGEMENT SYSTEM PRIOR TO SUBMITTING A PROPOSAL. FOR NEW FIRMS - THE CITY WILL SEND AN EMAIL TO YOUR FIRM WITH A VENDOR NUMBER WITHIN TWO DAYS OF SUBMITTING THE REQUEST. THE VENDOR NUMBER NEEDS TO BE INCLUDED ON THE COVER OF THE STATEMENT OF QUALIFICATIONS OR ON THE BID PROPOSAL PACKAGE/ENVELOPE. INFORMATION ON HOW TO REGISTER

WITH THE CITY IS AVAILABLE AT:

https://www.phoenix.gov/finance/vendorsreg

- Acknowledge all addenda? (Page P-1)
- Completed all of the Bid Proposal forms? (Pages P - 1 to P - 16 and P.S. - 1)
- Included your Bid Bond (rated A- or better for the prior four quarters) or Guarantee Cashier's Check? (Page S.B.-1)
- Completed SBE Utilization form or a fully documented waiver package? (Page S.B.U.-1)
- Completed List of Major Subcontractors and Suppliers form? (Page L.O.S.-1)
- Completed Letter of Intent to Perform as Subcontractor/Supplier (L.O.I-1)

PLEASE DO NOT SUBMIT THE ENTIRE SPECIFICATION BOOK WHEN SUBMITTING YOUR BID. INCLUDE ONLY THE REQUIRED BIDDING DOCUMENTS.

POST-BID SUBMITTAL CHECKLIST

All bidders wishing to remain in contention for award of the contract must submit completed contracts documents listed below. The documents must be submitted to the Street Transportation Department Contract Procurement Section, 6th Floor, or can be sent by email to michael.soto@phoenix.gov.

- Completed List of All Subcontractors and Suppliers form (L.O.S.-2) (3 calendar days after bid opening by 5:00 p.m.)
- Bidders Disclosure Statement? (Pages B.D.S.-1 to 4) (3 calendar days after bid opening by 5:00 p.m.)
- Submit Affidavit of Identity (if you are a sole proprietor) (Page A.O.I. – 1) (3 calendar days after bid opening by 5:00 p.m.)

I. CANCELLATION OF CONTRACT FOR CONFLICT OF INTEREST

All parties hereto acknowledge that this Agreement is subject to cancellation by the City of Phoenix pursuant to the provisions of Section 38-511, Arizona Revised Statutes.

J. CONTRACTOR'S LICENSE AND PRIVILEGE LICENSE AND CERTIFICATIONS

Prior to bidding on this project, the bidder must possess the correct license to perform the work described in the plans and specifications. Prior to award of the contract, the successful bidder must provide to the Contract Procurement Section its Contractor's License Classification and number, its City of Phoenix Privilege License number and Federal Tax Identification number.

Bidder will submit the Bidder's Disclosure Statement as set forth in Pages B.D.S. - 1 to B.D.S. - 4 within 3 calendar days of bid opening by 5:00 p.m.

Unless provided otherwise in this solicitation, Bidder will be deemed non-responsive and the bid rejected if Bidder fails to possess the proper Contractor's and Business Licenses at the time of bid or

fails to submit a substantially completed Bidder's Disclosure Statement as specified above.

K. TAX LIABILITIES; DISCLOSURE OF CONVICTIONS AND BREACH(S) OF CONTRACT

On or before the award of the contract for this project, the successful bidder will: (i) file all applicable tax returns and will make payment for all applicable State of Arizona and Maricopa County Transaction Taxes (ARS Sec. 41-1305) and City of Phoenix Privilege License Taxes (Phoenix City Code Sec.14-415); (ii) disclose any civil fines, penalties or any criminal convictions, other than for traffic related offenses, for violation of federal, state, county or city laws, rules or regulations including, but not limited to, environmental, OSHA, or labor compliance laws (collectively "Laws") by Bidder, Bidder's directors, managing members, responsible corporate officers or party who will be responsible for overseeing and administering this project (collectively "Bidder"); and (iii) disclose any material breach(s) of an agreement with the City of Phoenix, any termination for cause or any litigation involving the City of Phoenix occurring within the past three calendar years. Unless provided otherwise in this solicitation, the successful bidder will be deemed non-responsible and the bid rejected for any of the following: (i) Bidder's civil or criminal conviction, other than for traffic related offenses, for a violation of Laws within the past three calendar years; (ii) liability or culpability resulting in payment of fines or penalties in the cumulative total amount of $100,000 or greater for a violation of "Laws" within the past three calendar years; (iii) material breach of a City of Phoenix agreement, termination for cause or litigation with the City of Phoenix within the past three calendar years; and (iv) Bidder's failure to disclose the information as required by this provision. Further, after award of contract, in addition to any other remedy, Bidder's failure to remit proper taxes to the City of Phoenix may result in the City withholding payment pursuant to Phoenix City Charter Chapter XVIII, Section 14 until all delinquent taxes, interest, and penalties have been paid.

State and Local Transaction Privilege Taxes:

In accordance with applicable state and local law, transaction privilege taxes may be applicable to this transaction. The state and local transaction privilege (sales) tax burden is on the person who is conducting business in Arizona and the City of Phoenix. The legal liability to remit the tax is on the person conducting business in Arizona. Any failure by the Contractor to collect applicable taxes from the City will not relieve the Contractor from its obligation to remit taxes.

It is the responsibility of the prospective bidder to determine any applicable taxes. The City will look at the price or offer submitted and will not deduct, add or alter pricing based on speculation or application of any taxes, nor will the City provide advice or guidance.

If you have questions regarding your tax liability, please seek advice from a tax professional prior to submitting your bid. You may also find information at https://www.phoenix.gov/finance/plt or https://www.azdor.gov/Business.aspx. Once your bid is submitted, the Offer is valid for the time specified in this Solicitation, regardless of mistake or omission of tax liability.

If the City finds over payment of a project due to tax consideration that was not due, the Contractor will be liable to the City for that amount, and by contracting with the City agrees to remit any overpayments back to the City for miscalculations on taxes included in a bid price.

Tax Indemnification:
Contractor will, and require the same of all subcontractors, pay all federal, state and local taxes applicable to its operation and any persons employed by the Contractor. Contractor will, and require the same of all subcontractors, hold the City harmless from any responsibility for taxes, damages and interest, if applicable, contributions required under federal, and/or state and local laws and regulations

and any other costs including transaction privilege taxes, unemployment compensation insurance, Social Security and Worker's Compensation.

Tax Responsibility Qualification:
Contractor may be required to establish, to the satisfaction of City, that any and all fees and taxes due to the City or the State of Arizona for any License or Transaction Privilege taxes, Use Taxes or similar excise taxes, are currently paid (except for matters under legal protest).

Contractor agrees to a waiver of the confidentiality provisions contained in the City Finance Code and any similar confidentiality provisions contained in Arizona statutes relative to State Transaction Privilege Taxes or Use Taxes.

Contractor agrees to provide written authorization to the City Finance Department and to the Arizona State Department of Revenue to release tax information relative to Arizona Transaction Privilege Taxes or Arizona Use Taxes in order to assist the Department in evaluating Contractor's qualifications for and compliance with contract for duration of the term of contract.

L. STANDARD SPECIFICATIONS AND DETAILS

Except as otherwise required in these specifications, bid preparation and construction of this project will be in accordance with all applicable Maricopa Association of Governments' (MAG) Uniform Standard Specifications and Uniform Standard Details, latest revision, and the City of Phoenix Supplements to the MAG Uniform Standard Specifications and Details, latest revision.

M. PRECEDENCE OF CONTRACT DOCUMENTS

In case of a discrepancy or conflict, the precedence of contract documents is as follows:

1. Change Orders or Supplemental Agreements
2. Addenda
3. Contract Specifications/Special Provisions/Technical Provisions
4. The Plans
5. COP Supplement to MAG Standard Specifications and Details, latest revision
6. MAG Standard Specifications and Details, latest revision

The precedence of any Addenda falls within the category of which it represents.

N. CONFIDENTIALITY OF PLANS & SPECIFICATIONS

Any plans generated for this project must include the following statement in the Title Block on every page: "Per City of Phoenix City Code Chapter 2, Section 2-28, these plans are for official use only and may not be shared with others except as required to fulfill the obligations of Contractor's contract with the City of Phoenix."

O. AUDIT AND RECORDS

Records of the Contractor's direct personnel payroll, bond expenses, and reimbursable expenses pertaining to this Project, and records of accounts between the City and Contractor will be kept on the basis of generally accepted accounting principles and must be made available to the City and its auditors for up to three years following Final Acceptance of the Project.

The City, its authorized representative, and/or any federal agency, reserves the right to audit the Contractor's records to verify the accuracy and appropriateness of all cost and pricing data, including data used to negotiate the Contract and any change orders.
The City reserves the right to decrease Contract price and/or payments made on this Contract and/or request reimbursement from the Contractor following final contract payment on this Contract if, upon audit of the Contractor's records, the audit discloses the Contractor has provided false, misleading, or inaccurate cost and pricing data.

The Contractor will include a similar provision in all of its Agreements with subcontractors and suppliers providing services or supplying materials under the Contract Documents to ensure that the City, its authorized representative, and/or the appropriate federal agency has access to the Subcontractor's and Supplier's records to verify the accuracy of all cost and pricing data.

The City reserves the right to decrease the Contract price and/or payments made on this Contract and/or request reimbursement from the Contractor following final contract payment on this Contract if the above provision is not included in the Subcontractor's and Supplier's contracts, and one or more Subcontractors or Suppliers refuse to allow the City to audit their records to verify the accuracy and appropriateness of cost and pricing data.

If, following an audit of this Contract, the audit discloses the Contractor has provided false, misleading or inaccurate cost and pricing data, and the cost discrepancies exceed 1% of the total Contract billings, the Contractor will be liable for reimbursement of the reasonable, actual cost of the audit.

P. IMMIGRATION REFORM AND CONTROL ACT

Compliance with Federal Laws Required. Contractor understands and acknowledges the applicability of the Immigration Reform and Control Act of 1986 and the Drug Free Workplace Act to it. Contractor agrees to comply with these Federal Laws in performing under this Agreement and to permit City inspection of its personnel records to verify such compliance.

Q. LEGAL WORKER REQUIREMENTS

The City of Phoenix is prohibited by A.R.S. § 41-4401 from awarding a contract to any contractor who fails, or whose subcontractors fail, to comply with A.R.S. § 23-214(A). Therefore, Contractor agrees that:

1. Contractor and each subcontractor it uses warrants their compliance with all federal immigration laws and regulations that relate to their employees and their compliance with § 23-214, subsection A.

2. A breach of a warranty under paragraph 1 will be deemed a material breach of the contract that is subject to penalties up to and including termination of the contract.

3. The City of Phoenix retains the legal right to inspect the papers of any Contractor or subcontractor employee who works on the contract to ensure that the Contractor or subcontractor is complying with the warranty under paragraph 1.

R. CONTRACTOR AND SUBCONTRACTOR WORKER BACKGROUND SCREENING

Background Screening Requirements and Criteria

The City has established levels of risk and associated Background Screening. For Contractor services in the right-of-way, the risk level and Background Screening required is Minimum Risk. The risk level and background screening required for this project is Minimum.

Terms of This Section Applicable to all of Contractor's Contracts and Subcontracts Contractor will include the terms of this Section for Contract Worker Background Screening in all contracts and subcontracts for services furnished under this Agreement including, but not limited to, supervision and oversight services.

(1.) Contract Worker Background Screening

Contractor agrees that all contract workers and subcontractors (collectively "Contract Worker(s)") that Contractor furnishes to the City pursuant to this Agreement will be subject to background and security checks and screening (collectively "Background Screening") at Contractor's sole cost and expense as set forth in this Section. The Background Screening provided by Contractor will comply with all applicable laws, rules and regulations. Contractor further agrees that the Background Screening required in this Section is necessary to preserve and protect public health, safety and welfare. The Background Screening requirements set forth in this Section are the minimum requirements for this Agreement. The City in no way warrants that these minimum requirements are sufficient to protect Contractor from any liabilities that may arise out of Contractor's services under this Agreement or Contractor's failure to comply with this Section. Therefore, in addition to the specific measures set forth below, Contractor and its Contract Workers will take such other reasonable, prudent and necessary measures to further preserve and protect public health, safety and welfare when providing services under this Agreement. The City may, in its sole discretion, accept or reject any or all of the Contract Workers proposed by Contractor to perform work under this Agreement, as well those Contract Workers actually providing services during the term of this Agreement.

Minimum Risk Background Screening requirements include the following:

A Minimum Risk Background Screening will be performed when the Contract Worker: (i) will not have direct access to City facilities or information systems; or (ii) will not work with vulnerable adults or children; or (iii) when access to City facilities is escorted by City workers. The Background Screening for minimum risk will consist of the screening required by Arizona Revised Statutes §§ 41-4401 and following to verify legal Arizona worker status.

Standard Risk and Background Screening requirements include the following:

A Standard Risk Background Screening will be performed when the Contract Worker's work assignment will: (i) require a badge or key for access to City facilities; or (ii) allow any access to sensitive, confidential records, personal identifying information or restricted City information; or (iii) allow unescorted access to City facilities during normal and non-business hours. The Background Screening for this standard risk level will include the Background Screening required for the Minimum Risk level and a background check for real identity/legal name, and will include felony and misdemeanor records from any county in the United States, the state of Arizona, plus any other jurisdiction where the Contract Worker has lived at any time in the preceding seven (7) years from the Contract Worker's proposed date of hire.

Maximum Risk Background Screening requirements include the following:

A Maximum Risk Background Screening will be performed when the Contract Worker's work assignment will: (i) have any contact with vulnerable people such as children, youth, elderly, or

individuals with disabilities; or (ii) have any responsibility for the receipt or payment of City funds or control of inventories, assets, or records that are at risk of misappropriation; or (iii) have unescorted access to City data centers, money rooms, or high-value equipment rooms; or (iv) have access to private residences; or (v) have access to Homeland Defense Bureau identified critical infrastructure sites/facilities. The Background Screening for this maximum risk level will include the Background Screening required for the Standard Risk level, plus a sexual offender search, a credit check, and driving record search for the preceding seven (7) years from the Contract Worker's proposed date of hire. Contract Workers who work directly with children or vulnerable adults are also subject to fingerprint verification through the Arizona Department of Public Safety as mandated by Phoenix City Code, § 2-45.6.

Contractor Certification; City Approval of Maximum Risk Background Screening

By executing this Agreement, Contractor certifies and warrants that Contractor has read the Background Screening requirements and criteria in this Section, understands them and that all Background Screening information furnished to the City is accurate and current. Also, by executing this Agreement, Contractor further certifies and warrants that Contractor has satisfied all such Background Screening requirements for the Minimum Risk and Standard Risk Background Screenings as required. In addition, for Maximum Risk Background Screening, Contractor will furnish for the City's review and approval such Background Screenings for any Contract Worker considered for performing services under this Agreement where human safety or facility security is classified as a Maximum Risk level. The subject Contract Worker will not apply for the appropriate City of Phoenix identification and access badge or keys until Contractor has received the City's written acceptance of the subject Contract Worker's Maximum Risk Background Screening. A Contract Worker rejected for work at a Maximum Risk level under this Agreement will not be proposed to perform work under other City contracts or engagements without City's prior written approval.

(2.) Materiality of Background Screening Requirements; Indemnity

The Background Screening requirements of this Section are material to City's entry into this Agreement and any breach of this Section by Contractor will be deemed a material breach of this Agreement. In addition to the indemnity provisions set forth in Supplementary Conditions Section 7.G of this Agreement, Contractor will defend, indemnify and hold harmless the City for any and all Claims (as defined in Supplementary Conditions Section 7.G arising out of this Background Screening Section including, but not limited to, the disqualification of a Contract Worker by Contractor or the City for failure to satisfy this Section.

(3.) Continuing Duty; Audit

Contractor's obligations and requirements that Contract Workers satisfy this Background Screening Section will continue throughout the entire term of this Agreement. Contractor will notify the City immediately of any change to a Maximum Risk Background Screening of a Contract Worker previously approved by the City. Contractor will maintain all records and documents related to all Background Screenings and the City reserves the right to audit Contractor's compliance with this Section pursuant to Information for Bidders Section 1.M.

S. LAWFUL PRESENCE REQUIREMENT

Pursuant to A.R.S. §§ 1-501 and 1-502, the City of Phoenix is prohibited from awarding a contract to any natural person who cannot establish that such person is lawfully present in the United States. To establish lawful presence, a person must produce qualifying identification and sign a City-provided affidavit affirming that the identification provided is genuine. This requirement will be imposed at the time of contract award. This requirement does not apply to business organizations such as

corporations, partnerships or limited liability companies.

T. LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED)

If practical, the contractor will provide an easily accessible area to serve the construction site that is dedicated to the separation, collection and storage of materials for recycling including (at a minimum) paper, glass, plastics, metals, and designate an area specifically for construction and demolition waste recycling. The contractor must provide documentation that the materials have been taken to a Maricopa County approved recycling facility.

U. NO ISRAEL BOYCOTT

By entering into this contract, the Engineer/Contractor certifies that they are not currently engaged in, and agrees for the duration of the Contract to not engage in, a boycott of Israel, as defined in the state statute.

V. CITY OF PHOENIX EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENT

1. In order to do business with the City, Contractor must comply with Phoenix City Code, 1969, Chapter 18, Article V, as amended, Equal Employment Opportunity Requirements. Contractor will direct any questions in regard to these requirements to the Equal Opportunity Department, (602) 262-6790.

2. Any Contractor in performing under this contract will not discriminate against any worker, employee or applicant, or any member of the public, because of race, color, religion, sex, national origin, age, or disability nor otherwise commit an unfair employment practice. The Contractor will ensure that applicants are employed, and employees are dealt with during employment without regard to their race, color, religion, sex, national origin, age, or disability and will adhere to a policy to pay equal compensation to men and women who perform jobs that require substantially equal skill, effort, and responsibility, and that are performed within the same establishment under similar working conditions. Such action will include but not be limited to the following: Employment, promotion, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training; including apprenticeship. The Contractor further agrees that this clause will be incorporated in all subcontracts with all labor organizations furnishing skilled, unskilled and union labor, or who may perform any such labor or services in connection with this contract.

   If the Contractor employs more than thirty-five employees, the following language will apply as the last paragraph to the clause above:

   The Contractor further agrees not to discriminate against any worker, employee or applicant, or any member of the public, because of sexual orientation or gender identity or expression and will ensure that applicants are employed, and employees are dealt with during employment without regard to their sexual orientation or gender identity or expression.

3. *Documentation*. Contractor may be required to provide additional documentation to the Equal Opportunity Department affirming that a nondiscriminatory policy is being utilized.

4. *Monitoring*. The Equal Opportunity Department will monitor the employment policies and practices of suppliers and lessees subject to this article as deemed necessary. The Equal Opportunity Department is authorized to conduct on-site compliance reviews of selected firms, which may

include an audit of personnel and payroll records, if necessary.

W. PROTEST PROCEDURES

A bidder wishing to file a protest for the subject project will comply with Phoenix City Code Chapter 2, Section 188.

X. DATA CONFIDENTIALITY

As used in the Contract, "data" means all information, whether written or verbal, including plans, photographs, studies, investigations, audits, analyses, samples, reports, calculations, internal memos, meeting minutes, data field notes, work product, proposals, correspondence and any other similar documents or information prepared by, obtained by, or transmitted to the Contractor or its subcontractors in the performance of this Contract.

The parties agree that all data, regardless of form, including originals, images, and reproductions, prepared by, obtained by, or transmitted to the Contractor or its subcontractors in connection with the Contractor's or its subcontractor's performance of this Contract is confidential and proprietary information belonging to the City.

Except as specifically provided in this Contract, the Contractor or its subcontractors will not divulge data to any third party without prior written consent of the City. The Contractor or its subcontractors will not use the data for any purposes except to perform the services required under this Contract. These prohibitions will not apply to the following data provided the Contractor or its subcontractors have first given the required notice to the City:

A. Data which was known to the Contractor or its subcontractors prior to its performance under this Contract unless such data was acquired in connection with work performed for the City;

B. Data which was acquired by the Contractor or its subcontractors in its performance under this Contract and which was disclosed to the Contractor or its subcontractors by a third party, who to the best of the Contractor's or its subcontractor's knowledge and belief, had the legal right to make such disclosure and the Contractor or its subcontractors are not otherwise required to hold such data in confidence; or

C. Data which is required to be disclosed by virtue of law, regulation, or court order, to which the Contractor or its subcontractors are subject.

In the event the Contractor or its subcontractors are required or requested to disclose data to a third party, or any other information to which the Contractor or its subcontractors became privy as a result of any other contract with the City, the Contractor will first notify the City as set forth in this section of the request or demand for the data. The Contractor or its subcontractors will give the City sufficient facts so that the City can be given an opportunity to first give its consent or take such action that the City may deem appropriate to protect such data or other information from disclosure.

The Contractor, unless prohibited by law, within ten calendar days after completion of services for a third party on real or personal property owned or leased by the City, the Contractor or its subcontractors will promptly deliver, as set forth in this section, a copy of all data to the City. All data will continue to be subject to the confidentiality agreements of this Contract.

The Contractor or its subcontractors assume all liability for maintaining the confidentiality of the data in its possession and agrees to compensate the City if any of the provisions of this section are violated by the Contractor, its employees, agents or subcontractors. Solely for the purposes of seeking injunctive

relief, it is agreed that a breach of this section will be deemed to cause irreparable harm that justifies injunctive relief in court. Contractor agrees that the requirements of this Section will be incorporated into all subcontracts entered into by Contractor. A violation of this Section may result in immediate termination of this Contract without notice.

Personal Identifying Information-Data Security

Personal identifying information, financial account information, or restricted City information, whether electronic format or hard copy, must be secured and protected at all times. At a minimum, Contractor must encrypt and/or password protects electronic files. This includes data saved to laptop computers, computerized devices or removable storage devices.

When personal identifying information, financial account information, or restricted City information, regardless of its format, is no longer necessary, the information must be redacted or destroyed through appropriate and secure methods that ensure the information cannot be viewed, accessed, or reconstructed.

In the event that data collected or obtained by Contractor or its subcontractors in connection with this Contract is believed to have been compromised, Contractor or its subcontractors will immediately notify the Project Manager and City Engineer. Contractor agrees to reimburse the City for any costs incurred by the City to investigate potential breaches of this data and, where applicable, the cost of notifying individuals who may be impacted by the breach.

Contractor agrees that the requirements of this Section will be incorporated into all subcontracts entered into by Contractor. It is further agreed that a violation of this Section will be deemed to cause irreparable harm that justifies injunctive relief in court. A violation of this Section may result in immediate termination of this Contract without notice.

The obligations of Contractor or its subcontractors under this Section will survive the termination of this Contract.

Y. PROJECT MANAGEMENT INFORMATION SYSTEM (PROMIS)

The Street Transportation Department's Design and Construction Management (DCM) Project Manager may determine that use of PROMIS will be required during this contract. The following information provides a guideline for utilization. Any questions related to the requirements of PROMIS should be directed to the DCM Project Manager.

1. The contractor will be required to maintain all project records in electronic format. The City provides an Application Service Provider (ASP) web based project management database which the contractor will be required to utilize in the fulfillment of the contract requirements. Although this electronic platform does not fulfill this requirement in its entirety, the contractor will be required to utilize this platform as the basis for this work.

2. The contractor can expect to use this ASP to process all primary level tri-partite contract documents related to the design or construction phase of the Project including but not limited to: requests for interpretation/information, potential Change Orders, construction meeting minutes, Submittals, Design Professional's supplemental instructions, and Payment Requests.
3. The contractor will be required to process information into electronic digital form. In order to fulfill this requirement, the contractor will provide all necessary equipment to perform the functions necessary to generate, convert, store, maintain, connect to web based ASP and transfer electronic data.

4. The contractor will provide a computerized networked office platform with broadband internet connectivity. Wired or wireless is acceptable. This platform will function well in a web based environment utilizing an internet browser compatible with the City PROMIS ASP system.

PROMIS training will be provided through the City of Phoenix. Contact information will be provided to the firms under contract, to establish the set up with a log-in and password.

CONSTRUCTION TRADE IDENTIFICATION WORKSHEET

PROJECT TITLE: Pinnacle Peak Road: 45th Avenue to 35th Avenue Paving and Storm Drain Improvements
PROJECT NO.: ST85100400-1

Below is a listing of possible trade areas for this project.
These were the trade areas identified in the goal setting process.
However, the contractor may identify additional trade areas to be used.

Site Preparation/Earthwork/Excavation
Asphalt Paving
Pavement Marking/Striping
Demolition/Wrecking
Manholes
Concrete
Landscape Material/Irrigation System/Granite
Pipeline / Underground Utilities
Street Sweeper
Signage
Street Lighting & Traffic Signal
Surveying & Layout
Traffic Control Devices

Only SBE subcontractors certified by the City of Phoenix under Chapter 18, Article VII of the Phoenix City Code are eligible to fulfill the participation goal as stated. A firm's certification must Be current and in force at the date and time of the bid. The most current electronic listing of all Certified SBE firms can be accessed through the Internet at:

https://phoenix.diversitycompliance.com

SBE: 15 %

SUPPLEMENTARY CONDITIONS

1. 103 AWARD AND EXECUTION OF CONTRACT, Add the following to Subsection 103.3 AWARD OF CONTRACT:

Contract award will be made to a responsive and responsible bidder based on the low total base bid or on the low combination of the total base bid and any selected alternate(s), whichever is in the best interest of the City. If unit pricing is required in the proposal, the extensions and additions will be verified to assure correctness. Award will be based on the revised total if any errors are found. Additionally, the Contractor will meet the minimum SBE subcontracting goal set for this contract or have been granted a full or partial waiver of the goal. The City expressly reserves the right to cancel this agreement without recourse or prejudice to Contractor until all parties have executed the agreement in full.

Any bidder that currently contracts with the City must be in good standing for its proposal to be considered responsive. For the purpose of this Invitation to Bid, good standing means compliance with all contractual provisions, including payment of financial obligations.

2. 103 AWARD AND EXECUTION OF CONTRACT, Add the following to Subsection 103.5, REQUIREMENT OF CONTRACT BONDS:

A. PERFORMANCE BOND AND LABOR AND MATERIAL BOND

Prior to the execution of a contract, the successful bidder must provide a performance bond and a labor and material bond, each in an amount equal to the full amount of the contract. Each such bond will be executed by a surety company or companies holding a certificate of authority to transact surety business in the State of Arizona issued by the Director of the Department of Insurance. A copy of the Certificate of Authority will accompany the bonds. The Certificate will have been issued or updated within two years prior to the execution of the Contract. The bonds will be made payable and acceptable to the City of Phoenix. The bonds will be written or countersigned by an authorized representative of the surety who is either a resident of the State of Arizona or whose principal office is maintained in this state, as required by law, and the bonds will have attached thereto a certified copy of Power of Attorney of the signing official. If one Power of Attorney is submitted, it will be for twice the total contract amount. If two Powers of Attorney are submitted, each will be for the total contract amount. Personal or individual bonds are not acceptable. Failure to comply with these provisions will be cause for rejection of the bidder's proposal.

B. BONDING COMPANIES

All bonds submitted for this project will be provided by a company which has been rated “A- or better for the prior four quarters” by the A. M. Best Company. Failure to provide an "A- or better for the prior four quarters” bond will result in bid rejection.

3. 103 AWARD AND EXECUTION OF CONTRACT, Delete Subsection 103.6, CONTRACTOR’S INSURANCE in its entirety and substitute the following:

103.6.1 General:

Contractor and subcontractors must procure insurance against claims that may arise from or relate to performance of the work hereunder by Contractor and its agents, representatives, employees and subconsultants. Contractor and subcontractors must maintain that insurance until all of their obligations have

been discharged, including any warranty periods under this Contract.

These insurance requirements are minimum requirements for this Contract and in no way limit the indemnity covenants contained in this Contract.

The City in no way warrants that the minimum limits stated in this section are sufficient to protect the Contractor from liabilities that might arise out of the performance of the work under this Contract by the Contractor, its agents, representatives, employees, or subcontractors. Contractor is free to purchase such additional insurance as may be determined necessary.

MINIMUM SCOPE AND LIMITS OF INSURANCE - Contractor must provide coverage with limits of liability not less than those stated below. An excess liability policy or umbrella liability policy may be used to meet the minimum liability requirements provided that the coverage is written on a "following form" basis.

Commercial General Liability – Occurrence Form

Policy must include bodily injury, property damage, broad form contractual liability and XCU coverage.

General Aggregate	$2,000,000
Products – Completed Operations Aggregate	$1,000,000
Personal and Advertising Injury	$1,000,000
Each Occurrence	$1,000,000

The policy must be endorsed to include the following additional insured language: "The City of Phoenix is named as an additional insured with respect to liability arising out of the activities performed by, or on behalf of the Contractor, including completed operations."

Automobile Liability

Bodily injury and property damage coverage for any owned, hired, and non-owned vehicles used in the performance of this Contract.

Combined Single Limit (CSL)	$1,000,000

The policy must be endorsed to include the following additional insured language: "The City of Phoenix is named as an additional insured with respect to liability arising out of the activities performed by, or on behalf of the Contractor, including automobiles owned, leased, hired or borrowed by the Contractor."

Worker's Compensation and Employers' Liability

Workers' Compensation	Statutory
Employers' Liability	
Each Accident	$100,000
Disease – Each Employee	$100,000
Disease – Policy Limit	$500,000

Policy must contain a waiver of subrogation against the City of Phoenix.

This requirement does not apply when a contractor or subcontractor is exempt under A.R.S. §23-902(E), AND when such contractor or subcontractor executes the appropriate sole proprietor waiver form.

Builders' Risk Insurance or Installation Floater

In an amount equal to the initial Contract Amount plus additional coverage equal to Contract Amount for all subsequent change orders.

The City of Phoenix, the Contractor and subcontractors, must be Insureds on the policy.

Coverage must be written on an all risk, replacement cost basis and must include coverage for soft costs, flood and earth movement.

Policy must be maintained until whichever of the following must first occur: (1) final payment has been made; or, (2) until no person or entity, other than the City of Phoenix, has an insurable interest in the property required to be covered.

Policy must be endorsed such that the insurance must not be canceled or lapse because of any partial use or occupancy by the City.

Policy must provide coverage from the time any covered property becomes the responsibility of the Contractor, and continue without interruption during construction, renovation, or installation, including any time during which the covered property is being transported to the construction installation site, or awaiting installation, whether on or off site.

Policy must contain a waiver of subrogation against the City of Phoenix.

Contractor is responsible for the payment of all policy deductibles.

ADDITIONAL INSURANCE REQUIREMENTS: The policies must include, or be endorsed to include, the following provisions:

On insurance policies where the City of Phoenix is named as an additional insured, the City of Phoenix is an additional insured to the full limits of liability purchased by the Contractor even if those limits of liability are in excess of those required by this Contract.

The Contractor's insurance coverage must be primary insurance and non-contributory with respect to all other available sources.

With regard to general liability, the City of Phoenix is named as an additional insured for both products completed operations and premises operations.

A. NOTICE OF CANCELATION

For each insurance policy required by the insurance provisions of this Contract, the Contractor must provide to the City, within 2 business days of receipt, a notice if a policy is suspended, voided or cancelled for any reason. Such notice will be sent directly to the City of Phoenix Contract Specialist listed on Page I.B.-1 of these specifications and will be sent by certified mail, return receipt requested.

B. ACCEPTABILITY OF INSURERS

Insurance is to be placed with insurers duly licensed or authorized to do business in the state of Arizona and with an "A.M. Best" rating of not less than B+ VI. The City in no way warrants that the above-required minimum insurer rating is sufficient to protect the Contractor from potential insurer insolvency.

C. VERIFICATION OF COVERAGE

Contractor must furnish the City with certificates of insurance (ACORD form or equivalent approved by the City) as required by this Contract. The certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. *Any policy endorsements that restrict or limit coverage will be clearly noted on the certificate of insurance.*

All certificates and any required endorsements are to be received and approved by the City before work commences. Each insurance policy required by this Contract must be in effect at or prior to commencement of work under this Contract and remain in effect for the duration of the project. Failure to maintain the insurance policies as required by this Contract or to provide evidence of renewal is a material breach of contract.

All certificates required by this Contract must be sent directly to the City of Phoenix Contract Specialist listed on Page I.B. - 1 of these specifications. The City project/contract number and project description must be noted on the certificate of insurance. The City reserves the right to require complete, certified copies of all insurance policies required by this Contract at any time. DO NOT SEND CERTIFICATES OF INSURANCE TO THE CITY'S RISK MANAGEMENT DIVISION.

If the Certificate of Insurance reflecting policy coverage and cancellation notice does not conform to the City's requirements, the contractor must:

- Submit a current insurance certificated (dated within 15 days of the payment request submittal) with each payment request form. The payment request will be rejected if the insurance certificate is not submitted with the payment request.

D. SUBCONTRACTORS

Contractors' certificate(s) must include all subcontractors as additional insureds under its policies or subcontractors must maintain separate insurance as determined by the Contractor, however, subcontractor's limits of liability must not be less than $1,000,000 per occurrence/$2,000,000 aggregate.

E. APPROVAL

Any modification or variation from the insurance requirements in this Contract must be made by the Law Department, whose decision is final. Such action will not require a formal Contract amendment, but may be made by administrative action.

F. OFF-DUTY POLICE OFFICER REQUIREMENTS

Off Duty Police Officer Requirements

It is required that the City provide off-duty police officers for construction projects as defined in the most recent edition of the City of Phoenix Traffic Barricade Manual. The Engineer must competitively procure Off Duty Police with vendors who are Authorized Traffic Coordinators with the City of Phoenix Police Department Off Duty Coordinator. The following requirements must be included in the procurement:

1. Hourly fees charged

2. Administrative fees (administrative fees to be charged as a part of the hourly rate, not billed

separately)

a. Pay applications requesting reimbursement for Off Duty Police hours worked will be accompanied with itemized documentation indicating officer name, date worked, hours worked, time of day worked and location.
b. For audit purposes, contractor's files will contain documentation from the successful off duty vendor that the above items are accounted for in the vendor's price proposal.

3. Insurance Requirements:

a. Commercial General Liability – Occurrence Form

Policy must include bodily injury, property damage and broad form contractual liability coverage.

General Aggregate	$2,000,000
Products – Completed Operations Aggregate	$1,000,000
Personal and Advertising Injury	$1,000,000
Each Occurrence	$1,000,000

The policy must be endorsed to include the City of Phoenix as an additional insured with respect to liability arising out of the activities performed by, or on behalf of, the contract worker.

b. Non-owned Auto Liability $1,000,000

Coverage must be provided ***if*** a City of Phoenix Police vehicle is being used in the performance of the off-duty traffic control services.
The policy must be endorsed to include the City of Phoenix as an additional insured with respect to liability arising out of the use and operation of a City vehicle.

c. Worker's Compensation and Employers' Liability

Workers' Compensation	Statutory
Employers' Liability	
Each Accident	$100,000
Disease – Each Employee	$100,000
Disease – Policy Limit	$500,000

Policy must contain a waiver of subrogation against the City of Phoenix.

103.6.2 Indemnification of City Against Liability

Contractor agrees to indemnify, defend, save, and hold harmless the City of Phoenix and its officers, agents and employees (and any jurisdiction or agency issuing permits for any work included in the project, and its officers, agents and employees), ("Indemnitee") from all claims, actions, liabilities, damages, losses or expenses, (including court costs, attorney's fees and costs of claim processing, investigation and litigation) ("Claims") caused or alleged to be caused, in whole or in part, by the wrongful, negligent or willful acts, or errors or omissions of Contractor or any of its owners, officers, directors, agents, employees, or subcontractors in connection with this Contract. This indemnity includes any Claim or amount arising out of or recovered under workers' compensation law or on account of the failure of Contractor to conform to any federal, state or local law, statute, ordinance, rule, regulation, or court decree. Contractor must indemnify Indemnitee from and against any and all Claims, except those arising solely from Indemnitee's own negligent or willful acts or omissions. Contractor is responsible for primary loss investigation, defense and judgment

costs where this indemnification applies. In consideration of the City's award of this Contract, Contractor agrees to waive all rights of subrogation against Indemnitee for losses arising from or related to this Contract. The obligations of Contractor under this provision survive the termination or expiration of this Contract.

4. 104 SCOPE OF WORK, Add the following to Subsection 104.1.2 MAINTENANCE OF TRAFFIC:

ADA AND ANSI ACCESS OF PREMISES DURING CONSTRUCTION

Contractor will maintain existing ADA and ANSI accessibility requirements during construction activities in an occupied building or facility. ADA and ANSI accessibility requirements will include, but not be limited to, parking, building access, entrances, exits, restrooms, areas of refuge, and emergency exit paths of travel. Contractor will be responsible for the coordination of all work to minimize disruption to building occupants and facilities.

5. 104 SCOPE OF WORK, Add the following to Subsection 104.1.4 CLEANUP AND DUST CONTROL:

The Contractor will use a power pick-up broom as part of the dust control effort. No separate measurement or payment will be made for cleanup or dust control, or for providing a power pick-up broom on the job.

6. 105 CONTROL OF WORK, Add the following to Subsection 105.1, AUTHORITY OF THE ENGINEER:

A. CONTRACT ADMINISTRATION

The definition of "Engineer" will read as follows:

"Engineer": All references to "Engineer" in these contract bid documents, including the MAG Specifications, will mean City Engineer.

B. PRECONSTRUCTION CONFERENCE

After completion of the contract documents, to include bonds, insurance and signatures and prior to the commencement of any work on the project, the Street Transportation Department, DCM Division, (telephone 602-495-2050), will schedule a Pre-Construction Conference. This will be held at 1034 East Madison Street, Phoenix, Arizona.

Construction administration will be provided by City of Phoenix, Street Transportation Department, Design & Construction Management Division (DCM).

The purpose of this conference is to establish a working relationship between the Contractor, utility firms and various City agencies. The agenda will include critical elements of the work schedule, submittal schedule, cost breakdown of major lump sum items, payment application and processing, coordination with the involved utility firms, emergency telephone numbers for all representatives involved in the course of construction and establishment of the notice to proceed date. The Contractor will also provide copies of all purchase orders and/or contracts with SBE subcontractors and suppliers used to meet the subcontract goals programmed for this project.

Minimum attendance by the Contractor will be a responsible company/corporate official, who is authorized to execute and sign documents on behalf of the firm, the job superintendent and the Contractor's safety officer.

C. AUTHORIZATION OF THE ENGINEER

The City may, at its discretion and without cause, order the Contractor in writing to stop and suspend work. Immediately after receiving such notice, the Contractor will discontinue advancing the work specified under this Agreement.

Such suspension will not exceed one hundred and eighty (180) consecutive days during the duration of the project.

The Contractor may seek an adjustment of the contract price and time, if the cost or time to perform the work has been adversely impacted by any suspension or stoppage of work by the City.

7. 105 CONTROL OF WORK, Add the following to Subsection 105.2 PLANS AND SHOP DRAWINGS:

The Contractor will submit as many of the required shop drawings and product data submittals at the Pre-Construction meeting as practical and possible. All shop drawings and product data submittals will be submitted sufficiently in advance to allow adequate time for City review(s) and approval. The Contractor will submit early enough to allow enough time for reviews based on the assumption that a submittal may be marked "Revise and Resubmit" or "Rejected", requiring the Contractor to modify the submittal and resubmit for additional review(s) until acceptance.

A separate transmittal will be used for each specific item type, class of material or equipment for which a submittal is required. Multiple items under one transmittal will only be allowed when the items taken together constitute a complete manufacturer's package, or are so functionally related that the entire package should be reviewed as a whole. The contractor will submit six (6) hard copies of each shop drawing for review. Email or FAX submittals will not be accepted.

The Contractor will allow up to four (4) weeks for City review for each submittal. Some submittals may be simple and straightforward and may not require the full four (4) weeks, but other more complex submittals may take the full four (4) weeks.

8. 105 CONTROL OF WORK, Add the following to Subsection 105.7 COOPERATION BETWEEN CONTRACTORS

Other Contractors are expected to be working in or near the area of this contract. If there are any other projects under construction while this project is being constructed, the Contractor will conduct his work as specified in MAG Section 105.7.

9. 105 CONTROL OF WORK, Add the following to Subsection 105.8, CONSTRUCTION STAKES, LINES AND GRADES:

A. SURVEY

The City of Phoenix Street Transportation Department, Design & Construction Management Division (DCM) will set the construction stakes establishing lines, grades, and elevations to include necessary utilities and appurtenances and will be responsible for their conformance with plans and specifications. DCM will establish or designate a control line or benchmark of known location and elevation for use as a reference.

B. RECORD DRAWINGS

The Contractor will maintain a record set of plans at the job site. These will be kept legible and current and will show all changes or work added in a contrasting, reproducible color. Two weeks prior to issuance of substantial completion, the Contractor will submit, prior to final inspection, corrected landscape drawings showing the location of all utility services, controller, pipe, valves and wiring. The Engineer will be the sole judge as to the acceptability of the record plans and receipt of an acceptable set is a pre-requisite for final payment.

10. 105 CONTROL OF WORK, Add the following to Subsection 105.15 ACCEPTANCE, paragraph (B) Final Acceptance:

A. SUBSTANTIAL COMPLETION

The work may be judged substantially complete when all construction has been completed with the possible exception of final inspection punch list work. The purpose of granting or acknowledging substantial completion is to stop contract time. This is particularly important to the Contractor if contract time is exhausted or nearly so and/or punch list work is anticipated to extend beyond the allotted time. Granting of substantial completion will eliminate the possibility of incurring liquidated damages or additional liquidated damages beyond the substantial completion date, whichever case may apply.

In the event that the Engineer grants substantial completion, the Contractor will have thirty (30) days thereafter to complete punch list work, unless additional time is granted--in writing--by the Engineer. In no case will a Contractor be granted more than thirty (30) days to complete punch list work, unless there are extenuating circumstances such as delay in shipment of a specialized piece of equipment, labor strike, or other circumstances beyond the Contractor's control which would necessitate a further time extension.

B. PENALTY FOR FAILURE TO COMPLETE PUNCH LIST WORK WITHIN SPECIFIED TIME

In the event the Contractor fails to complete the punch list work within thirty (30) days following the contract completion date, or in the case of specialized situations within the additional time allotted by the Engineer, the Contractor may be declared in default, and the Engineer may order the work completed by others.

In the event of default, as described herein, the Engineer will withhold from the Contractor's final payment, an amount equal to at least twice the estimated cost of the remaining work. In addition, the Engineer will withhold the retention deducted from contract progress payments until all punch list work has been satisfactorily completed, whereupon twice the amount of the actual cost of completing the work will be deducted from the Contractor's final payment and the remaining funds, if any, including the contract retention, will be released in accordance with the conditions set forth in contract retention.

C. CONTRACT RETENTION

This project will not be considered complete until all work has been completed, including punch list work. Under no circumstances will a Contractor receive any portion of the legally retained progress payments until the City has granted a final acceptance and/or acknowledged substantial completion. The following conditions will apply to each case:

1. Substantial Completion: The Engineer may reduce outstanding contract retention to not less than one (1) percent of the total contract amount, upon granting substantial completion, if the value of the punch list work is estimated to be less than one (1) percent of the total contract.

2. Project Acceptance: Project acceptance implies that all punch list work is done and the improvements have been accepted by the City. Under these conditions, the retention will be fully released to the Contractor subject only to the signing of the standard claims affidavit and hold harmless clause required for all contracts.

3. Final Release of Contract Retention and/or Release of More Than Ninety (90) Percent of the Contract Funds: Prior to final payment and release of monies retained and/or in the case of substantial completion where the Contractor has requested a reduction in contract retention, the Contractor will be required to sign a claims affidavit agreeing to hold the City harmless from any and all claims arising out of the contract.

11. 107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC, Add the following to Subsection 107.1, LAWS TO BE OBSERVED, paragraph (C):

While every effort has been made to Blue Stake all known utilities, and to research and show on the plans, all existing underground utilities based on the best available information, it will be the Contractor's responsibility to locate and pothole all existing utilities sufficiently in advance of anticipated new underground construction to identify any potential conflicts and allow reasonable time for the Engineer to determine solutions. Any claims for additional compensation or work required due to the Contractor's non-compliance with this provision will not be considered for payment by the City.

12. 107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC, Add the following new paragraphs to Subsection 107.1, LAWS TO BE OBSERVED:

(G) FAIR TREATMENT OF WORKERS

The Contractor will keep fully informed of all Federal and State laws, County and City ordinances, regulations, codes and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any way affect the conduct of the work. He will at all times observe and comply with all such laws, ordinances, regulations, codes, orders and decrees; this includes, but is not limited to laws and regulations ensuring fair and equal treatment for all employees and against unfair employment practices, including OSHA and the Fair Labor Standards Act (FLSA). The Contractor will protect and indemnify the Contracting Agency and its representatives against any claim or liability arising from or based on the violation of such, whether by himself or his employees.

(H) DESERT TORTOISE MITIGATION

As stated in the Arizona Interagency Desert Tortoise Team (AIDTT) Management Plan (1996), if a desert tortoise is found in a project area, activities should be modified to avoid injuring or harming it. If activities cannot be modified, tortoises in harm's way should be moved in accordance with Arizona Game and Fish Department's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects", revised October 23, 2007 (or the latest revision), included in these contract provisions. Taking, possession, or harassment of a desert tortoise is prohibited by State law, unless specifically authorized by Arizona Game and Fish Department.

(I) BURROWING OWLS MITIGATION – MIGRATORY BIRD TREATY ACT OF 1918

While no burrowing owls have been seen at the project site, small animal burrows likely used by rodents and cottontail rabbits are present. In the event that burrowing owls are found on the site, the project will comply with the Migratory Bird Treaty Act of 1918 and relocate the birds prior to grading. A contact for relocation of burrowing owls is Bob Fox or Greg Clark of Wild at Heart, 31840 North 45th Street, Cave Creek, AZ 85331,

480-595-5047.

13. 107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC, Add the following to Subsection 107.2, PERMITS:

1. HAUL PERMIT

On any project, when the quantity of fill or excavation to be hauled exceeds 10,000 C.Y. or when the duration of the haul is for more than twenty (20) working days, the Contractor will:

A. Obtain approval of the proposed haul route, number of trucks, etc., by the Street Transportation Department, and then;

B. Submit the proposed haul route plan to the Planning and Development Department and pay the appropriate plan-review fee (contact Planning and Development Department at 602-534-5933 for current plan review fee, the cost of which will be considered incidental to the project), and after their approval;

C. Obtain the written haul permit from the Planning and Development Department.

NOTE: Obtaining the haul permit and the approval by Street Transportation does not release the Contractor from strict compliance with MAG Subsection 108.5, Limitation of Operations.

2. STORM WATER POLLUTION PREVENTION PLAN AND AZPDES PERMIT

Any project that disturbs 1 acre or more of the ground surface requires the Contractor to obtain an AZPDES permit and prepare a SWPPP. This project does require an AZPDES permit and SWPPP.

3. DUST PERMIT

Any project that disturbs more than 1/10 acre of soil requires an earthmoving permit from Maricopa County. Information and forms can be found at:

www.maricopa.gov/aq/divisions/permit_engineering/applications/Default.aspx

To facilitate and encourage strict compliance with the Maricopa County Air Pollution Control Regulations pertaining to fugitive dust control, the Contractor will submit the following documentation to the Engineer at the Pre-Construction meeting prior to conducting any earth moving or dust generating activities under the Contract.

a. Copy of a valid Maricopa County Earth Moving (Dust Control) Permit applicable to the work or services under the Contract.

b. Copy of the Dust Control Plan applicable to the work or services under the Contract.

c. Documentation that all of the Contractor's on-site project managers have received the Comprehensive or Basic dust control training as required by Maricopa County Rule 310 based on project disturbed acres.

For construction sites where 5-acres or more are disturbed, the Contractor will designate and identify to the City an individual who has completed the dust control training as required for the site Dust Control

Coordinator. The Dust Control Coordinator will be present on-site all times that earth moving or dust generating activities are occurring and until all ground surfaces at the site have been stabilized.

For construction sites less than 1-acre, the Contractor will designate an individual who has completed Basic Training to be on site at all times that earth moving or dust generating activities are occurring.

The Contractor will notify the Engineer within twenty-four (24) hours of any inspection, Notice of Violation, or other contact by the Maricopa County Air Quality Department with it or any of its subcontractors regarding the work or services under the Contract. A copy of any written communications, notices or citations issued to Contractor or any of its subcontractors regarding the work or services under the Contract will likewise be transmitted to the Engineer within twenty-four (24) hours.

The Contractor will prevent any dust nuisance due to construction operations in accordance with MAG Specifications, Section 104.1.3, Cleanup and Dust Control. The Contractor will use a power pick-up broom as part of the dust control effort. No separate measurement or payment will be made for cleanup or dust control, or for providing a power pick-up broom on the job.

The Contractor agrees to indemnify and reimburse the City for any fine, penalty, fee or monetary sanction imposed on the City by Maricopa County arising out of, or caused by the performance of work or services under the Contract. The Contractor will remit payment of the reimbursable sum to the City within thirty (30) days of being presented with a demand for payment from the City.

5. TEMPORARY RESTRICTION AND CLOSURE SYSTEM (TRACS) PERMIT

The Contractor will obtain a TRACS permit for any construction that restricts access (partial or complete closures) on Major/Collector public streets, or complete closures on Local streets, sidewalks, bike lanes and alleys. The Contractor will obtain this permit in accordance with the City of Phoenix Traffic Barricade Manual, latest edition. The Contractor will follow all requirements of the TRACS permit during construction. The Contractor will obtain this permit before the Notice to Proceed date. Any construction delays caused by non-compliance with the TRACS permit or the City of Phoenix Traffic Barricade Manual requirements will be the responsibility of the Contractor.

6. DEMINIMUS DISCHARGE PERMIT

As required, if the Contractor anticipates the discharge of any amount of water from the City water or wastewater system during construction, the Contractor will be responsible for obtaining a DeMinimus Permit from the Arizona Department of Environmental Quality (ADEQ) for any discharge that will reach “waters of the U.S.”, either directly or indirectly, and complying with all requirements of that permit. This includes all compliance reporting required by the permit. No separate payment will be made for obtaining or complying with this permit.

7. U.S. ARMY CORPS OF ENGINEERS SECTION 404 PERMIT

This project is subject to a U.S. Army Corps of Engineers 404 Permit (or U.S. Army Corps of Engineers Nationwide Permit (NWP)). The permit (or NWP) if required is included in these project specifications. The contractor, subcontractor(s), and all field personnel shall comply with all terms and conditions of the attached Section 404 Nationwide Permit and Section 401 Water Quality Certification.

8. OTHER PERMITS

The Contractor will be required to obtain other permits from other agencies, such as the Arizona Department of Transportation (ADOT) and the Flood Control District of Maricopa County (FCDMC) before beginning work or restricting traffic in their right-of-way. The Contractor will be required to obtain and pay for any of these permits and comply with all their requirements before commencing any work, or restricting traffic in their right-of-way jurisdiction.

14. 107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC, Revise the title of Subsection 107.4 ARCHAEOLOGICAL REPORTS to 107.4 ARCHAEOLOGICAL MONITORING AND DISCOVERIES, and add the following:
If suspected archaeological materials are discovered during construction without an archaeologist present, the Contractor will stop work immediately within a 10-meter zone of the discovery, secure the area, and immediately notify the City Archaeology Office (602-495-0901). The Contractor will not recommence work in the area of discovery until directed in writing by the City Archaeology Office.

15. 107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC, Modify Subsection 107.8, USE OF EXPLOSIVES as follows:

Replace the words "Uniform Fire Code" with “Phoenix Fire Code".

16. 107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC, Add the following to Subsection 107.11, CONTRACTOR’S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES:

A. UNDERGROUND FACILITIES

The Contractor will make whatever investigation it deems necessary to verify the location of underground utility facilities. If such facilities are not in the location shown in the drawings, then (regardless of whether this is discovered prior to or during construction) the contractor's remedies, if any, pursuant to Art. 6.3, Chapter 2, Title 40, A.R.S. (A.R.S. 40-360.21 through 40-360.32, "Underground Facilities"), will be the contractor's sole remedy for extra work, delays and disruption of the job, or any other claim based on the location of utility facilities. Locations of utility facilities shown on drawings furnished by the City are to be regarded as preliminary information only, subject to further investigation by the contractor. The City does not warrant the accuracy of these locations, and the contractor, by entering into this contract, expressly waives and disclaims any claim or action against the City under any theory for damages resulting from location of utility facilities.

The Contractor will be responsible for obtaining all Blue Stake utility location information, and for performing all requirements as prescribed in A.R.S. 40-360.21 through .29, for all underground facilities, including those that have been installed on the current project, until the project is accepted by the City.

At least two (2) working days prior to commencing any excavation, the Contractor will call the BLUE STAKE CENTER, between the hours of 7:00 a.m. and 4:30 p.m., Monday through Friday for information relative to the location of buried utilities. The number to be called is as follows:

Maricopa County (602) 263-1100

B. UTILITY-RELATED CONSTRUCTION DELAY DAMAGES CLAIM PROCEDURES

The following procedure is intended to provide a fair and impartial process for the settlement of construction delay claims associated with unknown or improperly located utility facilities.

The Contractor will immediately notify, in writing, the Project Engineer of any potential utility-related delay claim.

The Contractor will immediately notify the appropriate liaison of the affected utility verbally, followed by a written notification.

The Contractor will coordinate an investigation of the situation with the affected utility and the City's Utility Coordinator. After resolution, the Contractor will provide written notification of the settlement of the claim to all affected parties. If the affected utility makes a decision to handle negotiations for a claim, their personnel will be responsible for monitoring the project and all negotiations with the Contractor regarding the claim.
The Contractor will determine to document requirements of the affected utility for their acceptance of responsibility for the claims. The Contractor will provide four (4) copies of the required documentation to the utility involved and two (2) copies of this documentation to the Project Engineer. The Contractor will obtain written confirmation from the utility company involved of their documentation requirements.

17. 108 COMMENCEMENT, PROSECUTION AND PROGRESS Add the following to Subsection 108.2, SUBLETTING OF CONTRACT:

(F) PROMPT PAYMENT

1. Contractor Payment to Subcontractor or Supplier

Contractor will pay its subcontractors or suppliers within seven (7) calendar days of receipt of each progress payment from the City. The Contractor will pay for the amount of work performed or materials supplied by each subcontractor or supplier as accepted and approved by the City with each progress payment. In addition, any reduction of retention by the City to the Contractor will result in a corresponding reduction to subcontractors or suppliers who have performed satisfactory work. Contractor will pay subcontractors or suppliers the reduced retention within fourteen (14) days of the payment of the reduction of the retention to the Contractor. No Contract between Contractor and its subcontractors and suppliers may materially alter the rights of any subcontractor or supplier to receive prompt payment and retention reduction as provided herein. If the Contractor fails to make payments in accordance with these provisions, the City may take any one or more of the following actions and Contractor agrees that the City may take such actions: (1) to hold the Contractor in default under this agreement; (2) withhold future payments including retention until proper payment has been made to subcontractors or suppliers in accordance with these provisions; (3) reject all future bids from the Contractor for a period not to exceed one year from substantial completion date of this project; or (4) terminate agreement.

2. Alternative Dispute Resolution Between Contractor and Subcontractor or Supplier

If Contractor's payment to a subcontractor or supplier is in dispute, Contractor and subcontractor or supplier agree to submit the dispute to any one of the following dispute resolution processes within fourteen (14) calendar days from the date that any party involved gives written notice to the other party(ies): (1) binding arbitration; (2) a form of alternative dispute resolution (ADR) agreeable to all parties; or (3) a City of Phoenix facilitated mediation. When disputed claim is resolved through ADR or otherwise, the Contractor and subcontractor or supplier agree to implement the resolution within seven (7) calendar days from the resolution date.

3. Inspection and Audit

Contractor, its subcontractors and suppliers will comply with A.R.S. 35-214 and the City will have all rights and remedies to inspect and audit the records and files of Contractor, subcontractor or supplier, as afforded the State of Arizona in accordance with the provisions of A.R.S. Section 35-214.

4. Non-Waiver

Should the City fail or delay in exercising or enforcing any right, power, privilege, or remedy under this Section, such failure or delay will not be deemed a waiver, release, or modification of the requirements of this Section or of any of the terms or provisions thereof.

5. Inclusion of provisions in Subcontracts

Contractor will include these prompt payment provisions in every subcontract, including procurement of materials and leases of equipment for this Agreement.

6. No Third Party Benefits or Rights

Nothing contained in this Agreement is intended to benefit or confer any rights on any person or entity not a party to this Agreement, and no such person or entity, including but not limited to other Contractors, subcontractors or suppliers, may assert any claim, cause of action, or remedy against the City hereunder.

18. 108 COMMENCEMENT, PROSECUTION AND PROGRESS, Add the following to Subsection 108.4, CONTRACTOR'S CONSTRUCTION SCHEDULE:

No later than one (1) week after the Pre-Construction meeting (or one week after the Notice to Proceed date is firmly established), the Contractor will submit to the Engineer, two (2) copies of a detailed Critical Path Model (CPM) chart outlining the detailed progress of all major and critical elements of the project by weeks, from beginning of project to end. The chart will begin at the established Notice to Proceed date and progress on a calendar basis, week by week, to the end of the project.

The Contractor will submit updated CPM charts as required by the Engineer. This will typically be on a monthly basis. The required submittals of updated CPM charts may be less frequent than monthly, if approved by the Engineer.

Neither the City nor the Engineer will accept liability or responsibility for the reasonable or workable nature of the CPM schedules prepared and submitted by the Contractor—that responsibility will remain with the Contractor.

19. 108 COMMENCEMENT, PROSECUTION AND PROGRESS, Add the following to Subsection 108.5, LIMITATION OF OPERATIONS:

A. WORK HOURS

Regular working hours will be defined as one 8-1/2 hour shift per day, Monday through Friday, exclusive of City holidays.

Work in excess of regular working hours will be defined as overtime. For overtime which becomes necessary, the Contractor will make a written request to the Engineer at least eight (8) calendar days before the desired overtime. The request will include the duration, dates, times, reason for overtime,

and a statement of the consequences if overtime is not approved.

The Contractor will not schedule any overtime work which requires inspection, survey, or material testing without written permission from the Engineer two (2) working days before the proposed overtime work. The Engineer reserves the right to deny the requested overtime. If an overtime request is denied, the Engineer may extend the contract time at no additional cost to the City, including extended overhead costs.

Unscheduled Overtime

Overtime that is not requested and approved in accordance with the above procedure will be defined as unscheduled overtime. All costs (including appropriate overhead) will be paid by the Contractor by deduction from the contract.

Emergency Overtime

An emergency is defined as work required for a situation that is not within the Contractor's control.

With the Engineer's approval, the Contractor will be permitted to work overtime without being responsible for paying the City's costs.

20. 108 COMMENCEMENT, PROSECUTION AND PROGRESS, Add the following to Subsection 108.10, FORFEITURE AND DEFAULT OF CONTRACT:

City's Right to Perform and Terminate for Cause

If the City provides the Contractor with a written order to provide adequate maintenance of traffic, adequate cleanup, adequate dust control or to correct deficiencies or damage resulting from abnormal weather conditions, and the Contractor fails to comply in a time frame specified, the City may have work accomplished by other sources at the Contractor's expense.

If Contractor persistently fails to (i) provide a sufficient number of skilled workers, (ii) supply the materials required by the Contract Documents, (iii) comply with applicable Legal Requirements, (iv) timely pay, without cause, Sub-consultants and/or Subcontractors, (v) prosecute the Contract Services with promptness and diligence to ensure that the Contract Services are completed by the Contract Time, as such times may be adjusted, or (vi) perform material obligations under the Contract Documents, then the City, in addition to any other rights and remedies provided in the Contract Documents or by law, will have the rights set forth below.

Upon the occurrence of an event set forth above, City may provide written notice to Contractor that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Contractor's receipt of such notice.

If Contractor fails to cure, or reasonably commence to cure, such problem, then City may give a second written notice to Contractor of its intent to terminate within an additional seven (7) day period.

If Contractor, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then the City may declare the Agreement terminated for default by providing written notice to Contractor of such declaration.

Upon declaring the Agreement terminated pursuant to the above, City may enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances

and other items thereon, which have been purchased or provided for the performance of the Work, all of which Contractor hereby transfers, assigns and sets over to City for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items.

In the event of such termination, Contractor will not be entitled to receive any further payments under the Contract Documents until the Work will be finally completed in accordance with the Contract Documents. At such time, the Contractor will only be entitled to be paid for Work performed and accepted by the City prior to its default.

If City's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then Contractor will be obligated to pay the difference to City. Such costs and expense will include not only the cost of completing the Work, but also losses, damages, costs and expense, including attorneys' fees and expenses, incurred by the City in connection with the re-procurement and defense of claims arising from Contractor's default.

21. 108 COMMENCEMENT, PROSECUTION AND PROGRESS, Add the following to Subsection 108.11, TERMINATION OF CONTRACT:

TERMINATION FOR CONVENIENCE

The Owner for its own convenience has the right for any reason and at any time to terminate the contract and require the Contractor to cease work hereunder. Such termination will be effective at the time and in the manner specified in the notification to the Contractor of the termination. Such termination will be without prejudice to any claims which the Owner may have against the Contractor. In the event of a termination for convenience, the Contractor will be paid only the direct value of its completed work and materials supplied as of the date of termination, and Contractor will not be entitled to anticipated profit or anticipated overhead or any other claimed damages from the Owner, Architect or the Engineer.

If the City is found to have improperly terminated the Agreement for cause or default, the termination will be converted to a termination for convenience in accordance with the provisions of this Agreement.

CANCELLATION OF CONTRACT FOR CONFLICT OF INTEREST
All parties hereto acknowledge that this agreement is subject to cancellation by the City of Phoenix pursuant to the provisions of Section 38-511, Arizona Revised Statutes.

22. 109 MEASUREMENTS AND PAYMENTS Add the following to Subsection 109.2, SCOPE OF PAYMENT:

A. PARTIAL PAYMENTS

The contracting agency will make a partial payment to the Contractor on the basis of an approved estimate prepared by the Engineer or the Contractor for work completed and accepted through the preceding month. The notice to proceed date, which is designated for the specific project involved, will be used as the closing date of each partial pay period. Payment will be made no later than fourteen (14) days after the work is certified and approved. City will review payment requests and make recommendation of approval or denial within seven (7) calendar days.

B. PAYMENT RETENTION

At the start of construction, ten percent of all pay requests will be retained by the City to guarantee complete performance of the contract. When the work is fifty percent complete, this amount may be

reduced to five percent providing that construction progress and quality of work is acceptable to the City. Any funds which are withheld from the contractor will be paid no later than sixty days after completion of the contract and settlement of all claims.

In lieu of retention, the contractor may provide as a substitute, an assignment of time certificates of deposit (CDs) from a bank licensed by Arizona, securities guaranteed by the United States, securities of the United States, the State of Arizona, Arizona counties, Arizona municipalities, Arizona school districts, or shares of savings and loan institutions authorized to transact business in Arizona.

Securities deposited in lieu of retention must be deposited into a separate account with a bank having a branch located in the City of Phoenix and be assigned exclusively for the benefit of the City of Phoenix pursuant to the City's form of escrow agreement

CDs assigned to the City must be maintained in the form of time deposit receipt accounts. CDs will be assigned exclusively for the benefit of the City of Phoenix pursuant to the City's form of escrow agreement.

Escrow Agreement forms may be obtained from the Contract Specialist assigned to the project.

23. 109 MEASUREMENTS AND PAYMENTS, Add the following to Subsection 109.4.3, DUE TO EXTRA WORK:

ALLOWANCE FOR EXTRA WORK

Contract allowance items are provided for the purpose of encumbering funds to cover the costs of possible change order work. The amount of the allowance item is determined by the Engineer and is not subject to individual bid pricing. All bidders will incorporate the amount pre-entered in the bid proposal and will reflect the same in the total amount bid for this project.

This allowance item provides an estimated funding to cover unforeseen changes that may be encountered and corresponding extra work needed to complete the contract per plan. Unforeseen extra work, if any, will be as approved by the Engineer; for example, extension of unit bid prices, negotiated price or time and material, in accordance with MAG Specification Section 109.4 and 109.5.

It will be understood that this allowance item is an estimate only and is based on change order history of similar projects. It will not be utilized without an approved contract change order. It is further understood that authorized extra work, if any, may be less than the allowance item.

24. 109 MEASUREMENTS AND PAYMENTS, Add the following to Subsection 109.4 COMPENSATION FOR ALTERATION OF WORK:

109.4.7 CHANGE ORDERS

Owner reserves the right to decrease adjustments made in any change order if, upon audit of Contractor's records, the audit discloses contractor provided false or inaccurate cost and pricing data in negotiating the change order. In enforcing this provision, the parties will follow the procedure provided in the Federal Acquisition Regulation (FAR) clause 52.214-27, found in 48 CFR Part 52.

25. 109 MEASUREMENTS AND PAYMENTS, Delete Table 109-1 in Subsection 109.9, DOLLAR VALUE OF MAJOR ITEM, and substitute the following:

CONTRACT AMOUNT	MAJOR ITEM IS DEFINED AS ANY ITEM EQUAL TO OR GREATER THAN THE FOLLOWING
Up to $1 million	$15,000 or 3%, whichever is greater
$1 million to $3 million	3% of the original contract amount to a maximum of $75,000.00
$3 million to $5 million	2.5% of the original contract amount to a maximum of $90,000.00
Over $5 million	1.5% of the original contract amount to a maximum of $125,000.00

CONTINGENCY ITEMS

Contingency items which fall under the definition of a major item are subject to negotiation if decreased by more than twenty (20) percent.

Contingency items will not increase more than twenty (20) percent without being subject to renegotiation, regardless of the percentage of that item relative to the total contract amount.

26. 110 NOTIFICATION OF CHANGED CONDITIONS AND DISPUTE RESOLUTION Add the following to Subsection 110.1 GENERAL:

SOILS INFORMATION

The material boring logs shown on the plans or included in these specifications are included for the Contractor's convenience only. It is not intended to imply that the character of materials shown in the logs is representative throughout the project. The soil borings are indicative of the soil characteristics only at the location and to the depth of each of the borings.

Even if not specifically shown in the geotechnical information provided, the Contractor may encounter large cobbles, boulders, caliche, conglomerate, hard rock, perched groundwater, historic or prehistoric cultural resources, or other differing site conditions on this project. No additional compensation will be made for any differing site condition that may be encountered.

SPECIAL PROVISIONS

1. 206 STRUCTURE EXCAVATION AND BACKFILL, Add the following to Section 206 STRUCTURE EXCAVATION AND BACKFILL:

Description

The work under this item consists of performing Structural Excavation and furnishing Structural Backfill at the locations and in conformance with the details on the Project Plans, in accordance with these special provisions and as directed by the Engineer. Structural Backfill will consist of furnishing, placing and compacting backfill around the structure to the level designated. All work under this Section will conform to SECTION 203 – EARTHWORK of the Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, 2008 Edition, plus all addenda, except as herein noted and on the Project Plans.

Construction Requirements

Section 203-5.03(B)(1) of the ADOT Standard Specifications is modified to add:

Structural Backfill may be comprised wholly or in part of salvaged Portland cement concrete material.

The source of all salvaged materials will be approved by the Engineer prior to use. Salvaged Portland cement concrete material will not contain hazardous waste materials. All metal reinforcement materials will be removed from salvaged concrete prior to its use for structure backfill.

Salvaged Portland cement concrete material to be used in structure backfill will be derived from crushing.

Structural Backfill containing any salvaged materials will conform to the gradation requirements specified for structure backfill. If completely comprised of salvaged materials, the structural backfill requirements for pH, resistivity, and plasticity index will not apply. If soil and aggregate materials are blended with salvaged materials, the soil and aggregate portion will conform to the pH, resistivity, and plasticity index requirements specified for structure backfill.

If soil and aggregate materials are blended with salvaged materials, the Contractor will submit the relative percentages of salvaged materials and soil and aggregate materials to the Engineer for approval. The relative percentages will not be adjusted after approval except to maintain a consistent gradation. Any significant change in the proportions must be approved by the Engineer prior to use.

Section 203-5.03(B)(2) of the ADOT Standard Specifications is modified to add:

Salvaged materials will not be used as slurry unless approved by the Engineer.

Section 203-5.03(B)(4) of the ADOT Standard Specifications is modified to add:

Structural Backfill material consisting wholly or in part of salvaged Portland cement concrete material will be compacted to at least 95 percent of the maximum density determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual, as directed and approved by the Engineer.

Measurement and Payment

No direct method of measurement will be made for Structure Excavation or Structure Backfill. No payment will be made for Structure Excavation and Structure Backfill. The cost for Structure Excavation and Structure Backfill will be considered incidental to the structure being constructed.

2. Add the following new Section, 232 STORM WATER POLLUTION PREVENTION – BEST MANAGEMENT PRACTICES:

Description

Implementation of "Best Management Practices" (B.M.P.'s) to reduce stormwater pollution will be undertaken by the Contractor on a multi-tiered, most cost-effective approach. The Contractor will utilize the lowest-cost acceptable B.M.P. available to address each type of potential stormwater pollution situation encountered on the project. Should this prove ineffective in resolving the stormwater pollution problem, additional, higher-cost B.M.P.'s may need to be employed, upon approval by the City.

Construction Requirements

Typical multi-tiered B.M.P. approaches to construction operations may include:

A. ROADWAY SUBGRADE EXCAVATION:

1. Tier I - The excavated area will create, in effect, a temporary retention area. This may provide adequate control of storm runoff to prevent sediment from leaving the site. Pumping or other methods utilized to drain the excavation will employ filter fabric or other filtering method to remove sediment before leaving the site or entering the storm drain system.

2. Tier II - Catch basin inlet protection (utilizing filter fabric, gravel, etc.) may be necessary should Tier I controls prove inadequate. Care will be exercised to ensure that Tier II B.M.P.'s do not result in blockage of drainage and resultant flooding of adjacent properties.

B. OPEN PIPELINE TRENCHES:

1. Tier I - The open trench itself will act as a temporary retention area. The Contractor will provide a low-cost, readily-installed/removed temporary device on the open end of the pipe to prevent sediment-laden stormwater from entering the pipe. This may consist of a temporary "plug" incorporating filter fabric, a temporary weir, or other device capable of removing sediment before allowing stormwater to enter the pipe. Care must be taken to prevent damming of floodwaters in the excavation that could result in "floating" the pipe.

2. Tier II - If Tier I protection does not prove satisfactory, the Contractor may need to install straw bales, sandbag berms, or temporary diversion dikes around the perimeter of the open excavation to prevent sediment-laden stormwater from entering the open excavation. Due to installation/removal time, such devices need only be installed during periods of likely precipitation and runoff. Earthen dikes are the preferred alternate, due to ease of installation and removal. Care must be taken to assure that runoff is not blocked to the extent that flooding of adjacent properties will result.

C. BACKFILLED PIPELINE TRENCHES:

1. Tier I - As with roadway subgrade excavations, pipeline trenches which have been backfilled but not yet paved will be several inches lower than adjacent pavement areas, and will therefore act as temporary retention areas.

2. Tier II - If the "retention" provided by the backfilled area does not prevent sediment-laden runoff from leaving the excavated area, perimeter controls such as silt fence, straw bales, sandbag berms, or gravel filter berms may need to be installed around the downstream edge(s) of the backfilled area. As with open trenches, the selection of the appropriate measure, extent of its application, and time period during which it is needed will be dependent upon cost, site conditions, ease of installation/removal, and likelihood of precipitation/runoff. Again, care must be taken to ensure that diversion of stormwater onto adjacent properties does not result from these installations.

Another stormwater control method, which the Contractor may need to consider, is limiting the amount of area disrupted and therefore subject to sediment-laden stormwater runoff at any one time. Should such project phasing prove necessary due to the failure of other B.M.P.'s, the Contractor will revise his construction activities accordingly, at no additional cost to the City.

Standards for installation of the above B.M.P.'s are provided in the Flood Control District of Maricopa County's "Drainage Design Manual for Maricopa County, Arizona, Volume III, Erosion Control". Installation and operation of B.M.P.'s will be in accordance with that manual.

There will be no separate measurement or payment for preparing or developing Storm Water Pollution Prevention Plans, or for preparing NOI's or NOT's or obtaining an AZPDES Permit, all these costs being considered incidental to the cost of the project.

Use of individual BMP items will conform to the Contractor's approved Storm Water Pollution Prevention Plan (SWPPP).

Measurement and Payment

This project includes a pay item "ALLOWANCE FOR STORMWATER POLLUTION PREVENTION BEST MANAGEMENT PRACTICE (BMP'S)". The amount of this allowance is determined by the Engineer, and is not subject to individual bid pricing. All bidders will incorporate the amount pre-entered in the bid proposal and will reflect the same in the total amount bid for this project.

Payment for various types of necessary BMP's will be made from this allowance based on approved invoiced cost of the materials only, plus taxes, and a maximum 15 percent markup for overhead and profit. There will be no separate measurement or payment for the preparation or development of the Storm Water Pollution Prevention Plan; labor or equipment necessary to install, maintain or remove the BMP materials; moving existing BMP materials from one location to another on the same project; or constructing BMP swales or berms, all of these costs being considered incidental to the cost of the project.

3. 301 SUBGRADE PREPARATION: Add the following to Subsection 301.1, DESCRIPTION:

The work under Subgrade Preparation consists of all pavement removal, excavating and grading work necessary to bring the existing roadway surface to the section specified on the plans prior to the covering of the prepared subgrade with pavement base materials.

4. 301 SUBGRADE PREPARATION, Delete Subsections 301.7, MEASUREMENT, and 301.8, PAYMENT, and substitute the following:

301.7 MEASUREMENT:

Measurement for subgrade preparation will be made by the square yard of the roadway areas excavated and graded between the lip of gutter to lip of gutter and subsequently covered with pavement base materials. Payment for necessary grading for items outside of the lip of gutter will be included in the cost of those items.

301.8 PAYMENT

Payment will be made at the unit price quoted in the bid proposal for the bid item "SUBGRADE PREPARATION".

5. 321 PLACEMENT AND CONSTRUCTION OF ASPHALT CONCRETE PAVEMENT, Add the following to Subsection 321.1 DESCRIPTION:

The permanent asphalt concrete roadway pavement section will consist of the following:

A base course of 6-inches compacted thickness of Type A-1 1/2 dense graded asphalt laid in 2 courses. The first course will have a compacted thickness of 3-inches; the second course will have a compacted thickness of 3-inches. The surface course will consist of 1 1/2-inches compacted thickness of Type D-1/2 dense graded asphalt concrete laid in one course.

The base course asphalt concrete pavement and the surface course asphalt concrete pavement shall have a combined compacted pavement thickness of 7 1/2-inches laid over top of 100% compacted subgrade.

6. 336 PAVEMENT MATCHING AND SURFACING REPLACEMENT, Add the following to Section 336 PAVEMENT MATCHING AND SURFACING REPLACEMENT:

ASPHALT CONCRETE REPLACEMENT (DRIVEWAY AND PARKING LOT CONNECTIONS)

Construction Requirements

Asphalt concrete will be removed and replaced to match existing asphalt concrete frontage in back of new sidewalks and driveways, as detailed and noted on the plans and as directed by the Engineer. Existing asphalt concrete will be trimmed and removed in accordance with Section 336.2.2.

Measurement and Payment

Payment will be made at the bid price per ton for "ASPHALT CONCRETE SURFACE COURSE D-1/2 (DRIVEWAY, SIDEWALK AND PARKING LOT CONNECTIONS)" complete-in-place within the areas as specified above, and will include removal and disposal of existing materials and subgrade preparation. Aggregate base materials, where required, will be paid under that proposal item.

PERMANENT PAVEMENT REPLACEMENT (ASPHALT CONCRETE)

Description

Unless otherwise specified on the plans, pavement replacement sections will be as follows:

Major Arterial Street: 1 ½-inches Type D-1/2 Surface Course on 6-inches Type A-1 ½ (2 lifts) Base Course on 100% compacted subgrade.

Measurement and Payment

Measurement and payment for permanent pavement replacement will be by the square yard made under the bid item "SAWCUT, REMOVE AND REPLACE A.C. PAVEMENT, C.O.P. STANDARD DETAIL P-1200, complete in place, including all necessary removal and disposal of existing materials, subgrade preparation, pavement and tack coat. In computing the pay quantity for trench patch pavement replacement, the field measurement along the centerline of the trench and the trench pay width as listed in MAG 336 will be used. When the longitudinal trench is only partially in the pavement, adjustments in the pay width will be made by the Engineer.

There will be no separate measurement or payment for trench backfill. The cost of the backfill is considered included in the cost of the pipe.

7. 340 CONCRETE CURB, GUTTER, SIDEWALK RAMPS, DRIVEWAY AND ALLEY ENTRANCE , Add the following to Subsection 340.2.1 Detectable Warnings; Subsection 340.3.1 Detectable Warnings; Subsection 340.5 MEASUREMENT; and Subsection 340.6 PAYMENT:

Add the following to MAG Subsection 340.2.1 Detectable Warnings:

Detectable warning material will meet the latest ADA requirements. Approved detectable warning material manufacturers include the following:

a. Strongo, TekWay Dome-Tiles
b. Tuftile, Cast Iron ADA Detectible Warning Plates
c. Neenah Foundry, Cast Iron Detectable Warning Plate

Alternate materials may be submitted subject to review and approval prior to use. All detectable warnings will be of the same type and color within the project limits, unless otherwise specified.

Add the following to MAG Subsection 340.2.1.1 Color and Contrast:

Unless shown otherwise on the plans, the color of the detectable warning tiles to be used shall be terracotta color on grey concrete and yellow color on colored concrete sidewalk ramps – color to be approved by the Engineer.

Add the following to MAG Subsection 340.3.6 Detectable Warnings:

Detectable warning plates will be installed per manufacturer's recommended specifications. The layout of plates will be determined by the Contractor, and if necessary, pre-cut as needed prior to beginning the installation process to meet ADA placement requirements. Plates will not be cut to less than half their size. Plates will be cut as recommended by the manufacturer.

Add the following to Subsection 340. 5 MEASUREMENT and 340.6 PAYMENT:

Sidewalk Ramps, Measurement and Payment

Sidewalk ramps will be constructed in accordance with Phoenix Standard Details or special details called out on the plans.

Payment for sidewalk ramps will be made under the bid items for "SIDEWALK", "CURB AND GUTTER", and will include all costs for labor, materials, equipment, forming, furnishing and placement of Truncated Domes, and finishing for complete sidewalk ramp installation. The cost of any special curb at the back of sidewalk ramps will be measured by the square foot and paid for as "SIDEWALK".

Concrete Driveway and Sidewalk Slab Connections, Measurement and Payment

This work will consist of constructing concrete driveway and sidewalk slab connections to match existing at locations shown on the plans or requested by the Engineer. The slab thickness will conform to the applicable driveway or sidewalk detail.

Measurement and payment for this work will be made per square foot complete and in place for the appropriate pay item "CONCRETE DRIVEWAY ENTRANCE" or "CONCRETE SIDEWALK".

Mountable Curb and Gutter, Measurement and Payment

Mountable curb and gutter will be constructed in accordance with MAG Detail 220-2, Type E, where shown on the plans.
Measurement will be made per linear foot complete in place, and payment will be made under the bid item for "COMBINED CONCRETE CURB AND GUTTER, STD. DETAIL 220, TYPE 'A', H=6".

8. 345 ADJUSTING FRAMES, COVERS, VALVE BOXES, AND WATER METER BOXES, Revise Subsection 345.1 DESCRIPTION, Subsection 345.5 MEASUREMENT, and Subsection 345.6 PAYMENT as follows:
Delete Subsection 345.1 DESCRIPTION in its entirety, and substitute the following:

Adjustment of manhole frames, covers, clean outs, valve boxes, survey monument boxes (and water meter boxes if located in the pavement) to finish grade will be done AFTER placement of the final surface course pavement.

Any missing manhole frames or covers and water valve or survey monument box hardware (such as lids, for example) will be reported in writing to the Engineer during the initial lowering process to allow arrangements to be made to obtain replacement hardware. Missing hardware that is properly reported to the Engineer will be supplied to the Contractor by the City of Phoenix or the appropriate private utility company.

Replacement of any missing hardware that was not reported to the Engineer initially as specified, that comes up missing later when these facilities are brought back up to finish grade, will be the full responsibility of the Contractor, at no additional cost to the City.
In addition, all manhole frames and covers, water valve and survey monument boxes or other related hardware removed by the Contractor during the lowering process will be maintained in a secure area, and the Contractor will bear full responsibility for this hardware material. Any hardware lost by the Contractor will be replaced in-kind, at no additional cost to the City.

All areas of existing pavement removed for adjustments that will be subjected to traffic prior to placement of final concrete collar rings will be temporarily filled with hot-mix Type D-1/2 asphalt and roller-compacted flush with the adjacent pavement. There will be no separate measurement or payment for this temporary hot-mix asphalt or placement or subsequent removal, the cost being considered incidental to the cost of the adjustment.

After removal of asphalt pavement in the area of adjustment, and prior to placement of the final concrete collar ring around the frame or valve box (as shown on City of Phoenix Detail P-1391 and MAG Detail 422), the

asphalt pavement in proximity of the adjustment will be rolled with a self propelled, steel wheel roller.

The concrete collar ring around the frame or valve box will be circular, and will be a minimum of eight (8) inches thick, placed flush with the adjacent new pavement surface. At a minimum, concrete will be MAG Class 'AA' on all paved streets. All concrete will be obtained from plants approved by the Engineer.

A single No. 4 rebar hoop will be placed in each adjustment collar. The hoop diameter will be such that its placement is centered between the edge of the manhole frame or valve box, and the outside edge of the concrete collar. The depth of the hoop will be such that it is centered in the thickness of the collar. Each concrete ring will be scored radially at quarter-circle points. Score lines will be 1/4-inch wide by 1/2-inch deep. The concrete collar surface will be rough broom-finished. All pavement removed for adjustments will be replaced with concrete.

Traffic will not be allowed on the collars until the concrete has reached a minimum compressive strength of 2500 psi on residential streets, and 3000 psi on collector and major streets. On major streets, the Contractor will use "high-early" cement in the concrete mix, approved by the Engineer, to minimize delay in re-opening the street to traffic.

Prior to commencing work on the adjustments, the Contractor will submit a written adjustment plan and schedule to the Engineer for approval.

Sewer manhole frames and covers will be matched, kept together, and replaced to their original locations. The Contractor will remove existing asphalt, chip seal, or other materials from all sewer manhole covers and water valve box lids to be adjusted on this project. The Contractor's method for removal will be approved by the Engineer prior to actual work. Cover cleaning will be completed prior to adjustment of frames. Also, all water valve risers will be thoroughly cleaned to fully expose the valve operating nut.

QUARTER SECTION MAPS FOR WATER AND SEWER LINES

The Contractor may obtain up to three sets of waterline and sewerline quarter section maps for the streets included in this project after the contract is awarded and issued. To order the maps, the Contractor will bring an official contract specification book and a list of desired quarter section maps to the Technical Support Services counter on the 8th Floor of City Hall, 200 W. Washington Street. Up to three sets of maps will be provided at no cost to the Contractor. If more than three sets are requested, the Contractor will purchase the additional sets.

WATER VALVE AS-BUILTS

Upon completion of water valve box adjustments, the Contractor will provide one complete accurate and clearly legible set of as-built waterline Quarter Section maps to the Engineer. The Contractor will mark and color code all water valves on the maps as follows:

Blue- All valves shown on the Q.S. map found and adjusted.

Yellow- All valves shown on the Q.S. map but not found in the field.

Red- Any valve not shown on the Q.S. maps but discovered and adjusted. (Draw valve symbol on map at appropriate location and provide offset and location dimensions for valves in this category.)

Delete Subsections 345.5 MEASUREMENT and 345.6 PAYMENT and substitute the following:

345.5 MEASUREMENT

Measurement for adjustments will be per each respective item.

345.6 PAYMENT

Payment for the appropriate item will be made at the unit price bid for 'ADJUST EXISTING MANHOLE FRAME AND COVER, STANDARD DETAIL 422'; 'ADJUST EXISTING TYPE 'A' WATER VALVE, STANDARD DETAIL P-1391 AND P-1391-1'; 'ADJUST EXISTING SEWER CLEAN-OUT FRAME & COVER, STANDARD DETAIL P-1270'; 'ADJUST SURVEY MONUMENT HANDHOLE FRAME AND COVER, STD DET P-1270; or ADJUST EXISTING WATER METER BOX & COVER. Payment will include all labor, materials, and equipment necessary to satisfactorily clean and make complete adjustments.

There will be no separate measurement or payment for adjusting NEW manhole frame & covers, valve boxes, sewer clean-out frame & covers or water meter boxes constructed with the project. Payment for adjusting these new facilities is considered included in the price bid for the appropriate new item.

9. Add the following new Section 346 ADJUSTING NON-CITY UTILITIES as follows:

346.1 DESCRIPTION

The utility companies may utilize the Contractor to adjust their frames, covers, and valve boxes for this project.

The Contractor will coordinate with the Engineer and the representatives of the various utilities regarding the adjustment and the inspection requirements of their facilities. The Contractor will be responsible for obtaining and adhering to the specifications and any other special requirements from the utility companies.

346.2 MEASUREMENT

Measurement of adjusted private utility features will be on a per each basis.

346.3 PAYMENT

Payment for this work will be made at the unit price bid per each item adjusted to grade, under the proposal item "ADJUSTING FRAMES, COVERS, VALVE BOXES ON EXISTING NON-CITY UTILITIES, CONTINGENT ITEM", and will be compensation in full for complete and final adjustment, including any utility inspector costs associated with these adjustments, regardless of the type of manhole or valve. The individual utility companies have the right to accept or reject the Contractor's bid price for their portion of adjustments. If the utility company rejects the Contractor's price, the utility company will adjust their own facilities and the item quantity will be adjusted accordingly.

10. Revise Item H of SubSection 350.3 MISCELLANEOUS REMOVAL AND OTHER WORK as follows:

(H) Remove existing pavement and aggregate base materials where called out on the plans.

11. Add the following new Section 362 UNDERGROUND POWER INSTALLATION as follows:

362.1 TRENCHING FOR UNDERGROUND STREET LIGHT CIRCUITS

Materials and construction will be in accordance with the Arizona Public Service Company (APS) "Underground Distribution Construction Standards", MAG, City of Phoenix Standard Specifications and these

Special Provisions. The work will consist of the following items:

1. Providing all trenching, bedding, backfilling and compacting for street light circuits.
2. Installing junction boxes and ground rods provided by Arizona Public Service Company (APS).
3. Furnishing and installing 2 1/2-inch conduit, sweeps and conduit caps, including the running of a mandrel through the system.
4. Installing APS furnished flat strap in all conduit runs.

The Contractor will be responsible for obtaining the APS Standards from the APS Standards Department (602-371-6383, Barbara McMinn). A copy of these standards is available for perusal at the City of Phoenix Street Transportation Department Utility Coordination Office.

All work will be subject to inspection by Arizona Public Service and City of Phoenix forces. The Contractor will call APS Contracts Section at 602-371-6512 at least five (5) working days prior to starting trench work to meet with the APS Inspector and review inspection requirements.

The APS Liaison Agent is Tricia Hubbard Customer Project Manager T&D Construction Program Management {602-371-6605 or 928-607-5429 (mobile)}.

Trenching will be completed prior to sidewalk construction and ahead of pole installation. The Contractor will backfill and compact the trench in accordance with Section 601. The trench will be per APS plans.

Measurement and Payment

Measurement will be per linear foot, and payment will be at the unit price bid per linear foot for "TRENCHING FOR STREET LIGHT CIRCUIT" and will be compensation, in full, for all labor, equipment and materials necessary for the satisfactory completion of trenching and bedding; furnishing and installing conduit and sweeps; installing APS-provided junction boxes and ground rods; installing APS-provided flat strap in all conduit runs; furnishing and installing sono tubes and related items; and backfilling and compacting in accordance with the Standard Specifications and these Special Provisions.

The Contractor will notify the APS inspector assigned to this project at least two weeks prior to needing the APS crew for setting street light poles and pulling conductor wire and energizing the system. The Contractor will anticipate that APS crews will typically take approximately four hours for each complete street light installation.

12. Add the following new Section 363 STREET LIGHTING INSTALLATION as follows:

363 STREET LIGHTING INSTALLATION

Description

The Contractor will furnish and install all above-ground street light equipment (poles, luminaire arms, luminaires, photocells, etc.) in accordance with the plans.

The Contractor will submit shop drawings for review and approval by the Engineer and the appropriate Power Company on all street light equipment to be provided by the Contractor.

The Contractor will coordinate street light equipment installation efforts to avoid any damage to other elements of project construction, and will provide a complete, connected system installation ready for the Power Company to pull conductor wires and energize the street light system.

All work will be subject to inspection by the Power Company and City of Phoenix forces. The Contractor will call the Power Company at least five (5) working days prior to starting work to meet with the Power Company Inspector and review inspection requirements.

Measurement and Payment

Measurement will be per each complete street light installed, and payment will be at the unit price bid per each for "FURNISH AND INSTALL STREET LIGHT PER C.O.P. STREET LIGHTING PROCEDURES, STANDARDS AND SPECIFICATIONS MANUAL" and will be compensation in full for all labor, equipment and materials necessary for the satisfactory installation of street light equipment, including furnishing and installing street light poles, luminaire arms, luminaires, photocells, and all other related equipment items in accordance with the plans, Standard Specifications and these Special Provisions.

363 LUMINAIRE MAST ARM INSTALLATION

Description

The Contractor will furnish and install all above-signal pole street light luminaires, mast arms, etc. in accordance with the plans.

The Contractor will submit shop drawings for review and approval by the Engineer and the appropriate Power Company on all street light equipment to be provided by the Contractor.

The Contractor will coordinate street light luminaire installation efforts to avoid any damage to other elements of project construction and will provide a complete, connected LED luminaire installation ready for the Power Company to energize the street light system.

All work will be subject to inspection by the Power Company and City of Phoenix forces. The Contractor will call the Power Company at least five (5) working days prior to starting work to meet with the Power Company Inspector and review inspection requirements.

Measurement and Payment

Measurement will be per each complete street light luminaire mast arm installed, and payment will be at the unit price bid per each for "LUMINAIRE MAST ARM" and will be compensation in full for all labor, equipment and materials necessary for the satisfactory installation of street light luminaire mast arm, including street light luminaires, photocells, and all other related equipment items in accordance with the plans, Standard Specifications and these Special Provisions.

13. 401 TRAFFIC CONTROL, Add the following to Subsection 401.4 TRAFFIC CONTROL MEASURES:

SEQUENCE OF CONSTRUCTION

The sequence of construction will conform to the requirements of the Special Traffic Regulations.

The project will follow a phasing plan approved by the Engineer. All lanes will be maintained on a paved surface at all times during construction. This may be accomplished by using existing, new, or temporary

asphalt pavement. Trenches will be completely backfilled and either paved with temporary asphalt pavement, or covered with metal plating as necessary to comply with this requirement and the "Special Traffic Regulations".

Night work will not be allowed on this project.

The right to direct the sequence of construction is a function vested solely with the Engineer. Prior to commencement of the work, the Contractor will prepare and submit to the Engineer, a written phasing plan and work schedule for the project. This plan and work schedule will be submitted to the Engineer at the Preconstruction Conference for review.

When approved, the phasing plan and work schedule will not be changed without the written consent of the Engineer. Orderly procedure of all work to be performed under this contract will be the full responsibility of the Contractor. The work schedule will include the hours per day and the days per week that the Contractor plans to work on the project site.

TEMPORARY PAVEMENT

Temporary pavement will be asphalt concrete, Type C-3/4, 2-inches thick. The temporary pavement will be placed as required to maintain traffic and pedestrians on pavement at all times, or as directed by the Engineer.

On this project, it is expected that no more than 2,170 tons of Type C-3/4 temporary asphalt pavement will be required.

There will be no direct measurement or payment for furnishing, installing, maintaining, or removing the first 2,170 tons of temporary asphalt pavement, the cost being considered incidental to the cost of the project. If more than the expected amount of temporary asphalt pavement is required by the Engineer, a fair contract unit price based on actual and recent historic unit bid prices for permanent asphalt pavement will be negotiated and paid to the Contractor.

14. 401 TRAFFIC CONTROL, add the following to Subsection 401.5 GENERAL TRAFFIC REGULATION:

TRAFFIC REGULATIONS

A. The following will be considered major streets:

Pinnacle Peak Road

43rd Avenue

B. All traffic and/or traffic control devices on this project will be provided, maintained and/or controlled as specified in the City of Phoenix Traffic Barricade Manual, 2007 edition and addendums thereof.

C. Permission to restrict City streets, sidewalks and alleys (street closure permits) will be requested as specified in Chapter 3 of the City of Phoenix Traffic Barricade Manual, 2007 edition and addendums thereof.

D. Unless otherwise provided for in the following "Special Traffic Regulations", all traffic on this project will be regulated as specified in Chapter 4 of the City of Phoenix Traffic Barricade Manual, 2007 edition and addendums thereof.

E. No deviation from the "Special Traffic Regulations" will be allowed or implemented unless submitted to the Engineer for review and approval at least 14 days prior to proposed work.

F. Only City of Phoenix certified contractors can set, move or remove temporary traffic control devices (signs, barricades, etc.). This annual certification can be scheduled by calling 602-262-6235.

G. Civil sanctions for temporary traffic control violations apply as follows:

Civil Sanction Per Day	Violation Description
$1,500	Creating an eminent risk of death or injury to the public within the public right-of-way
$1,000	Restricting the right-of-way without proper certification or a right-of-way temporary use permit
$1,000	Restricting traffic during peak traffic hours as described in the Traffic Barricade Manual without authorization
$1,000	Failing to correct or cure a violation, as listed in this table, within the time period stated on the warning notice
$1,000	Restricting traffic at signalized intersections without any work occurring
$500	Closing a sidewalk improperly or closing a sidewalk without proper certification or closing a sidewalk without a right-of-way temporary use permit
$500	Violating the restriction limits, times and locations, of the right-of-way temporary use permit
$500	Missing or improper use of advance warning signs
$500	Missing or improper use of barricades and channelizing devices
$250	Leaving advanced warning signs facing traffic after restriction has been removed – per one traffic direction
$250	Leaving traffic control devices in the right-of-way twenty-four hours after right-of-way temporary use permit expires, unless a request for a permit extension is received by the City prior to the expiration of such permit
$250	Use of “unacceptable” quality traffic control devices as described in the Traffic Barricade Manual
$250	Rendering a bus stop inaccessible without relocating it or making other accommodations

H. Parking Meter Fees: To take a parking meter out of service requires a $35 application fee and $10 per meter per day.

I. The City has the authority to remove and store temporary traffic control devices in emergency situations or as a last resort if the barricade owner will not pick them up. The City will assess removal and

storage fees accordingly.

15. 401 TRAFFIC CONTROL, Add the following to Subsection 401.5 GENERAL TRAFFIC REGULATION:

SPECIAL TRAFFIC REGULATIONS

Pinnacle Peak Road: 45th Avenue to 35th Avenue
43rd Avenue: Pinnacle Peak Road to Alameda Road

Pinnacle Peak Road and 43rd Avenue can be reduced, when construction requires, during the times indicated below:

Two lanes (one each way) plus left-turn lanes at signalized intersections from 8:30 a.m. to 4:00 p.m. weekdays and during working hours on weekends.

Two lanes (one each way) plus left-turn lanes at signalized intersections from 9:30 p.m. to 6:00 a.m. weeknights, and from 9:30 p.m. Saturday to 6:00 a.m. Monday.

Four lanes (two each way) plus left-turn lanes at signalized intersections from 6:00 a.m. to 8:30 a.m. and from 4:00 p.m. to 7:00 p.m. weekdays.

Four lanes (two each way) plus left-turn lanes at signalized intersections from 8:30 a.m. to 4:00 p.m. and from 7:00 p.m. to 9:30 p.m. weeknights.

All lanes will remain open from 6:00 a.m. to 8:30 a.m., and 4:00 p.m. to 7:00 p.m. weekdays, and from 9:30 p.m. Friday to 9:30 p.m. Saturday.

Pinnacle Peak Road and 43rd Avenue Intersection

Pinnacle Peak Road and 39th Drive Intersection

All lanes on Pinnacle Peak Road at the 43rd Avenue intersection, and Pinnacle Peak Road at the 39th Drive intersection will remain open at all times during construction.

Portable Variable Message Boards

Portable Variable Message Boards (VMB) will be provided on this project at the following locations, 24 hours per day, from at least 14 days prior to any roadway restrictions until all roadway traffic restrictions are removed:

- Southbound 39th Drive, approximately 1,320 feet north of Pinnacle Peak Road intersection;
- Southbound 43rd Avenue, approximately 1,320 feet north of Pinnacle Peak Road intersection;
- Westbound Pinnacle Peak Road, approximately 1,320 feet east of 43rd Avenue;
- Westbound Pinnacle Peak Road, approximately 1,320 feet east of 39th Drive;
- Eastbound Pinnacle Peak, approximately 1,320 feet west of 43rd Avenue
- Eastbound Pinnacle Peak, approximately 1,320 feet west of 39th Drive

Police Officer Requirements

The Contractor will provide one off-duty police officer, as defined in the City of Phoenix Traffic Barricade Manual, latest edition, at signalized intersections affected from 6:00 a.m. to 7:00 p.m. weekdays, and during

working hours, nights and weekends when traffic is restricted (as described in the City of Phoenix Traffic Barricade Manual, latest edition).

When construction activities do not restrict traffic through the intersections, police officer hours may be reduced or suspended at the direction of the Engineer.

Signalized Intersection Requirements

The Contractor will notify the Engineer and the City Traffic Signal Shop (262-6021) at least 72 hours prior to the start of any construction in the vicinity of a signalized intersection where traffic signals may be affected.

The Contractor will provide the Engineer and the Traffic Signal Shop a written schedule indicating days, times and specific locations where traffic signals will be interrupted or modified. When work has been completed, the Contractor will immediately notify the Traffic Signal Shop.

Local Access Requirements

The Contractor will maintain local access to all side streets, access roads driveways, alleys, and parking lots at all times and will notify residents 72 hours in advance of any restrictions which will affect their access. The Contractor will restore the access as soon as possible. If the primary access cannot be restored in a timely manner, the Contractor will provide an alternative which will be pre-determined with the residents prior to imposing any restrictions. Any local street restrictions imposed will be such that local area traffic circulation is maintained.

Business Access Requirements

Access will be maintained to adjacent businesses at all times during their hours of operation. Access may be maintained by such measures as constructing driveways in half sections, or by providing bridging over new concrete. Properties with multiple driveway access will not have more than one driveway access restricted at any given time. While the one driveway is restricted, access to the other adjacent driveways will be maintained and unrestricted. Each individual driveway access restriction will be no more than fourteen (14) calendar days. Any business restrictions will be coordinated with the affected business in writing at least fourteen (14) days prior to imposing restrictions.

Adobe Dam Recreation Access Requirements

Access will be maintained at all times to the Concessionaire Facilities located south of Pinnacle Road on 43rd Avenue and 39th Drive. These roads shall remain open at all times and will not be used for through traffic, equipment parking, material storage, staging or spoil stockpile area.

Any traffic control devices and traffic restrictions placed south of the Pinnacle Peak Road intersection outside the City of Phoenix limits shall be coordinated and approved by the Arizona State Land Department, the Maricopa County Flood Control District or the Maricopa County Parks and Recreation Department as applicable at least fourteen (14) days prior to any restrictions, and access shall be restored as soon as possible.

Any road closures will conform to the latest applicable agency approvals and will follow the same special provisions as described in "Local Access Requirements". The Contractor will maintain access to south 43rd Avenue during park hours. Any restrictions will be coordinated with the Adobe Dam Recreation Area Contract Administrator, (Emily Miller at (602) 255-8892 or 928-501-9211 or email @ emilymiller@mail.maricopa.gov) at least fourteen (14) days in advance, and full access will be restored as soon as possible.

School Access Requirements

The Contractor will provide clean and safe school zones, crosswalks, and walkways for students attending nearby schools during all hours of school use.

This may require backfilling trenches, temporary pavement, shoring, plating, or pedestrian bridges with handrails across open trenches.

In addition to school zones and crosswalks, the Contractor will maintain accessibility to all school bus routes during all hours of school use. The Contractor will notify the school principal(s) and the school Transportation Director at least fourteen (14) days prior to any restrictions, and will restore access as soon as possible.

Church Access Requirements

The Contractor will maintain a high level of access to the local LDS Temple and churches during all hours of Temple and church use. The Contractor will coordinate any access restrictions with the clergy at least fourteen (14) days prior to any restrictions, and will restore access as soon as possible.

Coordination with Other Agencies

The Contractor will coordinate and schedule work to minimize disruption or conflicts with the following other Agencies:

Flood Control District of Maricopa County – Contact: Angie Hardesty, CFM Right-of-Way Permit Specialist
Phone: 602-506-5476

Maricopa County Parks and Recreation - Contact: Emily Miller, Contract Administrator, Adobe Dam Recreation Area. Phone: (602) 255-8892, or at 928-501-9211 or email @ emilymiller@mail.maricopa.gov)

Arizona Department of Transportation
Project: I-17 Happy Valley RD. & Pinnacle Peak RD. TIs
ADOT Tracs No. H7383 01D ECS No. 2017-023
Bharat Kandel
Project Manager
Project management Group
205 S. 17th AVE, MD 614E
Phoenix, AZ 85007

Any work that may affect the upcoming ADOT traffic interchange project work scheduled for construction beginning August 2018 at I-17 Happy Valley RD. & Pinnacle Peak RD. Traffic Interchanges, or impacts to any of these other listed Agencies shall be closely coordinated with the appropriate Agency contact at least fourteen (14) days in advance.

Sanitation Pick-up

The Contractor will provide sanitation pick-up for affected residents by relocating trash containers, or by providing alternative measures acceptable to the Public Works Department, Sanitation Division (602) 534-5144.

Special Events

There are special events scheduled to take place during the construction of this project. The Contractor will coordinate these events with the construction schedule to the appropriate agency or stakeholder.

Any restrictions affecting the Adobe Dam Recreation Area will be coordinated with the Adobe Dam Recreation Area Contract Administrator, (Emily Miller at (602) 255-8892 or 928-501-9211 or email @ emilymiller@mail.maricopa.gov) at least fourteen (14) days in advance, and full access will be restored as soon as possible.

No additional compensation for delays associated with special events will be considered.

Special Sign Requirements

The Contractor will provide, install and maintain advance notification; public informational; and directional access signs (for businesses, churches, hospitals, schools, etc.) that may be required by the Engineer. These signs may include, but are not limited to portable changeable message signs, radar/speed sensing trailers and other applicable Intelligent Transportation System type devices. The cost will be included in the bid item for Traffic Control Devices.

Flagging of Traffic

No flagging of traffic will be permitted during the peak traffic hours of 6:00 a.m. to 8:30 a.m. and 4:00 p.m. to 7:00 p.m. weekdays. If construction requires, intermittent flagging will be allowed from 8:30 a.m. to 4:00 p.m. if approved by the Engineer, to facilitate access for heavy construction equipment.

Traffic Control Plan

The Contractor will submit a traffic control plan for approval, showing placement of all traffic control devices, including all conflicting signs to be covered/removed or relocated, or other features that may conflict with the placement of temporary signage. This plan will be professionally drawn on a 24" x 36" reproducible medium, and will be submitted to the Engineer at the Pre-Construction meeting or before to the Flood Control District of Maricopa County, the Maricopa County Parks and Recreation, the Arizona State Land Department, or any other affected Agency. The Contractor will allow the Engineer, the Flood Control District of Maricopa County, the Maricopa County Parks and Recreation, the Arizona State Land Department, or any other affected Agency fourteen (14) calendar days for review and approval of an acceptable plan.

Temporary Traffic Control Zone and Safety

At the Pre-Construction conference, the Contractor will designate an employee, other than the Project Superintendent, who is knowledgeable in the principles and methods of proper traffic control and safety. This employee will be available on the project site during all periods of construction to coordinate and maintain safe, acceptable and effective temporary barricading whenever construction affects traffic. This person will be authorized to receive and fulfill instructions from the Engineer and will supervise and direct traffic control. Instructions and information given by the Engineer to this person will be considered as having been given to the Contractor.

Failure to maintain temporary traffic control devices in accordance with the City of Phoenix Traffic Barricade Manual, latest edition, the approved Traffic Control Plan, and directives by the Engineer will or any other affected agency will result in suspension of work and/or civil sanctions until deficiencies are corrected to the satisfaction of the Engineer.

Safety Fencing Requirement for Trenches and Excavations

The Contractor will provide safety construction fencing around all open trenches and excavations during all non-working hours.

The Contractor will provide for the safety and welfare of the general public by adequately fencing all excavations and trenches that are permitted by the Engineer to remain open when construction is not in progress.

Fencing will be securely anchored to approved steel posts located six (6) feet on centers, having a minimum height of six (6) feet, and will consist of wire mesh fabric of sufficient weight and rigidity to adequately span a maximum supporting post separation of six (6) feet.

The fencing, when installed about the periphery of excavations and trenches, will form an effective barrier against intrusion by the general public into areas of construction. Fencing will not create sight distance restrictions or visual obstructions. At all times when construction is not in progress, the Contractor will be responsible for maintaining the fencing in good repair, and upon notification by the Engineer, will take immediate action to rectify any deficiency. Prior to the start of any excavating or trenching required for the execution of the proposed work, the Contractor will submit to the Engineer for approval, detailed plans showing types of materials and methods of fabrication for the protective fencing.

There will be no separate measurement or payment for furnishing, installing, or maintaining protective fencing. The cost will be considered incidental to the cost of the pipe and/or structures.

16. 401 TRAFFIC CONTROL, Add the following to Subsection 401.10 PAYMENT:

ALLOWANCE FOR UNIFORMED, OFF-DUTY LAW ENFORCEMENT OFFICER

This project includes a lump sum "ALLOWANCE FOR UNIFORMED, OFF-DUTY LAW ENFORCEMENT OFFICER. The amount of this allowance is determined by the Engineer, and is not subject to individual bid pricing. All bidders will incorporate the amount pre-entered in the bid proposal and will reflect the same in the total amount bid for this project.

Payment for uniformed, off-duty law enforcement officers will be made from this allowance based on approved invoiced cost plus taxes, and a maximum 10 percent markup for overhead and profit.

TRAFFIC CONTROL

Payment for traffic control will be on a lump sum basis for Traffic Control Devices.

17. Add the following new Section 402 ADDITIONAL CONSTRUCTION REQUIREMENTS as follows:

402.1 FIELD DOCUMENTATION

The Contractor will document existing conditions within the project area prior to construction. Documentation will be video tape. The video tape will not be made from a moving vehicle. One copy of the video tape will be furnished to the City prior to the start of construction. The cost of the video taping will be considered incidental to the cost of the project. No separate measurement or payment will be made for this item.

402.2 CONTRACTOR COMMUNICATION INFORMATION

The Contractor will provide a pager and mobile phone to his on-site Project Superintendent to ensure that the Engineer can reach the Contractor's Superintendent. This pager and mobile phone must be accessible by local land-line telephone service. The Superintendent's pager and mobile phone will remain in service for the duration of the project, and these phone numbers will be included on the Contractor's list of emergency phone numbers submitted at the pre-construction conference.

402.3 TRENCH PLATING

In paved areas where vehicles will be driving over trench plating, the plates will be set to match flush with existing pavement on all sides. Setting plates on top of the pavement surface and installing temporary asphalt ramps around them will not be allowed.

402.4 TRENCHING IN RIGHT OF WAY

The Contractor will not be allowed to stockpile trench material or store any equipment other than the mainline track hoe within the right-of-way of Pinnacle Peak Road from 45th Avenue to 35th Avenue and on 43rd Avenue from Pinnacle Peak Road to Alameda Road. The Contractor will secure temporary 6' chain link fence around the track hoe during non-working hours.

402.5 MAXIMUM OPEN TRENCH

No more than 330 linear feet of open trench will be allowed on Pinnacle Peak Road from 45th Avenue 35th Avenue and on 43rd Avenue form Pinnacle Peak Road to Alameda Road. Trenches across driveways will be plated to maintain access. The cost of these plates will be considered incidental to the project.

402.6 CAST-IN-PLACE PIPE RESTRICTION

Cast-in-place pipe will not be allowed as an alternate on Pinnacle Peak Road or on 43rd Avenue

402.7 POWER BROOM

The Contractor may be instructed by the Engineer to provide additional pavement cleaning (in parking lots, or other locations) above and beyond the normal expected cleanup and dust control required by MAG Section 104.1.3. If requested by the Engineer, the Contractor will clean the requested areas with a power pick-up broom.

Use of the power pick-up broom in the special requested areas only will be measured and paid for on an hourly basis under the bid item, 'POWER BROOM'. The number of hours listed in the bid proposal is only an estimate. Actual hours requested for this project may vary.

402.9 PUBLIC INFORMATION SERVICES

The City of Phoenix will provide a public information specialist for the community relations program on this project.

The Contractor will cooperate with the City's public information specialist firm in the preparation of newsletters, advanced notification for service disruptions, answering questions from the public, etc. He will also provide schedule update information to the specialist.

The Contractor will provide representatives as needed for all meetings with the public throughout the contract period.

The City will pay public information service costs associated with approved contract time extensions; however, if the Engineer determines that delays were caused by the Contractor, the additional costs for public information services will be deducted from the Contractor's final pay request.

402.11 POLLUTION AWARENESS MARKERS

Pollution Awareness Markers (PAM's) will be installed by the Contractor for all new catch basins and for each existing catch basin within the project limits that does not have a PAM. The PAM's will be supplied to the Contractor by the City. PAM's will be installed at the location identified by the Engineer. For existing catch basins, flat PAM's will be supplied, and the contractor will clean the surface with a wire brush, apply appropriate adhesive to the back of the marker, and apply the marker to the clean surface. For new catch basins, PAM's with feet will be supplied, and the Contractor will install them as the catch basin is cast.

18. Add the following new Section 403 SPECIAL TRAFFIC SIGNALS AND STREET LIGHTING INFORMATION as follows:

403.1 TYPE "SM", "SQ" AND "SR" SIGNAL POLES AND MAST ARMS

The Contractor is hereby notified that there may be a long lead time required for manufacturing and shipping the Type "SM","SQ" and "SR" signal pole foundation cages, signal poles and signal and luminaire mast arms. The Contractor will, therefore, order these items as early as possible. In the event there is a delay in delivery, the Contractor will install a temporary signal. The signal will be a box span with two (2) 12-inch signal heads per direction with pedestrian heads in all four (4) directions. The Contractor will coordinate the location and size of the wood poles, heads, etc., with the Street Transportation Department, Traffic Signal Systems Supervisor at 262-4690.

There will be no separate measurement or payment for temporary signals. The cost being considered incidental to the cost of contract items.

403.4 STREET LIGHTING

It is the intent of the City of Phoenix to maintain a minimum of one (1) side lighting at all times during construction. The Contractor will coordinate with Arizona Public Service Co. and the Engineer to accomplish this task.

19. 430 LANDSCAPING AND PLANTING, Add the following to Subsection 430.3 PLANT ESTABLISHMENT GUARANTEE AND MAINTENANCE and Subsection 430.15 MEASUREMENT AND PAYMENT:

430.3 PLANT ESTABLISHMENT GUARANTEE AND MAINTENANCE

Prior to final acceptance of the landscaping, the Contractor will provide the City of Phoenix Parks, Recreation & Library Department with all water and electrical account numbers and billing information. Final acceptance will not be granted until this information is given to the Accounting Division of the Parks Department at 200 West Washington Street in Phoenix, (602) 495-5191.

430.15 MEASUREMENT AND PAYMENT

Measurement and payment for plant establishment guarantee and maintenance will be on a monthly basis for acceptable landscape maintenance under the bid item "PLANT ESTABLISHMENT GUARANTEE AND MAINTENANCE". No payment will be made for unacceptable maintenance. When acceptable corrections

have been made for the monthly inspection, the monthly payment will be released. Upon final acceptance, the final monthly payment will be made.

20. Add the following new Section 434 ADDITIONAL LANDSCAPING REQUIREMENTS as follows:

434.1 PLANT SWALES AND TREE STAKING

Prior to preparing plant swales and staking trees, the Contractor will have a representative sample of tree and shrub swales, and tree staking inspected and approved by the Engineer and Landscape Architect for conformance with project plans and specifications.

The Contractor will correct any swales or staking that do not conform to the approved representative samples.

There will be no separate measurement or payment for swales or staking. The cost will be considered incidental to the cost of the plant materials.

434.2 TRIMMING NEWLY PLANTED TREES

The Contractor will trim all newly planted trees as necessary prior to staking so that low branches are removed where standard trees are required. Trees will be trimmed so that the tree is balanced and a central leader is maintained. When necessary, excess branching will be thinned so that a strong branching structure will develop. The Contractor will trim with a hand-held pruner. Trimming will be done to the satisfaction of the Engineer and the Landscape Architect.

There will be no separate measurement or payment for trimming new trees. The cost of the work will be considered incidental to the cost of furnishing and/or installing new trees.

434.3 TRIMMING EXISTING TREES AND/OR SHRUBS IN PLACE

Where there are existing trees to remain in place, the Contractor is to perform any trimming operation required to maintain pedestrian clearance to a height of 7' and to maintain sight visibility. Trimming which involves removal of branches over 3" in diameter or removal of branches which will alter the structure of the trees will be done by a person trained and Certified in the Practice of Arboriculture. The arborist will present certification papers to the Engineer and Landscape Architect for approval upon request. If the tree(s) become damaged or disfigured as a result of the trimming, the Engineer and Landscape Architect may require that the tree(s) be removed and replaced in size and kind by the Contractor. Removal and replacement will be done at the Contractor's expense.

Trimming existing trees and shrubs in place includes trimming of branches or foliage which overhang existing walls or fences where the branches create a problem for pedestrian clearance or for order. Trimming of existing trees will be done according to plans as noted and as directed by the Engineer and Landscape Architect.

There will be no separate measurement or payment for trimming existing trees in place. The cost of the work will be considered incidental to the cost of the project.

434.4 PRUNING ROOTS OF EXISTING TREES

If construction impacts the roots, trunk or branches of existing trees that are designated to remain in place, the Contractor will take all necessary precautions to ensure the survival and protection of the tree. The Contractor

will hire a Certified Arborist to investigate the areas surrounding existing trees to be saved in place, and locate existing roots. Existing roots will be excavated by hand, and hand-pruned as necessary to where the root is healthy. The Arborist will also make necessary recommendations for care of the tree(s) with respect to root feeding, fertilizing, or any other items required to ensure survival.

The Arborist will present certification papers for approval by the Engineer and Landscape Architect upon request.

There will be no separate measurement or payment for root pruning. The cost will be considered incidental to the cost of the project.

434.5 PROVIDE PROTECTION FOR EXISTING TREES

The Contractor will be responsible for protecting existing trees to remain in place as tagged in the field and/or as noted on the plans. The Contractor will provide fencing around all trees and plants which are to remain in place that could be damaged by construction activity or equipment. A minimum area will be established around each plant based on its trunk caliper size. The minimum area will be one (1) foot of radius for each inch of caliper. For example, if a tree has a 6" caliper, there will be a minimum 6' radius area around the tree that will be considered a protected zone, and a fence will be placed at that location. The fencing will provide protection to the trunks and limbs from damage that could be caused by construction activity or equipment.
Any trimming that is necessary to prevent construction damage to existing trees will be pre-approved by the Landscape Architect. If the roots of existing trees could be affected in any way by construction they will be hand excavated and trimmed as described in the Special Provision, "PRUNING ROOTS OF EXISTING TREES". Root pruning will also be pre-approved by the Landscape Architect.

The Contractor will be responsible for all costs associated with protection of existing trees in place. If any damage occurs to trees or other plants to remain that, in the opinion of the Engineer and Landscape Architect, destroys, aesthetically disfigures, or threatens the plant's future survival, the Contractor will be responsible for replacing the tree in kind. Replacement trees will be the same size as the damaged tree. Prior to selection of any replacement tree, the Contractor will obtain approval of the size, type and purchase source from the Engineer and Landscape Architect.

There will be no separate measurement or payment for providing protection for existing trees and plants in place. The cost will be considered incidental to the cost of the project.

434.7 TRIMMING EXISTING PALM TREES

Existing palm trees in the right-of-way will be trimmed so that all dead fronds are removed completely. Washingtonia filifera and robusta will have trunk bark removed so a smooth trunk remains. Phoenix dactylifera will be trimmed with a 'diamond cut' on the entire trunk and all dead fronds removed.

Measurement and payment for trimming existing palm trees will be per each under the bid item, "TRIM EXISTING PALM TREES", and will be full compensation for all tools, labor and equipment necessary to complete the work as described.

21. 505 CONCRETE STRUCTURES, Add the following to Section 505 CONCRETE STRUCTURES:

PRECAST BOX CULVERT AND HEADWALLS/WINGWALLS

In lieu of the ADOT standard cast-in-place concrete box culvert shown on the project plans, the Contractor may install precast box culvert(s) conforming to the following specifications:

Precast Box Culvert Materials and Design

The Contractor will be responsible for all modifications needed to conform with the installation and construction as shown on the construction plans.

Sections that have been damaged in shipment will be rejected at the point of delivery. The manufacturer will be required to take damaged sections back to the plant for proper repair (if acceptable to the City), or provide a replacement unit at no additional cost to the City (including hauling and potential installation contractor delay claims).

The design of the precast box culvert will conform to ASTM C-1433-03, "Precast Reinforced Concrete Box Sections For Culverts, Storm Drains and Sewers" (latest edition), using an earth load of 140 pounds per cubic foot. Concrete will be Class "S", Fc=5,000 Psi, conforming to Section 1006 of ADOT Standard Specifications (latest Edition).

Shop drawings and calculations for all designs will be submitted to the Engineer at least 6 weeks prior to manufacturing for review and approval. Computer printouts of the designs are acceptable, provided information is supplied verifying that the adapted computer program complies with the specified design criteria. Testing of the individual box culvert sections will not be required, but materials certification and testing will be required for the concrete and reinforcing steel, as well as an affidavit of compliance for the completed box sections.

Lifting devices may project above the surfaces of the sections after placement, provided they do not interfere with the backfilling of the culvert, the structural section of the new roadway or curb and gutter, or the placement of utility crossings. Lift holes may be cast in the top slab to handle the box culvert sections, in accordance with ASTM standards.

The maximum allowable tolerances or deviations for precast box sections will be in accordance with ASTM Standards. In addition, the precast box sections will conform with the following requirements:

1. Slab and Wall Thickness - Dimensional variations causing "stepping" of more than 1/4-inch between any interior or exterior wall surfaces from one box to the next will not be allowed.

2. Length of Opposite Surfaces - Variations in laying lengths of two opposite surfaces of the box section will not exceed 1/4-inch for all box sizes.

3. Tongue and Groove Dimensions - The depths of the tongue and groove (bell and spigot) on the ends of each box section will not exceed the manufacturer's design depth dimensions by more than 1/4-inch around the entire perimeter.

Any dimensional deviations beyond allowable tolerances will not be accepted. The manufacturer will be required to correct the product to within tolerance, or the product will be rejected and the manufacturer be required to provide replacement at no additional cost to the City (including hauling and potential installation contractor delay claims). The City will have the final decision on acceptability of any non-conforming or "repaired" product.

During the precasting process, all storm drain connections will be pre-fabricated and installed in the walls, at the locations shown on the project plans for the connector pipes.

Joints for Precast Box Culvert

FINAL, IN-PLACE JOINTS FOR PRECAST BOX CULVERTS WILL BE WATERTIGHT UP TO A MINIMUM OF 5 PSI (11.5 COLUMN FEET OF WATER HEAD) OR TO THE PRESSURE GENERATED BY THE HYDRAULIC GRADE LINE HEAD SHOWN ON THE PLANS IF GREATER THAN 5 PSI. Connecting joints will be made using pre-formed flexible joint sealant gaskets. The final, in-place joint gasket will be the sole element of the joint depended upon to provide watertightness. Grouting of joints will not be considered applicable to providing watertightness. The joints will conform with ASTM C-990 (latest edition). Prior to installation, a detailed design of the joint or joints, including the joint sealing gasket, will be approved by the Engineer. Also, in the assembled position, on a straight alignment, the design will include minimum and maximum interior joint openings; and in the maximum deflected position, it will include the maximum interior joint opening. These joint shop drawings will be submitted to the Engineer at least 6 weeks prior to purchase of joint sealing material for review and approval.

The gaskets sealing the joints will be "Ram-Nek" flexible plastic gaskets, as manufactured by Henry Products; "Conseal", as manufactured by Concrete Sealants, Inc.; or other Engineer-approved equal. The gasket will be produced from blends of refined hydrocarbon resins and plasticizing compounds, reinforced with inert mineral filler, and will contain no solvents, irritating fumes, nor obnoxious odors.

The gasket joint filler will not depend on oxidizing, evaporating, nor chemical action for its adhesive or cohesive strength, and will be supplied in extruded ropeform of suitable cross-section. The size of the plastic gasket joint sealer will be in accordance with the manufacturer's recommendations and sufficient to obtain a visible squeeze-out. The gasket joint sealer will be protected by a suitable wrapper designed such that, when removed at the proper time, the joint sealing compounds, as shipped, will meet the following requirements, when tested in accordance with the test methods shown:

COMPOSITION	TEST METHOD	TYPICAL ANALYSIS
Bitumen (Petroleum Plastic Content) (% by Weight)	A.S.T.M.D-4	50-70
Ash-Inert Mineral Matter	Federal Supply Service S-210A	30-50
Volatile Matter @325 F	A.S.T.M. D-6	2.0 Max.

The gasket joint sealing compound will show no visible deterioration when immersed separately for 30 days at ambient room temperature in the following four solutions: 5% caustic potash; 5% hydrochloric acid; 5% sulfuric acid; and saturated H2S. The physical properties of the gasket joint sealing compound, as shipped, will meet the following requirements:

PROPERTY	TEST	TYPICAL ANALYSIS
Specific Gravity @ 77 F	A.S.T.M. D-71	1.20 Min 1.35 Max
Ductility @ 77 F (cm) Min	A.S.T.M. D-113	5.0 Min
Softening Point	A.S.T.M. D-36	275 Min
Penetration		
32 F (300g) 60 Sec	A.S.T.M. D-217	75 Min
77 F (150g) 5 Sec	A.S.T.M. D-217	50 Min 120 Max
115 F (150g) 5 Sec	A.S.T.M. D-217	150 Max

PROPERTY	TEST	TYPICAL ANALYSIS
Flashpoint C.O.C F	A.S.T.M. D-92	600 F
Fire Point C.O.C. F	A.S.T.M. D-92	625 F

After the boxes have been pushed together to show the visible squeeze-out of the gasket, the entire remaining depth of the finished inside joint will be filled with mortar. Joints will not be mortared until at least the next two joints are in place. Mortar will be non-shrink, Type A (5,500 psi) in accordance with MAG Section 776.

Bedding and Backfill for Precast Box Culvert

Bedding: Precast box culvert sections will be bedded on a minimum 3-inch thick layer of ABC or Type B Select material, compacted to a minimum of 95%.

Backfill: Backfill for precast box culvert sections will be Type "B" as shown on COP Detail P1200. At the Contractor's option, cement-enriched slurry aggregate base course (as specified elsewhere in these special provisions under "SPECIAL BEDDING FOR MAINLINE STORM DRAIN PIPE") may be used from the bottom of the box to one foot over the top of the box.

Headwall/Wingwalls

Materials to be used for construction of headwalls, including A.D.O.T. detail wingwalls, will be as specified below.

Reinforcing steel will be in accordance with Section 727 of the MAG Uniform Standard Specifications and will be minimum grade 40 with Fx=20,000 psi for bar size #6 or smaller, and grade 60 with Fx=24,000 psi for bar size #7 or larger.

Portland Cement concrete will be Class "A", f'c=3,000 psi conforming to Section 725 of the MAG and COP Supplement to MAG Uniform Standard Specifications.

Measurement and Payment

Box Culvert: Measurement and payment for the two barrel-8' x 4' concrete box culvert will be by the linear foot of box installed, measured along the horizontal axis of the box. Payment will be made under the bid item for "TWO BARREL, 8' x 4' REINFORCED CONCRETE BOX CULVERT, ADOT Std. B-02.20", ADOT SD 6.02 (Modified) and will be compensation in full for constructing and placing the box culvert as shown on the plans and as specified, including all materials, excavation, bedding, backfill, compaction, lifting and box-pulling machinery, gasket joint sealer, mortar, labor, and any modifications called for on the plans to provide a complete installation.

Headwall/Wingwalls: The headwall/wingwalls will be paid for at the unit price bid under the items "INLET WINGWALLS, AND APRON PER PLANS", and "OUTLET WINGWALLS, AND APRON PER PLANS", and will be compensation in full for constructing the headwall/wingwall, apron and cut-off wall structures as shown on the plans and as specified including concrete, reinforcing steel, trash racks, embed plates, forming, finishing, curing, brick veneer surface facing, structural excavation, backfilling compacting, and any other work or materials necessary to provide a complete installation.

22. Add the following to MAG Subsection 505.12 PAYMENT:

CATCH BASINS

Storm drain catch basins will be paid for at the unit price bid for each type of catch basin, as represented by the respective bid item, regardless of dimensional or other differences occurring within a particular type. The unit price to be paid under these items will be compensation in full for furnishing and placing catch basin structures as shown on the plans and as specified, including, when applicable, all removal and replacement of existing curb, gutter and sidewalk, concrete, reinforcing steel, forming, vibrating, finishing, curing, access opening frame and cover, embedded angles, grating, anchor bolts, structural excavation, backfill, compaction, pavement replacement and any necessary modifications of catch basin structures during construction. Where shown on the plans, the Contractor will install 3-inch diameter standard strength iron pipe through the catch basin. This pipe will project a minimum of 6-inches past the outside wall.

23. 520 STEEL AND ALUMINUM HANDRAILS, Add the following to Section 520 STEEL AND ALUMINUM HANDRAILS:

STEEL RAIL FOR RETAINING/HEAD WALL

Description

The work under this item consists of furnishing and installing Steel Rail including railing, posts, fittings and anchorages. The rail will be installed at the locations and in conformance with the details on the Project Plans, these special provisions and as directed by the Engineer. All work under this section will conform to SECTION 604 – STEEL STRUCTURES of the Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, 2008 Edition, except as noted herein and on the Project Plans.

Materials

Railing and posts will be tubular steel meeting the requirements of ASTM A500, Grade B.

The Contractor will furnish complete copies, in triplicate, of all mill reports on steel materials furnished.

Welding will be performed in accordance with the requirements of the current edition of the American Welding Society, Structural Welding Code, D1.1. All butt welds on exposed surfaces will be ground flush with adjacent surfaces.

Construction Requirements

The use of expansion anchors and/or epoxy anchors will not be permitted.

Certificates of Compliance will be submitted to the Engineer in accordance with the requirements of Subsection 106.05 of the Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, 2008 Edition.

The railing will be carefully erected, true to line and grade. Posts will be vertical and parallel with the deviation from the vertical for the full height of the panel not exceeding 1/8 inch.

Railing panels will be straight and true to dimensions.

All portions of the handrails and the connections will be painted. Painting for items to be embedded in concrete will extend a minimum of 2 inches below the finished concrete surface.

Painting will be performed in accordance with Section 610 of the Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, 2008 Edition.

After erecting the handrail, any damage or abrasion to painted surfaces or exposed steel will be repaired in accordance with Section 610 of the Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, 2008 Edition.

Shop Drawings

Prior to beginning any work on the fabrication of the Steel Rail, the Contractor will submit shop drawings showing complete details in accordance with Subsection 105.03 of the Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, 2008 Edition. Shop drawings will show complete fabrication and erection details including fully detailed dimensions and sizes of component parts of the structure and details of miscellaneous parts.

Measurement

Steel Rail will be measured by the linear foot from end post to end post for each location specified on the Project Plans.

Payment

The accepted quantities of Steel Rail, measured as provided above, will be paid for at the contract unit price for the bid item "HANDRAIL, PHOENIX SUPP DETAIL P-1173 (MOD)", complete in place, including all labor, materials, welding, painting, galvanizing, expansion joints, and connections.

25. 530 PAINTING, Add the following to Section 530 PAINTING:

SIGNAL POLE PAINTING

Description

The work under this item will consist of furnishing all labor, material, tools, and equipment to paint traffic signal poles, signal mast arms, luminaire mast arms, signal and pedestrian head mounting brackets, pedestrian signal head housings, and controller cabinets.

Preparation

The Contractor will remove and/or cover all traffic signs, signal heads, pedestrian signal head faces, signal visors, controller cabinets, electric meters and circuit breaker boxes, if they have already been installed.

Prior to painting any surface, the Contractor will remove all paper signs, paper labels, tape, etc. and lightly sand and wash the area with a solvent (COMMERCIAL GRADE S.S.P.C. SP-6, or approved equal). Galvanized luminaire extensions and luminaire mast arms will be surface washed with solvent and painted with Sherwin-Williams, 2-Part System Wash Primer (Part A - P6062; Part B - R744), or approved equal. Within 24 hours after solvent wash, all galvanized surfaces will be painted with Sherwin-Williams Re-coatable Epoxy Primer B678H5/B67V5, or approved equal (3.5 to 4.5 mils dry thickness).

Painting

The Contractor will finish paint all surfaces with (Sherwin Williams High Solids Acrylic Enamel F88 Series paint, F63RXG0583 G7 Green) (1.25 to 1.50 mils dry thickness).

The Contractor will take all precautions necessary to control over-spray on adjacent property, buildings, sidewalks, pedestrians, vehicles, etc. Any errant over-spray will be removed by the Contractor immediately.

After the paint has dried (minimum 24 hours after application), the Contractor will remove all coverings, and replace any traffic signs, signal visors, etc. that were removed during the preparation stage.

Existing traffic signals will remain operational at all times.

Measurement for signal pole painting will be per each pole painted. Payment will be made at the unit price bid per each signal pole painted, including all necessary cleaning, masking, solvent, primer and paint materials; tools; labor; and equipment.

26. 601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION, Add the following to Subsection 601.2.6 Grading and Stockpiling after the first paragraph:
During excavation, material suitable for backfilling will be piled in an orderly manner, a sufficient distance back from the edges of trenches, to avoid overloading and to prevent slides or cave-ins. Material unsuitable for backfilling, or excess material, will be hauled from the job site and disposed of by the Contractor.

27. 601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION, Add the following to Subsection 601.2.7 Shoring and Sheeting:

The Contractor will do such trench bracing, sheathing or shoring necessary to perform and protect the excavation as required for safety and conformance to governing laws. The bracing, sheathing or shoring will not be removed in one operation, but will be done in successive stages as determined by the Engineer to prevent overloading of the pipe during backfilling operations. The cost of the bracing, sheathing or shoring and the removal of same will be included in the unit price for the pipe.

28. 601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION, Add the following to Subsection 601.2.8 Open Trench:

Except where otherwise noted in the special provisions, or approved in writing by the Engineer, the maximum length of open trench, where the construction is in any stage of completion (excavation, pipe laying or backfilling), will not exceed 1,320 feet in the aggregate at any one location.

Any excavated area will be considered open trench until all ABC for pavement replacement has been placed and compacted. With the approval of the Engineer, pipe laying may be carried on at more than one separate location, the restrictions on open trench applying to each location. Trenches across streets will be completely backfilled as soon as possible after pipe laying.

Substantial steel plates with adequate trench bracing will be used to bridge across trenches at street crossings where trench backfill and temporary patches have not been completed during regular work hours. Safe and convenient passage for pedestrians will be provided. The Engineer may designate a passage to be provided at any point he deems necessary.

29. 601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION, Add the following new Subsection 601.2.9 Pavement and Concrete Cutting and Removal:

601.2.9 Pavement and Concrete Cutting and Removal: Where trenches lie within the Portland cement concrete section of streets, alleys, driveways or sidewalks, etc., such concrete will be sawcut to neat, vertical, true lines in such a manner that the adjoining surface will not be damaged. The minimum depth of cut will be 1 ½ inches or ¼ of the thickness, whichever is greater.

Asphalt pavement will be clean-cut with approved equipment and by approved methods in accordance with the requirements of Section 336.

No ripping or rooting will be permitted outside limits of cuts. Surfacing materials removed will be hauled from the job site immediately, and will not be permitted in the backfill.

30. 601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION, Add the following to Subsection 601.4.3 Bedding for Storm Sewers Maintained by the City of Phoenix:

All Controlled Low Strength Material (CLSM) will be provided by a commercial-source. No on-site mixing or addition of cement to aggregate base course slurry in transit mixers will be allowed.

31. 601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION, Add the following to Subsection 601.4.4 Backfill:

BACKFILL TYPE REQUIREMENTS FOR PIPE TRENCHES

Type "B" backfill, as shown on City of Phoenix Detail P1200, will be used for all mainline pipe installations across major, collector, or other signalized intersections. At a minimum, the extent of the Type "B" backfill will be from curb-return-to-curb-return through the intersection, unless noted otherwise on the plans or in the special provisions. Type "B" backfill will also be used for all lateral pipe connections in ALL streets. Type "A-Modified" backfill (suitable native material as specified in City of Phoenix Supplement to MAG Specification Section 601.3.2, except that no piece larger than 3 inches will be allowed), as shown on City of Phoenix Detail P1200, may be used at all other locations, from the top of bedding to the specified pavement subgrade level, unless noted otherwise on the plans or in the special provisions. There is no separate measurement or payment for pipe backfill. The cost is considered included in the bid price for furnishing and installing the pipe.
The pavement replacement section will be as specified on the plans or in the special provisions, and will be paid for by the square yard or by the ton, whichever is indicated in the special provisions and on the bid proposal.

32. 601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION, Add the following new Subsection 601.4.5 Cutting Newly Placed Pavement for Pipe Installation:

601.4.5 Cutting Newly Placed Pavement for Pipe Installation: In the event temporary or base course pavement must be cut in order to install pipe, the cost of sawcutting, removing and replacing the asphalt will be considered incidental to the cost of the pipe.

33. 601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION, Add the following new Subsection 601.6 PROTECTION OF EXISTING UTILITIES:

601.6.1 Utilities: Unless otherwise shown on the plans or stated in the specifications, all utilities, underground or overhead, will be maintained in continuous service throughout the entire contract period. The Contractor will be responsible and liable for any damages to or interruption of service caused by the construction.

If the Contractor desires to simplify his operation by temporarily or permanently relocating or shutting down any utility or appurtenance, he will make the necessary arrangements and agreements with the owner and will be completely responsible for all costs concerned with the relocation or shutdown and reconstruction. All property will be reconstructed in its original or new location as soon as possible and to a condition at least as good as its previous condition. This cycle of relocation or shutdown and reconstruction will be subject to inspection and approval by both the Engineer and the owner of the utility.
The Contractor will be entirely responsible for safeguarding and maintaining all conflicting utilities that are shown on the plans (Sections 107 and 105 apply). This includes overhead wires and cables and their supporting poles whether they are inside or outside of the open trench. If, in the course of work, a conflicting

utility line that was not shown on the plans is discovered, the Contracting Agency will either negotiate with the owner for relocation, relocate the utility, change the alignment and grade of the trench or as a last resort, declare the conflict as “extra work” to be accomplished by the Contractor in accordance with Section 104.

601.6.2 Irrigation Ditches, Pipes and Structures: The Contractor will contact the owners of all irrigation facilities, and make arrangements for necessary construction clearances and/or dry-up periods.

All irrigation ditches, dikes, headgates, pipe, valves, checks, etc., damaged or removed by the Contractor, will be restored to their original condition or better, by the Contractor at no additional cost to the Contracting Agency.

601.6.3 Building, Foundations and Structures: Where trenches are located adjacent to building, foundations and structures, the Contractor will take all necessary precaution against damage to them. The Contractor will be liable for any damage caused by the construction.

Except where authorized in the special provisions or in writing by the Engineer, water settling of backfill material in trenches adjacent to structures will not be permitted.

There will be no separate measurement or payment for this work. The Contractor will include all associated costs in the unit bid price for the pipe installation.

601.6.4 Permanent Pipe Support Options and Encasements: Where 18-inch or larger mainline pipes (or other pipes as directed by the Engineer) cross under existing sanitary sewerlines (vitrified clay pipe 12-inches or smaller), the Contractor will permanently support the sanitary sewerline per MAG Detail 403-1, 403-2 or 403-3. If the ductile iron pipe replacement option is used (403-3), and the required crossing length is more than one joint of pipe, concrete pipe supports as detailed in MAG Details 403-1 or 403-2 will be used in addition to the ductile iron pipe. For a single joint of standard 20-foot-long ductile iron pipe replacement, the maximum trench width allowed at the point of the sewer line crossing will be 9-feet, unless otherwise directed by the Engineer. Mechanical or restrained joints will be required on all multiple-joint ductile iron pipe crossings.

Where waterlines, reclaimed waterlines or sanitary sewer lines (new or existing) cross over or under each other, pipeline encasements will be provided as necessary in accordance with MAG Detail 404.

When the ductile iron pipe replacement option is used for the sewer lines, the new pipe will be properly blocked at each end with one or more bricks resting on undisturbed or 95% compacted soil haunches outside the trench walls to prevent differential settlement.

The interior of all ductile iron pipe used for sewer lines will be coated per the specification, "LINING FOR DUCTILE IRON PIPE USED FOR SEWER LINES" in these Special Provisions.

Upon completion of a sanitary sewer line support or encasement, including backfilling and compacting, but prior to permanent pavement replacement, the Contractor will request, through the Engineer, a televising of the line by the City Water Services Department to ensure proper line and grade of the sanitary sewer pipe. If the pipe is out of alignment, it will be the Contractor's responsibility to remedy the situation at no cost to the City.

If the sanitary sewer line is less than 8-inches in diameter, the Contractor will provide the necessary equipment and televise the line to determine proper pipe alignment. The Engineer will be present during the televising, and a video tape of the televising will be made for the City Water Services Department for confirmation that the pipe is properly aligned. The cost of televising the line and preparing the video tape will be included in the bid price paid for the pipe support or encasement.

Permanent pipe supports will be paid for at the unit price bid for each unit installed regardless of type. Encasements will be paid for at the unit price bid per linear foot installed regardless of type. The unit price bid for either item of work will be compensation in full for providing complete and satisfactory permanent pipe supports or encasements, including ductile iron pipe and fittings, concrete, reinforcing steel, forming, vibrating, any required earthwork, televising and videotaping, and any other incidental items necessary.

601.6.5 Electronic, Telephonic, Telegraphic, Electrical, Oil and Gas Lines: During trenching operations, underground facilities such as electronic, telephonic, telegraphic, electrical, oil and gas lines will be supported and protected by the Contractor. Support for plastic pipes will be continuous along the bottom of the pipe. Support for metal pipe and electrical conduit may be continuous or nylon webbing may be used for suspension at no greater than ten-foot intervals.

The Contractor will avoid damaging any pipes, conduits or duct bank facilities during excavation, foundation and bedding placement, and trench backfilling and compaction.

601.6.6 Measurement and Payment:

There will be no measurement or payment for this work. The Contractor will include all associated costs in the unit bid price for the pipe installation.

34. 601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION, Add the following new Subsection 601.7 CONTRACTOR CERTIFICATION OF INSTALLATION PROCEDURES:

When requested in the Special Provisions or by the Engineer prior to installation, the Contractor will furnish to the Contracting Agency an affidavit (certification) from the pipe manufacturer (or his designee) stating that the Contractor is familiar with the manufacturer's suggested installation methods and procedures and the installation complies with those procedures and is consistent with MAG requirements.

Also, when required in the Special Provisions or requested by the Engineer, the pipe manufacturer or his designee will review the Contractor's methods and procedures for pipe installation in the field. The Contractor will make any adjustments in the installation as recommended by the manufacturer or his representative. If necessary, the Contractor may be required to reinstall or provide corrections to pipe installed prior to the field review at no cost to the Agency. Once the manufacturer or his representative has reviewed the Contractor's installation methods and the Contractor has adjusted his installation methods as recommended by the same, the manufacturer or his representative will furnish to the Contracting Agency an affidavit (certification) that the Contractor's installation methods and procedures, at the time of the review, complied with the manufacturer's installation practices. The affidavit must provide the name of the manufacturer's representative witnessing the pipe installation.

35. 610 WATERLINE CONSTRUCTION, Add the following to Subsection 610.4 CONSTRUCTION METHODS:
WATER MAIN REALIGNMENT (CONTINGENT ITEM)

In the event of unavoidable conflict between proposed construction and an existing water main, the Contractor will vertically and/or horizontally realign the water main in accordance with COP Detail P1370 and Section 610. No concrete thrust blocks will be allowed. All pipe will be ductile iron with restrained joints.

The water main realignment will include, but not be limited to, excavation, backfill, compaction, pipe, fittings, offsets, couplings, sleeves, joint restraint and hardware. The realigned water main will be visually inspected for leaks under line pressure prior to backfilling.

The Contractor will arrange with the Engineer to have the line shut down in order to perform the work. At no cost to the Contractor, the City Water Services Department will provide necessary valve cut-ins, take the line out of service and flush the relocated line prior to placing it back in service.

Materials for water main realignment will be ductile iron in accordance with COP Supplement to MAG Subsection 750.2 DUCTILE IRON WATER PIPE.

Measurement and Payment

Measurement will be made per each realignment constructed for the various water main sizes encountered.

Payment for realignment of water mains will be made at the unit price bid per each under proposal items "WATERLINE REALIGNMENT, 6" AND 8", CONTINGENT ITEM"; and "WATERLINE REALIGNMENT, 10" AND 12", CONTINGENT ITEM".

36. 610 WATER LINE CONSTRUCTION, Add the following to Subsection 610.7 VALVES:

LOCATING, CLEANING AND INSTALLING WATER VALVE BOX DEBRIS CAP WITH LOCATOR COIL

The Contractor will furnish and install a debris cap with a locator coil in all new water valve boxes installed; in all existing water valve boxes adjusted to grade; and in all other existing water valve boxes within the project limit right-of-way, even if not called out for adjustment to grade. The debris cap will be in accordance with City of Phoenix Supplement to MAG Detail P-1165 and will include a locator coil.

Prior to installation of the debris cap, valve risers will be thoroughly cleaned, fully exposing the operating nut. In addition, the Contractor will attempt to locate all unexposed water valves within the project limits, as indicated by City of Phoenix Water Services Department water valve Quarter-Section maps. In attempting to locate unexposed valve boxes, the Contractor will excavate a minimum depth of eighteen (18) inches from the surface. Unexposed valve boxes found will be brought up to finish grade; cleaned to fully expose the operating nut; and a debris cap with locator coil will be installed.

Measurement for debris caps furnished and installed in water valve boxes (adjusted to grade or not) will be per each unit, including locating and cleaning. The Contractor will obtain the appropriate Water Services Department water valve Quarter-Section maps at Phoenix City Hall, 200 W. Washington Street, 8th Floor, at no additional cost to the City, and will make a diligent effort to locate all existing unexposed water valves shown on these maps. The Contractor will clearly mark all unexposed water valve boxes actually located on record plans and copies of the water valve Quarter-Section maps showing specific found location information, and these plans will be provided to the Engineer. The cost for the Contractor to extend any risers on found unexposed valve boxes to bring them up to finish grade will also be considered incidental.

Payment for this work in paved areas will be made under the bid item, “DEBRIS CAP, INCLUDING LOCATOR COIL, INSTALL.”

Payment for this work in unpaved areas will be made under the bid item, “DEBRIS CAP, INCLUDING LOCATOR COIL, NON-PAVED AREAS, INSTALL.” There will be no separate measurement or payment for any labor, materials or equipment used in attempting to locate valves shown on the Quarter-Section maps that are not actually found. Valve locating attempts that do not produce any resulting “finds” will be considered incidental.

37. 610 WATER LINE CONSTRUCTION, Add the following new Subsections 610.9.1 Fire Hydrant Relocation; 610.9.2 New Fire Hydrant Installation; and 610.9.3 Fire Hydrant: Remove, Salvage and

Deliver to City of Phoenix:

610.9.1 Fire Hydrant Relocation:

Fire hydrant relocations will be paid for at the unit price bid per each under the bid item, "RELOCATE FIRE HYDRANT". The unit price bid will be full compensation for removing and reinstalling the fire hydrants at the new locations shown on the plans and in accordance with new construction standards. All pipes, valves and fittings necessary to accomplish the relocation are to be included in the unit price. Prior to removing the fire hydrant from service and prior to reactivating the fire hydrant, the Contractor will notify the Engineer. The Contractor will minimize the time the fire hydrant is out of service but in no event will the out-of-service time exceed 24 hours. If in the opinion of the Engineer, the fire hydrant should be replaced, Water Distribution Division will provide a replacement fire hydrant at no cost to the Contractor. It will be the Contractor's responsibility to pick up the replacement hydrant and to either return the old hydrants to the Water Distribution Division Yard, or dispose of them, whichever is directed by the Engineer. In order to obtain new fire hydrant replacements, the Contractor must first obtain a written order (Field Directive) from the Engineer. Then, at no additional cost to the City, the Contractor will pick up the specified number of units at the Water Distribution Warehouse located at 2500 S. 22nd Avenue.

610.9.2 New Fire Hydrant Installation:

New fire hydrant installations will be paid for at the unit price bid per each under the bid item, "FIRE HYDRANT FURNISHED BY THE CITY OF PHOENIX, INSTALL". The unit price bid will be full compensation for installing the new fire hydrants at the locations shown on the plans and in accordance with construction standards. All pipes and valves necessary to accomplish the installation will be measured and paid for separately under their respective bid line items. All fittings necessary to accomplish the installation of the new fire hydrant will be paid for separately under the bid item, "ALLOWANCE FOR EXCESS DUCTILE IRON FITTINGS, FURNISH AND INSTALL". Payment for these fittings will be made from this allowance based on approved invoiced cost of the materials only, plus bonds, insurance and taxes, and a maximum 15 percent markup for overhead and profit.

Prior to removing any existing fire hydrant from service and prior to activating the new fire hydrant, the Contractor will notify the Engineer. Water Distribution Division will provide new fire hydrants at no cost to the Contractor. It will be the Contractor's responsibility to pick up the new hydrants and to either return old hydrants to the Water Distribution Division Yard, or dispose of them, whichever is directed by the Engineer. In order to obtain new fire hydrant, the Contractor must first obtain a written order (Field Directive) from the Engineer. Then, at no additional cost to the City, the Contractor will pick up the specified number of units at the Water Distribution Warehouse located at 2500 S. 22nd Avenue.

610.9.3 Fire Hydrant - Remove, Salvage and Deliver to City of Phoenix:

All existing fire hydrants to be abandoned will be removed. The void created will be backfilled with ABC and compacted. The surface will be replaced to match the existing surrounding surface—asphalt, concrete, gravel, etc.

Fire hydrants served from a water main staying in service will require either a tapping sleeve and valve "cut-out" or tee "cut-out" and a new piece of pipe "cut-in" in accordance with City of Phoenix Standard Detail P1344.
Fire hydrants served from a water main not staying in service will require the fire hydrant water main lateral to be cut and plugged near the fire hydrant in accordance with City of Phoenix Standard Detail P1343.

It will be the Contractor's responsibility to either return the old fire hydrants to Water Distribution Division Yard,

or dispose of them, whichever is directed by the Engineer.

Measurement and payment for this work will be under the bid item "FIRE HYDRANT: SALVAGE AND DELIVER TO THE CITY OF PHOENIX", and will include, but not limited to all labor, materials and equipment necessary to remove the fire hydrant, backfill, compact and return or dispose of the fire hydrant. Pavement or concrete replacement, if any, will be paid for under separate respective bid items. Waterline cut-outs (P1344) and cut and plugs (P1343) will be paid under separate bid items for that work. Fire hydrant valve box and cover removal will be paid under separate bid item for that work.

38. 610 WATER LINE CONSTRUCTION, Add the following to Subsection 610.10 CONNECTION TO EXISTING MAINS:

WATER MAIN SHUTDOWN

For shutdowns that are necessary to accomplish the work, the Contractor will make written request to Water Distribution at least three (3) calendar weeks before the shutdown. Requests will specify location, size of line, duration, date, and time for each shutdown. Within one (1) week, Water Distribution will schedule shutdown and give written notification to the Contractor. Any schedule revisions requested by the Contractor must be in writing. Water Distribution's revised schedule will be available within one (1) week. The City does not guarantee a totally dry line. The Contractor will be prepared to de-water as necessary to accomplish the work.

The Contractor will be responsible for maintaining accessibility to the valve operating nuts for all valves within the project boundaries. Failure to maintain accessibility to valves will be cause for canceling shutdown, and the Contractor will be required to request a revised schedule.

The Water Services Department is indemnified for any and all resultant costs incurred by the Contractor such as, but not limited to traffic control, delays, loss of incentives, standby and penalties if the Contractor did not properly request a shutdown; failure to maintain accessibility to valves; or if the Contractor's scheduled work did not progress to the anticipated shutdown schedule.

39. 610 WATER LINE CONSTRUCTION, Add the following to Subsection 610.11(D) METER SERVICE CONNECTIONS:

HORIZONTAL BORING FOR METER SERVICE CONNECTIONS

For meter service pipes 1-inch or larger in diameter, the maximum bore hole size permissible will be twice the internal diameter of the service line being installed. For meter service pipes smaller than 1-inch in diameter, the maximum borehole size will be two (2) inches in diameter.

40. 610 WATER LINE CONSTRUCTION, Add the following to Subsection 610.19 MEASUREMENT AND PAYMENT:

(H) Ductile Iron Fittings: Any additional waterline fittings that become necessary during construction, beyond what is shown on the plans for water main construction; and any fittings needed for new fire hydrant installations, will be paid for separately under the bid item, "ALLOWANCE FOR EXCESS DUCTILE IRON FITTINGS, FURNISH AND INSTALL". Payment for these fittings will be made from this allowance based on approved invoiced cost of the materials only, plus bonds, insurance and taxes, and a maximum 15 percent markup for overhead and profit. All other waterline fittings as shown on the plans will be considered incidental to the cost of the water pipe.

41. 618 STORM SEWER CONSTRUCTION WITH PRE-CAST CONCRETE PIPE, HIGH DENSITY POLYETHYLENE PIPE, OR STELL REINFORCED POLYETHYLENE PIPE:

Revise all references to the term, “storm sewer” to read, “storm drain.”

42. 618 STORM SEWER CONSTRUCTION WITH PRE-CAST CONCRETE PIPE, HIGH DENSITY POLYETHYLENE PIPE, OR STEEL REINFORCED POLYETHYLENE PIPE, Add the following to Subsection 618.6 MEASUREMENT:

(F) Pipe Plugs: Pipe plugs, per MAG Detail 427, will be measured per each unit installed, regardless of dimensional differences.

43. 618 STORM SEWER CONSTRUCTION WITH PRE-CAST CONCRETE PIPE, HIGH DENSITY POLYETHYLENE PIPE, OR STEEL REINFORCED POLYETHYLENE PIPE, Add the following to Subsection 618.7 PAYMENT:

(F) Pipe Plugs: Pipe plugs, per MAG Detail 427, will be paid for at the unit price bid for each plug, and price will be compensation in full for providing complete, satisfactory pipe plugs including brick or block work, concrete, grout or mortar, vitrified clay or plastic plugs, band seal couplings, any required earthwork, end-of-pipe marker, or any other incidental items necessary.

44. 620 STORM SEWER CONSTRUCTION WITH CAST-IN-PLACE CONCRETE PIPE:

Revise all references to the term “storm sewer” to read “storm drain.”

45. 625 MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS, Add the following to Subsection 625.2 MATERIALS:

Per City of Phoenix Water Services Department, "MAG Standard Detail 425: 24” Aluminum Manhole Frame and Cover” is not approved and will not be used in the City of Phoenix.

46. 625 MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS, Add the following to Subsection 625.3.1 MANHOLES:

If steps are inadvertently installed, they will be removed and the holes will be filled with epoxy or Class "B" concrete.

47. 625 MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS, Add the following to Subsection 625.3.1, MANHOLES:

SANITARY SEWER MANHOLE ADJUSTMENTS

On all existing sewer manholes adjusted to new finish grade, the entire new portion of the adjusted manhole will be seal coated in accordance with COP Supplement to MAG Specification Sections 626 and 627.

48. 625 MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS, Delete the first paragraph in Subsection 625.5 PAYMENT and replace with the following:

Manholes will be paid for at the unit price bid for each type, as represented by the respective bid item, regardless of dimensional or other differences occurring within a particular type. The unit price to be paid under these items will be compensation in full for furnishing and placing manhole structures as shown on the plans and as specified, including concrete, reinforcing steel, forming, vibrating, finishing, curing, cast iron manhole frame and cover, frame adjustment to grade, structural excavation, backfill, compaction and any pavement replacement in excess of the applicable pay widths assigned to the adjacent pipes.

49. 631 WATER TAPS AND METER SERVICE CONNECTIONS, Add the following new Subsection 631.9 REPLACEMENT, EXTENSION AND RELOCATION OF EXISTING WATER SERVICES AND METERS as follows:

631.9 REPLACEMENT, EXTENSION AND RELOCATION OF EXISTING WATER SERVICES AND METERS

Extension or Replacement of Existing Water Service Lines

The Contractor will replace or/and extend existing water service lines at the stations listed in these specifications or on the plans in accordance with Detail P-1342. The Engineer will determine when the existing lines are unsatisfactory and must be replaced. Generally, existing copper in good condition with sufficient cover will be extended. Water service lines other than copper will be replaced.

The water service will include, but is not limited to, locating the present tap, trenching, bedding, backfilling, disconnecting the existing service pipe from the corporation stop, furnishing and installing new service pipe, new appurtenant fittings, new curb stop and new meter coupling, and re-connection to the meter. The existing tapping saddle and corporation stop will remain, but the Contractor will not use any other salvaged service connection components. If the saddle is a single strap, the saddle will be replaced with a double strap saddle. In the event there is no tapping saddle, the Contractor will install one. The cost of the saddle and reinstallation of the corporation stop will be considered incidental to the water service replacement.

Inserts or adapters required to connect to the corporation stop are available at the Water Services Department yard at no cost to the Contractor. The Contractor must obtain a written order (AVO) from the Engineer before picking up said items.

Bedding and backfill will be full depth aggregate base course. Payment for furnishing and compacting the aggregate base course will be included in the bid item for replacing or extending existing water services.

The Contractor will schedule his work so that no open trenches are left overnight.

Materials for water service connections will conform to MAG Section 754 and City of Phoenix Supplement 610.4.4 and 610.4.5. Joints in the copper tubing will be made by the use of approved fittings, properly soldered or by means of approved compression fittings such as flared joints or pack joints.

Water Meter Relocation

Water meter relocation consists of disconnecting the meter, moving the meter, meter box and cover from the existing location to the new location and reconnecting in accordance with Details P-1342 and P-1363. The meter box and cover will be set to match the grade at the new location.

Any water meter boxes and/or covers damaged by the Contractor during course of construction will be replaced in kind at the Contractor's expense.

It is anticipated that some water meter boxes and/or covers may require replacement due to prior damages not due to the fault of the Contractor. The Water Services Department will furnish replacement water meter boxes and covers at no cost; however, the Contractor must first obtain a written order (Field Directive) from the Engineer. Then, at no additional cost to the City, the Contractor will pick up the specified number of units from the Water Distribution Warehouse located at 2500 S. 22nd Avenue.

Water meter boxes and covers will be Type 1, 2 or 3 in accordance with MAG Details 310, 311, 312, and 320

and P-1315.

All materials and fittings will conform to the requirements of Section 610 and 754. No salvaged service connection components will be used.

Measurement and Payment

Measurement for extending and/or replacing water services will be made to the nearest linear foot from the point of connection to the existing line or corporation stop, whichever is applicable, to the curb stop.

Payment for extending and/or replacing water services will be made at the unit price bid per linear foot under the proposal items "3/4-INCH AND 1-INCH WATER SERVICE REPLACEMENT PER SPECIAL PROVISIONS"; and "1 1/2" AND 2" WATER SERVICE REPLACEMENT PER SPECIAL PROVISIONS".

Measurement for water meter relocation will be made per each water meter regardless of size up to and including 2-inch. Payment for water meter relocation will be made at the unit price bid per each under the proposal item "RELOCATE WATER METER" which will include all sizes encountered on the project up to and including 2-inch.

50. 631 WATER TAPS AND METER SERVICE CONNECTIONS, Add the following new Subsection 631.10 NEW WATER METER SERVICES as follows:

631.10 NEW WATER METER SERVICES

Description

The Contractor will install new water service lines, meters and boxes at the locations listed in these specifications or on the plans in accordance with Detail P1342.

The work will include locating the new or existing water main, furnishing and installing a new saddle and corporation stop, tapping the main, furnishing and installing new copper water service pipe from the water main to the meter, connecting the water service pipe to the corporation stop, furnishing and installing a curb stop at the meter box, furnishing and installing a meter box, connecting the water service pipe to the curb stop, connecting the curb stop to the meter, furnishing and installing necessary fittings and couplings, and all trenching, backfill, compaction and surface/pavement restoration necessary for a complete new water meter service.

The Contractor will not use any salvaged service connection components.

The Contractor will schedule his work so that no open trenches are left overnight.

To install a new tap, the Contractor will install a new corporation stop utilizing an all-bronze double-strap tapping saddle.

All water service connections will be made using Type K copper tubing and fittings which conform to Sections 610 and 754. Joints in the copper tubing will be made by means of approved compression fittings such as flared joints or pack joints.

Sawcutting of the curb and gutter and sidewalk within the City right of way for installing water service pipe will not be allowed. Either jacking or boring methods are required. There will be no additional payment for jacking or boring of the water service, the cost will be included in the cost of the connection.

Measurement and Payment

The work required to install new water meter services will be measured per each for new complete water services and corresponding new meter boxes installed.

Payment will be made under the bid item, “WATER SERVICE CONNECTION (MAIN TO METER)” and “1” WATER METER BOX AND COVER, FURNISH AND INSTALL-FULL SERVICE”.

51. 631 WATER TAPS AND METER SERVICE CONNECTIONS, Add the following new Subsection 631.11 WATER MAIN SHUTDOWN FEES as follows:

631.11 WATER MAIN SHUTDOWN FEES

All water main shutdown fees for installation of new water services, extension or replacement of existing water service lines, and relocation of existing water meter boxes will be waived. When it becomes necessary to shut down existing water mains and services to install water service extensions or replacements, no main will be left out of service for more than one (1) hour, and no individual service will be disrupted for more than five (5) continuous hours. Main valves will be operated by representatives of the City's Water Services Department. Shutdowns will not begin before 8:00 a.m. and will not extend past 4:00 p.m. It will be the Contractor's responsibility to notify all customers in advance that the water service will be turned off. The customers will be notified in writing at least 24-hours in advance and also verbally the day of the shutdown. Initial notification will include the reason for the shutdown, the date, the time and duration the water service will be shut off. A copy of the notification will be given to the Engineer.

52. Add the following new Section 635 ABANDONMENT AND REMOVAL OF EXISTING WATER FACILITIES as follows:

635 ABANDONMENT AND REMOVAL OF EXISTING WATER FACILITIES

635.1 ABANDONMENT OF EXISTING WATERLINE

Existing waterlines shown on the plans to be abandoned will be done after all water services have been disconnected. The Water Services Department will locate and mark the specific locations where the water lines are to be abandoned. The Contractor will expose the existing water main to be abandoned and cut and plug as required on the plans.

For connections where an existing tee, cross or tapping sleeve and valve, or corporation stop exists at the main, the Contractor will remove the tee, cross or tapping sleeve and valve or corporation stop and replace the water main in accordance with City of Phoenix Standard Detail P1344. Payment for this work will be made at the unit price bid for "WATERLINE CUT-OUT, STD DETAIL P1344", and will include all labor and material necessary to locate; remove crosses, tees, or tapping sleeves and valves or corporation stops; replace section of mainline pipe; backfill and compact.

For locations where a "Cut and Plug" is called for on the plans, the Contractor will provide a cut and plug on the existing pipe in accordance with City of Phoenix Standard Detail P1343. Measurement and payment for this work will be made at the unit price bid per each for the bid item "CUTTING AND PLUGGING EXISTING WATER LINE" and will include all labor and material necessary to complete this item in place.

Concrete and asphalt concrete pavement removal and replacement for curbs, sidewalks, driveways, etc. necessary to complete this work will be considered incidental to the abandonment work and will be included in

the cost for each abandonment. Pavement replacement, if any, will be paid for under a separate bid item for that work.

635.2 REMOVAL OF EXISTING WATER VALVE BOX AND COVER

All existing valve box frames and covers (and at least the top 12" of any valve vaults) on abandoned waterlines will be removed. The void created will be backfilled with ABC and compacted. The surface will be replaced to match the existing surrounding surface—asphalt, concrete, gravel, etc.

Measurement and payment for this work will be per each under the bid item, "REMOVE EXISTING VALVE BOX AND COVER", and will include all materials and equipment necessary to remove the valve box frame, cover, and top 12" of any valve vault, backfill and compact. Pavement replacement, if any, will be paid for under a separate bid item for that work.

53. 702 BASE MATERIALS Add the following to MAG Section 702 BASE MATERIALS:
All Select Material specified on the plans and Standard Details will be Type "A" in accordance with Table 702-1.

54. 727 STEEL REINFORCEMENT, Add the following to Section 727 STEEL REINFORCEMENT:

Description

The work under this item consists of fabrication, furnishing and placing steel reinforcement of the quality, grade, type, size and quantity designated, in conformance with the details on the Project Plans, and in accordance with these special provisions and as directed by the Engineer. All work under this Section will conform to SECTION 605 – STEEL REINFORCEMENT of the Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, 2008 Edition, except as noted herein and on the Project Plans.

Construction Requirements

Section 605-3 of the ADOT Standard Specifications of modified to add:

605-3.05 Shop Drawings:

The Contractor will submit shop drawings and lists showing the bending of reinforcement bars, splice locations and details and complete manufacturer's information on proprietary splices to the Engineer for review and approval prior to proceeding with the work. Approval of the submittal will not relieve the Contractor of responsibility for the correctness of the shop drawings and lists.

55. 727 STEEL REINFORCEMENT Add the following to Section 727 STEEL REINFORCEMENT

EARLY STEEL PROCUREMENT

Description

The work under this item consists of early procurement of steel reinforcement. All materials furnished under this section will conform to SECTION 605 – STEEL REINFORCEMENT and SECTION 1003- REINFORCING STEEL of the Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, 2008 Edition, except as noted herein and on the Project Plans. This specification does not include placement of the steel.

Bonding and Title

All storage facilities for the rebar will be bonded and insured to cover the replacement cost of the rebar. All storage facilities will be located within the State of Arizona. The City will retain title to the rebar.

Quantity

Rebar must meet the standard for all applications for which it is intended to be used. Quantities have been calculated by the Contractor and no additional payment by the City will be made for additional rebar. Rebar delivered to the site must be in new condition. Any defects from storage will be remedied by the Contractor at no cost to the City.

Materials

The Contractor will furnish complete copies, in triplicate, of all mill reports on steel materials furnished.

Storage of Rebar

It is advisable to allocate steel rebar storage a separate area characterized by minimum pedestrian traffic. The rebar stacks should be stored above ground and separated by wooden separators.

If the rebar stacks are to be stored in the open air for more than 2 - 3 weeks, it is recommended to cover them with canvas or dark polyethylene sheets to protect against sunlight, and weather exposure.

The steel rebar will be stored separately and clearly marked or tagged with "Property of the City of Phoenix" or other such nomenclature as to identify the owner of the steel.

The steel rebar will be open for inspection by City inspectors with 24-hour notice at any time.

Measurement and Payment

There will be no separate measurement & payment for the steel rebar. Payment will be included in the bid items for each of the structures indicated on the Project Plans. The work under this item consists of fabrication, furnishing and placing steel reinforcement of the quality, grade, type, size and quantity designated, in conformance with the structure details on the Project Plans, and in accordance with these special provisions and as directed by the Engineer. This includes the storage of the rebar, and the delivery to the site when needed for construction.

Having no separate measurement & payment for the rebar material does not release the Contractor of any responsibility for meeting all testing requirements at the time of installation. Any rebar that does not conform to SECTION 605 – STEEL REINFORCEMENT of the Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, 2008 Edition, at the time of installation will be replaced at the Contractor's expense.

56. 727 STEEL REINFORCEMENT, Add the following to Section 727 STEEL REINFORCEMENT:

Description

The work under this item consists of fabricating, furnishing and placing steel reinforcement of the quality, grade, type, size and quantity designated, in conformance with the details on the Project Plans, and in accordance with these special provisions and as directed by the Engineer. All work under this Section will

conform to SECTION 605 – STEEL REINFORCEMENT of the Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, 2008 Edition, except as noted herein and on the Project Plans.

Construction Requirements

Section 605-3 of the ADOT Standard Specifications is modified to add:
605-3.05 Shop Drawings:

The Contractor will submit shop drawings and lists showing the bending of reinforcement bars, splice locations and details and complete manufacturer's information on proprietary splices to the Engineer for review and approval prior to proceeding with the work. Approval of the submittal will not relieve the Contractor of responsibility for the correctness of the shop drawings and lists

GUIDELINES FOR HANDLING SONORAN DESERT TORTOISES
ENCOUNTERED ON DEVELOPMENT PROJECTS
Arizona Game and Fish Department
Revised October 23, 2007

The Arizona Game and Fish Department (Department) has developed the following guidelines to reduce potential impacts to desert tortoises, and to promote the continued existence of tortoises throughout the state. These guidelines apply to short-term and/or small-scale projects, depending on the number of affected tortoises and specific type of project.

The Sonoran population of desert tortoises occurs south and east of the Colorado River. Tortoises encountered in the open should be moved out of harm's way to adjacent appropriate habitat. If an occupied burrow is determined to be in jeopardy of destruction, the tortoise should be relocated to the nearest appropriate alternate burrow or other appropriate shelter, as determined by a qualified biologist. Tortoises should be moved less than 48 hours in advance of the habitat disturbance so they do not return to the area in the interim. Tortoises should be moved quickly, kept in an upright position parallel to the ground at all times, and placed in the shade. Separate disposable gloves should be worn for each tortoise handled to avoid potential transfer of disease between tortoises. Tortoises must not be moved if the ambient air temperature exceeds 40 degrees Celsius (105 degrees Fahrenheit) unless an alternate burrow is available or the tortoise is in imminent danger.

A tortoise may be moved up to one-half mile, but no further than necessary from its original location. If a release site, or alternate burrow, is unavailable within this distance, and ambient air temperature exceeds 40 degrees Celsius (105 degrees Fahrenheit), the Department should be contacted to place the tortoise into a Department- regulated desert tortoise adoption program. Tortoises salvaged from projects which result in substantial permanent habitat loss (e.g. housing and highway projects), or those requiring removal during long-term (longer than one week) construction projects, will also be placed in desert tortoise adoption programs. *Managers of projects likely to affect desert tortoises should obtain a scientific collecting permit from the Department to facilitate temporary possession of tortoises.* Likewise, if large numbers of tortoises (>5) are expected to be displaced by a project, the project manager should contact the Department for guidance and/or assistance.

Please keep in mind the following points:

- These guidelines do not apply to the Mohave population of desert tortoises (north and west of the Colorado River). Mohave desert tortoises are specifically protected under the Endangered Species Act, as administered by the U.S. Fish and Wildlife Service.
- These guidelines are subject to revision at the discretion of the Department. We recommend that the Department be contacted during the planning stages of any project that may affect desert tortoises.
- Take, possession, or harassment of wild desert tortoises is prohibited by state law. Unless specifically authorized by the Department, or as noted above, project personnel should avoid disturbing any tortoise.

CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN

Add the following new Section, 233 STORM WATER POLLUTION PREVENTION PLAN SUBMITTAL PROCESS

233.1 DESCRIPTION

The Contractor will use the Arizona Department of Environmental Quality (ADEQ) Smart NOI program for all submittals located at this web address:

https://az.gov/app/smartnoi/

The location of this process may change and it is the responsibility of the Contractor to verify the correct web address. All fees are the responsibility of the Contractor. The Contractor will apply for a "Stormwater Construction General Permit" with the project type "MUNICIPAL/PUBLIC".

Before any construction on site begins, the Contractor will submit the Notice of Intent (NOI) and the SWPPP through the Smart NOI program as the sole permitee. The Contractor will not commence any construction activities until the ADEQ send a written Notice Of Intent assigning an AZCON number.

As required by ADEQ the Contractor will submit a Notice of Termination (NOT) through the Smart NOI program. The Contactor will receive final payment only after receiving a written Notice of Termination Acknowledgement from ADEQ.

Projects Impacting Impaired Waters

Projects that will have any construction taking place within ¼ mile of the Salt River between 23rd Avenue and the confluence of the Gila River will impact "Impaired Waters". These projects will require the Contractor to design, implement, and evaluate a Monitoring Plan for stormwater runoff from their construction activities. The Monitoring Plan must be site specific and will be submitted to ADEQ as an appendix to the SWPPP. ADEQ is the final authority in the approval of the monitoring plan. A copy of the SWPPP and the Monitoring Plan will be kept on-site at all times. Additional copies of the Monitoring Plan should be made available to all personnel who anticipate participating in stormwater monitoring activities. The Contractor will have a copy of the monitoring plan, approved SWPPP, NOI, and ADEQ Authorization to Discharge posted at the jobsite prior to ground disturbance.

Subcontractors

All subcontractors will comply with all AZPDES requirements under the supervision of the General Contractor, and will submit a completed, signed subcontractor certification form, thereby designating themselves as co-permittees.

233.2 SAMPLE SWPPP STRUCTURE

The following is a sample outline of the City requirement for a SWPPP submittal modeled after the ADEQ Construction General Permit Checklist. It will be the Contractor's responsibility to meet all the ADEQ requirements for a SWPPP and retain a qualified consultant to complete the SWPPP if necessary at no additional cost to the City.

1 SITE DESCRIPTION

1.1 Project Name: CONTRACTOR WILL FILL IN PROJECT NAME

Project No(s): CONTRACTOR WILL FILL IN PROJECT NUMBER

1.2 Project Location: CONTRACTOR WILL FILL IN FOR PROJECT SITE LOCATION

1.3 Owner's Name:

City of Phoenix, Street Transportation Department

1.4 Owner's Address:

200 West Washington Street, 5th Floor, Phoenix, Arizona 85003

1.5 Project Description: CONTRACTOR WILL FILL IN PROJECT DESCRIPTION

1.6 Runoff Coefficient and Soils Information:

A. Overall runoff coefficient of upstream drainage area will be unchanged by project.

B. Surface Soils Information: (EXAMPLE ONLY, CONTRACTOR WILL FILL IN FOR PROJECT SITE LOCATION)

SOIL UNIT	SOIL TYPE (USDA TEXTURE)	PERMEABILITY (IN./HR.)
Laveen	Loam	0.6-2.0
Mohall	Clay Loam	0.2-0.6
Tucson	Clay Loam	0.2-0.6
Vecont	Clay	0.06-0.2

1.7 Name of Receiving Water:

EXAMPLE: SALT RIVER, CONTRACTOR WILL FILL FOR PROJECT SITE LOCATION

2 CONTROLS

2.1 Erosion and Sediment Controls

2.1.a Stabilization Practices:

Stabilization practices on this site include:

- Permanent planting.

- Save selected existing trees.
- Decomposed granite
- CONTRACTOR WILL ADD OR REMOVE STABILIZATION PRACTICES AS NECESSARY

2.1.b Structural Practices:

May include:

- Temporary retention areas (subgrade excavation areas).
- Temporary catch basin inlet protection.
- Silt fence.
- Gravel filter berm.
- Temporary diversion dike.
- Straw bale barriers.
- Sandbag berm
- CONTRACTOR WILL ADD OR REMOVE STABILIZATION PRACTICES AS NECESSARY

2.1.c Narrative: Sequence of major activities.

CONTRACTOR WILL COMPLETE NARRATIVE

2.1.d Storm Water Management: (CONTRACTOR WILL EDIT AS NECESSARY)

Storm water drainage on will be provided by curb and gutter, catch basin inlets, and storm drains. No appreciable changes in runoff coefficients or in finished roadway grades will take place as a result of this project; therefore, no significant alterations of storm water drainage patterns or runoff quantities are expected.

During construction, storm water runoff will be managed by the following means, as conditions require:

- Temporary retention will be provided during roadway construction in areas excavated for subgrade.
- Silt fence, straw bales, sandbag berms, temporary diversion dikes, gravel filter berms or other BMP's as necessary to eliminate erosion may be used to prevent storm runoff from entering open storm drain pipes in excavated trenches. Temporary catch basin inlet protection may also be provided to remove sediment from drainage water before it enters the drainage system. Straw bale protection at outfall pipe locations may be employed during construction.

3 OTHER CONTROLS

3.1 Waste Disposal:

Waste Materials:

All waste materials including trash and construction debris from the site will be either disposed to a designated area immediately or collected and stored in securely-lidded metal dumpsters. The dumpsters will meet all local and State solid waste management regulations. The dumpsters will be emptied a minimum of once per week, or more often if necessary, and the trash will be hauled to an acceptable dump site. Lids will be closed at all times after work hours and during rain events. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedures for waste disposal. Notices stating these practices will be posted on site, and the site superintendent who manages the day-to-day site operations, will be responsible for seeing that these procedures are followed.

ENTER PHONE NUMBER AND NAME OF SITE SUPERINTENDENT

Concrete washout will only be allowed in designated areas. The hardened waste will be disposed of weekly and before final inspection of the project.

Hazardous Waste:

All hazardous waste materials will be disposed of in the manner specified by local or State regulations or by the manufacturer. Site personnel will be instructed in these practices, and the site superintendent who manages day-to-day site operations, will be responsible for seeing that these practices are followed.

Sanitary Waste:

All sanitary sewage generated on-site will be collected from the portable units a minimum of twice per week or as required by local regulations. Units will have a berm placed around them to ensure no spillage can occur.

3.2 Off-Site Vehicle Tracking:

Traffic will be maintained on paved roadway throughout construction in order to reduce vehicle tracking of sediments. The paved street beyond the start and end of the project will be swept as often as necessary to remove any excess mud, dirt, or rock that may be tracked from the site by construction vehicles, but not less than once per week. Dump trucks hauling material to or from the construction site will be covered with tarpaulin before leaving the site.

4 DEMONSTRATION OF COMPLIANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS

The following Federal, State, and City regulations are followed in the preparation of this storm water pollution prevention plan:

- Section 402(p) of the Clean Water Act.
- Amended Section 405 of the Water Quality Act.
- “ADEQ Arizona Pollutant Discharge Elimination System General Permit for Discharge from Construction Activities to Waters of the United States, Permit AZG-2008-001.”
- Flood Control District of Maricopa County "Drainage Design Manual for Maricopa County, Arizona, Volume III, Erosion Control."
- City of Phoenix Code 32C, "Storm Water Quality Protection."
- City of Phoenix "Grading and Drainage Ordinance for Purpose of Fulfilling NPDES Requirements."

5 MAINTENANCE/INSPECTION PROCEDURES

5.1 Erosion and Sediment Control Practices:

The following is a list of erosion and sediment controls to be used during the construction period:

5.1.a Stabilization practices for this site include:

- Permanent planting.

- Save selected existing trees.
- Decomposed granite.
- CONTRACTOR TO ADD/DELETE AS NECESARRY

5.1.b Structural practices for this site will include:

- Silt fence/straw bale barriers.
- Temporary diversion dike/gravel filter berm.
- Sandbag berm.
- Storm drain, curb and gutter, catch basins.
- Temporary catch basin inlet protection.
- Temporary retention in subgrade excavation areas.
- CONTRACTOR TO ADD/DELETE AS NECESSARY

5.2 Erosion and Sediment Control Maintenance and Inspection Practice:

Following is a list of the inspection and maintenance practices that will be used to maintain erosion and sediment control:

- All control measures will be inspected at least once every 7 days and within 24 hours after each rain event of 0.1 inch or greater.
- All measures will be maintained in good working order; if repair is necessary, it will be initiated within 24 hours of report. All changes will be completed within 14 days after an observation.
- Built-up sediment will be removed from silt fence when it has reduced the design capacity by 50%.
- Erosion control fabric and erosion control dikes will be inspected and any breaches promptly repaired.
- Permanent planting will be inspected for washout and healthy growth per specification requirements.
- A Compliance Evaluation Report will be made at each inspection to ensure all BMP's are functioning correctly.
- The site superintendent will be responsible for inspection, maintenance, and repair activities, and filling out the Compliance Evaluation Report.
- Personnel selected for inspection and maintenance responsibility will receive training from the site superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used on-site in good working order.
- Only one side of roadways will be excavated for subgrade preparation at a time. This area will serve as temporary retention while traffic is maintained on the paved other half of the road. This will serve to control storm water and minimize tracking of sediments.

6 <u>INVENTORY FOR POLLUTION PREVENTION PLAN</u> (CONTRACTOR TO EDIT AS NECESSARY)

The materials or substances listed below are expected to be present on-site during construction:

- Concrete
- Asphaltic Concrete
- Fertilizers
- Petroleum-Based Products
- Cleaning Solvents/Agents
- Sealants
- Wood
- Paints
- Herbicide/Pesticide
- Soil Treatment Products
- Other Building Materials
- Water Used in Dust Control

6.1 Spill Prevention

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff:

6.1.a Good Housekeeping:

The following good housekeeping practices will be followed on-site during the construction period:

- An effort will be made to store only enough product required to do the immediate job.
- All materials stored on-site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under proper cover and palletized.
- Liquid products will be placed on secondary containment pallets.
- Fuel tanks will be double walled.
- Drip pans will be used under all spigots unless on secondary containment.
- Products will be kept in their original containers with the original manufacturers' label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product will be used up before disposing of the container.
- Manufacturers' recommendations for proper use and disposal will be followed.
- The site superintendent will inspect daily to ensure proper use and disposal of materials.
- Concrete washout will only be allowed in designated areas. The hardened waste will be disposed of weekly and before final inspection of the project.

6.1.b Hazardous Products:

These practices are used to reduce the risks associated with hazardous materials:

- Products will be kept in original containers unless they are not resealable.
- Original labels and material safety data sheets will be retained.
- If surplus product must be disposed of, manufacturers', or local and State recommended methods for proper disposal will be followed.
- Products will be monitored, an inventory will be conducted regularly, and documentation of all use and disposal will be maintained.

6.2 Product Specific Practices:

The following product specific practices will be followed on-site:

6.2.a Petroleum Products:

All on-site vehicles will be monitored for leaks and receive regular preventative maintenance to reduce any chance of leakage. Petroleum products will be stored in tightly-sealed containers which are clearly labeled. Any petroleum substances used on-site will be applied according to the manufacturer's recommendations. Spills and leaks from vehicles will be stopped immediately. Any leaking vehicle will have a drip pan placed under the leak until the unit is repaired. Secondary containment will be provided for all petroleum products stored onsite.

6.2.b Fertilizers, Herbicide, Pesticide, Soil Treatment:

All materials used will be applied only in the minimum amounts recommended by the manufacturer or as per specification. Once applied, materials will be worked into the soil to limit exposure to

storm water.

On-site storage will be covered and palletized to limit contact with storm water. The contents of any partially-used bags or containers will be transferred to a sealable plastic bin to avoid spills.

6.2.c Paints:

All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm drain system or on the ground, but will be properly disposed of according to manufacturers' instructions or State and local regulations.

6.2.d Concrete Trucks:

Concrete trucks will not be allowed to wash out or discharge surplus concrete or dump wash water other than in a designated wash-out area. The hardened waste will be disposed of weekly and before final inspection of the project.

6.3 Spill Prevention Practices:

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area on-site. Equipment and materials will include, but not be limited to, brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically designed for this purpose.
- All spills will be cleaned up immediately after discovery using dry cleanup methods.
- The spill area will be kept well-ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate State or local government agency, regardless of the size—ADEQ Hotline: (602) 771-4505; City of Phoenix Hazardous Spills Emergency: 911; City of Phoenix Hazardous Spills Safety Section: (602) 262-7555.
- The spill prevention plan will be adjusted to include measures to prevent this type of spill from recurring and procedures to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.
- The site superintendent will be responsible for the day-to-day site operations, will be the spill prevention and cleanup coordinator. He will designate other site personnel who will receive spill prevention and cleanup training.

6.4 Documentation:

Documentation of all inspections, failed BMP's, corrective action and training will be maintained onsite with the SWPPP at all times during the project, and will be maintained for not less than three (3) years after the project is complete.

OTHER REQUIRED CERTIFICATIONS

The Contractor will complete and submit the following certification forms to the City before construction begins:

- Permitee Certification
- Contractor Certification
- Subcontractor Certification (for all Subcontractors as necessary)
- Operator's Compliance Evaluation Report

PERMITTEE'S CERTIFICATION

As Contractor of the Pinnacle Peak Rd: 45th to 35th Ave Paving and Storm Drain Improvements project, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____
Company

Name: _____

Title: _____

Signature: _____

Date: _____

CONTRACTOR CERTIFICATION

I certify under penalty of law that I understand the terms and condition of the General Arizona Pollutant Discharge Elimination System (AZPDES) Permit that authorizes the storm water discharges associated with industrial activities from the construction site identified as part of this certification. Further, by my signature, I understand that I am becoming a co-permittee, along with the subcontractors signing such certifications, to the general (AZPDES) Permit for the storm water discharges associated with construction activities of the Pinnacle Peak Rd: 45th to 35th Ave Paving and Storm Drain Improvements project. As a co-permittee, I understand that I, and my company, are legally required under the Clean Water Act, to ensure compliance with the terms and conditions of the storm water pollution prevention plan developed under the AZPDES Permit and the terms of the AZPDES Permit.

_____

General Contractor and Responsibility

Name: _____

Title: _____

Signature: _____

SUBCONTRACTOR'S CERTIFICATION

I certify under penalty of law that I understand the terms and conditions of the General Arizona Pollutant Discharge Elimination System (AZPDES) Permit that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification. Further, by my signature, I understand that I am becoming a co-permittee, along with the owner(s) and other contractors and subcontractors signing such certifications, to the general AZPDES permit for the storm water discharges associated with construction activities of the Pinnacle Peak Rd: 45th to 35th Ave Paving and Storm Drain Improvements project. As a co-permittee, I understand that I, and my company, are legally required under the Clean Water Act, to ensure compliance with the terms and conditions of the storm water pollution prevention plan developed under the AZPDES permit and the terms of the AZPDES permit.

Authorized Representative of Subcontractor: _____

Signature: _____ Date: _____

For (Subcontractor Name): _____

Construction Activities: _____

_____

_____

_____

Verification of Completion and Acceptance of Subcontractor's Work

All work to be performed by _____ (Subcontractor) as part of the _____ (Project) has been completed and accepted. Execution of this form absolves said subcontractor from liability for AZPDES violations which may occur subsequent to this date as a result of activities of the general contractor or other subcontractors.

Authorized Representative of Subcontractor: _____

Signature: _____ Date: _____

For (Subcontractor Name): _____

Verified by (General Contractor): _____

Authorized Representative of General Contractor: _____

Signature: _____ Date: _____

AZG-2008-001 General Permit for Construction Activities
Operator's Compliance Evaluation Report

This project requires inspection of storm water pollution controls (BMPs) on a choice of frequency described in the General Permit, Part IV. H. Attach sheets if more space is needed.

Project: _____ Date: _____

Name & Title of Inspector: _____

Qualifications of Inspector: ☐ Attached; or ☐ Shown in Sec. _____ of the SWPPP.

☐ Periodic Inspection; or ☐ Rain Event inspection
Relevant weather information: _____

1. Location(s) of discharge from the site: ☐ None; or ☐ Description: _____

---

2. Location(s) of and identification of BMPs that need to be maintained; failed to operate or proved to be inadequate: ☐ None; or ☐ Description: _____

---

3. Location(s) where additional BMPs are needed: ☐ None; or ☐ Description: _____

---

4. Corrective actions required, including changes and target dates: ☐ None; or ☐ Description: _____

---

5. Identify all sources of non-storm water and the associated pollution control measures: ☐ None; or ☐ Description: _____

---

6. Identify material storage areas and evidence of, or potential for pollutant discharge from these areas: ☐ None; or ☐ Description: _____

7. Identify any other apparent incidents of non-compliance: ☐ None; or ☐ Description: _____

_____

8. If no incidents of non-compliance are identified in items 1 through 7 above, the inspector certifies that the construction project is being operated in compliance with the SWPPP and the General Permit.

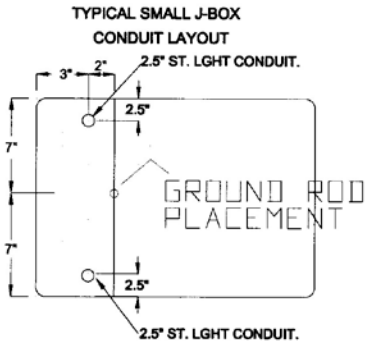
I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

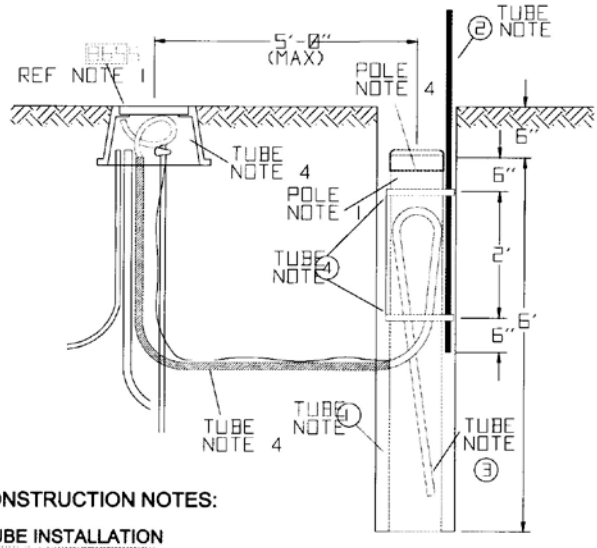
Certifying Signature: _____ Date: _____

Printed Name: _____

APS STREET LIGHT SONOTUBE, J-BOX, CONDUIT ETC (DWG)

1911





CONSTRUCTION NOTES:

TUBE INSTALLATION

1. DIG HOLE FOR TUBE 6'- 6"DEEP BY EITHER OF THE FOLLOWING:
   A. AUGERRED HOLE (16"MAX.)
   B. SLOTTED STUB-OUT TRENCH
2. PLACE RED PLASTIC LOCATOR MARKER OUTSIDE OF TUBE AND STRAP IN TWO LOCATIONS.
3. PLACE STREET LIGHT FLEXIBLE CONDUIT IN TUBE WITH 10' COILED INSIDE. DO NOT MAKE SHARP BENDS. BEND END OF CONDUIT OVER AND INSERT DOWN INTO TUBE AS SHOWN. INSPECTOR TO INSURE FLEX IS NOT KINKED.
4. INSTALL OTHER END OF FLEX IN J-BOX. LEAVE SMALL COIL TO ALLOW LEVELING FOR FINAL GRADE. BACKFILL AFTER INSPECTION IS COMPLETE.
5. COMPACT SOIL TO AT LEAST 85% AROUND TUBE.

POLE INSTALLATION

1. ELECTRONIC MARKER WILL INDICATE LID LOCATION PER BLUE STAKE MARKINGS. WORK FORCES WILL DIG DOWN TO LID,REMOVE LID AND PULL FLEX FROM TUBE.
2. INSERT END OF FLEX THROUGH ACCESS HOLE AND PUSH IT UP THROUGH HAND HOLE AS STREET LIGHT POLE IS LOWERED INTO THE TUBE.
3. HOLD POLE SECURELY WHILE BACKFILLING TO AT LEAST 85% COMPACTION. TO COMPACT POLE IN PLACE, PEA GRAVEL (<3/4") MAY BE USED NEAR THE TUBE.
4. THE MARKER BALL ATTACHED TO THE BOTTOM OF THE "SONO" TUBE LID SHOULD BE RETURNED TO STOCK.

REFERENCES:

1. FOR J-BOX SEE SPEC 8655 THRU 8663.

CODE	1911	MATERIAL LIST	
ITEM	QTY	DESCRIPTION	APN
1	20	CONDUIT 1" PVC FLEX CORR	32900891
2	1	LOCATOR U. G. SERVICE	33101586
3	1	"SONO" TUBE 6FT X12IN	64672
4	2	TIE 30" SELF LOCKING	33107350
5	2	FOAM BACKFILL	00072046

APS	Street Light Sonotube, J-Box, Conduit & Pole Installation	
WO#:		DATE: 5/14/03
BY:		SCALE:
FILENAME:		SHEET OF

HUGH
FROM ART

HOQUE & ASSOCIATES

Consulting Geotechnical, Materials and Environmental Engineers

GEOTECHNICAL EXPLORATION REPORT

FOR

PINNACLE PEAK ROADWAY PAVING AND STORM DRAIN IMPROVEMENTS

COP Project No. ST 85100088

Pinnacle Peak Road, 43rd Avenue to 35th Avenue
Phoenix, Arizona

Prepared for:

Steele Engineering, Inc.
5702 East Shea Boulevard
Scottsdale, Arizona 85254

Prepared by:

Hoque & Associates, Inc.
4325 South 34th Street
Phoenix, Arizona 85040
Phone: (480) 921-1368

Project Number: 06100

December 8, 2006

HOQUE & ASSOCIATES *Consulting Geotechnical, Materials and Environmental Engineers*

December 8, 2006

Mr. Travis Steele, P.E.
Steele Engineering, Inc.
5702 East Shea Boulevard
Scottsdale, Arizona 85254

Subject: City of Phoenix Project No. ST85100088
Geotechnical Exploration Report for City of Phoenix Pinnacle Peak Road Paving and Storm Drain Improvements
43rd Avenue to 35th Avenue, Phoenix, Arizona.

Dear Mr. Steele:

Hoque & Associates, Inc. (HA) has completed a geotechnical exploration program for Pinnacle Peak Road Paving and Storm Drain Improvements located along Pinnacle Peak Road and 43rd Avenue between east of 43rd Avenue and east of 35th Avenue. The scope of services for this project included data collection and review, site reconnaissance and blue stake coordination, field exploration, laboratory testing, data analysis and recommendations for pavement thickness, corrosion potential and remediation for storm drain pipes, excavation, and other geotechnical and geological parameters required for design and construction of pavements and storm drain pipes.

Based on the results of HA's field exploration and laboratory tests, HA believes that the soils at the site consist of mostly clayey sand (SC) with varied amount of gravel and occasional sandy clay (CL) with gravel. The soils contain 15 to 61 percent fines, and fines have medium to high plasticity indices. In addition, pH and resistivity as well as chemical tests of the soils categorize the soils to have low to moderate corrosion potential for unprotected metal pipes. Recommendations for storm sewer pipelines, pavements, and earthwork for the site soils are provided in the body of this report. All pipe bedding, subgrade, and earthwork construction should comply with the recommendations provided herein or applicable codes and/or public work specifications. HA is available to discuss our recommendations during the design stage and development of the earthwork specifications.

4325 South 34th Street • Phoenix, Arizona 85040
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HA appreciates the opportunity to work on this project. If you have any questions, or if we can be of any further assistance, please contact us at (480) 921-1368.

Sincerely,
Hoque & Associates, Inc.

Shameem A. Dewan, PhD, PE
Senior Project Manager

Reviewed by:

Enamul Hoque, PE
President

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APPENDICES

Appendix A: Site Location Map
Appendix B: Boring Locations Plan and Boring Logs
Appendix C: Soil Classification and Soil Investigation Methods
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1.0 INTRODUCTION

1.1 General

Hoque & Associates, Inc. (HA) has completed a geotechnical exploration program for Pinnacle Peak Road Paving and Storm Drain Improvements located along Pinnacle Peak Road and 43rd Avenue between east of 43rd Avenue and east of 35th Avenue. This geotechnical exploration program included data collection and review, site reconnaissance and blue stake coordination, field exploration, laboratory testing, data analysis and recommendations for bearing condition, pavement thickness, corrosion potential and remediation for storm drain pipes, excavation, and other geotechnical and geological parameters required for design and construction of pavements and storm drain pipes. The project site location is illustrated in the site location map contained in Appendix A. Steele Engineering, Inc. (Steele) authorized the work in response to HA's proposal dated March 17, 2003 with revised cost estimate as of June 21, 2006. Steele also provided HA with an aerial map with boring numbers and locations.

1.2 Purpose and Scope of Work

The purpose of this geotechnical exploration program was to characterize the site surface and subsurface conditions, and provide geotechnical data for the design and construction of the proposed storm drain pipes and repaving of the roadways. To fulfill this purpose, HA has completed the following scope of work:

- Reviewed project background information provided to HA by Steele;
- Performed site reconnaissance to document the site conditions that could influence the construction and performance of the proposed Storm Drain pipelines;
- Drilled 12 test borings utilizing a truck mounted CME-75 drill rig with 8-inch diameter continuous flight hollow stem augers. Borings were extended to a depth of 15 feet below the surrounding grades;
- Performed laboratory tests consisting of plasticity index, sieve analysis, in-situ moisture content, Proctor compaction, R-value, compression, swell, minimum resistivity, pH, water soluble sulfate, water soluble chloride, and water soluble salts;
- Completed engineering analyses for Storm Drain pipe materials (corrosion) and pavement element thicknesses;
- Prepared this geotechnical exploration report providing recommendations for corrosion protection for storm drain pipes, pavement element thicknesses, earthwork construction, excavation slope/trenching, and utilities installation guidelines.

1.3 Project Background

Information for the proposed project was provided by Steele. HA also received a site aerial map from Steele showing boring numbers and boring locations.

The City of Phoenix is planning to improve the existing Pinnacle Peak Road. In this regard, design and construction will involve construction of storm drain pipelines, utility relocations, and construction of new pavement. The proposed Storm Drain improvements will include design and installation of storm sewer pipes at a depth of 10 to 12 feet below the existing grades of the roadways. The proposed Storm Drain lines will be installed along the roadways of Pinnacle Peak Road between 43rd Avenue to 35th Avenue and a portion of 43rd Avenue north of Pinnacle Peak Road. Detailed information about the pipe material and pipe sizes was not available.

2.0 GEOTECHNICAL EXPLORATION

2.1 Surface Conditions

HA visited the sites during drilling operations to monitor the drilling and collect soil samples. HA also visited the site at other times to mark borehole locations and later to verify locations of underground utilities. During these site visits, HA observed and documented the site conditions. The site reconnaissance included observation of existing site features and structures which may influence the design and construction of the proposed Storm Drain and Pavements. Brief description of the site conditions are presented below.

Picture 1(a) Project Site

Picture 1(b) Project Site

Pinnacle Peak Road between 43rd Avenue and 35th Avenue is a major thoroughfare within central and northern Phoenix and is very busy. The existing roadway within the proposed one mile stretch consists of four travel lanes. These travel lanes are paved with asphalt concrete. The roadway had numerous underground utilities as shown by the marks by the utility companies based on HA's requests through the Blue Stake. The general area is mostly developed. There were mostly commercial and some residential developments on the north and vacant lands on the south side of Pinnacle Peak Road.

The conditions of the existing pavements on Pinnacle Peak Road and 43rd Avenue can be considered as fair to good. The pavements had frequent random cracks and the cracks were mostly sealed with crack seal materials. Based on the boring log information, it appeared that the pavements were not overlays. The date of construction of these pavements were not known during HA's exploration.

HA drilled nine borings along Pinnacl;e Peak Road and three borings along 43rd Avenue. All but one boring on Pinnacle Peak Road was drilled on the south side of

the roadway or south roadway shoulder. Boring locations are depicted in the boring location plan in Appendix B.

HA reviewed the general soil maps prepared by the National Resource Conservation Service. This review indicated that the soils within the current project site consist of mostly Laveen Loam, Rillito Loam, and Mohall Loam, and some Estrella Loam and Gunsight-Rillito Loam.

The Laveen soils are also well-drained soils formed in alluvial fans with a high concentration of lime. These soils are moderately alkaline. Some moderate cementations are observed below 24 inches depth which could pose slight difficulties in trench excavation with traditional trenching techniques. This soil exhibits moderate permeability and low to no plasticity. Corrosion potential of this soil type for untreated metals such as steel pipes is high and moderate to high in uncoated concrete pipes.

The Rillito Loams are deep, well-drained soils with high content of lime. These soils are formed on old alluvial fans. These soils have moderate permeability and low to moderate plasticity. Soils are moderately alkaline, and have moderate corrosion potential to concrete pipes and high corrosion potential to uncoated metal pipes.

The Mohall Loams are a well-drained soil with a significant amount of fines and lime content. This soil was deposited on old alluvial fans and valley plains, and is moderately alkaline. This soil exhibits low permeability and medium to high plasticity. These soils are moderately alkaline and have low corrosion potential to concrete pipes and high corrosion potential to uncoated metal pipes.

The Estrella Loams are well-drained soils with a significant amount of fines. These soils are deposited mainly at the end of alluvial fans and have low to moderate plasticity. These soils are strongly alkaline and are highly corrosive to untreated steel. These soils have low to moderate corrosion potential for concrete pipes.

The Gunsight-Rillito Complex soils are deep, well-drained mapping unit formed on old alluvial fans. This mapping unit is about 45 percent Gunsight gravelly .loam and 45 percent Rillito gravelly loam. These soils are moderately alkaline and have low corrosion potential to concrete pipes and high corrosion potential to uncoated metal pipes.

2.2 Field Methods

Information on subsurface conditions was gathered by drilling 12 borings located within the project sites of the proposed Storm Drain pipeline locations. The test borings were drilled to a depth of 15 feet at all boring locations. The locations of all

the test borings and detailed descriptions of the materials encountered at each boring location are provided in Appendix B.

The drilling for the soil investigation was completed on July 19 and July 20, 2006 utilizing a truck mounted CME-75 drill rig equipped with eight-inch diameter continuous flight hollow stem augers. The drilling was monitored and documented by experienced personnel from HA. HA collected soil samples at the selected vertical spacing and classified the soils in the field utilizing the Unified Soil Classification System (USCS). Representative bulk, split spoon, and ring-lined barrel samples were collected from each of the test borings.

Representative bulk samples were collected from the auger cuttings at five (5) foot intervals or when a change in soil stratum was encountered.

Picture 3 Soil Samples and Samplers

Standard penetration tests in conformance with ASTM D 1586 were performed in the field during drilling utilizing a two inch diameter split spoon sampler driven 18 inches with a 140 pound hammer falling freely for 30 inches. The resistance or number of blows required to drive the last 12 inches of the split spoon sampler was recorded as N-values. Relatively undisturbed ring samples were also collected from different depths of the soil layers utilizing ring lined barrel samplers in accordance with ASTM D 3550. Due to the increased diameter of the ring samplers, the number of blows required to drive the ring sampler 12 inches into the ground was adjusted by a factor of 2/3 to be recorded as N-value. These N-values are indicative of the soil's relative density and consistency and are utilized for foundation recommendations. For further information regarding soil classification and soil investigation methods, refer to Appendix C.

Following the completion of drilling at each boring location, the borehole was backfilled with drill cuttings. Collected samples were secured and transported to HA's laboratory for testing.

2.3 Subsurface Conditions

Detailed information regarding the subsurface conditions encountered at each boring location during drilling is provided in the boring logs contained in Appendix B.

Brief descriptions of subsurface conditions as depicted within 12 borings are summarized below.

Borings B-1, B-3, B-4, B-5, B-8, B-10, B-11, B-12 were drilled on the existing pavements and all others were drilled within five feet of the paved roadway. All borings were extended to a depth of 15 feet. Borings on pavements encountered an asphalt concrete layer of thickness ranging from 5 to 7 inches and an aggregate base course (ABC) layer of thickness ranging from 8 to 16 inches.

Soils in all borings except borings B-6, B-9 and B-10 within the upper five (5) feet consisted of clayey sand (SC) with gravel or clayey gravel (GC) with sand and these soils had low to medium densities. Soils within the upper five feet of borings B-6, B-9 and B-10, 5 to 10 feet depth of boring B-3 and 10 to 15 feet depth of boring B-6 consisted of sandy clay (CL or CH) with varied amount of gravel and these soils had medium to high plasticity. Soils below five feet depth in all 12 borings except boring B-6 consisted of clayey sand or silty sand (SC or SM) with varied amount of gravels and these soils were medium dense to very dense.

No significant calcite cementation was encountered in any of the test borings within the depth of exploration.

Neither a groundwater table nor a saturated condition was encountered during the soil exploration.

Upon completion of drilling, all the boreholes were backfilled with auger cuttings.

2.4 Laboratory and Field Tests

The following laboratory tests were performed to characterize the subsurface soils encountered at this site. The results of the laboratory tests were utilized in the engineering analysis to evaluate the corrosion potential for storm sewer pipe materials and to determine thickness for pavements. Laboratory test results were also utilized for earthwork construction recommendations for pipelines and pavements.

- 12 Gradation (ASTM D 422);
- 12 Atterberg Limits (ASTM D 4318);
- 15 Moisture Content (ASTM D 2216);
- Two Proctor Compaction (ASTM D 698);
- Four R-value (ASTM D2844);
- One Compression (ASTM D 2435);
- One Swell (ASTM D 4546);
- One pH and one Resistivity (ARIZ 236); and,
- One Soluble Sulfate, Chloride and Salt (ARIZ 733, 736 & 237b) tests.

Gradation and Atterberg limits tests were conducted to classify the soil and estimate other physical properties by correlation such as strength, compressibility, and potential to change in volume due to exposure to environment especially excess water. Other tests such as compression test were conducted to estimate or evaluate the engineering characteristics of the soils. Chemical properties tests such as pH, resistivity, soluble chloride, and sulfate were performed to evaluate the corrosion potential of soil to storm drain pipelines. All tests were performed in accordance with ASTM or other applicable standards.

Detailed laboratory and field test results are contained in Appendix D and some of the select soil properties are provided in the following table.

LABORATORY TEST RESULTS SUMMARY

Road	Boring Number	Depth (feet)	Fines Content (% Passing #200 Sieve)	Liquid Limit (percent)	Plasticity Index	Soil Classification (USCS)
Pinnacle Peak Road	B-1	0 – 5	25.1	35	14	SC
	B-2	0 – 5	15.5	31	11	GC
	B-3	5 – 10	52.5	74	50	CH
	B-4	0 – 5	22.0	36	16	SC
	B-5	0 – 5	24.6	32	15	GC
	B-6	10 – 15	41.0	38	9	SM
	B-7	0 – 5	31.1	39	15	SC
	B-8	0 – 5	25.6	28	14	SC
	B-9	5 – 10	55.4	39	21	CL
43rd Avenue	B-10	0 – 5	60.6	41	31	CL
	B-11	5 – 10	19.4	48	20	GM
	B-12	0 – 5	30.8	36	18	SC

The gradations and Atterberg limits tests performed within the depths of the borings indicated that the soils were mostly clayey sand (SC) with varied amount of gravels and occasional sandy clay (CL), silty sand (SM) or clayey gravel (GC). The soils in the site exhibited medium to high plasticity. The plasticity index ranged from 9 to 50. The fines content was determined to be in the range of 15 to 61 percent. The in-situ moisture results indicated that the on-site soils had a moisture content ranging from 4.0 to 13.4 percent.

Two standard Proctor compaction tests were completed utilizing combined samples collected from different borings. The first Proctor test was performed on a combined sample fabricated utilizing soil samples from upper five feet depth of boring B-4 and B-5, and the test results indicated a maximum dry unit weight of 119.0 pounds per cubic foot (pcf) with an optimum moisture content of 11.4 percent. The second Proctor test was performed on a combined sample fabricated utilizing soil samples from upper five feet depth of boring B-10 and B-12, and the test results indicated a maximum dry unit weight of 109.3 pcf with an optimum moisture content of 11.7 percent.

Four R-value tests were completed utilizing combined samples collected from the upper five feet depth of different borings. The R-value tests were performed at 300 punds per square foot (psi) exudation pressure. The R-value first test was performed on a combined sample fabricated utilizing samples from B-1 and B-2, and test results indicated a corrected R-value of 44. The second R-value test was performed on a combined sample fabricated utilizing samples from B-4 and B-5, and test results indicated a corrected R-value of 32. The third R-value test was performed on a combined sample fabricated utilizing samples from B-7 and B-8, and test results indicated a corrected R-value of 35. The fourth R-value test was performed on a combined sample fabricated utilizing samples from B-10 and B-12, and test results indicated a corrected R-value of 25.

One compression test was performed on relatively undisturbed soil sample collected during the field investigation from a depth of 10 to 11 feet from boring B-3. The sample was subjected to a pressure of 2000 pounds per square foot (psf) and inundated to evaluate compression potential and then subjected to a higher pressure. The compression test exhibited a low compression under applied pressure and additional low compression under 2000 psf pressure when inundated with water. The low compression under load at saturation indicates that the on-site soil at the pipe installation level is not collapsible.

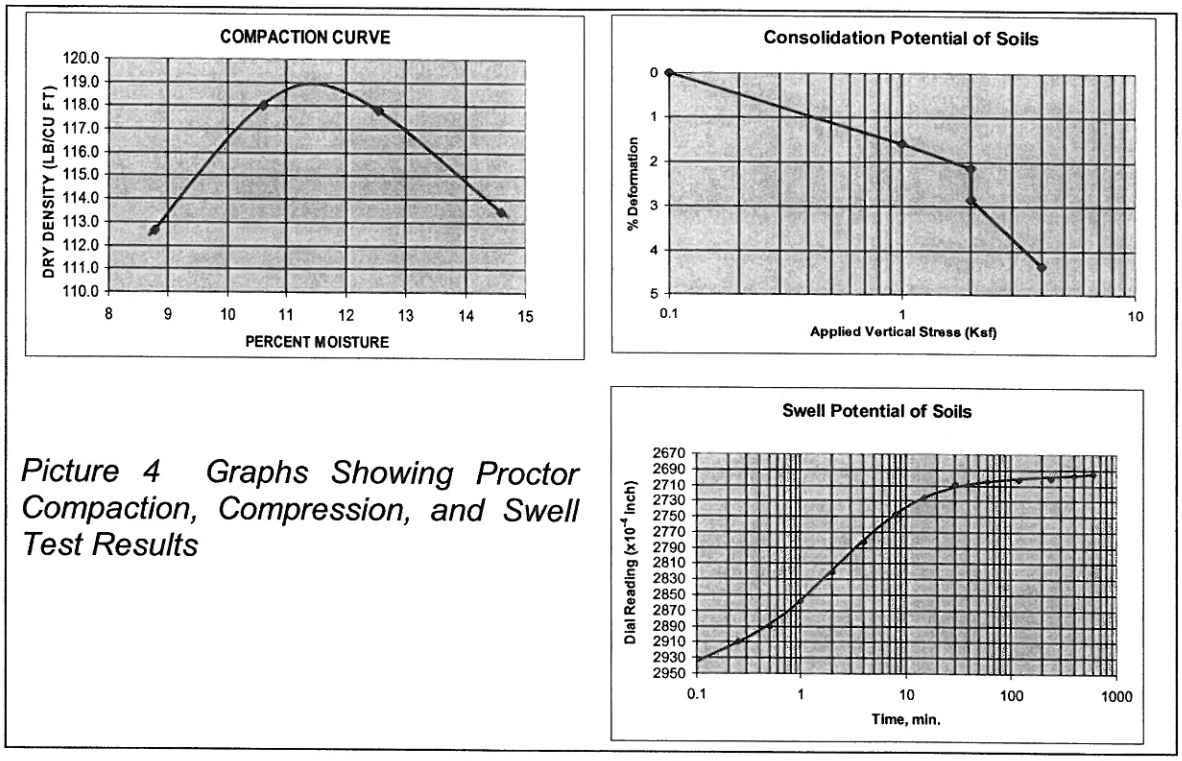
One pH and one minimum resistivity tests were completed on samples collected from borings B-6 from 10 to 15 feet depth. The test results indicated a pH value of 8.3 and a minimum resistivity value of 2401 Ohm-cm.

One water soluble sulfate, one water soluble chloride, and one water soluble salts tests were completed on samples collected from borings B-6 from 10 to 15 feet

depth and the test results indicated soluble sulfate, soluble chloride, and soluble salts values of 18, 140, and 1700 parts per million (ppm), respectively.

One remolded swell test was performed on a sample collected from boring B-9 from the upper five feet depth. The test result displayed a swell potential of 2.5 percent which is considered to be moderate swell potential.

Some of the laboratory test results are shown in picture 4. A complete set of laboratory test results are included in Appendix D.



Picture 4 Graphs Showing Proctor Compaction, Compression, and Swell Test Results

3.0 RECOMMENDATIONS FOR SEWER PIPE MATERIALS AND PAVEMENT THICKNESS

Based on the information provided by Steele Engineering proposed Storm Drain pipelines will be installed at 10 to 12 feet below the existing grades of the roadways. However, it was not known which side of the roadways would be traversed by the pipelines. HA's recommendations regarding storm drain pipe materials (corrosion), pipe installations, and pavement thickness are provided below.

3.1 Corrosion Potential in Top Soil and Selection of Sewer Pipe Material

Corrosion is a physical-biochemical process that converts metals into ions. Various metals and other materials (such as concrete) corrode when placed on or in contact with soils. Some materials corrode more rapidly when in contact with certain soils than when in contact with others. Major factors that influence corrosion in soil include soil type, moisture content, position of the water table, soil pH, soil resistivity, soluble ions content, oxidation-reduction potential, and the presence of microbes in soil. Stray current left from buried utilities or grounding wires or created by different materials such as lenticularness of natural soils or pipe backfill materials, and activities of organisms capable of causing oxidation-reduction reaction also affect corrosion potential. The corrosion evaluation is commonly based on the resistance of soil to the flow of electrical current (resistivity), total acidity, soil drainage, soil texture, and some other properties of soils such as sulfate/sulfide content, redox potential, chloride content, etc.

Corrosion in soils is a multivariate problem that requires an understanding of chemistry, geology, materials science, and others. However, direct measurement of soil parameters in disturbed soil adjacent to buried steel structures can be utilized to evaluate site specific conditions.

Parameters related to soil type include soil particle size distribution, organic content, mineralogy, geology, and structure. Soil structure and particle size distribution determine the physical properties of the matrix such as permeability, where permeability in turn controls fluid movement through the soil matrix. The ease of movement of water and oxygen through the soil controls the potential for corrosion to the buried structures. Soil mineralogy dictates soil chemistry including ion exchange, pH, and oxidation-reduction potential of soils. Organic content in soil plays a key role in microbial activity.

Soil pH generally varies from 3.5 to 10.0. pH controls the environment for the development of ions, oxygen-reduction potential, and microbial activities in soils. pH tests on on-site soils for this project indicated pH values of 8.4 to 9.0 depicting alkaline soil.

Soil resistivity indicates the resistance to the flow of current in soil. Soluble ions content of the soil has a direct impact on the resistivity of the soil. For unprotected steel exposed in soil, a soil is generally categorized as corrosive if the soil has a resistivity lower than 2000 Ohm-cm. Minimum resistivity tests on on-site soils for this project indicated resistivity values of 1968 to 4736 Ohm-cm depicting moderate resistance to corrosion.

Some Microbes, such as sulfate reducing bacteria, are responsible for severe corrosion of buried steel structures. These micro organisms reduce soil moisture's sulfate to sulfide as part of their anaerobic metabolism and cause the precipitation of black iron sulfide associated with severe corrosion on pipeline systems.

Corrosion of steel in concrete is less likely than corrosion in unprotected steel. Although concrete is porous and both moisture and oxygen can move through the pores and cause microcracks in concrete, the reason that corrosion does not occur in most cases is that the pores contain a high level of calcium, sodium, and potassium hydroxide, which maintains a pH of between 12 and 13 and this high level of alkalinity passivates the steel, forming a dense gamma ferric oxide that is self-maintaining and prevents rapid corrosion. However, there are two chemicals that could penetrate concrete and attack steel. These are chlorides and carbon dioxide from water that promote the corrosion of steel by removing the protective passive oxide layer on the steel, created and sustained by the alkalinity of concrete pore water.

In addition, due to a high pH of the aggregates utilized in concrete, alkaline-silica reaction (ASR) is common in Phoenix area concrete. ASR generally forms a gel-like chemical compound, expands the concrete and causes serious distress creating pathways for microbes to attack steel in concrete. ASR is a very serious concern for concrete distress and deterioration in Phoenix, Arizona area. Use of class F fly-ash and type II Portland cement is commonly utilized to minimize ASR and its related damage to concrete.

Chemicals and organics within the pipes created during transportation and residence time of the domestic sewer may also play a significant role in contributing to the corrosion of concrete and metal pipes. These are methane gas and a myriad of other chemicals and microbial activities within the sewer or waste products that contribute to corrosion. These chemicals also diffuse through and into the pipe materials via a vapor transmission phenomenon and may change the chemistry of the surrounding environment. HA's scope did not include evaluation of any of these issues.

HA performed several laboratory tests to evaluate the corrosion potential of the site soil for commonly used storm sewer pipe materials. The tests included pH, minimum resistivity, moisture content, soluble sulfate, soluble chloride, and soluble total salts. HA utilized the California Department of Transportation suggested method to evaluate the rate of corrosion of metal pipes utilizing pH and minimum

resistivity. This determination indicated that unprotected ductile iron pipes within the project locations may undergo a low loss of materials (maximum approximately 0.25 ounce per square foot per year). Although the determined values are considered low for metals, high chemical concentration in some areas as well as other corrosion factors may cause moderate amount of corrosion. **HA recommends that should the project utilizes metal pipes, the City should consider wrapping the pipes with a protective device or cover them with bitumen to minimize any and all types of corrosion.**

If concrete pipes are utilized, HA recommends that type II Portland cement be utilized with 12 percent or more fly ash for all concrete. Consideration should also be given to lining the pipe interior with a high density polyethylene (HDPE) geomembrane anchored into the pipes during manufacturing. If HDPE lining is utilized, HA recommends that during pipe installation, a fusion welding technique is utilized to make the liner continuous within the pipes. These liners minimize migration of chemicals from inside the pipes and greatly increase the performance and longevity of the pipes. In addition, the use of granular materials around the pipes especially within the pipe bedding and pipe zoning will reduce the effects of stray current development by reducing layering. **Therefore, granular soil should be considered for pipe zone materials as well. Alternatively, concrete bedding materials may consist of MAG Controlled Low Strength Materials per Section 601 and 604.**

3.2 Pavement Analysis and Thickness Recommendations

HA's pavement analysis involved completion of tasks that included drilling of 12 test borings, laboratory tests including four R-value tests and 12 index properties tests to correlate R-values, determination of in-situ depth of the existing pavement elements, laboratory data reduction, and engineering analysis to design pavement.

The test borings along the roadways and examination of pavement layers indicate that pavement consists of asphalt concrete and aggregate base course. The year of construction of the pavements or information on any overlay constructions were not known. However, the pavement condition was rated as fair to good indicating that the design and maintenance of this roadway are somewhat adequate. The thickness of the existing asphalt pavement was determined to vary from five (5) to seven (7) inches and existing ABC was determined to vary from eight (8) to 16 inches.

The pavement section design analysis was completed using the 1993 AASHTO Guide for Design of Pavement Structures and Arizona Department of Transportation (ADOT) procedures. The AASHTO procedures utilize the CBR or R value of subgrade soil, the traffic count, reliability or probability that the designed pavement will perform satisfactorily, serviceability or ability of the pavement to serve the type of traffic the facility will use, and the material properties of the asphalt concrete (AC) and aggregate base course (ABC). The basic traffic data was collected from City of Phoenix Street Transportation Department record available online. Data on reliability, serviceability, and standard deviation values were assumed based on ADOT's procedure and the soil modulus was calculated based on tested and correlated R-values. R-value for the design was chosen based on ADOT's procedure. In HA's design, a nomograph presented in the AASHTO Guide was used to calculate the structural numbers. The thickness of AC and ABC were then calculated from the equation relating to the structure number and the layer coefficients.

HA has utilized a model proposed in ADOT Guide for an equivalent R-value for subgrade. According to this model, the mean R-value was calculated based on correlated R-values and measured R-values. The correlated R-values are estimated based on plasticity index and percent passing number 200 sieve. The following table shows correlated R-values at different boring locations and depths.

Road	Boring Number	Depth (feet)	Fines Content (% Passing #200 Sieve)	Plasticity Index	**Correlated R-Value**
Pinnacle Peak Road	B-1	0 – 5	25.1	14	40
	B-2	0 – 5	15.5	11	52
	B-3	5 – 10	52.5	50	7
	B-4	0 – 5	22.0	16	38
	B-5	0 – 5	24.6	15	39
	B-6	10 – 15	41.0	9	37
	B-7	0 – 5	31.1	15	36
	B-8	0 – 5	25.6	14	40
	B-9	5 – 10	55.4	21	21
43rd Avenue	B-10	0 – 5	60.6	31	13
	B-11	5 – 10	19.4	20	35
	B-12	0 – 5	30.8	18	32

R-value tests were completed on combined samples fabricated utilizing samples from different borings. R-value tests on samples from Pinnacle Peak Road indicated R-values of 32, 35, and 44, and on samples from 43rd Avenue indicated R-value of 25.

R-values from laboratory tests were compared with correlated R-values. A mean R-value was calculated based on ADOT procedure. This mean R-value was utilized to calculate resilient modulus of the subgrade using the following equation:

$$M_R = \frac{1815 + 225\,R_{mean} + 2.40\,R_{mean}^{\ 2}}{0.6\,(SVF)^{0.6}}$$

Utilizing the ADOT model and judgment, an R-value of 35 for Pinnacle Road and an R-value of 25 for 43rd Avenue were selected for pavement design. HA has used American Association of State Highway and Transportation Officials (AASHTO)

formula to calculate modulus of resilience M_R based on R-values. The M_R values are as follows:

Pinnacle Peak Road:	R-value = 35,	M_R = 20,000 psi
43rd Avenue:	R-value = 25,	M_R = 15,000 psi

Information on traffic data was retrieved from the web site of the Maricopa Association of Governments (MAG) recorded as the '2005 Average Weekday Traffic, City of Phoenix Street Transportation Department'. According to this data, 25,300 vehicles in average utilized the Pinnacle Peak roadway in between 35th Avenue and 43rd Avenue in one given day (24 hours) in 2005. As this roadway has generally four travel lanes in two ways, 50 percent the total traffic is assumed to travel one way giving an average daily traffic (ADT) of 12,650. Using 80 percent of this ADT in the design lane, a design ADT of 10,000 is calculated. A three percent annual growth of traffic will provide a total traffic growth factor of 26.87 for a design life of 20 years. The same procedure was utilized to calculate ADT and growth factor for 43rd Avenue. The traffic design parameters are briefly cited below:

ADT in design lane (Pinnacle Peak Road)	: 10,000
ADT in design lane (43rd Avenue)	: 1,600
Percent of truck (heavy traffic)	: 18
Truck factor to convert to 18-kip single axle load (ESAL) truck	: 1.2
Design life	:20 years
Total growth factor for 20 years with 3% annual growth	: 26.87

Total ESAL for Pinnacle Peak Road
= (10,000)(0.18)(1.2)(26.87)(365)/1000000 = 21.2 million

Similarly, Total ESAL for 43rd Avenue = 3.4 million

For the thickness analysis, HA utilized a nomographic solution of AASHTO Method and used the following additional parameters:

Seasonal variation factor	: 1.0
Serviceability loss	: 1.5
Standard deviation	: 0.5
Reliability	: 0.85
ABC resilient modulus	: 32,000 psi
Layer coefficients:	
- Asphalt concrete	: 0.42
- ABC	: 0.14
- Subbase	: 0.11

The engineering analysis indicated the following minimum thicknesses of pavements:

Road Section	Asphalt Concrete (inch)	Aggregate Base Course (inch)
Pinnacle Peak Road	6.5	5.5
43rd Avenue	8.0	7.0

The pavement design provided above assumes that the upper 8 (eight) inches of sub-base soil (pavement subgrade) is compacted at a minimum of 95 percent of its maximum dry density and placed at slightly below to slightly above optimum moisture content. In addition, the ABC should be compacted to at least 98 percent relative compaction.

The aggregate base material should meet the specification Section 702 of the Uniform Public Works Specification of the Maricopa Association of Governments (MAG) or applicable City Supplement, and asphalt concrete materials and mix design should conform to MAG 710. Mix design designation D-1/2 or C-3/4 should be used for asphalt concrete. HA would like to mention that C-3/4 may offer more stability and resistance to scuffing.

HA recommends that the following conditions be implemented to enhance the performance of the pavement by minimizing the infiltration of water into the pavement base:

- Provide a minimum of one percent, preferably two percent, surface grade,
- Provide drainage for any water trapped in the aggregate base course,
- Do not allow the ABC to extend beneath planter areas, and
- Place curbs around all planters to divert pavement surface water run-off away from entering into the ABC

The design thickness for pavement layers assumes that all subgrade is prepared in accordance with the recommendations contained later in this report.

4.0 EARTHWORK CONSTRUCTION, ENGINEERING FILL, AND PIPELINES INSTALLATION

4.1 General and Excavation Condition

The project site is located within moderately to highly traveled developed streets. The roadways are paved and may have several utilities. Installation of storm sewer pipes and construction of pavement elements may interfere with utilities and traffic flows. Lane closure, traffic diversion, and other similar safety measures will be required.

Excavations for utility installations to depths of 10 to 15 feet may be required. Excavation could be accomplished with conventional trenching equipment. Due to past disturbances and the presence of possible granular unstable fill soils associated with existing utilities, trench walls may not stand near vertical for even a short period of time. In addition, traffic flow and construction equipment induced vibration can destabilize steep slopes in the low plastic damp soil areas. Prior to trenching, demolition of existing pavement along the trench may be required. The existing asphalt concrete excavated during trenching may be recycled by pulverizing and mixing with ABC or soil to improve structural stability of base and/or subbase layers. However, mixing of asphalt with base or subbase layers should be carried out in such a manner so that it does not affect the finished grade.

4.2 Site Preparation

Above- and below-ground utilities may be encountered along the alignments of the project sites. These utilities may include sensitive features such as fiber optics, sewer, water and telecommunication lines. The encounters will complicate and/or may delay construction, if not handled properly. The backfill soils in these features contain granular trench fill which may cause sloughing and or trench slope instability. These concerns should be addressed and discussed prior to construction to develop effective project schedule and remediation measures. HA recommends that prior to the initiation of site work, all affected parties have a meeting and all utilities as-built are reviewed. Utility coordination including Blue Stake notification will also be required. In addition, saw-cutting and removal of asphalt pavement will/may be required.

4.3 On-Site Soil and Recycled Asphalt Pavement as Fill

On-site soil and/or recycled asphalt pavement material will be suitable as fill material. On-site soils should be free of oversized (more than 6 inches in any

dimension) material and should be free of debris such as concrete, pipes, and asphalt pieces larger than 3 inches.

For recycled or salvaged pavement materials to be utilized as asphalt mix design and backfill material, HA recommends that the following steps of procedure be implemented:

- Take core samples and perform evaluation for information required for mix design and perform tests such as asphalt content and density;
- Remove the existing pavement and then pulverize in a mechanical crusher;
- Perform tests on pulverized material for abrasion, gradation, minimum fines content, and sand equivalent to evaluate the suitability of the material;
- Perform mix design determining void, flow, and stability as set forth in project design.

It is possible, due to past repaving during the life cycle of pavement, asphalt pavement properties may be variable along the site. Therefore, mix design during construction may also have to be conducted for the recycled asphalt pavement (RAP). Use ADOT Standard Specifications for Road and Bridge Construction Section 408 (Recycled Asphalt Concrete) and/or MAG Uniform Standard Specifications and Details for Public Works Construction Section 709 (Recycled Asphalt Pavement) and Section 710 (Asphalt Concrete) for this purpose.

4.4 Fill Placement and Compaction

On-site soils free of debris or large rocks or concrete pieces may be utilized as fill soil. If necessary, import soil may also be utilized as fill. The swell potential of the compacted import soil should be less than 1.5 percent when tested under a vertical pressure of 100 psf in accordance with ASTM D 4546 procedures, and soil should have a resistivity higher than 2500 ohm-centimeter.

If MAG Controlled Low Strength Slurry is utilized for pipe zone and bedding materials, MAG Specifications Section 604 should be complied with.

4.5 Trenching, Pipe Bedding, and Backfilling

Underground conduit performance is dependent on their shape, type, and quality of material of which they are composed of, and the bedding and backfilling practices utilized during installation. For circular or elliptical conduits, it is very important that subgrade and backfill materials meet the design specifications and proper compaction be achieved to develop maximum potential for load-carrying capacity. The shape and condition of bedding influences the distribution of vertical reaction on the bottom of the pipes.

HA recommends that pipe trenches be excavated to the required depth. Trench excavation should be of sufficient width to provide working space at both sides of the trench and around the installed pipes as required for joining, backfilling and compacting. Before backfilling, the trench bottom should be inspected for loose materials and for competent subgrade conditions by the geotechnical engineer. In areas where soft, unstable materials are encountered upon which cohesionless bedding materials are to be placed, remove unstable materials and replace them with compacted materials approved by the geotechnical engineer. The removal should extend to suitable materials.

Based on the mechanics of load transfer in the circular or elliptical pipe, it is important to note that good lateral distribution of the upward reaction be considered. This is most readily achieved by pre-shaping bedding material by means of a template (or by other means) to fit the contour of the conduit. In general, the width of the pre-shaped cut may range from 0.5 to 0.6 times the diameter of the conduit with a height of 6 to 12 inches. The spaces adjacent to and under the conduit should be filled with granular materials and thoroughly tamped on each side in six-inch lifts for the full length of the pipes.

The practice of backfilling around conduits influences the development of active lateral earth pressure on the sides of pipes and hence influences the supporting reaction. HA recommends that backfill should continue on both sides of the pipes simultaneously. Backfill materials surrounding the pipes should be placed and compacted in such a way that the elevations on two sides are even to ensure that the pipes are not displaced. The backfill within the spring line of the pipe especially below the sidewalls of the pipes may be placed and compacted by hand. Backfill over the pipe extending to 12 inches above the pipes should be placed and compacted carefully utilizing hand devices such as power tampers so that the pipes are not stressed. All pipeline backfills should be placed horizontally and compacted to its 95 percent relative compaction of ASTM D 698 with percent of density compensated for rock content larger than No. 4 Sieve size. At least one density test should be performed per 650 lineal feet of trench backfill per lift or layer of backfill.

For this site, based on the subsurface conditions and the nature of pipelines, HA recommends that the pipe bedding and pipe zone materials consist of granular soil meeting the City of Phoenix Supplement to the Maricopa Association of Governments (MAG) Uniform Standard Specifications for Public Works Construction, Section 601. Backfill above the pipe bedding and pipe zone may consist of native soil. The bedding, pipe zone, and backfill material should comply with density and moisture content as specified in MAG Section 601. Alternatively, pipe bedding and pipe zone materials may consist of MAG Controlled Low Strength Materials (CLSM) per Section 604. HA, however, recommends that CLSM should be utilized in areas where the pipelines cross other underground utilities, foundations, or if the thickness of cover is less than two feet at the top of the pipes.

Hard materials larger than three inches in maximum dimensions should not be placed within six inches of the pipes. For pipes with tar or coal-tar coatings, hard materials larger than 1.5 inches in maximum dimension should not be used within six inches of the pipes.

4.6 Quality Assurance and Quality Control Testing

HA recommends that site preparation, subgrade preparation, backfill placement, and re-compaction be observed and/or tested by a qualified and experienced representative of the geotechnical engineer. This representative should at least observe and document the following:

- Subgrade is compacted, firm, and does not contain deleterious objects;
- All compaction and moisture content of backfill soils meet the specified minimum values;
- If import soils are utilized, the import soils shall have low swell and corrosion potentials. These soils should be tested for remolded swell and resistivity per batch or one at every 1,000 cubic yard placed whichever is higher;
- On-site density testing should be performed in engineered fill or ABC at a frequency of one test every 650 lineal feet per lift in trench excavations and one test every 650 feet per lane pass for roadway surfaces; and,
- A final report should be prepared documenting all on-site activities, test results, and conclusions.

The prepared fill and utility trenches should not be exposed to the environment as they affect the moisture content and density of the fill.

5.0 CONSTRUCTION CONSIDERATIONS

Excavation at the site should be able to be accomplished using conventional construction equipment and trenching machines. If recycled asphalt pavement materials are intended for use as backfill, they should be milled to proper sizes utilizing proper equipment. Soil disturbed during grading should be properly recompacted and excavated areas should be backfilled with compacted engineered fill in compliance with the earthwork construction procedures recommended herein. Due to past usage of the site, underground features such as pipelines and other obstacles may be encountered during excavation. In addition, disturbed and granular soil materials used in trenches related to existing utilities may pose concerns for sloughs or trench slope instability. These concerns should be addressed by the contractor. These features should be identified prior to excavations in the area. Excess soil generated from the grading work not utilized as fill should be removed and disposed of in an acceptable manner. Utility trenches or other confined excavation extending more than four (4) feet should conform to OSHA safety regulations.

HA recommends that all excavation slopes for pipeline construction should be maintained at 1.5:1 (horizontal to vertical) or flatter for the clayey sand soils. However, if pockets of loose sand or gravel or disturbed soils related to past usage are encountered, or the slopes are unprotected, the slopes may be more susceptible to failure and should be at 2:1 or flatter slope. For workmen to enter a trench where the depth is more than 1.5 times the width, OSHA regulated trench safety and confined space procedures must be implemented. Trenches with vertical side slopes should be protected against slope failure. In designing the trench slope, surface surcharge loads from the equipment and vehicular traffic should be taken into consideration. Several types of excavation or trench slope support systems are available depending on the type of soil and depth of trenches. Trench shields, rigid prefabricated steel, timber shoring, box shoring, and telescoping shoring are common types which could be chosen. Based on the type of soil and depth of excavation, trench shields or box shoring considered to be the most prudent at this site. If the excavation remains open for an extended period of time, HA recommends that all cut slopes are stabilized with application of shotcrete, gunite, or polymer based spray to avoid raveling, spall off, or localized caving.

6.0 LIMITATIONS

Due to the inherent natural variations of soil stratification and the nature of geotechnical exploration, there is always a possibility that conditions between borings may be different from those encountered at the boring locations. Therefore, HA should observe and document the construction to verify that the site conditions are as we anticipated during the preparation of this report and to modify our recommendations to include any changed conditions, if encountered.

The practice of geotechnical engineering is such that the risks involved in building an efficient, functional, and economical structure cannot be assessed with confidence until construction begins. Therefore, we recommend that our input is sought during design and a competent engineer makes engineering observations during the construction.

This report is not intended for use as a bid document. We provided some comments and discussed some construction techniques or procedures for the designer's guideline. HA's intentions are not to develop specifications. Therefore, this report should not be interpreted to dictate construction procedures or to relieve the contractor of his responsibility for construction.

Any structures built on soil are subject to risks that cannot be entirely calculated or eliminated. Detrimental hazards such as settlement, concentrated drainage, fatigue, hydro-compaction and expansive or collapsible soil movements due to unidentified geologic conditions are not uncommon. The geotechnical exploration performed with several boreholes extending to limited depths and limited laboratory tests may not delineate these hazards. . The geotechnical borings and laboratory tests can only identify the risks delineated in those points. However, risks from these hazards can be reduced by employing appropriate design professionals and qualified contractors to properly develop and maintain a property.

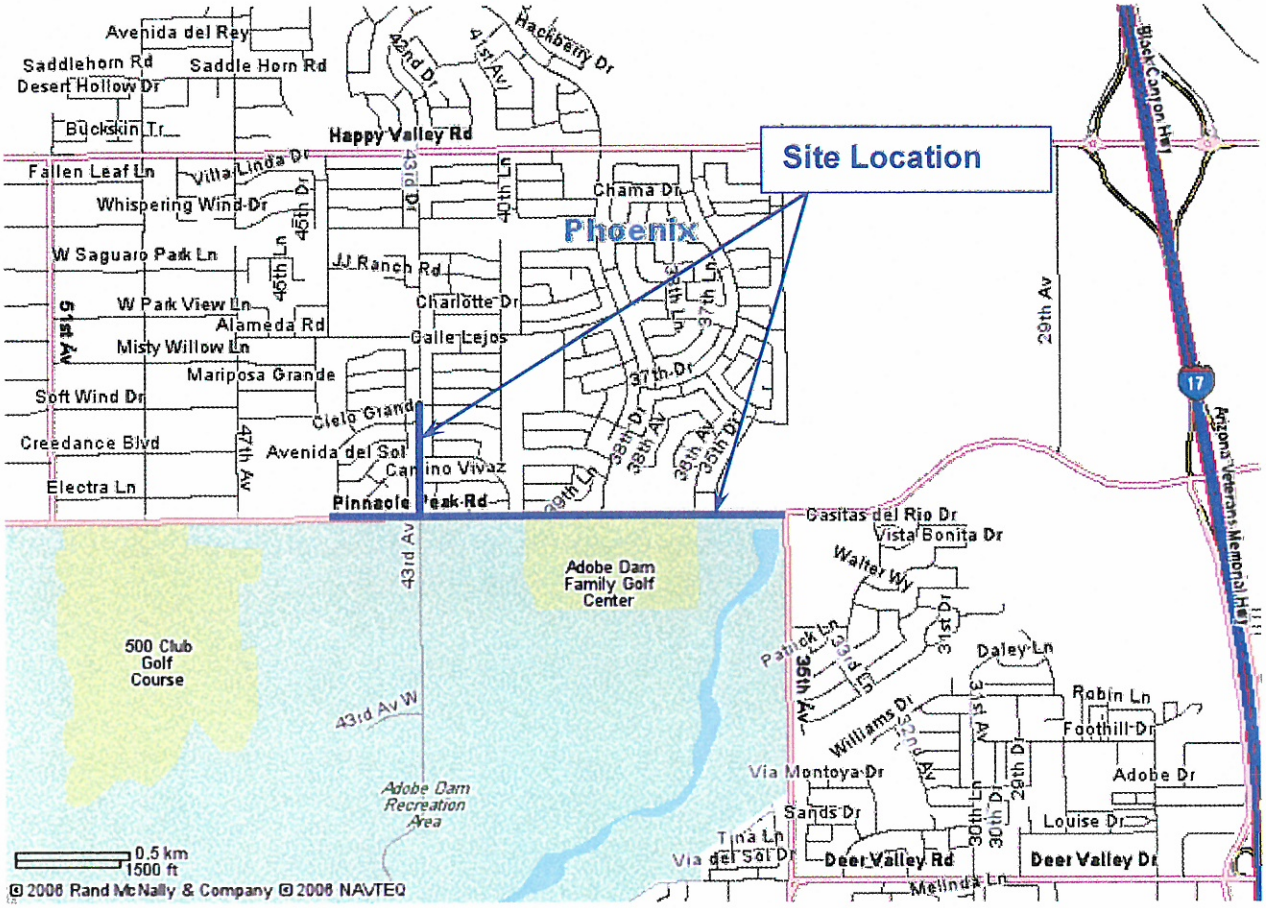
HA would also like to disclose that our recommendations are valid for this proposed development at the issuance date of this report. Changes in the site by human activities, changes in codes due to legislative action, or broadening of knowledge may affect the conclusions and recommendations. Accordingly, these findings may be invalidated.

Appendices:

Appendix A: Site Location Map
Appendix B: Boring Locations Plan and Boring Logs
Appendix C: Soil Classification and Soil Investigation Methods
Appendix D: Laboratory Test Results

Appendix A

Site Location Map



SITE LOCATION MAP

Pinnacle Peak Road Paving and Storm Drain Improvements

43rd Avenue to 35th Avenue
Phoenix, Arizona
HA Project # 06100

Hoque & Associates, Inc.
Geotechnical, Materials, and Environmental Engineers
4325 South 34th Street
Phoenix, Arizona 85040
Tel: (480) 921-1368 Fax: (480) 921-0194
Email: Support@HoqueandAssociates.com
Web: www.hoqueandassociates.com

Appendix B

Boring Location Plan
And
Boring Logs

NOTE: All relative and apparent locations of features including right angles and boundaries are approximate.

Legend

Approximate Boring Location

BORING LOCATION PLAN

Pinnacle Road Paving and Storm Drain Improvements

43rd Avenue to 35th Avenue

Phoenix, Arizona

HA Project # 06100

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Approximate Boring Location

BORING LOCATION PLAN

Pinnacle Road Paving and Storm Drain Improvements

43rd Avenue to 35th Avenue

Phoenix, Arizona

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KEY TO SYMBOLS

Symbol	Description
Strata symbols	
	Asphaltic Concrete
	ABC
	Clayey sand with gravel
	Clayey gravel with sand
	Sandy lean clay with gravel
	Lean clay
	Clayey gravel
	Sandy clay with few gravels
	Silty sand with gravel
	Silty gravel with sand
Misc. Symbols	
△	N-value standard penetration test

Symbol	Description
Soil Samplers	
	Bulk sample
	Standard penetration test
	Ring sampler

Notes:

1. Exploratory borings were drilled on 7/19-7/20/06 using a CME-75 drill rig with 8" HSA.

2. Boring locations were selected by Hoque & Asssociates, Inc.

3. Results of tests conducted on recovered samples are reported on the logs and/or attachments.

4. These logs are subject to the limitations, conclusions, and recommendations in this report.

BORING LOG

BORING NO. B-1

File: 06100 Pinnacle Peak Road Paving and Storm Drain Date Printed: 11/2/2006

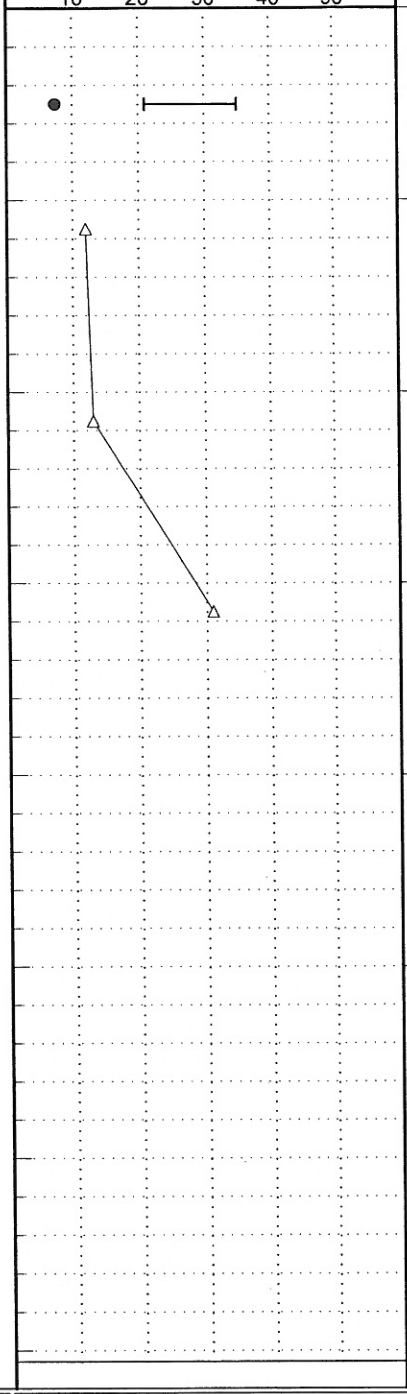
PROJECT: Pinnacle Peak Road Paving and Storm Drain Improvment **PROJECT NO.:** 06100
CLIENT: Steele Engineering, Inc. **DATE:** 7/19-7/20/06
LOCATION: Pinnacle Peak Road, 43rd Ave to 35th Ave, Phoenix, AZ **ELEVATION:** not dtrmnd
DRILLER: Wilcox **LOGGED BY:** AG
DRILLING METHOD: CME-75 8" HSA
DEPTH TO - WATER> INITIAL: ▽ none encountered **AFTER 24 HOURS:** ▽ N/A

DEPTH (feet)	SOIL TYPE	BULK	SAMPLERS	USCS	Description	Plasticity Index
0				SC	7" Asphalt Concrete 8" Aggregate Base Course Brown Clayey SAND with Gravel; damp	14
5					Medium dense, increase in Gravel quantity	
10						
15				SC	Dense Boring terminated at 15 feet depth. Borehole backfilled with cuttings and patched with cold-mix asphalt.	
20						
25						
30						
35						

TEST RESULTS

Plastic Limit ⊢——⊣ Liquid Limit
Water Content - ●
Penetration - △

10 20 30 40 50



HOQUE & ASSOCIATES

Figure

BORING LOG

BORING NO. B-2

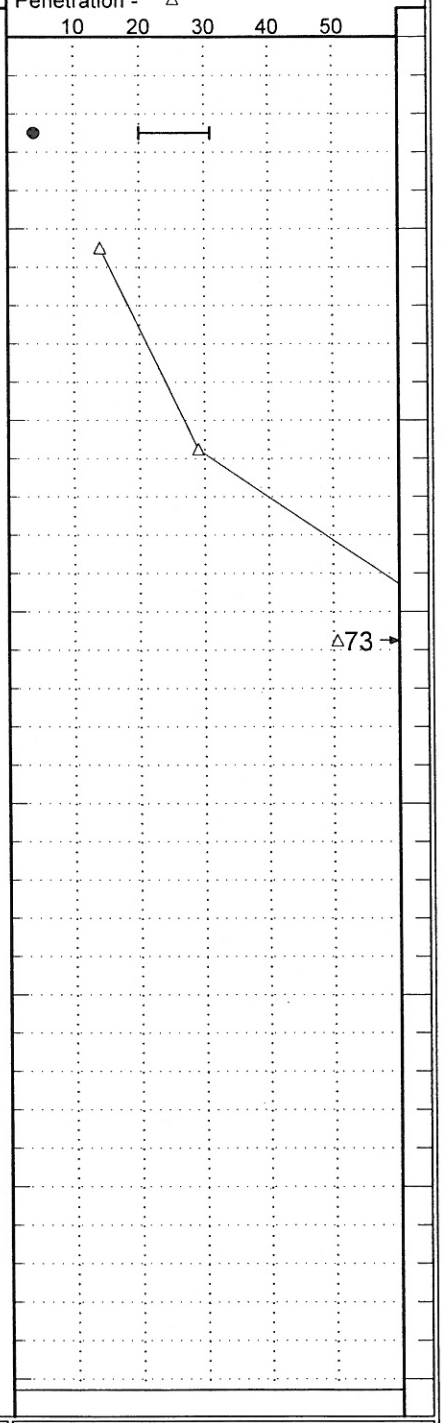
File: 06100 Pinnacle Peak Road Paving and Storm Drain Date Printed: 11/2/2006

PROJECT: Pinnacle Peak Road Paving and Storm Drain Improvment **PROJECT NO.:** 06100
CLIENT: Steele Engineering, Inc. **DATE:** 7/19-7/20/06
LOCATION: Pinnacle Peak Road, 43rd Ave to 35th Ave, Phoenix, AZ **ELEVATION:** not dtrmnd
DRILLER: Wilcox **LOGGED BY:** AG
DRILLING METHOD: CME-75 8" HSA
DEPTH TO - WATER> INITIAL: ▽ none encountered **AFTER 24 HOURS:** ▽ N/A

DEPTH (feet)	SOIL TYPE	BULK	SAMPLERS	USCS	Description	Plasticity Index
0				GC	Brown Clayey GRAVEL with Sand; damp	11
5					Medium dense	
10				SC	Brown Clayey SAND with Gravel; damp Dense	
15				SC	Very dense	
					Boring terminated at 15 feet depth. Borehole backfilled with cuttings .	
20						
25						
30						
35						

TEST RESULTS

Plastic Limit ⊢——⊣ Liquid Limit
Water Content - ●
Penetration - △



HOQUE & ASSOCIATES

Figure

BORING LOG

BORING NO. B-3

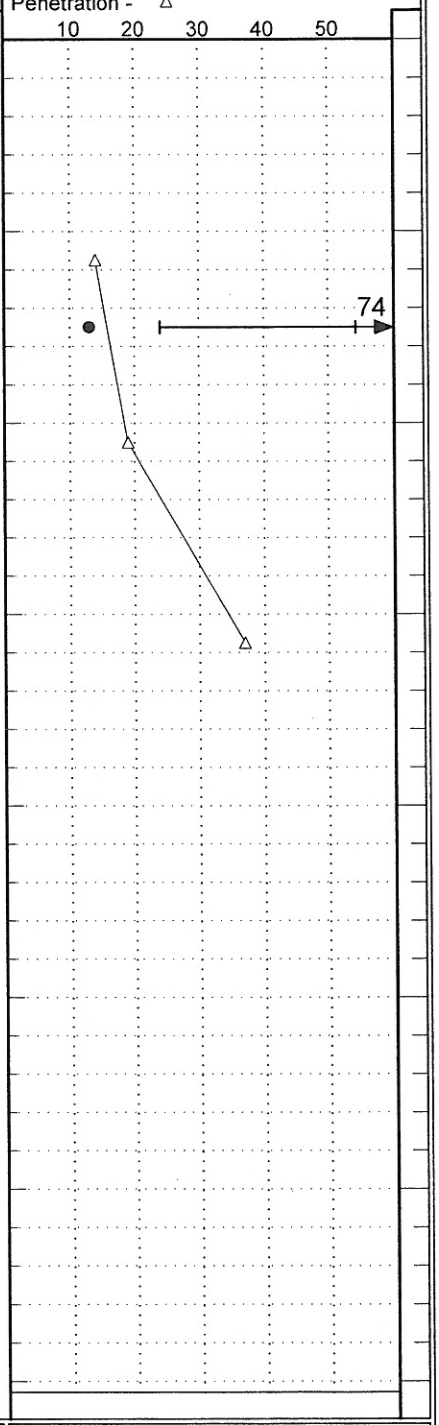
File: 06100 Pinnacle Peak Road Paving and Storm Drain Date Printed: 11/8/2006

PROJECT: Pinnacle Peak Road Paving and Storm Drain Improvment **PROJECT NO.:** 06100
CLIENT: Steele Engineering, Inc. **DATE:** 7/19-7/20/06
LOCATION: Pinnacle Peak Road, 43rd Ave to 35th Ave, Phoenix, AZ **ELEVATION:** not dtrmnd
DRILLER: Wilcox **LOGGED BY:** AG
DRILLING METHOD: CME-75 8" HSA
DEPTH TO - WATER> INITIAL: ▽ none encountered **AFTER 24 HOURS:** ▽ N/A

DEPTH (feet)	SOIL TYPE	BULK	SAMPLERS	USCS	Description	Plasticity Index
0					5" Asphalt Concrete 12" Aggregate Base Course	
				SC	Brown Clayey SAND with gravel; damp	
5				CH	Brown Sandy FAT CLAY with Gravel; damp Stiff	50
10				SC	Brown Clayey SAND with gravel; damp	
15					Dense	
					Boring terminated at 15 feet depth. Borehole backfilled with cuttings and patched with cold-mix asphalt.	
20						
25						
30						
35						

TEST RESULTS

Plastic Limit ⊢——⊣ Liquid Limit
Water Content - ●
Penetration - △



HOQUE & ASSOCIATES

BORING LOG

BORING NO. B-4

File: 06100 Pinnacle Peak Road Paving and Storm Drain.P Date Printed: 11/2/2006

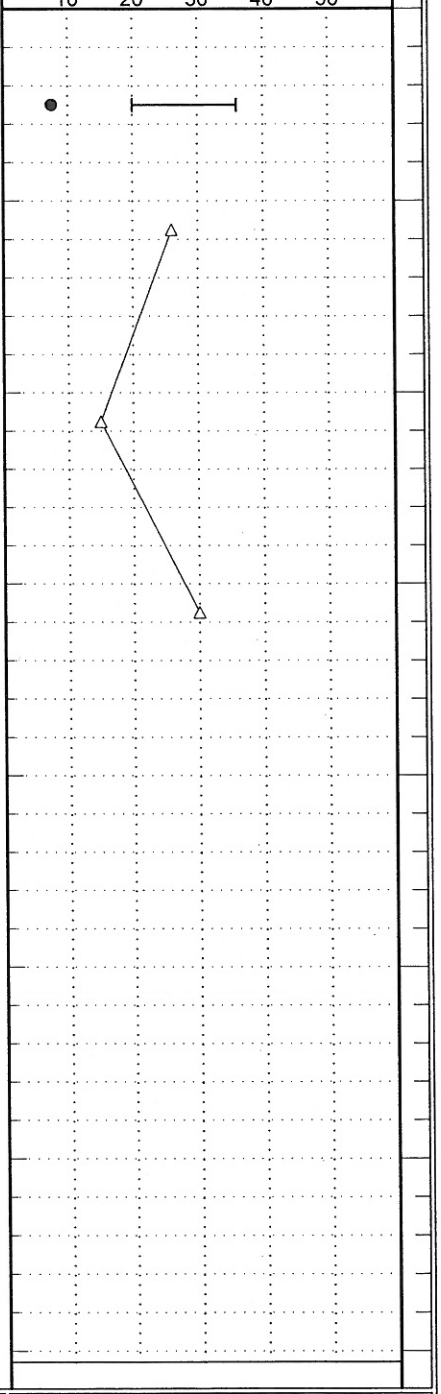
PROJECT: Pinnacle Peak Road Paving and Storm Drain Improvment **PROJECT NO.:** 06100
CLIENT: Steele Engineering, Inc. **DATE:** 7/19-7/20/06
LOCATION: Pinnacle Peak Road, 43rd Ave to 35th Ave, Phoenix, AZ **ELEVATION:** not dtrmnd
DRILLER: Wilcox **LOGGED BY:** AG
DRILLING METHOD: CME-75 8" HSA
DEPTH TO - WATER> INITIAL: ▽ none encountered **AFTER 24 HOURS:** ▽ N/A

DEPTH (feet)	SOIL TYPE	BULK	SAMPLERS	USCS	Description	Plasticity Index
0					5" Asphalt Concrete 16" Aggregate Base Course	
				SC	Brown Clayey SAND with Gravel; damp	16
5					Medium dense	
10					Increase in Gravel quantity and size	
15				SC	Dense	
					Boring terminated at 15 feet depth. Borehole backfilled with cuttings and patched with cold-mix asphalt.	
20						
25						
30						
35						

TEST RESULTS

Plastic Limit ⊢——⊣ Liquid Limit
Water Content - ●
Penetration - △

10 20 30 40 50



HOQUE & ASSOCIATES

Figure

BORING LOG

BORING NO. B-5

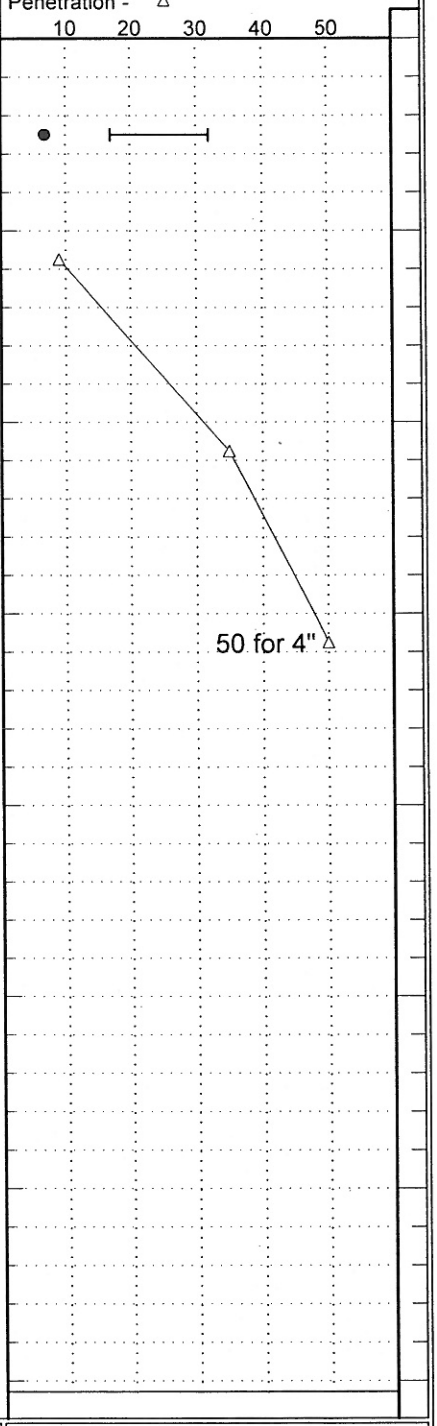
File: 06100 Pinnacle Peak Road Paving and Storm Drain Date Printed: 11/2/2006

PROJECT: Pinnacle Peak Road Paving and Storm Drain Improvment **PROJECT NO.:** 06100
CLIENT: Steele Engineering, Inc. **DATE:** 7/19-7/20/06
LOCATION: Pinnacle Peak Road, 43rd Ave to 35th Ave, Phoenix, AZ **ELEVATION:** not dtrmnd
DRILLER: Wilcox **LOGGED BY:** AG
DRILLING METHOD: CME-75 8" HSA
DEPTH TO - WATER> INITIAL: ▽ none encountered **AFTER 24 HOURS:** ▽ N/A

DEPTH (feet)	SOIL TYPE	BULK	SAMPLERS	USCS	Description	Plasticity Index
0				GC	5" Asphalt Concrete 16" Aggregate Base Course Brown Clayey GRAVEL with Sand; damp	15
5					Loose	
10				SC	Brown Clayey SAND with Gravel; damp Dense	
15				SC	Very dense	
					Boring terminated at 15 feet depth. Borehole backfilled with cuttings and patched with cold-mix asphalt.	
20						
25						
30						
35						

TEST RESULTS

Plastic Limit ⊢——⊣ Liquid Limit
Water Content - ●
Penetration - △



HOQUE & ASSOCIATES

Figure

BORING LOG

BORING NO. B-6

File: 06100 Pinnacle Peak Road Paving and Storm Drain.P Date Printed: 11/2/2006

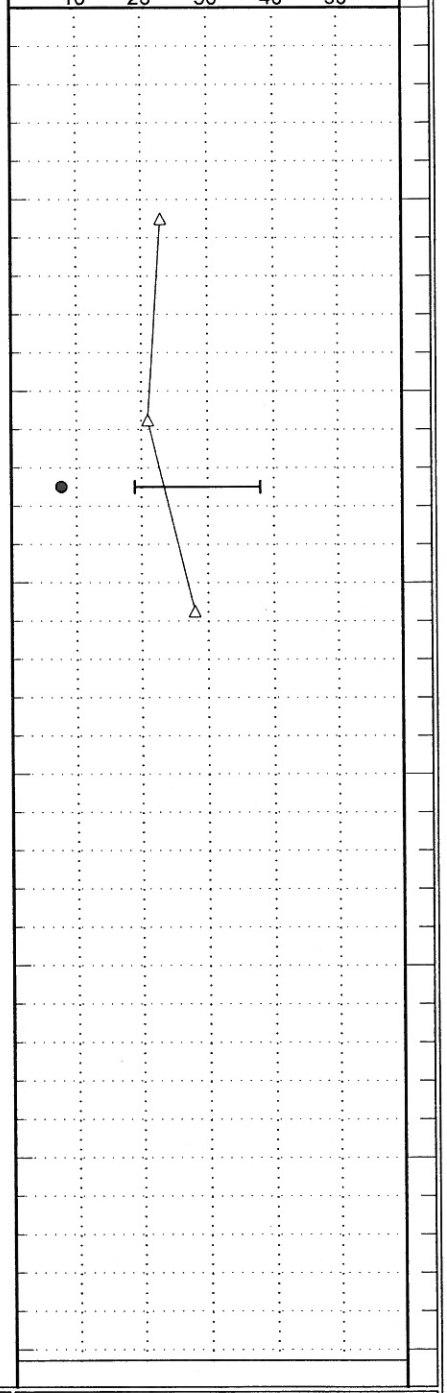
PROJECT: Pinnacle Peak Road Paving and Storm Drain Improvment **PROJECT NO.:** 06100
CLIENT: Steele Engineering, Inc. **DATE:** 7/19-7/20/06
LOCATION: Pinnacle Peak Road, 43rd Ave to 35th Ave, Phoenix, AZ **ELEVATION:** not dtrmnd
DRILLER: Wilcox **LOGGED BY:** AG
DRILLING METHOD: CME-75 8" HSA
DEPTH TO - WATER> INITIAL: ▽ none encountered **AFTER 24 HOURS:** ▽ N/A

DEPTH (feet)	SOIL TYPE	BULK	SAMPLERS	USCS	Description	Plasticity Index
0				CL	Brown Sandy lean CLAY; damp	
5				SC	Brown Clayey SAND with Gravel; damp Medium dense	
10				CL	Brown Sandy lean CLAY; trace gravel, damp	9
15					Very stiff	
					Boring terminated at 15 feet depth. Borehole backfilled with cuttings.	
20						
25						
30						
35						

TEST RESULTS

Plastic Limit ⊢——⊣ Liquid Limit
Water Content - ●
Penetration - △

10 20 30 40 50



HOQUE & ASSOCIATES

Figure

BORING LOG

BORING NO. B-7

File: 06100 Pinnacle Peak Road Paving and Storm Drain Printed: 11/2/2006

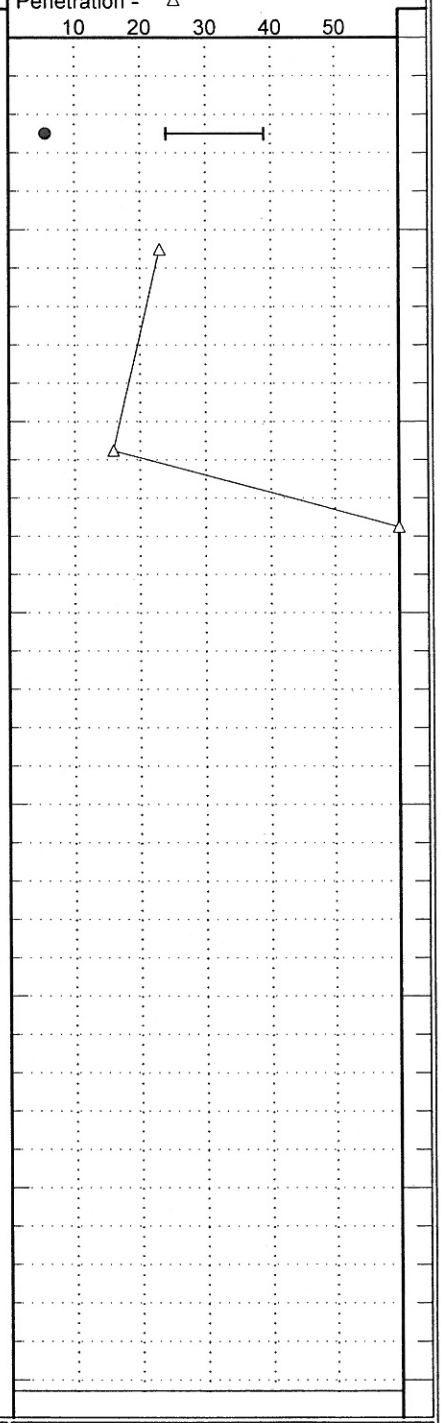
PROJECT: Pinnacle Peak Road Paving and Storm Drain Improvment **PROJECT NO.:** 06100
CLIENT: Steele Engineering, Inc. **DATE:** 7/19-7/20/06
LOCATION: Pinnacle Peak Road, 43rd Ave to 35th Ave, Phoenix, AZ **ELEVATION:** not dtrmnd
DRILLER: Wilcox **LOGGED BY:** AG
DRILLING METHOD: CME-75 8" HSA
DEPTH TO - WATER> INITIAL: ▽ none encountered **AFTER 24 HOURS:** ▽ N/A

DEPTH (feet)	SOIL TYPE	BULK	SAMPLERS	USCS	Description	Plasticity Index
0				SC	Brown Clayey SAND with Gravel; damp	15
5				GC	Brown Clayey GRAVEL with Sand; damp Medium dense	
10					Very dense	
15					Boring terminated at 13 feet depth due to the refusal of drilling rig. Borehole backfilled with cuttings.	
20						
25						
30						
35						

TEST RESULTS

Plastic Limit ⊢——⊣ Liquid Limit
Water Content - ●
Penetration - △

10 20 30 40 50



HOQUE & ASSOCIATES

Figure

BORING LOG

BORING NO. B-8

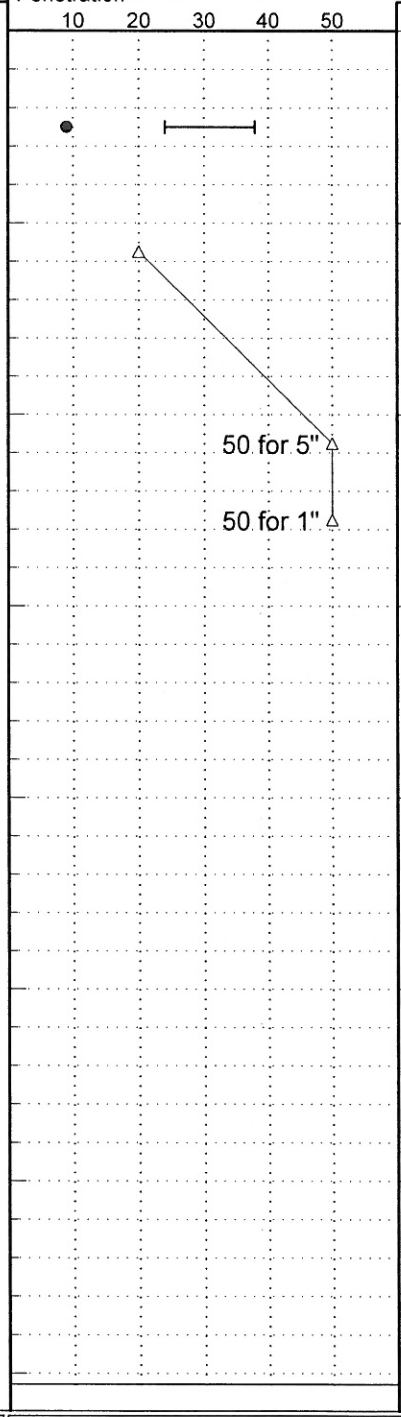
File: 06100 Pinnacle Peak Road Paving and Storm Drain Printed: 11/2/2006

PROJECT: Pinnacle Peak Road Paving and Storm Drain Improvment **PROJECT NO.:** 06100
CLIENT: Steele Engineering, Inc. **DATE:** 7/19-7/20/06
LOCATION: Pinnacle Peak Road, 43rd Ave to 35th Ave, Phoenix, AZ **ELEVATION:** not dtrmnd
DRILLER: Wilcox **LOGGED BY:** AG
DRILLING METHOD: CME-75 8" HSA
DEPTH TO - WATER> INITIAL: ▽ none encountered **AFTER 24 HOURS:** ▽ N/A

DEPTH (feet)	SOIL TYPE	BULK	SAMPLERS	USCS	Description	Plasticity Index
0				SC	5" Asphalt Concrete 13" Aggregate Base Course Brown Clayey SAND with Gravel; damp	14
5					Medium dense	
10					Very dense	
15					Boring terminated at 13 feet depth due to the refusal of drilling rig. Borehole backfilled with cuttings and patched with cold-mix asphalt.	
20						
25						
30						
35						

TEST RESULTS

Plastic Limit ⊢——⊣ Liquid Limit
Water Content - ●
Penetration - △



HOQUE & ASSOCIATES

Figure

BORING LOG

BORING NO. B-9

File: 06100 Pinnacle Peak Road Paving and Storm Drain Printed: 11/2/2006

PROJECT: Pinnacle Peak Road Paving and Storm Drain Improvment **PROJECT NO.:** 06100
CLIENT: Steele Engineering, Inc. **DATE:** 7/19-7/20/06
LOCATION: Pinnacle Peak Road, 43rd Ave to 35th Ave, Phoenix, AZ **ELEVATION:** not dtrmnd
DRILLER: Wilcox **LOGGED BY:** AG
DRILLING METHOD: CME-75 8" HSA
DEPTH TO - WATER> INITIAL: ▽ none encountered **AFTER 24 HOURS:** ▽ N/A

DEPTH (feet)	SOIL TYPE	BULK	SAMPLERS	USCS	Description	Plasticity Index
0				CL	Brown Sandy lean CLAY with few gravels; damp	
5					Hard	21
10				GC	Brown Clayey GRAVEL with Sand; damp Dense	
15					Very dense Boring terminated at 15 feet deph. Borehole backfilled with cuttings .	
20						
25						
30						
35						

TEST RESULTS

Plastic Limit ⊢——⊣ Liquid Limit
Water Content - ●
Penetration - △

10 20 30 40 50

△75 for 11"

HOQUE & ASSOCIATES

Figure

BORING LOG

BORING NO. B-10

File: 06100 Pinnacle Peak Road Paving and Storm Drain Printed: 11/2/2006

PROJECT: Pinnacle Peak Road Paving and Storm Drain Improvment **PROJECT NO.:** 06100
CLIENT: Steele Engineering, Inc. **DATE:** 7/19-7/20/06
LOCATION: Pinnacle Peak Road, 43rd Ave to 35th Ave, Phoenix, AZ **ELEVATION:** not dtrmnd
DRILLER: Wilcox **LOGGED BY:** AG
DRILLING METHOD: CME-75 8" HSA
DEPTH TO - WATER> INITIAL: ▽ none encountered **AFTER 24 HOURS:** ▽ N/A

DEPTH (feet)	SOIL TYPE	BULK	SAMPLERS	USCS	Description	Plasticity Index
0					5" Asphalt Concrete 14" Aggregate Base Course	
				CL	Brown Sandy lean CLAY; trace gravel, damp	31
5				SC	Brown Clayey SAND with Gravel; damp Stiff	
10					Very dense	
15					Dense Boring terminated at 15 feet depth. Borehole backfilled with cuttings and patched with cold-mix asphalt.	
20						
25						
30						
35						

TEST RESULTS

Plastic Limit ⊢——⊣ Liquid Limit
Water Content - ●
Penetration - △

10 20 30 40 50

50 for 5"

HOQUE & ASSOCIATES

Figure

BORING LOG

BORING NO. B-11

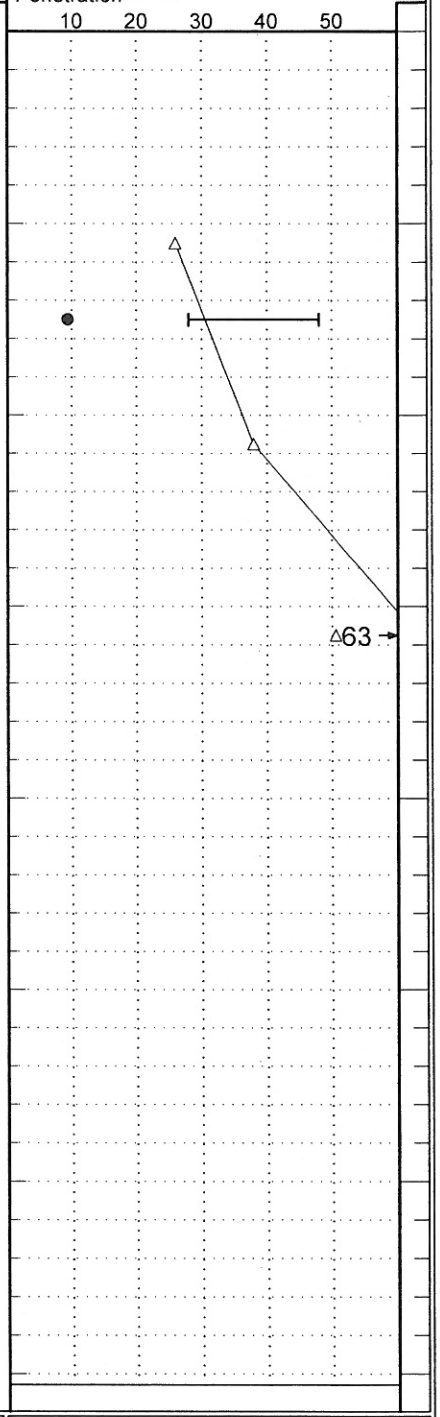
File: 06100 Pinnacle Peak Road Paving and Storm Drain Printed: 11/2/2006

PROJECT: Pinnacle Peak Road Paving and Storm Drain Improvment **PROJECT NO.:** 06100
CLIENT: Steele Engineering, Inc. **DATE:** 7/19-7/20/06
LOCATION: Pinnacle Peak Road, 43rd Ave to 35th Ave, Phoenix, AZ **ELEVATION:** not dtrmnd
DRILLER: Wilcox **LOGGED BY:** AG
DRILLING METHOD: CME-75 8" HSA
DEPTH TO - WATER> INITIAL: ▽ none encountered **AFTER 24 HOURS:** ▽ N/A

DEPTH (feet)	SOIL TYPE	BULK	SAMPLERS	USCS	Description	Plasticity Index
0					5" Asphalt Concrete 13" Aggregate Base Course	
				SM	Brown Silty SAND with Gravel; damp	
5				GM	Brown Silty GRAVEL with Sand; damp Medium dense	20
10					Dense	
15					Very dense	
					Boring terminated at 15 feet depth. Borehole backfilled with cuttings and patched with cold-mix asphalt.	
20						
25						
30						
35						

TEST RESULTS

Plastic Limit ⊢—⊣ Liquid Limit
Water Content - ●
Penetration - △



HOQUE & ASSOCIATES

Figure

BORING LOG

BORING NO. B-12

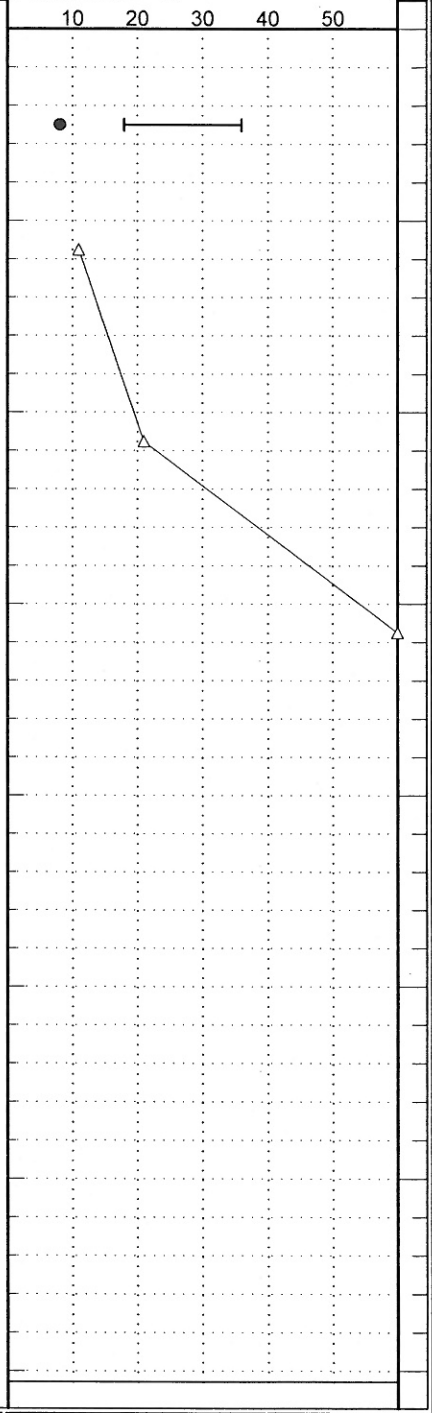
File: 06100 Pinnacle Peak Road Paving and Storm Drain Date Printed: 11/2/2006

PROJECT: Pinnacle Peak Road Paving and Storm Drain Improvment **PROJECT NO.:** 06100
CLIENT: Steele Engineering, Inc. **DATE:** 7/19-7/20/06
LOCATION: Pinnacle Peak Road, 43rd Ave to 35th Ave, Phoenix, AZ **ELEVATION:** not dtrmnd
DRILLER: Wilcox **LOGGED BY:** AG
DRILLING METHOD: CME-75 8" HSA
DEPTH TO - WATER> INITIAL: ▽ none encountered **AFTER 24 HOURS:** ▽ N/A

DEPTH (feet)	SOIL TYPE	BULK	SAMPLERS	USCS	Description	Plasticity Index
0				SC	5" Asphalt Concrete 12" Aggregate Base Course Brown Clayey SAND with Gravel; damp	18
5					Decrease in Gravel quantity Medium dense	
10						
15					Very dense, increase in Gravel and Sand quantities Boring terminated at 15 feet depth. Borehole backfilled with cuttings and patched with cold-mix asphalt.	
20						
25						
30						
35						

TEST RESULTS

Plastic Limit ⊢——⊣ Liquid Limit
Water Content - ●
Penetration - △



HOQUE & ASSOCIATES

Figure

Appendix C

Soil Classification
And
Soil Investigation Methods

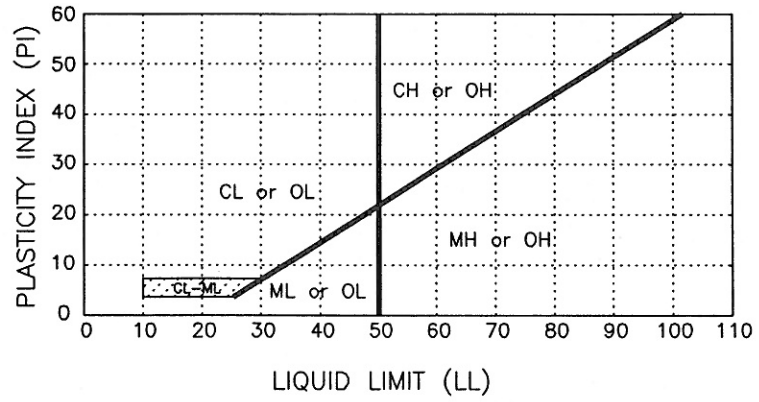
UNIFIED SOIL CLASSIFICATION SYSTEM

Soils are visually classified by the United Soil Classification System (USCS) 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" Corps of Engineers, US Army Technical Memorandum No. 3–357 (Revised April 1960) or ASTM Designation: D2487–66T.

MAJOR DIVISIONS				GROUP SYMBOL	TYPICAL NAMES
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–sand mixtures, or sand–gravel–cobble mixtures.
				GP	Poorly graded gravels, gravel–sand mixtures, or sand–gravel–cobble mixtures.
		GRAVELS WITH FINES (More than 12% passes No. 200 sieve)	Limits plot below the "A" line & hatched zone on plasticity chart	GM	Silty gravels, gravel–sand–silt mixtures.
			Limits plot above the "A" line & hatched zone on plasticity chart	GC	Clayey gravels, gravel–sand–clay mixtures.
	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.
				SP	Poorly graded sands, gravelly sands.
		SANDS WITH FINES (More than 12% passes No. 200 sieve)	Limits plot below the "A" line & hatched zone on plasticity chart	SM	Silty sands, sand–silt mixtures.
			Limits plot above the "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, non–plastic or slightly plastic.
		SILTS OF HIGH PLASTICITY (Liquid Limit More Than 50)		MH	Inorganic silts, micaceous or diatomaceous silty soils, elastic silts.
	CLAYS (Limits Plot Above "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, sandy clays of high plasticity.

NOTE:
Coarse grained soils with between 5% & 12% passing the No. 200 sieve and fine grained soils with Atterberg limits plotting in the hatched zone on the plasticity chart shall have dual symbol. In Arizona, local streams contain sand, gravel & cobble type material, which are locally known as SGC or riverrun material. The USCS is not used to divide and symbolize this material.

PLASTICITY CHART



DEFINITIONS OF SOIL FRACTIONS

SOIL COMPONENT	PARTICLE SIZE RANGE
Cobbles	Above 3 in.
Gravel	3 in. to No. 4 sieve
Coarse gravel	3 in. to 3/4 in.
Fine gravel	3/4 in. 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 & clay)	Below No. 200 sieve
Clay	Smaller than 2 microns
Colloid	Smaller than 5 microns

Subsurface Investigation Methods

Subsurface investigation methods include displacement boring, wash boring, percussion drilling, rotary drilling, auger boring and continuous sampling. For a particular site exploration, the preference of the particular method and drilling equipment are dependent upon various factors. These factors may include equipment suitability, site accessibility, geological surroundings, environmental factors and economic considerations.

Displacement Borings

This technique is often used in preliminary exploration where prevalent subsurface information is required. Displacement borings are simple and most cost effective for non-caving ground. Without any effort to brace the borehole, sampling the soil at the desired depth is achieved by inserting samplers in the closed position, such as cup, piston or split tube samplers to the required depth.

Wash Borings

This procedure is advantageous in that the equipment is relatively inexpensive and easily transferable. Wash borings entail the insertion of steel casing and washing out the material to the bottom of the casing or a depth below the steel casing. A re-circulating fluid that carries the cuttings to the surface accomplishes this wash. The drill rod and chopping bits that are used in this procedure alternately raise and drop with slight rotation to anatomize the material within the casing.

Percussion Drilling

Also known as Churn or Cable Tool Drilling, this method is employed primarily in the well drilling industry. Due to potential sample disturbance, percussion drilling is not used extensively in geotechnical inquisitions. For this procedure, raising and dropping a heavy drill bit and removing the loose soil by bailing creates a borehole. Generally a traditional sampler is used in place of the drill bit to collect the sample after the slurry is removed.

Rotary Drilling

This technique is flexible and adaptable which may be used with different equipment models and sampling apparatus. By advancing a cased or uncased borehole by rapid rotation and pressure, grinded material or cuttings are created at the bottom of the borehole. The removal of these cuttings are achieved by pumping air, water or drilling mud from a reservoir on the surface through the drill rods to the bottom of the borehole. After obtaining the desired depth, a sampling mechanism is used.

Auger Boring

This method is popular because it is quick and economical in conducting subsurface investigations. Most often, augers are mounted on large rigs for rapid mobility. However, augers can be on track-mounted equipment as well. This type of boring is subdivided into three categories depending on the type of equipment used. These are construction augers, solid flight augers and hollow stem augers. Construction augers are usually large in diameter and primarily used for shallow inspection of soil. Although not designed for sampling, construction augers can be used for bulk sampling. Solid flight augers, sometimes called continuous flight augers are the most expedient of the augers in obtaining a borehole. Samples are obtained from auger flights. An improvement to the continuous auger is the hollow stem auger. A center plug that is removed from the auger permits sampling tools to be used in the borehole without the removal of the auger.

Continuous Sampling

This type of sampling may provide more infallible and detailed information about subsurface conditions than any other sampling. This reliability is enhanced because continuous sampling utilizes a variance of sampling tools and test boring procedures.

Soil Sampling Methods

Split-Spoon

The most common method for obtaining representative samples are done with the split-spoon. Associated with the Standard Penetration Test (SPT), split-spoon sampling is acquired immediately beneath the borehole near the ground surface.

Ring Sampling

Ring sampling consists of using six rings that are driven beneath the borehole to obtain an undisturbed sample. This type of representation is used in the laboratory to obtain parameters for foundation analysis.

Bulk Sampling

Bulk sampling is performed when an undisturbed specimen is not required. This type of sampling is less time consuming and thus more cost efficient, and is desirable when a Proctor, gradation or plastic index is needed.

Appendix D

Laboratory Test Results

GRADATION & PI

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

Client :	Steele Engineering, Inc.	HA Project No.:	06100
Project :	Pinnacle Peak Rd Paving & Storm Drain Improvements	HA Lab No.:	06L1363
Location:	43rd Avenue to 35th Avenue	Date Received :	7/20/2006
	Phoenix, Arizona	Test Required :	
Material :	Clayey SAND with gravel	Gradation	x
Mat. Source :	B-1(0-5)	-200 Wash	x
Sampled By :	AG	PI	x
Sampled Date :	7/19/06-7/20/06	Proctor	
Submitted By:	AG	Test Dates :	8/28/2006

[ ] ASTM D 422 [x] ASTM C 136 [ ] ASTM D 1140

Sample Weight		Coarse / Fine Factor	
+ #4	679.6	Coarse Factor :	
- #4	1899.0	Fine Factor :	
Total	2578.6		

Natural Moisture	
Wet WT (g) :	230.5
Dry WT (g):	214.6
% Moisture:	7.4

Sieve US/mm	Wt. Retained	% Retained	%Passing	Specs
3"/75	0.0	0	100	
2-1/2"/ 62.5	0.0	0	100	
2"/50	0.0	0	100	
1-1/2"/ 37.5	0.0	0	100	
1" / 25	16.7	1	99	
3/4" / 19	76.3	3	96	
1/2"/12.5	162.3	7	90	
3/8" / 9.5	99.2	4	86	
1/4" / 6.3	194.2	8	78	
No.4 /4.75	130.9	5		
Min #4			72	
+#4 Total	679.6		WBW (Wet):	325.6
-#4: Wet	1899		WBW (Dry):	303.1
-#4: Dry	1768.0		WAW (Dry):	207.0
Total	2447.6		Elutration:	96.1
#8 /2.36	31.5	8	65	
#10 / 2.00	12.1	3	62	
#16 /1.18	36.2	9	53	
#30 / 0.60	39.2	9	44	
#40/ 0.425	17.2	4	40	
#50 / 0.30	14.5	3	36	
#100 / 0.15	22.1	5	31	
#200 /0.075	25.1	6		
-#200/0.075	9.1		25.1	
Total	207.0			
Elutration	96.1			

PLASTICITY INDEX (ASTM D 4318)

Liquid Limit		Plastic Limit	
Tare Wt. :	11.16	Tare Wt. :	11.12
Wet Wt. :	28.11	Wet Wt. :	19.17
Dry Wt. :	23.72	Drt Wt. :	17.80
# of Blows	24		
Blos Factr	0.9952		
LL =	35	PL =	21

PLASTICITY INDEX = 14

BLOWS FACTOR	
22	0.9855
23	0.9903
24	0.9952
25	1
26	1.0048
27	1.0097
28	1.0145

USCS: **SC**

Tested By : EJ & GR
Checked By : SD

GRADATION & PI

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

Client :	Steele Engineering, Inc.	HA Project No.:	06100
Project :	Pinnacle Peak Rd Paving & Storm Drain Improvements	HA Lab No.:	06L1366
Location:	43rd Avenue to 35th Avenue	Date Received :	7/20/2006
	Phoenix, Arizona	Test Required :	
Material :	Clayey GRAVEL with sand	Gradation	x
Mat. Source :	B-2 (0-5)	-200 Wash	x
Sampled By :	AG	PI	x
Sampled Date :	7/19/06-7/20/06	Proctor	
Submitted By:	AG	Test Dates :	8/23/2006

[ ] ASTM D 422 [x] ASTM C 136 [ ] ASTM D 1140

Sample Weight		Coarse / Fine Factor	
+ #4	1365.8	Coarse Factor :	
- #4	1566.6	Fine Factor :	
Total	2932.4		

Natural Moisture	
Wet WT (g) :	228.3
Dry WT (g):	219.6
% Moisture:	4.0

Sieve US/mm	Wt. Retained	% Retained	%Passing	Specs
3"/75	0.0	0	100	
2-1/2"/ 62.5	0.0	0	100	
2"/50	0.0	0	100	
1-1/2"/ 37.5	0.0	0	100	
1" / 25	62.0	2	98	
3/4" / 19	167.3	6	92	
1/2"/12.5	301.0	10	82	
3/8" / 9.5	268.3	9	72	
1/4" / 6.3	328.3	11	61	
No.4 /4.75	238.9	8		
Min #4			52	
+#4 Total	1365.8		WBW (Wet):	357.3
-#4: Wet	1566.6		WBW (Dry):	343.7
-#4: Dry	1506.9		WAW (Dry):	249.2
Total	2872.7		Elutration:	94.5
#8 /2.36	69.1	11	42	
#10 / 2.00	19.1	3	39	
#16 /1.18	45.4	7	32	
#30 / 0.60	40.7	6	26	
#40/ 0.425	16.4	3	23	
#50 / 0.30	12.7	2	21	
#100 / 0.15	18.4	3	19	
#200 /0.075	20.3	3		
-#200/0.075	7.1		15.5	
Total	249.2			
Elutration	94.5			

PLASTICITY INDEX (ASTM D 4318)

Liquid Limit		Plastic Limit	
Tare Wt. :	11.15	Tare Wt. :	11.11
Wet Wt. :	22.87	Wet Wt. :	20.12
Dry Wt. :	20.09	Drt Wt. :	18.62
# of Blows	23		
Blos Factr	0.9903		
LL =	31	PL =	20

PLASTICITY INDEX = 11

BLOWS FACTOR	
22	0.9855
23	0.9903
24	0.9952
25	1
26	1.0048
27	1.0097
28	1.0145

USCS: **GC**

Tested By : EJ & GR
Checked By : SD

GRADATION & PI

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

Client :	Steele Engineering, Inc.	HA Project No.:	06100
Project :	Pinnacle Peak Rd Paving & Storm Drain Improvements	HA Lab No.:	06L1369
Location:	43rd Avenue to 35th Avenue	Date Received :	7/20/2006
	Phoenix, Arizona	Test Required :	
Material :	Sandy FAT CLAY with gravel	Gradation	x
Mat. Source :	B-3 (5-10)	-200 Wash	x
Sampled By :	AG	PI	x
Sampled Date :	7/20/2006	Proctor	
Submitted By:	AG	Test Dates :	8/10/2006

[ ] ASTM D 422 [x] ASTM C 136 [ ] ASTM D 1140

Sample Weight	
+ #4	496
- #4	2617.1
Total	3113.1

Coarse / Fine Factor	
Coarse Factor :	
Fine Factor :	

Natural Moisture	
Wet WT (g) :	252.0
Dry WT (g):	223.1
% Moisture:	13.0

Sieve US/mm	Wt. Retained	% Retained	%Passing	Specs
3"/75	0.0	0	100	
2-1/2"/ 62.5	0.0	0	100	
2"/50	0.0	0	100	
1-1/2"/ 37.5	0.0	0	100	
1" / 25	41.9	1	99	
3/4" / 19	58.9	2	96	
1/2"/12.5	93.5	3	93	
3/8" / 9.5	159.9	6	87	
1/4" / 6.3	137.5	5	83	
No.4 /4.75	4.3	0		
Min #4			82	
+#4 Total	496		WBW (Wet):	306.5
-#4: Wet	2617.1		WBW (Dry):	271.3
-#4: Dry	2317.0		WAW (Dry):	102.6
Total	2813.0		Elutration:	168.7
#8 /2.36	22.2	7	76	
#10 / 2.00	8.0	2	73	
#16 /1.18	13.7	4	69	
#30 / 0.60	13.9	4	65	
#40/ 0.425	6.1	2	63	
#50 / 0.30	5.0	2	61	
#100 / 0.15	10.4	3	58	
#200 /0.075	19.0	6		
-#200/0.075	4.3		52.5	
Total	102.6			
Elutration	168.7			

PLASTICITY INDEX (ASTM D 4318)

Liquid Limit		Plastic Limit	
Tare Wt. :	11.07	Tare Wt. :	11.27
Wet Wt. :	25.41	Wet Wt. :	18.85
Dry Wt. :	19.28	Drt Wt. :	17.36
# of Blows	24		
Blos Factr	0.9952		
LL =	74	PL =	24

PLASTICITY INDEX = 50

BLOWS FACTOR	
22	0.9855
23	0.9903
24	0.9952
25	1
26	1.0048
27	1.0097
28	1.0145

USCS: **CH**

Tested By : EJ & GR
Checked By : SD

GRADATION & PI

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

Client :	Steele Engineering, Inc.	HA Project No.:	06100
Project :	Pinnacle Peak Rd Paving & Storm Drain Improvements	HA Lab No.:	06L1371
Location:	43rd Avenue to 35th Avenue	Date Received :	7/20/2006
	Phoenix, Arizona	Test Required :	
Material :	Clayey SAND with gravel	Gradation	x
Mat. Source :	B-4 (0-5)	-200 Wash	x
Sampled By :	AG	PI	x
Sampled Date :	7/19/06-7/20/06	Proctor	x cs-2
Submitted By:	AG	Test Dates :	8/28/2006

[ ] ASTM D 422 [x] ASTM C 136 [ ] ASTM D 1140

Sample Weight		Coarse / Fine Factor	
+ #4	983.9	Coarse Factor :	
- #4	2109.1	Fine Factor :	
Total	3093.0		

Natural Moisture	
Wet WT (g) :	310.8
Dry WT (g):	289.1
% Moisture:	7.5

Sieve US/mm	Wt. Retained	% Retained	%Passing	Specs
3"/75	0.0	0	100	
2-1/2"/ 62.5	0.0	0	100	
2"/50	0.0	0	100	
1-1/2"/ 37.5	0.0	0	100	
1" / 25	0.0	0	100	
3/4" / 19	44.0	1	99	
1/2"/12.5	188.6	6	92	
3/8" / 9.5	240.0	8	84	
1/4" / 6.3	297.1	10	74	
No.4 /4.75	214.2	7		
Min #4			67	
+#4 Total	983.9		WBW (Wet):	393.4
-#4: Wet	2109.1		WBW (Dry):	365.9
-#4: Dry	1961.8		WAW (Dry):	252.4
Total	2945.7		Elutration:	113.5
#8 /2.36	44.4	8	59	
#10 / 2.00	13.7	2	56	
#16 /1.18	38.4	7	49	
#30 / 0.60	50.8	9	40	
#40/ 0.425	24.2	4	35	
#50 / 0.30	18.2	3	32	
#100 / 0.15	27.8	5	27	
#200 /0.075	27.3	5		
-#200/0.075	7.6		22.0	
Total	252.4			
Elutration	113.5			

PLASTICITY INDEX (ASTM D 4318)

Liquid Limit		Plastic Limit	
Tare Wt. :	11.06	Tare Wt. :	11.29
Wet Wt. :	23.61	Wet Wt. :	18.83
Dry Wt. :	20.33	Drt Wt. :	17.57
# of Blows	27		
Blos Factr	1.0097		
LL =	36	PL =	20

PLASTICITY INDEX = 16

BLOWS FACTOR	
22	0.9855
23	0.9903
24	0.9952
25	1
26	1.0048
27	1.0097
28	1.0145

USCS: **SC**

Tested By : EJ & GR
Checked By : SD

GRADATION & PI

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

Client :	Steele Engineering, Inc.	HA Project No.:	06100
Project :	Pinnacle Peak Rd Paving & Storm Drain Improvements	HA Lab No.:	06L1374
Location:	43rd Avenue to 35th Avenue	Date Received :	7/20/2006
	Phoenix, Arizona	Test Required :	
Material :	Clayey GRAVEL with sand	Gradation	x
Mat. Source :	B-5(0-5)	-200 Wash	x
Sampled By :	AG	PI	x
Sampled Date :	7/19/06-7/20/06	Proctor	x cs-2
Submitted By:	AG	Test Dates :	8/28/2006

[ ] ASTM D 422 [x] ASTM C 136 [ ] ASTM D 1140

Sample Weight		Coarse / Fine Factor	
+ #4	1141.4	Coarse Factor :	
- #4	1952.4	Fine Factor :	
Total	3093.8		

Natural Moisture	
Wet WT (g) :	253.4
Dry WT (g):	237.3
% Moisture:	6.8

Sieve US/mm	Wt. Retained	% Retained	%Passing	Specs
3"/75	0.0	0	100	
2-1/2"/ 62.5	0.0	0	100	
2"/50	0.0	0	100	
1-1/2"/ 37.5	0.0	0	100	
1" / 25	114.3	4	96	
3/4" / 19	90.2	3	93	
1/2"/12.5	240.9	8	85	
3/8" / 9.5	189.3	6	79	
1/4" / 6.3	300.8	10	68	
No.4 /4.75	205.9	7		
Min #4			62	
+#4 Total	1141.4		WBW (Wet):	375.7
-#4: Wet	1952.4		WBW (Dry):	351.8
-#4: Dry	1828.4		WAW (Dry):	213.7
Total	2969.8		Elutration:	138.1
#8 /2.36	61.8	11	51	
#10 / 2.00	14.3	3	48	
#16 /1.18	33.0	6	42	
#30 / 0.60	32.5	6	37	
#40/ 0.425	13.5	2	34	
#50 / 0.30	11.1	2	32	
#100 / 0.15	19.1	3	29	
#200 /0.075	26.0	5		
-#200/0.075	2.4		24.6	
Total	213.7			
Elutration	138.1			

PLASTICITY INDEX (ASTM D 4318)

Liquid Limit		Plastic Limit	
Tare Wt. :	11.13	Tare Wt. :	11.08
Wet Wt. :	24.03	Wet Wt. :	18.66
Dry Wt. :	20.86	Drt Wt. :	17.58
# of Blows	24		
Blos Factr	0.9952		
LL =	32	PL =	17

PLASTICITY INDEX = 15

BLOWS FACTOR	
22	0.9855
23	0.9903
24	0.9952
25	1
26	1.0048
27	1.0097
28	1.0145

USCS: **GC**

Tested By : EJ & GR
Checked By : SD

GRADATION & PI

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

Client :	Steele Engineering, Inc.	HA Project No.:	06100
Project :	Pinnacle Peak Rd Paving & Storm Drain Improvements	HA Lab No.:	06L1379
Location:	43rd Avenue to 35th Avenue	Date Received :	7/20/2006
	Phoenix, Arizona	Test Required :	
Material :	Silty SAND	Gradation	x
Mat. Source :	B-6 (10-15)	-200 Wash	x
Sampled By :	AG	PI	x
Sampled Date :	7/19/06-7/20/06	Proctor	
Submitted By:	AG	Test Dates :	8/16/2006

[ ] ASTM D 422 [x] ASTM C 136 [ ] ASTM D 1140

Sample Weight		Coarse / Fine Factor	
+ #4	777	Coarse Factor :	
- #4	5285.8	Fine Factor :	
Total	6062.8		

Natural Moisture	
Wet WT (g) :	253.3
Dry WT (g):	235.2
% Moisture:	7.7

Sieve US/mm	Wt. Retained	% Retained	%Passing	Specs
3"/75	0.0	0	100	
2-1/2"/ 62.5	0.0	0	100	
2"/50	0.0	0	100	
1-1/2"/ 37.5	0.0	0	100	
1" / 25	73.3	1	99	
3/4" / 19	55.0	1	98	
1/2"/12.5	126.0	2	96	
3/8" / 9.5	109.4	2	94	
1/4" / 6.3	208.2	4	90	
No.4 /4.75	205.1	4		
Min #4			86	
+#4 Total	777		WBW (Wet):	341.0
-#4: Wet	5285.8		WBW (Dry):	316.6
-#4: Dry	4908.1		WAW (Dry):	174.5
Total	5685.1		Elutration:	142.1
#8 /2.36	21.6	6	80	
#10 / 2.00	8.0	2	78	
#16 /1.18	22.1	6	72	
#30 / 0.60	26.6	7	65	
#40/ 0.425	12.2	3	62	
#50 / 0.30	11.3	3	59	
#100 / 0.15	25.4	7	52	
#200 /0.075	39.0	11		
-#200/0.075	8.3		41.0	
Total	174.5			
Elutration	142.1		USCS:	**SM**

PLASTICITY INDEX (ASTM D 4318)

Liquid Limit		**Plastic Limit**	
Tare Wt. :	11.17	Tare Wt. :	11.12
Wet Wt. :	25.17	Wet Wt. :	18.47
Dry Wt. :	21.31	Drt Wt. :	16.83
# of Blows	22		
Blos Factr	0.9855		
LL =	38	PL =	29

PLASTICITY INDEX = 9

BLOWS FACTOR	
22	0.9855
23	0.9903
24	0.9952
25	1
26	1.0048
27	1.0097
28	1.0145

Tested By : TL & GR
Checked By : SD

GRADATION & PI

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

Client :	Steele Engineering, Inc.	HA Project No.:	06100
Project :	Pinnacle Peak Rd Paving & Storm Drain Improvements	HA Lab No.:	06L1380
Location:	43rd Avenue to 35th Avenue	Date Received :	7/20/2006
	Phoenix, Arizona	Test Required :	
Material :	Clayey SAND with gravel	Gradation	x
Mat. Source :	B-7 (0-5)	-200 Wash	x
Sampled By :	AG	PI	x
Sampled Date :	7/19/06-7/20/06	Proctor	
Submitted By:	AG	Test Dates :	8/28/2006

[ ] ASTM D 422 [x] ASTM C 136 [ ] ASTM D 1140

Sample Weight		Coarse / Fine Factor	
+ #4	839.7	Coarse Factor :	
- #4	2440.4	Fine Factor :	
Total	3280.1		

Natural Moisture	
Wet WT (g) :	271.4
Dry WT (g):	257.0
% Moisture:	5.6

Sieve US/mm	Wt. Retained	% Retained	%Passing	Specs
3"/75	0.0	0	100	
2-1/2"/ 62.5	0.0	0	100	
2"/50	0.0	0	100	
1-1/2"/ 37.5	0.0	0	100	
1" / 25	0.0	0	100	
3/4" / 19	78.2	2	98	
1/2"/12.5	148.6	5	93	
3/8" / 9.5	142.5	5	88	
1/4" / 6.3	265.7	8	80	
No.4 /4.75	204.7	6		
Min #4			73	
+#4 Total	839.7		WBW (Wet):	314.0
-#4: Wet	2440.4		WBW (Dry):	297.3
-#4: Dry	2310.9		WAW (Dry):	176.9
Total	3150.6		Elutration:	120.4
#8 /2.36	44.2	11	62	
#10 / 2.00	11.1	3	60	
#16 /1.18	27.2	7	53	
#30 / 0.60	25.6	6	47	
#40/ 0.425	11.1	3	44	
#50 / 0.30	10.9	3	41	
#100 / 0.15	19.1	5	37	
#200 /0.075	22.2	5		
-#200/0.075	5.5		31.1	
Total	176.9			
Elutration	120.4			

PLASTICITY INDEX (ASTM D 4318)

Liquid Limit		Plastic Limit	
Tare Wt. :	11.06	Tare Wt. :	11.26
Wet Wt. :	21.54	Wet Wt. :	18.50
Dry Wt. :	18.59	Drt Wt. :	17.10
# of Blows	24		
Blos Factr	0.9952		
LL =	39	PL =	24

PLASTICITY INDEX = 15

BLOWS FACTOR	
22	0.9855
23	0.9903
24	0.9952
25	1
26	1.0048
27	1.0097
28	1.0145

USCS: **SC**

Tested By : EJ & GR
Checked By : SD

GRADATION & PI

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

Client :	Steele Engineering, Inc.	HA Project No.:	06100
Project :	Pinnacle Peak Rd Paving & Storm Drain Improvements	HA Lab No.:	06L1382
Location:	43rd Avenue to 35th Avenue	Date Received :	7/20/2006
	Phoenix, Arizona	Test Required :	
Material :	Clayey SAND with gravel	Gradation	x
Mat. Source :	B-8 (0-5)	-200 Wash	x
Sampled By :	AG	PI	x
Sampled Date :	7/19/06-7/20/06	Proctor	
Submitted By:	AG	Test Dates :	8/16/2006

[ ] ASTM D 422 [x] ASTM C 136 [ ] ASTM D 1140

Sample Weight		Coarse / Fine Factor	
+ #4	874.5	Coarse Factor :	
- #4	1777.0	Fine Factor :	
Total	2651.5		

Natural Moisture	
Wet WT (g) :	222.7
Dry WT (g):	204.4
% Moisture:	9.0

Sieve US/mm	Wt. Retained	% Retained	%Passing	Specs
3"/75	0.0	0	100	
2-1/2"/ 62.5	0.0	0	100	
2"/50	0.0	0	100	
1-1/2"/ 37.5	0.0	0	100	
1" / 25	63.0	3	97	
3/4" / 19	89.5	4	94	
1/2"/12.5	175.4	7	87	
3/8" / 9.5	160.1	6	81	
1/4" / 6.3	243.8	10	71	
No.4 /4.75	142.7	6		
Min #4			65	
+#4 Total	874.5		WBW (Wet):	364.5
-#4: Wet	1777		WBW (Dry):	334.5
-#4: Dry	1631.0		WAW (Dry):	207.9
Total	2505.5		Elutration:	126.6
#8 /2.36	48.9	10	56	
#10 / 2.00	12.8	2	53	
#16 /1.18	35.4	7	46	
#30 / 0.60	35.8	7	39	
#40/ 0.425	13.8	3	37	
#50 / 0.30	11.7	2	34	
#100 / 0.15	20.5	4	30	
#200 /0.075	24.1	5		
-#200/0.075	4.9		25.6	
Total	207.9			
Elutration	126.6			

PLASTICITY INDEX (ASTM D 4318)

Liquid Limit		Plastic Limit	
Tare Wt. :	11.11	Tare Wt. :	11.11
Wet Wt. :	26.01	Wet Wt. :	16.21
Dry Wt. :	22.71	Drt Wt. :	15.57
# of Blows	25		
Blos Factr	1.0000		
LL =	28	PL =	14

PLASTICITY INDEX = 14

BLOWS FACTOR	
22	0.9855
23	0.9903
24	0.9952
25	1
26	1.0048
27	1.0097
28	1.0145

USCS: **SC**

Tested By : EJ & GR
Checked By : SD

GRADATION & PI

HOQUE & ASSOCIATES
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Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

Client :	Steele Engineering, Inc.	HA Project No.:	06100
Project :	Pinnacle Peak Rd Paving & Storm Drain Improvements	HA Lab No.:	06L1386
Location:	43rd Avenue to 35th Avenue	Date Received :	7/20/2006
	Phoenix, Arizona	Test Required :	
Material :	Sandy lean CLAY	Gradation	x
Mat. Source :	B-9 (5-10)	-200 Wash	x
Sampled By :	AG	PI	x
Sampled Date :	7/20/2006	Proctor	
Submitted By:	AG	Test Dates :	8/28/2006

[ ] ASTM D 422 [x] ASTM C 136 [ ] ASTM D 1140

Sample Weight		Coarse / Fine Factor	
+ #4	330.5	Coarse Factor :	
- #4	4500.0	Fine Factor :	
Total	4830.5		

Natural Moisture	
Wet WT (g) :	244.4
Dry WT (g):	217.9
% Moisture:	12.2

Sieve US/mm	Wt. Retained	% Retained	%Passing	Specs
3"/75	0.0	0	100	
2-1/2"/ 62.5	0.0	0	100	
2"/50	0.0	0	100	
1-1/2"/ 37.5	0.0	0	100	
1" / 25	0.0	0	100	
3/4" / 19	0.0	0	100	
1/2"/12.5	60.2	1	99	
3/8" / 9.5	67.7	2	97	
1/4" / 6.3	118.6	3	94	
No.4 /4.75	84.0	2		
Min #4			92	
+#4 Total	330.5		WBW (Wet):	289.5
-#4: Wet	4500		WBW (Dry):	258.1
-#4: Dry	4012.1		WAW (Dry):	109.6
Total	4342.6		Elutration:	148.5
#8 /2.36	11.6	4	88	
#10 / 2.00	4.9	2	86	
#16 /1.18	15.4	6	81	
#30 / 0.60	20.1	7	74	
#40/ 0.425	10.1	4	70	
#50 / 0.30	8.4	3	67	
#100 / 0.15	13.5	5	62	
#200 /0.075	19.2	7		
-#200/0.075	6.4		55.4	
Total	109.6			
Elutration	148.5			

PLASTICITY INDEX (ASTM D 4318)

Liquid Limit		Plastic Limit	
Tare Wt. :	11.22	Tare Wt. :	11.05
Wet Wt. :	22.54	Wet Wt. :	19.19
Dry Wt. :	19.32	Drt Wt. :	17.97
# of Blows	23		
Blos Factr	0.9903		
LL =	39	PL =	18

PLASTICITY INDEX = 21

BLOWS FACTOR	
22	0.9855
23	0.9903
24	0.9952
25	1
26	1.0048
27	1.0097
28	1.0145

USCS: **CL**

Tested By : EJ & GR
Checked By : SD

GRADATION & PI

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

Client :	Steele Engineering, Inc.	HA Project No.:	06100
Project :	Pinnacle Peak Rd Paving & Storm Drain Improvements	HA Lab No.:	06L1388
Location:	43rd Avenue to 35th Avenue	Date Received :	7/20/2006
	Phoenix, Arizona	Test Required :	
Material :	Sandy lean CLAY	Gradation	x
Mat. Source :	B-10 (0-5)	-200 Wash	x
Sampled By :	AG	PI	x
Sampled Date :	7/19/06-7/20/06	Proctor	x cs-4
Submitted By:	AG	Test Dates :	8/28/2006

[ ] ASTM D 422 [x] ASTM C 136 [ ] ASTM D 1140

Sample Weight		Coarse / Fine Factor	
+ #4	185.1	Coarse Factor :	
- #4	2364.3	Fine Factor :	
Total	2549.4		

Natural Moisture	
Wet WT (g) :	264.0
Dry WT (g):	232.8
% Moisture:	13.4

Sieve US/mm	Wt. Retained	% Retained	%Passing	Specs
3"/75	0.0	0	100	
2-1/2"/ 62.5	0.0	0	100	
2"/50	0.0	0	100	
1-1/2"/ 37.5	0.0	0	100	
1" / 25	0.0	0	100	
3/4" / 19	26.0	1	99	
1/2"/12.5	43.9	2	97	
3/8" / 9.5	30.8	1	96	
1/4" / 6.3	47.0	2	93	
No.4 /4.75	37.4	2		
Min #4			92	
+#4 Total	185.1		WBW (Wet):	345.6
-#4: Wet	2364.3		WBW (Dry):	304.8
-#4: Dry	2084.9		WAW (Dry):	111.2
Total	2270.0		Elutration:	193.6
#8 /2.36	8.2	2	89	
#10 / 2.00	3.2	1	88	
#16 /1.18	10.1	3	85	
#30 / 0.60	16.1	5	81	
#40/ 0.425	8.1	2	78	
#50 / 0.30	8.2	2	76	
#100 / 0.15	18.4	6	70	
#200 /0.075	31.5	9		
-#200/0.075	7.4		60.6	
Total	111.2			
Elutration	193.6			

PLASTICITY INDEX (ASTM D 4318)

Liquid Limit		Plastic Limit	
Tare Wt. :	11.12	Tare Wt. :	11.11
Wet Wt. :	20.65	Wet Wt. :	18.10
Dry Wt. :	17.85	Drt Wt. :	17.45
# of Blows	23		
Blos Factr	0.9903		
LL =	41	PL =	10

PLASTICITY INDEX = 31

BLOWS FACTOR	
22	0.9855
23	0.9903
24	0.9952
25	1
26	1.0048
27	1.0097
28	1.0145

USCS: **CL**

Tested By : EJ & GR
Checked By : SD

GRADATION & PI

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

Client :	Steele Engineering, Inc.	HA Project No.:	06100
Project :	Pinnacle Peak Rd Paving & Storm Drain Improvements	HA Lab No.:	06L1392
Location:	43rd Avenue to 35th Avenue	Date Received :	7/20/2006
	Phoenix, Arizona	Test Required :	
Material :	Silty GRAVEL with sand	Gradation	x
Mat. Source :	B-11 (5-10)	-200 Wash	x
Sampled By :	AG	PI	x
Sampled Date :	7/19/06-7/20/06	Proctor	
Submitted By:	AG	Test Dates :	8/28/2006

[ ] ASTM D 422 [x] ASTM C 136 [ ] ASTM D 1140

Sample Weight		Coarse / Fine Factor	
+ #4	1363.5	Coarse Factor :	
- #4	1471.5	Fine Factor :	
Total	2835.0		

Natural Moisture	
Wet WT (g) :	333.0
Dry WT (g):	304.4
% Moisture:	9.4

Sieve US/mm	Wt. Retained	% Retained	%Passing	Specs
3"/75	0.0	0	100	
2-1/2"/ 62.5	0.0	0	100	
2"/50	0.0	0	100	
1-1/2"/ 37.5	0.0	0	100	
1" / 25	0.0	0	100	
3/4" / 19	75.6	3	97	
1/2"/12.5	172.9	6	91	
3/8" / 9.5	99.3	4	87	
1/4" / 6.3	860.6	32	55	
No.4 /4.75	155.1	6		
Min #4			50	
+#4 Total	1363.5		WBW (Wet):	327.9
-#4: Wet	1471.5		WBW (Dry):	299.7
-#4: Dry	1345.1		WAW (Dry):	185.8
Total	2708.6		Elutration:	113.9
#8 /2.36	36.9	6	44	
#10 / 2.00	11.1	2	42	
#16 /1.18	26.0	4	37	
#30 / 0.60	29.5	5	33	
#40/ 0.425	15.7	3	30	
#50 / 0.30	15.5	3	27	
#100 / 0.15	23.5	4	23	
#200 /0.075	24.5	4		
-#200/0.075	3.1		19.4	
Total	185.8			
Elutration	113.9			

PLASTICITY INDEX (ASTM D 4318)

Liquid Limit		Plastic Limit	
Tare Wt. :	11.15	Tare Wt. :	11.07
Wet Wt. :	23.70	Wet Wt. :	18.19
Dry Wt. :	19.63	Drt Wt. :	16.62
# of Blows	27		
Blos Factr	1.0097		
LL =	48	PL =	28

PLASTICITY INDEX = 20

BLOWS FACTOR	
22	0.9855
23	0.9903
24	0.9952
25	1
26	1.0048
27	1.0097
28	1.0145

USCS: **GM**

Tested By : EJ & GR
Checked By : SD

GRADATION & PI

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

Client :	Steele Engineering, Inc.	HA Project No.:	06100
Project :	Pinnacle Peak Rd Paving & Storm Drain Improvements	HA Lab No.:	06L1394
Location:	43rd Avenue to 35th Avenue	Date Received :	7/20/2006
	Phoenix, Arizona	Test Required :	
Material :	Clayey SAND with gravel	Gradation	x
Mat. Source :	B-12 (0-5)	-200 Wash	
Sampled By :	AG	PI	x
Sampled Date :	7/19/06-7/20/06	Proctor	x cs-4
Submitted By:	AG	Test Dates :	8/28/2006

[ ] ASTM D 422 [x] ASTM C 136 [ ] ASTM D 1140

Sample Weight		Coarse / Fine Factor	
+ #4	511.6	Coarse Factor :	
- #4	2507.4	Fine Factor :	
Total	3019.0		

Natural Moisture	
Wet WT (g) :	317.7
Dry WT (g):	294.0
% Moisture:	8.1

Sieve US/mm	Wt. Retained	% Retained	%Passing	Specs
3"/75	0.0	0	100	
2-1/2"/ 62.5	0.0	0	100	
2"/50	0.0	0	100	
1-1/2"/ 37.5	0.0	0	100	
1" / 25	0.0	0	100	
3/4" / 19	0.0	0	100	
1/2"/12.5	102.1	4	96	
3/8" / 9.5	124.1	4	92	
1/4" / 6.3	150.2	5	87	
No.4 /4.75	135.2	5		
Min #4			82	
+#4 Total	511.6		WBW (Wet):	405.5
-#4: Wet	2507.4		WBW (Dry):	375.3
-#4: Dry	2320.4		WAW (Dry):	240.2
Total	2832.0		Elutration:	135.1
#8 /2.36	49.5	11	71	
#10 / 2.00	15.3	3	68	
#16 /1.18	45.0	10	58	
#30 / 0.60	46.5	10	48	
#40/ 0.425	16.5	4	44	
#50 / 0.30	13.9	3	41	
#100 / 0.15	22.2	5	36	
#200 /0.075	25.1	5		
-#200/0.075	6.2		30.8	
Total	240.2			
Elutration	135.1			

PLASTICITY INDEX (ASTM D 4318)

Liquid Limit		Plastic Limit	
Tare Wt. :	11.22	Tare Wt. :	11.03
Wet Wt. :	24.71	Wet Wt. :	19.32
Dry Wt. :	21.13	Drt Wt. :	18.04
# of Blows	22		
Blos Factr	0.9855		
LL =	36	PL =	18

PLASTICITY INDEX = 18

BLOWS FACTOR	
22	0.9855
23	0.9903
24	0.9952
25	1
26	1.0048
27	1.0097
28	1.0145

USCS: **SC**

Tested By : EJ & GR
Checked By : SD

NATURAL MOISTURE CONTENT

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
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Client :	Steele Engineering, Inc.	HA Project No. :	06100
Project :	Pinnacle Peak Rd Paving & Storm Drain Improvements	HA Lab No.:	See Below
Location:	43rd Avenue to 35th Avenue	Date Received :	7/20/06
	Phoenix, Arizona	Test Dates :	8/9/06
Material :			
Mat. Source :	See Below		
Sampled By :	AG		
Sampled Date :	7/19-7/20/06		
Submitted by :	AG		

Test Results:

Source	Lab Number	Moisture Content (%)
B-1 (5' - 10')	06L1364	7.0
B-2 (5' - 10')	06L1367	4.1
B-3 (10' - 15')	06L1370	12.5
B-4 (5' - 10')	06L1372	12.9
B-4 (10' - 15')	06L1373	5.5
B-5 (10' - 15')	06L1376	9.1
B-6 (0' - 5')	06L1377	7.9
B-7 (5' - 10')	06L1381	5.2
B-8 (5' - 10')	06L1383	4.5
B-8 (10' - 15')	06L1384	5.2
B-9 (0' - 5')	06L1385	8.0
B-10 (5' - 10')	06L1389	12.0
B-11 (0' - 5')	06L1391	4.4
B-11 (10' - 15')	06L1393	12.0
B-12 (5' - 10')	06L1395	8.5

Tested By: AR
Checked By: SD

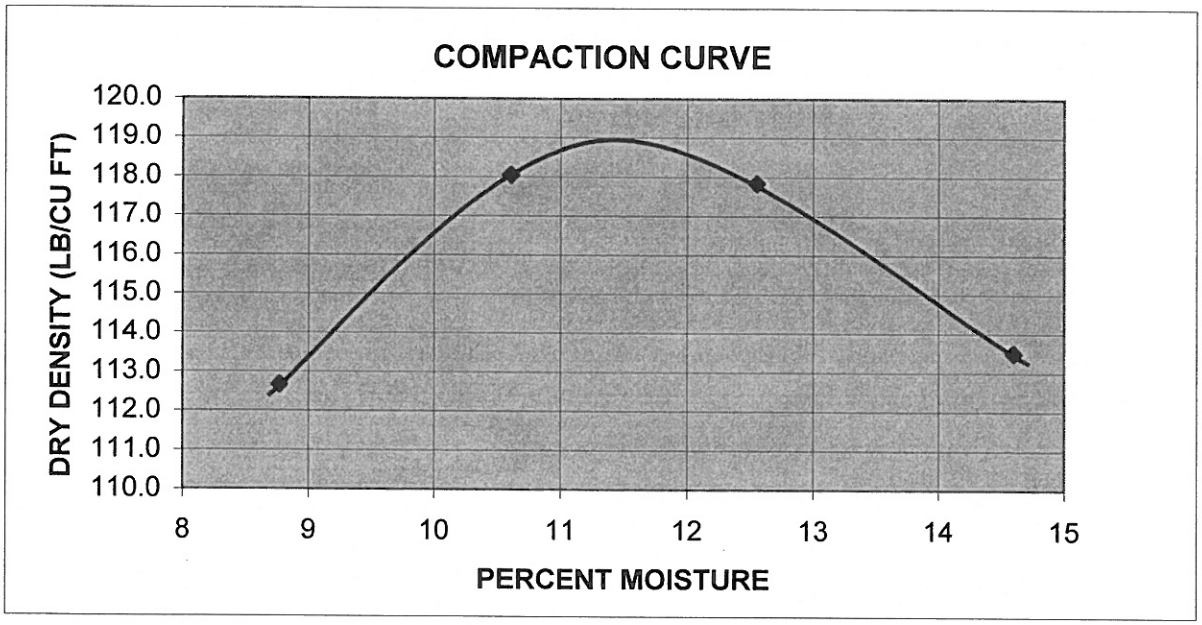
PROCTOR

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

Client :	Steele Engineering, Inc.	HA Project No.:	06100
Project :	Pinnacle Peak Rd Paving & Storm Drain Improvements	HA Lab No.:	CS-2
Location:	43rd Avenue to 35th Avenue	Proctor Type	Standard
	Phoenix, Arizona	Method	D 698A
Material :	Clayey SAND with gravel		
Mat. Source :	B-4 & B-5 @ (0' - 5')		
Sampled By :	AG		
Sampled Date :	7/19/06-7/20/06	Tested By :	GR
Date Received :	7/19/06-7/20/06	Test Dates :	8/28/2006

Point No.	1	2	3	4	
WM+WS (g)	6459.4	6581.0	6612.2	6573.5	
WW (g)	315.1	321.1	334.5	408.9	
DW (g)	289.7	290.3	297.2	356.8	
Moisture (%)	8.8	10.6	12.6	14.6	
WM (g)	4602.9				
VM (cu. ft.)	0.0334				
Rock (%)					

MOISTURE	8.8	10.6	12.6	14.6
DRY DENSITY	112.7	118.0	117.8	113.5



LAB

Max. Dry Density (lb/cu. ft.)	**119.0**
Opt. Moisture Content (%)	**11.4**

ROCK CORRECTED

Max. Dry Density (lb/cu. ft.)	
Opt. Moisture Content (%)	

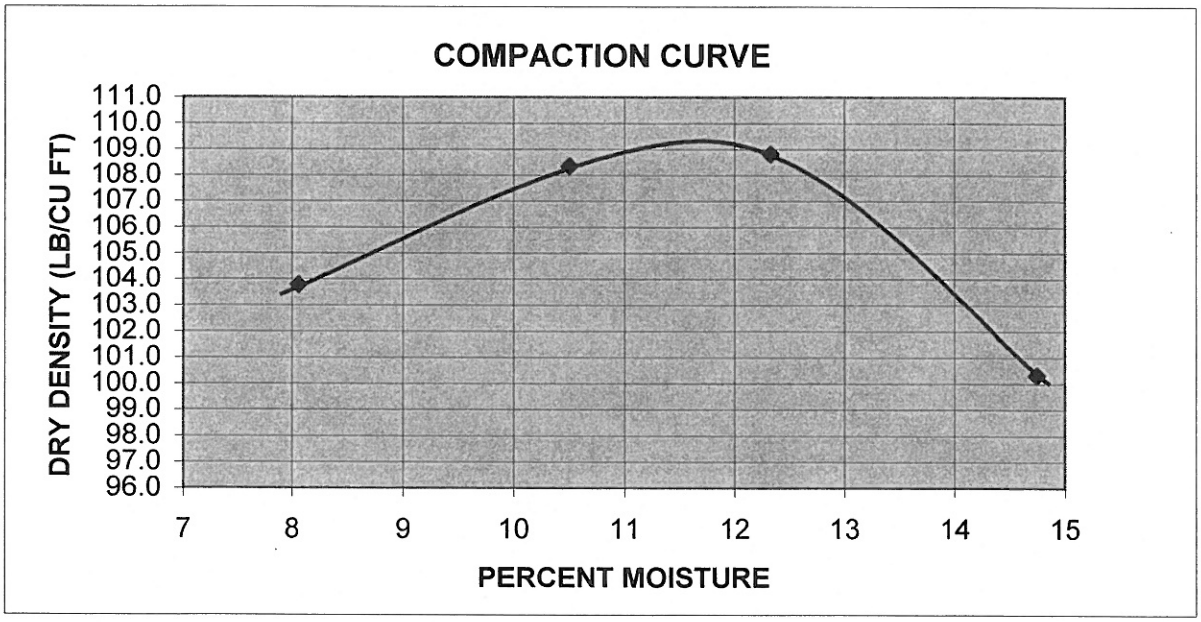
PROCTOR

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

Client :	Steele Engineering, Inc.	HA Project No.:	06100
Project :	Pinnacle Peak Rd Paving & Storm Drain Improvements	HA Lab No.:	CS-4
Location:	43rd Avenue to 35th Avenue	Proctor Type	Standard
	Phoenix, Arizona	Method	D 698A
Material :	Sandy CLAY with gravel		
Mat. Source :	B-10 & B-12 @ (0' - 5')		
Sampled By :	AG		
Sampled Date :	7/19/06-7/20/06	Tested By :	GR
Date Received :	7/19/06-7/20/06	Test Dates :	8/28/2006

Point No.	1	2	3	4	
WM+WS (g)	6301.9	6416.7	6454.6	6346.8	
WW (g)	308.3	315.6	358.0	303.5	
DW (g)	285.3	285.6	318.7	264.5	
Moisture (%)	8.1	10.5	12.3	14.7	
WM (g)	4602.9				
VM (cu. ft.)	0.0334				
Rock (%)					

MOISTURE	8.1	10.5	12.3	14.7
DRY DENSITY	103.8	108.3	108.8	100.3



LAB

Max. Dry Density (lb/cu. ft.)	**109.3**
Opt. Moisture Content (%)	**11.7**

ROCK CORRECTED

Max. Dry Density (lb/cu. ft.)	
Opt. Moisture Content (%)	

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SEP 14 2006

LABORATORY REPORT ON SOILS OR AGGREGATES

Client **HOQUE & ASSOCIATES INC**
ATTN: KEN TURNER
4325 SOUTH 34TH STREET
PHOENIX, AZ 85040

Date of Report **09-13-06**
Job No. **2146JL056**
Event / Invoice No. **Z056-012** Lab No. **5543**
Authorized By **HA/TURNER** Date **08-31-06**
Sampled By **HA/DEWAN** Date **07-19-06**
Submitted By **HA/RADEN** Date **08-31-06**

Project **HOQUE & ASSOCIATES # 06100**
Contractor --
Type / Use of Material **SOIL**
Sample Source / Location **CS-1**
Location **PINNACLE PEAK-43RD AVE TO 35TH AVE**
Arch. / Engr. --
Supplier / Source **NATIVE**
Source / Location Desig. By **HA/DEWAN** Date **07-19-06**

Reference: **RESISTANCE 'R' VALUE & EXPANSION PRESSURE OF COMPACTED SOILS**
☒ **ASTM D2844** ☐ **AASHTO T190** ☐

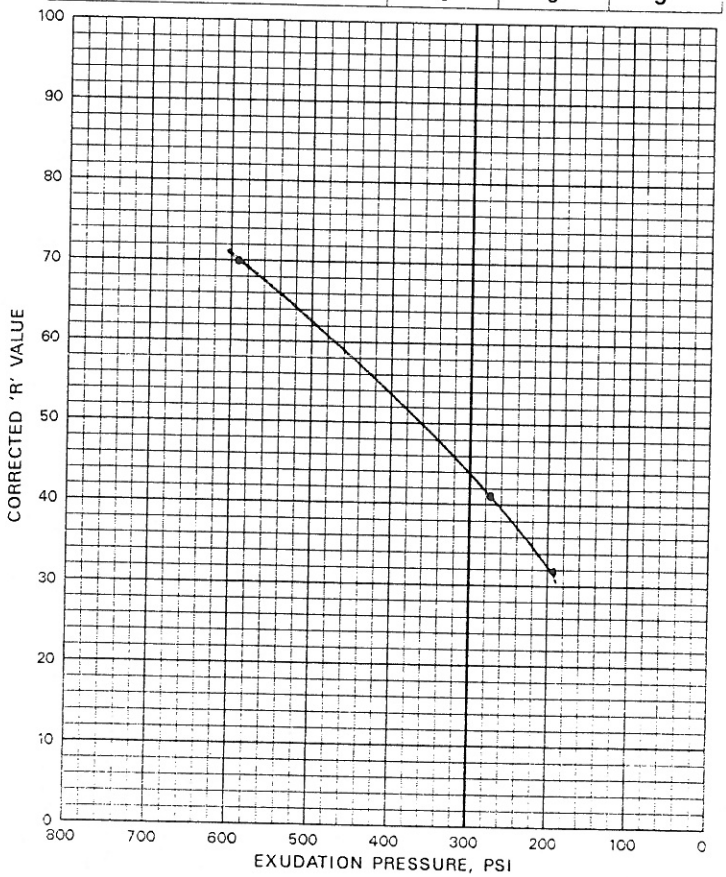
TEST RESULTS

SIEVE ANALYSIS ☐ ASTM C136 ☐ AASHTO T27 ☐

SIEVE SIZE U.S. - MM	ACCUMULATIVE % PASSING	SPECIFICATION	GRADING AS TESTED
3 IN. - 75.0			
2 1/2 - 62.5			
2 IN. - 50.0			
1 1/2 - 37.5			
1 1/8 - 28.1			
1 - 25.0			
3/4 - 19.0			
1/2 - 12.5			
3/8 - 9.5			
1/4 - 6.3			
NO. 4 - 4.75			
8 - 2.36			
10 - 2.00			
16 - 1.18			
30 - .600			
40 - .425			
50 - .300			
100 - .150			
FINER THAN NO. 200 ☐ ASTM D1140 ☐ ASTM C117 ☐ AASHTO T11			

CORRECTED RESISTANCE 'R' VALUE AT 300 PSI EXUDATION PRESSURE → **44**

SPECIMEN	A	B	C
COMPACTOR PRESSURE, PSI	160	220	320
MOISTURE AT COMPACTION, %	15.1	14.2	13.3
DRY DENSITY, PCF	124.4	127.2	128.2
CORRECTED 'R' VALUE	32	41	70
EXUDATION PRESSURE, PSI	189	275	586
EXPANSION DIAL READING X 10^{-4}	0	0	2
EXPANSION, PSF (DIAL X 4.33)	0	0	9



LIQUID & PLASTIC PROPERTIES
☐ ASTM D4318 ☐ AASHTO T89 & T90

METHOD ☐A ☐B	RESULT	SPECIFICATION
LIQUID LIMIT		
PLASTIC LIMIT		
PLASTICITY INDEX		

SAMPLE AIR DRIED: ☐ YES ☐ NO
ESTIMATED % RETAINED ON NO. 40

SOIL CLASSIFICATION
☐ ASTM D2487
☐ AASHTO M145
☒ ASTM D2488
VISUAL/MANUAL
GROUP SYMBOL **SC**
NAME **CLAYEY SAND**

Comments:

Copies To: **HOQUE & ASSOCIATES – (1)**

THE SERVICES REFERRED TO HEREIN WERE PERFORMED IN ACCORDANCE WITH THE STANDARD OF CARE PRACTICED LOCALLY FOR THE REFERENCED METHOD(S) AND RELATE ONLY TO THE CONDITION(S) OR SAMPLE(S) TESTED AS STATED HEREIN. WESTERN TECHNOLOGIES INC. MAKES NO OTHER WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED, AND HAS NOT CONFIRMED INFORMATION INCLUDING SOURCE OF MATERIALS SUBMITTED BY OTHERS.

REVIEWED BY Michael Klein

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LABORATORY REPORT ON SOILS OR AGGREGATES

Client **HOQUE & ASSOCIATES INC**
ATTN: KEN TURNER
4325 SOUTH 34TH STREET
PHOENIX, AZ 85040

Date of Report **09-12-06**
Job No. **2146JL056**
Event / Invoice No. **Z056-012** Lab No. **5544**
Authorized By **HA/TURNER** Date **08-31-06**
Sampled By **HA/DEWAN** Date **07-19-06**
Submitted By **HA/RADEN** Date **08-31-06**

Project **HOQUE & ASSOCIATES # 06100**
Location **PINNACLE PEAK-43RD AVE TO 35TH AVAE**
Contractor --
Arch. / Engr. --
Type / Use of Material **SOIL**
Supplier / Source **NATIVE**
Sample Source / Location **CS-2**
Source / Location Desig. By **HA/DEWAN** Date **07-19-06**

Reference: **RESISTANCE 'R' VALUE & EXPANSION PRESSURE OF COMPACTED SOILS**
☒ **ASTM D2844** ☐ **AASHTO T190** ☐

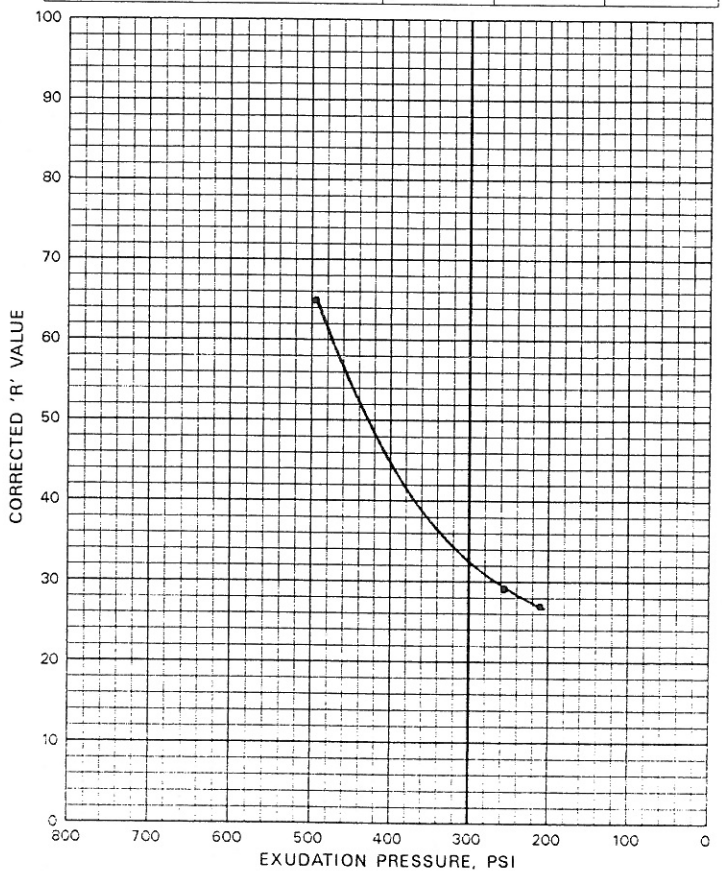
TEST RESULTS

SIEVE ANALYSIS ☐ ASTM C136 ☐ AASHTO T27 ☐

SIEVE SIZE U.S. - MM	ACCUMULATIVE % PASSING	SPECIFICATION	GRADING AS TESTED
3 IN. - 75.0			
2 1/2 - 62.5			
2 IN. - 50.0			
1 1/2 - 37.5			
1 1/8 - 28.1			
1 - 25.0			
3/4 - 19.0			
1/2 - 12.5			
3/8 - 9.5			
1/4 - 6.3			
NO. 4 - 4.75			
8 - 2.36			
10 - 2.00			
16 - 1.18			
30 - .600			
40 - .425			
50 - .300			
100 - .150			
FINER THAN NO. 200 ☐ ASTM D1140 ☐ ASTM C117 ☐ AASHTO T11			

CORRECTED RESISTANCE 'R' VALUE AT 300 PSI EXUDATION PRESSURE → **32**

SPECIMEN	A	B	C
COMPACTOR PRESSURE, PSI	200	220	280
MOISTURE AT COMPACTION, %	10.4	9.6	8.7
DRY DENSITY, PCF	115.5	129.9	133.1
CORRECTED 'R' VALUE	27	29	65
EXUDATION PRESSURE, PSI	208	258	495
EXPANSION DIAL READING X 10^{-4}	0	3	6
EXPANSION, PSF (DIAL X 4.33)	0	13	26



LIQUID & PLASTIC PROPERTIES
☐ ASTM D4318 ☐ AASHTO T89 & T90

METHOD ☐ A ☐ B	RESULT	SPECIFICATION
LIQUID LIMIT		
PLASTIC LIMIT		
PLASTICITY INDEX		
SAMPLE AIR DRIED: ☐ YES ☐ NO		
ESTIMATED % RETAINED ON NO. 40		

SOIL CLASSIFICATION
☐ ASTM D2487
☐ AASHTO M145
☒ ASTM D2488
VISUAL/MANUAL
GROUP SYMBOL **SC**
NAME **CLAYEY SAND**

Comments:

Copies To: **HOQUE & ASSOCIATES – (1)**

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REVIEWED BY Michael Glinis

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LABORATORY REPORT ON SOILS OR AGGREGATES

Client **HOQUE & ASSOCIATES INC**
ATTN: KEN TURNER
4325 SOUTH 34TH STREET
PHOENIX, AZ 85040

Date of Report **09-12-06**
Job No. **2146JL056**
Event / Invoice No. **Z056-012** Lab No. **5545**
Authorized By **HA/TURNER** Date **08-31-06**
Sampled By **HA/DEWAN** Date **07-19-06**
Submitted By **HA/RADEN** Date **08-31-06**

Project **HOQUE & ASSOCIATES # 06100**
Contractor --
Type / Use of Material **SOIL**
Sample Source / Location **CS-3**
Location **PINNACLE PEAK- 43RD AVE TO 35TH AVE**
Arch. / Engr. --
Supplier / Source **NATIVE**
Source / Location Desig. By **HA/DEWAN** Date **07-19-06**

Reference: **RESISTANCE 'R' VALUE & EXPANSION PRESSURE OF COMPACTED SOILS**
☒ **ASTM D2844** ☐ **AASHTO T190** ☐

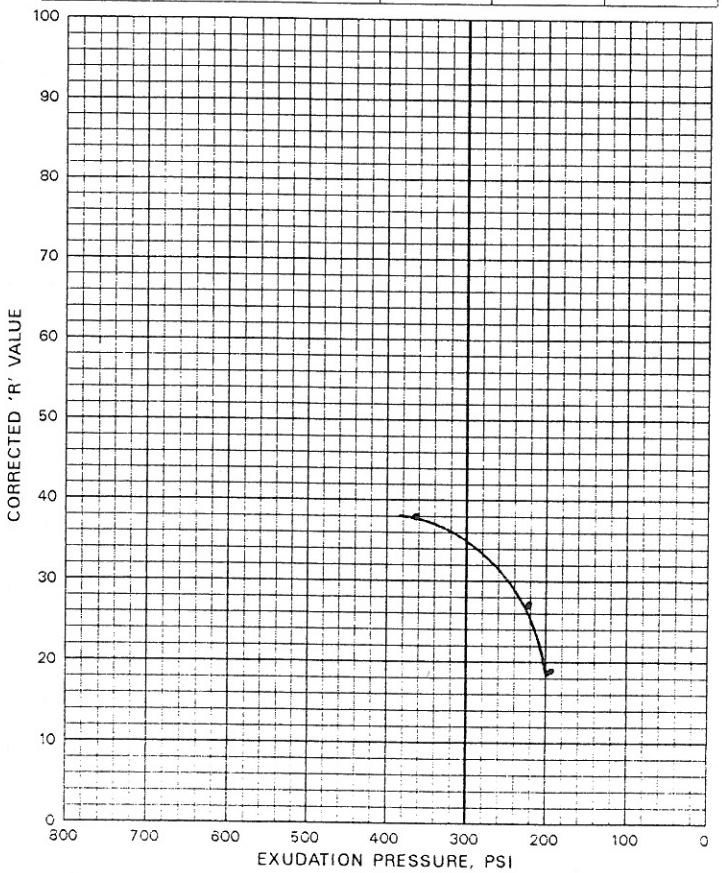
TEST RESULTS

SIEVE ANALYSIS ☐ ASTM C136 ☐ AASHTO T27 ☐

SIEVE SIZE U.S. - MM	ACCUMULATIVE % PASSING	SPECIFICATION	GRADING AS TESTED
3 IN. - 75.0			
2 1/2 - 62.5			
2 IN. - 50.0			
1 1/2 - 37.5			
1 1/8 - 28.1			
1 - 25.0			
3/4 - 19.0			
1/2 - 12.5			
3/8 - 9.5			
1/4 - 6.3			
NO. 4 - 4.75			
8 - 2.36			
10 - 2.00			
16 - 1.18			
30 - .600			
40 - .425			
50 - .300			
100 - .150			
FINER THAN NO. 200 ☐ ASTM D1140 ☐ ASTM C117 ☐ AASHTO T11			

CORRECTED RESISTANCE 'R' VALUE AT 300 PSI EXUDATION PRESSURE → **35**

SPECIMEN	A	B	C
COMPACTOR PRESSURE, PSI	140	300	200
MOISTURE AT COMPACTION, %	**11.9**	**10.1**	**11.0**
DRY DENSITY, PCF	**124.8**	**130.5**	**126.7**
CORRECTED 'R' VALUE	**19**	**38**	**27**
EXUDATION PRESSURE, PSI	**196**	**363**	**220**
EXPANSION DIAL READING X 10^{-4}	**0**	**3**	**0**
EXPANSION, PSF (DIAL X 4.33)	**0**	**13**	**0**



LIQUID & PLASTIC PROPERTIES
☐ ASTM D4318 ☐ AASHTO T89 & T90

METHOD ☐A ☐B	RESULT	SPECIFICATION
LIQUID LIMIT		
PLASTIC LIMIT		
PLASTICITY INDEX		

SAMPLE AIR DRIED: ☐ YES ☐ NO
ESTIMATED % RETAINED ON NO. 40

SOIL CLASSIFICATION
☐ ASTM D2487
☐ AASHTO M145
☒ ASTM D2488
VISUAL/MANUAL
GROUP SYMBOL **SC**
NAME **CLAYEY SAND**

Comments:

Copies To: **HOQUE & ASSOCIATES – (1)**

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Phoenix, Arizona 85040-2921
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LABORATORY REPORT ON SOILS OR AGGREGATES

Client **HOQUE & ASSOCIATES INC**
ATTN: KEN TURNER
4325 SOUTH 34TH STREET
PHOENIX, AZ 85040

Date of Report **09-12-06**
Job No. **2146JL056**
Event / Invoice No. **Z056-012** Lab No. **5546**
Authorized By **HA/TURNER** Date **08-31-06**
Sampled By **HA/DEWAN** Date **07-19-06**
Submitted By **HA/RADEN** Date **08-31-06**

Project **HOQUE & ASSOCIATES # 06100**
Contractor --
Type / Use of Material **SOIL**
Sample Source / Location **CS-4**
Location **PINNACLE PEAK – 43RD AVE TO 35TH AVE**
Arch. / Engr. --
Supplier / Source **NATIVE**
Source / Location Desig. By **HA/DEWAN** Date **07-19-06**

Reference: **RESISTANCE 'R' VALUE & EXPANSION PRESSURE OF COMPACTED SOILS**
☒ **ASTM D2844** ☐ **AASHTO T190** ☐

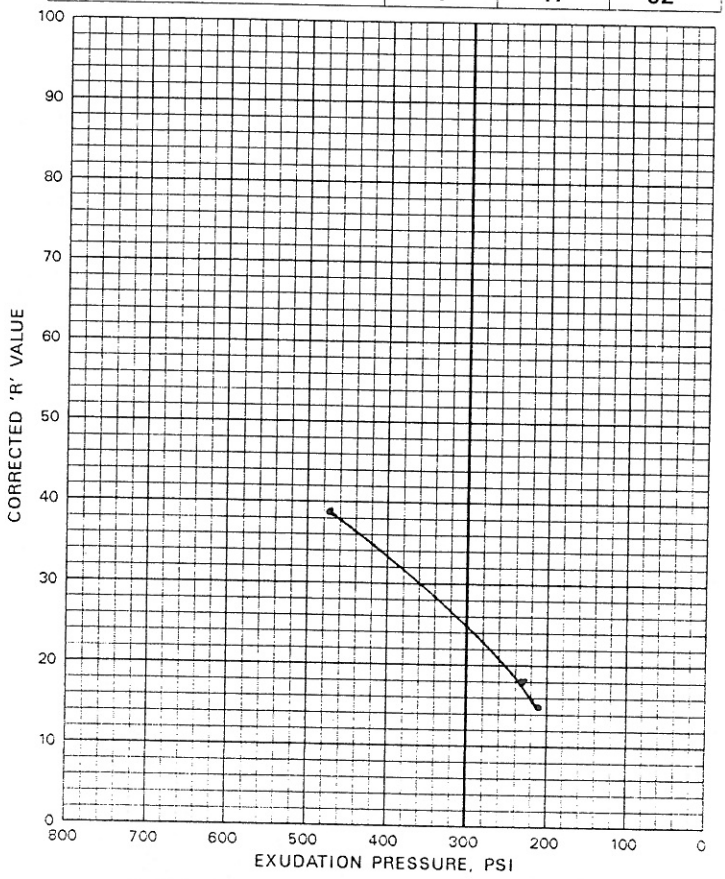
TEST RESULTS

SIEVE ANALYSIS ☐ ASTM C136 ☐ AASHTO T27 ☐

SIEVE SIZE U.S. – MM	ACCUMULATIVE % PASSING	SPECIFICATION	GRADING AS TESTED
3 IN. – 75.0			
2 1/2 – 62.5			
2 IN. – 50.0			
1 1/2 – 37.5			
1 1/8 – 28.1			
1 – 25.0			
3/4 – 19.0			
1/2 – 12.5			
3/8 – 9.5			
1/4 – 6.3			
NO. 4 – 4.75			
8 – 2.36			
10 – 2.00			
16 – 1.18			
30 – .600			
40 – .425			
50 – .300			
100 – .150			
FINER THAN NO. 200 ☐ ASTM D1140 ☐ ASTM C117 ☐ AASHTO T11			

CORRECTED RESISTANCE 'R' VALUE AT 300 PSI EXUDATION PRESSURE → **25**

SPECIMEN	A	B	C
COMPACTOR PRESSURE, PSI	120	160	250
MOISTURE AT COMPACTION, %	15.6	14.7	12.9
DRY DENSITY, PCF	116.8	118.1	122.9
CORRECTED 'R' VALUE	15	18	39
EXUDATION PRESSURE, PSI	209	229	475
EXPANSION DIAL READING X 10^{-4}	0	4	12
EXPANSION, PSF (DIAL X 4.33)	0	17	52



LIQUID & PLASTIC PROPERTIES
☐ ASTM D4318 ☐ AASHTO T89 & T90

METHOD ☐A ☐B	RESULT	SPECIFICATION
LIQUID LIMIT		
PLASTIC LIMIT		
PLASTICITY INDEX		
SAMPLE AIR DRIED: ☐ YES ☐ NO		
ESTIMATED % RETAINED ON NO. 40		

SOIL CLASSIFICATION
☐ ASTM D2487
☐ AASHTO M145
☒ ASTM D2488
VISUAL/MANUAL
GROUP SYMBOL **SC**
NAME **CLAYEY SAND**

Comments:

Copies To: **HOQUE & ASSOCIATES – (1)**

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REVIEWED BY

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Consolidation Potential of Soils

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

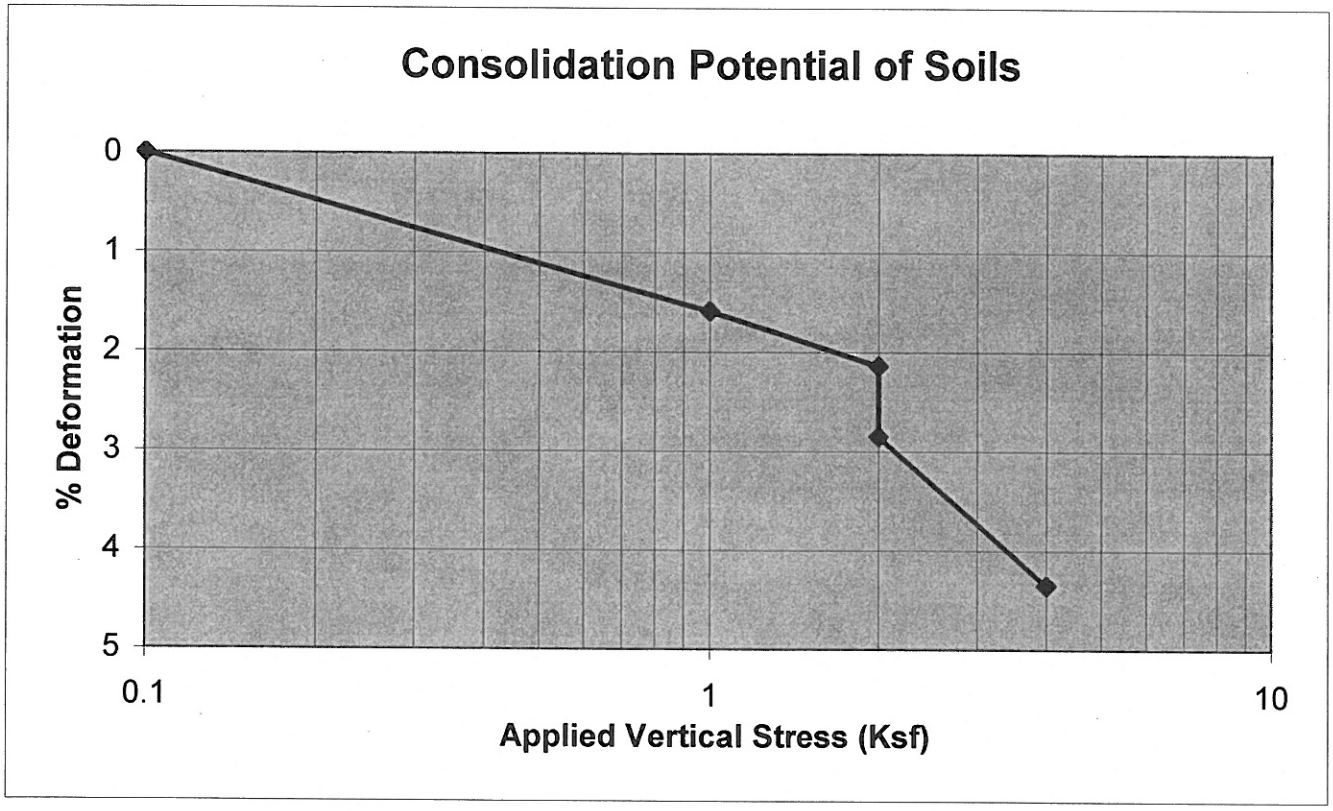
Client:	Steele Engineering, Inc.	HA Project No.:	06100
Project:	Pinnacle Peak Rd Paving & Storm Drain Improveme	HA Lab No.:	06L1398
Location:	43rd Avenue to 35th Avenue	Date Received:	7/20/2006
	Phoenix, Arizona	Test Dates:	8/23/06
Material:	Sandy CLAY		
Material Source:	B-3 (10' - 11')		
Sampled By:	AG		
Sample Date:	7/19/06-7/20/06		
Submitted By:	AG		

Sample Data

Wet Unit Weight (pcf): **107.3**
Moisture Content: **9.0%**
Dry Unit Weight (pcf): **98.4**

Sample Information:

Diameter (in):	2.414
Height (in):	1
Weight of Soil (g):	128.9



SWELL POTENTIAL OF SOILS

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

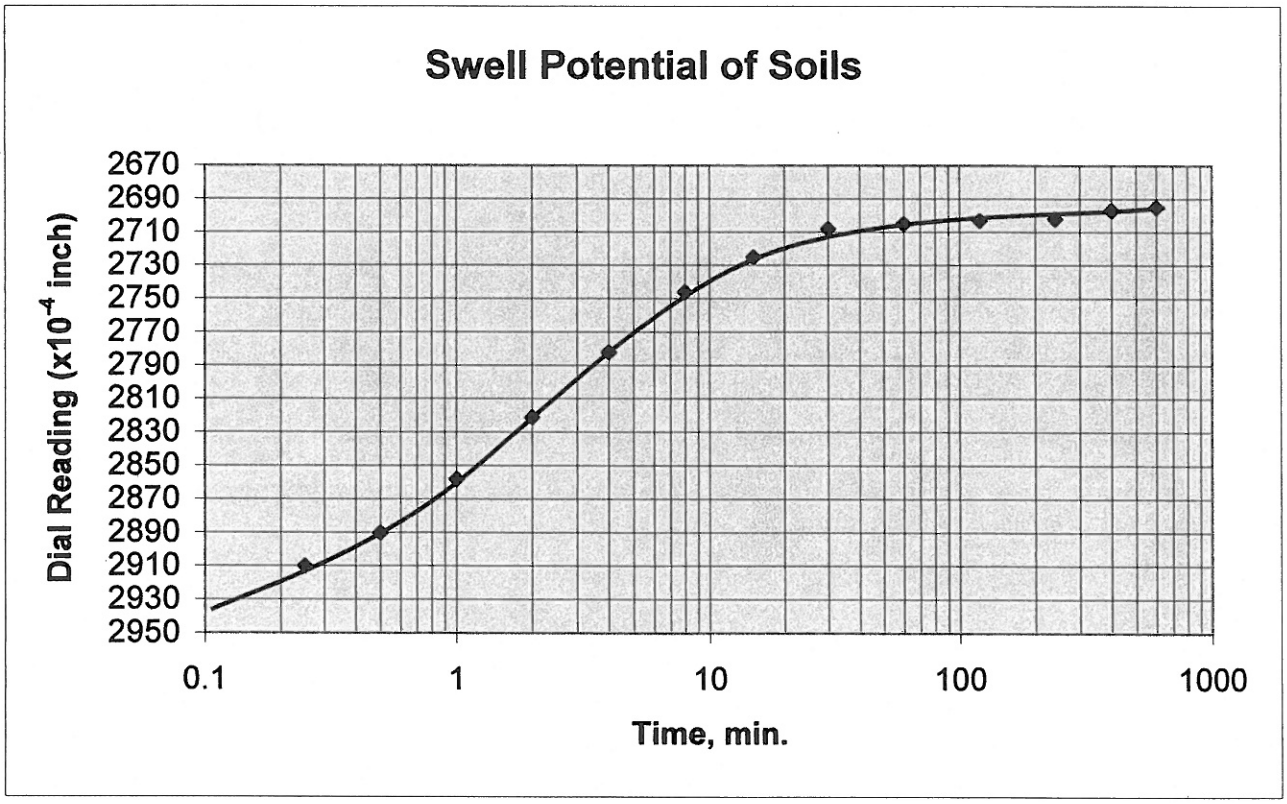
Client:	Steele Engineering, Inc.	HA Project No.:	06100
Project:	Pinnacle Peak Rd Paving & Storm Drain Improven	HA Lab No.:	06L1386
Location:	43rd Avenue to 35th Avenue	Date Received:	7/20/06
	Phoenix, Arizona	Test Dates:	11/7/06
Material:	Sandy CLAY		
Material Source:	B-1, B-3, & B-4 (0' - 5')		
Sampled By:	AG		
Sample Date:	7/19-7/20/06		
Submitted By:	AG		

Sample Data

Wet Unit Weight (pcf): **123.3**
Moisture Content: **12.1%**
Dry Unit Weight (pcf): **110.0**

Sample Information:

Diameter (in):	2.414
Height (in):	1
Weight of Soil (g):	148.2



IAS Laboratories

2515 East University Drive
Phoenix, Arizona 85034
(602) 273-7248

Today's Date: 8/25/2006

Project #: F-19-F20-06
Submitted By: Shameen Dewan
Send Report To: Hoque Associates
Report Number: 6628810
Date Received: 8/23/2006

Soil Analysis Report

Sender Sample ID	Depth	Lab #	[1] Sulfate ppm	[2] Chloride ppm	[3] Soluble Salts ppm	[3] pH	Other
B6	10-14	299	18	140	1,700	8.3	

Comments:

Reference:

[1] ADOT Method ARIZ 733
[2] ADOT Method ARIZ 736
[3] ADOT Method ARIZ 237b

pH & RESISTIVITY

HOQUE & ASSOCIATES
4325 South 34th Street
Phoenix, Arizona 85040
Tel : 480-921-1368
Fax : 480-921-0194

Client :	Steele Engineering, Inc.		
Project :	Pinnacle Peak Rd Paving & Storm Drain Improvements	HA Project No. :	06100
Location:	43rd Avenue to 35th Avenue	HA Lab No.:	06L1379
	Phoenix, Arizona	Date Received:	7/20/2006
Material :	Silty SAND	Test Date :	8/25/2006
Mat. Source :	B-6 @ (10' - 15')		
Sampled By :	AG		
Sampled Date :	7/19/06-7/20/06		
Submitted By:	AG		

Dist. Water (ml)	Resistance (ohms)
200	730
50	520
50	360
50	370
50	
50	
50	

Calculations: SBF = 6.67 cm
Resistivity = Lowest Resistance X SBF

pH Reading: 8.3

Resistivity (ohm-cm): 2401

Tested By: GR
Checked By: SD

BID PROPOSAL
CITY OF PHOENIX, ARIZONA
OFFICE OF THE CITY ENGINEER
PROJECT TITLE: PINNACLE PEAK ROAD: 45TH AVENUE TO 35TH AVENUE
PAVING AND STORM DRAIN IMPROVEMENTS
PROJECT NO.:ST85100400-1
BOND ISSUE OR BUDGET PROJECT

PROPOSAL to the City Engineer of the City of Phoenix.

In compliance with the Advertisement for Bids, by the City Engineer, the undersigned bidder:

_____

(Print or Type Contractor Name)

Having examined the contract documents, site of work and being familiar with the conditions to be met, hereby submits the following proposal for furnishing the material, equipment, labor and everything necessary for the completion of the work listed and agrees to execute the contract documents and furnish the required bonds and certificates of insurance for the completion of said work, at the locations and for the prices set forth on the inside pages of this form.

Understands that construction of this project will be in accordance with all applicable Maricopa Association of Governments' (MAG) Uniform Standard Specifications and Uniform Standard Details, latest revision and the City of Phoenix Supplements, latest revision to the MAG Uniform Standard Specifications and Details, except as otherwise required by the project plans and specifications.

No proposal may be withdrawn for a period of 50 days after opening without consent of the Contracting Agency through the body or agent duly authorized to accept or reject the proposal except in the case of federally-assisted projects.

Understands that his proposal will be submitted with a proposal guarantee of cash, certified check, cashier's check or surety bond for an amount not less than ten (10) percent of the amount bid, as referenced in the Call for Bids.

Agrees that upon receipt of Notice of Award, from the City of Phoenix, he will execute the contract documents within 10 calendar days.

Work will be completed within 365 calendar days, beginning with the day following the starting date specified in the Notice to Proceed. The time allowed for completion of the work includes lead time for obtaining the necessary materials and/or equipment and approvals.

The bidder will acknowledge all addenda in writing. By writing the addendum number(s) below, the bidder agrees that this proposal is computed with consideration of the specification book(s) plus any addenda.

ADDENDUM NO.	DATE	ADDENDUM NO.	DATE

Citv of Phoenix

BID PROPOSAL

Project No: ST85100400-1

Item No.	Description	Unit	Quantity	Unit Price	Total
	Project No: ST85100400-1 **Pinnacle Peak Road 45th Ave. to 35th Ave. Paving and Storm Drain Improvements**				
1 C3456000	Adjusting Frames, Covers, Valve Boxes On Existing Non-City Utilities, Contingent Item	Each	14.00		
2 E6992000	"Allowance For Stormwater Pollution Prevention Best Management Practices (BMP'S)"	Job	1.00	$35,000.00	$35,000.00
3 M1042005	Allowance for Extra Work	Job	1.00	$595,000.00	$595,000.00
4 M3010001	Subgrade Preparation	Sq. Yd.	52,688.00		
5 M3210100	Asphalt Concrete Surface Course, Type D 1/2 For Driveway, Sidewalk and Parking Lot Connections	Ton	29.00		
6 M3210115	Asphalt Concrete Surface Course, Type D 1/2, 1-1/2" Thick	Ton	4,301.00		
7 M3210360	Asphalt Concrete Base Course, Type A 1-1/2, 6" Thick	Ton	17,138.00		
8 M3290100	Emulsified Asphalt For Tack Coat, Type SS-1h	Ton	35.00		
9 M3304100	Power Broom	Hour	50.00		

BID PROPOSAL

Project No: ST85100400-1

Item No.	Description	Unit	Quantity	Unit Price	Total
10 M3360224	Sawcut, Remove and Replace A.C. Pavement, C.O.P. Standard Detail P -1200	Sq. Yd.	1,448.00		
11 M3400240	Concrete Valley Gutter, Std. Detail 240	Sq. Ft.	989.00		
12 M3400400	Concrete Sidewalk, Std. Detail P-1230	Sq. Ft.	47,993.00		
13 M3400555	Concrete Driveway Entrance, Std. Detail P-1255-1	Sq. Ft.	2,175.00		
14 M3400656	Concrete Bus Bay Pavement, Std. Detail P-1256-2, 9" Thick, Class "A" Concrete	Sq. Ft.	1,429.00		
15 M3401261	Concrete Bus Shelter/Accessory Pad, Std. Detail P-1261	Sq. Ft.	625.00		
16 M3402201	Combined Concrete Curb and Gutter, Std. Detail 220, Type "A", H=6"	Lin. Ft.	7,527.00		
17 M3402222	Concrete Single Curb, Std. Detail 222, Type "B"	Lin. Ft.	42.00		
18 M3402243	Concrete Curb Termination or Transisiton Per MAG Std. Detail 221	Lin. Ft.	30.00		
19 M3402246	Concrete Single Curb Termination Type Per MAG Std. Detail 222	Each	5.00		

Project No: ST85100400-1

Item No.	Description	Unit	Quantity	Unit Price	Total
20 M3450020	Adjust Existing Manhole Frame and Cover, MAG Std Detail 422	Each	18.00		
21 M3453001	Adjust Existing Type "A" Water Valve, Standard Detail P-1391 and P-1391-1	Each	39.00		
22 M3453009	Relocate Existing Irrigation Control Valve	Each	2.00		
23 M3453016	Adjust Survey Monument Handhole Frame and Cover, Std. Det. P-1270	Each	1.00		
24 M3500010	Remove Portland Cement Concrete Single Curb; Curb and Gutter; Header Curb or Embankment Curb	Lin. Ft.	3,415.00		
25 M3500020	Remove Portland Cement Concrete Sidewalk, Driveway, Valley Gutter & Slab	Sq. Ft.	17,606.00		
26 M3500030	Remove Structures, Backfill & Compact	Job	1.00		
27 M3500040	Remove Pipe, Backfill & Compact	Lin. Ft.	942.00		
28 M3500060	Remove Asphalt Concrete Pavement	Sq. Yd.	47,100.00		
29 M3500150	Remove Tree, 12" Diam. and Larger	Each	49.00		

BID PROPOSAL

Project No: ST85100400-1

Item No.	Description	Unit	Quantity	Unit Price	Total
30 M3500300	Miscellaneous Removal and Other Work	Job	1.00		
31 M3500501	Remove Existing Canal Lining Per Plan	Sq. Yd.	596.00		
32 M3506020	Abandon Manhole In Place; Remove Frame & Cover, Remove Cone, Backfill and Compact	Each	4.00		
33 M3513235	No. 3-1/2 Junction Box	Each	32.00		
34 M3515044	Relocate Existing Light Poles	Each	6.00		
35 M3515045	Remove Existing Light Poles Standard, Per Plan	Each	1.00		
36 M3515052	Furnish and Install LED Street Light Per C.O.P. Street Lighting Procedures, Standards and Specifications Manual, latest edition.	Each	26.00		
37 M4012000	Traffic Control Devices	Job	1.00		
38 M4013000	Allowance for Uniformed, Off-duty Law Enforcement Officer	Job	1.00	$40,000.00	$40,000.00
39 M4051201	Survey Marker, MAG Standard Det. 120 -1, Type "A"	Each	1.00		

Project No: ST85100400-1

Item No.	Description	Unit	Quantity	Unit Price	Total
40 M4051202	Survey Marker, MAG Standard Det. 120 -1, Type "B"	Each	9.00		
41 M4303000	Plant Establishment Guarantee and Maintenance (including water and power if required)	Month	6.00		
42 M4304000	Decomposed Granite, 3/4" Minus For General Landscape (2" Depth in Planting Areas)	Cu. Yd.	302.00		
43 M4305024	24" Box, Trees	Each	214.00		
44 M4309005	Tree Trimming	Each	2.00		
45 M4309050	Stump Grinding And Desert Spoon Removal	Each	11.00		
46 M4400255	3/4", PVC Irrigation Pipe, Schedule 40	Lin. Ft.	2,736.00		
47 M4400260	1" PVC Irrigation Pipe, Schedule 40	Lin. Ft.	8,206.00		
48 M4400270	1 1/2", PVC Irrigation Pipe, Schedule 40	Lin. Ft.	5,687.00		
49 M4400605	Flush Cap and Box Assembly - 3/4"	Each	23.00		

BID PROPOSAL

Project No: ST85100400-1

Item No.	Description	Unit	Quantity	Unit Price	Total
50 M4402100	1" Pressure Backflow Prevention Unit and Cage	Each	1.00		
51 M4404199	1" Electric Remote Control Valve And Emitter Control Assembly Per Detail W/ Inline WYE Filter & Box	Each	9.00		
52 M4404310	1" Gate Valve (Bronze W/ Box)	Each	5.00		
53 M4404311	1" Ball Valve (Bronze)	Each	9.00		
54 M4404510	Multi-Port Emitter and Riser Assembly with Bug Cap	Each	256.00		
55 M4405300	3" Schedule 40 PVC Irrigation Sleeve	Lin. Ft.	250.00		
56 M4405400	4" Schedule 40 PVC Irrigation Sleeve	Lin. Ft.	800.00		
57 M4406001	Sprinkler Controller with Surge Protection and Security Cabinet (Stainless Steel on Concrete Base)	Each	1.00		
58 M4406800	1" Flow Meter (Sensor and Box)	Each	1.00		
59 M4406906	1" Master Valve and Flow Sensor Assembly And Box	Each	1.00		

BID PROPOSAL

Project No: ST85100400-1

Item No.	Description	Unit	Quantity	Unit Price	Total
60 M4711002	2" SCH 40 PVC Conduit Under New Pavement or Landscaping	Lin. Ft.	1,205.00		
61 M4711004	2 1/2" SCH 40 PVC Conduit Under New Pavement or Landscaping	Lin. Ft.	3,555.00		
62 M4712002	Traffic Signal, No. 5 Junction Box	Each	6.00		
63 M4712003	Traffic Signal, No. 7 Junction Box	Each	2.00		
64 M4721001	Foundation for Type A Signal Pole	Each	1.00		
65 M4721003	Foundation for Type LM Signal Pole	Each	7.00		
66 M4721004	Foundation for Type SM Signal Pole	Each	1.00		
67 M4721005	Foundation for Type SR Signal Pole	Each	6.00		
68 M4721006	Foundation for Type SQ Signal Pole	Each	1.00		
69 M4722001	Foundation for Power Pedestal	Each	2.00		

BID PROPOSAL

Project No: ST85100400-1

Item No.	Description	Unit	Quantity	Unit Price	Total
70 M4722002	Foundation for Controller Cabinet	Each	2.00		
71 M4741001	Type A Signal Pole	Each	1.00		
72 M4741002	Type SQ Signal Pole	Each	1.00		
73 M4741003	Type LM Signal Pole	Each	7.00		
74 M4741004	Type SM Signal Pole	Each	1.00		
75 M4741005	Type SR Signal Pole	Each	6.00		
76 M4741009	30' Mast Arm for Signal Pole (SR/SM Pole)	Each	1.00		
77 M4741011	40' Mast Arm for Signal Pole (SR Pole)	Each	1.00		
78 M4741012	45' Mast Arm for Signal Pole (SR Pole)	Each	4.00		
79 M4741013	50' Mast Arm for Signal Pole (SR Pole)	Each	1.00		

Item No.	Description	Unit	Quantity	Unit Price	Total
80 M4741015	60' Mast Arm for Signal Pole (SQ Pole)	Each	1.00		
81 M4741016	Luminaire Mast Arm	Each	15.00		
82 M4751001	Electrical Power Service Pedestal Cabinet (120/240 Volt) (Meyers MEUGL-W/TB)	Each	2.00		
83 M4751002	Controller Cabinet (8-Phase Traffic Signal)	Each	2.00		
84 M4751005	Electrical Service Entrance (SES), Includes Cabinet, Switchgear, Time Switch, Meter Section, Grounding, and Concrete Foundation. SES shall be a	Job	1.00		
85 M4791000	Removal of Signal Pole (PB Pole)	Each	2.00		
86 M4791001	Removal of Signal Pole Type "A"	Each	8.00		
87 M4791008	Removal of Signal Pole Type "M" with Mast Arm	Each	8.00		
88 M4791011	Removal of Signal Pole, Type "SM/SR" with Mast Arm and Extension	Each	1.00		
89 M4792001	Removal of Controller Cabinet	Each	2.00		

BID PROPOSAL

Project No: ST85100400-1

Item No.	Description	Unit	Quantity	Unit Price	Total
90 M4792002	Removal of Traffic Signal Power Pedestal	Each	2.00		
91 M4793001	Removal of Traffic Signal Pole Foundations	Each	18.00		
92 M4794001	Miscellaneous Removal of Incidental Traffic Items	Job	2.00		
93 M5051530	Concrete Catch Basin, Type "M-1, L=3-Ft" Phx. Supp. Detail P-1569-1	Each	10.00		
94 M5051531	Concrete Catch Basin, Type "M-1, L=3-Ft", Phx. Supp. Detail P-1569-2	Each	12.00		
95 M5051535	Concrete Catch Basin, Type "M-1, L=6-Ft" Phx. Supp. Detail P-1569-1	Each	12.00		
96 M5051536	Concrete Catch Basin, Modified, Type "M-1, L=6-Ft", Phx. Supp. Detail P-1569 -2	Each	1.00		
97 M5051540	Concrete Catch Basin, Type "M-1, L=10-Ft", Phx. Supp. Detail P-1569-1	Each	1.00		
98 M5051541	Concrete Catch Basin, Modified, Type "M-1, L=10-Ft", Phx. Supp. Detail P -1569-2	Each	1.00		
99 M5051545	Concrete Catch Basin, Type "M-1, L=17-Ft", Phx. Supp. Detail P-1569-1	Each	10.00		

BID PROPOSAL

Project No: ST85100400-1

Item No.	Description	Unit	Quantity	Unit Price	Total
100 M5051560	Concrete Catch Basin, Type "M-2, L=17-Ft", Phx. Supp. Detail P-1569-1	Each	5.00		
101 M5051561	Concrete Catch Basin, Modified, Type "M-2, L=17-Ft", Phx. Supp. Detail P -1569-2	Each	1.00		
102 M5051745	CONCRETE CATCH BASIN, TYPE "M -2, L=17-FT, L=6-FT", PER COP DETAIL P-1569-1	Each	2.00		
103 M5052062	Concrete Scupper, MAG Standard Detail 206	Each	10.00		
104 M5052069	Concrete Spillway, MAG Std. Dtl 206-1	Sq. Ft.	802.00		
105 M5052074	Concrete Channel Lining Per Plans	Sq. Yd.	418.00		
106 M5052075	Concrete Apron ADOT SD 6.11 (1-4)	Sq. Ft.	846.00		
107 M5057072	Inlet Wingwalls, and Apron per Plans	Lump Sum	1.00		
108 M5057074	Outlet Wingwalls, and Apron per Plans	Lump Sum	1.00		
109 M5057285	2-Barrel 8' x4' Reinforced Concrete Box Culvert, ADOT Std. B-02.20. ADOT SD 6.02 (Modified)	Lin. Ft.	215.00		

BID PROPOSAL

Project No: ST85100400-1

Item No.	Description	Unit	Quantity	Unit Price	Total
110 M5200110	Handrail, Phoenix Supp. Detail P-1173 (Mod)	Lin. Ft.	272.00		
111 M6014900	Trenching For Street Light Circuit	Lin. Ft.	11,600.00		
112 M6101801	Relocate Existing Water Meter, Box, and Cover	Each	6.00		
113 M6101805	Water Service Connection (Main to Meter) 1" Water Meter and New Water Meter Box & Cover Furnish & Install-Full	Each	1.00		
114 M6101850	Allowance for Excess Ductile Iron Fittings, Furnish and Install	Job	1.00	$5,000.00	$5,000.00
115 M6103706	Waterline Realignment, 6" and 8", Contingent Item	Each	25.00		
116 M6103710	Waterline Realignment, 10" and 12", Contingent Item	Each	29.00		
117 M6108010	Relocate Fire Hydrant	Each	4.00		
118 M6180018	18" Storm Sewer Pipe	Lin. Ft.	726.00		
119 M6180024	24" Storm Sewer Pipe	Lin. Ft.	330.00		

BID PROPOSAL

Project No: ST85100400-1

Item No.	Description	Unit	Quantity	Unit Price	Total
120 M6180030	30" Storm Sewer Pipe	Lin. Ft.	1,866.00		
121 M6180036	36" Storm Sewer Pipe	Lin. Ft.	3,303.00		
122 M6180048	48" Storm Sewer Pipe	Lin. Ft.	989.00		
123 M6180054	54" Storm Sewer Pipe	Lin. Ft.	1,251.00		
124 M6180506	Concrete Pipe Collar For 24" Pipe and Larger, COP Standard Detail P-1505	Each	2.00		
125 M6181015	15" Catch Basin Connector Pipe	Lin. Ft.	1,544.00		
126 M6181018	18" Catch Basin Connector Pipe	Lin. Ft.	157.00		
127 M6181024	24" Catch Basin Connector Pipe	Lin. Ft.	224.00		
128 M6181030	30" Catch Basin Connector Pipe	Lin. Ft.	390.00		
129 M6186004	18" X 18" X 15" Prefabricated Tee	Each	4.00		

BID PROPOSAL

Project No: ST85100400-1

Item No.	Description	Unit	Quantity	Unit Price	Total
130 M6186008	24" X 24" X 15" Prefabricated Tee	Each	2.00		
131 M6186010	24" X 24" X 18" Prefabricated Tee	Each	1.00		
132 M6186018	30" X 30" X 15" Prefabricated Tee	Each	7.00		
133 M6186019	30" X 30" X 24" Prefabricated Wye	Each	3.00		
134 M6186028	36" X 36" X 15" Prefabricated Tee	Each	13.00		
135 M6186035	36" X 36" X 30" Prefabricated Tee	Each	1.00		
136 M6186041	48" X 48" X 30" Prefabricated Tee	Each	1.00		
137 M6186042	48" X 48" X 15" Prefabricated Tee	Each	8.00		
138 M6186043	54" X 54" X 15" Prefabricated Tee	Each	3.00		
139 M6186110	48" X 48" X 24" Prefabricated Tee	Each	1.00		

BID PROPOSAL

Project No: ST85100400-1

Item No.	Description	Unit	Quantity	Unit Price	Total
140 M6186156	54"X54"X30" Prefabricated Tee	Each	2.00		
141 M6250004	Storm Sewer Manhole, MAG Standard Detail 522 (Shallow), COP Supp. Std. Detail P-1520	Each	2.00		
142 M6250005	Storm Sewer Manhole, MAG Standard Detail 522, COP Supp. Std. Detail P -1520	Each	28.00		
143 M6250015	Storm Sewer Manhole Base Transition, Phoenix Supp. Detail P-1560 and MAG Std. Detail 522	Each	3.00		

Project No.: ST85100400-1 Pinnacle Peak Road 45th Ave. to 35th Ave. Paving and Storm Drain Improvements
(Items 1 thru 143)

Total Amount of Construction Bid $ _____

_____ and _____/100 Dollars

Written Words

PROPOSAL SUBMITTAL

PROJECT TITLE: PINNACLE PEAK
ROAD: 45TH AVENUE TO 35TH AVENUE
PAVING AND STORM DRAIN
IMPROVEMENTS
PROJECT NO.: ST85100400-1

THIS PROPOSAL IS SUBMITTED BY _____

a corporation organized under the laws of the State of _____

a partnership consisting of _____

_____

a joint venture consisting of _____

_____

or individual trading as _____

_____

_____

of the City of _____

FIRM _____

ADDRESS _____

CITY _____ STATE ___ ZIP CODE _____

PHONE _____ VENDOR NO. _____

BY _____
Officer and Title (signature)

_____
Officer and Title (print or type)

_____
Date

_____
WITNESS: If Contractor is an individual
(signature)

_____
ATTEST: If Contractor is Corporation or Partnership
(signature and title)

SURETY BOND

Project No.:ST85100400-1

That we, _____, as Principal, (hereinafter called the Principal) and the _____, a corporation duly organized under the laws of the State of _____, as Surety, (hereinafter called the Surety) are held and firmly bound unto the City of Phoenix as Obligee, in the sum of ten (10) percent of the total amount of the bid of Principal, submitted by him to the City of Phoenix for the work described below, for the payment of which sum, well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents and in conformance with A.R.S. #34-201.

WHEREAS, the said Principal is herewith submitting its proposal for **Pinnacle Peak Rd: 45th Avenue to 35th Avenue Paving and Storm Drain Improvements.**

NOW, THEREFORE, if the City of Phoenix will accept the proposal of the Principal and the Principal will enter into a contract with the City of Phoenix in accordance with the terms of such proposal and give such Bonds and Certificates of Insurance as specified in the Standard Specifications with good and sufficient Surety for the faithful performance of such contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter into such contract and give such Bonds and Certificates of Insurance, if the Principal will pay to the City of Phoenix the difference not to exceed the penalty of the bond between the amount specified in the proposal and such larger amount for which the Obligee may in good faith contract with another party to perform the work covered by the proposal, then this obligation will be null and void, otherwise to remain in full force and effect.

Signed and sealed this _____ day of _____ A.D., 2018

_____
Principal

_____
Title

_____
Mailing Address

_____

_____
Surety

_____
WITNESS:

_____

A.M. BEST RATING:

City of Phoenix

Small Business Enterprise Program

SBE – DESIGN BID BUILD (DBB) CONTRACT CLAUSE

PROJECT #: ST85100400-1 **CONTRACT #: TBD**

PROJECT NAME: Pinnacle Peak Road: 45th Avenue to 35th Avenue Paving and Storm Drain Improvements

The City of Phoenix Small Business Enterprise Program (SBE) is managed and administered by the Equal Opportunity Department, Contract Compliance Division. Phoenix is one of the fastest growing, multicultural cities in the country and has shown a historical commitment to business diversity. The City strives to advance the economic growth of businesses through its Small Business Enterprise (SBE) Program.

Through a coordinated effort among several city departments, the SBE Program provides SBE certification, procurement opportunities, construction subcontracting utilization, small business management and technical assistance and educational services and networking opportunities.

The Small Business Enterprise (SBE) participation goal for this project is as follows:

SBE Required Goal = 15%

An annual SBE subcontracting participation goal has been established under this Contract. The Prime Contractor is required to demonstrate good faith efforts to utilize certified SBE firms to achieve this goal during the life of this contract.

For purposes of determining the Contractor's actual SBE utilization during and at the end of the project, the Contractor shall meet or exceed their **Proposed SBE Goal Percentage (as indicated on the Submitter's received SBE Utilization Form with their bid submittal)** for the contract, for ***ALL*** work performed on the project, including any amount paid for contingencies and allowances, and selected alternates. **The Proposed Goal shall meet/or exceed the Required Goal.**

For purposes of calculating the Contractor's "Proposed SBE Goal Percentage" on the Contractor's Statement of Proposed SBE Utilization form, bidders must not propose SBE subcontractors from areas identified on the bid form as contingencies and allowances or proposed alternates. Any SBE participation proposed from these areas will be not counted towards meeting the SBE goal requirement necessary for contract award.

The "Total Bid" shall be defined as the total of all the unit prices, or the lump sum total, including alternates and contingencies and allowances. The "Base Bid" shall be defined as the "Total Bid" minus "all proposed alternates" as determined by the project manager. Any additional dollars paid under this contract, including any selected alternate(s), shall be subject to the **Proposed SBE Goal Percentage** listed on the Contractor's Statement of Proposed SBE Utilization form.

SBE PROGRAM DEFINITIONS

Broker, Packager, Manufacturers' Representative, or Jobber means a firm that is not a manufacturer or regular dealer as defined herein.

Commercially Useful Function (CUF) means that a SBE firm is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. A SBE must perform at least 75% of the total cost of its contract with its own work force in order to be determined to be performing a CUF on the contract.

Contract is a written agreement obligating the seller or business enterprise to furnish goods or services as submitted and the Purchaser or Buyer to pay for such goods or services.

Contractor is an individual, partnership, joint venture, corporation or firm that executes a contract with the City to perform services requested by a solicitation or procurement. The Contractor may be direct or through an authorized representative.

Joint Venture (JV) is an association between two or more persons, partnerships, corporations, or any combination thereof, formed to carry on a single business activity. The JV is limited in scope and duration to this contract. The resources, assets and labor of the participants must be combined in an effort to accrue profit.

Manufacturer means a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract.

Purchaser for purposes of this contract means the City.

Regular Dealer or Supplier means a business that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. The firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question.

Small Business Enterprise (SBE) means a small business that has been determined to meet the requirements for SBE certification with the City of Phoenix and whose certification is in force at the time of the award of business by the City. A directory of currently certified SBE firm is located at https://phoenix.diversitycompliance.com.

Subcontract a contract at any tier below the prime contract, including purchase orders.

Subcontractor is an individual, partnership, joint venture, corporation or firm that holds a contract at any tier below the prime contract, including purchase orders.

Successful Submitter is a Submitter who has been selected to perform services requested by a solicitation or procurement.

SECTION I. SBE CERTIFIED FIRMS

Only firms certified by the City of Phoenix under Chapter 18, Article VIII of the Phoenix city code are eligible to fulfill the participation goal stated above. A firm's ***certification must be in the trade areas listed on the proposed utilization form and current and in force at the date and time of the bid opening deadline***.

The most current electronic directory of all certified **SBE** firms can be accessed at:

https://phoenix.diversitycompliance.com

If you need to verify certification status, please contact the Equal Opportunity Department at (602) 262-6790 and identify yourself as a prime contractor bidding on this project. Prime contractors should verify that the certifications of the SBE firms are current prior to bid opening. ***If a firm's certification expires and is not renewed prior to the bid-opening deadline, that firm will be ineligible to satisfy the goal*.**

SECTION II. SBE BID PROCEDURES

The bid envelope shall contain all information and documents related to the SBE requirements of this section. ***Failure to properly complete the "Contractor's Statement of Proposed SBE Utilization" and "Letter of Intent to Perform as a Subcontractor/Supplier" forms, or submit a fully documented waiver request as described below, will result in bid rejection.*** The required documentation includes:

1. **A Contractor's Statement of Proposed SBE Utilization** - The form shall document the name of each SBE firm that will be awarded a subcontract; services to be performed by each subcontractor; dollar amount to be paid for those services; and the total dollar amount that is being proposed in SBE participation.

2. **A Letter of Intent to Perform as a SBE Subcontractor/Supplier** (required for each SBE subcontractor/supplier proposed) The form shall be completed by the SBE firm that will be awarded the subcontract. The form documents services to be performed by the subcontractor/suppler and the total dollar amount of the subcontract that will be awarded to the SBE. Only the services performed in the area(s) described by the SBE's certification description can be counted towards the SBE goal requirement.

The bidder's proposed utilization of SBE firms to fulfill the participation goal must be submitted on the "Contractor's Statement of Proposed SBE Utilization" form included in the specification packet. Additionally, each of the **SBE** subcontractors/suppliers the bidder is proposing to use to meet the goal requirement on this contract must complete the "Letter of Intent to Perform as an SBE Subcontractor/Supplier" (LOI) form. Both forms must be completed and submitted as part of the bid packet by the bid-opening deadline.

Failure to submit a completed "Contractor's Statement of Proposed SBE Utilization" and signed "Letter of Intent to Perform as an SBE Subcontractor/Supplier" form for each of the proposed SBE firms will result in a bidder being declared non-responsive to the requirements of these specifications and the bid will not be considered. The forms must contain the following:

1. The Certified SBE firm name and the certified trade or services to be performed.
2. The dollar amount of the proposed subcontract to be awarded to each SBE firm.
3. The total dollar amount of all SBE proposed subcontracts.

In instances where an exact dollar amount to be subcontracted with a SBE firm cannot be determined, the bidder shall indicate on Columns 3 and 4 of Part B Section 1 of the "Letter of Intent To Perform as a SBE Subcontractor/Supplier" form the minimum guaranteed hours/units and dollar amount that will be paid to the SBE firm. This situation applies only when a Contractor proposes to utilize a SBE firm that engages in work related to a broker, supplier or; a bid that is based on a per hour charge as in hauling/trucking or construction site security. Please note that this exception does not permit the Prime contractor to complete or modify any other part of the LOI document. Both, the SBE and the bidder must sign the LOI document prior to bid submittal. By signing the document, the bidder affirms that it has not altered or modified the document in any way other than, if applicable, entering the Unit/Hours and Total Quote Amount in Part B SECTION 1.

If a bidder proposes to utilize a firm not certified by the City of Phoenix and/or not certified in the proposed scope of work at the time of bid, the proposed utilization amount for that firm will be deducted from the total proposed SBE utilization amount used for determining if the bidder is responsive to the requirements of this section. Bidder shall not include any amount the SBE firm has indicated in the LOI document as work it will sublet or is not covered in their certification description in the Contractor's Statement of Proposed SBE Utilization form. Only amounts associated with the work to be performed by the SBE, and indicated in the SBE's certification description, may be counted towards the SBE participation goal requirement of this section.

If the reduced proposed SBE utilization is insufficient to meet the established participation goal required for this contract, and no waiver documentation has been submitted, the bidder shall be determined to be **non-responsive** to the requirements of this section and the bid will not be considered.

A certified SBE firm bidding as a Prime Contractor cannot count the work it will self-perform towards meeting the required SBE subcontracting goal.

A "Letter of Intent to Perform as a Subcontractor/Supplier" will be used in determining compliance with the requirements of this section. **The proposed subcontract dollar amount listed for each SBE firm on the "Contractor's Statement of Proposed SBE Utilization" must match the SBE dollar amount indicated in the boxed areas in Parts C, D or E of the signed "Letter of Intent to Perform as a Subcontractor/Supplier."** Failure to submit a completed LOI document with the SBE's and bidder's signatures shall be determined to be **non-responsive** to the requirements of this section and the bid will not be considered.

SECTION III. IF THE BIDDER IS UNABLE TO MEET THE GOAL

A fully documented waiver request detailing why the bidder has been unable to meet the SBE utilization goal in whole, or in part, and the "good faith" effort of the bidder to obtain SBE participation. In order to be viewed as good faith efforts, a bidder's activities must be consistent with all activities that could reasonably be expected from a bidder who was actively and aggressively seeking to meet the SBE goal. To show proof of having exercised good faith efforts in trying to obtain bids from SBE firms to meet the utilization goals. The following factors are illustrative of those matters that shall be considered when judging whether the bidder made "good faith efforts".

1. A cover letter addressed to the Street Transportation Procurement Section clearly indicating whether a full or partial waiver is being requested, the percentage to be waived, and the reasons the waiver is being sought.
2. If a partial waiver is being requested, a Bidder's Statement of Proposed Utilization listing firms that will satisfy the portion of the goal that will be met must be included with the bid proposal. Additionally, a Letter of Intent to Perform as a Subcontractor/Supplier from each SBE firm that is proposed to be utilized must be included with the bid proposal.
3. Proof of contact with SBE firms, including but not limited to, fax logs, telephone logs, mail receipts, etc, including documentation of the number of times that firms were contacted, the dates of contact, and the name, phone number, fax number, and address of the contact person associated with each SBE firm. Solicitation of SBE subcontractors must be consistent with the solicitation of all subcontractors and must clearly demonstrate that SBE firms had sufficient time to submit an effective response.
4. Copies of the documents submitted to all subcontractors requesting their bid. This should include the scope of work to be bid and performed on the project.
5. Copies of bid responses/quotes from all subcontractors who bid to perform work on the project in the areas that SBE firms were also bidding on, including information as to why SBE bids were not considered.
6. Documentation that shows efforts made to provide assistance to SBE firms in the areas of bonding, insurance, or other contracting requirements.
7. Documentation of attendance at the pre-bid conference held for the project.
8. Documentation of contact made with City personnel seeking assistance in identifying eligible SBE firms for contracting opportunities on the project.

SECTION IV. SBE WAIVER PROCEDURES

Requests for a partial or full waiver of the SBE goal for the project including all Good Faith Documentation shall be submitted as part of the bid packet. The request will be reviewed to ensure compliance with the requirements of this section. If the request is determined to meet the requirements, a waiver hearing will be scheduled and the bidder notified of the date, time, and place of the hearing. All waiver hearings are open to the public. However, only the designated representative for the contractor and City staff may participate in the proceedings.

The contractor requesting the waiver may appear at the hearing to present their request and answer questions from the Waiver Review Committee regarding their submittal. The Committee will consider the information and documentation that was submitted at the time of bid. The bidder may not present additional or new information at the hearing. At the conclusion of the hearing process the Committee will make independent recommendations on the request for waiver. The presiding officer, on behalf of the Committee, will provide a written summary of the Committee's recommendations to the City Manager's designee, the City Engineer. The City Engineer will make the final decision to grant or deny the waiver request. The City Engineer's decisions shall be final. The City will notify the contractor regarding the final decision of the City Engineer.

If a partial or full waiver of the SBE goal is granted to a bidder, the bidder shall be considered to have met the project goals and their bid will be considered responsive to the requirements of this section. If a waiver is denied, the bidder is deemed non-compliant and non-responsive to the requirements of this section and their bid will not be considered.

Failure to submit the Contractor's Statement of Proposed SBE Utilization form and a LOI from each SBE firm proposed OR a fully documented waiver request at the time of bid will be cause to determine the bidder non-responsive to the requirements of this section.

SECTION V. LIMITATION OF THE USE OF SUPPLIERS AND BROKERS TO FULFILL THE SBE GOAL

Proposed expenditures to brokers and suppliers can be used to meet the utilization goal, provided that the combined applicable expenditures do not exceed 25 percent (25%) of the total SBE goal requirement. Contractors may count one hundred percent (100%) of the dollars proposed to be paid to a SBE supplier, and all costs associated with fees and commission to be paid to a SBE broker, up to the 25% limitation.

Supplier (or Wholesaler) is defined as firm that does not directly manufacture the product being supplied and has an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question. A supplier is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

EXAMPLE: *An SBE goal of 5% has been established on a project where the contractor has submitted a base bid of $1,000,000. This results in a dollar goal of $50,000 to be subcontracted to SBE's. The contractor proposes to contract with a SBE supplier for $100,000. Only $12,500, or 25 percent (25%), may be counted towards achievement of the SBE goal for this project. The remaining $37,500 must be achieved through the use of firms that are not suppliers or brokers.*

Broker is defined as firm that arranges or expedites services or transactions through the use of individuals not directly employed by the company. Brokers are not regular suppliers. Only costs associated with the fees and commission paid to the certified firm for providing such services may be applied towards the SBE contract goal.

The following defines the expenditures to SBE firms that are NOT subject to the 25% limitation. The following expenditures may be counted in their entirety towards fulfilling 100% of the utilization goal:

1. Expenditures to certified SBE firms that operate and maintain an establishment or factory to produce, on the premises, the materials or supplies purchased for the contract.
2. Expenditures to a certified SBE fabricator that operates and maintains a factory to substantially alter materials or supplies before resale.
3. Expenditures, including fees and commissions, charged to provide bona fide technical and professional personnel recruitment for the contract. The total cost paid that shall be comparable to the industry standards customarily charged for the same or similar services.
4. Expenditures, including fees and commissions, charged for providing bonds and insurance specifically required for the performance of the contract. The total cost shall be comparable to the industry standards charged for the same or similar services.

All SBE firms proposed to participate on this contract opportunity must be SBE certified by the City of Phoenix prior to the date and time of the bid.

Participation on the contract will be calculated based on that portion (dollar value) of the contract that the SBE actually performs with its own forces. This includes the cost of supplies and materials obtained by the SBE for the work on the contract, ***except*** in cases when; it has been determined by the City *not* to be part of the firm's certification description; the SBE is certified as a "placer", "finisher", or "installer" of those materials only, or when the supplies and/or equipment it uses to perform its work is purchased or leased from the Contractor or its affiliate.

Special emphasis and care should be taken to ensure that the following types of participation are handled properly when preparing your bid packet, as failure to correctly calculate the allowable SBE participation in the following areas shall result in your bid being declared non-responsive if the SBE goal requirement is not met:

Fees & Commissions*:* SBE firms that supply a bona fide service for a fee or commission may be counted only to the extent of the fees or commissions charged by the SBE. This includes, but is not limited to, providing professional, technical, consultant, or managerial services, and bonds or insurance specifically required for the performance of a contract. Fees must be reasonable, not excessive, compared to fees customary for similar services.

EXAMPLE: *A* SBE *firm that supplies uniformed officers for security or traffic control may count only the amounts charged as a commission. The hourly amount paid to the officers may not be counted. If the "per hour" bid amount to the prime contractor is $35, and $25 per hour will be paid to the officers, only $10 per hour can be counted towards achieving the* SBE *goal. If the firm or bidder estimates that there will be 200 hours of work bid at a rate of $35 per hour, only $2,000 of the total $7,000 bid could be counted.*

Trucking & Hauling: The amount of a trucking/hauling subcontract that may be counted towards the utilization requirements may be limited. An SBE must itself own and operate at least one fully licensed, insured, and operational truck that will be used on the contract. In addition, trucks the SBE leases without drivers under a long-term leasing agreement may be considered part of the trucking firm's workforce and counted in full, provided the leasing agreement(s) is/are for a period of not less than 6 months and; **the leased vehicles have been recorded with the City's Equal Opportunity Department's Certification Office prior to the submittal of the LOI document.**

EXAMPLE: *A* SBE *trucking firm uses seven trucks on a job; two are owned by the* SBE *and five are leased from other firms. If two of the five trucks are leased without drivers and the remaining three are leased with drivers from another firm, then the amount paid to the* SBE *for the services provided by the trucks it owns and the two it leases without drivers and operates with its own employees can be counted in full towards meeting the* SBE *requirements. The Contractor may not count any portion of the amount the SBE receives for the two trucks it leases with drivers towards the* SBE *utilization goal.*

SECTION VI. POST AWARD SBE COMPLIANCE INFORMATION - DBB

Submittal of a bid to the City of Phoenix shall constitute an agreement by the bidder to comply with the SBE utilization requirements of this section should the bidder be awarded a contract. This includes, but is not limited to, the following compliance activities:

1. The contractor shall contract, or attempt to contract, in good faith with all SBE firms listed on the Bidder's Statement of Proposed SBE Utilization form submitted with their bid. The subcontract shall be for an amount that is equal to, or greater than, the total proposed dollar amount listed on the form, with the exception of instances where the City changes a scope of work in the contract that would reduce the available work in the subcontractor's area of performance.
2. The contractor shall not reduce any of the proposed SBE scopes of work or amounts indicated on the Bidder's Statement of Proposed SBE Utilization form without first submitting a Request for Exemption and receiving approval in writing from the City's Equal Opportunity Department (EOD), Contract Compliance Division.
3. The contractor shall notify the City of Phoenix Equal Opportunity Department immediately if any firm listed on the Bidder's Statement of Proposed SBE Utilization form refuses to enter into a subcontract or fails to perform according to the requirements of the subcontract.
4. Any reduction of retention by the City to the contractor shall result in a corresponding reduction to subcontractors or suppliers who have performed satisfactory work. The contractor has 14 days from the date their retention reduction takes affect to reduce retention to the subcontractors.
5. The contractor shall return all retention monies to subcontractors at such time as the work originally proposed by the subcontractor, and expressed in the original subcontract agreement, is complete and the purchaser (City) has accepted the work and paid the prime for the work performed by the subcontractor. Retention shall be paid no later than 30 days after such payment is made by the City.
6. The contractor shall act in good faith to meet the contract SBE utilization goal and provide all necessary documentation to show proof of those efforts as requested by the City.

If for any reason the SBE firm is decertified prior to the execution of a subcontract agreement, the bidder shall find additional SBE participation in the amount equivalent to or greater than that which was originally proposed for the SBE firm. Bidder shall make every good faith effort possible in finding a SBE replacement in the proposed trade area first, before considering SBE participation in other trade areas.

SECTION VII. Subcontract Assurances

Each contract signed by the Agency and the Successful Bidder and each subcontract signed by the Successful Bidder with a Subcontractor, including Subcontractors with lower tier Subcontractors must include the following assurances verbatim:

Prompt Payment of Subcontractors *The Contractor and Subcontractor shall promptly pay its lower tier subcontractors, sub consultants, or suppliers upon receipt of payment from the City of Phoenix (Agency).*

Progress Payments: In accordance with the Arizona Revised Statues (ARS), Section 34-221(G), the Contractor(s) shall promptly pay its subcontractors, sub consultants, or suppliers within seven (7) calendar days of receipt of each progress payment from the Agency. Any diversion by the Contractor(s) of payments received for work performed on the contract, or failure to reasonably account for the application or use of such payments, constitutes grounds for a declaration of breach of the contract with the Agency.

Retention Payments: If the Agency reduces the Contractor's retention, the Contractor shall correspondingly, within 14 days, reduce the retentions held against the Subcontractors and suppliers that have performed satisfactory work.

Release of Retention: The Contractor(s) shall ensure prompt and full payment of retentions to Subcontractors and suppliers when their work is complete, the Agency has accepted the work, and the Agency has paid the Contractor for the work. The Contractor shall pay each Subcontractor's and supplier's retention no later than 30 days after the Agency pays Contractor for the completed scope of work.

Changes to Subcontracts and Values *The City of Phoenix prohibits Contractor(s) from altering the Contractor's Statement of Proposed SBE Utilization form without receiving prior, written consent from the City. The Equal Opportunity Department must be informed, in writing, and in advance of the following:*

- *Reduction to the scope of work performed by subcontractors working on the contract*
- *Changes in any of the subcontract values resulting in a reduced dollar amount*
- *Replacement and/or release of any subcontractor after contract award*

Contractor(s) and Subcontractor(s) are required to complete a Request for Exemption Form and have the written approval of the Contract Compliance Office prior to taking action on any of the above listed matters related to SBE subcontractors.

In the event that any provision of this subcontract varies from the provisions of the contract or subcontract, the provisions for SBE contract compliance as contained in Administrative Regulation 1.89, Section IX, shall provide definitive guidance.

Disclaimer: *Nothing in this section prevents the Contractor or Subcontractor from enforcing its subcontract with a lower tier Subcontractor or supplier for defective work, late performance, and other claims arising under the Subcontract.*

SECTION VIII. RECORDS and REPORTING REQUIREMENTS

1. **Records**

During performance of the Contract, the Successful Submitter shall keep all records necessary to document DBE and Small Business participation. The Successful Submitter shall provide the records to the Agency within 72 hours of the Agency's request and at final completion of the Contract. The Agency will prescribe the form, manner, and content of reports. The required records may include but not limited to:

a) A complete listing of all Subcontractors and suppliers on the project;
b) Each Subcontractor's and supplier's scope performed;
c) The dollar value of all subcontracting work, services, and procurement;
d) Copies of all executed Subcontracts, purchase orders, and invoices: and
e) Copies of all payment documentation.

2. **Reports**

a. The contractor shall participate in all compliance reviews determined necessary by the City. This includes, but is not limited to participating in on-site reviews, providing monthly utilization reports of SBE activity, providing signed copies of subcontracts and/or purchase orders with each SBE listed on the Bidder's Statement of Proposed SBE Utilization form, and complying with any and all requests for information the City deems appropriate for effectively monitoring this contract for compliance with the SBE Program requirements.
b. The contractor shall provide regular, monthly report/audit information that will assist us in effectively monitoring your compliance with the SBE Program requirements. This shall include listing all subcontractors working on the contract and reporting payments into the Certification and Compliance System https://phoenix.diversitycompliance.com. Reporting audits shall include all payments received from the City and payments you have issued to all subcontractors and suppliers. **Copies of the first 2 pages of the Pay Request submittal are required with each report. All Monthly audit reports are to be completed online by the 15th of every month.** (https://phoenix.diversitycompliance.com).
    i. The total of all payments received from the City during the previous month.
    ii. The first two pages of each payment application submitted for those payments.
    iii. All payments made to Subcontractors during the previous month.

Before the Agency processes the Successful Submitter's final payment and/or outstanding retention held against the Successful Submitter, the Successful Submitter shall submit to the Agency a final certification of full and final payment to each Subcontractor in the form prescribed by the Agency. The form must be completed and certified by the Successful Submitter's and each Subcontractor's duly authorized agents.

SECTION IX. PERFORMANCE OF A COMMERCIALLY USEFUL FUNCTION

The prime contractor may count only expenditures to SBE subcontractors that perform a commercially useful function in the work of the contract, as defined in Chapter 18 Article VI of the City Code. A "commercially useful function" constitutes performing real and actual services related to the contract.

SBE subcontractors may enter into second-tier subcontracts consistent with normal industry practices. If an SBE subcontracts greater than twenty-five **(25)** percent of the work of their contract, the SBE subcontractor shall be presumed not to be performing a commercially useful function. In this event, the prime contractor will not be allowed to claim any expenditure to the SBE subcontractor.

SECTION X. FAILURE TO COMPLY WITH THE SBE PROGRAM REQUIREMENTS

If the Equal Opportunity Department determines that the contractor will fail, or has failed, to meet the SBE subcontracting goals, and/or has failed to act in good faith to ensure compliance with the SBE conditions of its contract; it shall deem the contractor "noncompliant" and not in good standing. A noncompliant status shall result in the rejection of all future contract bids or offers for all projects or other procurements with the City until such time that the contractor has cured its breaches and demonstrates that it has faithfully performed its approved SBE utilization plan and all other provisions of this article required to be deemed in good standing. In addition to this action, the City may also exercise its option to impose any or all of the following remedies:

1. Withholding from the contractor ten percent (10%) of all future payments on the involved eligible project until it is determined that the contractor is in compliance;

2. Withholding from the contractor all future payments on the involved project until it is determined that the contractor is in compliance

Failure to cure a non-compliance status within the time frame provided by the City may result in further action, including but not limited to imposing any or all of the following sanctions:

1. Rejection of all future bids or offers from the contractor for any eligible project with the City or any of its departments or divisions for a period of (1) year after substantial completion of the contract.

2. Cancellation of the contract.

City of Phoenix

Small Business Enterprise Program

CONTRACTOR'S STATEMENT OF PROPOSED SBE UTILIZATION (DBB)

PROJECT NUMBER/NAME: ST85100400-1 Pinnacle Peak Road: 45th Avenue to 35th Avenue Paving and Storm Drain Improvements
Required SBE Goal: 15%

	COMPANY NAME	SERVICES TO BE PROVIDED	SUPPLIER-YES/NO May not satisfy more than 25% of the Goal	SBE $$$ AMOUNT from LOI Tables - Sections C, D, or E
SBE FIRMS				

($_____) - ($_____) = ($_____)

Total Bid - Alternates = Base Bid

($_____) ÷ ($_____) X 100 = _____%

Total Proposed SBE Dollars ÷ Base Bid X 100 = Total Proposed SBE Participation %

Total Proposed SBE Dollars

$

Proposed SBE Percentage must equal to or exceed the Required SBE Required Goal Percentage.

All additional contract dollars, including selected alternates, will be subject to the Proposed SBE Goal %. NO rounding allowed.

Do not alter or adjust any dollar amount or percentage on this form; it may have a negative impact on your bid.

I hereby certify by signing below the foregoing SBE firms shall be contracted to work on the trades identified above and/or supply material/equipment for this project.

The information shown above is a **true reflection of the proposed subcontracts**.

COMPANY NAME: _____ EMAIL: _____ PHONE: _____

NAME & TITLE: _____

SIGNATURE: _____ DATE: _____

City of Phoenix

Small Business Enterprise Program

Letter of Intent (LOI) To Perform as an SBE Subcontractor

(THIS FORM ***MUST*** BE COMPLETED BY THE SBE SUBCONTRACTOR – BOTH SBE SUBCONTRACTOR & PRIME SIGNATURE ARE REQUIRED)

Project Number: ST85100400-1 **Contract #:**	**Project Description: Pinnacle Peak Road: 45th Avenue to 35th Avenue Paving and Storm Drain Improvements**

TO: _____ (Insert Name of Prime Contractor)

FROM: _____ (Insert Name of SBE Firm)

A. The undersigned declares that the firm bidding to perform the work described herein, has been granted certification by the City of Phoenix (COP) as a Small Business Enterprise (SBE) in the area(s) of:

(COP) Certification Description:

B. The undersigned is bidding to perform the following scope(s) of work on the above referenced project:

SECTION 1 - COMPLETE THIS PORTION IF THE SCOPE OF WORK IS BEING BID BY UNIT PRICE OR HOURLY RATE SUPPLIER, BROKER, TRUCKING, HAULING, UNIFORMED OFFICERS MUST USE THIS SECTION			
Scope of Work	**Unit/Hourly Rate**	**# of Units/Hours**	**Total Quote Amount**
			$

SECTION 2 - GENERAL OR SPECIALTY CONSTRUCTION TRADE AREAS MUST USE THIS SECTION	
Scope of Work	**Total Quote Amount**
	$

C. Of the Total Quote Amount reflected in Part B-SECTION 2, the following scope(s) of work with the given amount **will not** be performed by the SBE or **is/are not** covered under the SBE's certification description:

Scope(s) of Work _____ **Amount $**_____

Subtract Amount in Part C above from the Total Quote Amount in Part B-Section 2 =* *$*_____

* ***Only this amount shall be reflected on the Bidder's Statement of Proposed Utilization.***

D. If trucking services are included in Part B - SECTION 1 above, SBE **MUST** complete the following:

Of the Total Quote Amount noted in part B-Section 1, the SBE affirms that the amount of * $_____ shall be performed by drivers the firm employs, and trucks the SBE owns and leases without drivers.

(*The amount referenced above is transferred from Step 9 of the Worksheet (L.O.I.W.-1). *Only this amount shall be on the Statement of Proposed Utilization)*

E. All subcontractors providing Broker or Traffic Control/Security Services indicated in Part B-SECTION 1 above **MUST Complete the Following:**

Rate of the SBE's fees/commissions _____%; for a Total Amount in fees/commissions of: $_____

The Percentage and Total Amount referenced above is transferred from Steps 2 and 3 of the Worksheet (page L.O.I. W.-1). Only the Total Amt in fee/commissions shall be reflected on the Bidders Statement of Proposed Utilization.

Should the prime contractor receiving this form be selected for award of the contract, the undersigned affirms that he/she will enter into an agreement to perform the work bid herein.

_____ _____

(SBE Subcontractor Authorized Signature) (Date)

_____ _____

(Print Name and Title) (Phone Number)

By signing this LOI document, the Prime Contractor affirms that it has not altered or modified this document in any way other than, if applicable, entering the Unit/Hours and Total Quote Amount in Part B SECTION 1.

_____ _____

(Prime Contractor Authorized Signature) (Date)

_____ _____

(Print Name and Title) (Phone Number)

City of Phoenix
Small Business Enterprise Program

LETTER OF INTENT TO PERFORM AS A SUBCONTRACTOR/SUPPLIER INSTRUCTIONS AND WORKSHEET - *L.O.I. W.-1*

A Letter of Intent to Perform as a SBE Subcontractor/Supplier (required for each SBE subcontractor/supplier proposed). The form documents services to be performed by the subcontractor/suppler and the total dollar amount of the subcontract that will be awarded to the SBE. Only the services performed in the area(s) described by the SBE's certification description can be counted towards the SBE goal requirement.

Part I. Trucking and Hauling: SBEs should indicate on Part B-Section 1 and Part D, of the LOI form, the information regarding trucks to be used in executing the contract. The City allows the counting of all payments for services provided by trucks which the SBE owns. Trucks which the SBE leases on a long-term basis and are operated with drivers the SBE employs may also be counted in full. The payments for short-term leased trucks, with or without SBE employed drivers cannot be counted.

Only trucks for which leasing agreements have been submitted and approved by EOD as part of the SBE firm's current certification file shall be considered eligible for counting towards the goal.

STEP ONE	STEP TWO	STEP THREE
Value of work expected to be performed by trucks owned by the SBE (2 Trucks)	Value of work expected to be performed by trucks leased (**with drivers**) by the SBE on a long-term basis (2 Trucks)	Combined value of work expected to be performed by other trucking firms and/or trucks leased (**without drivers**) by the SBE (3 Trucks)
$20,000	**$20,000**	**$33,000**

STEP FOUR	STEP FIVE	STEP SIX
Estimated value for services provided by all trucks the SBE will use on the contract**.** **(Add Steps One, Two, and Three)**	Expected value of work performed by trucks not eligible for counting as SBE participation **(Value in Step Three)**	Total estimated value that can be counted for SBE participation **(Subtract Step Five from Step Four)** **$73,000 - $33,000**
$73,000	**$33,000**	**=$40,000**

Part II. Fees and Commissions: Insert the information from below under Step Three-Commission/Fees Percentage and the Countable Amount for SBE Participation into Part E of the LOI form. This part is applicable for the use of uniformed officers to provide traffic control and security and other services provided at an hourly rate by non-employees of the SBE contractor.

(The following information is provided as a sample only)

STEP ONE		
Total Number of Hours	Per Hour Bid Amount	Calculation Formula: Total Gross Bid Amount
200	**$35**	**200 × $35 = $7,000**

STEP TWO			
Per Hour Bid Amount	Officers Hourly Rate	SBE Firm Commission/Fee	Calculation Formula: Fees/Commissions Percentage
$35	**$25**	**$10**	**(10 / 35) * 100 = 28.57%**

STEP THREE		
Gross Bid Amount (from Step One)	Commission/Fee % (from Step Two)	Calculation Formula: Amount Countable for SBE Participation
$7,000	**28.57%**	**$7,000 × .2857 = $2,000**

Part III. Construction Trade Areas: SBE must indicate in the Scope of Work of Part B-Section 2 of the LOI form, ***all*** scope(s) of work associated with the Total Quote Amount. The SBE must complete Part C of the LOI form by entering the Scope of Work and amount not expected to be performed by the SBE or which is not covered under the SBE's certification description. Subtracting this amount from the Total Quote Amount in Part B-Sect. 2 will result in the portion of work that can be counted as SBE participation.

CITY OF PHOENIX
LIST OF MAJOR SUBCONTRACTORS AND SUPPLIERS

PROJECT NO.: ST85100400-1 PROJECT TITLE: PINNACLE PEAK ROAD: 45TH AVENUE TO 35TH AVENUE PAVING AND STORM DRAIN IMPROVEMENTS

DESCRIPTION OF WORK OR MATERIALS (CONTRACTOR TO ENTER TRADE/SUPPLIER AREAS)	SELF-PERFORMED BY PRIME CONTRACTOR	SUBCONTRACTOR/SUPPLIER COMPANY NAME (IF NOT SELF-PERFORMED)	CONTACT PERSON	PHONE NUMBER
	☐YES ☐ NO			
	☐YES ☐ NO			
	☐YES ☐ NO			
	☐YES ☐ NO			
	☐YES ☐ NO			
	☐YES ☐ NO			
	☐YES ☐ NO			
	☐YES ☐ NO			

I hereby certify by signing below that the above listed companies will be utilized to perform work on this project for an amount **equal to or greater than 5% of the base bid**. These companies will not be removed or replaced without prior written approval by the City of Phoenix Project Manager. The City requires, as in Paragraph D – List of Major Subcontractors and Suppliers in the Information for Bidders that ALL vendors are listed or you will be disqualified. If you are self-performing the work, you must still list any suppliers for materials, or list any contractors that will assist you in any form.

COMPANY NAME _____ SIGNATURE _____

NAME & TITLE _____ PHONE NUMBER _____ DATE _____

EMAIL ADDRESS _____

CITY OF PHOENIX
LIST OF ALL SUBCONTRACTORS AND SUPPLIERS

PROJECT NO.: ST85100400-1 PROJECT TITLE: PINNACLE PEAK ROAD: 45TH AVENUE TO 35TH AVENUE PAVING AND STORM DRAIN IMPROVEMENTS

DESCRIPTION OF WORK OR MATERIALS (CONTRACTOR TO ENTER TRADE/SUPPLIER AREAS)	SELF-PERFORMED BY PRIME CONTRACTOR	SUBCONTRACTOR/SUPPLIER COMPANY NAME (IF NOT SELF-PERFORMED)	CONTACT PERSON	PHONE NUMBER
Supply & Place Asphalt Base Course	☐YES ☒ NO	WSP Inc	Brian Gallimore	623-434-5050
Supply & Apply Tack	☐YES ☒ NO	Paveco Inc.	Steve Combs	602-288-8273
Utility Adjustments	☐YES ☒ NO	On It Construction LLC.	Dean Doherty	602-687-9794
Supply Asphalt	☐YES ☒ NO	Southwest Asphalt	Greg Groneberg	480-730-1033
Tree Removal	☐YES ☒ NO	Accent Tree	William Wilt	602-997-1960
Supply Precast Box Culvert	☐YES ☒ NO	Forterra Pipe & Precast Inc.	Gavin Hickson	623-889-3500
Trucking	☐YES ☒ NO	Matt Brown Trucking Inc.	Matt Brown	602-361-2174
Masonry	☐YES ☒ NO	Sunnyside Masonry LLC.	Nick Gonzales	623-376-6500

I hereby certify by signing below that the above listed companies will be utilized to perform work on this project. These companies will not be removed or replaced on the project without prior written approval by the City of Phoenix Project Manager. The City requires, as in Paragraph D - List of All Subcontractors and Suppliers in the Information for Bidders that ALL vendors are listed or you will be disqualified. If you are self-performing the work, you must still list any suppliers for materials, or list any contractor's that will assist you in any form.

COMPANY NAME Combs Construction Company Inc. SIGNATURE _____

NAME & TITLE Michael R. Steg, Vice President PHONE NUMBER (602) 237-4029 DATE 5/03/2018

EMAIL ADDRESS msteg@combsaz.com

Authorized Contact for this Disclosure Statement

Name:_____

Title:_____

E-mail:_____

Phone number:_____

FAX number:_____

List any other DBA, trade name, other identity, or EIN used in the last five (5) years, the state or country where filed, and the status (active or inactive): (if applicable):_____

_____

_____

Business Characteristics

Business entity type – Please check appropriate box and provide additional information:

☐	Corporation	Date of incorporation: _____
☐	Limited Liability Company	Date organized: _____
☐	Limited Liability Partnership	Date of registration: _____
☐	Limited Partnership	Date established: _____
☐	General Partnership	Date established: _____
☐	Sole Proprietor	How many years in business?:_____
☐	Other (explain)	Date Established: _____

Was the business entity formed in the State of Arizona? Yes_____ No_____
If no, indicate jurisdiction where Business Entity was formed:_____

Is the Business Entity currently registered to do business in Arizona with the Arizona Corporation Commission? Yes_____ No_____ Not required _____ (if sole proprietor or general partnership)

Does the Business Entity have a City of Phoenix business privilege license? Yes_____ No_____ If “no” explain and provide detail such as “not required” or “application in progress” or other reason.

Is the Business Entity publicly traded? Yes_____ No_____

Is the responding Business Entity a Joint Venture? Note: If the Submitting Business entity is a Joint Venture, also submit a questionnaire for each Business Entity

comprising the Joint Venture. Yes_____ No_____

Is the Business Entity's Principal Place of Business/Executive office in Phoenix? If "no" does the Business Entity maintain an office in Phoenix? Yes_____ No_____

Provide the address and phone number for the Phoenix office. _____

Is the business certified by Phoenix as a Small Business Enterprise? Yes_____ No_____

Identify Business Entity Officials and principal Owners:

Name(s) _____Title_____Percentage ownership ___%(Enter 0% if not applicable).

Name(s) _____Title_____Percentage ownership ___%(Enter 0% if not applicable).

Name(s) _____Title_____Percentage ownership ___%(Enter 0% if not applicable).

Name(s) _____Title_____Percentage ownership ___%(Enter 0% if not applicable).

Affiliates and Joint Venture Relationships

Does the Business entity have any Affiliates? Yes_____ No_____ Attach additional pages if necessary.

Affiliate name: _____

Affiliate EIN (if available):_____.

Affiliate's primary Business Activity:_____

Explain relationship with Affiliate and indicate percent ownership, if applicable. _____

Are there any Business Entity Officials or Principal Owners that the Business Entity has in common with this Affiliate?_____
Individual's name:_____

Position/Title with Affiliate:_____

Has the Business Entity participated in any joint Ventures within the past three years? Yes_____ No_____
(Attach additional pages if necessary)

Joint Venture Name:_____
Joint venture EIN (if applicable):_____

Identify parties to the Joint Venture:_____

Contract History

Has the Business Entity held any contracts with the city of Phoenix in the last three (3) years? Yes_____ No_____ If "yes" attach a list.

Integrity – Contract Bidding

Within the past three (3) years, has the Business Entity or any Affiliate been suspended or debarred from any government contracting process or been disqualified on any government procurement? Yes_____ No_____

Been subject to a denial or revocation of a government prequalification? Yes_____ No_____

Been denied a contract award or had a bid rejected based upon a finding of a non-responsibility by a government entity? Yes_____ No_____

Agreed to a voluntary exclusion from bidding/contracting with a government entity? Yes_____ No_____

Initiated a request to withdraw a bid submitted to a government entity or made any claim of an error on a bid submitted to a government entity? Yes_____ No_____

Initiated a request to withdraw a bid submitted to a government entity or made any claim of an error on a bid submitted to a government entity? Yes_____ No_____

For each "Yes" answer above, provide an explanation of the issues.

Integrity – Contract Award

Within the past three (3) years has the Business Entity or any Affiliate been suspended, cancelled, or terminated for cause on any government contract? Yes_____ No_____

Been subject to an administrative proceeding or civil action seeking specific performance or restitution in connection with any government contract? Yes_____ No_____

For each "yes" answer, provide an explanation. (Attach explanation on a separate sheet of paper).

Certifications/Licenses

Within the past three (3) years, has the Business Entity or Affiliate had a revocation, suspension, or disbarment of any business or professional permit and/or license? Yes_____ No_____

If "yes" provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, relevant dates, the government entity involved, and any remedial or corrective action(s) taken and the current status of the issues.

Legal Proceedings

Within the past three (3) years, has the Business Entity of any Affiliate:

Been the subject of an investigation, whether open or closed, by any government entity for a civil or criminal violation? Yes_____ No_____

Been the subject of an indictment, grant of immunity, judgment or conviction, (including entering into a plea bargain for conduct constituting a crime)? Yes_____ No_____

Received any OSHA citation and Notification of Penalty containing a violation classified as serious or willful? Yes_____ No_____

Had a government entity find a willful prevailing wage or supplemental payment violation? Yes_____ No_____

Been involved in litigation as either a plaintiff or a defendant involving a copyright or patent infringement violation or an anti-trust violation? Yes_____ No_____

Other than previously disclosed, for the past three (3) years:

(i) Been subject to the imposition of a fine or penalty in excess of $1000 imposed by any government as a result of the issuance of citation, summons or notice of violation, or pursuant to any administrative, regulatory, or judicial determination? Yes_____ No_____

(ii) Been charged or convicted of a criminal offense pursuant to any administrative and/or regulatory action taken by any government entity? Yes_____ No_____

If "yes" provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, relevant dates, the government entity involved, and any remedial or corrective action(s) taken and the current status of the issues.

Leadership Integrity

If the Business Entity is a joint Venture Entity, answer "N/A – Not Applicable" to questions below:

Within the past three (3) years has any individual previously identified, or any other Business Entity Leader not previously identified, or any individual having the authority to sign, execute, or approve bids, proposals, contracts or supporting documentation with the city of Phoenix been subject to:

A sanction imposed relative to any business or professional permit and/or license? Yes_____ No_____

An investigation, whether open or closed, by any government entity for a civil or criminal violation for any business related conduct? Yes_____ No_____

DLB/dlb/828671V3

City of Phoenix

AFFIDAVIT OF IDENTITY

Your completion of this form is required by Arizona state law. A.R.S. §§ 1-501 and -50 only if you are a sole proprietor.

I, _____(print full name exactly as on document), hereby affirm, upon penalty of perjury, that I presented the document marked below to the City of Phoenix, that I am lawfully present in the United States, and that I am the person stated on the document. (*select one category only*)

☐Arizona driver license issued after 1996.
Print first four numbers/letters from license: | | | | |

☐Arizona non-operating identification license.
Print first four numbers/letters: | | | | |

☐ Birth certificate or delayed birth certificate issued in any state, territory or possession of the U.S.
Year of birth: _____; Place of birth: _____

☐ United States Certificate of Birth Abroad.
Year of birth: _____; Place of birth: _____

☐United States Passport.
Print first four numbers/letters on Passport: | | | | |

☐Foreign Passport with United States Visa.
Print first four numbers/letters on Passport: | | | | |
Print first four numbers/letters on Visa: | | | | |

☐I-94 Form with a photograph.
Print first four numbers on I-94: | | | | |

☐USCIS Employment Authorization Document (EAD).
Print first four numbers/letters on EAD: | | | | |
***or* Perm. Resident Card (acceptable alternative):** | | | | |

☐Refugee Travel Document.
Date of issuance: _____; Refugee country: _____

☐U.S. Certificate of Naturalization.
Print first four digits of CIS Reg. No.: | | | | |

☐ U.S. Certificate of Citizenship.
Date of issuance:_____; Place of issuance: _____

☐Tribal Certificate of Indian Blood.
Date of issuance: _____; Name of tribe: _____

☐Tribal or Bureau of Indian Affairs Affidavit of Birth.
Year of birth: _____; Place of birth: _____

Signed: _____ Dated: _____