



OCTOBER 2010

CITY OF MESA
MESA, ARIZONA

THOMPSON PEAK COMMUNICATIONS TOWER

PROJECT NO. 02-410-001

NOTICE TO PROSPECTIVE BIDDERS

The City of Mesa requires all Bonding companies and Liability and Excess insurance carriers to have a rating of "A-" or better as listed in the 2010 Best Key Rating Guide (Property Casualty), published by the A. M. Best Company.

This requirement applies to the Surety Bond, Payment Bond, Performance Bond and the Certificate of Insurance. On the Certificate of Insurance this requirement does not apply to the Workmen's Compensation/Employers' Liability portion (Items 1 and 2).

THE CITY OF MESA REQUIRES THE SUCCESSFUL BIDDER TO PROVIDE AN OWNER'S LIABILITY POLICY AND OTHER INSURANCE POLICIES. THE INSURANCE FORM ATTACHED TO THE PROJECT SPECIFICATIONS SHALL BE USED FOR THIS PROJECT. THE COURSE OF CONSTRUCTION POLICY AND THE OWNER'S LIABILITY POLICY SHALL REMAIN IN EFFECT DURING CONSTRUCTION THROUGH THE DATE OF FINAL ACCEPTANCE. THE REMAINDER OF THE INSURANCE POLICIES SHALL REMAIN IN EFFECT DURING CONSTRUCTION AND THROUGH THE END OF THE ONE-YEAR WARRANTY PERIOD THAT FOLLOWS FINAL ACCEPTANCE.

TABLE OF CONTENTS

SECTION

TITLE

Notice to Prospective Bidders
Table of Contents
Advertisement for Bids

PROPOSAL DOCUMENTS AND FORMS

Bid Proposal
Contract
Contractors Affidavit
Certificate of Insurance
Certificate of Insurance (Owner's Liability)

SPECIAL PROVISIONS

1	Standard Specifications and Standard Details
2	Maricopa County Air Quality Department Permit
3	Inspection
4	City Sales Tax
5	Relocation and/or Adjustment of Existing Facilities, Services, and Access
6	Insurance and Bond Requirements
7	Contractor's Affidavit
8	Necessary Work Done By City Forces
9	Equipment Rental Rates for Actual Cost Work
10	Construction Water
11	Construction Schedule
12	Contractor Evaluation
13	Shop Drawings
14	Site Excavations
15	Drug Free Workplace Program
16	Discrepancy
17	Safety Standards
18	Overhead Utility Lines and Poles
19	Liquidated Damages
20	Unit Bid Prices
21	Site Examination
22	Indemnity
23	Standard Form of Contract
24	Plans and Specifications to the Successful Bidder
25	Contract Modifications
26	Scope of Payment
27	Arizona State Contractor's License Requirements
28	Construction Survey
29	Asbestos-Free Facility Material Certification
30	Extra Work
31	Record Drawings

TABLE OF CONTENTS (Continued)

<u>SECTION</u>	<u>TITLE</u>
	<u>SPECIAL PROVISIONS (Continued)</u>
32	Contractor Labor Requirements
33	Compliance with Federal and State Laws
34	Hours Inspections are Available
35	QC/QA Testing
36	Bids
37	Permit Fees
38	Special Inspections
39	Date of Final Acceptance and Beginning of Warranty Period
40	Payment for Stored Materials
41	The Clean Air Act
42	Equal Employment Opportunity
43	Contractors License Law
44	Pre-construction Conference
45	Contractor Performance History
46	Schedule of Values
47	Subcontractors Bonds
48	Project Closeout
49	Notice to Proceed
50	Pre-bid Review of Site
51	Video Recording Requirement
52	Level 1 Security Requirements
53	Staging Area and Use of the Site
54	Restroom Facility
55	Scrutinized Business Operations in Sudan or Iran
56	Location of AZDPS Supplied Equipment

EXHIBITS

- Exhibit A - Asbestos-Free Facility Material Certification Form (1 page)
- Exhibit B - Applicant Fingerprint Request, (Level 3 Form) (1 page)
- Exhibit C - Geotechnical Report (24 pages)

CITY OF MESA
MESA, ARIZONA

THOMPSON PEAK COMMUNICATIONS TOWER

PROJECT NO. 02-410-001

ADVERTISEMENT FOR BIDS



NOTICE IS HEREBY GIVEN that sealed bids will be received until Thursday, October 21, 2010, at 1:00 p.m. All sealed bids will be received at **Mesa City Plaza Building, Engineering Department at 20 East Main Street, 5th Floor**, Mesa, Arizona; except for bids delivered 30 minutes prior to opening which will be received at the information desk, 1st floor, Main Lobby of the Mesa City Plaza Building. Any bid received after the time specified will be returned without any consideration.

This contract shall be for furnishing all labor, materials, transportation and services for the construction and/or installation of the following work:

Site grading, install new helipad, retaining walls, concrete foundation, and installation of AZDPS provided 180-foot communications tower, prefab building and generator at Thompson Peak in the McDowell Mountains per the Approved Plans and Specifications.

For information call Dan Womack at 480-644-2650 or e-mail dan.womack@mesaaz.gov.

Contractors desiring to submit proposals may purchase sets of the Bid Documents from ScottBlue Reprographics at 133 West 1st Avenue, Mesa, Arizona, for a non-refundable cost of \$20.00 per set, regardless of whether the Contract Documents are returned. Please contact ScottBlue at 480-833-3912 prior to arrival to allow printing time, or visit the website at scottblue.com to order on-line. The documents may also be viewed on-line at the ScottBlue webpage.

One set of the Contract Documents is available for viewing at the Engineering Department office. Please call 480-644-2251 prior to arriving to ensure the documents are available for viewing.

A pre-bid review of the site has been scheduled. Please refer to Special Provision Section 50 for additional information. It is highly recommended that the pre-bid review be attended.

Work shall be completed within ninety (90) consecutive calendar days, beginning with the day following the starting date specified in the Notice to Proceed.

Bids must be submitted on the Proposal Form provided and be accompanied by the Bid Bond for not less than ten percent (10%) of the total bid, payable to the City of Mesa, Arizona, or a certified or cashier's check. **PERSONAL OR INDIVIDUAL SURETY BONDS ARE NOT ACCEPTABLE.**

The successful bidder will be required to execute the standard form of contract for construction within ten (10) days after formal award of contract.

The successful bidder, simultaneously with the execution of the Contract, will be required to furnish a Payment Bond in the amount equal to one hundred percent (100%) of the Contract Price, a Performance Bond in an amount equal to one hundred percent (100%) of the Contract Price, and Certificates of Insurance on the City of Mesa's forms.

The right is hereby reserved to accept or reject any or all bids or parts thereto, to waive any informalities in any proposal and reject the bids of any persons who have been delinquent or unfaithful to any contract with the City of Mesa.

BETH HUNING
City Engineer

ATTEST:
Linda Crocker
City Clerk

CITY OF MESA
MESA, ARIZONA

THOMPSON PEAK COMMUNICATIONS TOWER

PROJECT NO. 02-410-001

PROPOSAL to the City Engineer of the City of Mesa,

In compliance with the Advertisement for Bids, the undersigned bidder:

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 shall be in accordance with all applicable Uniform Standard Specifications and Standard Details except as otherwise required by the project Plans and Special Provisions.

Understands that his Proposal shall be submitted with a Proposal guarantee of cash, certified check, cashier's check, or surety bond for an amount not less than ten percent (10%) of the amount bid.

Agrees that upon receipt of Notice of Award from the City of Mesa, he will execute the contract documents.

Work shall be completed within ninety (90) consecutive calendar days, beginning with the day following the starting date specified in the Notice to Proceed. Said Notice will be issued when requested by the Contractor, or, when, in the opinion of the Engineer, sufficient materials are, or will be available for the continuous prosecution of the work.

Acknowledges that bid prices submitted include all applicable sales and/or use taxes; and no further compensation will be approved for these items.

The Bidder hereby acknowledges receipt of and agrees his Proposal is based on the following Addenda:

CITY OF MESA
MESA, ARIZONA

THOMPSON PEAK COMMUNICATIONS TOWER

PROJECT NO. 02-410-001

BID SCHEDULE

ITEM NO.	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL PRICE
1.	Site Grading per the Approved Plans and Specifications	LUMP SUM	\$ <u>LUMP SUM</u>	\$ _____
2.	Remove and replace existing helipad per the Approved Plans and Specifications	LUMP SUM	\$ <u>LUMP SUM</u>	\$ _____
3.	Furnish and install Type 1 retaining wall per the Approved Plans and Specifications	181 LF	\$ _____	\$ _____
4.	Furnish and install Type 2 retaining wall per the Approved Plans and Specifications	95 LF	\$ _____	\$ _____
5.	Construct new communications tower foundation per the Approved Plans and Specifications	LUMP SUM	\$ <u>LUMP SUM</u>	\$ _____
6.	Construct new communications shelter foundation per the Approved Plans and Specifications	LUMP SUM	\$ <u>LUMP SUM</u>	\$ _____
7.	Furnish and install 8-foot chain link fence with gates and barb wire top	230 LF	\$ _____	\$ _____
8.	Furnish and install 6-inch thick reinforced concrete slab per the Approved Plans and Specifications	73 SF	\$ _____	\$ _____
9.	Transport AZDPS supplied communications tower from stored location to job site and install per the Approved Plans and Specifications	LUMP SUM	\$ <u>LUMP SUM</u>	\$ _____
10.	Transport AZDPS supplied communications shelter from stored location to job site and install per the Approved Plans and Specifications	LUMP SUM	\$ <u>LUMP SUM</u>	\$ _____
11.	Transport AZDPS supplied generator from stored location to job site install per the Approved Plans and Specifications	LUMP SUM	\$ <u>LUMP SUM</u>	\$ _____

CITY OF MESA
MESA, ARIZONA

THOMPSON PEAK COMMUNICATIONS TOWER

PROJECT NO. 02-410-001

BID SCHEDULE

ITEM NO.	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL PRICE
12.	Furnish and install 1,000 gallon propane tank complete per the Approved Plans and Specifications	LUMP SUM	\$ <u>LUMP SUM</u>	\$ <u> </u>
13.	Construction survey	LUMP SUM	\$ <u>LUMP SUM</u>	\$ <u> </u>
14.	Allowance for unforeseen conditions	LUMP SUM	\$ <u>LUMP SUM</u>	\$ <u>\$40,000.00</u>
15.	Allowance for permit fees	LUMP SUM	\$ <u>LUMP SUM</u>	\$ <u>\$1,000.00</u>
TOTAL BASE BID (Items 1 through 15)				\$ <u> </u>

NOTE: Attach completed "Contractor Performance History" form.

CITY OF MESA
MESA, ARIZONA

THOMPSON PEAK COMMUNICATIONS TOWER

PROJECT NO. 02-410-001

CONTRACTOR PERFORMANCE HISTORY

INFORMATION REQUIRED FROM SUCCESSFUL BIDDER ONLY
(MUST BE SUBMITTED WITH THE BID)

PERFORMANCE HISTORY FOR THE CONSTRUCTION OF SIMILAR COMMUNICATIONS
TOWER FACILITIES

(Attach additional sheets as necessary.)

1. Contractor Name:

Project:

Contract Amount:

Date Completed:

Location:

Client:

Client Phone No.:

2. Contractor Name:

Project:

Contract Amount:

Date Completed:

Location:

Client:

Client Phone No.:

This signed Proposal is submitted by _____,
a corporation organized under the laws of State of _____, a partnership consisting of
_____ or individual trading
as _____; of the City of _____, and is the
holder of Arizona State Contractor's License: Classification _____
No. _____.

Joint Venture bid proposals will not be accepted for projects bidding in the amount (for base bid) of less than \$5 million dollars.

Contractors are reminded it is a violation of State law to submit a bid if not properly licensed. Bids submitted without designating the Contractor's license classification and number, in the spaces provided above, shall be rejected. Bids submitted by Contractors without the required license shall be rejected.

Contractor acknowledges by signing below that bid prices submitted include all applicable sales and/or use taxes, and no further compensation shall be approved for these items. If there is a conflict between the unit bid price and the unit price extension for a particular pay item, the unit prices shall govern, per MAG 102.5. Also, per MAG 102.7, a proposal shall be considered irregular and may be rejected if there are unauthorized additions, statements, conditional or alternate bids, or irregularities of any kind.

Respectfully submitted,

Firm

Address

City State Zip

Phone

Fax

By (Signature Required)

Name and Title (Print)

E-mail Address

CONTRACT

THIS AGREEMENT, made and entered into this _____ day of _____, 20____, by and between _____ hereinafter designated Party of the First Part, and the CITY OF MESA, a municipal corporation organized and existing under and by virtue of the laws of the State of Arizona, hereinafter designated Party of the Second Part.

WITNESSETH: That the Party of the First Part, for the consideration hereinafter mentioned, promises and agrees to and with said Party of the Second Part, that it will do and perform, or cause to be done and performed in a good and workmanlike manner, under the direction and to the satisfaction of the City Engineer, the following described work:

Site grading, install new helipad, retaining walls, concrete foundation, and installation of AZDPS provided 180-foot communications tower, prefab building and generator at Thompson Peak in the McDowell Mountains per the Approved Plans and Specifications.

all as is more fully described in the NOTICE TO PROSPECTIVE BIDDERS, ADVERTISEMENT FOR BIDS, SPECIAL PROVISIONS, GENERAL CONDITIONS, SPECIFICATIONS, DRAWINGS, PROPOSAL, AND ADDENDA, all of which documents are incorporated herein by reference and made a part hereof as through fully set forth.

The Party of the First Part further agrees that it will, at its own cost and expense, furnish necessary materials and labor for said work and that the materials used therein shall comply with the said drawings and specifications and be to the satisfaction of said City Engineer, that it will within the time hereinafter fixed, turn said work over to the Party of the Second Part, complete and ready for use, free and discharged of all claims and demands whatsoever, for or on account of any and all labor and materials used or furnished to be used in said work.

And the Party of the Second Part hereby fixes the time for completion of said work to be within ninety (90) consecutive calendar days, beginning with the day following the starting date specified in the NOTICE TO PROCEED.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed, the day and year first herein written.

By _____
PARTY OF THE FIRST PART

CITY OF MESA
PARTY OF THE SECOND PART

By _____
JACK FRIEDLINE, Deputy City Manager

SUBSCRIBED AND SWORN TO BEFORE ME
THIS _____ DAY OF _____, 20____

NOTARY PUBLIC

SETTLEMENT OF CLAIMS

Part 100, Section 109, General Conditions

Mesa, Arizona
Date _____

Project No. 02-410-001

To the City of Mesa, Arizona

This is to certify that all lawful claims for materials, rental of equipment and labor used in connection with the construction of the above project, whether by subcontractor or claimant in person, have been duly discharged.

The undersigned, for the consideration of \$_____, as set out in the final pay estimate, as full and complete payment under the terms of the contract, hereby waives and relinquishes any and all further claims or right-of-lien under, in connection with, or as a result of the above described project. The undersigned further agrees to indemnify and save harmless the City of Mesa against any and all liens, claims of liens, suits, actions, damages, charges and expenses whatsoever which said City may suffer arising out of the failure of the undersigned to pay for all labor, performance and materials furnished for the performance of said installation.

Signed and dated at _____, this _____ day of _____, 20____.

Contractor

By

STATE OF ARIZONA)
) ss
County of Maricopa)

The foregoing instrument was subscribed and sworn to before me this _____ day of _____, 20____.

Notary Public

My Commission Expires:

CERTIFICATE OF INSURANCE

CITY OF MESA, ARIZONA
Box 1466, Mesa, AZ 85211-1466

Project 02-410-001

Name of Insured: _____

Address of Insured: _____

Type of Insurance	Carrier	Policy No.	Policy Period	Liability Limits	
				MINIMUM COVERAGE	ACTUAL
1. Worker's Compensation				Statutory	
2. Employer's Liability				\$1,000,000 each acc \$500,000 disease policy limit \$100,000 each employee	
3. Commercial Automobile Liability*				\$1,000,000 CSL each occurrence	
4. Commercial General Liability including Contractual and Product/Completed Operations*				\$1,000,000 ea occ \$2,000,000 Aggregate min.	
5. Excess Liability*					
6. Course of Construction* REQUIRED				Contract Price	

- *3. Commercial auto liability includes the owned, non-owned and hired auto hazards.
- *4. Commercial general liability does not exclude explosion, collapse, underground (XCU) hazards, nor the products and completed operations hazards, and includes broad form property damage. Contingent liability for independent contractors' coverage must be included. Contractual liability applies to the hold-harmless provisions of the contract between the named insured and the City of Mesa, for the project described above, as well as any liability assumed in contractors' agreements the insured makes in connection with insured operations. If the policy has an aggregate limit, that limit shall not be less than \$2,000,000.
- *5. Amount sufficient to cover difference in limits when compared to minimum coverage required.
- *6. When the project includes construction of a new, or modification of an existing structure for the City, a course of construction policy covering all perils usual to "all-risk" coverage, including, but not limited to fire extended coverage, vandalism and malicious mischief, theft, collapse, water damage and flood, in the amount of the contract price shall be provided. The City is to be named therein as "Loss Payee" and the insurer shall waive subrogation rights against the City.

Except for workmen's compensation insurance, the City of Mesa is added as an additional insured by endorsement for all work done by the named insured. It is agreed that any insurance maintained by the City of Mesa will only apply in excess of the coverages and limits described above.

With the exception of the Course of Construction policy, the insurance policies included on this form shall remain in effect during construction and through the end of the one-year warranty period that follows final acceptance. The Course of Construction coverage shall remain in effect during construction through the date of final acceptance.

If a policy expires during the required coverage period, a renewal certificate of the required coverage shall be sent to the City of Mesa not less than five (5) days prior to the expiration date, or, if a policy is to be cancelled, changed or not renewed, a proper notice of such action shall be sent to the City not less than ten (10) days prior to any such action by the insurance company.

Notice shall be sent to: City Engineer
City of Mesa
P.O. Box 1466
Mesa, AZ 85211-1466

or FAX to 480-644-3392,
Attention: City Engineer

This certificate is not valid unless signed by an authorized representative of the Insurance Company.

Date _____

Insurance Company Name _____

Authorized Representative _____

CERTIFICATE OF INSURANCE
(OWNERS LIABILITY)

CITY OF MESA, ARIZONA
Box 1466, Mesa, AZ 85211-1466

Project 02-410-001
Contractor Name: _____

The Undersigned certifies that the following insurance policies have been issued on behalf of:

Name of Insured _____ CITY OF MESA _____

Address of Insured: _____ P.O. BOX 1466, MESA, AZ 85211-1466 _____

Type of Insurance	Carrier	Policy No.	Policy Period	Liability Limits	
				MINIMUM COVERAGE	ACTUAL
* OWNER'S LIABILITY				\$2,000,000 each occurrence	

- Owner's Liability Policy: Prior to the execution of the Contract the Contractor shall provide a separate policy of insurance, at its sole cost and expense, naming the City of Mesa, a Municipal Corporation and all its agents, representatives, officers, directors, officials and employees as the insured. The Policy shall be primary and not contributory to any insurance maintained by the City of Mesa and shall remain in effect through date of final acceptance.

If a policy does expire prior to final acceptance, a renewal certificate of the required coverage shall be sent to the City of Mesa not less than five (5) days prior to the expiration date or, if a policy is to be cancelled, changed or not renewed, a proper notice of such action shall be sent to the City not less than ten (10) days prior to any such action by the insurance company.

Notice shall be sent to: City Engineer
City of Mesa
P.O. Box 1466
Mesa, AZ 85211-1466

or FAX to 480- 644-3392
Attention: City Engineer

This certificate is not valid unless signed by an authorized representative of the Insurance Company.

Date _____

Insurance Company Name _____

Authorized Representative _____

CITY OF MESA
MESA, ARIZONA

THOMPSON PEAK COMMUNICATIONS TOWER

PROJECT NO. 02-410-001

SPECIAL PROVISIONS

1. STANDARD SPECIFICATIONS AND STANDARD DETAILS:

Attention is called to the fact that the City of Mesa is now operating under the latest revision of the 1998 edition of the Uniform Standard Specification for Public Works Construction, published by the Maricopa Association of Governments as amended by the City of Mesa on February 2, 2010, and is herewith incorporated by reference and made a part hereof. A City of Mesa amendment to the Standard Specifications may be obtained at the Building Safety Division Permits Counter for a nominal cost, or they may also be downloaded from the City of Mesa's website at: www.mesaaz.gov/engineering.

The City of Mesa is also operating under the latest revision of the 1998 edition of Uniform Standard Details as published by the Maricopa Association of Governments as amended by the City of Mesa on February 2, 2010. A City of Mesa amendment may be obtained at the Building Safety Division Permits Counter for a nominal cost, or on the City of Mesa's website referenced above.

Copies of the Uniform Standard Specifications and Uniform Standard Details, published by the Maricopa Associations of Governments, are available at the Maricopa Association of Governments office, 302 N. 1st Avenue, Suite 300, Phoenix, Arizona; they may be downloaded at their website: <http://www.mag.maricopa.gov/> under "Publications".

For those projects including gas line installation; all gas system construction, installation, and testing shall comply with the City of Mesa Gas Operations and Maintenance Manual. Copies of this manual may be obtained from the Energy Resources Department.

2. MARICOPA COUNTY AIR QUALITY DEPARTMENT PERMIT:

The Contractor is advised that a Dust Control Permit and Dust Control Plan may be required by the Maricopa County Air Quality Department. It shall be the Contractor's responsibility to obtain this permit, if necessary, and comply with its requirements. Prior to construction, the Contractor shall provide a copy of the Dust Control Permit and Dust Control Plan to the City for review.

3. INSPECTION:

The City of Mesa will perform inspection and requires a 48-hour notice by calling Engineering Inspections at 480-644-2253.

4. CITY SALES TAX:

The Contractor is required to pay City of Mesa Sales Tax on any contracting activity done for the City of Mesa, and this cost shall be included in the bid prices.

5. RELOCATION AND/OR ADJUSTMENT OF EXISTING FACILITIES, SERVICES, AND ACCESS:

If relocation or adjustment of existing facilities is noted on the plans, this is intended to include the relocation or adjustment of items appurtenant to the noted piece of work, just as if they were specifically called out. If these appurtenant items are lost or broken during construction, they shall be replaced by the Contractor with items of equal or better quality, at no additional cost to the City.

6. INSURANCE AND BOND REQUIREMENTS: **** SPECIAL ATTENTION ****

PERSONAL OR INDIVIDUAL BONDS ARE NOT ACCEPTABLE.

Bonding companies and Liability and Excess insurance carriers shall be "**BEST RATED A-**" or better as currently listed in the "2010 Results Best's Key Rating Guide (Property/Casualty)" published by the A. M. Best Company. This requirement does not apply to the Workmen's Compensation/Employers Liability portion on the Certificate of Insurance (Items 1 and 2).

Each such Bond **SHALL** be executed by a surety company or companies duly **LICENSED** to do business in the State of Arizona as evidenced by a certificate of authority to transact surety business issues by the Arizona director of the Department of Insurance. The bonds shall be written or countersigned by an authorized representative of the surety and shall have attached thereto a certified copy of Power of Attorney of the signing official.

THE INSURANCE FORMS ATTACHED TO THESE SPECIFICATIONS SHALL BE REQUIRED FOR USE ON THIS PROJECT.

THE COURSE OF CONSTRUCTION POLICY AND THE OWNER'S LIABILITY POLICY SHALL REMAIN IN EFFECT DURING CONSTRUCTION THROUGH THE DATE OF FINAL ACCEPTANCE. THE REMAINDER OF THE INSURANCE POLICIES SHALL REMAIN IN EFFECT DURING CONSTRUCTION AND THROUGH THE END OF THE ONE-YEAR WARRANTY PERIOD THAT FOLLOWS FINAL ACCEPTANCE.

7. CONTRACTOR'S AFFIDAVIT:

Contractor shall submit a signed copy of the Contractor's affidavit (as attached to these specifications) prior to final payment.

8. NECESSARY WORK DONE BY CITY FORCES:

During the construction of this project, if the contractor fails to comply with a request of the Inspector or is unable to comply with said request, and it is necessary for City forces to do work that is normally the Contractor's responsibility, the City shall be justified in billing the Contractor. Each incident requiring work by City forces shall be covered by a separate billing.

The amount of each billing shall be either \$250 or the actual accumulated charges for employees' time, materials, and equipment, whichever is greater. Employees' time will be billed at each individual's hourly rate plus the applicable City overhead rate. Any materials used will be billed at cost. Equipment rates will be based on the most recent

schedule of equipment rental rates for force account work, as approved by the Arizona Department of Transportation.

9. EQUIPMENT RENTAL RATES FOR ACTUAL COST WORK:

Compensation for equipment used on Actual Cost Work (M.A.G. U.S.S. 109.5.1) shall be paid in accordance with the Arizona Department of Transportation (A.D.O.T.) "Standard Specifications for Road and Bridge Construction," latest edition, Section 109.04(D)(3), except as follows:

1. The Rate Adjustment factors for year of manufacture shall be as published in the Dataquest Blue Book.
2. The Regional Adjustment Factor for climate and regional costs shall apply as published in the Blue Book.
3. Overtime and Shift rates shall be as follows:
 - a). Overtime - at the rate of 1/176th of the monthly rate plus operating costs.
 - b). Double Shift (16 hours per day) - the first 8-hour shift shall be at 1/176th of the monthly rate plus operating costs; the second 8-hour shift shall be at 50-percent of 1/176th of the monthly rate plus operating costs.
 - c). Triple Shift (24 hours per day) - the first two shifts as b) above; the third shift shall be at 50-percent of 1/176th of the monthly rate plus operating costs.
4. Compensation under these procedures shall apply to contractor/ subcontractor-owned equipment only. Leased or rented equipment costs will be compensated as specified in A.D.O.T. 109.04(D) (3) (c).

10. CONSTRUCTION WATER:

No bid item for construction water will be listed in the Bid Schedule. The Contractor shall be responsible for obtaining construction water. This is a non-pay item.

11. CONSTRUCTION SCHEDULE:

The City's review and acceptance of the Contractor's schedule is for purposes of 1) the City staffing the project as may be required from time to time; 2) to ensure general compliance with the contract documents as it relates to the completion of all work within the allowable contract duration; and 3) to monitor and evaluate the construction status for purposes of approving monthly progress payments. Acceptance of a submitted schedule by the City should in no way be construed as an affirmation or admission that the schedule is reasonable or workable by the Contractor. The responsibility for completing the project work within the contract period remains the obligation of the Contractor. Float, if any, may be used by the City without additional compensation to the Contractor. The City shall not be liable to the Contractor for any damages for delay if the Contractor completes the work prior to expiration of the original completion date or as modified by approved change orders, if any. The Contractor may recover damages for delay only if completion of the work is extended beyond the original completion date or as modified by approved change orders, if any.

In addition to printed/plotted schedules the Contractor shall, upon request by the Engineer, provide a copy of all submitted schedule data on a compact disc (CD). Each CD shall be clearly labeled with the project description, scheduling program name and version number, and schedule print/data date.

The schedule shall be in sufficient detail to assure the Engineer that the Contractor understands the work to be performed, that it can be accomplished within the specified contract time, and that the sequence of activity is in accordance with contract documents. The Contractor shall revise, update, and submit the schedule on a thirty (30) day interval or more often as directed by the Engineer. An updated progress schedule showing as-planned versus as-built in bar chart form shall accompany each progress payment request.

The schedule will be considered a shop drawing submittal and will be subject to all conditions discussed in subsection labeled "Shop Drawings." The schedule shall be submitted within ten (10) days after execution of the contract. A Notice to Proceed may be issued for the project with or without an acceptable schedule as determined by the City of Mesa. However, if the Notice is issued and an acceptable schedule has not been submitted, a stop work order may be issued simultaneously.

For projects exceeding \$500,000.00 in value:

The successful bidder shall prepare a Critical Path Method (CPM) schedule of all work, including work to be done by subcontractors. Along with the schedule, predecessor and successor activity listing shall be submitted for review with durations, key dates, etc.

For projects of \$500,000.00 or less in value:

The successful bidder shall prepare a schedule, using either the Critical Path Method (CPM) or the standard Gantt Chart, of all work, including work to be done by subcontractors.

Effect on retention for progress payments:

The City will review the Contractor's compliance with the accepted construction schedule when determining whether to reduce the percent retained from progress payments, pursuant to A.R.S. Section 34-221. Non-compliance with the approved schedule shall be justification for a decision not to reduce retention to five percent (5%) and to continue at ten percent (10%) or such greater amount as is required.

12. CONTRACTOR EVALUATION:

Contractors are hereby advised that the City of Mesa has a contractor evaluation program. To determine which contractors are meeting their construction obligations, the evaluation may include the following items:

Quality of Construction; Quality of Project Supervision; Adherence to Contract Time, and Construction Schedule; Cooperation and Coordination with City Forces and Other Contractors Working in Project Areas; Use and Coordination of qualified Subcontractors and Suppliers.

Copies of the City's evaluation form are available for review at the Engineering Department.

13. SHOP DRAWINGS:

The Contractor shall prepare and submit shop drawings which show details of all work to ensure proper installation of the work using those materials and equipment specified under the approved plans and specifications.

The Contractor shall submit all shop drawings and other descriptive data with one copy of a letter of transmittal to the City for review within fifteen (15) working days after the signing of the contract by the City of Mesa. Unless otherwise noted, shop drawings will not be required for items specified or detailed in the Uniform Standard specifications and details. The schedule of shop drawing submissions shall include as a minimum, but not limited to the following:

1. Concrete Masonry Units
2. Cast-in-Place Concrete
3. Grout
4. Chain Link Fence
5. Personnel List
6. Tower Anchors
7. Conduit
8. Any other items noted in the Special Provisions.

Shop Drawings shall be numbered consecutively and shall accurately and distinctly present the following:

- a. All working and erection dimensions.
- b. Arrangements and sectional views.
- c. Necessary details, including complete information for making connections between work under this Contract and work under other Contracts.
- d. Kinds of materials and finishes.
- e. Parts list and description thereof.

Each Drawing or page shall include:

1. Project name, City of Mesa Project Number and descriptions.
2. Submittal date and space for revision dates.
3. Identification of equipment, product or material.
4. Name of Contractor and Subcontractor.
5. Name of Supplier and Manufacturer.
6. Relation to adjacent structure or material.
7. Physical dimensions clearly identified.

8. ASTM and Federal Specifications references.
9. Identification of deviations from the Contract Documents.
10. Contractor's stamp, initialed or signed, dated and certifying to review of submittal, certification of field measurements and compliance with Contract.
11. Location at which the equipment or materials are to be installed.

Location shall mean both physical location and location relative to other connected or attached material. The City will return unchecked any submittal, which does not contain complete data on the work and full information on related matters.

Stock or standard drawings will not be accepted for review unless full identification and supplementary information is shown thereon in ink or typewritten form.

The Contractor shall schedule, prepare and submit all shop drawings in accordance with a time-table that will allow his suppliers and manufacturers sufficient time to fabricate, manufacture, inspect, test and deliver their respective products to the project site in a timely manner so as to not delay the complete performance of the work.

If the shop drawings show departures from the Contract requirements, the Contractor shall make specific mention thereof in his letter of transmittal; otherwise review of such submittals by the City shall not constitute review of the departure. Review of the drawings shall constitute review of the specific subject matter for which the drawings were submitted and not of any other structure, materials, equipment, or apparatus shown on the drawings.

The review of shop drawings will be general and shall not relieve the Contractor of responsibility for the accuracy of such drawings, nor for the proper fitting and construction of the work, nor for the furnishing of materials or work required by the Contract. No construction called for by shop drawings shall be initiated until such drawings have been reviewed and approved by the City.

The procedure in seeking review of the shop drawings shall be as follows:

1. The Contractor shall submit six (6) complete sets of shop drawings and other descriptive data with one copy of a letter of transmittal for review by the City of Mesa. The Contractor shall submit shop drawings to the Engineering Department for the City's review. Drawings submitted for review shall be folded to approximately 9 inches by 12 inches.
2. Drawings or descriptive data will be stamped "Approved", "Approved as Noted", or "Unacceptable - Resubmit" and one copy with a Letter of Transmittal will be mailed to the Contractor at an address designated by the Contractor.
3. If a shop drawing or data is stamped "Approved" or "Approved as Noted", no additional submittal is required for that shop drawing.
4. If a shop drawing or data is stamped "Unacceptable-Resubmit", the Contractor shall make the necessary corrections and resubmit the documents as required in

Instruction 1. The letter transmitting corrected documents shall indicate that the documents are resubmittals.

5. If any corrections, other than those noted by the City, are made on a shop drawing prior to resubmittal, such changes should be pointed out by the Contractor upon resubmittal.
6. The Contractor shall revise and resubmit the shop drawing as required, until they are stamped either "Approved" or "Approved as Noted."
7. After the Contractor's submittal or resubmittal of shop drawings, the City shall be provided with fifteen (15) working days for review. Should the City require additional review time above and beyond the stated fifteen (15) working days, the Contractor may ask for a time extension and/or monetary compensation, if they can present valid, factual evidence that actual damages were incurred by the Contractor. The City shall determine the amount of the time extension and/or the monetary compensation to be awarded the Contractor.
8. The City of Mesa will not issue a "Notice to Proceed" until all shop drawings are approved, unless otherwise approved by the City Engineer.

The Contractor shall be responsible for all extra costs incurred by the City caused by the Contractor's failure to comply with the procedure outline above.

14. SITE EXCAVATIONS:

The Contractor is advised that all earthwork for this project shall be considered unclassified. The Contractor shall satisfy himself as to actual site conditions prior to Bid Submittal. A geotechnical report has been prepared for this site and is included as Exhibit C in the Appendix. No additional compensation for any type of material encountered during excavation will be considered.

15. DRUG FREE WORKPLACE PROGRAM:

This program applies to all Contracts with a Contract amount of \$25,000.00 or more.

Contractors are hereby advised that the City of Mesa has adopted a policy establishing a drug free workplace for itself and as a requirement for Contractors doing business with the City, to ensure the safety and health of employees working on City projects.

The Contractor who is awarded the contract for this project shall require a drug free workplace for all employees working under the Contract. Specifically, all employees of the Contractor who are working under a contract with the City of Mesa shall be notified, in writing, by the Contractor that they are prohibited from the manufacture, distribution, dispensation, possession or unlawful use of a controlled substance in the workplace.

Failure to require a drug free workplace in accordance with the Policy may result in termination of the Contract and possible debarment from bidding on future City of Mesa projects.

16. DISCREPANCY:

In the case of discrepancy or conflict, the order in which the documents shall govern is as follows from highest to lowest: Change Orders issued to the Contract Documents, Addenda issued to the Contract Documents, Project Specifications, Plans, Mesa's Amendments to the Standard Specifications and Details, Standard Specifications (MAG), Standard Details (MAG), and AIA Documents A201. In the case of discrepancy or conflict between Special Provisions and Technical Specifications in the Project Specifications, the more stringent requirement will govern.

17. SAFETY STANDARDS:

These Construction Documents, and the joint and several phases of construction hereby contemplated are to be governed, at all times, by applicable provisions of the federal laws, including but not limited to, the latest amendments of the following:

Williams-Steiger Occupational Safety & Health Act of 1970,
Public Law, 91-596.

Part 1910 and Part 1926 - Occupational Safety and Health Standards,
Chapter XVII of Title 29, Code of Federal Regulations.

Part 1518 - Safety and Health Regulations for Construction, Chapter XIII
of Title 29, Code of Federal Regulations.

The Contractor is responsible for safety of the job site for employees of contractors as well as for members of the general public who may drive or walk through or be in the vicinity of the job site. The Contractor is advised that the City of Mesa has established a written policy for Contract Construction Safety. The latest revision of this policy, dated September 29, 1999, is herewith incorporated by reference and made a part hereof. Copies of the policy will be provided to the Contractor during the pre-construction meeting.

The above shall not relieve the Contractor of his responsibility to maintain traffic, structures, etc., as noted on the plans, specifications, and Special Provisions. The Contractor is responsible to provide all necessary shoring, bracing and trench support as is necessary to maintain traffic structures, etc..., as stipulated in the plans, specifications, and Special Provisions. If the stability of adjoining building, walls, roadways, etc., is endangered by the Contractor's excavation, shoring, bracing, or underpinning shall be provided as necessary to ensure project safety. Cost for shoring, bracing, underpinnings, and trench support shall be included in the appropriate bid items listed in the Bid Schedule, and no additional payment shall be made for this work.

The Contractor shall provide a "competent person" as required by O.S.H.A. regulations. The "competent person" shall be identified at the pre-construction conference with the engineer advised in writing of any changes.

All Bidders shall note the following requirements:

For all projects that include underground excavation or other work that could impact City of Mesa utilities, the Contractor shall be required to complete a 1-hour Underground Damage Prevention & Safety presentation by the City's Energy Resources Department, prior to the Notice to Proceed being issued.

This presentation includes background training on the various City of Mesa utility systems, current City programs for locating and protecting existing utilities, a review of hazardous conditions specific to buried utility lines such as gas, electric, water, sewer, telecommunications, etc., and provides a forum for establishing lines of communication between appropriate City and Contractor staff prior to beginning work on the project.

As a minimum, the following Contractor personnel shall attend this presentation and complete any required follow-up activities: Job Superintendent, Foreman, and Operator(s) from the General Contractor, the same staff from the Natural Gas subcontractor(s), and any other major subcontractor as determined by the City. This presentation is free of charge and there is no pre-set attendance limit. The Contractor is encouraged to have additional field personnel attend if possible.

Following completion of the presentation, the Contractor shall provide a letter to City's Field Supervising Engineer, certifying compliance with this special provision. To be accepted by the City, Contractor's certification letter must specifically reference the project name and number, the date(s) and time(s) of the presentation, and the names of field personnel who attended.

The City of Mesa will schedule training sessions as needed to accommodate the number of Contractors and schedules of upcoming projects. The training will be provided at the City's Engineering Construction Division offices or other suitable location. Contractor personnel are responsible for their own transportation to and from the training site. The Contractor should contact the Damage Prevention Office at 480-644-2717 or 480-644-3513 for assistance and to make reservations to attend a session. Information on the City's Damage Prevention & Safety training is also available at www.mesaaz.gov/energy/damage_prevention_training.aspx

Completion of this presentation shall take place prior to the Notice to Proceed, and will typically occur after the pre-construction conference is held. The Contractor can arrange to attend prior to the pre-construction conference if desired. If the required Contractor field personnel do not attend this training session in a timely manner, Notice to Proceed may be issued, along with a stop work order until the training is satisfactorily completed, and this will not be an acceptable basis for claiming an extension of contract time. The latest acceptable date for completion of the underground damage prevention training will be established at the pre-construction conference.

Nothing in this Special Provision or the City's Underground Damage Prevention & Safety training presentation shall be construed as replacing or superseding OSHA Regulations, Arizona State Law, and the City's established policy for Contract Construction Safety, or other applicable regulations. The Contractor shall maintain and have sole responsibility for safety of the job site.

18. OVERHEAD UTILITY LINES AND POLES:

Contractor is advised that work on this project is expected to require coordination with Utility Companies who own and operate overhead lines and poles. The coordination may include, but not be limited to the following activities: pole bracing, de-energizing of lines, and temporary relocations.

Contractor is responsible to contact the applicable Utility Company representative and discuss his proposed construction methods; in order to determine what actions the Utility

Company must take and the costs related to those actions. The Contractor shall include these costs in the applicable bid items for this project.

The primary and the backup representatives for this review and cost determinations are as follows:

<u>COMPANY</u>	<u>PERSONNEL</u>	<u>OFFICE</u>	<u>MOBILE</u>	<u>FAX</u>
Arizona Public Service:	1. Yvette Santisteven	602-493-4442		

Contractor is advised the above list does not include local cable television companies. Contractor shall determine if cable television lines are involved in the project limits and shall contact them for similar information.

19. LIQUIDATED DAMAGES:

For this project, time is of the essence. Therefore, there will be liquidated damage assessment made for each calendar day the project is not completed after the specified completion date. For each and every calendar day that work shall remain incomplete after the time specified for the completion of the work in the proposal, or as adjusted by the engineer, the sum per M.A.G. Section 108.9 per calendar day, shall be deducted from monies due to the Contractor, not as a forfeit or penalty, but as liquidated damages and added expenses including administrative, inspectors' cost and loss of facility revenue. This sum is fixed and agreed upon between the parties, because the actual loss to the City of Mesa caused by delay in completion will be impractical and extremely difficult to ascertain and determine.

For the purpose of determining the completion date, completion means the completion of all items of work, including punch list items.

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time fixed for its completion may have been extended, will in no way operate as a waiver on the part of the City of Mesa or any of its rights under the contract.

By signing this contract, the Contractor hereby acknowledges and agrees to the amount of liquidated damages, specified above.

20. UNIT BID PRICES:

The Contractor shall submit unit bid prices that are reasonable and reflect a direct relationship to the proportionate value of the total bid amount. Failure to submit a reasonable unit price may be justification for rejection of a bid proposal; as stipulated in Subsection 102.12 of the Standard Specifications, as amended by the City of Mesa.

21. SITE EXAMINATION:

Revise the third sentence, in the third paragraph, of Subsection 102.4 of the M.A.G. Specifications, to read as follows:

"Bidders shall make their own investigations, both subsurface and above the surface, and form their own estimates of the site conditions."

22. INDEMNITY:

Replace Subsection 103.6.2 of the M.A.G. Specification, with the following:

To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the City of Mesa, its agents, representatives, officers, directors, officials and employees from all demands, proceedings, suits, actions, claims, damages, or losses relating to, arising out of, resulting from or alleged to have resulted from the performance of the Work. Contractor's duty to defend, indemnify and hold harmless the City of Mesa, its agents, representatives, officers, directors, officials and employees shall arise in connection with all demands, proceedings, suits, actions, claims, workers' compensation claims, unemployment claims, damages, losses or expenses (including but not limited to attorney's fees, court costs, and the cost of appellate proceedings) that are attributable to personal or bodily injury, sickness, disease, death, or injury to, impairment or destruction of property including loss of use resulting therefrom, caused by any act or omission of the Contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable.

In any and all claims against the indemnified parties by any employee of the Contractor, any subcontractor, any supplier, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the defense and indemnification obligation in this article on INDEMNITY shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor, or any subcontractor, or any supplier or other person under workmen's compensation acts, disability benefit acts, or other employee acts.

The Contractor shall also defend, indemnify and hold harmless the City of Mesa, the Consultant, the Owner's representative, any jurisdiction or agency issuing permits for any work involved in the project, and their consultants, and each of their directors, officers, employees and agents from and against all losses, expenses, damages (including damages to the work itself), attorney's fees and other costs, including costs of defense, which any of them may incur with respect to the failure, neglect, or refusal of Contractor to faithfully perform the work and all of the work and all of the Contractor's obligations under the contract. Such costs, expenses, and damages shall include all costs, including attorney's fees, incurred by the indemnified parties in any lawsuit to which they are a party.

In case any claim, action, suit or proceeding is brought against the City of Mesa or any indemnified party by reason of any act or condition requiring indemnification by the Contractor hereunder, the indemnified party(ies) receiving notice of said claim, action, suit or proceeding shall notify the Contractor promptly of the same, and the Contractor shall, at the Contractor's expense, compromise, resist or defend, as appropriate, such claim, action, suit or proceeding, or cause the same to be compromised, resisted or defended, by the insurer of the liability, by the Contractor, or by legal counsel retained by the insurer or Contractor. The indemnified party shall have the right to approve the legal counsel selected by the Contractor or the insurer of the liability, which approval shall not be unreasonably withheld.

In addition to other insurance the Contractor is required herein to maintain in its own name, the Contractor shall also provide a separate policy of insurance, at its sole cost

and expense, naming the City of Mesa, a municipal corporation, and all its agents, representatives, officers, directors, officials and employees as the **insured** and providing primary coverage for the City of Mesa in an amount of not less than Two Million Dollars, or other minimum amount determined by the City, for personal injury or death, per person and per occurrence, and not less than Two Million dollars, or other minimum amount determined by the City, for property damage for any damage or injury suffered as a result of any work performed by Contractor or its employees, representatives, contractors or subcontractors in connection with the Project. Such policy shall also provide the City of Mesa, a municipal corporation, and all its agents, representatives, officers, directors, officials and employees coverage in the amounts specified above, for any and all damages or injury suffered as a result of alleged acts or omissions of the City of Mesa in connection with, directly or indirectly, this Project. Such policy shall be primary and not contributory to any insurance maintained by the City of Mesa. The insurance company writing such policy must have a BEST rating of not less than "A-" and be licensed by the Arizona Department of Insurance to do business in the State of Arizona. The form of the policy must be approved by the City of Mesa before the notice to proceed will be issued.

The defense, indemnification, hold harmless provisions and City of Mesa's Liability Insurance set forth herein shall survive any termination of this Agreement.

23. STANDARD FORM OF CONTRACT:

The successful bidder shall be required to execute the City of Mesa standard form of contract for construction within ten (10) calendar days after formal award of contract. A sample of the standard form of contract is included in these specifications.

24. PLANS AND SPECIFICATIONS TO THE SUCCESSFUL BIDDER:

After the project is awarded, the City will give the successful bidder seven (7) sets of plans and specifications at no cost to the Contractor. The City will also give the successful bidder a CD or DVD with scanned images of the plans and specifications in addition to the seven (7) sets mentioned above at no cost.

25. CONTRACT MODIFICATIONS:

Any agreements which modify the terms of the contract (including Change Orders) shall be approved in writing by the Deputy City Manager or his designated representative. Once properly executed by both parties, these modifications to the contract shall have the same effect as if they had been included in the original contract. Signature by the contracting parties shall constitute full accord and satisfaction between the City and the Contractor for all costs, damages, and expenses of whatever kind or nature, including delay, impact or acceleration damages, which may be occasioned by the modification.

26. SCOPE OF PAYMENT:

The scope of payment shall be in accordance with M.A.G. Section 109.2. Payment for the items in the proposal will be made at the unit price bid in the proposal. No additional payment will be made for work or materials related to any item in the proposal unless specifically called for.

Payment shall not be made for items of work shown on the plans that are not included as separate bid items in the proposal, whether they are indicated in the plans to be a

Non Pay Item (N.P.I.) or not. These items of work shall be incidental to related bid items and the cost for these items of work shall be included in the applicable unit price bid. No additional payment shall be made to the Contractor for these items of work.

Compensation will be made for alteration of work in accordance with M.A.G. Specifications.

27. ARIZONA STATE CONTRACTOR'S LICENSE REQUIREMENTS:

In order to submit a bid for this project, the General Contractor must possess a proper Arizona contractor's license and must provide license number and classification on the bid proposal. As per ARS 32.1151, it is unlawful for any firm or contractor to submit a bid without having a contractor's license in good standing for the type of working being bid. Failure to provide the required licensing may result in rejection of the bid.

28. CONSTRUCTION SURVEY:

1. GENERAL: The Contractor shall furnish the services of a surveyor professionally licensed or registered to perform land surveying in the State of Arizona. At the pre-construction conference, the Contractor shall advise the City Engineer in writing the name and license number of the person who will perform the survey work. The City of Mesa will initially provide the alignment control points and the control elevation benchmark(s). All other surveying in connection with this contract shall be the responsibility of the Contractor-provided surveying service (RLS). At a minimum these services shall include pre-construction surveys, construction surveys and post-construction surveys and their accuracy shall be third order or better. Payment for these services shall be per the lump sum bid items listed in the bid proposal. In addition, at the pre-construction conference, the contractor shall submit a schedule of values for these three (3) areas of survey which shall include the cost for the services in each area as well as man-hour estimates to complete the service for each area.
2. PRE-CONSTRUCTION SURVEYS: Pre-construction surveys include, but are not limited to:
 - a. Valve and manhole ties: Prior to the start of construction, the RLS will reference all existing survey monuments to a permanent feature. A copy of all reference ties shall be provided to the City Inspector and to the Contractor. The City will provide the Contractor a plat book showing the location and ties to existing survey monuments.
 - b. Topographic Survey: The RLS shall perform topographic surveys necessary to ascertain unforeseen conditions as requested by the Engineer. These request shall be considered additional services. The cost for these additional services shall be agreed to by the Engineer prior to the work being performed.
 - c. Elevations: When it is a requirement of the contract for the Contractor to pothole existing utilities to verify their location and elevation, the RLS shall ascertain stationing and elevations of the existing utilities and compute slopes and distances to insure potential conflicts are identified. The RLS shall provide this data to the City Inspector and the Contractor sufficiently in advance of construction that remedial action can be taken.

3. CONSTRUCTION SURVEYS: During construction the RLS shall provide survey services including, but not limited to:
 - a. Staking: The RLS shall provide all construction staking, including right-of-way and easements, slope staking, line and grade, and other staking, from which measurement of earthwork and structures can be taken conveniently by the construction force and which will ensure the project is constructed according to the plans.
 - b. Quantity Surveys: Quantity survey shall be conducted, and the data derived from these surveys shall be used in computing the quantities of work performed and the actual construction completed and in place.
 - (1) The Contractor shall conduct the original and final surveys and surveys for any periods for which progress payments are requested and shall make the computations based on these surveys. All these surveys shall be conducted under the direction of a representative of the City Engineer, unless the City Engineer waives this requirement in a specific instance. The Contractor shall make the computations based on the surveys for any periods for which progress payments are requested.
 - (2) Promptly upon completing a survey, the Contractor shall furnish the originals of all field notes and all other records relating to the survey or to the layout of the work to the City Inspector, who shall use them as necessary to determine the amount of progress payments. The Contractor shall retain copies of all such material furnished to the City Inspector.
4. POST-CONSTRUCTION SURVEYS: Upon completion of construction and prior to submittal of record drawings, the RLS shall conduct the necessary surveys to verify final alignment and grade, location and elevation of underground utility stubouts and permanent ties for all City-owned valves, fire hydrants, flushing lines, corporation stops, and other features as directed by the City Inspector. Promptly upon completing the survey the RLS shall furnish the original of all field notes and records relating to the post-construction surveys to City Inspector. A copy of the field notes and records shall be retained by the Contractor for use in preparation of the record drawings.
5. DATUM: All surveys shall be conducted using the datum shown on the Approved Plans (NAVD 88).
6. QUALITY ASSURANCE: From time to time the City of Mesa Chief Surveyor shall cause a quality assurance survey to be performed. Such survey may include, but not be limited to:
 - a. Review of records, methods, procedures and techniques.
 - b. Verification of computations.
 - c. Resurveying by City crews using in-place hubs, stakes or monuments.

7. DEFECTIVE WORK: The Chief Surveyor will notify the Contractor of any non-compliance with the foregoing provisions and the actions to be taken. The Contractor shall, after receipt of such notice, immediately take corrective action. If the Contractor fails or refuses to comply promptly, the Chief Surveyor may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders, nor ANY WORK PERFORMED WHICH MUST BE REMOVED AND REPLACED AS A RESULT OF DEFECTIVE SURVEY WORK, shall be made the subject of a claim for extension of time or for excess costs or damages by the Contractor. IF RECURRING DEFICIENCIES INDICATE THE REGISTERED LAND SURVEYOR IS NOT COMPETENT TO PERFORM THE REQUIRED SURVEYS,

CORRECTIVE ACTION SHALL BE TAKEN AS DIRECTED AND PROGRESS PAYMENTS WILL BE WITHHELD UNTIL SUCH CORRECTIVE ACTION HAS BEEN COMPLETED.

8. CERTIFICATION: Upon completion of all survey work on this contract, the RLS shall submit a letter to the City Engineer, on letterhead stationery, containing the following paragraph:

"I hereby certify that all elevations, dimensions, measurements, tabulations and computations provided by me on this contract are true, correct and accurate to the best of my knowledge and belief."

(Typed Name)
Registered Land Surveyor

This letter shall cite the City project name and number and shall be stamped with the RLS's professional stamp.

29. ASBESTOS-FREE FACILITY MATERIAL CERTIFICATION:

The installation or use of any materials containing a detectable quantity of asbestos for this project is strictly prohibited. A detectable quantity of asbestos is defined as any detectable amount of asbestos using the method specified in Appendix "E", subpart E of 40 CFR Part 763 section 1, Polarized Light Microscopy.

The General Contractor is responsible for ensuring and certifying that all materials installed and used for this project are free of any detectable quantities of asbestos. The certification is included as attachment and covers all work and materials provided by the contractor, his subcontractors or others under the direction of the General Contractor. If there is no General Contractor, all other Contractors performing work on this project shall provide the same certification. This certification must be signed, notarized and submitted prior to final payment.

The asbestos material prohibition shall supersede any material that might inadvertently be specified in the project plans. The City Engineer or her representative shall be notified in writing 7 days prior to ordering any material that may contain detectable asbestos if the Approved Plans specify the use of such a material. The City Engineer or her representative shall have the discretion to prohibit the use of any material containing detectable asbestos and shall approve or disapprove associated changes in costs. Should the Contractor install material containing detectable asbestos without notifying

the City Engineer or her representative, the Contractor shall remove and replace such material with material not containing asbestos at no cost to the City.

The installation of Asbestos Cement Pipe (ACP) is not subject to the above prohibition and may be installed where specified on City Projects.

30. EXTRA WORK:

The Contractor shall perform such extra work and charge the Owner at actual cost of labor and materials. The Contractor shall have the right to add not more than 5% to the Subcontractor's prices for authorized extra work performed solely by Subcontractors. Such percentage shall include all of the Contractor's charges for overhead, profit, administration and supervision. A 15% mark-up for overhead, profit, administration and supervision may be added to the Contractor's cost of labor and materials for extra work authorized to be done by his own forces. The Subcontractor's maximum allowable additions for overhead, profit, administration and supervision shall not exceed 15% of cost of labor and materials. The Contractor and Subcontractors will not be allowed any additional compensation beyond the allowable markups for overhead, profit, administration and supervision as noted above.

For work omitted from Contract: If Contract Agreement has been previously increased by Change Order for additional work, then overhead, profit, administration and supervision will be deducted for omitted work; if revised Contract Sum will be less than original Contract amount, then payment shall be in accordance with MAG Standard Specification Section 109.4.

Where extra work involves both added and omitted work, the overhead, profit, administration and supervision figures specified above shall be added only to the increased amount over the original Contract sum.

31. RECORD DRAWINGS:

Contractor shall provide Record Drawings which shall clearly show all differences between the Contract work as drawn and as installed for all work, as well as work added to the Contract which is not shown on the Contract Drawings.

Contractor shall maintain a set of Record Drawings at the job site. These shall be kept legible and current and shall be available for inspection at all times by the Architect. Show all changes in the Contract work, or work added, on these Record Drawings in a contrasting color, including work changed by Addendum or Bulletin.

Prepare separate sets of Record Drawings for the Architectural, Heating, Air Conditioning, Plumbing, Electrical work, and all Civil and Landscape work.

In showing changes in the work, or added work, use the same legends as were used on the Contract Drawings. Indicate exact locations by dimensions and exact elevations given in job datum, by depth. Give dimensions from a permanent point. Give elevations to sewer and storm drainage lines to the invert elevation.

Mechanical and Electrical Record Drawings shall indicate exact routing of all piping, duct work, power and control wiring, etc., location and function of all controls and whether manual or automatic and normal amperage readings for all motors taken at the equipment under normal load conditions.

Record Drawings shall contain the names, addresses and phone number of the Subcontractors and shall be signed by the Contractor.

Architect and City shall review the Record Drawings on a monthly basis, and they shall be the sole judges of the acceptability of these drawings. Updated record drawings showing as-built construction shall accompany each monthly progress payment submittal. Upon Completion of the Project, submit final Record Drawings to the Architect and City for review. Upon receipt of notice of review of the Record Drawings, deliver them together with one set of prints, to the Architect.

32. CONTRACTOR LABOR REQUIREMENTS:

The CONTRACTOR shall ensure that all employees have a legal right to live and work in the United States. Upon request by the City of Mesa, a copy of the Birth Certificate, Certificate of Naturalization, Immigration Card, or Special Entry Permit shall be provided to the City Engineer. In addition, employee compensation shall meet all applicable requirements of the Fair Labor Standards Act (FLSA) and Federal Minimum Wage Laws.

33. COMPLIANCE WITH FEDERAL AND STATE LAWS:

The Contractor understands and acknowledges the applicability to it of the Americans with Disabilities Act, the Immigration Reform and Control Act of 1986 and the Drug Free Workplace Act of 1989.

The Contractor must also comply with A.R.S. § 34-301, "Employment of Aliens on Public Works Prohibited", and A.R.S. § 34-302, as amended, "Residence Requirements for Employees".

Under the provisions of A.R.S. §41-4401, Contractor hereby warrants to the City that the Contractor and each of its subcontractors ("Subcontractors") will comply with, and are contractually obligated to comply with, all Federal Immigration laws and regulations that relate to their employees and A.R.S. §23-214(A) (hereinafter "Contractor Immigration Warranty").

A breach of the Contractor Immigration Warranty shall constitute a material breach of this Contract and shall subject the Contractor to penalties up to and including termination of this Contract at the sole discretion of the City.

The City retains the legal right to inspect the papers of any Contractor or Subcontractors employee who works on this Contract to ensure that the Contractor or Subcontractor is complying with the Contractor Immigration Warranty. Contractor agrees to assist the City in regard to any such inspections.

The City may, at its sole discretion, conduct random verification of the employment records of the Contractor and any of subcontractors to ensure compliance with Contractor's Immigration Warranty. Contractor agrees to assist the City in regard to any random verifications performed.

Neither the Contractor nor any Subcontractor shall be deemed to have materially breached the Contractor Immigration Warranty if the Contractor or Subcontractor establishes that it has complied with the employment verification provisions prescribed

by sections 274A and 274B of the Federal Immigration and Nationality Act and the E-Verify requirements prescribed by A.R.S. §23-214, Subsection A.

34. HOURS INSPECTIONS ARE AVAILABLE:

The Contractor is hereby informed that inspections by the City's Building Safety Division (for building permit compliance) are only available between the hours of 6:30 a.m. and 3 p.m. Monday through Friday, excluding City holidays. Inspections by the City Inspector (for contract administration and compliance) are conducted between the hours of 6:00 a.m. and 2:30 p.m. Monday through Friday, excluding City holidays. Unless otherwise approved by the City Inspector, the Contractor shall schedule all required inspections accordingly.

35. QC/QA TESTING:

All construction materials to be used or incorporated in the project are subject to inspection, Quality Control & Quality Assurance testing, and approval or rejection by the City. Quality Control (QC) testing is defined as the testing performed to assure that the materials installed comply with the requirements in the contract documents. Quality Assurance (QA) testing is defined as the testing performed to verify the QC results and to ascertain that the materials installed meet the specified levels of quality in accordance with the contract documents. Any material rejected by the City shall be removed immediately and replaced in an acceptable manner to the City at no additional cost to the City. When QC/QA tests indicate noncompliance with the Contract documents, retesting shall be performed by the same testing laboratory that performed the tests that indicated noncompliance.

Testing Services Provided by the Contractor:

Exclusive of the testing provided by the City as listed below, the Contractor shall provide all other testing required by the project plans or specifications at no additional cost to the City.

Testing Services Provided by the City:

The City will perform QC/QA testing on the following materials at no cost to the Contractor:

- Subgrade
- Structural Backfill
- Portland Cement Concrete
- Grout
- Mortar

The City will perform said testing using the City's Materials Testing Laboratory or (at the City's sole discretion) other testing laboratory contracted directly to the City (referred to hereafter as the "City's laboratory" or the "Owner's laboratory"). The Contractor shall cooperate with the City's laboratory and all others responsible for testing and inspection and shall provide required access to the project at all times. The City will determine the exact time, location, and number of samples and tests.

Quality Assurance (QA) testing services provided by the City are for the sole benefit of the City. However, test results will be made available to the Contractor.

At the option of the City, materials may be approved at the source of supply before delivery is started per MAG Specification Section 106.1.

36. BIDS:

All General Contractors and Subcontractors shall hold their bids valid for a period of 90 days from the proposal due date stated on the Advertisement for Bids.

37. PERMIT FEES:

The Contractor shall be required to obtain all permits for this project and pay all applicable fees, unless otherwise noted on the plans and in the specifications. For bidding purposes, an allowance for all permit fees is included in the bid schedule under the item "allowance for permit fees". The Contractor shall be paid for the actual cost of the permit fees upon submitting a receipt showing the fee he has paid. Excluded from the above allowance are items such as all costs incurred by the Contractor in securing the permit except for the actual permit fee established by the agency, cost for all shut downs or outages, cost for pole bracing, cost for permits for construction water, cost of construction water, cost for any additional insurance requirements, cost for any licenses, and other similar type costs.

38. SPECIAL INSPECTIONS:

Special inspections of the project work are required, as required in Section 1701 of the International Building Code and as a noted condition of approval of the building permit for this project. The City of Mesa or its representative will provide Special Inspections services for this project. The Contractor shall be aware of the required Special Inspections and shall coordinate with the City Inspector a minimum of two business days in advance of any work that will require a Special Inspection(s) relative to the required timing of the Special Inspections. It is the Contractor's responsibility to ensure that all work requiring Special Inspection remains uncovered and available for inspection until the Special Inspections are performed. Items covered over prior to the performance of Special Inspections will be subject to uncovering at the Contractor's expense.

39. DATE OF FINAL ACCEPTANCE AND BEGINNING OF WARRANTY PERIOD:

The date of final acceptance and beginning of the warranty period shall be the date upon which the owner indicates completion and acceptance of the work. This date will represent the completion date for all phases of the project, irrespective of early completion by some subcontractors of their work.

There will be no partial acceptance, no partial Certificate of Substantial Completion and no partial occupancy.

Final acceptance will not be issued until all items of work, including punch list items, have been completed.

40. PAYMENT FOR STORED MATERIALS:

The City of Mesa will not pay for materials stored on site unless the material is properly stored, and the material has been paid for. The Contractor shall submit copies of

invoices marked, "PAID", or other proof acceptable to the City of Mesa indicating that the material, has in fact been paid for.

No payments will be made for any material stored offsite, whether it has been paid for or not.

41. THE CLEAN AIR ACT:

The Contractor shall comply with the Clean Air Act, as amended (42 USC 1857) and Executive Order 11288; and the Federal Water Pollution Control Act, as amended (33 USC 1251); and all applicable standards, orders and regulations issued pursuant thereto. The Owner agrees to report all violations thereof to the Environmental Protection Agency and specifically to comply with the following:

For the purpose of this paragraph, the term "facility" means (1) any building, installation, structure, location or site or operations, (2) owned, leased, or supervised (3) by the Owner or its contractors and latter's subcontractors (4) for the construction, supply and service contracts entered into by the Owner for the purpose of accomplishing this project.

The Owner and Contractor agrees to comply with the Clean Air Act and the Federal Water Pollution Control Act during the accomplishment of this project and specifically agree to the following:

That any facility to be utilized in the accomplishment of this project is not listed on the Environmental Protection Agency's List of Violating Facilities pursuant to 40 CFR, Part 15.2;

That in the event a facility utilized in the accomplishment of this project becomes listed on the EPA List, the Government may, interalia, cancel, terminate for default, or suspend for such failure, in whole or in part, the agreement;

That it will comply with all other requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act, as amended, relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in Section 114 and Section 308, respectively and all regulations and guidelines issued thereunder;

That it will promptly notify the Government of the receipts of any notice from the Director, Office of Federal Activities, Environmental Protection Agency, indicating that any facility utilized or to be utilized in the accomplishment of this project is under consideration for listing on the EPA List of Violating Facilities;

That it will insert in any of its contracts and require insertion in subcontracts entered into for the purpose of accomplishing this project, unless otherwise exempted pursuant to the EPA regulations implementing the Clean Air Act and the Federal Water Pollution Control Act (40 CFR, Part 15.5e) provisions which shall include the criteria and requirements set forth in this paragraph, including this Subparagraph (5).

All pertinent rules and regulations issued under and pursuant to the National Environmental Policy Act of 1969 as amended (P.L. 90-190) (42 USC 4321); the

National Historic Preservation Act of 1966 (80 Stat. 16 USC 470); the Wild and Scenic Rivers Act P.O. 90-542 as amended, and Executive Order No. 11593 of May 31, 1971.

42. EQUAL EMPLOYMENT OPPORTUNITY:

During the performance of this contract the Contractor agrees as follows:

The Contractor will not discriminate against any employee or applicant for employment because of race, religion, marital status, age, color, sex or national origin. The Contractor will take affirmative action to insure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, sex or national origin. Such action shall include but not be limited to, the following: employment, upgrading, 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 agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

The Contractor, will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, religion, marital status, age, color, sex or national origin.

The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the labor union or workers' representative of the Contractor's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

The Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the Department of Housing and Urban Development and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

In the event of the Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any such rules, regulations or orders, this contract may be cancelled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts, in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, or by rules or order of the Secretary of Labor, or as otherwise provided by law.

The Contractor will include the provisions of paragraphs 1 through 7 in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontractor or purchase order as the Department of Health and Human Services may direct as a means of enforcing such

provisions, including sanctions for noncompliance; provided however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Department of Health and Human Services, the Contractor may request the United States to enter into such litigations to protect the interests of the United States.

43. CONTRACTORS LICENSE LAW:

Contractor shall comply with and require all Subcontractors to comply with State Contractor's license laws and be duly registered and licensed thereunder.

44. PRE-CONSTRUCTION CONFERENCE:

The pre-construction meeting for this project will be held either on the morning of the first or the third Wednesday of the month, depending on award date. Contractor will be notified by Engineering as to exact date, time and location. Contractor shall plan his schedule accordingly. The Contractor, together with representatives of his major Subcontractors, shall attend, as will the Architect. The purpose of this conference is to discuss the Project in detail, including scheduling of work, and to answer any questions that may arise. Unless followed up in writing, verbal authorizations or acknowledgment by anyone present shall not be binding.

45. CONTRACTOR PERFORMANCE HISTORY:

The General Contractor performing the scope of work covered by this project shall have the following minimum performance history:

Completed two (2) projects of similar scope and complexity, within the last five (5) years. Similar scope and complexity is defined as meeting all of the following minimum criteria:

1. Two (2) Tower projects must each be of a similar scope and condition.
2. For all projects listed in the Performance History, provide all of the required information on the form.

The Contractor shall document said project experience on the "Contractor Performance History" form included in the project specifications. **All bidders shall submit the completed Contractor Performance History form to the City of Mesa with their bid proposal.** The Contractor may attach additional sheets as necessary. An unacceptable performance history as judged solely by the City of Mesa, shall serve as the basis of rejection of the bid. If the City determines the apparent low bid Contractor does not meet the minimum qualifications, the bid will be rejected and the contractor qualifications for the next lowest bid will be reviewed for approval or disapproved. This process will be followed until the City approves a Contractor's Qualifications.

46. SCHEDULE OF VALUES:

Concurrent with the submission of the preliminary schedule, the Contractor shall prepare and submit to the City a schedule of values covering each lump sum item. The schedule of values, showing the value of each kind of work, shall be acceptable to the City before any application for payment is prepared.

The sum of the items listed in the schedule of values shall equal the contract price. Such items as bond premium, temporary construction facilities, and mobilization may be listed separately in the schedule of values, provided the amounts can be substantiated. Overhead and profit shall not be listed as separate items.

An unbalanced schedule of values providing for overpayment of the Contractor on items of work that would be performed first will not be accepted. The schedule of values shall be revised and resubmitted until acceptable to the City. Final acceptance by the City shall indicate only consent to the schedule of values as a basis for preparation of applications for progress payments, and shall not constitute an agreement as to the value of each indicated item.

47. SUBCONTRACTOR'S BONDS:

The Contractor shall work only with Subcontractors who are properly licensed and bonded with the State of Arizona, Registrar of Contractors.

In addition these Subcontractors shall furnish the following to the Contractor:

- A. A Performance Bond in an amount equal to the full subcontract amount conditioned upon the faithful performance of the subcontract in accordance with plans, specifications and conditions thereof. Such Bond shall be solely for the protection of the contractor and the City of Mesa. The City of Mesa shall not be named in the Subcontractor's performance Bond.
- B. A Payment Bond in an amount equal to the full subcontract amount conditioned solely for the protection of claimants supplying labor or materials to the Contractor in the prosecution of the work provided for in such subcontract.

Each such Bond shall include a provision allowing the prevailing party, in a suit on such bond, to recover as a part of his judgment such reasonable attorney's fees as may be fixed by a judge of the court. Each such Bond shall be executed by a surety company or companies duly authorized to do business in the State of Arizona. The Bonds shall be made payable and acceptable to the Contractor. The Bonds shall 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 by law required, and the bonds shall have attached thereto a certified copy of Power of Attorney of the signing official.

Subcontractor's whose scope of work involves the following work, are required to furnish performance and payment bonds to the Contractor:

- 1. Structural
- 2. Grading
- 3. Any additional subcontract with a value greater than 5% of total contract amount.

Before each subcontractor will be allowed to perform work on the project, a copy of each subcontractor's Performance and Payment Bond shall be delivered to the City of Mesa a minimum of ten (10) days prior to starting said work.

48. PROJECT CLOSEOUT:

Prior to the final payment to the Contractor, the Contractor shall furnish to the City Project Representative for review and transmittal to the Owner the following written guarantees, warranties, manuals and equipment lists.

The Contractor and Subcontractors shall provide the following written warranties:

General Contractor - One (1) year.

When notified of a warranty issue, the Contractor shall respond within 48-hours and shall perform warranty work as soon as material for said repairs are available (as judged solely by the City).

An Occupancy Permit from the City shall be furnished to the Owner prior to payment of retention.

49. NOTICE TO PROCEED:

Unless otherwise determined by the City of Mesa, the City of Mesa will issue a Notice-to-Proceed for this project no later than the first Monday following the elapse of three weeks after Council Award. The Contractor shall plan and execute all activities accordingly.

50. PRE-BID REVIEW OF SITE

A pre-bid review of the site has been set Tuesday, October 12, 2010, beginning at 8:00am local time. An additional day for site visit will be Wednesday, October 13, 2010, beginning at 8:00am local time if required to accommodate overflow. Contractors shall call Dan Womack at 480-644-2650 three working days prior to pre-register for the site visit. Participants shall gather at the west side (adjacent to the road) of the Safeway Grocery Store parking lot at 13733 North Fountain Hills Boulevard, in Fountain Hills, promptly at 8:00am. Due to the limited space at the site, a limited number of vehicles will be allowed to access the site. The City would prefer that Contractors limit personnel to one person per visit, as carpooling to the site may be necessary. A four wheel drive vehicle is required to access the site. The Contractor shall bring a copy of the plans and specifications, if desired. The pre-bid site visit is highly recommended, but is not mandatory.

51. VIDEO RECORDING REQUIREMENT:

Prior to performing any project work, the Contractor shall document the existing conditions of all project work areas via DVD format video. The Contractor shall video record all areas and features that could potentially be impacted by the project work. Coordinate video recording with the City Inspector and a City of Mesa Engineering Public Relations Representative (phone 480-644-3800). The Contractor shall provide the City Inspector with a copy of said DVD's prior to performing any project work. There shall be no additional payment for this effort and coordination.

52. LEVEL 1 SECURITY REQUIREMENTS:

The City of Mesa's Level 1 security requirements apply to this project, as outlined in this section. These requirements include:

- Submitting a list of all General Contractor and subcontractor personnel who will require access to the site (referred to hereafter as "individuals requiring access" or similar)
- Filling out a form for each individual requiring access to the site that gives critical personal identifying information that can be used to perform a web-based background check and having the person sign to give consent to said background check.
- Having the City perform a web-based background check on all individuals requiring access
- Limiting access to the site to those individuals who pass the web-based background check (referred to hereafter as "individuals who are granted access" or similar)
- Requiring individuals who are granted access to obtain a City-issued photo identification (ID) badge and requiring them to wear it whenever they are onsite
- Requiring individuals who are granted access to the site to wear brightly colored safety vests while they are onsite

These requirements are discussed in greater detail in the following subsections.

List of Individuals Requiring Access to the Site

The Contractor shall submit a list of all individuals requiring access to the site to the City, using the standard shop drawing submittal process. The Contractor shall submit both a paper copy and an electronic copy of said list. The electronic file shall be in Microsoft Excel format. The list shall include all General Contractor and subcontractor personnel who will require access to the site and shall include the information shown in the table below (with one example entry shown for illustrative purposes):

<i>Company name</i>	<i>General contractor or subcontractor</i>	<i>Employee's full legal name</i>
Ace Electric, Inc.	Electrical subcontractor	John Joseph Doe

Under "Company name", the General Contractor's company name shall be listed only for those individuals directly employed by the General Contractor. The appropriate subcontractor's company name shall be listed for individuals employed by subcontractors.

Background Check

Each person requiring access to the site shall completely fill out and sign the "Level 1 Form" attached to the back of these Special Provisions as Exhibit "D" and shall submit the completed, signed form to Jackie Hale, HR Specialist II, in the City of Mesa's Personnel Office at 20 E. Main Street, Suite 130, Mesa, Arizona, 85201, Phone 480-644-3180. Each person is required to be present at the time his/her form is submitted and shall show his/her valid Arizona state driver's license or valid Arizona state-issued identification card. Forms will not be accepted without such identification. The Contractor is encouraged to make arrangements with Jackie Hale in advance to schedule times for the various groups of individuals.

After the list and forms discussed above are submitted, the City of Mesa will require two (2) weeks to perform web-based background checks, which will include, but may not be limited to searching for past criminal convictions, outstanding warrants, registered sex

offender status, fraudulent use of social security numbers, etc. Persons failing the web-based background check, as determined solely by the City, will not be given access to the site.

If any individuals are not permitted access to the site, the Contractor shall promptly submit the information required for replacement individuals (following the same procedures outlined above) and allow two (2) weeks for City review and background check. No additional cost or claims will be paid to the Contractor related to individuals who are not permitted access to the site.

Subsequent to the start of the project, if personnel changes occur, the Contractor shall submit the required information for replacement individuals. Said information shall be submitted a minimum of two (2) weeks prior to the replacement person's need for access to the site.

Photo Identification Badges

Everyone requiring access to the site shall obtain and wear at all times while onsite a City of Mesa-issued photo identification badge. The City of Mesa will provide the photo ID badges (at no cost to the Contractor) only to those individuals who have passed the background check.

After the Contractor has received notification from the City that an individual has passed the background check, the Contractor shall have that individual report to the Municipal Security office at 340 E. Sixth Street to obtain their photo badge. The Contractor is advised to call 480-644-5113 prior to having anyone report to the office to ascertain the latest hours and days of operation for the Municipal Security office. The photo badges will be issued during the person's visit to the Municipal Security office.

The photo badges remain the property of the City of Mesa and final payment to the Contractor will not be made until the photo ID badges are returned to the City.

Safety Vests

All individuals shall wear brightly colored safety vests at all times they are onsite to identify them as members of the construction crew. The vests remain the property of the Contractor.

Compliance with the provisions of this "Level 1 Security Requirements" section shall be a non-pay item.

53. STAGING AREA AND USE OF THE SITE:

Due to the space restrictions of the site, two staging areas shall be provided. The Contractor may use a portion of the site as a staging area, as shown on the coversheet of the Approved Plans. The area available to the Contractor for staging and storage is limited to the area shown on said plan sheet. During the course of construction the Contractor may be required to provide access through this staging area for the CAP Facility users. The second, larger area is available is located in the gravel area on the north side of McDowell Mountain Park Drive, west of McDowell Mountain Road as shown on the cover sheet of the approved plans. Contractor shall coordinate with City Inspector to schedule the availability of this area with Maricopa County Parks. If the Contractor requires additional storage or staging area, he shall be solely responsible to

provide it at an off-site location at his own expense and shall total less than 1-acre of disturbed soil, including the tower site and all staging areas to avoid being required to submit a Stormwater Pollution Prevention Plan (SWPPP).

Unless otherwise approved by the City Inspector, all equipment and stored materials left onsite when the Contractor is not onsite shall be secured in said staging area. The Contractor shall be responsible for the security of the project site and the staging area. At a minimum, the staging area shall be enclosed by a 6-foot (minimum) height temporary chain link fence with barbed security top and with lockable gates.

The Contractor shall confine his work, materials storage, and activities at the site to the designated staging area, plus the areas noted for construction on the approved plans. The Contractor shall not unreasonably encumber the site, as determined solely by the City Inspector, with materials or equipment.

Unless otherwise approved by the City Inspector, equipment and material not actively being used to prosecute the work shall not be stored in the right-of-way.

54. RESTROOM FACILITIES:

The Contractor will be required to provide restroom facilities onsite for all employees and subcontractors.

55. SCRUTINIZED BUSINESS OPERATIONS IN SUDAN OR IRAN:

The Contractor certifies it does not have scrutinized business operations in Sudan or Iran, as defined in A.R.S. Sections 35-391 and 35-393. The Contractor shall obtain statements from its subcontractors certifying compliance with the above-referenced provisions and shall furnish the statements to the City's Procurement Officer upon request. These certifications shall remain in effect throughout the term of this Agreement. Should the City find that the Contractor or its subcontractors are not in compliance with this provision, the City may pursue any remedies allowed by law, including, but not limited to; suspension of all activities under this Agreement, termination of the Agreement by default, and suspension and/or debarment of the Contractor. All costs necessary to verify compliance are the sole responsibility of the Contractor.

56. LOCATION OF AZDPS SUPPLIED EQUIPMENT:

The Department of Public Safety has already purchased the communications tower, prefab building and generator. The Contractor shall be responsible for transporting the tower and building to the job site.

The tower and generator are located at:
Department of Public Safety
2626 South 16th Street
Phoenix, AZ

The building is located at:
Department of Public Safety Highway Yard
Trekell Road and Interstate 8 at approximately Mile Post 174
Casa Grande, AZ

EXHIBIT "A"

ASBESTOS-FREE FACILITY MATERIAL CERTIFICATION

THOMPSON PEAK COMMUNICATIONS TOWER
CITY OF MESA PROJECT NO. 02-410-001

I _____, AS THE DULY AUTHORIZED REPRESENTATIVE FOR _____ CERTIFY THAT ALL MATERIALS INSTALLED AND USED BY THE UNDERSIGNED IN THE MESA FACILITY PURSUANT TO THIS CITY OF MESA PROJECT ARE FREE OF ANY LABORATORY DETECTABLE AMOUNTS OF ASBESTOS CONTAINING MATERIAL USING THE METHOD SPECIFIED IN APPENDIX E, SUBPART E OF 40 CFR PART 763 SECTION 1, POLARIZED LIGHT MICROSCOPY. THIS CERTIFICATION INCLUDES ALL MATERIALS* INSTALLED AND USED BY THE CONTRACTOR, ALL SUBCONTRACTORS AND ALL OTHER CONTRACTORS PERFORMING WORK IN CITY OF MESA FACILITIES, FOR WORK COMPLETED AS DESCRIBED BELOW:

Site grading, install new helipad, retaining walls, concrete foundation, and installation of AZDPS provided 180-foot communications tower, prefab building and generator at Thompson Peak in the McDowell Mountains per the Approved Plans and Specifications.

THIS CERTIFICATION INCLUDES ALL WORK THAT WAS COMPLETED BY THE CONTRACTOR AND HIS SUBCONTRACTORS CONDUCTED BEGINNING ON _____ AND COMPLETED ON _____.
Under City of Mesa Project Number 02-410-001.

SIGNED:

Print Name

Title

Signature

Date _____

Name of General Contractor

Type of Incorporation

AZ Contractor License Number

Name of Other Contractor or Subcontractor (if necessary)

AZ Contractor License Number

*NOTE: This certification does not apply to the installation of Asbestos Cement Pipe (ACP). ACP may be installed on City of Mesa Projects when specified.

STATE OF ARIZONA)
)ss
County of Maricopa)

The foregoing instrument was subscribed and sworn to before me this _____ day of _____, 20____,
by _____.

Notary Public

My Commission Expires:



EXHIBIT "B"
("Level 1 Form")

**Contractor Background Authorization
Priority Research, Inc.**

Project/Contract#: _____
Project Name: _____
Contractor Name: _____
City Contact: _____ Phone: _____

The following is to be completed by the individual who is the subject of the background check:

Print Full Name: _____
(First) (Middle) (Last)

Former Name(s) and Dates Used: _____

Current Address: _____
(Street) (City) (State/Zip/County)

Previous Address: _____
(Street) (City) (State/Zip/County)

Social Security Number: _____ Date & Place of Birth: _____

Driver's License or State ID Number/State Issued: _____

The information contained in this application is correct to the best of my knowledge. I hereby authorize **Priority Research, Inc.** and its designated agents and representatives to conduct a comprehensive review of my background causing a consumer report and/or an investigative consumer report to be generated for employment and/or volunteer purposes. I understand that the scope of the consumer report/ investigative consumer report shall include, but is not limited to the following areas: verification of social security number; current and previous residences; and criminal history records from any criminal justice agency in any or all federal, state, county jurisdictions; and any other public records.

I further authorize any individual, company, firm, corporation, or public agency to divulge any and all information, verbal or written, pertaining to me, to the **Priority Research, Inc.**, or its agents. I further authorize the complete release of any records or data pertaining to me which the individual, company, firm, corporation, or public agency may have, to include information or data received from other sources.

Priority Research, Inc. and the City of Mesa Human Resources Department and its designated agents and representatives shall maintain all information received from this authorization in a confidential manner in order to protect the applicants personal information, including, but not limited to, addresses, social security numbers, and dates of birth.

Signature: _____ Date: _____

Telephone Number: _____

**The contract worker/individual will be responsible for delivery of this form
and will be required to present a valid state issued identification document to:**

Jackie Hale, HR Specialist II
City of Mesa Human Resources Office
20 E. Main Street, Suite 130, Mesa, AZ 85201

EXHIBIT C

**GEOTECHNICAL EVALUATION
PROPOSED COMMUNICATIONS TOWER
MCDOWELL MOUNTAINS-THOMPSON PEAK
MARICOPA COUNTY, ARIZONA
WT JOB NO. 2120JF029**



**Western
Technologies
Inc.**

The Quality People
Since 1955

PHOENIX - ARIZONA
3737 East Broadway Road
Phoenix, Arizona 85040-2921
(602) 437-3737 • fax 470-1341

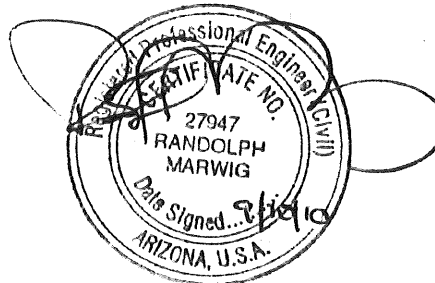
Prepared for:

TELESPAN NETWORK SERVICES

September 10, 2010



Expires 06/30/13
Humberto F. Preciado, Ph.D., P.E.
Director of Geotechnical Services



Expires 6/30/12
Randolph Marwig, P.E.
Senior Geotechnical Engineer

ARIZONA
COTTONWOOD
FLAGSTAFF
FORT MOHAVE

LAKESIDE
LAKE HAVASU CITY

PHOENIX
PRESCOTT

SIERRA VISTA
TUCSON

COLORADO
DURANGO
PAGOSA SPRINGS

NEVADA
LAS VEGAS

NEW MEXICO
ALBUQUERQUE
FARMINGTON

UTAH
SALT LAKE CITY



**Western
Technologies
Inc.**
The Quality People
Since 1955

3737 East Broadway Road
Phoenix, Arizona 85040-2921
(602) 437-3737 • fax 470-1341

September 10, 2010

TeleSpan Network Services
2151 East Broadway Road, Suite #217
Tempe, Arizona 85282

Attn: Jason R. Stewart

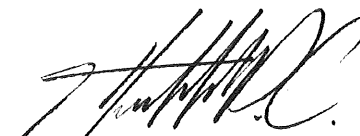
Re: Geotechnical Evaluation
Proposed Communications Tower
McDowell Mountains-Thompson Peak
Maricopa County, Arizona

WT Job No. 2120JF029

Western Technologies Inc. (WT) has completed the geotechnical evaluation for the proposed communications tower to be located at the top of Thompson Peak in the McDowell Mountains, Maricopa County, Arizona. This study was performed in general accordance with our proposal number 2129PF141, dated March 18, 2010. The results of our evaluation, including the boring location diagram, boring logs, laboratory test results, and geotechnical recommendations are attached.

We appreciate being of service to you in the geotechnical engineering phase of this project and are prepared to assist you during the construction phases as well. If design conditions change, or if you have any questions concerning this report or any of our materials testing, special inspection, or consulting services, please do not hesitate to contact us. We look forward to working with you on future projects.

Sincerely,
WESTERN TECHNOLOGIES INC.
Geotechnical Engineering Services



Humberto F. Preciado, Ph.D., P.E.
Director of Geotechnical Services

Copies to: Addressee (5)

TABLE OF CONTENTS

1.0 PURPOSE.....	1
2.0 PROJECT DESCRIPTION.....	1
3.0 SCOPE OF SERVICES	2
3.1 Field Exploration	2
3.2 Analyses and Report.....	2
4.0 SITE CONDITIONS.....	2
4.1 Surface.....	2
4.2 Subsurface.....	3
4.3 Geology	3
5.0 RECOMMENDATIONS.....	3
5.1 General.....	3
5.2 Conventional Foundations and Rock Anchors	4
5.2.1 Mat Slab-on-Grade Foundation.....	5
5.3 Lateral Design Criteria.....	6
5.3.1 Rockery Walls	7
5.4 Seismic Considerations	7
5.5 Conventional Slab-on-Grade Support.....	7
5.6 Drainage	8
5.7 Corrosivity	8
5.8 Pavements	8
5.9 Helipad	9
6.0 EARTHWORK	9
6.1 General.....	9
6.2 Site Clearing.....	10
6.3 Excavation	10
6.4 Slab-on-Grade and Foundation Preparation	10
6.5 Pavement Preparation	11
6.6 Materials.....	11
6.7 Placement and Compaction.....	11
6.8 Cut and Fill Slopes	12
6.9 Compliance	13
7.0 REFERENCES.....	13
8.0 LIMITATIONS	13
9.0 OTHER SERVICES	14
10.0 CLOSURE.....	14



TABLE OF CONTENTS (continued)

TEST PIT AND SEISMIC SURVEY LOCATION DIAGRAM..... Plate 1

APPENDIX A

Seismic Refraction Notes..... A-1
Method of Soil Classification..... A-2
Test Pit Log Notes..... A-3
Test Pit Logs A-4 and A-5

APPENDIX B

Rock Anchor Capacity Chart B-1

**GEOTECHNICAL EVALUATION
PROPOSED COMMUNICATIONS TOWER
MCDOWELL MOUNTAINS-THOMPSON PEAK
MARICOPA COUNTY, ARIZONA
WT JOB NO. 2120JF029**

1.0 PURPOSE

This report contains the results of our geotechnical evaluation for the proposed communications tower and ancillary structures to be located at the top of Thompson Peak in the McDowell Mountains, Maricopa County, Arizona. The purpose of these services is to provide information and recommendations regarding:

- Foundation design parameters
- Lateral earth pressures
- Earthwork
- Slabs-on-grade
- Drainage
- Excavation conditions
- Seismicity
- Slope stability
- Corrosivity

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

2.0 PROJECT DESCRIPTION

Project information supplied by TeleSpan indicates that the proposed communications tower will be constructed on top of Thompson Peak, located east of the City of Scottsdale in the McDowell Mountains. The tower will be a four-legged self-supporting communication tower approximately 180 feet in height. The maximum horizontal, downward axial and uplift loads per leg will be approximately 30 kips, 265 kips and 225 kips, respectively. We understand that foundations for each leg of the tower may consist of: 1) conventional spread footings with post-tensioned rock anchors to resist uplift loading or 2) a mat slab-on-grade supporting the four-legged tower. We assume that post-tensioned rock anchors may be utilized coupled with the spread footing option. Miscellaneous structures such as an equipment building, a helipad, and construction of an unpaved access road are also proposed for the project. In addition, a rockery or reinforced concrete retaining wall up to 12-feet in height is proposed between the existing and new tower sites.

WT has performed seismic refraction survey lines at the site (WT Report No. 2127JN167, dated December 20, 2007). The results of the seismic refraction survey lines were inconclusive in regard to the presence, depth and hardness of bedrock; as a result, only preliminary information was provided at the time. Should any of our information or assumptions not be correct, the Client will notify WT immediately.



3.0 SCOPE OF SERVICES

3.1 Field Exploration

The subsurface conditions of the site were evaluated by the excavation of two test pits and conducting seismic refraction surveys along two lines. A seismic survey along two lines was previously performed in our Preliminary Geotechnical Evaluation (2127JN167). The location of the test pits and the seismic survey lines are shown on Plate No. 1. The seismic equipment was positioned to gather data to depths of 20 to 26 feet below the existing ground surface. Additional information on the seismic survey is presented in Plate No. A-1.

3.2 Analyses and Report

Analyses were performed, and this report was prepared for the exclusive purpose of providing geotechnical engineering and/or testing information and recommendations. This geotechnical engineering report includes a description of the project, a discussion of the field testing programs, a discussion of the subsurface conditions, and design recommendations as required to satisfy the purpose previously described.

The scope of services for this project does not include, either specifically or by implication, any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. If the owner is concerned about the potential for such contamination, other studies should be undertaken. We are available to discuss the scope of such studies with you.

4.0 SITE CONDITIONS

4.1 Surface

The site is located on Thompson Peak in the McDowell Mountains east of the City of Scottsdale. Access to the site is by a rough and steep road requiring four-wheel drive. At the time of our exploration, the surface of the proposed tower site was sloping to the east at about 5:1, horizontal:vertical. We anticipate that about 6 to 8 feet of cut will be required in the western portion of the tower area and about 2 feet of cut will be required in the eastern portion of the pad to create a level pad. An existing tower site was located immediately west of the proposed tower site, and an existing rough graded helipad was located east of the proposed tower site. A 6-foot tall retaining wall is proposed between the existing and new tower sites. Vegetation was sparse and consisted of grass or brush and occasional cacti. Site surface drainage was good by means of sheet flow in various directions due to the hilly surface topography.



4.2 Subsurface

As presented on the test pit logs, surface soils to depths of excavation refusal were found to be Clayey GRAVEL with Cobbles and varying minor amounts of weathered schist. Refusal was encountered in the test pits on top of less weathered schist rock at depths of approximately 8 feet below existing grade.

The following table lists the depth to denser or harder materials and the estimated compression wave velocities encountered in the two seismic survey lines.

LOCATION	DEPTH TO ROCK	ESTIMATED COMPRESSION WAVE VELOCITY
Line 1	0-8 ft	1407 ft/sec, medium dense soil, cobbles, and very weathered schist rock.
	>8 ft	3175 ft/sec, moderately weathered, very to moderately fractured, medium hard schist rock.
Line 2	0-3 ft	1078 ft/sec, loose soil, gravel and cobbles,
	>3 ft	1723 ft/sec, medium dense soil and cobbles (fill and slough), and very weathered schist rock.

4.3 Geology

The site is located in the Basin and Range Geologic Province. The Basin and Range Province is characterized by a modern landscape consisting of broad alluvial valleys bound by steep, relatively rugged mountain ranges. The trend of the valleys and mountain ranges is generally in a north-south to northwest-southeast direction. The modern landscape was formed primarily by middle and late Cenozoic extensional tectonism, which resulted in high angle normal faults.

The tower site is located in the southwestern portion of the McDowell Mountain on Thompson Peak, on a relatively thin layer of colluvial materials or residual overlying shallow bedrock. Based on geologic maps, the bedrock in the vicinity consists of early Proterozoic sedimentary and volcanic rocks metamorphosed to schist and gneiss.

5.0 RECOMMENDATIONS

5.1 General

Recommendations contained in this report are based on our understanding of the project criteria described in Section 2.0, **PROJECT DESCRIPTION**, and the assumption that the soil and subsurface conditions are those disclosed by the test pits and seismic survey lines. Others may change the plans, final elevations, number and type of structures, foundation loads, and floor levels during design or construction. Substantially different



subsurface conditions from those described herein may be encountered or become known. Any changes in the project criteria or subsurface conditions shall be brought to our attention in writing.

5.2 Conventional Foundations and Rock Anchors

We anticipate that the proposed tower and equipment building can be supported by conventional shallow spread footing type foundations bearing on undisturbed dense to very dense native soil, engineered fill, or weathered or fresh rock. Based on our observations, the proposed cuts will likely remove any potential uncontrolled fill or slough. Alternative footing depths and allowable bearing capacities for foundations established as recommended are presented in the following tabulation:

Footing Depth Below Lowest Adjacent Grade (ft)	Allowable Bearing Capacity (psf)
1.0 (footing bearing on soil)	2,500
1.5 (footing bearing on soil)	3,000
2.0 or greater (footing bearing on soil)	4,000
1.0 or greater (footing bearing on rock)	4,000

The allowable bearing capacity assumes that the foundation is established on at least dense to very dense undisturbed native soil or rock as indicated, the minimum embedment depth is obtained, and the foundation is established on a horizontal surface. The allowable bearing capacity applies to dead loads plus design live load conditions. The allowable bearing capacity may be increased by one-third when considering total loads that include wind or seismic.

We anticipate that differential movement of the proposed structures, supported as recommended, should not exceed $\frac{3}{4}$ of one inch. Proper drainage should be provided in the final design and during construction to minimize water infiltration below foundations.

All footings should be reinforced to reduce the potential for distress caused by differential foundation movements.

The uplift loads on the tower legs may be resisted by the weight of the individual foundations and tensile capacity derived from post-tensioned rock anchors. Based on Naval Facilities Engineering Command procedures (NAVFAC Design Manual 7.02), the rock anchors may be designed in accordance with the allowable uplift capacities presented on Plate B-1 in Appendix B. This plot presents group anchor capacity assuming a square group pattern, as a function of the square pattern dimension and depth into hard bedrock. WT recommends that the minimum socket depth of each rock anchor be at least 10 feet into



hard bedrock. If the anchors are post-tensioned, as a minimum, the upper 2 feet of the socket should be unbonded to allow for post-tensioning of the anchors. The anchor sockets should have a minimum diameter of 2 inches.

As a preliminary guideline, the following parameters may be used for anchor foundation design (EPRI, 1983):

Working Bond Strength =	150 psi
Density of Rock =	150 lb/ft ³
Angle of Pullout Cone =	30°
Approximate Depth to Competent Rock =	6 to 8 feet

If rock anchors are post-tensioned, they should be post-tensioned in approximately 25% increments up to the design load. Due to the limited information on the quality of the rock, additional field testing should be performed on one out of four anchors for each tower leg in approximately five equal increments up to 133% of the design load. Loading of the anchors should generally follow FHWA guidelines. After selected anchors are tested, the load should be reduced to the design load.

Depending upon the final location of the tower legs, it may be necessary to extend rock anchors through a soil or weathered rock stratum to reach hard bedrock, particularly if the tower site is moved farther east from the currently proposed site in the vicinity of the existing tower complex. As previously stated, rock anchors should be socketed a minimum of 10 feet into hard bedrock and grouted. The portion of the anchor in contact with soil does not require grouting.

We recommend that all rock anchors be epoxy coated to resist corrosion, particularly when in contact with soil. The structural engineer should verify that the bond strength between the anchor and the grout is sufficient to resist pullout with an acceptable factor of safety.

We recommend that the geotechnical engineer or his representative observe the footing excavations and bearing surface before reinforcing steel and concrete are placed. This observation is to assess whether the conditions exposed are similar to those anticipated for support of the footings. Any loose material or debris should be removed from the foundation area prior to pouring concrete. In addition, we recommend that the geotechnical engineer have the opportunity to observe anchorage field tests, and provide additional recommendations for the final design, based on the test results.

5.2.1 Mat Slab-on-Grade Foundation

The tower structure may be supported by a mat foundation established on undisturbed dense to very dense native soil, engineered fill, or weathered or fresh rock. The mat foundation should be established at least 12 inches below the lowest adjacent final



grade and be designed to impose a net dead plus live-load pressure of 1,500 pounds per square foot (psf). A one-third increase in this pressure is allowable when considering wind and /or seismic loads.

The modulus of subgrade reaction (k) is estimated to be 325 pci, based upon a 30-inch diameter plate.

5.3 Lateral Design Criteria

Lateral loads may be resisted by concrete interface friction and by passive resistance of rock or soil adjacent to the concrete foundation. For shallow foundations bearing on dense to very dense undisturbed soil or rock as recommended, we recommend the following lateral resistance criteria:

- Coefficient of Friction 0.40
- Passive Pressure (soil) 250 psf/ft
- Passive Pressure (rock)..... 400 psf/ft

The frictional resistance and the passive pressure may be combined without reduction in determining the total lateral resistance.

Earth retaining structures up to 12 feet in height, above any free water surface, with level backfill and no surcharge loads may be designed using the equivalent fluid pressure method. Recommended active equivalent fluid pressures and coefficients of base friction for unrestrained elements and level backfill are:

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

Where the design includes restrained elements, the following equivalent fluid pressures are recommended:

- At-rest:
 - Undisturbed subsoil 60 psf/ft
 - Compacted granular backfill..... 55 psf/ft

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

- hydrostatic conditions, submergence or partial submergence
- sloping backfill, positively or negatively*



- surcharge loading, permanent or temporary
- seismic or dynamic conditions

* Sloping backfill will warrant higher equivalent fluid pressures.

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

Fill against footings, stem walls, and retaining walls should be compacted to densities specified in **EARTHWORK**. Clayey soils should not be used as backfill against retaining walls. Compaction of each lift adjacent to walls should be accomplished with hand-operated tampers or other lightweight compactors. Overcompaction may cause excessive lateral earth pressures that could result in wall movements.

5.3.1 Rockery Walls

Stacked rock or rockery walls may be constructed with the excavated on-site rock material. Design and Construction should follow the FHWA Rockery Design and Construction Guidelines (Publication No. FHWA-CFL/TD-06-006). As a minimum, the depth of embedment should be 1 foot for level toe conditions. For sloping toe conditions, this embedment depth should be sufficient to achieve 6 ft of lateral soil cover in front of the wall base rock. The rockery wall bearing capacity and lateral design criteria should be according to the recommendations provided in Sections 5.2 and 5.3 of this report.

5.4 Seismic Considerations

For structural designs based upon the International Building Code 2006, the following criteria will apply. The soil site class is B. S_s , the spectral acceleration for short periods, is 0.230g. S_1 , the spectral acceleration for a 1-second period, is less than 0.071g. F_a and F_v , in accordance with Table 1613.5.3 (1) and 1613.5.3 (2), are both 1.0.

5.5 Conventional Slab-on-Grade Support

Slabs-on-grade for ancillary structures such as the equipment pads and prefabricated building can be supported on properly placed and compacted fill, approved natural soils or rock. The slab subgrade should be prepared by the procedures outlined in this report. A



minimum 4-inch layer of base course should be provided beneath the slabs to help prevent capillary rise and a damp slab. The recommended modulus of subgrade reaction (k) is 325 pounds per cubic inch.

If moisture sensitive equipment is to be placed on the slab-on-grade, consideration should be given to the use of a vapor retarder. Final determination on the use of a vapor retarder should be left to the slab designer.

All concrete placement and curing operations should follow the American Concrete Institute manual recommendations. Improper curing techniques and/or high slump (high water-cement ratio) could cause excessive shrinkage, cracking or curling. Concrete slabs should be allowed to cure adequately before placing vinyl or other moisture sensitive floor covering.

5.6 Drainage

Positive drainage should be provided during construction and maintained throughout the life of the proposed structures. Infiltration of water into utility or foundation excavations must be prevented during construction. Surface features that could retain water adjacent to the structures should not be constructed. Protective slopes should be provided with an outfall of about 5 percent for at least 10 feet from the tower and equipment building structures. Backfill against foundations and in utility line trenches should be well compacted and free of all construction debris to minimize the possibility of moisture infiltration.

5.7 Corrosivity

We recommend a Type II Portland cement be used for all concrete on and below grade.

5.8 Pavements

Due to the difficult access to the site and the need to minimize pavement maintenance, we recommend that a rigid pavement section be considered. A minimum 6 inch thick Portland cement concrete pavement (PCCP) is recommended.

As an alternative, we recommend that a gravel access road with a minimum thickness of 4.5 inches of gravel surfacing material be constructed according to the U.S. DOT and FHWA Maintenance and Design Manual. Based on this Manual, the gravel surfacing material should conform to the following:

- Gradation (ASTM C136):

	percent finer by weight
3/4"	100
No. 4 Sieve.....	50-78
No. 8 Sieve.....	37-67



No. 40 Sieve.....	13-35
No. 200 Sieve.....	4-15
• Plasticity Index	4-12

5.9 Helipad

Based on Chapter 9 "Heliport Gradients and Pavement Design" of the FAA AC 150/5390-2A "Heliport Design" document, a 6-inch thick PCCP is capable of supporting operations by helicopters weighing up to 20,000 lbs. Thicker pavements are generally not required unless heavier helicopters are expected. In addition, FAA indicates that a minimum thickness of 4 inches of subbase is required under most rigid pavements.

It is recommended that the PCCP conforms to the requirements of Sections 324 "Portland Cement Concrete Street Pavement" and 725 "Portland Cement Concrete" Class A of the MAG specifications and the subbase layer conforms to the requirements of Section 702 "Base Materials" for aggregate base of the MAG specifications.

As an alternate, the Helipad design may consist of an aggregate pad composed of 6 inches of Aggregate Base Course that conform to the requirements of MAG Section 702 or on-site soils approved by the Geotechnical Engineer of record, overlain by 6 inches of material that complies with the gradation, liquid limit, plasticity index and compaction requirements set forth in the Unified Facilities Criteria (UFC 3-260-02) for Aggregate Surfaced Heliports. A polymer-based dust palliative such as Soiltac®, Durasoil® or equivalent should be applied to the surface at the rate recommended by the manufacturer (approximately 50 ft²/gal), and at least once a year or as frequently as required to prevent erosion and resuspension of particulates during landing and take off. Helipad surface drainage and grades should conform to FAA Advisory Circular AC 150/5390-2A.

6.0 EARTHWORK

6.1 General

The conclusions contained in this report for the proposed construction are contingent upon compliance with recommendations presented in this section. Any excavating, trenching, or disturbance that occurs after completion of the earthwork must be backfilled, compacted and tested in accordance with the recommendations contained herein. It is not reasonable to rely upon our conclusions and recommendations if any future unobserved and untested trenching, earthwork activities or backfilling occurs.



6.2 Site Clearing

Strip and remove any existing vegetation, organic topsoils, fills and any other deleterious materials from structure and foundation areas. All exposed surfaces should be free of mounds and depressions that could prevent uniform compaction.

Sloping areas steeper than 5:1 (horizontal:vertical) should be benched to reduce the potential for slippage between existing slopes and fills. Benches should be level and wide enough to accommodate compaction and earth moving equipment.

6.3 Excavation

Excavations penetrating bedrock will require the use of heavy-duty, specialized equipment for rock excavation, to facilitate removal. Use of a hoe-ram should be anticipated. The speed and ease of excavation is dependent on the nature of the deposit, the type of equipment used, and the skill and experience of the equipment operator. For excavations deeper than 5 feet, excavations should be sloped or shored in accordance with current state and federal regulations. Where rock is encountered, steeper slopes may be permissible; however, WT should be retained to observe excavations and conditions encountered during construction to provide additional recommendations regarding slope stability. Slopes into rock should not be constructed steeper than 1:1 without additional observations and recommendations by the geotechnical engineer.

6.4 Slab-on-Grade and Foundation Preparation

Beneath slabs-on-grade, scarify, moisten or dry as required, and compact all subgrade soils to a minimum depth of 8 inches. The subgrade preparation is to be accomplished in a manner that will result in uniform water contents and densities after compaction. Scarifying and recompacting are not required in areas where rock is encountered.

Foundations should bear on dense to very dense undisturbed native soil or bedrock, and on a prepared horizontal surface, in accordance with the embedment depths recommended herein under Section 5.2. Foundation excavations should be clean and free of any loose soil or debris. Any depressions resulting from removal of large rock fragments should be backfilled with lean or structural concrete. Passive resistance of soil or rock against concrete foundations may be necessary to resist lateral loads; therefore, where applicable, any existing fill, slough, loose or disturbed soils should be removed laterally beyond the foundation edges at least 5 feet in plan view, or to a dimension equivalent to the depth of removal, whichever is greater. The fill should be replaced as engineered fill in accordance with the compaction requirements presented herein.



6.5 Pavement Preparation

The subgrade should be scarified or moistened as required, and recompactd for a minimum depth of 8 inches prior to placement of fill and pavement materials.

6.6 Materials

Clean on-site native soils with low-expansive potentials and minus six inches or imported materials may be used as fill material for the following:

- foundation areas
- interior slab areas
- pavement areas
- retaining wall backfill

Imported soils should conform to the following:

- Gradation (ASTM C136):

	percent finer by weight
6".....	100
4".....	85-100
¾".....	70-100
No. 4 Sieve.....	50-100
No. 200 Sieve.....	50 (max)

- Maximum expansive potential (%) *2.0
- Maximum soluble sulfates (%).....0.10

*Measured on a sample compacted to approximately 95 percent of the ASTM D698 maximum dry density at about 3 percent below optimum water content.
The sample is confined under a 100 psf surcharge and submerged.

Oversize material, greater than 6 inches, may be used in the lower portions of the building pad or backfill, below 3 feet, provided that the particles are distributed throughout the fill and no nesting of oversize material occurs. Acceptance of the quantity of oversize material shall be at the discretion of the geotechnical engineer.

Base course should conform to the Maricopa Association of Governments (MAG).

6.7 Placement and Compaction

- a. Place and compact fill in horizontal lifts, using equipment and procedures that will produce recommended water contents and densities throughout the lift.



- b. Uncompacted fill lifts should not exceed 10 inches.
- c. Materials should be compacted to the following:

**Minimum Percent
Material Compaction (ASTM D698)**

- On-site soil, reworked and fill:
 - Below footings95
 - Below slabs-on-grade90
 - Below pavement95
- Imported soil:
 - Below footings95
 - Below slabs-on-grade90
 - Below pavement95
- Aggregate base course below slabs-on-grade95
- Aggregate base below pavement100
- Nonstructural backfill90

On-site and imported soils should be compacted within a water content range of 3 percent below to 3 percent above optimum.

6.8 Cut and Fill Slopes

The stability of any cut or fill slopes at the project site will dependent upon the properties of the materials comprising the slope face and the susceptibility of slope soils to erosion. For temporary cut slopes in the moderately weathered schist rock encountered immediately east of the existing tower, and less than eight feet in vertical height, slopes no steeper than 0.25:1 (horizontal:vertical) are recommended. The Geotechnical Engineer or authorized representative should observe the exposed materials to confirm or provide additional recommendations. Depending on the quality and characteristics of the exposed rock, the slope can be permanently stabilized with the construction of a retaining wall, shotcrete and/or rock anchors. Fill slopes should not be steeper than 2:1 (horizontal:vertical). It is assumed that appropriate slope erosion protection and/or planting will be utilized.

Where exposed slopes are predominantly made up of bare soil, slopes should be covered as quickly as possible with temporary or permanent protection in order to avoid unnecessary soil loss. If during construction rains are anticipated, flows over graded or disturbed areas should be minimized by diverting upslope surface water through the use of berms, ditches, or other diversion devices.

Erosional activity, if allowed to form and propagate, will increase soil loss and could result in loss of support to structures, streets and other facilities. Periodic maintenance and prompt



repair of erosional features is important to prevent soil loss. The effectiveness of erosion control measures should be evaluated after heavy or prolonged rains.

6.9 Compliance

Recommendations for slabs-on-grades, foundations, and pavement elements supported on compacted fills or prepared subgrade depend upon compliance with **EARTHWORK** recommendations. To assess compliance, observation and testing should be performed under the direction of a geotechnical engineer.

7.0 REFERENCES

Electric Power Research Institute (EPRI), 1983; Transmission Line Structure Foundations for Uplift-Compression Loading. EL-2870 Research Project 1493-1. Final Report prepared by Cornell University, Geotechnical Engineering Group.

Federal Aviation Administration, 1994; Heliport Design. U.S. Department of Transportation. AC No: 150/5390-2A.

FHWA, 2006; Rockery Design and Construction Guidelines. Publication No. FHWA-CFL/TD-06 006). U.S. Department of Transportation. Federal Highway Administration. Central Federal Lands Highway Division, 12300 West Dakota Avenue, Lakewood, CO 80228.

NAVFAC, 1986; Foundations and Earth Structures. Design Manual 7.02. Naval Facilities Engineering Command.

Unified Facilities Criteria, 2001; Pavement Design for Airfields. UFC 3-260-02. Department of the Army U.S. Army Corps of Engineers. CEMP-E Washington, DC 20314-1000

8.0 LIMITATIONS

This report has been prepared based on our understanding of the project criteria as described in Section 2.0. Others may make changes in the project criteria during design or construction, and substantially different subsurface conditions may be encountered or become known. The conclusions and recommendations presented herein shall not continue to be valid unless all variations are brought to our attention in writing, and we have had an opportunity to assess the effect such variations may have on our conclusions and recommendations and respond in writing.

The recommendations presented are based upon data derived from a limited number of samples obtained from widely spaced borings or test pits. The attached logs are indicators of



subsurface conditions only at the specific locations and times noted. The geotechnical engineer necessarily makes assumptions as to the uniformity of the geology and soil structure between borings/test pits, but variations can exist. Accordingly, whenever any deviation or change is encountered or become known during design or construction, WT shall be notified in writing. WT shall review the matter, and issue a written response regarding the validity of the conclusions and recommendations presented herein.

This report does not provide information relative to construction methods or sequences. Any person reviewing this report must draw his/her own conclusions regarding site conditions as they relate to the employment or development of construction techniques. This report is valid for one year after the date of issuance unless there is a change in circumstances or discovered variations justifying an earlier expiration of validity. After expiration, no person or entity has any right to rely on this report without further review and reporting by WT under a separate contract.

The recommendations contained herein may be based upon government regulations in effect at the time of this report. Future changes or modifications to these regulations may require modification of this report.

9.0 OTHER SERVICES

The geotechnical engineer should be retained for a general review of final plans and specifications to evaluate compliance with our recommendations.

The geotechnical engineer should also be retained to provide observation and testing services during excavation, earthwork operations, foundation and construction phases of the project. Observation of footing excavations should be performed prior to placement of reinforcing and concrete to confirm that satisfactory bearing materials are present.

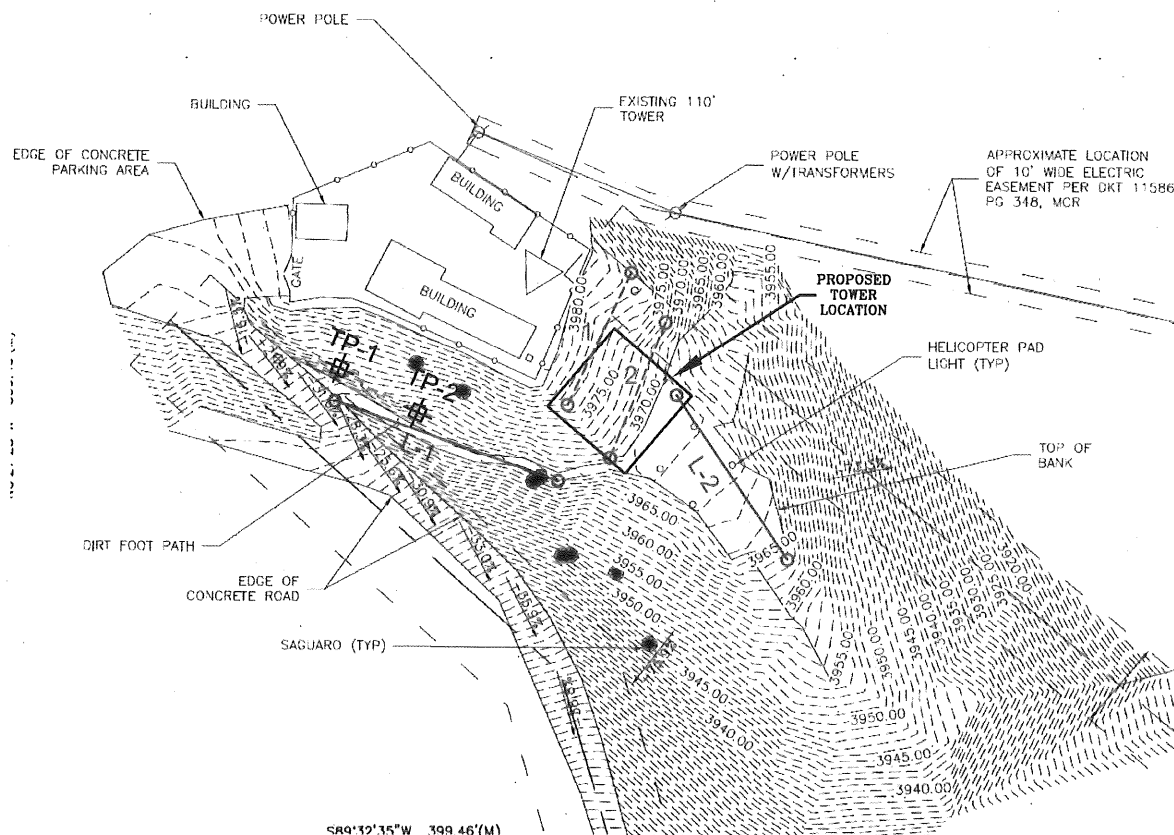
10.0 CLOSURE

We prepared this report as an aid to the designers of the proposed project. The comments, statements, recommendations and conclusions set forth in this report reflect the opinions of the authors. These opinions are based upon conditions at the location of specific tests, observations and data developed to satisfy the scope of services defined by the contract documents. Work on your project was performed in accordance with generally accepted industry standards and practices by other professionals providing similar services in this locality. No other warranty, express or implied, is made.





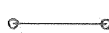
SCALE: 1" = 60'



LEGEND



Approximate Location of Test Pit



Approximate Location of Seismic Survey



Approximate Location of Previous Seismic Survey (2127JN167)



Western
Technologies
Inc.

PLATE 1

THOMPSON PEAK COMMUNICATIONS TOWER
Thompson Peak
Maricopa County, Arizona

WT Job No. 2120JF029

SEISMIC REFRACTION

Seismic refraction surveys measure the arrival times of deflected compression (primary) waves through subsurface media. Compression waves have the fastest velocity of all elastic waves. The compression waves are typically generated by a sledge hammer equipped with a switch that closes upon impact and provides the starting reference time. In a homogenous medium a bundle of seismic energy travels in a straight line. Upon striking a boundary (between two media of differing seismic properties) at an angle, the direction of travel is changed as it is in the refraction of light at the surface of a pond. Seismic refraction uses this change of direction to dense subsurface information (EM 1110-1-1802). The impact location is termed the shot point, and the distances to each geophone are measured. The arrival times of the waves are measured by an array of geophones. Since the compression waves are the fastest waves, they are the first to arrive. The first arrival at each geophone is recorded.

A plot of the distance from the shot point to the geophone versus the first arrival time is made. The points on the graph will provide straight line segments. Subsurface layers of higher compressional velocities are indicated on the plot by the segments of less slope. The velocity of each segment is defined as the inverse of the slope of the straight line. Only layers with higher compressional velocities will be detected.

Many times both forward and reverse surveys along the same alignment are performed, (i.e., shot point under each end of the survey line with data for both forward and reverse directions). This provides data such that any dip of the interface between subsurface layers can be determined. By comparing the forward velocity and intercept with the reverse velocity and intercept the dip may be determined. Interpretation of the depths of the individual strata is provided by relationships between the velocity and intercepts of the layers. A summarization of these relationships can be found in the Corps of Engineers Engineer Manual EM 1110-1-1802.

Differences in forward and reverse velocities are attributed to variability in the material and accuracy of the equipment.

WT uses software provided by the seismograph manufacturer to graph and reduce the data.

THOMPSON PEAK COMMUNICATIONS TOWER
Seismic Refraction Line Notes
Western Technologies Inc.
Job No.: 2120JF029
Plate: A-1



COARSE-GRAINED SOILS
LESS THAN 50% FINES*

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

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

FINE-GRAINED SOILS
MORE THAN 50% FINES

GROUP SYMBOLS	DESCRIPTION	MAJOR DIVISIONS
ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50
CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
OL	ORGANIC SILTS OR ORGANIC SILT-CLAYS OF LOW PLASTICITY	
MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDS OR SILTS, ELASTIC SILTS	SILTS AND CLAYS LIQUID LIMIT MORE THAN 50
CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY	
PT	PEAT, MUCK AND OTHER HIGHLY ORGANIC SOILS	HIGHLY ORGANIC SOILS

NOTE: Fine-grained soils may receive dual classification based upon plasticity characteristics.

SOIL SIZES

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

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

CONSISTENCY

CLAYS & SILTS	BLOWS PER FOOT*
VERY SOFT	0 - 2
SOFT	2 - 4
FIRM	4 - 8
STIFF	8 - 16
VERY STIFF	16 - 32
HARD	Over 32

RELATIVE DENSITY

SANDS & GRAVELS	BLOWS PER FOOT*
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	Over 50

*Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1 3/8 inch ID) split spoon (ASTM D1586).

PLASTICITY OF FINE GRAINED SOILS

PLASTICITY INDEX	TERM
0	NON-PLASTIC
1 - 7	LOW
8 - 25	MEDIUM
Over 25	HIGH

DEFINITION OF WATER CONTENT

DRY
SLIGHTLY DAMP
DAMP
MOIST
WET
SATURATED

THOMPSON PEAK COMMUNICATIONS TOWER

Method of Classification

Western Technologies Inc.

Job No.: 2120JF029

Plate: A-2

The number shown in "TEST PIT" refers to the approximate location of the same number indicated on the "Test Pit Location Diagram" as positioned in the field by pacing from property lines and/or existing features.

"Sample Type" refers to the form of sample recovery, in which N = Split-barrel sample, R = Ring sample, G = Grab Sample, B = Block Sample.

"Unified Classification" refers to the soil type as defined by "Method of Soil Classification". The soils were classified visually in the field and, where appropriate, classifications were modified by visual examination of samples in the laboratory and/or by appropriate tests.

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

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

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

THOMPSON PEAK COMMUNICATIONS TOWER	
Test Pit Log Notes	
Western Technologies Inc.	
Job No.: 2120JF029	Plate: A-3



EXCAVATION DATE: 3-30-10
 LOCATION: See Location Diagram
 ELEVATION: 1370 ft amal

TEST PIT NO. 1

EQUIPMENT TYPE: Komatsu PC-50-MR
 EXCAVATION TYPE: 1.5 ft bucket
 FIELD ENGINEER: H. Preciado

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		B				GP		GRAVEL; with Silt and Cobbles, brown, slightly damp
					5			SCHIST Rock; very weathered, very to moderately fractured, thinly bedded, soft to moderately hard
								Excavation Refusal at 8 feet on top of moderately weathered Schist Rock

N- STANDARD PENETRATION TEST
 R- RING SAMPLE
 NR- NO SAMPLE RECOVERY
 G- GRAB SAMPLE
 B- BUCKET SAMPLE

NOTES: Groundwater Not Encountered



WESTERN TECHNOLOGIES INC.

PROJECT: THOMPSON PEAK COMMUNICATIONS TOWER
 REF. NO.: 2120JF029

PLATE
 A-4

TEST PIT LOG

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

EXCAVATION DATE: 3-30-10
 LOCATION: See Location Diagram
 ELEVATION: 1370 ft amsl

TEST PIT NO. 2

EQUIPMENT TYPE: Komatsu PC-50-MR
 EXCAVATION TYPE: 1.5 ft bucket
 FIELD ENGINEER: H. Preciado

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT.	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		B				GP		GRAVEL; with Silt and Cobbles, brown, slightly damp
					5			SCHIST Rock; very weathered, very to moderately fractured, thinly bedded, soft to moderately hard
								Excavation Refusal at 7.5 feet on top of moderately weathered Schist Rock

N- STANDARD PENETRATION TEST
 R- RING SAMPLE
 NR- NO SAMPLE RECOVERY
 G- GRAB SAMPLE
 B- BUCKET SAMPLE

NOTES: Groundwater Not Encountered



WESTERN TECHNOLOGIES INC.

PROJECT: THOMPSON PEAK COMMUNICATIONS TOWER
 REF. NO.: 2120JF029

PLATE

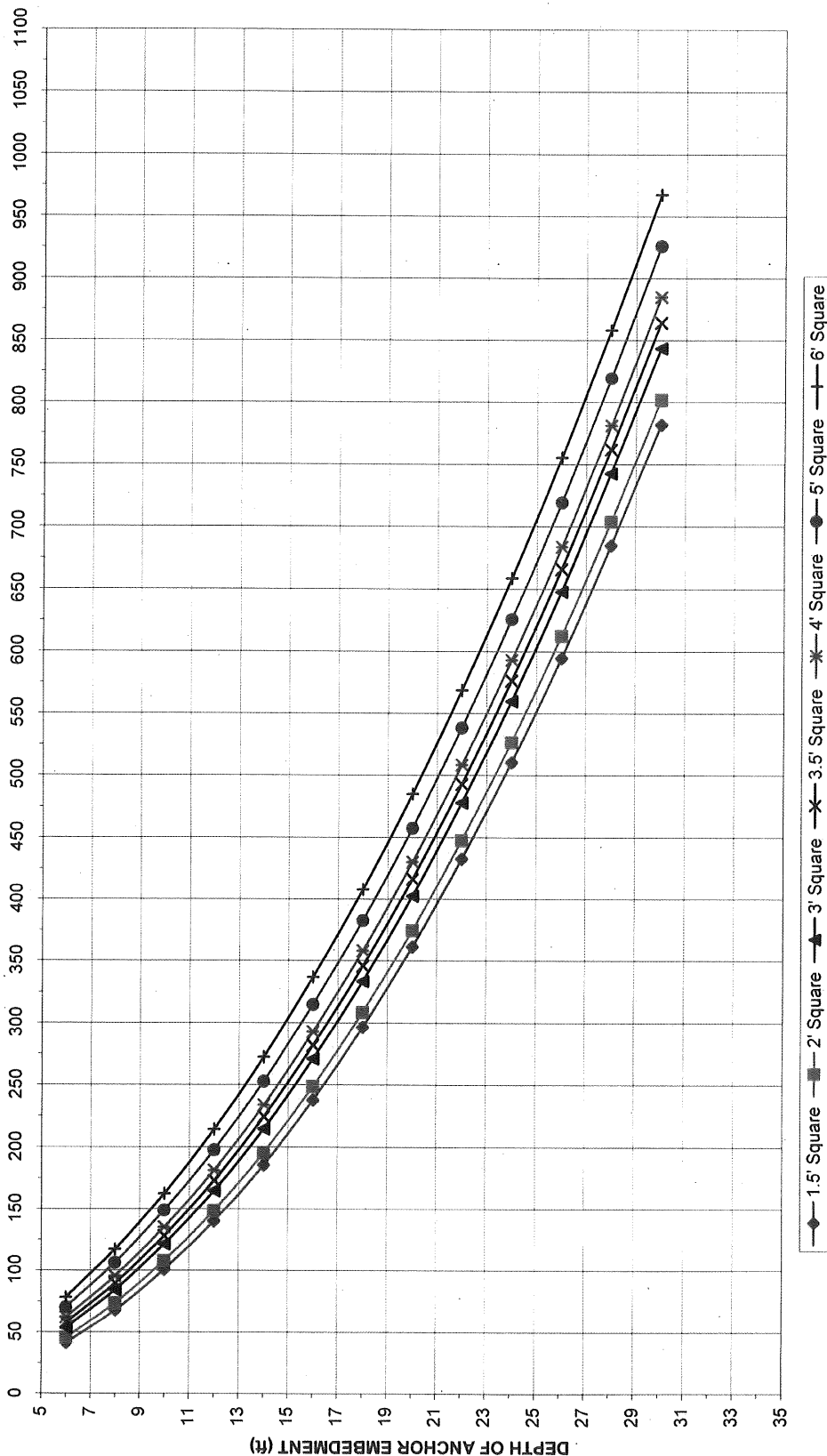
A-5

TEST PIT LOG

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

ROCK ANCHORS IN GROUPS CAPACITY CHART

ALLOWABLE UPLIFT CAPACITY FOR GROUPS OF ANCHORS (Kips)



PROPOSED COMMUNICATIONS TOWER	
Rock Anchor Capacity Chart	
WESTERN TECHNOLOGIES, INC.	
Job No. 2120JF029	PLATE: B-1