CAROLYN KUSLER

Wagoner County Clerk

307 E. Cherokee Street, Wagoner, OK 74467
Ph/ (918) 485 – 2216 Fax/ (918) 485 – 7709
wagonercountyclerk@valornet.com

Invitation to Bid

The Board of County Commissioners, Wagoner County, Oklahoma is seeking sealed bids for the Turn-Key Construction of two (2) 11' 6" W x 20'0" L x 10' 1" H Communication Shelters to be utilized for a public safety communications system. The sites are located at: (1) 27652 E 101st, Broken Arrow, OK 74429 and (2) 37001 R 660 Rd, Locust Grove, OK 74352.

Bid #26
Date Published: June 14 and 21, 2012 (Wagoner Tribune)
Bidding Period Closing Date and Hour: July 6, 2012 @ 4:00 PM
Sealed Bid Opening Date and Hour: July 9, 2012 @ 9:00 AM
Requesting Authority: Wagoner County E911

Bid submissions are to be: Addressed to:

Wagoner County Purchasing Agent
P O Box 156
Wagoner, OK 74477

Delivered to:

Wagoner County Purchasing Agent
307 E Cherokee
Wagoner, OK 74467

Please review the attached Terms and Conditions pertaining to the submission of this bid.

Please pay particular attention to item 1 of the Terms and Conditions. This item specifies how the bid envelopes are to be identified to prevent inadvertent or premature opening of sealed bids. Your compliance will ensure consideration of your bid by the awarding body. Late bids will not be considered.

Included in this packet is a Non-Collusion Affidavit which must be signed and submitted as part of the.

This packet contains:

1. Invitation to Bid
2. Terms and Conditions for Bidding
3. Affidavit of Non-Collusion
4. Specifications
5. Geotechnical Engineering Report for Yonkers Location
6. Bid Form
7. Insurance Requirements

Carolyn Kusler
Wagoner County Clerk
P O Box 156
Wagoner, OK 74477

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TERMS AND CONDITIONS

THESE ITEMS APPLY TO AND BECOME A PART OF THE BID
NO EXCEPTIONS TO THESE TERMS AND CONDITIONS WILL BE CONSIDERED

1. Bids must be submitted on the included form only. Each bid shall be placed in a separate envelope. Be sure the envelope is completely and properly identified and sealed, showing the bid name and number in the lower left hand corner.

2. All bids shall be entered on the Bid Form enclosed or a copy thereof. Bids are to be typewritten or in ink. No bidder may withdraw his proposal for a period of thirty (30) days after the date and hour set for the opening of bids.

3. The bidder shall attach the manufacturer's name of the equipment or material to be furnished, type, model numbers, manufacturer's descriptive bulletins and specifications. All guarantees and warranties should be clearly stated. This data shall be in sufficient detail to describe accurately the equipment or material to be furnished. Manufacturer's specifications, in respect to the successful bidder, shall be considered as part of the contract with Wagoner County.

4. Any exceptions or deviations from written specifications shall be identified in writing and attached to the bid form.

5. The enclosed Non-Collusion Agreement MUST be returned with the bid.

6. Wagoner County reserves the right to reject any and all bids and to waive any technicalities in the bidding.

7. Direct purchase of certain items of equipment or material by Wagoner County is exempt from Federal Excise Tax and Oklahoma Sales Tax. In such cases, the bidder shall quote prices which do not include Federal Excise Tax and Oklahoma Sales Tax.

8. Bid must show number of days required for delivery under normal conditions. Contractor must keep the County advised at all times of the status of the order. For any exception to the delivery date as specified on this order, vendor shall give prior notification and obtain written approval from the Purchasing Agent. Default in promised delivery date, or failure to meet specifications, authorizes the County to purchase supplies elsewhere and charge the full increase of cost and handling to defaulting contractor.

9. Bidder agrees to defend and save Wagoner County from and against all demands, claims, costs expense, damage and judgments based upon infringement of any patent to goods specified in this order or the ordinary use or operation of such goods by the County or use or operation of such goods in accordance with the bidders' direction.

10. If the bid requires a written contract, the successful bidders shall execute a written contract with the County within ten (10) days after submission of the contracts to said bidder.

11. Each bidder must deposit, with the proposal, security in the amount of five percent (5%) of the base bid as a guarantee of good faith in the form of a Cashier's Check, or acceptable Bidder's Bond payable, without exception, to Wagoner County.

12. The awarded bidder will be required to furnish a Performance Bond, Statutory Bond, and Maintenance Bond.

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AFFIDAVIT OF NON-COLLUSION

I, the undersigned, of lawful age, being first duly sworn on oath say that he (she) is the agent authorized by the bidder to submit the above bid. Affiant further states that the bidder has not been a party to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding; or with any state official or employee as to quantity; quality or price in the prospective contract or any other terms of said prospective contract; or in any discussion between bidders and any state official concerning exchange of money or other thing of value for special consideration in the letting of a contract; that the bidder/contractor has not paid, given or donated or agreed to pay, give or donate to any officer or employee of the State of Oklahoma (or other entity) any money or other thing of value, either directly or indirectly in the procuring of the award of a contract pursuant to this bid.

(Typed/Printed)
Name:_____ Title:_____

Signature: _____

Firm: _____ Address: _____

City:_____ State:_____ Zip:_____

Phone: _____ Fax:_____

Subscribed and sworn before me this _____ day of _____, 200____.

_____
Signature: Notary Public (Clerk or Judge)

My commission expires _____ (Affix Seal)

COMMUNICATIONS SHELTER

BID SPECIFICATIONS

OVERVIEW

The Wagoner County Board of Commissioners is seeking bids from qualified vendors for the procurement of two communications shelters. The communications shelters will be utilized for a public safety communications system. All bidders must include an estimated completion time.

BUILDING SIZE

Outside: 11'6" W x 20'0" L x 10'1" H
Inside: 10'7" W x 19'1" L x 8'10" H

EXTERIOR

Exposed aggregate
Mesa tan trim
Peaked roof with overhang
Membrane roofing system
Exterior penetrations as required

INTERIOR

Walls and ceiling covered with insulation, sheetrock and 3/8" Nu-Poly
Partition wall 2-hour fire rated and covered with 3/8" Nu-Poly
Floor: 12"x12"x 1/8" vinyl tile over concrete
Interior trim package

MECHANICAL

One (1) 3'0" x 7'0" steel door with super core and cast-in steel frame
One (1) 4'0" x 7'0" steel door with super core and cast-in steel frame
Doors painted to match exterior trim
Non removable pin ball bearing hinges
Best deadbolts with construction core
Door pull handles
Heavy gauge stainless steel finish lock guards
Door closers
Door holders
Magnetic weather stripping
Drip strip over doors
Door stops
Door sweeps
Door thresholds
Door strike plates
Door canopies
Fibrebond 12 hole 4" waveguide entry port with caps
20 ft of 12" cable tray

Telco board, ¾" x 4' x 8'
4" PVC Telco entry
Two (2) 10 lb carbon dioxide fire extinguishers

ELECTRICAL

200 amp, single phase, Cutler-Hammer 42 circuit load center with main breaker and required circuit breakers.
Surge arrestor, AC Data MOV 100kA, 120/240V single phase, #AC2100-F-07 or equivalent
Horse-Shoe Halo ground system
Tinned ground bar, ¼" x 4" x 20"
Ground bar, ¼" x 4" x 20"
70 watt H.P.S. exterior light with photocell
Eight (8) fluorescent 2-bulb, 32 watt interior lights with lenses, energy saving ballasts and switches
Two (2) emergency 2-bulb lights
Six (6) 20 amp, interior duplex receptacles
One (1) 20 amp, exterior GFCI type duplex receptacle
Conduit, wire, junction boxes and Sealtite as required

Generator

One 20kW propane gas generator.
225 amp automatic transfer,

GENERATOR INSTALLATION

Physical handling and transition of generator
Generator exhaust system with thimble and insulation
36" motorized intake damper with filter and hood
36" motorized exhaust damper with hood
Vent hoods with insect screens
Conduit, wire, junction boxes and Sealtite, as required

HVAC

Two (2) 5-ton, single phase, wall mounted commercial grade air conditioners with R-410A "green" refrigerant
Supply and return air grills
Low ambient kit
Anti-cycle relay
Lead lag controller

ALARMS

Alarm termination block with cover
Two (2) intrusion alarms
Two (2) photoelectric smoke detectors, 120 volt
High temperature alarm
Low temperature alarm
High humidity alarm
Low humidity alarm
Power fail, single phase

STAMPED DRAWINGS

Three (3) sets of stamped drawings

FIELD SET UP

Vendor is responsible for all site civil work required i.e.:

Concrete slab

Field setup by a factory trained technician shall include the following:
Remove lifting brackets
Install tie downs
Install door canopies and/or drip strips
Install exterior lights and check photocells
Install rain hoods and/or other exterior accessories
Check operation of doors and door hardware
Adjust weather stripping on doors as needed
Install intruder alarms
Inspect roof
Inspect interior finish for imperfections and repair as needed

DELIVERY

Delivery shall include transportation and offload at two different tower sites.

Coweta Site – 27652 E. 101st, Broken Arrow, OK 74429-6473
Yonkers Site – 37001 R. 660 Rd, Locust Grove, OK 74352

Geotechnical Engineering Report

Proposed 300-foot Guyed Tower

Locust Grove, Oklahoma

March 15, 2012

Terracon Project No. 04125044

Prepared for:
Wagoner County
Wagoner, Oklahoma

Prepared by:
Terracon Consultants, Inc.
Tulsa, Oklahoma

Offices Nationwide Established in 1965
Employee-Owned terracon.com

Terracon

Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

March 15, 2012

Terracon

Wagoner County
307 East Cherokee, 2nd Floor
Wagoner, OK 74467

Attn: Mr. Micheal Miller
P: [918] 485-7728
E: wagonercountye911@gmail.com

Re: Geotechnical Engineering Report
Proposed 300-foot Guyed Tower
Locust Grove, Oklahoma
Terracon Project No. 04125044

Dear Mr. Miller:

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering services for the above referenced project. This study was performed in general accordance with our Proposal No. P04120079, dated February 21, 2012. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning the design and construction of the communication tower foundation.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,

Terracon Consultants, Inc.
Cert. Of Auth. #CA-4531 exp. 6/30/13

Atefeh Fathi, E.I.
Project Manager

Conrad S. Koehler, P.E.
Oklahoma No. 20784

REGISTERED PROFESSIONAL ENGINEER
3/15/12
CONRAD S. KOEHLER
20784
OKLAHOMA

AF:CSK:tm

Enclosures
Addressee (3 via US Mail and 1 via email)

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Exhibit A-1	Field Exploration Description
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Exhibit B-1	Laboratory Testing

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Exhibit C-2	Unified Soil Classification
Exhibit C-3	General Notes – Description of Rock Properties

GEOTECHNICAL ENGINEERING REPORT
PROPOSED 300-FOOT GUYED TOWER
LOCUST GROVE, OKLAHOMA

Terracon Project No. 04125044
March 15, 2012

1.0 INTRODUCTION

This report presents the results of our geotechnical engineering services performed for the proposed guyed communication tower located at 37001 E0660 Road in Locust Grove, Oklahoma. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- subsurface soil and rock conditions
- groundwater conditions
- foundation design and construction
- seismic considerations

2.0 PROJECT INFORMATION

2.1 Project Description

ITEM	DESCRIPTION
Site layout	See Exhibit A, Figure A-3
Structures	300-foot guyed communication tower with guy anchors at approximate 120 degree angular separations.
Maximum loads	Unknown at this time
Grading	Minimum cuts and fills – assumed at less than 2 feet

2.2 Site Location and Description

ITEM	DESCRIPTION
Location	37001 E0660 Road, Locust Grove, Oklahoma
Existing Improvements	Undeveloped
Current ground cover	Grass
Existing topography	Relatively flat to gently sloping.

3.0 SUBSURFACE CONDITIONS

3.1 Typical Subsurface Profile

Specific conditions encountered at each boring location are indicated on the individual boring logs. Stratification boundaries on the boring logs represent the approximate location of changes in soil and rock types; in-situ, the transition between materials may be gradual. Details for each of the borings can be found on the boring logs included in Appendix A of this report. Based on the results of the borings, subsurface conditions on the project site can be generalized as follows:

Description	Approximate Depth to Bottom of Stratum	Material Encountered	Consistency/Density
Surface	2 inches	Topsoil	N/A
Stratum 1	5 to 5.5 feet	Lean clay and lean to fat clay	Soft to very stiff
Stratum 2	Termination depth of the borings at 5.5 to 17.5 feet	Weathered sandstone and sandstone with varying amounts of clay and shale seams	Poorly cemented to cemented

Moisture content tests were conducted on selected samples and the test results are presented on the boring logs in Appendix A.

3.2 Groundwater

The boreholes were observed while drilling for the presence and level of groundwater. The depths where groundwater was encountered are shown on the table below.

Boring Number	Depth to Groundwater While Drilling (feet)	Depth to Groundwater After Boring (feet)
B-1	NE to rock coring at 7.5 ft.	-
B-2	NE	NE
B-3	NE to rock coring at 9 ft.	-
B-4	NE	NE

NE – Not Encountered

The groundwater level observations made during our exploration provide an indication of the groundwater conditions at the time the borings were drilled. Longer monitoring in piezometers or cased holes, sealed from the influence of surface water, would be required to evaluate longer-term groundwater conditions. During some periods of the year, perched water could be present at various depths. Fluctuations in groundwater levels should be

expected throughout the year depending upon variations in the amount of rainfall, runoff, evaporation, and other hydrological factors not apparent at the time the borings were performed.

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 Tower Foundation

Design recommendations for the tower foundation are presented in the following sections. We recommend the tower footing bear in the very stiff native clay encountered below depths of approximately 2 feet (in Boring B-1). The following values can be used for the design of new foundations.

4.1.1 Design Recommendations - Shallow Footing

DESCRIPTION	SHALLOW FOOTING
Net allowable bearing pressure [1]	3,000 psf
Minimum width	36 inches
Minimum embedment (depth below lowest final adjacent grade)[2]	24 inches
Estimated total movement	1 inch or less
Allowable passive pressure [3]	750 psf
Coefficient of sliding friction [4]	0.30

1. Recommended bearing pressure is based on the footing bearing in the very stiff native clay that was encountered at borings at approximately 2 feet below the existing ground surface. The recommended net allowable bearing pressure is the pressure at the footing base elevation in excess of the minimum surrounding overburden pressure. A representative of the geotechnical engineer should observe footing excavations to verify that soils suitable for the design bearing pressure are encountered.
2. Minimum depth will provide frost protection for footings.
3. Allowable passive pressure value considers a factor of safety of about 2. Passive pressure value applies to undisturbed native clay or properly compacted fill. If formed footings are constructed, the space between the formed side of a footing and excavation sidewall should be cleaned of all loose material, debris, and water and backfilled with tested and approved, cohesive fill compacted to at least 95 percent of the material's standard Proctor dry density. Passive resistance should be neglected for the upper 2 feet of the soil below the final adjacent grade due to strength loss from freeze-thaw and shrink-swell.
4. Coefficient of friction value is an ultimate value and does not contain a factor of safety.

Uplift resistance for spread footing foundations may be computed as the sum of the weight of the foundation element and the weight of the soil overlying the foundation. We recommend using a soil unit weight of 110 pounds per cubic foot (pcf) for engineered fill overlying the

footing placed as described in this section of this report. We recommend a minimum factor of safety of 1.5 be used for uplift calculations.

4.1.2 Shallow Footing Foundation Construction Considerations

We recommend the base of all footing excavations be observed and evaluated by the geotechnical engineer prior to placing reinforcing steel and concrete. If unsuitable materials are encountered at the design bearing level, the footing should be extended deeper to encounter suitable soil or rock.

Care should be taken to prevent wetting or drying of the bearing materials during construction. Any extremely wet or dry material, or any loose or disturbed material in the bottom of the footing excavations, should be removed prior to placing concrete. The potential for wetting or drying of the bearing materials can be reduced by placing concrete as soon as possible after completing the footing excavation and evaluating the bearing strata.

4.2 Anchor Blocks

Anchor blocks used to restrain the tower are designed to resist both vertical (uplift) and horizontal components of tensile forces in the guy wires. Uplift forces are resisted by the dead weight of the anchor block and friction between the sides of the anchor block and surrounding soil/rock, provided the sides of the block are cast in direct contact with undisturbed natural materials. The horizontal component can be resisted by the passive pressure of soil/rock acting on the vertical side of the block facing the tower.

The following table presents allowable design criteria for the tower's anchor blocks. These values can be used to design of new anchor blocks. In the table, the allowable side friction and passive pressure values have safety factors of approximately 2. A factor of safety has not been applied to the undrained cohesion values. Design parameters shown in the table are applicable to the natural, undisturbed soils and rock, and should not be applied to disturbed materials or newly placed fill materials. Because soil strength varies due to frost action and moisture variations, we recommend neglecting passive and frictional resistances for the soils/rock within 3 feet of the ground surface.

Boring No/ Depth (feet)	Unit Weight (pcf)	Allowable Side Friction [1]		Allowable Passive Pressure [1]		Estimated Shear Strength Parameters	
		Initial Value (psf)	Increase Per Foot of Depth (psf)	Initial Value (psf)	Increase Per Foot of Depth (psf)	Undrained Cohesion (psf)	Internal Friction Angle (degrees)
B-2							
0 – 3	110	---	---	---	---	---	---
3 – 5	110	150	---	500	---	500	0
5 – 10	120	1,500	---	8,000	---	---	38
B-3							
0 – 3	110	---	---	---	---	---	---
3 – 5.5	110	300	---	1,500	---	1,500	0
5.5 – 15	120	1,500		8,000	---	---	38
B-4							
0 – 3	110	---	---	---	---	---	---
3 – 4	110	300	---	1,500	---	1,500	0
4 – 5.5	120	2,000	---	15,000	---	---	38

1. The allowable passive pressure and skin friction are based on a rectangular pressure distribution for clay and bedrock. Because of the potential effects of shrink/swell, freeze/thaw, and drilling disturbance, the passive pressure and skin friction should be ignored for soil within 3 feet of the final adjacent grade.

If it is desired to use backfill materials to develop uplift resistance for anchor blocks, we recommend assuming a design soil unit weight not to exceed 110 pounds per cubic foot. This assumes the backfill above the anchor block will be compacted to at least 95 percent of the maximum laboratory dry unit weight determined according to the standard Proctor procedure (ASTM Specification D-698).

4.2.1 Anchor Block Construction Considerations

Sandstone bedrock was encountered at depths of about 5 feet below the existing surface. The sandstone will be difficult to excavate. Based on our experience, it should be feasible to excavate the sandstone using large, heavy-duty equipment fitted with rock excavation attachments. Special excavation techniques, such as the use of pneumatic hammers will be required for well-cemented seams and below auger refusal depths.

Anchor block excavations should be free of loose and disturbed material, debris, and water when concrete is placed. Concrete should be placed as soon as possible after excavation is completed to reduce the potential for wetting, drying, or disturbance of the soil and rock materials.

4.3 Seismic Considerations

Code Used	Site Classification
2006 International Building Code (IBC) [1]	C

1. In general accordance with the *2006 International Building Code*, Table 1613.5.2.

5.0 GENERAL COMMENTS

Terracon should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

APPENDIX A

FIELD EXPLORATION

Field Exploration Description

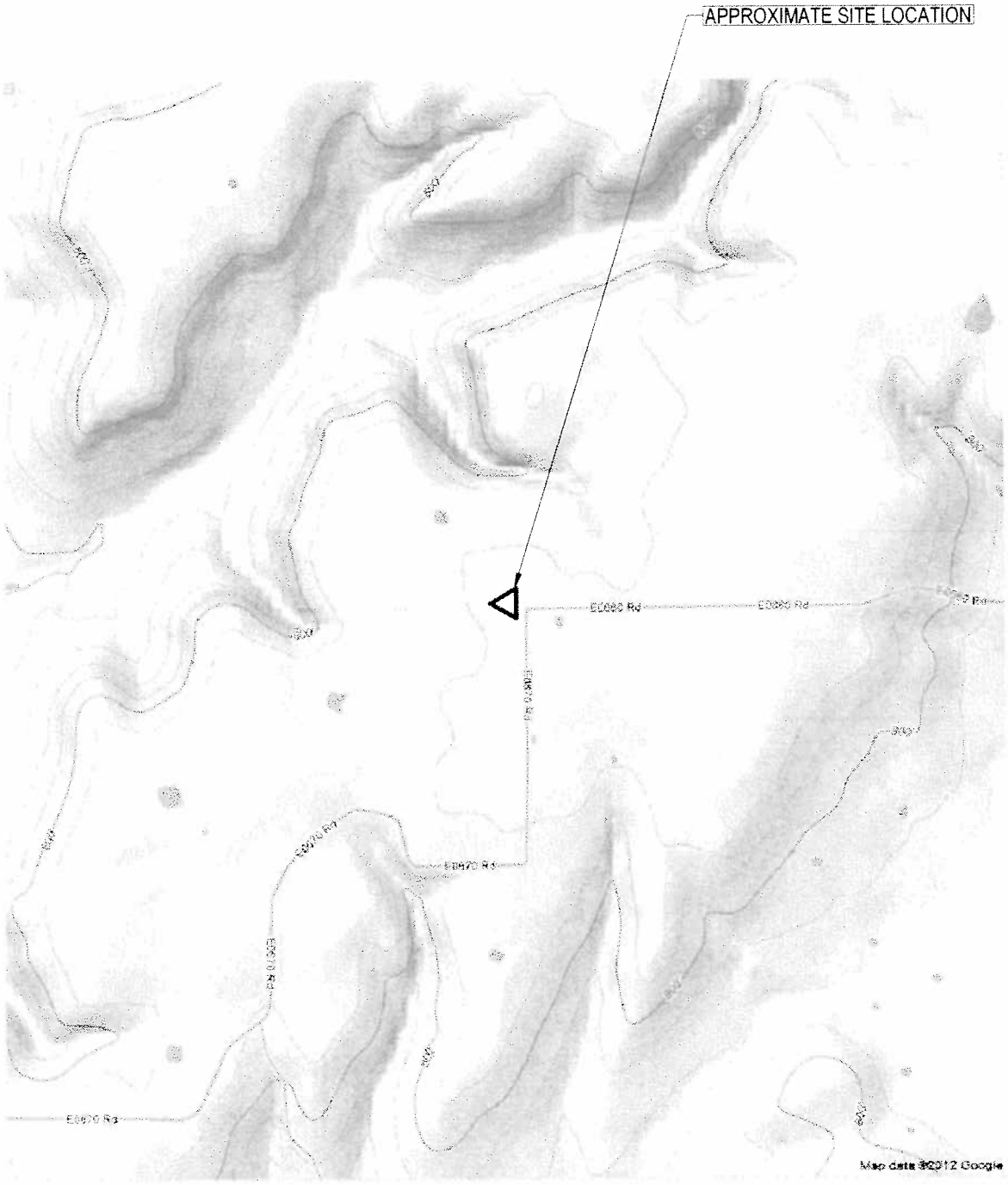
We drilled our borings near the tower center and guy anchor locations which were staked in the field by others. The borings were drilled with an ATV-mounted rotary drill rig using continuous flight augers to advance the boreholes. Samples of the soil encountered in the borings were obtained using the split barrel sampling procedure.

In the split-barrel sampling procedure, the number of blows required to advance a standard 2-inch O.D. split-barrel sampler the last 12 inches of the typical total 18-inch penetration by means of a 140-pound auto-hammer with a free fall of 30 inches, is the standard penetration resistance value (SPT-N). This value is used to estimate the in-situ relative density of cohesionless soils and consistency of cohesive soils and the hardness of rock.

An automatic SPT hammer was used to advance the split-barrel sampler in the borings performed on this site. A significantly greater efficiency is achieved with the automatic hammer compared to the conventional safety hammer operated with a cathead and rope. This higher efficiency has an appreciable effect on the SPT-N value. The effect of the automatic hammer's efficiency has been considered in the interpretation and analysis of the subsurface information for this report.

Core samples of the bedrock were obtained with an NX-size diamond-bit core barrel at the boring. Rock quality designation (RQD) and percent recovery (REC) values were determined for each rock core run. The RQD is an index obtained by summing the lengths of recovered rock core pieces which are 4 inches in length or longer divided by the total length of core run. The RQD and REC values are shown on the boring log.

A field log of each boring was prepared by the drill crew. These logs included visual classifications of the materials encountered during drilling as well as the driller's interpretation of the subsurface conditions between samples. Final boring logs included with this report represent the engineer's interpretation of the field logs and include modifications based on laboratory observation and tests of the samples.



1600 0 800 1600

APPROXIMATE SCALE IN FEET

N

Project Mngr AF	Project No 04125044	Terracon Consulting Engineers and Scientists	SITE LOCATION MAP
Drawn By DC	Scale SEE BAR SCALE	10930 EAST 56th STREET TULSA, OKLAHOMA 74146	GEOTECHNICAL EXPLORATION
Checked By AF	File No 04125044	PH (918) 250-0461 FAX (918) 250-4570	PROPOSED 300-FOOT GUYED TOWER
Approved By CSK	Date MARCH 2012		LOCUST GROVE, OKLAHOMA

EXHIBIT NO. A-2

N

100 0 50 100

APPROXIMATE SCALE IN FEET

LEGEND
BORING LOCATION

DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Mngr AF	Project No 04125044	Terracon Consulting Engineers and Scientists	BORING LOCATION PLAN
Drawn By DC	Scale SEE BAR SCALE	10930 EAST 56th STREET TULSA, OKLAHOMA 74146	GEOTECHNICAL EXPLORATION
Checked By AF	File No 04125044	PH. (918) 250-0461 FAX (918) 250-4570	PROPOSED 300-FOOT GUYED TOWER
Approved By CSK	Date MARCH 2012		LOCUST GROVE, OKLAHOMA

EXHIBIT NO. A-3

LOG OF BORING NO. B-1

CLIENT: Wagoner County

SITE: 37001 E0660 Road, Locust Grove, Oklahoma

PROJECT: 300-foot Guyed Tower

Approx. Surface Elev.: 97.5 ft

DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY, in.	SPT-N BLOWS / ft.	TESTS WATER CONTENT, %	DRY UNIT WT pcf	UNCONFINED COMPRESSION, psf
2" Topsoil				PA					
LEAN CLAY with root hairs, mottled brown, medium stiff (2 / 95.5)		CL	1	SS	6	6	15		
LEAN TO FAT CLAY mottled brown and olive-brown, very stiff (5 / 92.5)		CL CH	2	SS	14	15	24		
				HS					
SANDSTONE+ with shale seams, brown, cemented	5		3	SS	1	50/3"	11		
				HS					
			4	DB	88%	RQD 0%			
	10		5	DB	100%	RQD 43%			
	15		5	DB	100%	RQD 81%			6600 psi
(17.5 / 80)									
BOTTOM OF BORING									

Auger refusal at 7.5 feet

+Classification estimated from disturbed samples. Core samples and petrographic analysis may reveal other rock types.

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	WD	AB
WL		
WL	N/E to 7.5 ft WD	

Terracon

BORING STARTED	3-1-12		
BORING COMPLETED	3-1-12		
RIG	ATV	FOREMAN	JT
APPROVED	CSK	JOB #	04125044

LOG OF BORING NO. B-2

CLIENT
Wagoner County

SITE
37001 E0660 Road
Locust Grove, Oklahoma

PROJECT
300-foot Guyed Tower

GRAPHIC LOG	DESCRIPTION (Approx. Surface Elev.: 99 ft)	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY, in.	SPT-N BLOWS / ft.	TESTS WATER CONTENT, %	DRY UNIT WT pcf	UNCONFINED COMPRESSION, psf
	2" Topsoil				PA					
	LEAN CLAY mottled brown and reddish-brown, medium stiff (2 / 97)		CL	1	SS	11	4	19		
	LEAN TO FAT CLAY mottled brown and olive-brown, medium stiff (5 / 94)		CL CH	2	SS	12	5	32		
					PA					
	WEATHERED SANDSTONE+ with clay seams, olive-brown and brown, poorly cemented	5		3	SS	10	45	17		
					PA					
				4	SS	8	13/6" 50/3"	15		
	(10 / 89)	10			PA					
	BOTTOM OF BORING Auger refusal at 10 feet +Classification estimated from disturbed samples. Core samples and petrographic analysis may reveal other rock types.									

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft			
WL	N/E	WD	N/E	AB
WL			
WL			

Terracon

BORING STARTED	3-1-12		
BORING COMPLETED	3-1-12		
RIG	ATV	FOREMAN	JT
APPROVED	CSK	JOB #	04125044

BOREHOLE BORING LOGS-5044.GPJ 2011 TULSA.GDT 3/15/12

LOG OF BORING NO. B-3

CLIENT: Wagoner County

SITE: 37001 E0660 Road, Locust Grove, Oklahoma

PROJECT: 300-foot Guyed Tower

Approx. Surface Elev.: 93.5 ft

DEPTH, ft.	DESCRIPTION	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY, in.	SPT-N BLOWS / ft.	TESTS WATER CONTENT, %	DRY UNIT WT pcf	UNCONFINED COMPRESSION, psf
	2" Topsoil			PA					
	LEAN CLAY with root hairs, mottled brown, soft	CL	1	SS	8	3	19		
2	91.5								
	LEAN CLAY with sandstone seams, olive-brown and brown, very stiff	CL	2	SS	12	33	19		
				PA					
5		CL	3	SS	6	20/6" 50/5"	10		
5.5	88								
	WEATHERED SANDSTONE+ with clay seams, olive-brown and brown, poorly cemented			PA					
			4	SS	1	50/1"	8		
	(cemented sandstone seam at 9 feet)		5	DB	8%	RQD 0%			
10									
			6	DB	100%	RQD 42%			
15	78.5								
	BOTTOM OF BORING Auger refusal at 9 feet +Classification estimated from disturbed samples. Core samples and petrographic analysis may reveal other rock types.								

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft		
WL	WD	AB
WL		
WL	N/E to 9 ft WD	

Terracon

BORING STARTED	3-1-12		
BORING COMPLETED	3-1-12		
RIG	ATV	FOREMAN	JT
APPROVED	CSK	JOB #	04125044

LOG OF BORING NO. B-4

CLIENT
Wagoner County

SITE
37001 E0660 Road
Locust Grove, Oklahoma

PROJECT
300-foot Guyed Tower

GRAPHIC LOG	DESCRIPTION (Approx. Surface Elev.: 100 ft)		DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	TYPE	RECOVERY, in.	SPT-N BLOWS / ft.	TESTS WATER CONTENT, %	DRY UNIT WT pcf	UNCONFINED COMPRESSION, psf
	2" Topsoil					PA					
	LEAN CLAY with root hairs, brown, medium stiff	2 / 98		CL	1	SS	6	6	14		
	LEAN TO FAT CLAY mottled olive-brown, very stiff	4 / 96		CL CH	2	SS	10	20	24		
						PA					
	SANDSTONE+ olive-brown, cemented	5.5 / 94.5	5		3	SS	0	10/0"			
	BOTTOM OF BORING Auger refusal at 5.5 feet +Classification estimated from disturbed samples. Core samples and petrographic analysis may reveal other rock types.										

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

WATER LEVEL OBSERVATIONS, ft			
WL	N/E	WD	N/E AB
WL			
WL			

Terracon

BORING STARTED	3-1-12		
BORING COMPLETED	3-1-12		
RIG	ATV	FOREMAN	JT
APPROVED	CSK	JOB #	04125044

APPENDIX B

LABORATORY TESTING

Laboratory Testing

Samples retrieved during the field exploration were taken to the laboratory for further observation by the project geotechnical engineer and were classified in accordance with the Unified Soil Classification System (USCS) described in Appendix A. The field descriptions were modified as necessary and an applicable laboratory testing program was formulated to determine engineering properties of the subsurface materials. The field descriptions were modified as necessary and an applicable laboratory testing program was formulated to determine engineering properties of the subsurface materials.

Laboratory tests were conducted on selected soil samples. The laboratory test results are presented on the boring logs next to the respective samples. Laboratory tests were performed in general accordance with the applicable ASTM, local or other accepted standards.

Selected soil samples obtained from the site were tested for the following engineering properties:

- Water content
- Unconfined compression test

APPENDIX C

SUPPORTING DOCUMENTS

GENERAL NOTES

DRILLING & SAMPLING SYMBOLS:

SS:	Split Spoon – 1-$^3/_8$" I.D., 2" O.D., unless otherwise noted	HS:	Hollow Stem Auger
ST:	Thin-Walled Tube - 2" O.D., unless otherwise noted	PA:	Power Auger
RS:	Ring Sampler - 2.42" I.D., 3" O.D., unless otherwise noted	HA:	Hand Auger
DB:	Diamond Bit Coring - 4", N, B	RB:	Rock Bit
BS:	Bulk Sample or Auger Sample	WB:	Wash Boring or Mud Rotary

The number of blows required to advance a standard 2-inch O.D. split-spoon sampler (SS) the last 12 inches of the total 18-inch penetration with a 140-pound hammer falling 30 inches is considered the "Standard Penetration" or "N-value".

WATER LEVEL MEASUREMENT SYMBOLS:

WL:	Water Level	WS:	While Sampling	N/E:	Not Encountered
WCI:	Wet Cave in	WD:	While Drilling		
DCI:	Dry Cave in	BCR:	Before Casing Removal		
AB:	After Boring	ACR:	After Casing Removal		

Water levels indicated on the boring logs are the levels measured in the borings at the times indicated. Groundwater levels at other times and other locations across the site could vary. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels may not be possible with only short-term observations.

DESCRIPTIVE SOIL CLASSIFICATION: Soil classification is based on the Unified Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

CONSISTENCY OF FINE-GRAINED SOILS

Unconfined Compressive Strength, Qu, psf	Standard Penetration or N-value (SS) Blows/Ft.	Consistency
< 500	<2	Very Soft
500 – 1,000	2-3	Soft
1,001 – 2,000	4-6	Medium Stiff
2,001 – 4,000	7-12	Stiff
4,001 – 8,000	13-26	Very Stiff
8,000+	26+	Hard

RELATIVE DENSITY OF COARSE-GRAINED SOILS

Standard Penetration or N-value (SS) Blows/Ft.	Ring Sampler (RS) Blows/Ft.	Relative Density
0 – 3	0-6	Very Loose
4 – 9	7-18	Loose
10 – 29	19-58	Medium Dense
30 – 49	59-98	Dense
50+	99+	Very Dense

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other Constituents	Percent of Dry Weight
Trace	< 15
With	15 – 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300mm)
Cobbles	12 in. to 3 in. (300mm to 75 mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm)
Silt or Clay	Passing #200 Sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other Constituents	Percent of Dry Weight
Trace	< 5
With	5 – 12
Modifiers	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1-10
Medium	11-30
High	30+

Exhibit C-1

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or $1 > Cc > 3$ [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel [F,G,H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or $1 > Cc > 3$ [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G,H,I]
			Fines Classify as CL or CH		SC	Clayey sand [G,H,I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	$PI > 7$ and plots on or above "A" line [J]		CL	Lean clay [K,L,M]
			$PI < 4$ or plots below "A" line [J]		ML	Silt [K,L,M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried	< 0.75	OL	Organic clay [K,L,M,N]
						Organic silt [K,L,M,O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K,L,M]
			PI plots below "A" line		MH	Elastic Silt [K,L,M]
		Organic:	Liquid limit - oven dried / Liquid limit - not dried	< 0.75	OH	Organic clay [K,L,M,P]
						Organic silt [K,L,M,Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-in. (75-mm) sieve
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.
[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H] If fines are organic, add "with organic fines" to group name.
[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.
[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] $PI \geq 4$ and plots on or above "A" line.
[O] $PI < 4$ or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.

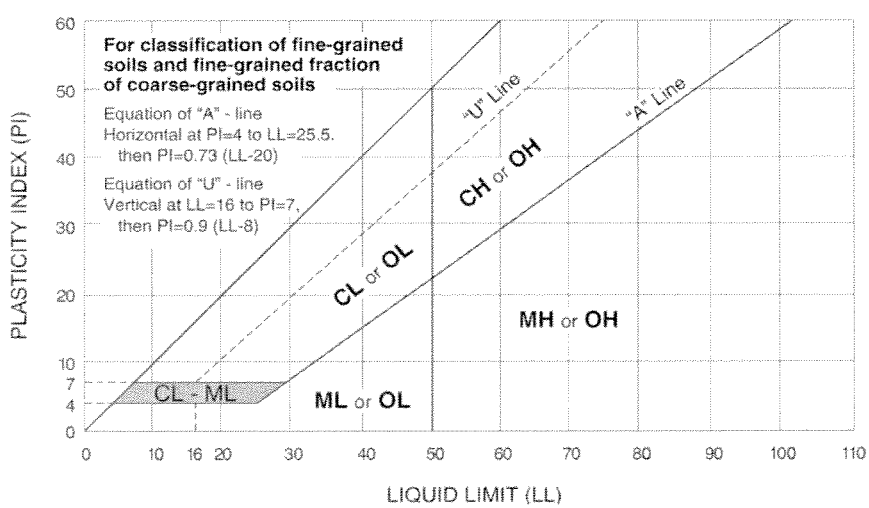


Exhibit C-2

GENERAL NOTES

Sedimentary Rock Classification

DESCRIPTIVE ROCK CLASSIFICATION:

Sedimentary rocks are composed of cemented clay, silt and sand sized particles. The most common minerals are clay, quartz and calcite. Rock composed primarily of calcite is called limestone; rock of sand size grains is called sandstone, and rock of clay and silt size grains is called mudstone or claystone, siltstone, or shale. Modifiers such as shaly, sandy, dolomitic, calcareous, carbonaceous, etc. are used to describe various constituents. Examples: sandy shale; calcareous sandstone.

LIMESTONE	Light to dark colored, crystalline to fine-grained texture, composed of $CaCo_3$, reacts readily with HCl.
DOLOMITE	Light to dark colored, crystalline to fine-grained texture, composed of $CaMg(CO_3)_2$, harder than limestone, reacts with HCl when powdered.
CHERT	Light to dark colored, very fine-grained texture, composed of micro-crystalline quartz (SiO_2), brittle, breaks into angular fragments, will scratch glass.
SHALE	Very fine-grained texture, composed of consolidated silt or clay, bedded in thin layers. The unlaminated equivalent is frequently referred to as siltstone, claystone or mudstone.
SANDSTONE	Usually light colored, coarse to fine texture, composed of cemented sand size grains of quartz, feldspar, etc. Cement usually is silica but may be such minerals as calcite, iron-oxide, or some other carbonate.
CONGLOMERATE	Rounded rock fragments of variable mineralogy varying in size from near sand to boulder size but usually pebble to cobble size (½ inch to 6 inches). Cemented together with various cementing agents. Breccia is similar but composed of angular, fractured rock particles cemented together.

PHYSICAL PROPERTIES:

DEGREE OF WEATHERING

Slight	Slight decomposition of parent material on joints. May be color change.
Moderate	Some decomposition and color change throughout.
High	Rock highly decomposed, may be extremely broken.

HARDNESS AND DEGREE OF CEMENTATION

Limestone and Dolomite:

Hard	Difficult to scratch with knife.
Moderately Hard	Can be scratched easily with knife, cannot be scratched with fingernail.
Soft	Can be scratched with fingernail.

Shale, Siltstone and Claystone

Hard	Can be scratched easily with knife, cannot be scratched with fingernail.
Moderately Hard	Can be scratched with fingernail.
Soft	Can be easily dented but not molded with fingers.

Sandstone and Conglomerate

Well Cemented	Capable of scratching a knife blade.
Cemented	Can be scratched with knife.
Poorly Cemented	Can be broken apart easily with fingers.

BEDDING AND JOINT CHARACTERISTICS

Bed Thickness	Joint Spacing	Dimensions
Very Thick	Very Wide	>10′
Thick	Wide	3′ - 10′
Medium	Moderately Close	1′ - 3′
Thin	Close	2″ - 1′
Very Thin	Very Close	.4″ - 2″
Laminated	—	.1″ - .4″

Bedding Plane	A plane dividing sedimentary rocks of the same or different lithology.
Joint	Fracture in rock, generally more or less vertical or transverse to bedding, along which no appreciable movement has occurred.
Seam	Generally applies to bedding plane with an unspecified degree of weathering.

SOLUTION AND VOID CONDITIONS

Solid	Contains no voids.
Vuggy (Pitted)	Rock having small solution pits or cavities up to ½ inch diameter, frequently with a mineral lining.
Porous	Containing numerous voids, pores, or other openings, which may or may not interconnect.
Cavernous	Containing cavities or caverns, sometimes quite large.

Terracon

CAROLYN KUSLER

Wagoner County Clerk

307 E. Cherokee Street, Wagoner, OK 74467
Ph/ (918) 485 – 2216 Fax/ (918) 485 – 7709
wagonercountyclerk@valornet.com

BID FORM

INVITATION FOR SEALED BIDS FOR THE
TURN-KEY CONSTRUCTION OF TWO (2) COMMUNICATIONS SHELTERS

DATE AND TIME OF OPENING:_____

Bidder agrees to furnish Wagoner County with TWO (2) COMMUNICATIONS SHELTERS PER ATTACHED SPECIFICATIONS.

PRICE FOR YONKERS UNIT: $_____

PRICE FOR COWETA UNIT: $_____

The undersigned acknowledges receipt of the following Addenda. (Give number and date of each):

_____

_____

_____

Delivery will be made in not more than _____ days after receipt of order.

I have examined the terms and specifications and instructions to bidders herein, and agree, provided I am awarded a contract, to provide the above described items for the sum shown in accordance with the terms and specifications stated herein. All deviations are in writing and attached hereto.

MUST BE SIGNED BY AUTHORIZED AGENT TO BE VALID

SIGNATURE:_____

PRINTED NAME:_____

TITLE:_____ FIRM NAME:_____

ADDRESS:_____

PHONE NO: _____ DATE:_____

INSURANCE REQUIREMENTS

The CONTRACTOR (and any subcontractors) shall carry and keep in force during this Agreement policies of insurance in minimum amount as set forth below, as required in Article 21 of the General Conditions, and/or as required by the laws of the State of Oklahoma. The Contractor shall also furnish an Owner's Policy in the same amounts with Wagoner County as the named assured, issued by the same insurance company as the Contractor's Liability Coverage.

Personal Injury, each person	$1,000,000.00
Personal Injury, each accident	$1,000,000.00
Property Damage, Each occurrence	$1,000,000.00
Property Damage, aggregate	$1,000,000.00

Employer's Liability and Workers' Compensation in the amounts as required by law.

Automobile and Trucks Owned, Hired and Non-Owned:

Personal Injury	$1,000,000.00
Personal Injury, each accident	$1,000,000.00
Property Damage, each accident	$1,000,000.00

The CONTRACTOR shall furnish certificates of such insurance which shall provide that in the event of any material change or cancellation of said policies, the company will give Wagoner County, OWNER, fifteen (15) days written notice.

Wagoner County shall be named as an Additional Insured on CONTRACTOR'S Insurance Policy.

Statements such as "will endeavor" and "but failure to notify" owner shall impose no obligation or liability of any land upon the company" shall not be allowed.

Special coverage for any blasting operations or use of explosives shall be listed separately on the certificates.

All insurance must be executed by a company licensed to do business in the State of Oklahoma, and must be acceptable to the Board, Wagoner County.