CITY OF GALLUP
CENTRAL PURCHASING OFFICE
P.O. BOX 1270
GALLUP, NEW MEXICO 87305-1270
Phone: 505-863-1232; Fax: 505-722-5133

FORD CANYON SENIOR CENTER IMPROVEMENTS

AMENDMENT NO.: **One (1)** FORMAL BID NO.: **1605**

THE FOLLOWING REVISIONS, ADDITIONS, DELETIONS, AND/OR CLARIFICATIONS SHALL FORM A PART OF THE CONTRACT DOCUMENTS AND EACH BIDDER SHALL INDICATE ON THEIR BID, THE RECEIPT OF THIS NUMBERED AMENDMENT. REVISIONS, ADDITIONS, AND/OR CLARIFICATIONS ARE AS FOLLOWS:

GENERAL:

1. The Pre-Bid Sign-in sheet is attached.
2. Geotechnical Report Attached.
3. Contractor has the option to pulverize asphalt and use as part of base course as long as it meets minimum specified requirements.
4. Contractor shall install water meter and box.

PROJECT MANUAL:

1. 00 8000 – Wage Rates

DRAWINGS:

1. SK-1 and SK-2: Replace Broken/Damaged/Missing Concrete Roof Tiles.

This Amendment consists of Thirty One (31) pages. If you do not receive all pages please contact the Purchasing Office.

City of Gallup:

DATE: March 11, 2016 BY/S/ _____
Frances Rodriguez, Purchasing Agent

Acknowledge
Receipt No. 1

Contractor:

BY/S/_____
Authorized Signature of Seller/Bidder

Company Name: _____

[ACKNOWLEDGE RECEIPT ON BID OR SIGN AND RETURN ONE (1) COPY WITH BID]

WILSON & COMPANY

FROM: DATE: 3/8/16 FILE:

TO: SUBJECT:

FORD CANYON SENIOR CENTER IMPROVEMENTS
PRE-BID MEETING

NAME	ORGANIZATION	E-MAIL	PHONE
Michael Wood	Century Club Construction	estimating@CenturyClubConstruction.com	505-344-1096
Michael Wood	Desert Utility and Paving	estimating@desert-utilities.com	505-344-1096
Brian Loschridge	Albuquerque Asphalt	brian@alb-asphalt.com	505-831-7311
Donnie Dineman	Wilson & Co.	dmdineman@wilsonco.com	505-948-5125
Matthew Long	Murphy Builders	matt@murphybuilders.com	505-863-627
Ivan Vigil	Vigil Contracting Inc.	vigilcontracting@comcast.net	505-877-63
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Karla Chavez	City of Gallup	Kchavez@gallupnm.gov	863-1235
Howard Kaplan	Wilson & Company	HOWARD.KAPLAN@WILSONCO.COM	505-348-4011

HIGHER Relationships

Western Technologies Inc.

GEOTECHNICAL EVALUATION REPORT

FORD CANYON SENIOR CENTER
908 East Buena Vista Avenue
Gallup, New Mexico
WT Reference No. 3225JJ294

PREPARED FOR:
Wilson & Company Inc.
4900 Lang Avenue
Albuquerque, State 87109
Attn: Donald M. Duneman, P.E.

December 23, 2015

Jeff M. Boyd, P.E.
Senior Geotechnical Engineer

Reviewed By: Bruce M. MacIlroy, P.E.
Technical Director

Wilson & Company, Inc.
WT Job No. 3225JJ294

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APPENDIX B

GEOTECHNICAL EVALUATION
FORD CANYON SENIOR CENTER
308 EAST BUENA VISTA AVENUE
ALBUQUERQUE, NEW MEXICO
WT JOB NO. 3225JJ294

1.0 PURPOSE

This report contains the results of our geotechnical evaluation for the proposed reconstruction of the paved parking areas and handicap ramp addition, and was performed in general accordance with our contract. The purpose of our services is to provide information and recommendations regarding:

- Subsurface conditions
- Groundwater
- Foundation design parameters
- Retaining walls
- Seismic considerations
- Slabs-on-grade
- Drainage
- Pavements
- Earthwork, including site preparation, fill placement, and suitability of existing soils for fill materials, and compaction
- Cause of foundation movement

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

2.0 PROJECT DESCRIPTION

Project information supplied by Donald M. Duneman, P.E. indicates that the project will include reconstruction of the existing paved parking areas and an addition of a handicap ramp. We understand that some foundation movement has been observed in the southeast corner of the existing building. Should our assumptions not be correct, we should be notified immediately.

3.0 SCOPE OF SERVICES

3.1 Field Exploration

Two borings were drilled to a depth of 21.5 feet below existing grade on the south side of the existing building. In addition, two borings were drilled to a depth of 5 feet in the paved parking area. The borings were drilled at the approximate locations shown on the attached Boring Location Diagram. A field log was prepared for each boring. These logs contain visual classifications of the materials encountered during drilling as well as interpolation of the subsurface conditions between samples. Final logs, included in Appendix A, represent our interpretation of the field logs and may include modifications based on laboratory observations and tests of the field samples. The final logs describe the materials encountered, their thicknesses, and the locations where samples were obtained.

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

3.2 Laboratory Analysis

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

- Field moisture content
- In-situ soil density
- -#200 Sieve
- Liquid limit and plasticity index
- Compression
- Swell potential

3.3 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. 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.

This geotechnical engineering report includes a description of the project, a discussion of the field and laboratory testing programs, a discussion of the subsurface conditions, and design recommendations as required to satisfy the purpose previously described.

4.0 SITE CONDITIONS

4.1 Surface

At the time of our exploration, the Site was developed as the existing Ford Canyon Senior Center. The existing building is a single-story structure of slump-block construction. Paved parking and drives surround the building. Site drainage trended to the northeast as surface sheet flow along a gradual to moderate slope.

4.2 Subsurface

As presented on the boring logs, surface soils to depths of 7 to 11 feet predominantly consisted of Sandy CLAY with some interbedded layers of Clayey SAND. Near surface soils are of medium plasticity. The materials underlying the surface soils and extending to the full depth of exploration consisted of SHALE. Groundwater was not encountered in any of the borings at the time of exploration.

5.0 GEOTECHNICAL PROPERTIES & ANALYSIS

5.1 Laboratory Tests

Laboratory test results (see Appendix B) indicate that native subsoils near shallow foundation level exhibit moderate compressibility at existing water contents. Some additional compression occurs when the water content is increased.

Near-surface soils are of medium plasticity. These soils exhibit moderately high expansion potential when recompacted, confined by loads approximating floor loads and saturated. Slabs-on-grade supported on recompacted native soils have a significant potential for heaving if the water content of the soil increases. Densification of the soil by the passage of construction equipment may increase the expansion potential of the native clayey soil.

6.0 RECOMMENDATIONS

6.1 General

Recommendations contained in this report are based on our understanding of the project criteria described in **Section 2.0**, and the assumption that the soil and subsurface conditions are those disclosed by the borings. Others may change the plans, 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.

6.2 Design Considerations

The borings indicate the presence of clay soils on the site. The clay soils may expand or swell with an increase in moisture content. Structures and related improvements situated on expansive clay soils could be subject to relatively large movements if the foundation soils experience an increase in moisture content. As expansive soils are encountered during earthwork operations, selective placement procedures should be implemented. It should be understood that if moisture penetrates expansive soils, there could be some heave and resultant cracking/distress of the proposed structures and related improvements.

6.3 Foundations

The proposed handicap ramp can be supported by conventional shallow spread footing type foundations bearing on properly compacted engineered fill. Allowable bearing pressures and embedment depths are presented in the following table.

Footing Depth Below Finished Grade (ft.) [1]	Allowable Bearing Capacity (psf) [2]
2.5 [3]	2,000
3.0	2,500

[1] Finished grade is the lowest adjacent grade for perimeter footings and floor level for interior footings.

[2] Allowable bearing capacities assume fulfillment of **EARTHWORK** recommendations.

[3]Minimum depth for frost protection for exterior footings or footings in unheated spaces.

Recommended minimum widths of column and wall footings are 24 inches and 16 inches, respectively.

When new foundations are adjacent to the existing structure, the new foundations should be at least as deep as the existing foundations or the deeper foundations should be designed for increased loading. Support of the existing foundations would be required if adjacent new foundations will be constructed lower than the existing footings.

We recommend that the proposed addition be separated structurally from the existing structure to minimize the possibility of cracking and displacement between the two structures.

We anticipate that differential movement of the proposed structure, supported as recommended, should be ¾ of one inch or less. Additional foundation movements could occur if water from any source infiltrates the foundation soils. Therefore, proper drainage should be provided in the final design and during construction.

All footings, stem walls, and masonry walls should be reinforced to reduce the potential for distress caused by differential foundation movements. The use of joints at openings or other discontinuities in masonry walls is recommended.

We recommend that the geotechnical engineer or his representative observe the footing excavations before reinforcing steel and concrete are placed. This observation is to assess whether the soils exposed are similar to those anticipated for support of the footings. Any soft, loose or unacceptable soils should be undercut to suitable materials and backfilled with approved fill materials or lean concrete. Soil backfill should be properly compacted.

6.4 Lateral Design Criteria

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

- Active:
  Undisturbed subsoil.....45 psf/ft
  Compacted imported backfill.....30 psf/ft

- Passive:
  Shallow wall footings.....220 psf/ft

- Coefficient of base friction 0.4*

*The coefficient of base friction should be reduced to 0.3 when used in conjunction with passive pressure.

Where the design includes restrained elements less than ten feet in height, the following equivalent fluid pressures are recommended:

- At-rest:

Undisturbed subsoil .....70 psf/ft
Compacted granular backfill .....55 psf/ft

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

- Hydrostatic conditions, submergence or partial submergence
- Sloping backfill, positively or negatively
- Surcharge loading, permanent or temporary
- Seismic or dynamic conditions

We recommend a free-draining soil layer or manufactured geosynthetic material, be constructed adjacent to the back of the 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.

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

6.5 Pavements

The on-site soils are considered as poor quality materials for support of pavements. The types of traffic anticipated to use the facility include passenger vehicles and small to

medium size trucks. On this basis, a daily traffic value of two Equivalent 18-kip Single Axle Loads (ESAL) was estimated for passenger car parking and drives (light duty) and a daily traffic value of five ESALS were used for major access drives. A resilient modulus (M_r) of 5,000 pounds per square inch was assigned to the on-site soil. A reliability value of 70 percent was assigned to the facility that corresponds to occasional interruption of traffic for pavement repairs. Based upon these parameters, the resulting pavement sections according to the AASHTO procedure for a 20-year design life are:

Traffic Area	Asphaltic Concrete (in.)	Base Course (in.)
Light Duty	2.5	7.0
Major access drives	3.0	8.0

The "design life" of a pavement is defined as the expected life at the end of which reconstruction of the pavement will need to occur. Normal maintenance, including crack sealing, slurry sealing, and/or chip sealing, should be performed during the life of the pavement.

Due to the high static loads imposed by parking trucks in loading and unloading areas and at dumpster locations, we recommend that a rigid pavement section be considered for these areas. A minimum six inch thick Portland cement concrete pavement is recommended.

Bituminous surfacing should be constructed of dense-graded, central plant-mix, asphalt concrete. Base course, portland cement, and asphalt concrete should conform with New Mexico Department of Transportation (NMDOT) specifications.

Material and compaction requirements should conform to recommendations presented in the **Earthwork** section of this report. The gradient of paved surfaces should ensure positive drainage. Water should not pond in areas directly adjoining paved sections.

6.6 Discussion of Foundation Movement

Based upon the results of this study, it is likely that the apparent cause of foundation and/or floor slab movement is the result in water intrusion into the foundation/floor slab subgrade causing expansion within the CLAY and/or SHALE. Moisture infiltration could be caused by a number of conditions, including leaking water or sewer lines, and infiltration into the cracks of the deteriorated pavement.

Consideration should be given to pressure testing the water and sewer lines within the building and fixing any leaks.

Construction of the new pavement and sidewalks adjacent to the building should help improve moisture infiltration into the subgrade. We recommend that 6 to 9 months be allowed to pass after completion of the pavement and sidewalks to allow for the subgrade moisture to come into equilibrium before any interior cosmetic repairs be made.

7.0 EARTHWORK

7.1 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.

7.2 Site Clearing

Strip and remove any existing vegetation, organic topsoils, debris, and any other deleterious materials from the building and pavement areas. The building area is defined as that area within the building footprint plus five feet beyond the perimeter of the footprint. All exposed surfaces should be free of mounds and depressions that could prevent uniform compaction.

7.3 Excavation

On-site clay soils will pump or become unworkable at high water contents. Workability may be improved by scarifying and drying. Overexcavation of wet zones and replacement with granular materials may be necessary. The use of lightweight excavation and compaction equipment may be required to minimize subgrade pumping. It may be necessary to remove the existing subgrade to a depth of 24 inches below subgrade elevation and replace with a granular subbase material, and/or the use of a woven or non-woven separation fabric such as Marifi 700X, or 140N, or approved equivalent, potentially in combination with a geogrid such as Tensar Triax or BX1200. With very soft subgrade conditions, it may be necessary for a combination of removal and the use of a separation fabric.

7.4 Foundation Preparation

In footing areas, remove existing soils to a minimum depth of 2 feet below the bottom of the footing. Removal should extend a minimum of 2 feet beyond the footing edges. Replace with engineered fill material. After any overexcavation has been accomplished, the exposed soils should be scarified, moistened or dried as required, and compacted to a minimum depth of 10 inches.

7.5 Exterior Slab Preparation

The soils on this site have the potential to expand and shrink with changes in moisture content. In addition, frost penetration in the upper soils may cause surface heaving. Therefore, relatively lightweight exterior concrete flatwork such as sidewalks, patios, and driveways, may experience movements resulting in cracking or vertical offsets. To reduce the potential for damage, we recommend:

- Use of fill with low expansion potential
- Use of fill with low to neglibile frost susceptability
- Placement of effective control joints on relatively close centers
- Moisture-density control during placement of subgrade fills
- Provision for adequate drainage in areas adjoining the slabs
- Use of designs which allow vertical movement between the exterior slabs and adjoining structural elements

It should be understood that these recommendations will help reduce the potential for soil movement and resulting distress, but will not eliminate this potential. Furthermore, the use of municipal (standard) specifications and details may not mitigate the potential for movements of the expansive or frost susceptible on-site soils.

7.6 Pavement Preparation

The subgrade should be scarified, moistened as required, and recompacted for a minimum depth of 10 inches prior to placement of fill and pavement materials.

7.7 Materials

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

- Foundation areas

- Slab areas*
- Pavement areas
- Backfill*

On-site soils are not recommended for use within 36 inches of the bottom of slabs-on-grade or as backfill behind retaining walls.

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	40 (max)

- Maximum expansive potential (%)* 1.5
- Maximum soluble sulfates (%) 0.10

* Measured on a sample compacted to approximately 95 percent of the ASTM D1557 maximum dry density at about 3 percent below optimum water content. The sample is confined under a 100 psf surcharge and submerged.

Base course should conform to the NMDOT specifications.

7.8 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. Frozen soil should not be used as fill and no fill should be placed over frozen ground.
d. Materials should be compacted to the following:

Material	Minimum Percent Compaction (ASTM D1557)
On-site soil, reworked and fill	95
Imported soil	95
Aggregate base course below slabs-on-grade	95

- Aggregate base below pavement 100
- Nonstructural backfill.....90

On-site clayey soils should be compacted within a water content range of one percent below to three percent above optimum. Imported and on-site granular soils with low expansion potential should be compacted within a water content range of two percent below to three percent above optimum.

7.9 Compliance

Recommendations for slabs-on-grade, foundation, 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.

8.0 LIMITATIONS

This report has been prepared assuming the project criteria described in **Section 2.0**. If changes in the project criteria occur, or if different subsurface conditions are encountered or become known, the conclusions and recommendations presented herein shall become invalid. In any such event, WT should be contacted in order to assess the effect that such variations may have on our conclusions and recommendations.

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

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

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

9.0 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 data obtained at the location of the borings, and from laboratory tests. Work on your project was performed in accordance with generally accepted standards and practices utilized by professionals providing similar services in this locality. No other warranty, express or implied, is made.

Approximate Boring Location

N

NOT TO SCALE

Geotechnical Environmental Inspections Materials

Western Technologies Inc.
The Quality People
Since 1955

PROJECT: FORT CANYON SENIOR CENTER
JOB NO.: 3225JJ294

BORING LOCATION DIAGRAM

PLATE
1

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

COARSE-GRAINED SOILS
LESS THAN 50% FINES

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

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

FINE-GRAINED SOILS
MORE THAN 50% FINES

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

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

SOIL SIZES

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

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

CONSISTENCY

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

RELATIVE DENSITY

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

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

PLASTICITY OF FINE GRAINED SOILS

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

DEFINITION OF WATER CONTENT

DRY
SLIGHTLY DAMP
DAMP
MOIST
WET
SATURATED

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

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

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

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

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

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

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

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

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

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

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

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

DATE DRILLED: **12-14-15**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 1

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7"HSA**
FIELD ENGINEER: **K.Newberry**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOW COUNTS	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		G				CL		CLAY; with gravel, dark brown, firm, moist
14.4	107	R		13				
12.4	115	R		14	5			less gravel
15.9	114	R		17	10			stiff
		N		85/10"	15			SHALE; light brown/green, moderately hard, slightly damp very dense
		N		50/4"	20			
								BORING TERMINATED AT 21.5'

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

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

NOTES: **Groundwater Not Encountered**

Geotechnical Environmental Inspections Materials

Western Technologies Inc.
The Quality People
Since 1955

PROJECT: **FORT CANYON SENIOR CENTER**
JOB NO.: **3225JJ294**

PLATE **A-4**

BORING LOG

DATE DRILLED: **12-14-15**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 2

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7"HSA**
FIELD ENGINEER: **K.Newberry**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOW COUNTS	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		G				CL		CLAY; with gravel, dark brown, firm, moist
						SC		Clayey SAND; brown, loose, damp
						CL		CLAY; with gravel, dark brown, firm, moist
					5			BORING TERMINATED AT 5'
					10			
					15			
					20			

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

NOTES: **Groundwater Not Encountered**

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

Geotechnical Environmental Inspections Materials

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PROJECT: **FORT CANYON SENIOR CENTER**
JOB NO.: **3225JJ294**

PLATE **A-5**

BORING LOG

DATE DRILLED: **12-14-15**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 3

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7"HSA**
FIELD ENGINEER: **K.Newberry**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOW COUNTS	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
						CL		CLAY; with gravel, dark brown, stiff, moist
13.0	113	R		15				
10.3	114	R		9	5			firm
								SHALE; light brown/green, moderately hard, slightly damp
9.3	129	R		50/11"	10			very dense
		N		80/10"	15			
		N		50/3"	20			
								BORING TERMINATED AT 21.5'

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

NOTES: **Groundwater Not Encountered**

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

Geotechnical Environmental Inspections Materials

Western Technologies Inc.
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Since 1955

PROJECT: **FORT CANYON SENIOR CENTER**
JOB NO.: **3225JJ294**

PLATE **A-6**

BORING LOG

DATE DRILLED: **12-14-15**
LOCATION: **See Location Diagram**
ELEVATION: **Not Determined**

BORING NO. 4

EQUIPMENT TYPE: **CME-75**
DRILLING TYPE: **7"HSA**
FIELD ENGINEER: **K.Newberry**

MOISTURE CONTENT (% OF DRY WT.)	DRY DENSITY (LBS/CU FT)	SAMPLE TYPE	SAMPLE	BLOW COUNTS	DEPTH (FEET)	USCS	GRAPHIC	SOIL DESCRIPTION
		G			0	CL		CLAY; with gravel, dark brown, firm, moist
					5			BORING TERMINATED AT 5'
					10			
					15			
					20			

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

NOTES: **Groundwater Not Encountered**

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

Geotechnical Environmental Inspections Materials

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PROJECT: **FORT CANYON SENIOR CENTER**
JOB NO.: **3225JJ294**

PLATE **A-7**

BORING LOG

SOIL PROPERTIES

Boring No.	Depth (ft.)	Soil Class.	Initial Dry Density (pcf)	Initial Water Content (%)	Compression Properties			Expansion Properties		Plasticity		Percent Passing #200	Soluble Salts (ppm)	Remarks
					Surcharge (ksf)	Total Compression (%)		Surcharge (ksf)	Expansion (%)	Liquid Limit	Plasticity Index			
						In-Situ	After Saturation							
1	2-3	CL	109.0	14.4	.5	1.7								
					1.0	1.9								
					2.0	3.0	5.3							2
					4.0		7.9							2
1	0-5	CL	110	13.0				0.1	4.1	31	15	58		1,2
4	0-5	SC								28	14	48		

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

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

Geotechnical Environmental Inspections Materials

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Since 1955

PROJECT: FORT CANYON SENIOR CENTER
JOB NO.: 3225JJ294

SOIL PROPERTIES

PLATE
B-1

Ford Canyon Senior Center Improvements - Gallup, NM

Engineer's Estimate - Bid Lot # 1

WILSON &COMPANY

2/26/2016

Bid Item	Item No.	Description	Unit	Est. Quantity	Unit Price ($)	Total ($)
1	204.010	Fill, construction, incl. excavation, placement & compaction of unclassified material	CY	1,620.00		$ -
2	301.020	Subgrade Prep. 12" at 95% compaction, cip.	SY	3,145.00		$ -
3	302.0x	Aggregate Base Course, crushed, 8" at 100% compaction, cip.	SY	3,075.00		$ -
4	336.010	Prime Coat, emulsified asphalt, cip.	SY	3,075.00		$ -
5	336.024	Asphalt Concrete Pavement, 3" thick, SP IV, cip	SY	3,075.00		$ -
6	336.3x	Speed Hump, incl striping, Complete	SY	36.00		$ -
7	337.020	Concrete Pavement, 6" thick, Portland Cement Concrete with fly ash, cip	SY	125.00		$ -
8	340.025	Wheelchair Access Ramp, 4" PCC, std curb	EA	1.00		$ -
9	340.xxx	Concrete Wheel Stop	EA	18.00		$ -
10	343.020	Existing Pavement, Asphalt Concrete, up to 4" thick, sawcut, remove & dispose, compl.	SY	4,560.00		$ -
11	343.050	Existing Pavement, PC Concrete, more than 4" thick, sawcut, remove & dispose, compl.	SY	23.00		$ -
12	441.001	Reflectorized Plastic Pavement Markings, 4" width, cip.	LF	1,665.00		$ -
13	441.03x	Reflectorized Plastic Symbol or Word, cip.	EA	14.00		$ -
14	450.00x	Handicap Parking Sign, Inc. Post & Base, cip	EA	13.00		$ -
15	510.111	Structural Reinforced PC concrete 3000 psi incl. formwork, cip	CY	12.00		$ -
16	915.07x	Catch Basin, Existing, Remove & Dispose, any type, incl. cleanup, compl.	EA	1.00		$ -
17	920.4x	Existing Manhole Frame & Cover, adjust to grade with metal rings	EA	3.00		$ -
18	801.1xx	Existing Utility , adjust to grade	EA	3.00		$ -
19	xxx.xxx	Remove & Replace with new Bollards	EA	7.00		$ -
					Subtotal Paving	$ -
Miscellaneous Items						
20	201.010	Site Clearing & Grubbing, Compl	LS	1.00		$ -
21	4.010	Construction Staking, compl.	LS	1.00		$ -
22	6.010	Construction Project Sign, per Contract Special Provisions, cip	EA	1.00		$ -
23	6.050	Construction Mobilization, Compl.	LS	1.00		$ -
24	6.060	Construction Demobilization, Compl.	LS	1.00		$ -
25	30.020	NPDES, SWPPP Management, Compl.	LS	1.00		$ -
26	xxx.xxx	Testing Lab	LS	1.00		$ -
					Subtotal Misc Items	$ -
					Total Bid Items	$ -
					NMGRT @ 8.3125%	$ -
					TOTAL	$ -

Ford Canyon Senior Center Improvements - Gallup, NM

Engineer's Estimate - Bid Lot # 1

WILSON &COMPANY

2/26/2016

Bid Item	Item No.	Description	Unit	Est. Quantity	Unit Price ($)	Total ($)
Additive Alternative # 1						
1	301.020	Subgrade Prep. 12" at 95% compaction, cip.	SY	1,325.00		$ -
2	302.0x	Aggregate Base Course, crushed, 8" at 100% compaction, cip.	SY	1,325.00		$ -
3	336.010	Prime Coat, emulsified asphalt, cip.	SY	1,325.00		$ -
4	336.024	Asphalt Concrete Pavement, 3" thick, SP IV, cip	SY	1,325.00		$ -
5	337.020	Concrete Pavement, 6" thick, Portland Cement Concrete with fly ash, cip	SY	105.00		$ -
6	340.210	Single Sidewalk Drain, 6' long, cip	EA	1.00		$ -
7	340.210	Double Sidewalk Drain, 6' long, cip	EA	4.00		$ -
8	441.001	Reflectorized Plastic Pavement Markings, 4" width, cip.	LF	835.00		$ -
9	xxx.xxx	Relocate Existing Water Meter/Vault	EA	1.00		$ -
					Subtotal Additive Alternative # 1	$ -

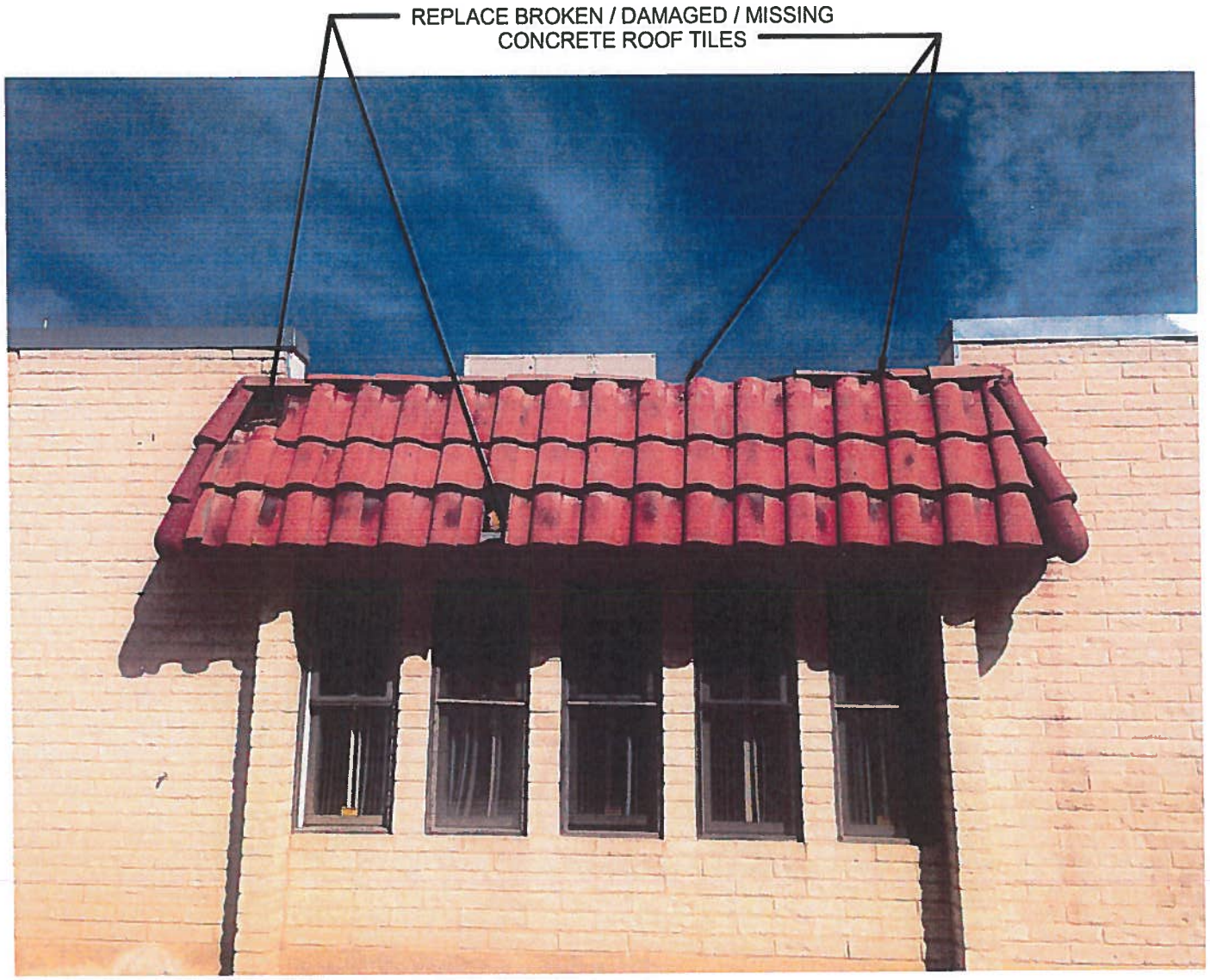
Note: cip, complete in place

TYPE "A" - STREET, HIGHWAY, UTILITY & LIGHT ENGINEERING

Effective January 1, 2016

Trade Classification	Base Rate	Fringe Rate
Bricklayer/Blocklayer/Stonemason	23.32	8.04
Carpenter/Lather	23.40	9.02
Cement Mason	17.11	6.32
Ironworker	26.50	14.32
Painter (Brush/Roller/Spray)	16.00	5.58
Electricians (outside)		
Groundman	21.28	10.53
Equipment Operator	30.54	12.94
Lineman/Wireman or Tech	35.94	14.34
Cable Splicer	39.52	15.28
Plumber/Pipefitter	28.30	4.07
Laborers		
Group I	12.20	5.30
Group II	12.50	5.30
Group III	12.90	5.30
Operators		
Group I	16.69	6.16
Group II	17.44	6.16
Group III	17.55	6.16
Group IV	17.63	6.16
Group V	17.75	6.16
Group VI	17.89	6.16
Group VII	18.27	6.16
Group VIII	18.50	6.16
Group IX	25.45	6.16
Group X	28.35	6.16
Truck Drivers		
Group I	13.32	0.26
Group II	13.52	0.26
Group III	13.72	0.26
Group IV	13.92	0.26

NOTE: SUBSISTENCE, ZONE AND INCENTIVE PAY APPLY ACCORDING TO THE PARTICULAR TRADES COLLECTIVE BARGAINING AGREEMENT. DETAILS ARE LOCATED AT WWW.DWS.STATE.NM.US.



1 REPLACE BROKEN/DAMAGED/MISSING ROOF TILES

1 1/2" = 1'-0"

WILSON & COMPANY
4900 Lang Avenue Ne
Albuquerque, NM 87109
Phone: (505) 348-4000

PROJECT NO:	15-600-094-00
DATE:	03/09/16
DRAWN BY	Author
CHECKED BY	Checker

SEAL

SHEET TITLE
CONCRETE ROOF TILES

PROJECT NAME:
FORD CANYON SENIOR CENTER IMPROVEMENTS

SK –

1 REPLACE BROKEN/DAMAGED/MISSING ROOF TILES

1 1/2" = 1'-0"

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SEAL

SHEET TITLE
CONCRETE ROOF TILES

PROJECT NAME:
FORD CANYON SENIOR CENTER IMPROVEMENTS

SK – 2