AGEC

Applied Geotechnical Engineering Consultants, Inc.

GEOTECHNICAL INVESTIGATION

PROPOSED SUBDIVISION

APPROXIMATELY 13800 SOUTH 1400 WEST

RIVERTON, UTAH

~~PREMIER~~ BRADBURY

PREPARED FOR:

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PROJECT NO. 1040516

JUNE 29, 2004

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EXECUTIVE SUMMARY

1. Approximately 10 feet of fill was encountered in Test Pit TP-6. We anticipate that Test Pit TP-6 is located within an existing utility trench. Approximately 1 foot of topsoil was encountered in the upper portion of Test Pits TP-1 through TP-5. Approximately 3 to 5 feet of poorly graded sand with clay and clayey sand was encountered below the topsoil. Poorly graded sand with small amounts of silt, clay and gravel was encountered below the sand with clay and extends the maximum depth investigated, approximately 13 feet.

2. Free water was encountered in Test Pits TP-2 through TP-4 at depths ranging from approximately 4 to 12 feet below the existing ground surface at the time of excavation. No subsurface water was encountered in Test Pits TP-1, TP-5 and TP-6 to the maximum depth investigated at the time of excavation.

   Subsequent measurement of the water levels indicate that water was encountered in Test Pits TP-1 through TP-4 at depths ranging from approximately ½ to 11 feet below the existing ground surface. The water levels were observed to fluctuate over time due to flood irrigation along the southwest portion of the site. Approximately 8 inches of water was observed on the ground surface across the southwest portion of the site during our June 28, 2004 site visit.

3. The proposed residences may be supported on spread footings bearing on the undisturbed natural soil or on compacted structural fill extending down to the undisturbed natural soil and may be designed using a net allowable bearing pressure of 1,500 pounds per square foot. Footings bearing on at least 2 feet of compacted structural fill may be designed using a net allowable bearing pressure of 2,500 pounds per square foot.

4. Due to the presence of relatively shallow subsurface water, the sloping ground surface and the potential for perched water to be directed towards the proposed residences by less permeable layers within the sloping ground surface, we recommend that if the lowest floor level of a residence extends below grade, the subgrade floor portion of the residence be protected with a perimeter underdrain system. Recommendations relating to design and construction of permanent underdrain systems are included in the report.

5. The area proposed for development is mapped as having a "very low" potential for liquefaction. A site specific liquefaction analysis is beyond the scope of this report. Based on the subsurface conditions encountered to the

Executive Summary Continued

depth investigated, it is our professional opinion that sand below the free water level may be susceptible to liquefaction. Liquefaction should be considered a potential hazard at the site. Additional information relating to the liquefaction potential at the site is presented in the report.

6. Geotechnical information related to foundations, subgrade preparation, pavement design, materials and construction is included in the report.

SCOPE

This report presents the results of a geotechnical investigation for a proposed subdivision to be located at approximately 13800 South 1400 West in Riverton, Utah. The report presents the subsurface conditions encountered, laboratory test results and recommendations for foundations and pavement. The study was conducted in general accordance with our proposal dated June 8, 2004 except for the addition of a percolation test. The percolation testing was requested by Mr. Larsen at the time of our field investigation.

Field exploration was conducted to obtain information on the subsurface conditions. Samples obtained from the field investigation were tested in the laboratory to determine physical and engineering characteristics of the on-site soil. Information obtained from the field and laboratory and our experience in the area was used to define conditions at the site for our engineering analysis and to develop recommendations for the proposed foundations and pavement.

This report has been prepared to summarize the data obtained during the study and to present our conclusions and recommendations based on the proposed construction and the subsurface conditions encountered. Design parameters and a discussion of geotechnical engineering considerations related to construction are included in the report.

SITE CONDITIONS

There are no permanent structures or pavements on the site. At the time of our field investigation, the area of the proposed development consisted primarily of undeveloped land (alfalfa fields). There are several unlined irrigation ditches around the perimeter of the site.

The ground surface at the site is relatively flat with a gentle slope down to the east. A drainage extends into the east central portion of the site. The drainage is approximately 10 feet lower in elevation than the surrounding ground surface.

Vegetation at the site consists of alfalfa, medium high grasses and medium to large trees. The trees generally extend along the perimeter of the site.

Bangerter Highway extends along the south side of the site. There are rural residential developments with one and two-story, wood-frame residences surrounded by agricultural fields to the north, east and west of the site.

FIELD STUDY

The field study was conducted on June 14, 2004. Six test pits were excavated at the approximate locations indicated on Figure 1 with a rubber-tired backhoe. The test pits were logged and soil samples obtained by an engineer from AGEC. Logs of the subsurface conditions encountered in the test pits are graphically shown on Figure 2 with legend and notes on Figure 3.

The test pits were backfilled without significant compaction. The backfill in the test pits should be properly compacted where it will support proposed buildings, floor slabs or pavement.

SUBSURFACE CONDITIONS

Approximately 10 feet of fill was encountered in Test Pit TP-6. We anticipate that Test Pit TP-6 is located within an existing utility trench. Approximately 1 foot of topsoil was encountered in the upper portion of Test Pits TP-1 through TP-5. Approximately 3 to 5 feet of poorly graded sand with clay and clayey sand was encountered below the topsoil. Poorly graded sand with small amounts of silt, clay and gravel was encountered below the sand with clay and extends the maximum depth investigated, approximately 13 feet.

A description of the various soils encountered in the test pits follows:

Fill - The fill consists of clayey sand with gravel. Significant organics were encountered in the upper approximately ½ foot of the fill. The fill is slightly moist, brown and contains a small amount of debris.

Laboratory tests conducted on a sample of the fill indicate that it has a moisture content of 10 percent and a dry density of 105 pounds per cubic foot (pcf).

Topsoil - The topsoil consists of clayey sand and poorly graded sand with clay. The topsoil contains small amounts of gravel. It is slightly moist, brown and contains roots.

Poorly Graded Sand with Clay - The sand contains small to large amounts of clay and a small amount of gravel. It is medium dense, slightly moist to moist and brown.

Laboratory tests conducted on samples of the sand with clay indicate that it has natural moisture contents ranging from 15 to 16 percent and natural dry densities ranging from 104 to 108 pcf.

Results of a gradation test conducted on a sample of the sand with clay are presented on Figure 4.

Poorly Graded Sand - The sand contains small amounts of clay, silt and gravel. It is loose to medium dense, slightly moist to wet and brown.

Laboratory tests conducted on samples of the sand indicate that it has natural moisture contents ranging from 5 to 9 percent and a natural dry density of 81 pcf.

Results of a gradation test conducted on a sample of the sand is presented on Figure 4.

A summary of the laboratory test results is presented on Table I. Test results are included on the logs of the exploratory test pits, Figure 2.

SUBSURFACE WATER

Free water was encountered in Test Pits TP-2 through TP-4 at depths ranging from approximately 4 to 12 feet below the existing ground surface at the time of excavation. No subsurface water was encountered in Test Pits TP-1, TP-5 and TP-6 to the maximum depth investigated at the time of excavation.

Subsequent measurement of the water levels indicate that water was encountered in Test Pits TP-1 through TP-4 at depths ranging from approximately ½ to 11 feet below the existing ground surface. The water levels were observed to fluctuate over time due to flood irrigation along the southwest portion of the site. Approximately 8 inches of water was observed on the ground surface across the southwest portion of the site during our June 28, 2004 site visit.

Slotted PVC pipe was installed in Test Pits TP-1 through TP-4 to facilitate future measurement of the subsurface water level. Water levels will fluctuate with time. Generally, the water levels are highest in the spring and summer and lowest in the fall and winter months. We anticipate that the subsurface water level is likely influenced by irrigation in the area adjacent and up gradient of the proposed development. An evaluation of fluctuations in the subsurface water levels is beyond the scope of this report.

PROPOSED CONSTRUCTION

We understand that the property is planned to be subdivided into residential building lots. We have assumed that the residences will be one to three- story, wood- frame structures with the possibility of basements. We have assumed maximum wall loads of 3 kips per lineal foot and maximum column loads of 20 kips based on typical residential construction in the area.

Roads are planned to extend through the proposed development. We have assumed traffic for roads consisting of 1,000 cars and 2 delivery trucks per day and 2 garbage trucks per week.

If the proposed construction, building loads or anticipated traffic is significantly different from what is described above, we should be notified so that we can reevaluate the recommendations given.

RECOMMENDATIONS

Based on the subsurface soil conditions encountered, laboratory test results, the proposed construction and our experience in the area, the following recommendations are given:

A. Site Grading

Final site grading plans were not available at the time of our investigation. We anticipate that there will be minor changes in grade (less than 2 feet) required for the proposed development. Fill placed for the project should be placed as soon as possible prior to building construction.

Topsoil, organic material, unsuitable fill and other deleterious material should be removed from the proposed building and pavement areas.

1. <u>Subgrade Preparation</u>

   Prior to placing grading fill or base course, unsuitable fill, organics, topsoil, debris and other deleterious material should be removed.

2. <u>Excavation</u>

   We anticipate that excavation at the site can be accomplished with typical excavation equipment. Consideration should be given to using excavating equipment with a smooth cutting edge when excavating for building foundations to minimize the disturbance of the natural soil.

   Excavations which extend below the free water level should be dewatered during excavation and fill and concrete placement. Fill placed below the original water level should consist of free draining gravel with less than 5 percent passing the No. 200 sieve.

3. <u>Compaction</u>

   Compaction of materials placed at the site should equal or exceed the minimum densities as indicated below when compared to the maximum dry density as determined by ASTM D-1557.

Fill To Support	Compaction
Foundations	≥ 95%
Concrete Flatwork and Pavement	≥ 90%
Landscaping	≥ 85%
Retaining Wall Backfill	85 - 90%

Base course should be compacted to at least 95 percent of the maximum dry density as determined by ASTM D-1557.

To facilitate the compaction process, fill should be compacted at a moisture content within 2 percent of the optimum moisture content.

Fill and pavement materials should be frequently tested during construction for compaction. Fill should be placed in thin enough lifts to allow for adequate compaction.

4. Materials

Material placed as fill to support foundations should be non-expansive granular soil. Much of the upper on-site soil consists of clayey sand and poorly graded sand with clay. The on-site sand meeting the material recommendations for imported structural fill given below may be used as structural fill to support buildings. The on-site soil may be considered for use as site grading fill, used in pavement areas or as utility trench backfill if the topsoil, organics and other deleterious materials are removed or it may be used in landscaping areas.

The on-site soil will likely require moisture conditioning (wetting or drying) prior to use as fill and to facilitate compaction. Drying of the soil may not be practical during the cold or wet times of the year.

Listed below are materials recommended for imported structural fill.

Fill to Support	Recommendations
Footings	Non-expansive granular soil Passing No. 200 Sieve < 35% Liquid Limit < 30% Maximum size 4 inches
Floor Slab (Upper 4 inches)	Sand and/or Gravel Passing No. 200 Sieve < 5% Maximum size 2 inches
Slab Support	Non-expansive granular soil Passing No. 200 Sieve < 50% Liquid Limit < 30% Maximum size 6 inches

Fill placed below the original water level should consist of free-draining gravel containing less than 5 percent passing the No. 200 sieve.

5. <u>Drainage</u>

The ground surface surrounding the proposed buildings should be sloped away from the buildings in all directions. Roof down spouts and drains should discharge beyond the limits of backfill.

The collection and diversion of drainage away from the pavement surface is important to the satisfactory performance of the pavement section. Proper drainage should be provided.

B. Foundations

1. <u>Bearing Material</u>

With the proposed construction and the subsurface conditions encountered, the residences may be supported on spread footings bearing on the undisturbed natural soil or on compacted structural fill extending down to the undisturbed natural soil. Structural fill should extend out away from the edge of the footings a distance equal to the depth of fill beneath footings.

For footings extending down into the wet soil near or below the water level, placement of lean concrete or free-draining gravel above the natural soil will provide a working surface for construction of foundations. Consideration may be given to placing a support fabric above the natural soil prior to placement of free-draining gravel.

The topsoil, organic material, unsuitable fill, debris and other deleterious material should be removed from below proposed foundation areas.

2. <u>Bearing Pressure</u>

Spread footings bearing on the undisturbed natural soil may be designed using an allowable net bearing pressure of 1,500 pounds per square foot (psf). Spread footings bearing on at least 2 feet of compacted structural fill may be designed for an allowable net bearing pressure of 2,500 psf. Footings should have a minimum width of 18 inches and a minimum depth of embedment of 10 inches.

3. <u>Temporary Loading Conditions</u>

The allowable bearing pressure may be increased by one-half for temporary loading conditions such as wind or seismic loads.

4. <u>Settlement</u>

Based on the subsoil conditions encountered and the assumed building loads, we estimate that total settlement for foundations designed as indicated above will be less than ¾ inch with differential settlement less than ½ of an inch. Total and differential settlement for footings bearing on at least 2 feet of compacted structural fill is estimated to be less than ½ inch.

Disturbance of the soil below foundations can result in greater settlement. Care will be required not to disturb the natural soil at the base of foundation excavations to maintain settlement within tolerable limits.

5. Frost Depth

Exterior footings and footings beneath unheated areas should be placed at least 30 inches below grade for frost protection.

6. Foundation Base

The base of footing excavations should be cleared of loose or deleterious material prior to structural fill or concrete placement.

Excavations which extend below the water level should be dewatered before and during fill and concrete placement as discussed in the excavation section of the report.

7. Construction Observation

A representative of the geotechnical engineer should observe footing excavations prior to structural fill or concrete placement.

C. Concrete Slab-on-Grade

1. Slab Support

Concrete slabs may be supported on the undisturbed natural soil or on compacted structural fill extending down to the undisturbed natural soil.

The topsoil, organic material, unsuitable fill, debris and other deleterious material should be removed from below proposed concrete slab areas.

2. Underslab Sand and/or Gravel

A 4 inch layer of free draining sand and/or gravel (less than 5 percent passing the No. 200 sieve) should be placed below the concrete slab for ease of construction and to promote even curing of the slab concrete.

D. Lateral Earth Pressures

1. Lateral Resistance for Footings

Lateral resistance for spread footings placed on the natural soil or on compacted structural fill is controlled by sliding resistance between the footing and the foundation soils. A friction value of 0.4 may be used in design for ultimate lateral resistance.

2. Subgrade Walls and Retaining Structures

The following equivalent fluid weights are given for design of subgrade walls and retaining structures. The active condition is where the wall moves away from the soil. The passive condition is where the wall moves into the soil and the at-rest condition is where the wall does not move. The values listed below assume a horizontal surface adjacent the top and bottom of the wall.

Soil Type	Active	At-Rest	Passive
Clay & Silt	50 pcf	65 pcf	250 pcf
Sand & Gravel	40 pcf	55 pcf	300 pcf

3. Seismic Conditions

Under seismic conditions, the equivalent fluid weight should be increased by 30 pcf for active and at-rest conditions and decreased by 30 pcf for the passive condition. This assumes a short period spectral response acceleration of 1.266g which represents a 2 percent probability of exceedance in a 50 year period (IBC, 2000 and 2003).

4. <u>Safety Factors</u>

The values recommended above for active and passive conditions assume mobilization of the soil to achieve the soil strength. Conventional safety factors used for structural analysis for such items as overturning and sliding resistance should be used in design.

E. Subsurface Drains

Due to the presence of relatively shallow subsurface water, the sloping ground surface and the potential for perched water to be directed towards the proposed residence by less permeable layers within the sloping ground surface, we recommend that if the lowest floor level of a residence extends below the original ground surface, the subgrade floor portion of the residence should be protected with a perimeter underdrain system. The perimeter underdrain system should consist of at least the following items:

1. The underdrain system should consist of a perforated pipe installed in a gravel filled trench around the perimeter of the subgrade floor portion of the building.

2. The flow line of the pipes should be placed at least 18 inches below the finished floor level and should slope to a sump or outlet where water can be removed by pumping or by gravity flow.

3. If placing the gravel and drainpipe requires excavation below the bearing level of the footing, the excavation for the drainpipe and gravel should have a slope no steeper than 1:1 (horizontal to vertical) so as not to disturb the soil below the footing.

4. A filter fabric should be placed between the natural soil and the drain gravel. This will help reduce the potential for fine grain material filling in the void spaces of the gravel.

5. The subgrade floor slab should have at least 6 inches of free draining gravel placed below it and the underslab gravel should connect to the perimeter drain.

6. Consideration should be given to installing cleanouts to allow access into the perimeter drain should cleaning of the pipes be required in the future.

F. Seismicity, Faulting and Liquefaction

1. Seismicity

Listed below is a summary of the site parameters for the International Building Code 2000 and 2003.

a.	Site Class	D
b.	Short Period Spectral Response Acceleration, S_S	1.266g
c.	One Second Period Spectral Response Acceleration, S_1	0.543g

2. Faulting

There are no mapped active faults extending through the subject property. The closest mapped fault, which is considered active, is the Wasatch Fault located approximately 4.7 miles to the east of the site (Salt Lake County, 1995).

3. Liquefaction

The area proposed for construction is mapped as having a "very low" potential for liquefaction (Salt Lake County, 1995). The soil type most susceptible to liquefaction during a large magnitude earthquake is loose, clean sand. In order for liquefaction to occur, the sand must be saturated. The liquefaction potential for soil tends to decrease with an increase in fines content and density.

The subsurface conditions encountered at the site generally consist of clayey sand and poorly graded sand with small amounts of silt and clay. The clay and soil above the free water level are not considered susceptible to liquefaction. However, the sand below the free-water level may be susceptible to liquefaction. An investigation to a greater depth and designed to evaluate the liquefaction potential would be needed to evaluate the liquefaction potential at the site. Such a study is beyond the scope of this report.

It is our professional opinion that liquefaction should be considered a potential hazard at the site. The structural engineer should consider the potential for significant settlement and lateral movement in design of structures for the site.

G. Water Soluble Sulfates

One sample of the natural soil was tested in the laboratory for water soluble sulfate content. Results of the test indicate there is less than 0.1 percent water soluble sulfate in the sample tested. Based on the results of the test and published literature, the natural soil possesses negligible sulfate attack potential on concrete. The concentration of water soluble sulfates present in the soil at the site indicates that sulfate resistant cement is not needed for concrete in contact with the natural soil. Other conditions may dictate the type of cement to be used in concrete for the project.

H. Pavement

Based on the subsoil conditions encountered, laboratory test results and the assumed traffic as indicated in the Proposed Construction section of the report, the following pavement support recommendations are given.

1. Subgrade Support

   The near surface soil consists primarily of clayey sand and poorly graded sand with silt and clay. A CBR value of 10 percent was used in the analysis which assumes a clayey sand subgrade.

2. Pavement Thickness

   Based on the subsoil conditions, assumed traffic, a design life of 20 years for flexible pavement and 30 years for rigid pavement and methods presented by the Utah Department of Transportation, a flexible pavement section consisting of 3 inches of asphaltic concrete overlying 6 inches of base course is calculated. Alternatively, a rigid pavement section consisting of 5 inches of Portland cement concrete may be used.

3. Pavement Materials and Construction

   a. Flexible Pavement (Asphaltic Concrete)

      The pavement materials should meet the Utah Department of Transportation specifications for gradation and quality. Other materials may be considered for use in the pavement section. The use of other materials may result in the need for different pavement material thicknesses.

b. <u>Rigid Pavement (Portland Cement Concrete)</u>

The pavement thickness assumes that the pavement will have aggregate interlock joints and that a concrete shoulder or curb will be provided.

Pavement materials should meet the Utah Department of Transportation Specifications. The pavement thickness indicated above assumes that the concrete will have a 28 day compressive strength of 4,000 pounds per square inch. Concrete should be air entrained with approximately 6 percent air. Maximum allowable slump will depend on the method of placement but should not exceed 4 inches.

Joints for concrete pavement should be laid out in a square or rectangular pattern. Joint spacings should not exceed 30 times the thickness of the slab. The joint spacings indicated should accommodate the contraction of the concrete and under these conditions steel reinforcing will not be required. The depth of joints should be approximately one-fourth of the slab thickness.

I. Percolation Testing

We understand that a storm water retention area is planned in the area of Test Pit TP-3 (see Figure 1). A percolation test was conducted in Test Pit TP-3 at a depth of approximately 3 feet below the existing ground surface. The percolation test hole was prepared and water was introduced into the test hole for a period of approximately 30 minutes. The percolation test was conducted by the addition of water to the test hole and measuring the drop in water level at 15 minute intervals.

A percolation rate of 8 minutes per inch was measured for the soil tested in Test Pit TP-3 at a depth of approximately 3 feet.

LIMITATIONS

This report has been prepared in accordance with generally accepted soil and foundation engineering practices in the area for the use of the client for design purposes. The conclusions and recommendations included within the report are based on the information obtained from the test pits excavated at the approximate locations indicated on the site plan, the data obtained from laboratory testing and our experience in the area. Variations in the subsurface conditions may not become evident until additional excavation or exploration is conducted. If the subsurface conditions or groundwater level are found to be significantly different from those described above, we should be notified to reevaluate our recommendations.

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, P.C.

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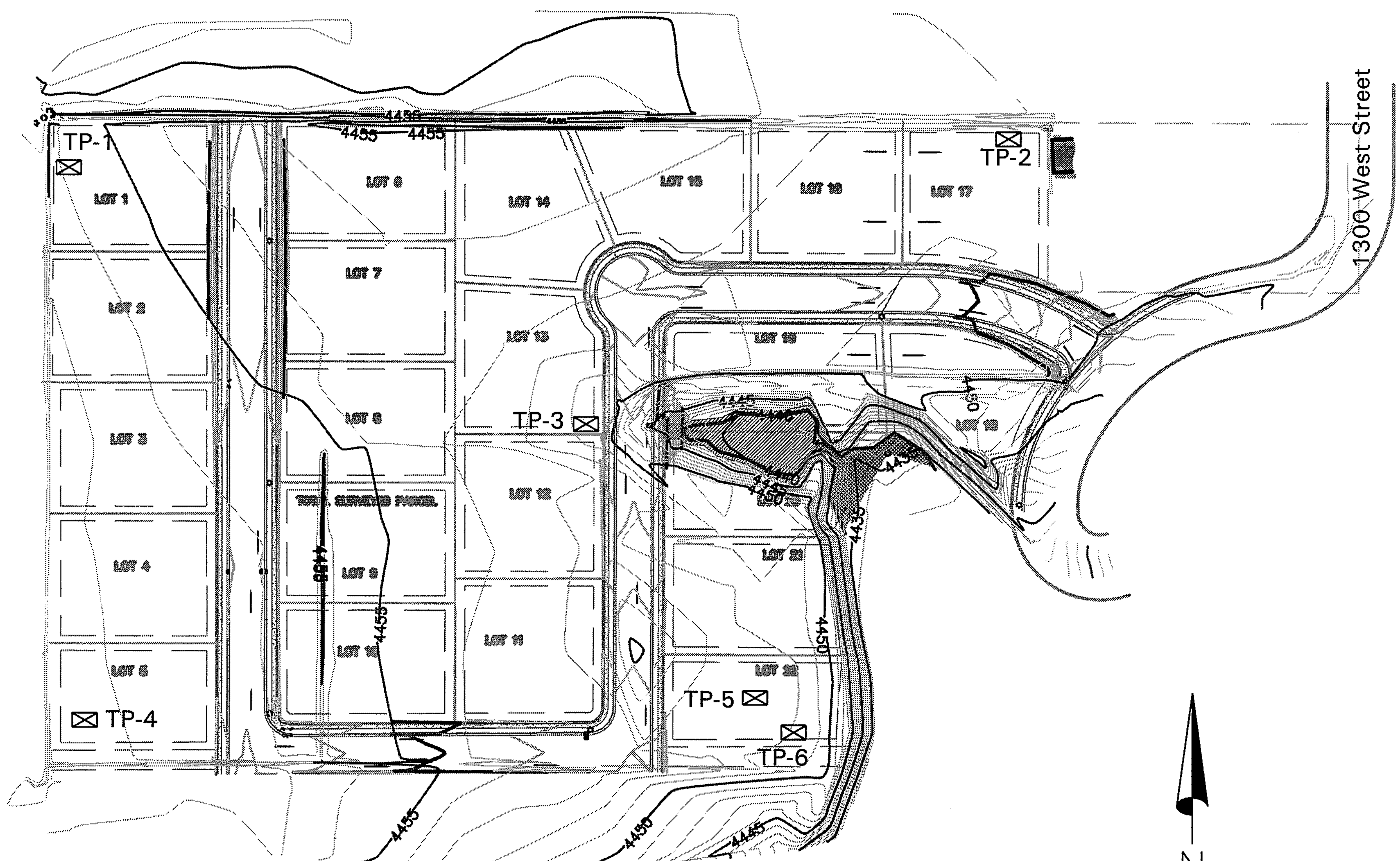
CJB/sc

REFERENCES CITED

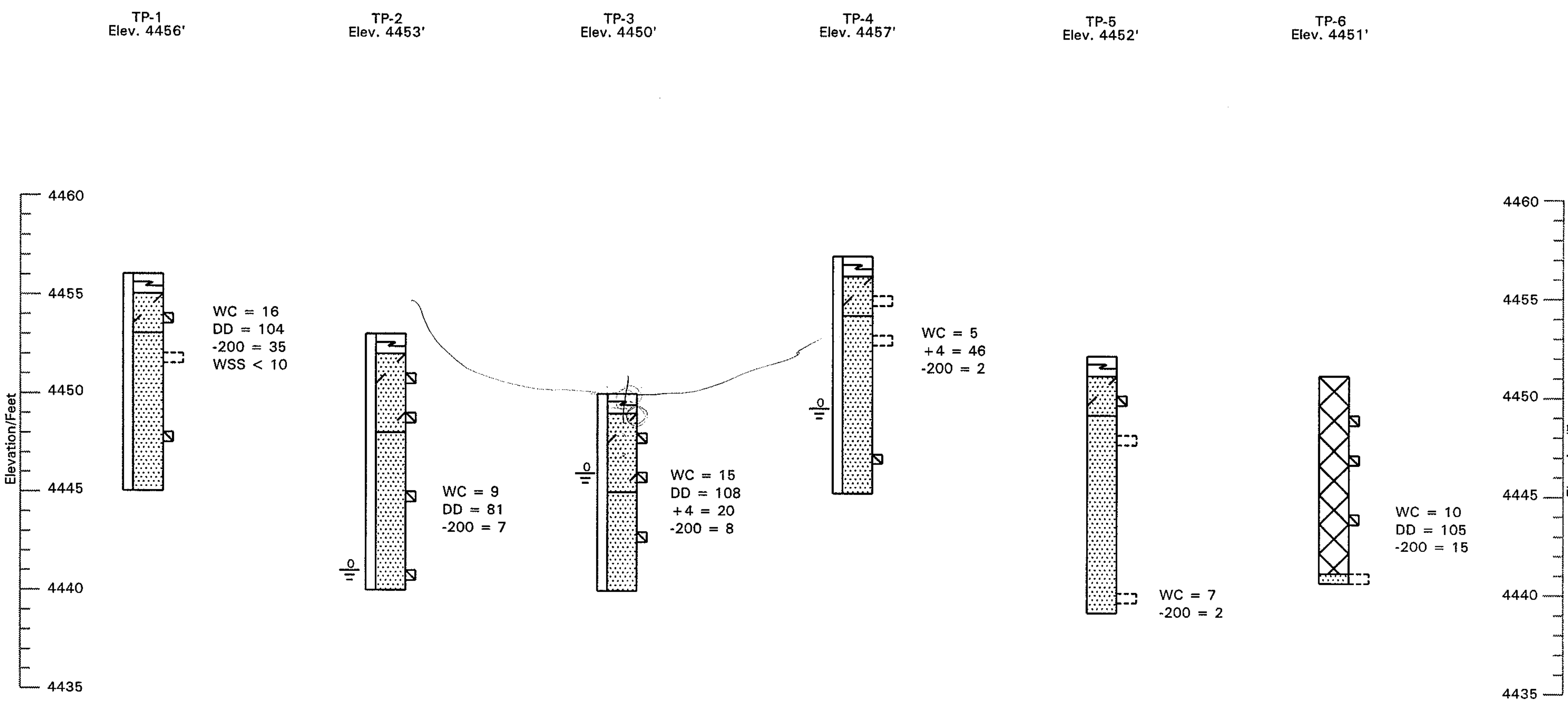
International Building Code, 2000 and 2003; International Code Council, Inc. Falls Church, Virginia.

Salt Lake County, 1995, Surface Rupture and Liquefaction Potential Special Study Areas Map, Salt Lake County, Utah, adopted March 31, 1989, revised March 1995, Salt Lake County Public Works - Planning Division, 2001 South State Street, Salt Lake City, Utah.



PROPOSED SUBDIVISION
APPROXIMATELY 13800 SOUTH 1400 WEST
RIVERTON, UTAH

1040516	AGEC	Locations of Test Pits	Figure 1



Approximate Vertical Scale 1" = 8'

See Figure 3 for Legend and Notes

1040516	AGEC	Logs of Test Pits	Figure 2

LEGEND:

Fill; clayey sand with gravel, significant organics in upper ½ foot, slightly moist, brown, small amount of debris.

Topsoil; clayey sand and poorly graded sand with clay, small amount of gravel, slightly moist, brown, roots.

Poorly Graded Sand with Clay (SP-SC); small to large amounts of clay, small amount of gravel, medium dense, slightly moist to moist, brown.

Poorly Graded Sand (SP); small amounts of clay, silt and gravel, loose to medium dense, slightly moist to wet, brown.

Indicates relatively undisturbed hand drive sample taken.

Indicates disturbed sample taken.

Indicates slotted 1½ inch PVC pipe installed in the test pit to the depth shown.

0

Indicates the depth to free water and the number of days after excavating the measurement was taken.

NOTES:

1. Test pits were excavated on June 14, 2004 with a rubber-tired backhoe.
2. Locations of test pits were measured approximately by pacing from features shown on the site plan provided.
3. Elevations of test pits were determined by interpolating between contours shown on Figure 1.
4. The test pit locations and elevations should be considered accurate only to the degree implied by the method used.
5. The lines between the materials shown on the test pit logs represent the approximate boundaries between material types and the transitions may be gradual.
6. Water level readings shown on the logs were made at the time and under the conditions indicated. Fluctuations in the water level may occur with time.
7. WC = Water Content (%);
   DD = Dry Density (pcf);
   +4 = Percent Retained on the No. 4 Sieve;
   -200 = Percent Passing No. 200 Sieve;
   WSS = Water Soluble Sulfates (ppm).

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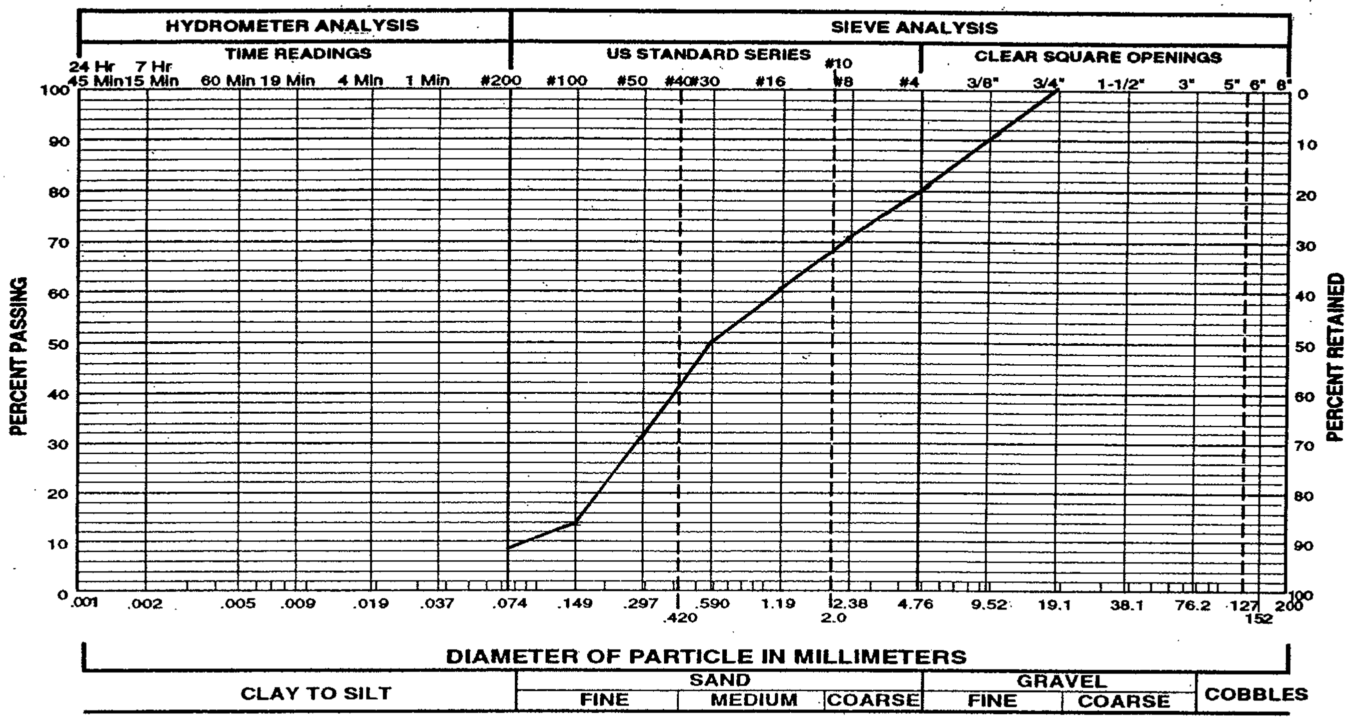
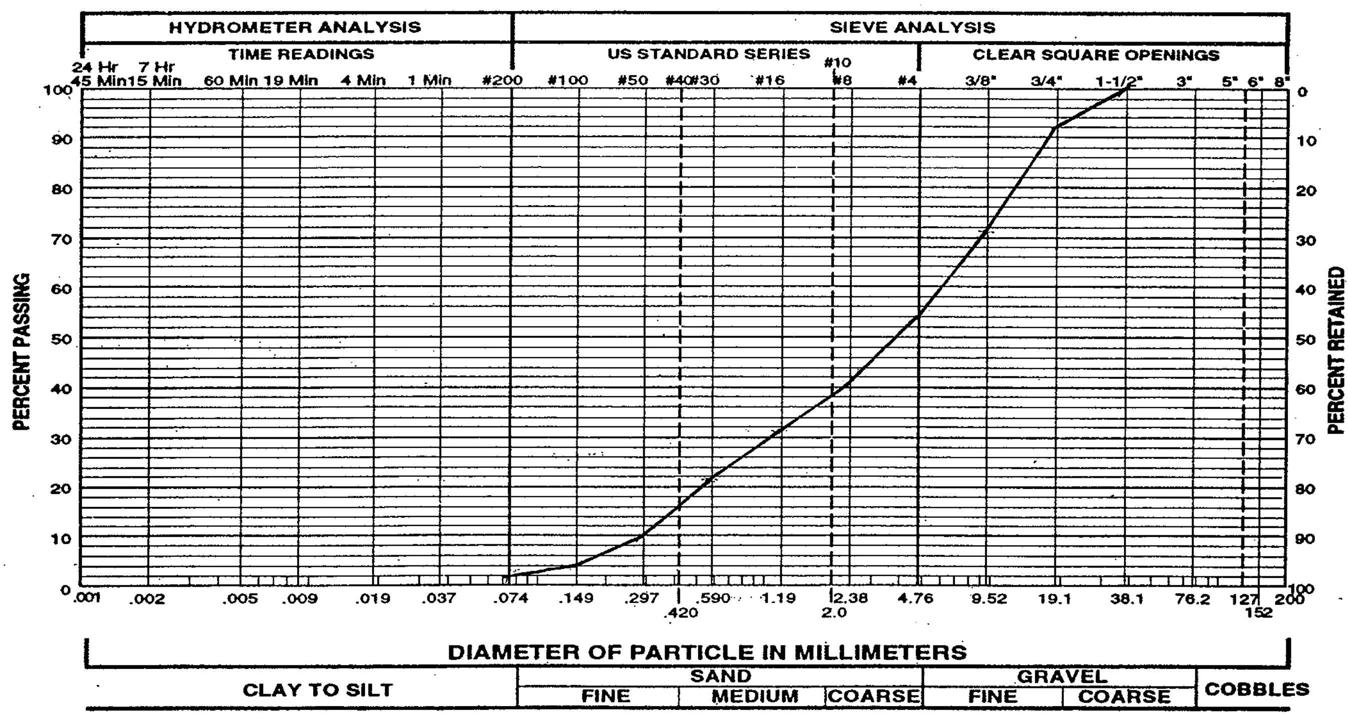


Gravel 20 % Sand 72 % Silt and Clay 8 %

Liquid Limit ____ % Plasticity Index ____ %

Sample of Poorly Graded Sand with Clay and Gravel (SP-SC) From TP-3 @ 4 feet



Gravel 46 % Sand 52 % Silt and Clay 2 %

Liquid Limit ____ % Plasticity Index ____ %

Sample of Poorly Graded Sand with Gravel (SP) From TP-4 @ 4 feet

Project No. 1040516 **GRADATION TEST RESULTS** Figure 4

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TABLE I
SUMMARY OF LABORATORY TEST RESULTS

PROJECT NUMBER 1040516

SAMPLE LOCATION		NATURAL MOISTURE CONTENT (%)	NATURAL DRY DENSITY (PCF)	GRADATION			ATTERBERG LIMITS		UNCONFINED COMPRESSIVE STRENGTH (PSF)	WATER SOLUBLE SULFATE (ppm)	SAMPLE CLASSIFICATION
TEST PIT	DEPTH (FEET)			GRAVEL (%)	SAND (%)	SILT/ CLAY (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)			
TP-1	2	16	104			35				<10	Clayey Sand with Gravel (SC)
TP-2	8	9	81			7					Poorly Graded Sand with Silt (SP-SM)
TP-3	4	15	108	20	72	8					Poorly Graded Sand with Clay and Gravel (SP-SC)
TP-4	4	5		46	52	2					Poorly Graded Sand with Gravel (SP)
TP-5	12	7				2					Poorly Graded Sand (SP)
TP-6	7	10	105			15					Fill; Clayey Sand