ATTACHMENT B

Planned Residential Development Application

28th Street and 2nd Avenue
Council Bluffs, IA 51501

June 2020

WHITE LOTUS GROUP

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June 10, 2020

City of Council Bluffs, Iowa
Community Development
Attn: Mr. Christopher Gibbons
209 Pearl Street
Council Bluffs, Iowa 51503

RE: 28th Street and 2nd Avenue Multi-Family LOI

Mr. Gibbons and Members of the Council Bluffs Community Development team,

In November of 2019 the development team at White Lotus Group responded to the City of Council Bluffs request for proposals for the redevelopment of the 2.54 acres located in the western portion of Council Bluffs, North of 2nd Avenue between South 28th Street and South 29th Street.

Following extensive discussions with the City after the submission of our initial proposal, we finalized a plan to redevelop the site that we believe successfully reaches the City's goals outline for this site. On February 24, 2020, our RFP response was selected by the City of Council Bluffs, and our team was given site control and the exclusive right to pursue redevelopment of the site (as per Resolution 20-68).

The minimum improvements on the 28th Street and 2nd Avenue site shall consist of a phase 1 of a 92, 000 square foot apartment building including approximately 84 mixed-income multi-family rental units and a phase 2 consisting of approximately 12-16 owner-occupied townhomes. All development on the site will be consistent with approved plats and plans, the Urban Renewal Plan, and the terms of the Development Agreement between the project's limited partnership and the City of Council Bluffs, Iowa.

The project will require a 12-month financial close that will begin upon execution of the development agreement. Construction will commence on phase 1 following the financial close. Construction is estimated to be a minimum of 12-month process with a Q2 2021 goal for completion on phase 1. Phase 2 is estimated to be completed no later than 2023.

We believe that our team's extensive experience in multi-family and particularly mixed-income affordable multi-family projects, will allow us to execute these projects efficiently and with strong architectural design integrity.

Respectfully,

Arun Agarwal, CEO
White Lotus Group
402.408.0005 | aagarwal@whitelotusgroup.com

White Lotus Group

2nd Avenue Multi-Family

Design Concept

DLR Group

WHITE LOTUS GROUP

Pre-Design | 10 June 2020



Commercial

Residential

Industrial

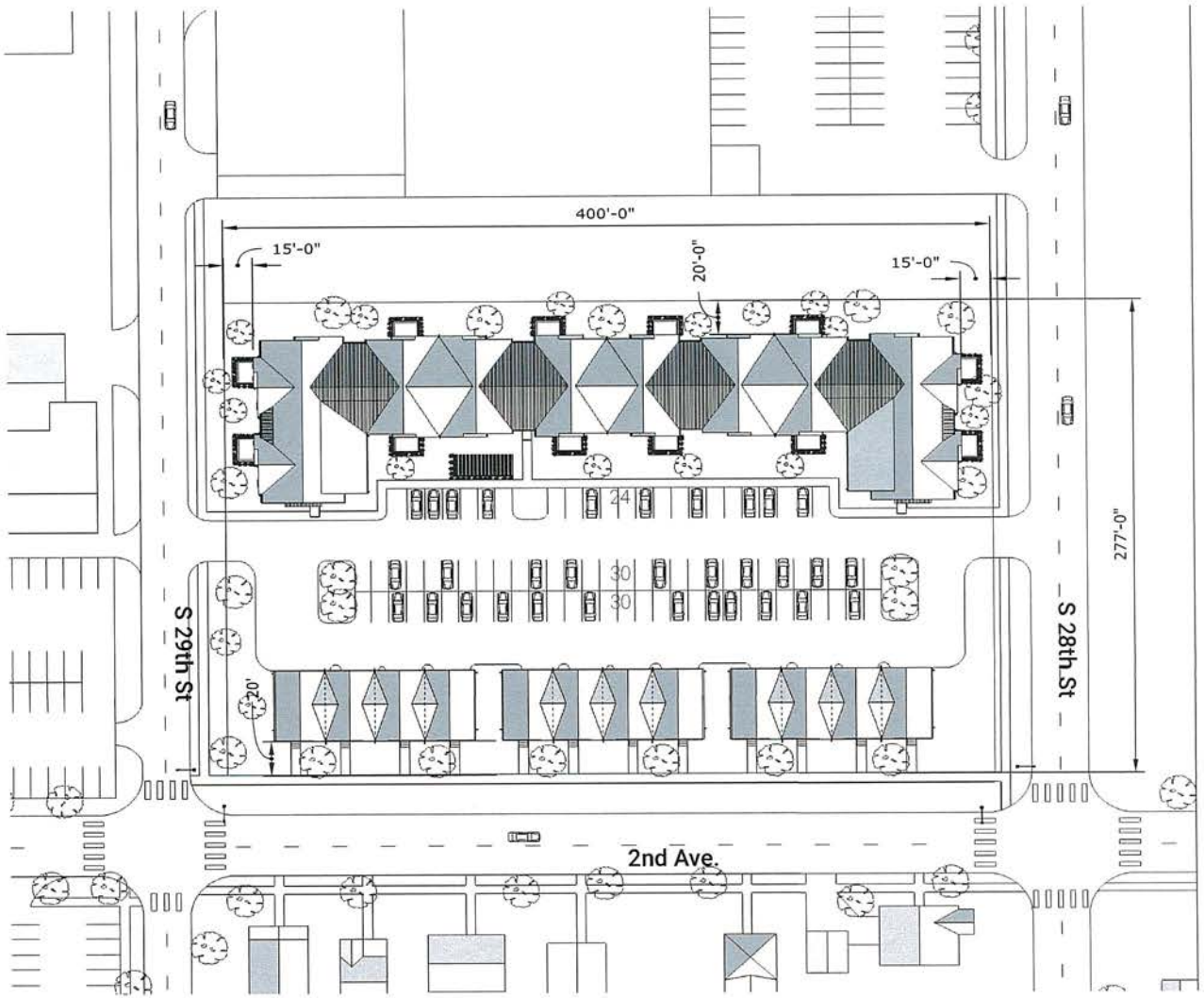
Note:
All plans, areas, exterior program and design elements subject to change, upon further analysis of codes, structure, mechanical systems, and City requirements. Images and plans are conceptual in nature to provide preliminary project intent only.

Multi-Family

Unit Type	Avg. SF	# of Units	Unit Percentage
Studio -	575 Avg. SF	6 Units	7%
1 x 1 -	600 Avg. SF	38 Units	45%
2 x 2 -	825 Avg. SF	28 Units	33%
3 x 2 -	1000 Avg. SF	15 Units	15%
Total		**84 Units**	**100%**

Town House

Unit Type	Avg. SF	# of Units
2 BD Town Hose	1200 SF	12



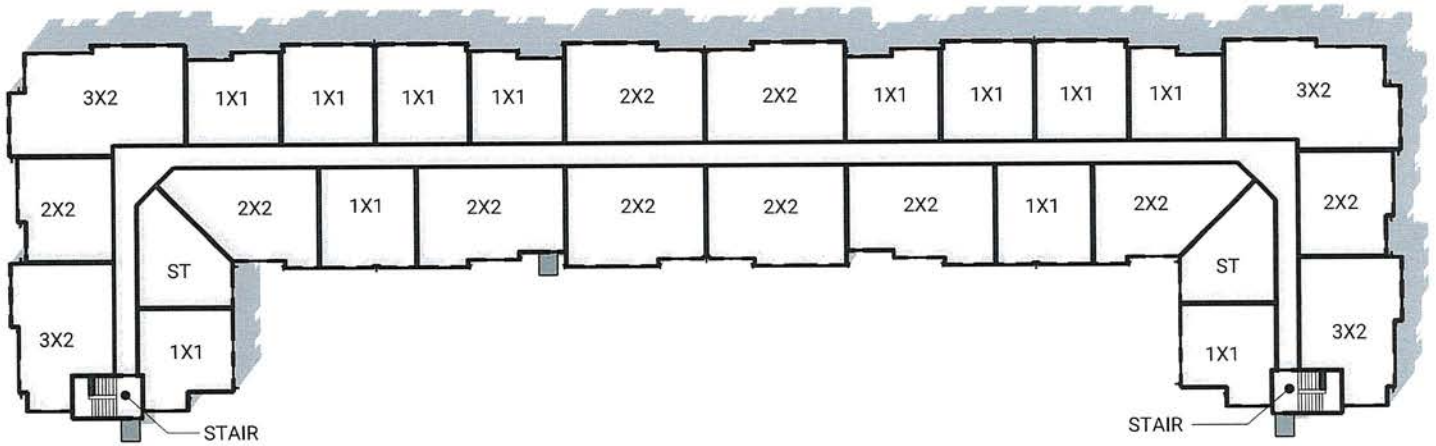
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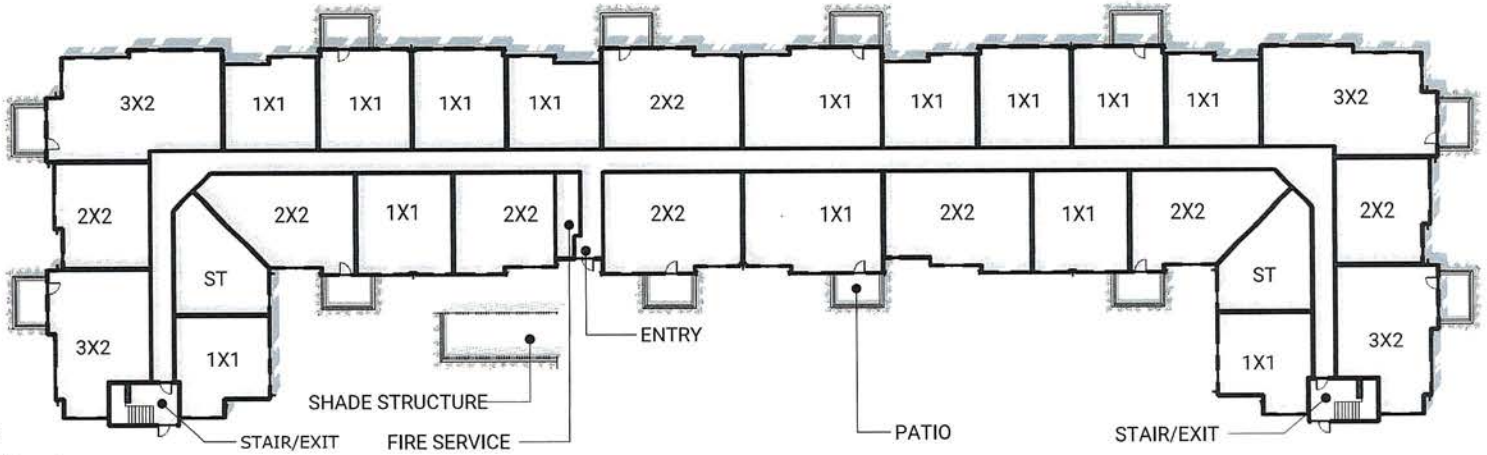
2nd Ave. Multi-Family | Multi-Family Perspective

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2nd & 3rd Floor
Scale: 1/32" = 1'-0"



Note:
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1st Floor
Scale: 1/32" = 1'-0"



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Front Elevation
Scale 1/16" = 1' - 0"



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Back Elevation
Scale 1/16" = 1'-0"



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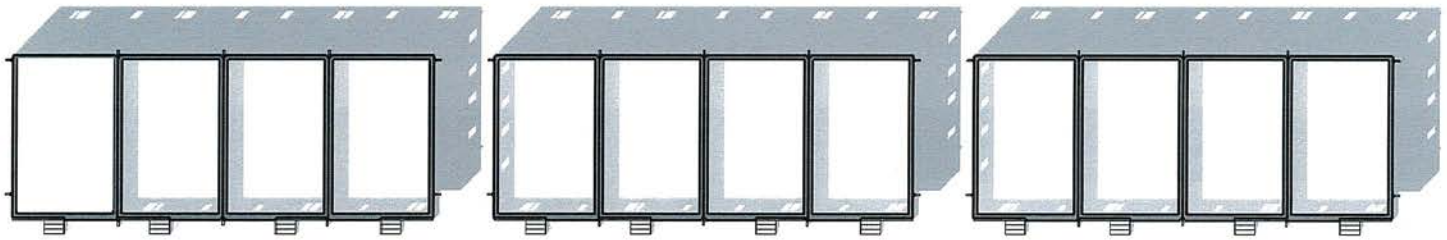
Side Elevations
Scale: 1/16" = 1'-0"



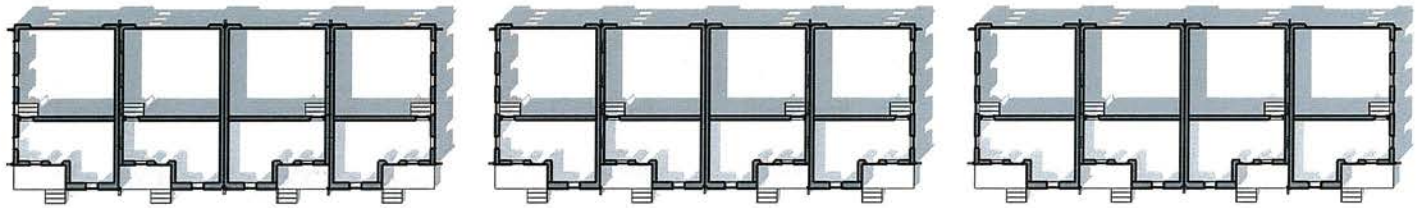
2nd Ave. Multi-Family | Town House Perspective

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Second Floor
1:30

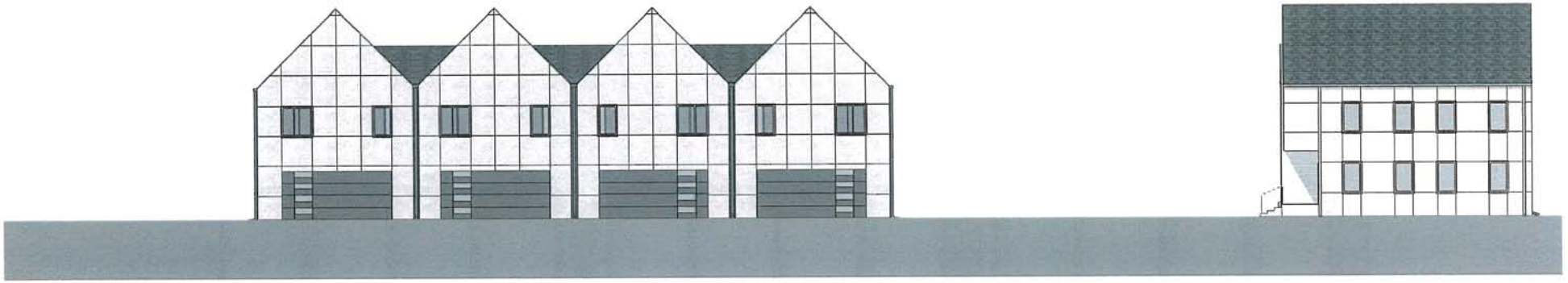


First Floor
1:30

Note:
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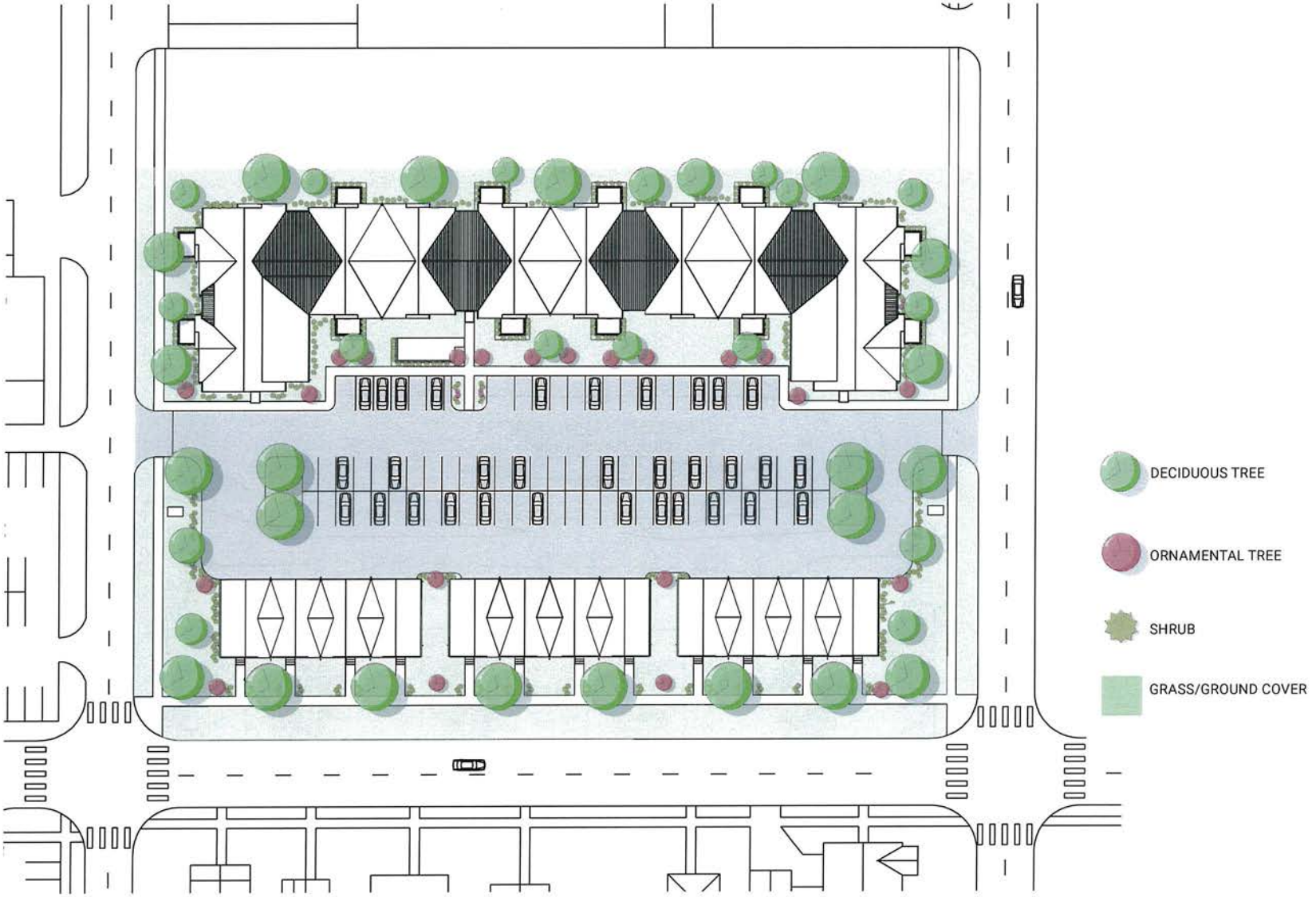
South Elevation
Scale 1/16" = 1'-0"



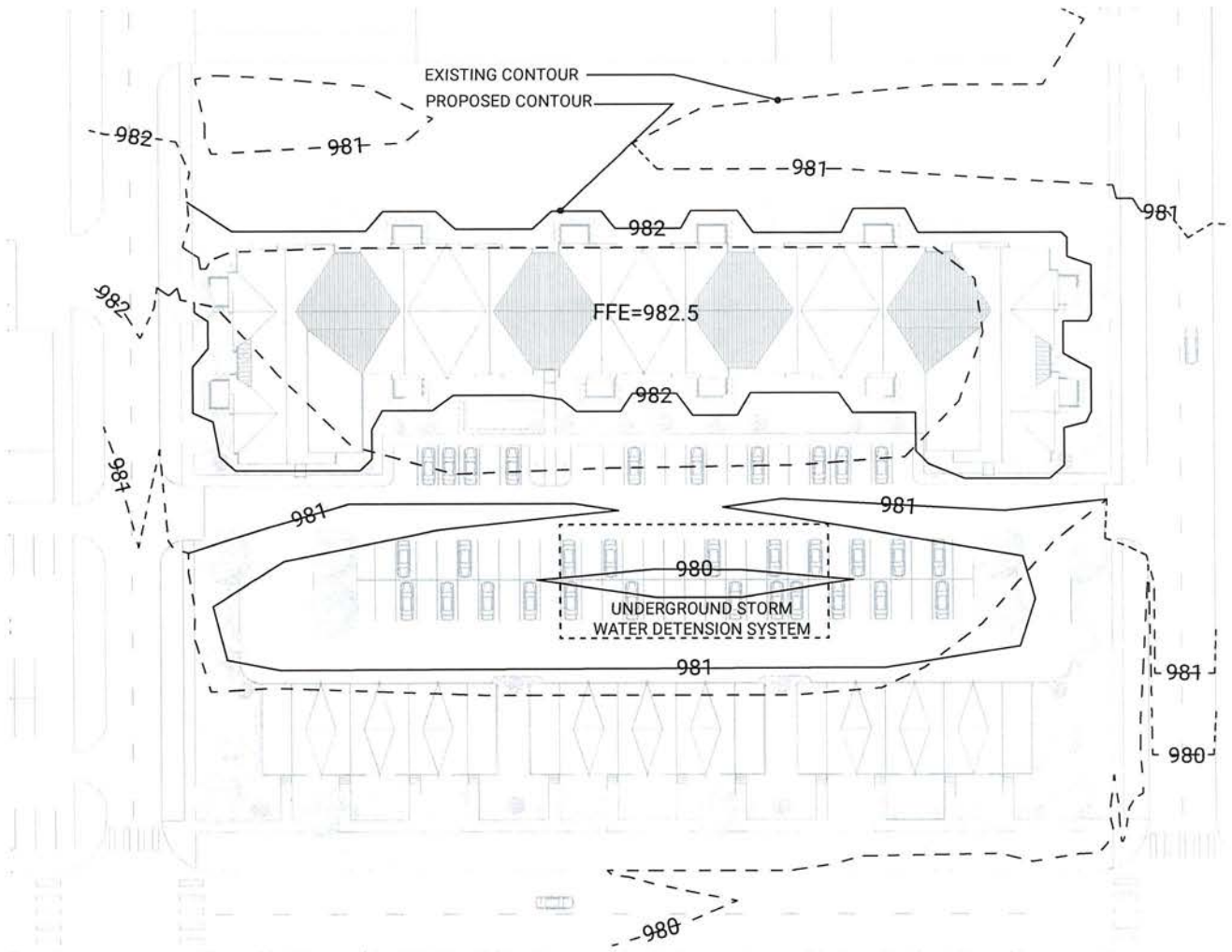
North Elevation
Scale 1/16" = 1'-0"

East Elevation
Scale 1/16" = 1'-0"

Note:
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Terracon

June 9, 2020

White Lotus
10404 Essex Court, Suite 101
Omaha, NE 68114

Attn: Ms. Delaney Nelson

Re: Preliminary Geotechnical Engineering Report
Council Bluffs Multi-Family Study
28th Street and 2nd Avenue
Council Bluffs, Iowa
Terracon Project No. 05205103

Dear Ms. Nelson:

INTRODUCTION

Terracon Consultants, Inc. (Terracon) was retained to evaluate the project site located on the northwest corner of the 28th Street and 2nd Avenue intersection in Council Bluffs, Iowa. This preliminary geotechnical report presents the findings of the subsurface exploration and provides general design considerations for earthwork, foundations, infrastructure and pavements that may be constructed on site.

It should be noted that this preliminary report is not suitable for design purposes. Terracon should be consulted to conduct a supplemental geotechnical exploration consisting of more closely-spaced soil borings and geophysical surface scanning to provide a design-level report. The information collected from this preliminary study may be utilized to supplement the design-level study.

SITE CONDITIONS

Item	Description
Parcel Information	The approximate 3.5-acre project site is located on the northwest corner of the 28th Street and 2nd Avenue intersection in Council Bluffs, Iowa. Latitude: 41.2604° N, Longitude: -95.8899° W (approx.) See **Site Location**.

Item	Description
Previous Development	Based on historical aerial information obtained from Google Earth Pro™, the project site has been developed several times. Historically, the eastern half appears to have been predominantly used for exterior storage and parking. Four separate structures were located within the western half of the site in 1990; three commercial and one residential. One additional structure was constructed in the far northwest corner in 1999. A rail line was also located along the north property boundary. By 2016, all structures throughout the site and the rail line were razed.
Current Ground Cover	The site is currently surfaced with grass.
Existing Topography	Based on Google Earth Pro™, the site appears to be generally flat with a slight crown. Elevations range from approximately 984 feet at the center to 981 feet at the perimeters.

PROJECT DESCRIPTION

Item	Description	
Information Provided	Design Concept; prepared by DLR Group; provided by White Lotus.	
Project Description	The project consists of an 84-unit, three-story, multi-family building across the northern half of the lot; and 16, two-story townhouse buildings (two duplexes, three quadplexes) across the southern half of the site. An entry drive with parking stalls on the north and south will bisect the project site from east to west.	
Building Construction	■ Wood framing ■ Slab-on-grade ■ Combination of corrugated metal, EIFS, and cement siding ■ Corrugated metal roof	
Finished Floor Elevation	983 feet (assumed)	
Maximum Loads	**3-Story Apartments**	**2-Story Townhomes**
	■ Columns: 50 kips	■ Columns: 35 kips
	■ Walls: 4 kips per lineal foot (klf)	■ Walls: 2 klf
	■ Slab: 150 pounds per square foot (psf)	■ Slab: 150 psf
Grading/Slopes	A grading plan was not available as of the date on this preliminary report. We assume up to 2 feet of cut and fill will be required to develop final grade. Final slopes of 3H:1V (Horizontal: Vertical) or flatter are expected.	
Below Grade Structures	None.	

Item	Description
Free-Standing Retaining Walls	None.
Pavements	Paved driveway and parking will be constructed on approximately 0.75 acres in the center of the parcel. We assume both rigid (concrete) and flexible (asphalt) pavement sections will be considered, and that pavements will be placed within about 1 foot above current grade. Anticipated traffic is as follows: ■ Low volumes of passenger automobiles ■ Single-unit, light delivery and trash collection vehicles: 5 vehicles per week The pavement design period is assumed to be 20 years.

EXPLORATION AND TESTING PROCEDURES

Boring Layout and Elevations: Terracon personnel provided the boring layout. Coordinates at the boring locations were obtained with a handheld GPS unit (estimated horizontal accuracy of about ±10 feet). Elevations were interpreted from Google Earth Pro™. The locations should be considered accurate only to the degree implied by these methods.

Subsurface Exploration Procedures: We advanced the borings with a track-mounted drill rig using continuous hollow-stem flight augers. Four samples were obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter using the split-barrel sampling procedure. A standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. We observed and recorded groundwater levels during drilling and sampling. For safety purposes, all borings were backfilled with auger cuttings and bentonite chips after their completion.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and review. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials encountered during drilling and the driller's interpretation of the subsurface conditions between samples. The typed boring logs included with this report represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing: Laboratory testing for this project generally consisted of moisture content tests on the recovered samples, and an Atterberg limit test on one sample to evaluate plasticity and aid in classification. The results of these laboratory tests are provided on the boring logs.

The samples were classified in the laboratory based on visual observation, texture, and the results of the laboratory tests. The soil descriptions presented on the boring logs for native soils are in general accordance with General Notes and Unified Soil Classification System, both of which are attached to this report.

GEOTECHNICAL OVERVIEW

The project is conceptual as of the date on this preliminary report. The geotechnical exploration for this preliminary study consisted of widely-spaced soil borings to establish a general understanding of the subsurface conditions on the site. This report presents general discussions of design considerations for the proposed buildings and infrastructure; however, this report is not suitable for design purposes. Terracon should be consulted to conduct a supplemental geotechnical exploration (soil borings, cone soundings, geophysical testing, laboratory testing, etc.) to establish design-level geotechnical recommendations for the project once the building locations, configurations, site grading, finished floor elevations, and structural loading are known.

The following geotechnical considerations are also based upon the assumption that none of the buildings will be owner-occupied structures, either upon initial opening or converted sometime in the future.

After review of the subsurface conditions encountered in the soil borings, the following geotechnical concerns were identified:

Item	Geotechnical Concerns
Earthwork	■ Previous site development ■ Existing undocumented fill ■ Sands overlying clays in the northern half of the site ■ Moderate-plasticity alluvial clays in the southern half of the site ■ High moisture content of native soils ■ Consolidation and settlement under weight of grade-raise fill
Foundations	■ Sands overlying clays in the northern half of the site ■ High moisture, medium stiff alluvial clay bearing conditions
Infrastructure	■ Sands overlying clays in the northern half of the site ■ Relatively shallow ground water ■ High moisture content of excavated materials

Item	Geotechnical Concerns
Floor Slabs and Pavements	■ Subgrade varies between sands and clays ■ Moderate-plasticity alluvial clays at the assumed subgrade ■ High moisture content of subgrade soils

The following subsections will expand upon the geotechnical concerns identified in the table above.

EARTHWORK CONSIDERATIONS

Stripping at the onset of grading operations, prior to new fill placement, should include removal of any vegetation and organic soil. As indicated by the Google Earth historical images attached to this report, the project site has been developed a few times over the years and contained both commercial and residential structures. It is possible that previous foundations, basements, utilities, and/or rubble have been buried on site. For this reason, Terracon should be consulted to conduct a supplemental geotechnical exploration containing more strategically placed soil borings and also geophysical surface scanning to help delineate these areas before building and construction. Any encountered debris and rubble fill will need to be completely removed from site.

We anticipate grade-raise fill will be imported. We recommend this material be comprised of a low-plasticity, cohesive soil with a Liquid Limit (LL) less than 45 and a Plasticity Index (PI) between 10 and 20.

All new grade-raise fill should be placed in thin lifts not exceeding 8" in loose thickness to a minimum 95% of a Standard Proctor at -2/+3 of the optimum moisture content. The upper 6" of a pavement subgrade should be compacted to a minimum 98% of a Standard Proctor within the same moisture content range. However, consideration can be given to compacting all fill below pavements to 95% during mass grading. Immediately prior to paving, the subgrade below exterior pavements should then be rough-graded as needed, scarified to a depth of 8", and recompacted to 98%.

As indicated by the boring logs, a 3-foot thick layer of clayey sand fill was encountered at the surface of borings B-1 thru B-3, which were generally located on the northern half of the project site. This layer is underlain by a relatively thick layer of clay. These conditions could complicate grading by allowing surface water to perch atop the clay, within the sand.

Regarding the clean, thin layer of existing fill encountered in the upper 3 to 5 feet of borings B-1 thru B-3 and B-5, we have no records to evaluate whether the fill was placed in a controlled manner or to indicate the degree of control during import and placement. There is some risk associated with support of footings, floor slabs, and pavements on or above this thin layer of

existing fill as found in the borings. This risk cannot be eliminated without completely removing the existing fill, but can be reduced by proof rolling to delineate unstable areas. These areas may then be remedied (e.g. undercut and recompacted, or replaced entirely) prior to new grade-raise fill placement.

The clays encountered at the surface of borings B-4 and B-5 exhibited a moderate-plasticity. These soils tend to shrink and swell with slight variations in moisture conditions, and this movement could damage overlying floor slabs and pavements. These conditions could be alleviated with placing at least one foot of low-plasticity, imported fill below floor slabs and pavements. Chemical treatment (fly ash, lime, or Portland cement) may be considered as an option if minimal to no new fill will be required to establish finished grades.

The subgrade soils encountered in our borings exhibited high moisture contents. Soft conditions may be encountered in localized areas. Depending on conditions when grading operations commence, it may be necessary to limit construction traffic and/or place a layer of crushed stone or crushed concrete to stabilize the native clays prior to placing grade-raise fill.

The alluvial soils encountered in our borings, especially the clays, will tend to consolidate and cause settlement under the weight of any grade-raise fill. To avoid the potential need for additional site preparation (e.g. preload, surcharge, etc.) to accommodate settlements, the amount of grade-raise fill is recommended to be less than about 2 feet.

FOUNDATION CONSIDERATIONS

In general, as indicated in **Project Description**, we anticipate the proposed 3-story multi-family building and 2-story townhomes will be lightly-loaded wood-framed structures. Based on this assumption and the encountered soil conditions, spread footings with a net allowable bearing capacity ranging from approximately 1,250 to 1,750 psf appears feasible. All footings should be extended beneath the existing fill to bear on the native alluvial clays.

In the event that the building configuration changes and structural loading for the multi-family building ends up higher than anticipated, the installation of ground improvement beneath the shallow spread footings may be necessary to improve bearing conditions and control settlement. Ground improvement commonly consists of compacted aggregate columns. We estimate a net allowable bearing capacity ranging from 3,000 to 5,000 psf could be expected based on the encountered soil conditions; however, a design firm specializing in these foundation improvement systems should be consulted as early as possible in the design process if ground improvement is deemed necessary.

Deep foundations are not expected to be necessary for the proposed buildings.

The surficial sands across the northern half of the project site may create difficulties during foundation excavation. Excavation sidewalls in sands will tend to slough into the open excavation, which may make earth-formed footings generally unfeasible. As mentioned previously, surface water may perch in this sand layer, which would then drain into excavations.

The clay soils on this site are susceptible to disturbance from construction activities, particularly where the soils have high natural moisture contents (which is expected across the site) or become wetted by surface water or seepage. Care should be taken during excavation and construction of footings to avoid disturbing the bearing soils.

INFRASTRUCTURE CONSIDERATIONS

All trench excavations should be made with sufficient working space to permit construction, including backfill placement and compaction. Utility trenches are a common source of water infiltration and migration. If utility trenches are backfilled with relatively clean granular material, they should be capped with either paving or at least 18 inches of cohesive fill to reduce the infiltration and conveyance of surface water through the trench backfill.

The material excavated from utility trenches will have high moisture contents. Significant moisture conditioning (drying) prior to reuse as structural backfill should be anticipated. If the soil cannot be reasonably moisture conditioned on site, import backfill will be required and should be comprised of material discussed in **Earthwork Considerations**. The saturated material excavated from utility trenches would likely need to be removed from site in this case.

The surficial sands across the northern half of the project site may also create difficulties during infrastructure installation. Excavation sidewalls in sands will tend to slough into the open excavation, which may make require additional temporary shoring efforts and/or the excavations to be laid back further. Again, surface water may also perch in this sand layer, which would then drain into excavations.

The ground water table was encountered about 10 to 11 feet below existing grade at the time of exploration. It is our experience seasonal groundwater fluctuations of 3 to 5 feet are common in this area. This could impact trench excavations for utilities, especially deeper excavations for sanitary sewers. Temporary dewatering measures will depend on the groundwater level at the time of the excavation, the depth of the excavation, and encountered soil conditions. For excavations in clays and extending only a couple feet into groundwater, sumps and trash pumps will likely be feasible. In sands, a more robust system consisting of well points or deep wells may be required.

The depth to ground water could also limit the depth of temporary/permanent stormwater containment basins. Installation of piezometers may be considered to monitor the ground water table.

FLOOR SLAB AND EXTERIOR PAVEMENT CONSIDERATIONS

The floor slab and pavement subgrades should be rough graded and then proofrolled with a loaded tandem axle dump truck. Areas where unsuitable conditions are located should be repaired by removing and replacing the affected material with compacted fill. All floor slab and pavement subgrades should be moisture conditioned and properly compacted immediately prior to placement of the aggregate base course (if applicable) and concrete.

Generally, the subgrade soils in the southern half of the project site are comprised of moderate-plasticity clays exhibiting the potential to swell with increased water content. Construction of the floor slabs and pavements, combined with revising site drainage, creates the potential for gradual increased water contents within the clays. Increases in water content will cause the clays to swell and damage the floor slabs and pavement. If new fill is placed on site, it should be comprised of low-plasticity soils as discussed in the **Earthwork Considerations** section. If little to no fill is placed, consideration could be made for undercutting the subgrades to allow for placement of a drainable aggregate base or low-plasticity soil. Consideration could also be made for chemical treatment of the subgrades. These options should be evaluated further in the design-level study once grades have been established.

The sands in the northern half of the project site will be highly susceptible to disturbance. Once the subgrades have been prepared to receive pavement, traffic should be kept off the sand subgrades. Depending on the pour schedule, concrete may need to be pumped or telebelted to the placement areas to limit subgrade damage from transit mixer traffic.

GENERAL COMMENTS

The preliminary discussions presented in this report are based upon the limited data obtained from the widely-spaced soil borings performed at the indicated locations and from other information discussed in the report. This report does not reflect variations which may occur between soil borings across the site, or due to modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction.

The considerations/preliminary discussions contained in this report are not prepared for use in final design. Terracon should be retained to provide additional subsurface exploration and engineering once the site layout, building configurations, structural loads and grading are all determined.

Upon completion of the additional exploration and preparation of our geotechnical engineering report, 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 should also be retained to provide observation and testing services during grading, foundation construction, paving, and other earth-related construction phases of the project.

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.

Our services and any correspondence or collaboration are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made. Site safety, excavation support and dewatering requirements are the responsibility of others.

We appreciate the opportunity to be of service to you on this project and look forward to further discussions as project development and designs move forward.

Sincerely,

Terracon Consultants, Inc.

Andrew J. Miller, P.E.
Senior Engineer

Michael D. Ringler, P.E.
Senior Engineer

Copies to:
Addressee (PDF)

Attachments:
Historical Aerial Photographs, Site Plan, Exploration Plan, GeoModel, Boring Logs, General Notes, USCS General Notes

Historical Aerial Photographs

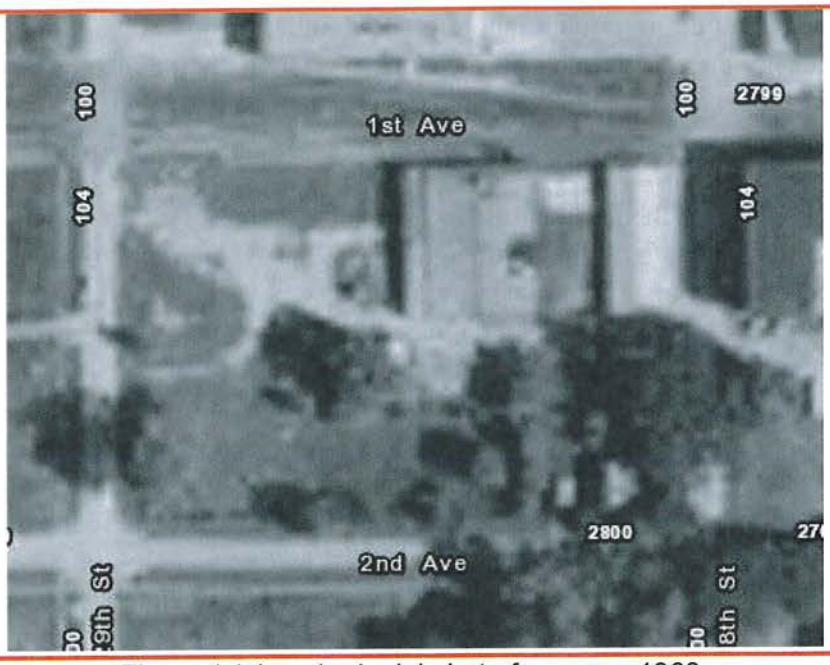


Figure 1 (above): Aerial photo from year 1960.

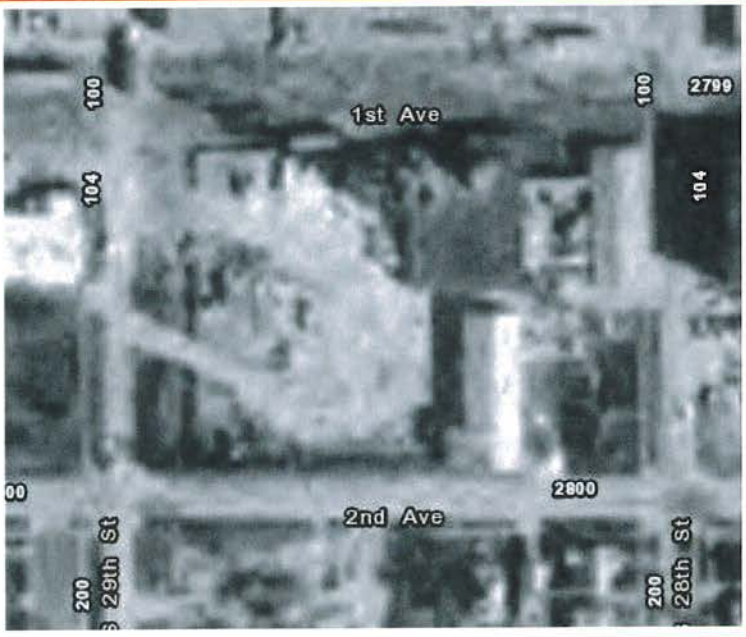


Figure 2 (above): Aerial photo from year 1990.

*images obtained from Google Earth Pro™

Historical Aerial Photographs



Figure 3 (above): Aerial photo from year 2010.



Figure 4 (above): Aerial photo from year 2015.

*images obtained from Google Earth Pro™

Terracon GeoReport

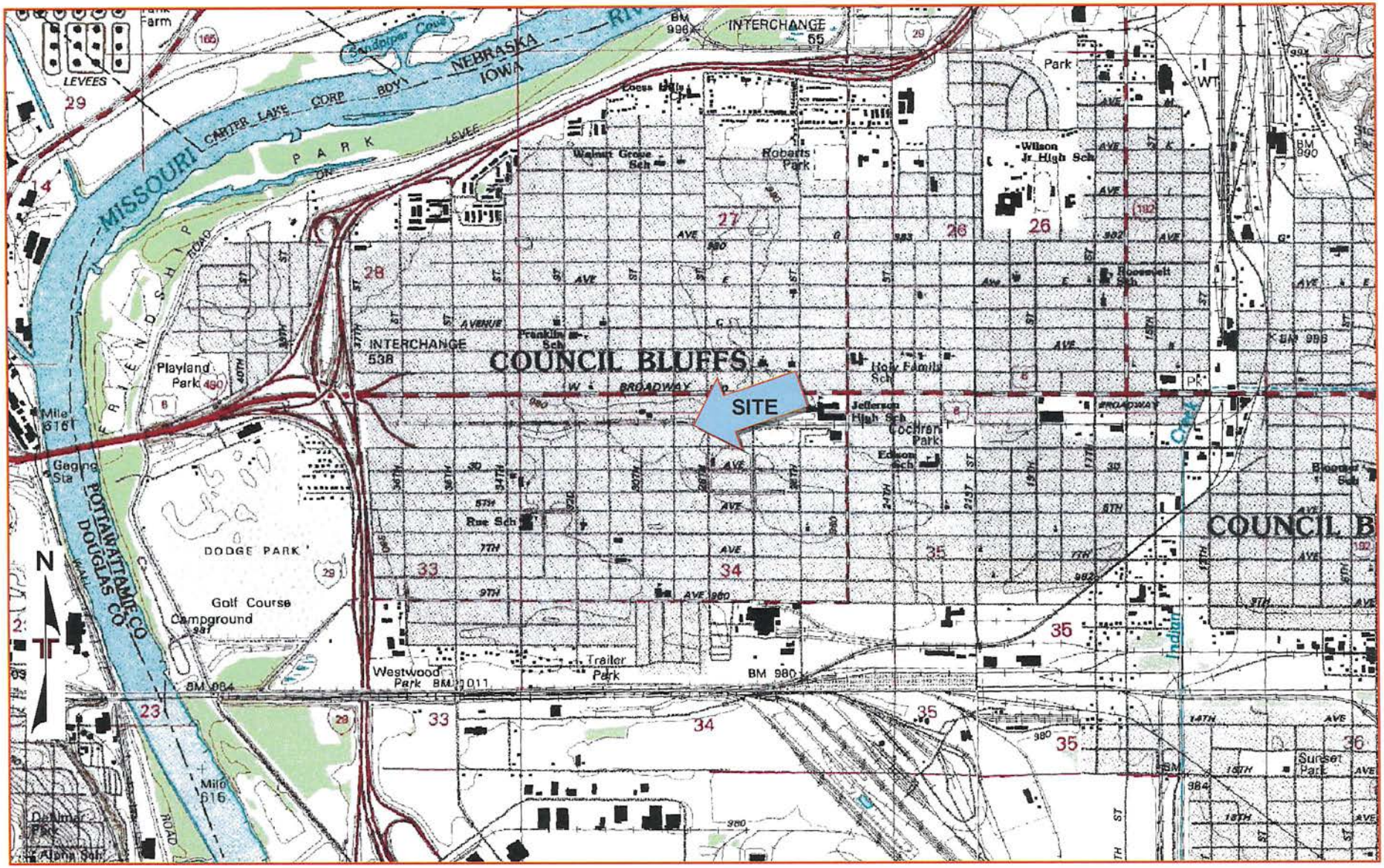


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY QUADRANGLES INCLUDE: OMAHA NORTH, NE (1/1/1994), COUNCIL BLUFFS NORTH, IA (1/1/1994), OMAHA SOUTH, NE (1/1/1994) and COUNCIL BLUFFS SOUTH, IA (1/1/1994).

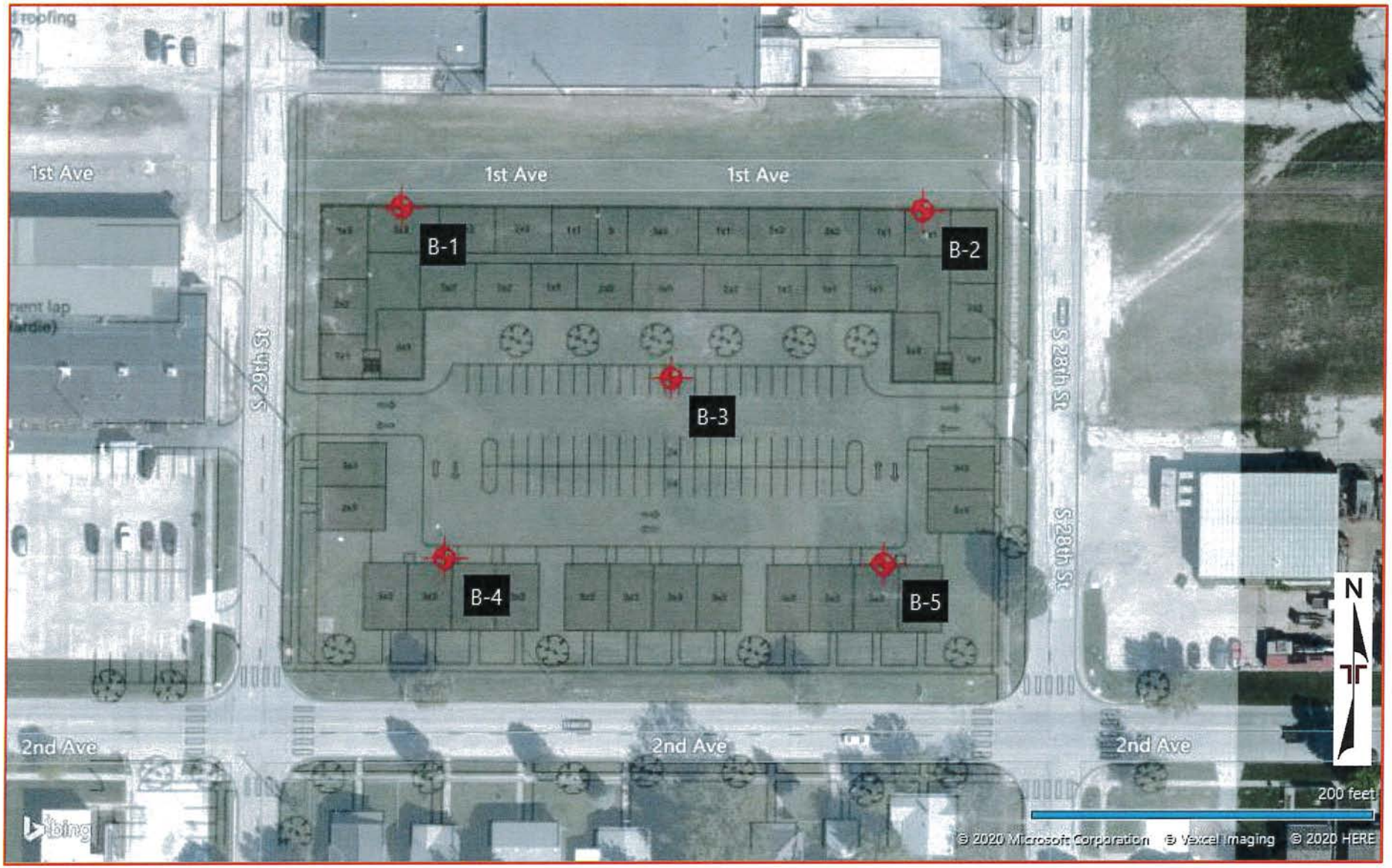


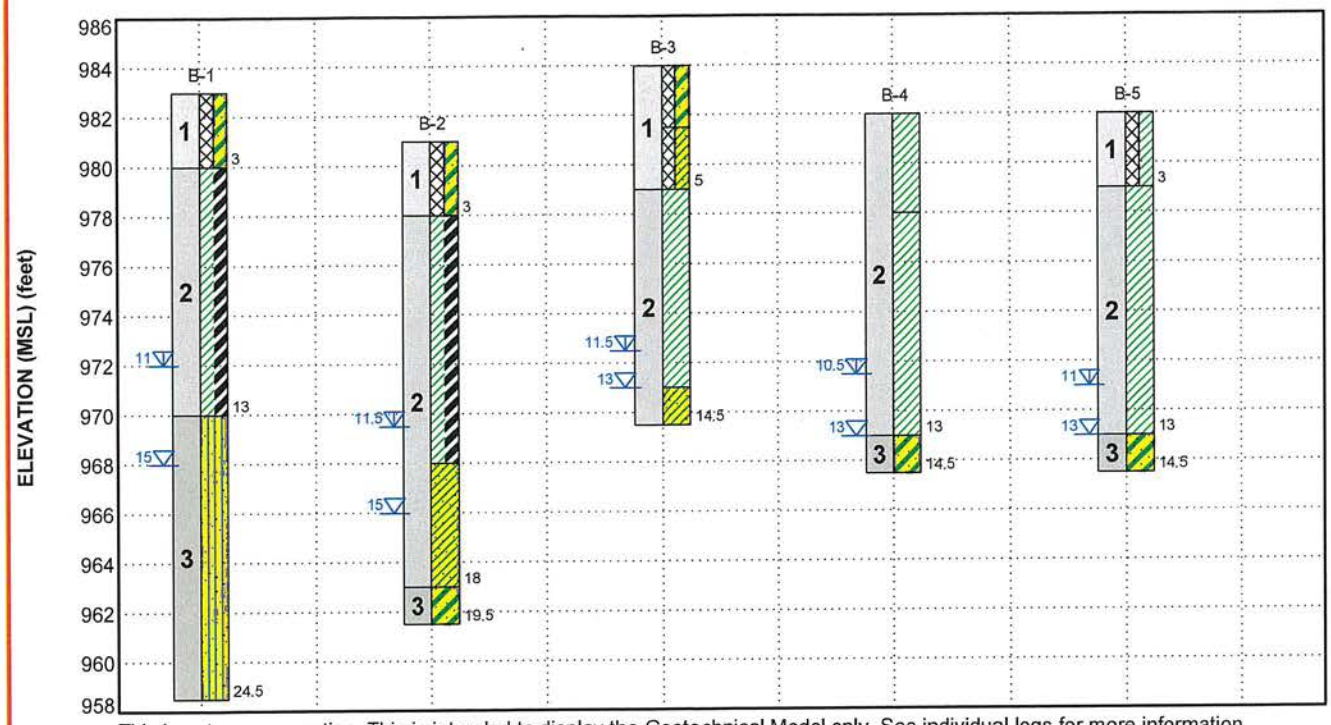
DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

GEOMODEL

Council Bluffs Multi-Family Study ■ Council Bluffs, IA
Terracon Project No. 05205103

Terracon GeoReport



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more information.

Model Layer	Layer Name	General Description
1	FIII	Clayey sand (SC), Sandy Lean Clay (CL)
2	Fine-Grained Alluvium	Lean Clay or Sandy Lean Clay (CL), Lean to Fat Clay (CL/CH)
3	Coarse-Grained Alluvium	Silty Sand (SM), Clayey Sand (SC)

LEGEND

- Clayey Sand
- Sandy Lean Clay
- Lean Clay/Fat Clay
- Lean Clay
- Silty Sand

▽ First Water Observation
▽ Second Water Observation

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions. Numbers adjacent to soil column indicate depth below ground surface.

Groundwater levels are temporal. Significant changes are possible over time. Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

BORING LOG NO. B-1

PROJECT: Council Bluffs Multi-Family Study

CLIENT: White Lotus Group
Omaha, NE

SITE: South 28th Street and 2nd Avenue
Council Bluffs, IA

LOCATION See Exploration Plan

Latitude: 41.2607° Longitude: -95.8905°

Approximate Surface Elev.: 983 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DESCRIPTION
1		0.0	983+/-	Grass at surface
				FILL - CLAYEY SAND (SC), fine and medium sand, brown
		3.0	980+/-	
2				**LEAN TO FAT CLAY (CL/CH)**, trace fine sand, dark gray, medium stiff to stiff
		13.0	970+/-	
3				**SILTY SAND (SM)**, fine and medium sand, dark grayish brown, loose to medium dense
		24.5	958.5+/-	
				Boring Terminated at 24.5 Feet

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
5			5-7-6 N=13	16	
			1-3-4 N=7	34	
			3-5-6 N=11	41	
10	▽		2-1-2 N=3		
15	▽		2-2-7 N=9	30	
20			7-7-7 N=14	26	
			1-2-6 N=8	30	

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with soil cuttings and bentonite chips upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpreted from Google Earth Pro

Notes:
Energy transfer ratio of 84.7%; hammer efficiency correction is 1.41 (July, 2019).

WATER LEVEL OBSERVATIONS

▽ *15 ft. while sampling*

▽ *11 ft. at completion*

Terracon
15080 A Cir
Omaha, NE

Boring Started: 06-01-2020 | Boring Completed: 06-01-2020

Drill Rig: 872 | Driller: M. Brown

Project No.: 05205103

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 05205103 COUNCIL BLUFFS MU 6-8-20 1700.GPJ TERRACON_DATATEMPLATE.GDT 6/8/20

BORING LOG NO. B-2

PROJECT: Council Bluffs Multi-Family Study

CLIENT: White Lotus Group
Omaha, NE

SITE: South 28th Street and 2nd Avenue
Council Bluffs, IA

LOCATION See Exploration Plan

Latitude: 41.2607° Longitude: -95.8894°

Approximate Surface Elev.: 981 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		Grass at surface **FILL - CLAYEY SAND (SC)**, fine sand, brown							
		3.0	978+/-			X	5-7-7 N=14	13	
2		**LEAN TO FAT CLAY (CL/CH)**, trace fine sand, dark gray, medium stiff to stiff				X	2-2-3 N=5	41	
				5		X	4-4-5 N=9	41	
						X	2-2-2 N=4	35	
				10	▽				
		13.0	968+/-						
		SANDY LEAN CLAY (CL), with fine sand, dark gray, medium stiff				X	2-2-3 N=5	35	
				15	▽				
		18.0	963+/-						
3		**CLAYEY SAND (SC)**, fine and medium sand, dark gray, medium dense				X	9-5-6 N=11	25	
		19.5	961.5+/-						
		Boring Terminated at 19.5 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with soil cuttings and bentonite chips upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpreted from Google Earth Pro

Notes:
Energy transfer ratio of 84.7%; hammer efficiency correction is 1.41 (July, 2019).

WATER LEVEL OBSERVATIONS

▽ *15 ft. while sampling*

▽ *11½ ft. at completion*

Terracon
15080 A Cir
Omaha, NE

Boring Started: 06-01-2020 | Boring Completed: 06-01-2020

Drill Rig: 872 | Driller: M. Brown

Project No.: 05205103

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 05205103 COUNCIL BLUFFS MU 6-8-20 1700.GPJ TERRACON_DATATEMPLATE.GDT 6/8/20

BORING LOG NO. B-3

PROJECT: Council Bluffs Multi-Family Study

CLIENT: White Lotus Group
Omaha, NE

SITE: South 28th Street and 2nd Avenue
Council Bluffs, IA

LOCATION See Exploration Plan

Latitude: 41.2604° Longitude: -95.8899°

Approximate Surface Elev.: 984 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
		0.0	984+/-	Grass at surface						
1				**FILL - CLAYEY SAND (SC)**, fine and medium sand, with concrete chunks, dark brown				3-4-5 N=9	15	
		2.5	981.5+/-							
1				**FILL - SANDY LEAN CLAY (CL)**, with fine and medium sand, dark grayish brown				3-4-2 N=6	23	
		5.0	979+/-		5					
2				**LEAN CLAY (CL)**, dark gray, medium stiff				1-2-3 N=5	24	
2				becoming light gray at 8 ft.				2-2-3 N=5	34	
		13.0	971+/-		10	▽				
				SANDY LEAN CLAY (CL), with fine sand, grayish brown, soft		▽		0-1-2 N=3	34	
		14.5	969.5+/-							
				Boring Terminated at 14.5 Feet						

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Power Auger

Abandonment Method:
Boring backfilled with soil cuttings and bentonite chips upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpreted from Google Earth Pro

Notes:
Energy transfer ratio of 84.7%; hammer efficiency correction is 1.41 (July, 2019).

WATER LEVEL OBSERVATIONS

▽ *13 ft. while sampling*

▽ *11½ ft. at completion*

Terracon
15080 A Cir
Omaha, NE

Boring Started: 06-01-2020 | Boring Completed: 06-01-2020

Drill Rig: 872 | Driller: M. Brown

Project No.: 05205103

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 05205103 COUNCIL BLUFFS MU 6-8-20 1700.GPJ TERRACON_DATATEMPLATE.GDT 6/8/20

BORING LOG NO. B-4

PROJECT: Council Bluffs Multi-Family Study

CLIENT: White Lotus Group
Omaha, NE

SITE: South 28th Street and 2nd Avenue
Council Bluffs, IA

LOCATION See Exploration Plan

Latitude: 41.2601° Longitude: -95.8904°

Approximate Surface Elev.: 982 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
		Grass at surface							
2		**LEAN CLAY (CL)**, with fine sand, dark brown				X	6-5-5 N=10	29	
		4.0	978+/-			X	3-4-3 N=7	24	
		LEAN CLAY (CL), trace fine sand, brownish gray, medium stiff		5		X	1-2-3 N=5	44	
						X	2-2-3 N=5	34	
				10	▽				
		13.0	969+/-		▽				
3		**CLAYEY SAND (SC)**, fine sand, brownish gray, medium dense				X	2-4-6 N=10	25	
		14.5	967.5+/-						
		Boring Terminated at 14.5 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Power Auger

Abandonment Method:
Boring backfilled with soil cuttings and bentonite chips upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpreted from Google Earth Pro.

Notes:

Energy transfer ratio of 84.7%; hammer efficiency correction is 1.41 (July, 2019).

WATER LEVEL OBSERVATIONS

▽ *13 ft. while sampling*

▽ *10½ ft. at completion*

Terracon
15080 A Cir
Omaha, NE

Boring Started: 06-01-2020 | Boring Completed: 06-01-2020

Drill Rig: 872 | Driller: M. Brown

Project No.: 05205103

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 05205103 COUNCIL BLUFFS MU 6-8-20 1700.GPJ TERRACON_DATATEMPLATE.GDT 6/8/20

BORING LOG NO. B-5

PROJECT: Council Bluffs Multi-Family Study

CLIENT: White Lotus Group
Omaha, NE

SITE: South 28th Street and 2nd Avenue
Council Bluffs, IA

LOCATION See Exploration Plan

Latitude: 41.2601° Longitude: -95.8894°

Approximate Surface Elev.: 982 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
		Grass at surface							
1		**FILL - LEAN CLAY (CL)**, dark brown							
		3.0	979+/-				3-3-2 N=5	25	48-22-26
2		**LEAN CLAY (CL)**, brownish gray, stiff to medium stiff					3-5-7 N=12	34	
				5			1-2-3 N=5	33	
							3-3-3 N=6	33	
				10	▽				
		13.0	969+/-		▽				
3		**CLAYEY SAND (SC)**, fine sand, dark brown, medium dense					2-4-6 N=10	32	
		14.5	967.5+/-						
		Boring Terminated at 14.5 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Power Auger

Abandonment Method:
Boring backfilled with soil cuttings and bentonite chips upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpreted from Google Earth Pro

Notes:
Energy transfer ratio of 84.7%; hammer efficiency correction is 1.41 (July, 2019).

WATER LEVEL OBSERVATIONS

▽ *13 ft. while drilling*

▽ *11 ft. at completion*

Terracon
15080 A Cir
Omaha, NE

Boring Started: 06-01-2020 | Boring Completed: 06-01-2020

Drill Rig: 872 | Driller: M. Brown

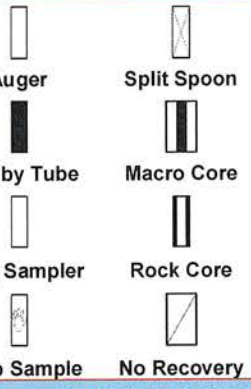
Project No.: 05205103

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 05205103 COUNCIL BLUFFS MU 6-8-20 1700.GPJ TERRACON_DATATEMPLATE.GDT 6/8/20

GENERAL NOTES
DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

Terracon GeoReport

SAMPLING



WATER LEVEL



Water Initially Encountered

Water Level After a Specified Period of Time

Water Level After a Specified Period of Time

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

(HP)	Hand Penetrometer
(T)	Torvane
(b/f)	Standard Penetration Test (blows per foot)
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer
(DCP)	Dynamic Cone Penetrometer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil 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.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve) Density determined by Standard Penetration Resistance		CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve) Consistency determined by laboratory shear strength testing, field visual-manual procedures, or standard penetration resistance			BEDROCK	
Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength, Qu, tsf	Standard Penetration or N-Value Blows/Ft.	Standard Penetration or N-Value Blows/Ft.	Descriptive Term (Consistency)
Very Loose	0 – 3	Very Soft	Less than 0.25	0 – 1	< 20	Weathered
Loose	4 – 9	Soft	0.25 to 0.50	2 – 4	20 – 29	Firm
Medium Dense	10 – 29	Medium Stiff	0.50 to 1.00	4 – 8	30 – 49	Medium Hard
Dense	30 – 50	Stiff	1.00 to 2.00	8 – 15	50 – 79	Hard
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 – 30	> 79	Very Hard
		Hard	> 4.00	> 30		

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 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75mm)
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
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non plastic	0
Low	1 – 10
Medium	11 – 30
High	> 30

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 [$Cc<1$ or $Cc>3.0$] [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 [$Cc<1$ or $Cc>3.0$] [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"		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-inch (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 ≥ 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.

