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To: **Mr. Michael Johnson**
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From: **Timothy J. Thompson, P.G., Principal Geologist**

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8-24-2020
STATE OF UTAH

Date: **August 24, 2020**

Subject: **Response to Public Comments Provided to Cottonwood Heights City in a Power Point Presentation Addressing the Geologic Hazards Concerns at the AJ Rock LLC Property 6695 South Wasatch Boulevard Cottonwood Heights, Utah**

Introduction

At the request of Mr. Michael Johnson and Mr. Adam Ginsberg, GeoStrata reviewed the public comments provided to Cottonwood Heights City in a Power Point Presentation that presents geologic hazards concerns about the "Geologic Hazards Evaluation AJ Rock LLC Property 6695 South Wasatch Boulevard Cottonwood Heights, Utah" prepared by Western Geologic & Environmental LLC (Western Geologic) and dated May 11, 2020. We also considered the Gordon Geotechnical Engineering (G^2) geotechnical report titled "Geotechnical Study and Slope Stability Analysis Proposed Wasatch Rock Development 6695 Wasatch Boulevard Cottonwood Heights, Utah" and dated May 13, 2020 in our response to the public comment questions and Power Point Presentation. Our response to the public comment questions and Power Point Presentation are provided to Cottonwood Heights City to assist the city in protecting public health, safety, and welfare. The purposes of our comments are to address the public comments and provide our professional opinions to the city on the concerns raised in the Power Point Presentation. At issue is whether or not the report adequately addresses the geologic hazards associated with the AJ Rock LLC Property project consistent with reasonable standards of practice and in accordance with Cottonwood Heights City's Sensitive Lands Evaluation & Development Standards (SLEDS) (Title 19 Chapter 19.72 of the Cottonwood Heights City Municipal code).

Discussion

The Power Point Presentation presents four basic geologic hazards concerns associated with the AJ Rock LLC Property. With each of the four concerns, documenting information and comments are provided to describe the concern. Recommendations to address each concern are also provided for consideration. Each of the four geologic hazards concerns and associated recommendations will be discussed below.

Geologic Hazard Concern 1 - Fault location and orientation

The presentation states that fault orientations are reported as compass directions which are measured in the trenches. It is our understanding that there is some concern that faults and associated fault setback areas around each fault, as presented on Figure 4 of the Western Geologic report, have been interpolated across the site between the locations of the trenches. In some cases, the interpolated fault orientations as shown on Figure 4 are not consistent with the orientations of the faults as measured in the trenches. The presentation recommends three additional trenches (Trench 10, Trench 11, and Trench 12) be located as shown on Slide 4 of the Power Point Presentation, and excavated and logged to better clarify the locations of the mapped faults across the project site and to verify the buildable areas of the site are correctly located.

GeoStrata Response to Geologic Hazard Concern 1

GeoStrata generally concurs with the geologic hazard concern 1 as presented in the public comments provided to Cottonwood Heights City in a Power Point Presentation. We do not however agree that the additional three trenches (Trench 10, Trench 11, and Trench 12), as shown on Slide 4 of the Power Point Presentation, would provide sufficient additional data to fully assess the surface fault rupture hazard for each proposed structure nor would they provide sufficient additional data to fully assess each proposed buildable area for the presence of active faults.

We have presented our opinion regarding the need for additional trenching to better clarify the locations of the mapped faults across the project site and to assess that the buildable areas of the site are correctly located in the Current Review Comment 9 of our June 16, 2020 review memorandum titled "Review of Geologic Hazards Evaluation AJ Rock LLC Property 6695 South Wasatch Boulevard Cottonwood Heights, Utah (May 11, 2020)". In Current Review Comment 9 we state: *"Based on the data and discussion presented by Western Geologic in their May 11, 2020 Geologic Hazards Evaluation report regarding their subsurface investigation and surface fault rupture hazard assessment, it is our opinion that due to the site constraints faced by Western Geologic during their fieldwork, the surface fault rupture hazard assessment presented in their May 11, 2020 Geologic Hazards Evaluation report is considered preliminary in nature. Western Geologic states that their subsurface exploration was limited to accessible areas of the subject site not mantled by large gravel piles, such as along roads, and further restricted by the easement for the aqueduct crossing the site and that no exploration was conducted in steep areas of the eastern part of the Project (east of the steep escarpments from gravel mining) and no long continuous trench exposures were feasible. They also state that the ground surface elevation for significant faults were surveyed and tagged in blue on Figure 4 in their May 11, 2020 report because the site has been and will be subject to significant surface modification, which may change the ground surface intersection locations of faults depending on dip direction, angle, and amount of surface material removed. They also state that a lineament on the 1938 air photo was used to map fault F10 (Figure 4) trending to the southeast and then bending eastward to converge with F9, however no trenching could be conducted to confirm the fault location southeast of trench T-9 due to the aqueduct easement. Western Geologic recommends the Project civil engineer should review the fault setbacks presented on Figure 4 on a case-by-case basis to ensure that structures are setback a safe distance from active faults in areas where significant cuts are planned. Western Geologic also states that it is their understanding that minor adjustments will be made with regard to the condominium and Pad E structures on Figure 4. They recommend that the most-recent grading plan be submitted to Cottonwood Heights City at the time their report and the geotechnical engineering report are submitted to the city, but they state that the site plans may change and may differ from the base provided on Figure 4. GeoStrata recommends that Cottonwood Heights City require the applicant to allow Western Geologic to review the final design site plans and make any necessary comments on the grading plan and adjustments to their recommended fault setbacks. We further recommend that Cottonwood Heights City require the applicant to allow Western Geologic to perform a final surface fault rupture hazard assessment of each proposed structure on a case-by-case* *basis to assess each proposed buildable area for active faults and make any necessary modifications to their surface fault rupture hazard mitigation recommendations. We recommend that Western Geologic perform the final surface fault rupture hazard assessment of each proposed structure once final grading plans and design plans have been prepared and prior to final approval of the development plans by Cottonwood Heights City."*

In Bowman and Lund (2016) "The Guidelines For Investigating Geologic Hazards And Preparing Engineering-Geology Reports, With A Suggested Approach To Geologic-Hazard Ordinances In Utah", Utah Geological Survey Circular 122, Chapter 3: Guidelines For Evaluating Surface-Fault-Rupture Hazards In Utah, Surface-Fault-Hazard Investigation, Trench number and location it states: *"…Geologic mapping (figure 11) and paleoseismic trenching (see publications in the UGS Paleoseismology of Utah series) have shown that patterns of ground deformation resulting from past surface faulting on normal faults in Utah are highly variable, and may change significantly over short distances along the strike of the fault. While a single trench provides data at a specific fault location, multiple trenches are often required to characterize along-strike variability of the fault and provide a more comprehensive understanding of faulting at the site. For that reason, the UGS recommends that subsurface data generally not be extrapolated more than 300 feet without additional subsurface information. Complex fault zones may require closer trench spacing. When trenches must be offset to accommodate site conditions, sufficient overlap should be provided to avoid gaps in trench coverage. Tightly spaced trenches may only need minor (a few tens of feet) overlap; however, more widely spaced trenches require greater overlap to ensure continuous site coverage…"* Considering the complexity of the faulting at the AJ Rock property, it is our opinion that closer spaced trenches than what had been reported to date by Western Geologic in their May 11, 2020 geologic hazards report. As we stated in the Current Review Comment 9 of our June 16, 2020 review memorandum, it is our opinion that due to the site constraints faced by Western Geologic during their fieldwork, the surface fault rupture hazard assessment presented in their May 11, 2020 Geologic Hazards Evaluation report is considered preliminary in nature. To fully address the outstanding issues associated with the surface fault rupture hazard for each proposed structure and each proposed buildable area, we recommend that Cottonwood Heights City require the applicant to follow the recommendations presented in the Current Review Comment 9 of our June 16, 2020 review memorandum.

Geologic Hazard Concern 2 – Landslide exposed in Trench 6

The presentation states: 1) The bottom layer (or basal shear) of the landslide deposit exposed in Trench 6 was not exposed in the trench excavation. 2) The basal shear of the landslide mass will control the slope stability during a major earthquake. 3) Additional borings will verify the extent and thickness of the landslide. 4) Samples should be taken from the bottom layer of the landslide mass for slope stability analysis. 5) Slope stability analysis of a new cross-section D-D' will answer the question of the stability of the old landslide deposit during an earthquake.

GeoStrata Response to Geologic Hazard Concern 2

1) GeoStrata concurs with the comment that the bottom layer of the landslide deposit exposed in Trench 6 was not exposed in the trench excavation. It is often not practical to excavate to a sufficient dept to expose the basal shear of a landslide deposit.

2) It is our professional opinion that whether or not the basal shear plane of the landslide mass will control the stability of the slope during a major earthquake is an engineering finding and not a geologic opinion. Only a detailed slope stability assessment of the slope will provide the information necessary

to define the critical surface with the lowest factor of safety for the slope.

3) We concur that assessing the extent and thickness of the landslide deposit is an essential part of assessing the slope stability for the site. It is possible that borings may be useful in defining the limits of the landslide deposit and that samples of the landslide deposit for strength testing can be obtained from borings. It should be noted that is often difficult to reliably identify landslide features within a boring. Some methods of boring can be more useful than others when attempting to identify landslide deposits, weak shear layers within a landslide deposit, and the basal shear of a landslide. It is sometimes the case that shears within a landslide deposit as well as the basal shear of a landslide mass are so thin that they cannot be reliably identified or sampled through the use of borings. We recommend that the means and methods used by the consultant for defining the limits of the landslide and obtaining samples for strength testing for use in slope stability modeling be defined by the consultant and submitted to the city in a scoping meeting for city consideration.

4) We concur that samples of the landslide mass should be obtained and included in the slope stability model used to assess the slope stability of the slope in the area of Trench 6. As previously stated, it is often the case that shears within a landslide deposit as well as the basal shear of a landslide mass are so thin that they cannot be reliably identified or sampled through the use of borings. The basal shear of this relict Pleistocene landslide deposit may be located deep enough or oriented in such a manner that it will not influence the slope stability analysis of the slope. Again, we recommend that the means and methods used by the consultant for defining the limits of the landslide and obtaining samples for strength testing for use in slope stability modeling be defined by the consultant and submitted to the city in a scoping meeting for city consideration.

5) We concur that additional slope stability cross-sections should be prepared to fully assess the slope stability of the slopes within and adjacent to the subject property. We recommend that the geologic cross-section locations be defined by the consultant and submitted to the city in a scoping meeting for city consideration.

It is our opinion that due to the site constraints faced by Western Geologic during their fieldwork, the geologic cross sections presented in their May 11, 2020 geologic hazards report are preliminary in nature with little or no substantiating subsurface data in some areas. These geologic cross-sections were used in the slope stability modeling performed as a part of the site specific geotechnical report prepared by Gordon Geotechnical titled "Geotechnical Study and Slope Stability Analysis Proposed Wasatch Rock Development 6695 South Wasatch Boulevard Cottonwood Heights, Utah" and dated May 13, 2020. We have stated our opinion that more subsurface data is needed by Western Geologic to allow them to prepare geologic cross sections that are substantiated with sufficient subsurface data in the Current Review Comment 7 of our June 16, 2020 review memorandum titled "Review of Geologic Hazards Evaluation AJ Rock LLC Property 6695 South Wasatch Boulevard Cottonwood Heights, Utah (May 11, 2020)". In Current Review Comment 7 we state: *"Based on the data and discussion presented by Western Geologic in their May 11, 2020 Geologic Hazards Evaluation report regarding the preparation of the geologic cross sections, it is our opinion that due to the site constraints faced by Western Geologic during their fieldwork, the geologic cross sections are preliminary in nature with little or no substantiating subsurface data in some areas. It is our opinion that more subsurface data is needed by Western Geologic to allow them to prepare geologic cross sections that are substantiated with sufficient subsurface data. The geologic cross sections presented by Western Geologic in their May 11, 2020 Geologic Hazards Evaluation report were utilized by the project geotechnical engineer in their slope stability modeling.* ***Only three cross sections were prepared for the site. Western Geologic cautions that variations should be expected at depth within and laterally from their geologic cross sections.*** *We* *recommend that Cottonwood Heights City consider the slope stability modeling based on the Western Geologic May 11, 2020 geologic cross sections to be preliminary in nature and the city should require the consultant to prepare updated geologic cross sections that are substantiated with sufficient subsurface data when the site conditions allow such data to be collected. When updated geologic cross sections are prepared that are substantiated with sufficient subsurface data, we recommend that the city require the geotechnical consultant to utilize these updated geologic cross sections for finalized detailed slope stability modeling across the subject site."* We recommend that prior to the consultant collecting additional subsurface data needed to prepare updated and additional geologic cross-sections the consultant submit their plan for the additional fieldwork to the city in a scoping meeting for city consideration.

It should be noted that Section 5.7 Landslides and Slope Failures of Western Geologic's May 11, 2020 Geologic Hazards Evaluation report states: *"…No landslides are mapped or evident at the Project on Figure 2, but trench T-6 exposed evidence for a relict landslide that incorporated surficial debris and likely occurred prior to or contemporaneous with the Bonneville transgression… Given the above and the steep slopes at the site associated with prior gravel mining operations, as profiled on Figures 14 through 16, we rate the risk from landslides and slope instability as moderate. We conservatively recommend that slope stability be evaluated by the Project geotechnical engineer based on site-specific soil conditions and the data provided in this report. Recommendations should be provided to reduce the landslide hazard risk if factors of safety are determined to be unsuitable. Water, steep man-made cuts, and non-engineered fill materials are often major contributors to slope instability. Care should therefore also be taken to maintain proper site drainage, that site grading does not destabilize slopes at the site without prior geotechnical analysis and grading plans, and that water from man-made sources is minimized in potentially unstable slope areas."* We concur with these recommendations provided by Western Geologic.

Geologic Hazard Concern 3 – Landslide exposed in Trenches 1-5
The presentation states that six trenches (Trenches 1, 2, 3, 4, 5, and 7) expose a landslide deposit at a shallow depth which poses a risk to liquefy during an earthquake. The presentation recommends that the extent and thickness of the landslide deposit be verified and the trenches be used to guide the excavation and removal of the landslide deposit during site preparation.

GeoStrata Response to Geologic Hazard Concern 3
We concur that the logs of Trenches 1, 2, 3, 4, 5, and 7 report a unit described as a "Yellowish-brown to pale-olive lean clay (CL) in basal part, grading upward to fine sand with discontinuous medium sand lenses (SM); beds contorted by soft-sediment deformation, likely a low-energy subaqueous landslide." It is our opinion that the reported and documented presence of a likely low-energy subaqueous landslide deposit exposed in Trenches 1, 2, 3, 4, 5, and 7 is a geologic observation. However, whether or not the low-energy subaqueous landslide deposit poses a future risk of liquefaction induced deformation during an earthquake is an engineering finding and not a geologic observation.

The conditions that existed at the time of the placement of the low-energy subaqueous landslide deposit do not exist at the present time. Most notably, Lake Bonneville is not covering the site with lake water as it was at the time of the low-energy subaqueous landslide event, so the landslide mass is not currently in a subaqueous condition. Additionally, inspection of the trench logs shows that the low-energy subaqueous landslide deposit has generally planer and horizontal contacts with underlying and overlying units. These contacts show no evidence of liquefaction induced deformation. The low-energy subaqueous landslide deposit is overlain by interbedded and crossbedded silt, sand, and gravel deposits that are reported in the trench logs to be poorly to well bedded. These units are not reported to show signs of soft sediment or landslide deformation. The low-energy subaqueous landslide deposit and overlying silt, sand, and gravel deposits are reported to be offset by faults in the logs of Trenches 1, 2, 3, 4, and 7. The trench logs do not present any evidence that subsequent to the low-energy subaqueous landslide event, surface fault rupture seismic events (earthquakes) that caused the observed surface faults resulted in liquefaction deformation or soft sediment deformation of the silt, sand, and gravel deposits overlying the low-energy subaqueous landslide deposit even though some of these faults are reports to have occurred during the Bonneville Lake Cycle when the site was still in a subaqueous condition. Based on the logs prepared by Western Geologic, it is our opinion that there is no evidence reported in the trench logs that seismic events (earthquakes) that occurred after the low-energy subaqueous landslide event produced any additional liquefaction induced deformation of the low-energy subaqueous landslide deposit or the overlying interbedded and crossbedded silt, sand, and gravel deposits.

It should be noted that Section 5.3 Liquefaction and Lateral-Spread Ground Failure of Western Geologic's May 11, 2020 Geologic Hazards Evaluation report states: *"…Given subsurface soil conditions observed in the trenches and Gordon Geotechnical borings, sandy soils possibly susceptible to liquefaction are present underlying the site. The site is also in an area subject to strong ground shaking, and areas west of boring B-2 have groundwater at a depth less than 30 feet. McCalpin (2002) notes that an event between 17,000 to 20,000 years ago on the Salt Lake City section of the WFZ (which he terms event S?) may have been responsible for a landslide into the lake, and most of the trenches at the site conducted for our investigation exposed evidence for a similar subaqueous failure that occurred during the Bonneville transgression. This landslide may be related to liquefaction lateral spreading, although this is unconfirmed.*

Based on the above, we rate the existing risk from liquefaction as moderate. We conservatively recommend that the hazard from liquefaction be considered and discussed in the Project geotechnical engineering evaluation. Future liquefaction from a large magnitude earthquake on the Salt Lake City section of the WFZ, if it occurs, could similarly manifest as lateral spreading given the site slopes."

It should also be noted that Section 5.10.5 Liquefaction of the G^2 May 13, 2020 geotechnical study and slope stability analysis report states: *"As shown on the Cottonwood Heights City Ordinance Chapter 19.72 (SLEDS) liquefaction potential map, the site is mapped within an area having "very low" liquefaction potential during the design seismic event.*

The site is located on a boundary that has been identified by the Utah Geological Survey as having "moderate" liquefaction potential. Liquefaction is defined as the condition when saturated, loose, finer-grained sand-type soils lose their support capabilities because of excessive pore water pressure which develops during a seismic event.

Due to the medium dense nature of the saturated granular soils encountered, our analysis indicates liquefaction is not anticipated during the design seismic event.

Calculations were performed using the procedures described in the 2008 Soil Liquefaction During Earthquakes Monograph by Idriss and Boulanger[7]."

It is important to note that the low-energy subaqueous landslide deposit and the overlying interbedded and crossbedded silt, sand, and gravel deposits are located at a depth shallower than the current groundwater level across the site and therefore are not in a saturated condition. As stated by G^2, liquefaction occurs in loose granular soils that are saturated. It is our opinion that the recommendation presented in the public comments provided in the Power Point Presentation that the extent and thickness of the landslide deposit be verified and the trenches be used to guide the excavation and removal of the landslide deposit during site preparation is not warranted or practical and would do nothing to reduce the risk of liquefaction induced sediment deformation or lateral-spread movement. It is our opinion that during the consultant's fieldwork to collect additional subsurface data needed to prepare updated and additional geologic cross-sections, the reported medium dense nature of the deeper saturated granular soils across the site could be confirmed to further substantiate that liquefaction at the project site is not anticipated during the design seismic event.

Geologic Hazard Concern 4 – Ground Tilting during earthquake
The presentation states that Trenches 5, 6, and 8 reveal ground tilting that occurred during previous earthquakes. The presentation recommends that the impact of ground tilting during an earthquake be assessed and that a structural engineer analyze the tilting to see if building structures can be designed to withstand ground tilting during a major earthquake.

GeoStrata Response to Geologic Hazard Concern 4
We do not concur that the logs of Trenches 5, 6, and 8 reveal ground tilting that occurred during previous earthquakes. The log for Trench 5 shows three geologic units across its length (Units 1a, 1b, and 1c). The bottom sediments of Unit 1a in Trench 5, which is the oldest sediments exposed in the trench, have bedding orientations that dip to the east approximately 30° to 35°. Section 4.3 Subsurface Investigation of Western Geologic's May 11, 2020 Geologic Hazards Evaluation report states: *"The depositional sequence exposed in the trenches at the site consisted of (from oldest to youngest): (1) a lower, strongly east-dipping, crossbedded sandy gravel below an intra-unit angular unconformity and an overlying west-dipping cobbly to bouldery gravel (exposed as unit 1a in T-5 and T-7, and unit 2 in T-6; Figures 9 through 11)…"* It important to note that top of Unit 1a above the intra-unit angular unconformity is nearly horizontally bedded with a very gentle dip to the west and shows no back-rotation to the east as shown on Figure 9D and Figure 9E of Western Geologic's May 11, 2020 Geologic Hazards Evaluation report. The units that overlie Unit 1a (Units 1b and 1c) are also nearly horizontally bedded with a very gentle dip to the west and show no back-rotation to the east as shown on Figure 9A, Figure 9b, and Figure 9C of Western Geologic's May 11, 2020 Geologic Hazards Evaluation report.

The log for Trench 6 shows two native geologic units (Units 1 and 2) overlain by approximately 3 to 12 feet of undocumented fill across its length. Unit 2 in the Trench 6 log is the same unit as the bottom portion of Unit 1a (below the intra-unit angular unconformity) in the Trench 5 log. Unit 2 in Trench 6 is shown to have bedding orientations that dip to the east approximately 15° to 25°. Fault 9 is located on the log of Trench 6 at approximately 80 to 85 feet in the trench. It is important to note that the bedding orientations of the Unit 2 sediments both east and west of Fault 9 have the same eastward dip and show no signs of tectonic tilting associated with Fault 9 this portion of the site. Western Geologic estimates approximately 21 feet of down to the west displacement on Fault 9 which would indicate that Fault 9 is a major splay of the Cottonwood Segment of the Salt Lake City segment of the Wasatch fault zone.

The orientation of bedding in the lower portion of Unit 1a, below the intra-unit angular unconformity as documented in the logs of Trenches 5 and 6, is in our opinion likely related to deposition within a deltaic environment along the nearshore of Lake Bonneville.

The log for Trench 8 shows six native geologic units (Units 1a, 1b, 1c, 1d, 1e, 1f, and 1g) overlain by approximately 0.5 to 8 feet of undocumented fill across its length. It is our opinion that the 1a through 1g units as shown on the log of trench 8 show generally flat bedding with some of the beds exhibiting hummocky cross-stratification. The hummocky cross-stratification has been reported in deltaic deposits of the Late Pleistocene Lake Bonneville (Duke, 1984; Duke, 1985). The hummocky cross-stratification is best illustrated in Units 1c through 1c, 1d, 1e, and 1g between 140 feet and 220 feet in the trench log. The hummocks are typified by undulating beds with low amplitudes (less than 5 feet) and longer wavelengths (20 to 50 feet) in the bedding units. It is reported that hummocky cross-stratification is likely the result of oscillatory flow or oscillatory-dominated combined flow resulting from winds generated by winter storms in near shore shallower water environments. We also observed some potential reverse drag exhibited in Units 1a and 1b along fault AF2.

Even tough it is our opinion that the logs of Trenches 5, 6, and 8 do not reveal any significant ground tilting that occurred during previous earthquake events, we do concur that ground tilting is always a potential hazard along the length of normal dip-slip faults. It is important to note that Section 5.5 Tectonic Deformation of Western Geologic's May 11, 2020 Geologic Hazards Evaluation report states: *"…Given the above, the Project is in an area at a high risk from tectonic deformation. Tectonic deformation is not typically a life-safety issue but can tilt building pads and alter sewer and water flow gradients, which may require expensive subsequent repairs. The owner and all future owners should understand and be willing to accept the risk. We recommend that the hazard from tectonic deformation be disclosed in all future real estate transactions."* As stated above, the presentation recommends that the impact of ground tilting during an earthquake be assessed and that a structural engineer analyze the tilting to see if building structures can be designed to withstand ground tilting during a major earthquake. We generally concur that it would be an appropriate recommendation that the structural engineer designing any structures planned as part of the development for the AJ Rock Property to consider the potential for ground surface tilting during a future surface fault rupture earthquake event. The problem with this recommendation is that there is no published consensus regarding how many degrees of tectonic tilting can be anticipated in a surface fault rupture earthquake event along the Cottonwood section of the Salt Lake City segment of the Wasatch fault zone. In personal discussions with a number of individuals at the UGS and several consultants in the local Utah area, it is generally anticipated that tectonic tilting would likely be of relatively low magnitude. This general opinion may not be shared by all researchers and consultants and is not backed by any accepted research or peer reviewed publications. It is our opinion that it would be difficult for a structural engineer to design for an unknown amount of tilting.

References

Duke, W.L., 1984, Paleohydraulic analysis of hummocky cross-stratified sands indicates equivalence with wave- formed flat bed: Pleistocene Lake Bonneville deposits, northern Utah (abs.). *Bull. Am. Ass. Petrol. Geo/.* 68,472.

Duke, W.L., 1985, Hummocky cross-stratification, tropical hurricanes, and intense winter storms, *Sedimentology* (1985) 32, 167-194

Closure
This response letter is issued in response to the public comments provided to Cottonwood Heights City in a Power Point Presentation regarding the above referenced site. Comments and recommendations in this response letter are based on field data presented by the Consultants assessing the geology, geologic hazards, and engineering for the above referenced site. GeoStrata has not performed an independent site assessment. GeoStrata has relied on the Consultants' reports in performing its services. Consequently, it does not represent or warrant that the Consultants' reports contain accurate data or proper recommendations. Recommendations and Comments presented in this review letter are provided to Cottonwood Heights City to aid in reducing risks from geologic hazards. GeoStrata makes no warranty; either expressed or implied and shall not be liable for any direct, special, incidental, or consequential damages with respect to claims by users of this response.

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If there are any questions concerning the contents of this review, please feel free to contact our office at (801) 501-0583.