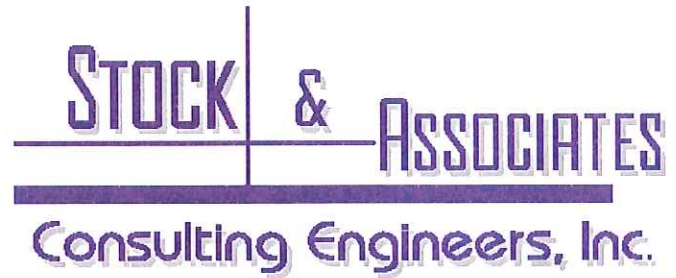


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Memo

To: Christian Ablah – Classic Real Estate	From: Jacob Buening, P.E.
Job: Mixed Use Development	Date: July 17, 2009
Job #: 209-4391	Re: Site Development Requirements

The existing 16 +/- Ac. site is located along the west side of North 2nd Street, south of the Union Pacific Railroad tracks and bordered on the west and south sides by the Kansas River. The site elevation is generally around 820' above MSL. The top of the existing levee is generally elevation 836' and the railroad embankment is at elevation 828'. In general the site drains to the west to a central discharge point through the levee. (ex. 48" cmp). Approximately 1.54 acres along the east side of the property are tributary to the existing storm sewer system located in North 2nd Street. This system discharges directly to the Kansas River just downstream from Bowersock Dam.

Per the Army Corps. Of Engineers Operation and Maintenance Manual Record Drawings dated May 1967, a "stability berm" exists for approximately 1300 L.F. along the landward side of the levee on site. The stability berm extends from the toe of the levee to a width of 35'-40'. The stability berm provides protection against uplift forces generated under the levee during high water conditions on the Kansas River.

Design improvements to be located on or over the stability berm shall be restricted from requiring any excavations or penetrations in to the stability berm. Design requirements are as follows:

- 1.) Parking lots and other paved surfaces shall be constructed above the existing surface of the stability berm, including excavation for subbase material and underdrain systems. These areas shall include construction of an underdrain system to provide drainage of underseepage flows.
- 2.) Structures/buildings designed on or over the stability berm shall incorporate a shallow foundation system that shall be placed above the existing stability berm surface. A footing underdrain system shall be employed to collect and discharge underseepage flows.
- 3.) Structures/buildings requiring a deep foundation system will require a special geotechnical design to account for underseepage drainage and uplift forces.
- 4.) A 20'w Access & Maintenance easement will be provided along the length of the levee on site for access and maintenance of the levee. Construction of structures/buildings will be restricted from this easement.

All construction on or over the existing levee and stability berm requires the specific approval of all appropriate agencies and authorities having jurisdiction over the proposed construction.

The proposed development intends to maintain and utilize the existing stormwater discharge point from the site through use of import fill material to create positive surface drainage and a storm sewer collection system. There are 2 proposed scenarios for development of the site, which generally are as follows:

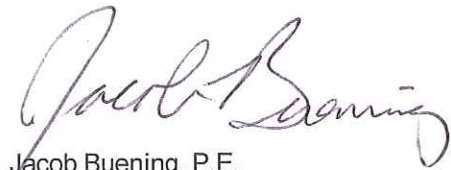
1.) Minor site fill and pump station.

- use minimum amount of import fill material to create positive interior drainage.
- structures designed on or over the existing stability berm will adhere to the guidelines previously stated.
- stormwater discharges from the site will utilize gravity flow through the existing 48" cmp through the levee under low-water river conditions.
- Stormwater discharge from the site under high-water river conditions will require use of a pump station and/or on-site detention. Due to site constraints detention would be required underground, which would be costly, and therefore will not be discussed in this narrative.
- A storm water pump station would be sized to sufficiently discharge a 100-year rainfall event from the site into the Kansas River during high-water river conditions.

2.) Major fill

- import the amount of fill required to raise the entire site, such that all interior stormwater drainage can discharge through the existing 48" cmp under gravity flow during high-water river conditions.
- Structures designed on or over the existing stability berm will adhere to the guidelines previously stated.

See the enclosed Preliminary Plans for information on the proposed site grading and typical section details.



Jacob Buening, P.E.
Project Engineer

CC: George M. Stock, P.E., President