SECTION 22
DEWATERING

22.01 DESCRIPTION

This Section shall apply to any project which requires dewatering of groundwater as part of construction activities within the City of West Sacramento. This Section is intended to provide guidelines to ensure that the developer/contractor takes all reasonable steps necessary to avoid adverse impacts to existing property caused by dewatering. The Contractor is solely responsible for any impacts associated with dewatering operations.

22.02 WATER CONTROL PLAN

A Water Control Plan (WCP) shall be prepared by a California registered Civil Engineer experienced in the design, installation, and operation of dewatering systems and shall be submitted to the City Engineer for review and evaluation prior to the start of dewatering. The WCP shall include, at a minimum, the following:

A. Pre-project planning and assessment including the following:

1. Determine geologic and hydrogeologic conditions as they affect the dewatering operations. This information should support the duration, extent, and magnitude of the proposed operations and discuss the lateral extent to which the cone of depression from dewatering operations will extend from the area to be dewatered. Based upon this information, a corridor for implementing monitoring before, during and after dewatering operations shall be established.

2. Identify existing wells, structures, utilities, etc. on adjacent properties that are within the corridor pre-established by the Design Engineer adjoining the planned orientation or perimeter of the area to be dewatered.

3. Notify property owners, in writing, of the purpose and objectives of the work, the dates work will be performed, and that frequent measurements will be required and as such access would occur before, during, and possibly after the dewatering operations occur.

4. Obtain written permission from the property owners to enter the property and conduct measurements and collect readings.

5. Obtain current groundwater elevations and ground surface elevations at a sufficient number of locations within the area to be dewatered to adequately characterize pre-dewatering conditions. The accuracy of the measurements should be such that the amount of change potentially harmful to one of the monitored points is within the accuracy of the measuring method. Survey data shall be certified by a California Registered Land Surveyor.

6. Take photographic records of specific monitoring points, especially any surface or subsurface structure, utility, or well that shows obvious signs of distress, disrepair, or damage that has occurred prior to the initiation of dewatering operations.

7. Collect and analyze a representative number of groundwater samples. The objective is to establish pre-existing groundwater chemistry such that comparisons can be made to groundwater quality during and after the dewatering operations. This information will allow for addressing concerns about changes in groundwater chemistry as a result of dewatering operations. Furthermore, this will allow for a general characterization of the groundwater quality to assess water quality issues in the discharge water and methods of disposal.

8. Obtain construction information for water wells within the dewatering area. Obtain current operational information for these wells (pump depth, pumping rate, drawdown, etc.), and consider obtaining down-hole video logs for wells suspected of being in a deteriorated or damaged state.

B. Estimates based upon sufficient site-specific information regarding the quantity and quality of groundwater that will be generated at the beginning and subsequent stages throughout the dewatering project.

C. Estimates of the continuous discharge rate required to establish and maintain the target dewatering depth and any anticipated changes in the required discharge rate.

D. Subsurface soils and geology, groundwater depth, movement direction, and groundwater quality within the planned area to be dewatered, and within that area reasonably assumed to potentially be influenced by the dewatering operations.

E. Appropriate permitting to include (but not limited to) dewatering infrastructure (e.g. dewatering wells), temporary emissions from portable power units, and NPDES permits (if required) for the discharge water into the storm drainage system or a City Industrial Pretreatment Permit for discharge into the City sanitary sewer system.

F. Onsite and off-site monitoring to assess potential deleterious impacts to surrounding installations, structures, and utilities. This should include the type and location of proposed monitoring points, the monitoring method and frequency, and the reporting mechanism relative to findings of the routine monitoring.

G. Discharge management, monitoring, and control. This should include a description of the proposed discharge point(s) and the requirements for discharge (e.g. volume, quality).

H. Shop drawings showing locations, dimensions, and relationships of the elements of each dewatering system. The submittal should include design calculations demonstrating the adequacy of proposed dewatering and/or isolation systems and their components. Include manufacturer's literature describing

installation, operations, and maintenance procedures for all components of the dewatering system.

I. Contingency planning to address the following:

1. Adverse off-site influences such as significantly dewatered neighboring wells, settlement of surface or subsurface structures, or problems associated with the discharged water.

2. Provision to provide potable water (and fire protection if warranted) to residents and businesses in the event dewatering operations are adequately demonstrated to have interrupted supply or delivery of potable water to facilities, homes, structures, etc.. Potable water shall be provided immediately upon identification of impacts

3. Revisions to dewatering operations such that construction can continue if it is found that the initial dewatering efforts are inducing a deleterious effect in the immediate area and an alternative is required.

4. Discharge management, specifically with respect to quality, in the event the water to be discharged does not meet regulatory requirements for quality.

22.03 CONTRACTOR QUALIFICATIONS

The contractor shall be or employ a specialty dewatering Contractor with experience in the field of dewatering system design, installation, operation, and maintenance.

22.04 OPERATIONAL MONITORING AND REPORTING

Through the course of the project the Contractor shall prepare and submit monthly reports to the City regarding the following:

A. Provide installation records of all components of the dewatering systems proposed in the WCP including drawings showing the locations of each dewatering component installed as well as coordinates and elevations of all monitoring, recharge, and dewatering wells or other subsurface groundwater collection systems.

B. Quantity and quality of discharged water being generated by the dewatering operations. Discussions of deviations in water quality and the need or use of “discharge management” should also be discussed. Furthermore, discussion of the discharge volume, rate of groundwater decline to target dewatering elevation, and potential deviations from the planned arrangement and operation of the dewatering system should be discussed.

C. Elevation monitoring of wells, surface and subsurface structures, and other facilities should be reported. Discussions of areas of change should be presented.

D. Status of preparatory monitoring (see above) for areas not currently being dewatered, but that are scheduled for dewatering.

E. Brief, focused reports for subsequent submission to either regulatory or over-sight agencies involved with the dewatering and construction project.

F. Complaint logs which list the names, contact information, issue, date and nature of response.

22.05 PUBLIC OUTREACH

The Contractor shall conduct routine “outreach” meetings in conjunction with the City construction inspection division, to address the concerns of residents and landowners adjoining the planned dewatering areas. A Contractor representative shall be identified and a “hotline” or other direct form of communication shall be provided. A meeting of this type should be considered as a contingency plan in the event that some adverse reaction is detected that could be specifically attributed to the dewatering operations.

22.06 POST-DEWATERING MONITORING

A. The Contractor shall describe post-dewatering monitoring relative to observations of rebounding groundwater elevations, changes in groundwater quality, and changes in surface and subsurface structure elevations.

B. The Contractor shall conduct follow-up assessments of structures previously identified as damaged, distressed, or in a condition of disrepair. This should include photographs and a discussion of apparent changes in the state of the facility following the conclusion of dewatering operations.

C. Consideration shall be given to collecting a representative number of groundwater samples from wells within the dewatering area for comparison to pre-dewatering chemical analysis.

22.07 POST-DEWATERING DEMOBILIZATION

The Contractor should provide a written plan to describe the reduction or removal of installed dewatering facilities, monitoring points, or related infrastructure.