SECTION 31 23 20

GROUND WATER CONTROLS

PART 1 GENERAL

1.1 DESCRIPTION

A. This section covers all work necessary to control and monitor groundwater and surface water for excavations as required for performance of the AWSS removal and new work.

1.2 RELATED SECTIONS

A. Section 31 23 26.1 Excavation and Backfill for AWSS Work

1.3 SUBMITTALS

A. The Contractor shall make the following submittals:

1. The Contractor's Dewatering Plan described in Paragraph 1.5,C,1, following.

1.4 DEFINITIONS

A. Deep Excavation: Deep excavation shall be defined as any excavation extending below elevation (-5.0) feet San Francisco City Datum (SFCD).

B. Groundwater Levels and Initial Groundwater Levels: Groundwater levels shall be defined as the levels of the groundwater in a specific area as measured at any time during construction by the Engineer through observations and records made within observation wells installed at the site. Initial groundwater levels shall be defined as the levels measured prior to the start of construction.

1.5 HANDLING OF GROUNDWATER

A. The Contractor shall be responsible for the continuous control of groundwater at all times during the course of construction, including Saturdays, Sundays, holidays and during periods of labor strikes.

B. The Contractor shall not discharge any groundwater to the bay, nor any sediment, debris, or pollutants into the sewerage system.

C. Dewatering Discharge Handling During Site Excavation:

1. Contractor's Dewatering Plan

a. Prior to commencing excavation or construction, the Contractor shall submit and obtain City's approval of plans detailing the proposed method of handling and disposal of groundwater, tide water, and storm water flow.

b. The plan shall include detailed working drawings and pertinent descriptions of the proposed groundwater control system

including a schedule of installation and details of the system operation plan, contingency plans for interruption or failure of the proposed groundwater control system, and disposal plan.

c. The Dewatering Plan shall be designed, stamped, and signed by a licensed civil engineer registered in the State of California. By approving the plan, the City accepts no responsibility for the adequacy thereof nor for any damages to public or private property that may result. All such responsibility shall rest with the Contractor.

2. The Contractor shall furnish, install and operate settling tanks during test pit excavation and all other excavation operations. Settling tanks shall be furnished in sufficient quantity to handle any foreseeable flow of dewatered groundwater. This equipment shall include all pumps, hoses, fittings and other accessories necessary to contain and handle the dewatered groundwater.

3. The Contractor shall perform all required remediation of dewatered groundwater. If heavy metal sludge, oil, grease, petroleum hydrocarbon residue, or other contaminant is found in the dewatered groundwater, the Contractor shall cease any disposal or discharge thereof and shall notify the Engineer to determine the proper course of subsequent action. Separation, collection and disposal of such contaminants shall comply with all applicable federal, state and local regulations.

4. Once the dewatered groundwater has met the pre-treatment standards of this Section, such water shall be disposed of into the City sewer system at a location approved by the Engineer.

D. Groundwater Pumped From the Excavation:

1. Prior to discharging groundwater from the pre-treatment tanks, the Contractor shall ensure compliance with the pre-treatment standards of:

a. Amended Article 4.1, Chapter X, Part II, San Francisco Municipal Code, Section 123, "Industrial Waste Ordinance #19-92" (hereafter in this Section referred to as "Industrial Waste Ordinance";

b. DPW Order No. 158,170

c. DPW "Requirements for Batch Wastewater Discharge," latest issue.

2. Copies of the documents listed above are included herein, following the Division 1 specification sections of this Volume 1, as Appendices "B" (pertinent excerpts of the Industrial Waste Ordinance), "C" (DPW Order 158170), and "E" (DPW Requirements for Batch Wastewater Discharges - issue of April 11, 1994).

3. The groundwater shall be tested by the Contractor, and if found to be within the limits set by Paragraph 1.5,D,1 above, such water may be discharged to the Southeast Water Pollution Control Plant (SEWPCP).

4. Should the existing groundwater become contaminated due to the Contractor's operations, all costs of satisfactory remediation and disposal shall be at the expense of the Contractor. Such costs shall include, but not be limited to: all re-design, reconstruction and pre-treatment costs necessary to satisfy the requirements of the regulations listed in Paragraph 1.5,D,1 above.

5. Should the existing groundwater be found contaminated, or should it be uncontaminated but subsequently become contaminated due to conditions other than the Contractor's operations, all additional costs to pre-treat the contaminated water before routing the flow into the sewer system, or other approved disposal, at the direction of the Engineer will be paid for as Extra Work.

E. The Contractor shall be responsible for obtaining all water discharge permits, all costs of cleaning and repairing the sewerage system damaged by Contractor's operations, plus all related administrative costs, penalties and other incidental fees and expenses resulting from discharging any groundwater and construction water into the City's sewerage system as necessary to perform the work under the Contract Documents and as specified hereinabove.

1. The application for such wastewater discharge permit and the dewatering plan shall be sent to:

Department of Public Works, Bureau of Environmental Regulation and Management
3801 3rd Street, Suite 600
San Francisco, CA 94124
Telephone no. (415) 695-7321.

2. The City will pay DPW/Environmental Regulation and Management ("BERM") directly for the sewer service charge (discharge fee), pursuant to Part III, Chapter X, Articles 4.1 and 4.2 of the San Francisco Municipal Code (Public Works Code/Resolution 540-94). The fee is based on flow volumes and fee constituents. The Contractor shall, therefore, install and maintain a flow meter (with a deviation of less than 10%) approved by DPW/BERM. All costs for installing and maintaining the flow meter shall be considered Incidental Work. No mark-up or mobilization fee is to be paid to the Contractor on the sewer service charge.

F. The Contractor shall remove all temporary lines and related connections upon completion of the work and shall restore all facilities to conditions prior to construction, to the satisfaction of the Engineer.

G. The Contractor shall perform the operation to maintain the general groundwater level at all times within 2-feet of the initial groundwater level as hereinbefore defined. Contractor shall minimize water from seeping through excavation. Surface runoff shall be controlled to prevent entry of water into excavation.

H. If the Contractor chooses to use deep wells or well points, the wells and wellpoints shall be designed, installed and operated so as to prevent the removal of in-situ materials.

I. If at any time the general groundwater level measured in monitoring wells drops more than the maximum 2-feet as hereinbefore specified, the Engineer may

require the Contractor to stop the removal of groundwater until the groundwater levels rise to or above the specified levels. The correction of any damage which may result either to the Contractor or City as a direct result of stopping the dewatering operations shall be borne by the Contractor.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. The Contractor shall provide all materials and equipment, including but not limited to: pipe, fittings, valves, pumps, tools, fuel and all other appurtenances; in suitable and adequate quantities as required to perform the groundwater control work.

PART 3 EXECUTION

3.1 HYDROSTATIC PRESSURE RELIEF

A. Where deep excavations are made, the Contractor shall maintain a safe hydrostatic pressure level directly below the excavated areas.

B. The Contractor shall also be responsible for preventing all hydrostatic pressure build-up under newly placed slabs and walls until the concrete has attained its 28-day compressive strength as defined in Section 03 30 00-Cast-in-Place Concrete.

C. Reducing the hydrostatic pressure will no longer be necessary when backfilling of the excavated areas has been completed above ground water elevation and when the construction has been completed sufficiently that the Contractor can demonstrate to the Engineer that the reactions from the completed portion of the structure can safely and adequately resist all potential uplift pressures. The Contractor shall accept full responsibility for any damage, which may result from not maintaining adequate hydrostatic relief as specified during construction.

D. If at any time the hydrostatic pressure exceeds safe limits, the Contractor shall take immediate steps to reduce the hydrostatic pressure to safe limits. Any damage which may result either to the Contractor or City as a direct result of excessive hydrostatic pressure shall be borne by the Contractor.

3.2 DISPOSAL OF GROUNDWATER

A. All groundwater removed from the construction site shall be discharged through pipes. The conveying of groundwater in open ditches or trenches will not be allowed.

B. If excessive amounts of sediments are found in the removed groundwater, excavation work shall be stopped. The Contractor shall then propose a method to remove excess sediments, subject to the Engineer's review and approval. After removal of the excess amounts of sediments, groundwater shall be pumped to the sanitary sewer system for further treatment, as described above.

C. Permission to use any storm sewers or drains for water disposal purposes shall be obtained from the authority having jurisdiction. Any requirements and costs for such use shall be the responsibility of the Contractor. The Contractor shall

not cause flooding by overloading or blocking the flow in the drainage facilities; but shall leave the facilities unrestricted and as clean as originally found. Any damage to facilities shall be repaired or restored as directed by the Engineer or the authority having jurisdiction, at the sole expense of the Contractor.

END OF SECTION