

SECTION 02140 – DEWATERING

PART 1 – GENERAL

1.1 DESCRIPTION

- A. The CONTRACTOR shall perform site dewatering necessary to lower and control groundwater levels and hydrostatic pressures to allow excavation and construction to be performed properly under dry conditions. This Section includes materials, installation, maintenance, operation, and removal of temporary dewatering systems.
- B. The CONTRACTOR shall perform all treatment necessary for the legal disposal of all groundwater encountered. The cost of treatment shall be borne by the CONTRACTOR.
- C. Dewatering operations shall be adequate to ensure the integrity of the finished project. The responsibility for conducting the dewatering operation in a manner which will protect adjacent structures and facilities rests solely with the CONTRACTOR. The cost of repairing any damage to adjacent structures and restoration of facilities shall be the responsibility of the CONTRACTOR.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01039 – Coordination and Meetings
- B. Section 01300 – Record Drawings and Submittals
- C. Section 02223 – Trenching, Backfilling, and Compacting

1.3 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. The CONTRACTOR shall comply with his site-specific Storm Water Pollution Prevention Plan (SWPPP) and all aspects of the associated Storm Water General permit.
- B. The CONTRACTOR shall obtain and comply with California Regional Water Quality Control Board latest Order No. for General Waste Discharge Requirements for Discharges from Groundwater Extraction and similar Discharges to Surface Waters within the San Diego Region.

1.4 CONTRACTOR SUBMITTALS

- A. The following shall be submitted in compliance with the standard specifications:
 - 1. Before starting excavation, the CONTRACTOR shall submit Shop Drawings including a detailed plan, schedule, and description of the dewatering of excavations. The Shop Drawings shall include: the proposed type of dewatering system; the arrangement, location, and depths of system components; a complete description of the equipment and instrumentation to be used, with installation, operation and

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maintenance procedures; a description of the CONTRACTOR'S means and methods for measuring groundwater levels and piezometric water levels; and the methods for disposal of dewatering effluent.

2. Before starting excavation, the CONTRACTOR shall submit copies of well installation permits, if required.
 3. Before starting excavation, the CONTRACTOR shall obtain and submit copies of a National Pollutant Discharge Elimination System (NPDES) Permit from the San Diego Regional Water Quality Control Board (SDRWQCB).
 4. The CONTRACTOR shall submit copies of well destruction permits, if applicable.
 5. The CONTRACTOR shall be solely responsible for obtaining groundwater discharge permits. The CONTRACTOR must submit copies of these permits to the AGENCY.
- B. CONTRACTOR shall submit a daily report that includes the following information:
1. Groundwater levels and piezometric water levels in observation wells (if any).
 2. Changes in elevation of reference points as stated in Subparagraph 1.5.C below to detect settlement in adjacent structures.
 3. The average dewatering flow rate.
 4. Water quality testing results as required by the Regional Water Quality Control Board.

1.5 QUALITY ASSURANCE

- A. The CONTRACTOR shall conduct a demonstration of its proposed system and shall provide verification that adequate personnel, materials, and equipment are available.
- B. The CONTRACTOR shall maintain adequate control to ensure that the stability of excavated and constructed slopes is not adversely affected by water, that erosion is controlled, and that flooding of excavations or damage to structures does not occur.
- C. Where critical structures or facilities exist immediately adjacent to areas of proposed dewatering, the CONTRACTOR shall establish reference points and shall observe the reference points at frequent intervals to detect any settlement which may occur. Frequency of intervals of detection testing shall be determined based on recommendations of the soils engineer and the nature of the critical structure or facility and distance from the excavation, except that the minimum frequency shall be twice per working day (once at the beginning of the work day and once at the conclusion of the work day).

1.6 DEWATERING EXPECTATIONS

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- A. The CONTRACTOR shall assume that groundwater may be present in all excavations throughout the length of the project. The CONTRACTOR shall be prepared for dewatering activities and shall treat and legally dispose of the groundwater in compliance with all Federal, State, and Local regulations and the requirements of the permits relating to groundwater discharge.

PART 2 – MATERIALS

2.1 MATERIALS AND EQUIPMENT

- A. Dewatering, where indicated, includes well points, sump pumps, treatment facilities, temporary pipelines for water disposal, rock or gravel placement, observation wells, and other means including standby pumping equipment maintained on the jobsite continuously.
- B. The CONTRACTOR shall provide piezometers for monitoring groundwater levels or other instruments and measuring devices, as required.

PART 3 – EXECUTION

3.1 GENERAL REQUIREMENTS

- A. The CONTRACTOR is responsible for compliance with Regional Water Quality Control Board or AGENCY requirements for any discharge of groundwater to the environment. The CONTRACTOR shall comply with San Diego Regional Water Quality Control Board Waste Discharge requirements. Before starting dewatering operations, the CONTRACTOR shall obtain the required permits and authorization, as required, for the disposal of groundwater. The CONTRACTOR shall comply with all applicable sampling, testing, monitoring, and reporting requirements.
- B. The CONTRACTOR shall maintain an adequate system to lower and control the groundwater to permit excavation, construction of structures, and placement of fill materials to be performed under dry conditions.
- C. Sufficient dewatering equipment shall be installed to pre-drain the water-bearing strata below the bottom of foundations, drains, water lines, sewer lines, and all other excavations.
- D. The hydrostatic head in water-bearing strata below pipelines, appurtenances, foundations, and all other excavations shall be reduced to ensure that the water level is a minimum of two (2) feet below the excavation surface at all times.
- E. The system shall be placed into operation before excavation below groundwater level is started. The system shall be operated continuously 24 hours a day, 7 days a week until pipelines, appurtenances, and structures have been constructed, fill materials have been placed, and dewatering is no longer required.

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- F. The site shall be graded to facilitate drainage and runoff shall be diverted from the excavation. Surface runoff shall be collected in shallow ditches around the perimeter of the excavation, drained to sumps, and pumped or drained by gravity away from the excavation.
- G. Dewatering shall at all times be conducted to preserve the undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation.
- H. If foundation soils are disturbed or loosened by the upward seepage of water or an uncontrolled flow of water, the affected areas shall be excavated and replaced with drain rock at no additional cost to the AGENCY.
- I. Flotation of structures and facilities shall be prevented by maintaining a positive and continuous removal of water.
- J. If well points or wells are used, they shall be adequately spaced to provide the necessary dewatering and shall be sandpacked and/or other means shall be used to prevent pumping of fine sands or silts from the subsurface. A continuous check shall be maintained to ensure that the subsurface soil is not being removed by the dewatering operation.
- K. Water and debris shall be disposed of in a legal and suitable manner in compliance with permit requirements and Standard Specifications for Public Works Construction “Greenbook”, without damage to adjacent property. No water shall be drained into work built or under construction. Before disposal, water shall be treated in accordance with permit requirements. Before disposal, water shall be filtered to remove sand and fine-sized soil particles.
- L. The release of groundwater to its original level shall be performed in a manner that avoids disturbance of natural foundation soils, prevents disturbance of compacted backfill, and prevents flotation or movement of structures.

****END OF SECTION****