SECTION 01578

DEWATERING AND DRAINAGE

PART 1 G E N E R A L

1.01 SCOPE OF WORK

A. Design, furnish, install, operate, monitor, maintain, and remove a temporary dewatering system as required and lower and control water levels below subgrades of excavation to permit construction in dry conditions.

B. Furnish, maintain, and remove temporary surface water control measures adequate to drain and remove surface water entering excavations.

C. Collect and properly dispose of all discharge water from the dewatering and drainage systems in accordance with the provision of Section 01564 – Waste Material Disposal. No waste material shall be disposed to the City Storm Sewer, Sanitary Sewer, any location in the City Right of Way, or the Roadway.

D. No contaminated water or solids including oil sheens shall be disposed to the City systems including storm sewer, roadway or sanitary sewer. No dewatering or drainage shall be disposed to the City Sanitary Sewer. All dewatering and drainage shall be properly disposed to the City Storm Sewer or the Roadway in compliance with:

- 01563-Control of Ground Water and Surface Water
- 01565-TPDES Requirements
- 01566-Source Controls for Erosion and Sedimentation
- 01567-Filter Fabric Fence
- 01568-Reinforced Filter Fabric Barrier
- 01569-Stabilized Construction Exit

1.02 MEASUREMENT AND PAYMENT (**NO SEPARATE PAY**)

A. No additional payment will be made for dewatering and drainage. Include cost for unit price for work requiring dewatering and drainage.

1.03 CONTRACTOR'S RESPONSIBILITY

A. Design and execution of methods for controlling surface water and groundwater.

B. Repair work that may result from damage to properties, buildings or structures sewers and other utility installations, and/or pavements due to dewatering or surface water control operations.

C. Design review and field monitoring activities be the City shall not relieve the Contractor of his/her responsibilities for the work.

1.04 SUBMITTALS

A. Submit detailed plans of the proposed dewatering method, as specified on 3.03 below.

PART 2 P R O D U C T S

2.01 MATERIALS

A. Pipe for observation wells, if required, shall consist of minimum 1-inch., Schedule 80 PVC pipe and machine slotted PVC well-points, maximum slot size 0.020-in.

PART 3 E X E C U T I O N

3.01 GENERAL

A. Control Surface water and groundwater such that excavation to final grade is made in dry conditions, the bearing soils are maintained undisturbed, and softening and /or instability or disturbance due to the presence or seepage of water does not occur. All construction and backfilling shall proceed during dry conditions and flotation of completed portions of work shall be prohibited.

3.02 SURFACE WATER CONTROL

A. Construct Surface water control measures, including dikes, ditches, sumps and other methods to prevent, as necessary, flow of Surface water into excavations.

3.03 EXCAVATION DEWATERING

A. At all times during construction, furnish and maintain proper equipment and facilities to remove promptly and dispose of properly all water entering excavation. Excavations shall be kept dry, so as to obtain a satisfactory undisturbed subgrade foundation condition until the fill or pipes to be built thereon have been completed to such extent that they will not be floated or otherwise damaged by allowing water levels to return to natural elevations.

B. Pipe shall not be laid in water or submerged within 24 hours after being placed.

C. Prevent flotation of the pipe by promptly placing backfill.

D. Dewatering shall at all times be conducted in such a matter as to preserve the natural undisturbed capacity of the subgrade soils at proposed bottom of excavation. If the subgrade of the trench bottom or excavation becomes disturbed due to inadequate drainage, excavate below normal grade as directed by the City Representative and refill with screened gravel at the Contractor’s expense.

E. Evaluate the impact of the anticipated subsurface soil/water condition on the proposed method of excavation and removal of water.

F. Where groundwater level is above the proposed bottom of excavation level, it is expected that some type of pumped dewatering system will be required for pre- drainage of the soils prior to final excavation and for maintaining the lowered

groundwater level until construction has been completed to such an extent that the structure, pipeline or fill will not be floated or otherwise damaged. It is further expected that the type of system, spacing of dewatering units and other details of the work will have to be varied depending on soil/water conditions at a particular location.

G. At least two weeks prior to the start of construction in any areas of anticipated dewatering submit to the City Representative for review, a proposed initial plan for removal of water, method of excavation, and support of the excavation. Do not proceed with construction in any of these areas until the initial plan has been reviewed and commented upon by the City's Representative. It is expected that the initial plan may have to be modified to suit the variable soil/water conditions to be encountered along the route. Dewater and excavate, at all times, in a manner which does not cause loss of ground or disturbance to the pipe bearing soil or soil which supports overlying or adjacent structures.

H. If the method of dewatering does not properly dewater the trench as specified, install groundwater observation wells as directed by the City's Representative and do not place any pipe or structure until the readings obtained from the observation wells indicate that the groundwater has been lowered a minimum of 6 inch below the bottom of the final excavation within the trench limits.

I. Dewatering units used in the work shall be surrounded by suitable filter sand and no fines shall be removed by pumping. Pumping from the dewatering system shall be continuous until pipe or structure is adequately backfilled. Stand-by pumps shall be provided.

J. Water entering the excavation from precipitation or surface runoff shall be collected in shallow ditches around the perimeter of the excavation, drained to sump and pumped from the excavation to maintain a bottom free from standing water.

K. Drainage shall be disposed of in an approved area. Existing or new sanitary sewers shall not be used to dispose of drainage.

END OF SECTION