SECTION 22 13 00 – Facility Sanitary Sewerage

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. General Design Information

1. Cal Poly owns and maintains the sanitary sewer system throughout the campus.

2. For new buildings to be connected to the sanitary sewer system, the anticipated additional sewer load should be identified early during preliminary planning. This load should be submitted to the Building Inspector and the Mechanical Engineer for Cal Poly Facilities Planning and Construction. Improvements to the campus system may be required to accommodate the additional load. The Principal Engineer shall identify a suitable point of connection to the campus system and what system improvements may be necessary to accommodate the new building.

3. Systems discharging to the campus sewer system shall be in compliance with the requirements of the City of San Luis Obispo Waste Water Treatment Plant. Mechanical systems discharging unusual wastes may require special provisions or may not be allowed. Triggers include; high or low pH, oil, grease, chemical contamination, biological contamination, and rain water to the sewer. Mechanical systems typically impacted include: commercial kitchen waste, elevator sump pump discharge, lab process waste, and water purification system waste. The Design Professional shall be responsible for confirming impacts to the project due to the City Waste Water Discharge Ordinance. Alternatives for compliance shall be discussed with the University’s Representative. Negotiations involving specific project issues shall be channeled through the Cal Polly Office of Environmental Health & Safety (Director).

4. For wet laboratories, the method which will be used for dealing with contaminated liquid wastes should be determined early in the design process in consultation with the University's Representative and Cal Poly Environmental Health and Safety (EH&S). Contaminated liquid waste from laboratories are not allowed to be poured directly into drainage systems discharging to the campus sewers. EH&S should be consulted for procedures for dealing with liquid contaminated wastes. Contaminated wastes are typically containerized and held in the laboratory for disposal by EH&S as hazardous waste. Lab waste piping systems are provided in wet laboratories only for disposal of non-hazardous liquids and as a precaution in case of an accidental spill.

5. Soil and Waste Piping within a building and outside within five feet (5') of the foundation, except where indicated otherwise, shall be No-Hub cast iron pipe and fittings, asphaltum coated, free from defects, and shall conform to the requirements of CISPI Standard 301 ASTM A-888 or ASTM A-74 and
manufactured by AB & I, Charlotte or Tyler. Fittings shall be up with Stainless Steel, Heavy-Duty No-Hub Couplings and shall be in compliance with ASTM C-1540 and ASTM C-564 Standards, except all above ground vent piping joints may be made up with Standard-Duty No-Hub Coupling in compliance with CISPI-310, and ASTM C-564 Standards. For fats, oils and grease waste, Blucher Pipe systems are preferred.

6. Complete soil/waste drainage piping will be provided to each domestic plumbing fixture and will discharge by gravity. Sanitary drainage ventilation piping will be provided to each domestic plumbing fixture or trap and will terminate at various locations on the roof.

7. Horizontal sanitary, waste and vent piping will be designed for a uniform grade of 2% (1/4” per foot).

8. HVAC condensate drainage piping (CD) will be provided to each separate HVAC unit, such piping will drain to an indirect waste connection to the sanitary soil/waste system via either tailpiece connection at the nearest lavatory or sink or indirectly to a floor sink.

9. Floor drains will be provided in laundry rooms and all toilet rooms. Drains will not be located under the partitions and will be provided with clearance for service work.

10. Underground cast iron pipe will be wrapped with 8 mil polypropylene pipe wrap to protect against low pH soil on campus.

11. All floor drains will be served by a trap primer. The trap primers will be flush-o-meter valve flushing tube or lavatory p-trap type. (No mechanical type trap primers will be provided).

12. Wall clean-outs at the end of runs for main lines should be provided, where possible, above rim height of highest fixture on all floors.

13. Shower drains will be fitted with removable hair screens within floor drain for ease of maintenance.

14. Sink drains will be cleanable without disassembly of the associated trap, with cleanout above rim height of sinks on all floors.

15. Routing drainage piping overhead of electronic equipment, telecom equipment and electrical equipment will be avoided.

16. Cleanouts will be the same nominal size as the pipe they serve; where they occur in piping eight inches and larger, six inches size will be used. All cleanouts will be accessible.

17. Cleanouts will be provided on all floors at the following locations:

a. Horizontal offsets.

b. End of soil, waste, water or storm drains more than five feet in length.
c. Maximum of 50-foot intervals of horizontal runs within the building.
d. Base of vertical sanitary stacks and storm drain leader lines.
e. Each change of direction if the total aggregate change exceeds 90 degrees.
f. Main sewer connection outside of building. A 2-way cleanout with dual access plugs (threaded bronze, thermoplastic, or PVC) will be provided at this location. Cleanout will be installed in round cast iron valve box marked “Sewer”.
g. Above rim height of all sinks and lavatories on all floors.
h. Above rim height of all urinals.
i. Upstream of all double santees and combinations.

B. Acceptable Piping Materials

1. Above Grade Sanitary Waste and Vent Piping: Service weight, no hub, cast iron soil pipe with cast iron DWV fittings, neoprene coupler with stainless steel clamp and shield.

2. Below Grade Sanitary Waste and Vent Piping: Service weight, no hub, cast iron soil pipe with cast iron DWV fittings, extra heavy neoprene coupler with stainless steel clamp and shield (Husky, Clamp All, or equal)

3. Above Grade Vent Piping (Alternate materials)
   a. Schedule 40 galvanized steel pipe with recessed screwed cast iron drainage fittings.
   b. Type DWV copper with DWV solder fittings, 50/50 equivalent lead-free solder.

4. Above / Below Grade Waste and Vent Piping (Alternate material for student housing buildings up to 3 stories only) Schedule 40 PVC,h DWV pipe and DWV fittings with solvent cement joints.

5. Waste vents shall be located a minimum distance of 30 feet horizontally from HVAC air intakes and occupied roof areas. Additionally, waste vents shall be extended with a support system to a level seven feet above the roof when the roof is occupied (such as in the case of roof mounted greenhouses). Waste vents shall not be located in confined roof wells where HVAC air intakes are located.

6. Provide accessible cleanouts at all levels of the building the same as required by code for first floor and lower levels.

7. Avoid sewage lift stations where possible. Gravity flow of sewage is preferred and is usually achievable due to the significant elevation change of most building sites on the campus. If a lift station is required, minimize the required capacity by segregating out upper level waste which can be gravity flow. Lift stations should be duplex pump type, powered by emergency power, with alarm contacts provided as an input to the building management system. Lift stations which handle rest rooms sewage shall be grinder type.
8. Floor drains shall be equipped with trap primers. Trap primer shall be accessible and equipped with a shut off valve to allow for servicing without system drain down.

END OF SECTION 22 13 00