

DATE: 04/24/2025

**PROJECT: CPUCSD GREENHOUSE STUDY**

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**Assumptions:**

1. The new Greenhouse will approximately be a 1000-square-foot facility.
2. The new Greenhouse will be constructed north-east of the existing Industrial Tech Facility.
3. The new Greenhouse will require the following building services:
  - a. Sanitary waste main pipe for Trench Drains and any other waste from Plumbing fixtures.
  - b. Domestic water main to provide clean water for use in growing and cleaning of the Greenhouse.
  - c. Natural Gas service, which will primarily serve the heating needs of the Greenhouse through unit heaters.
  - d. 208V/3Ph, 100A, electrical feed from the existing Industrial Technology building.
  - e. A spare 2" raceway from the existing Industrial Technology building for future electric or technology service.
4. Cooling and ventilation will be provided through evaporative coolers and/or heat relief fans.
  - a. Evaporative coolers and fans will be electrically powered from the Greenhouse provided electrical panelboard.

**Scope for Cost Estimate:**

The following utility services will be included as part of this cost estimate analysis:

1. Installation of a new below grade 4" Sanitary Sewer from the Greenhouse to a nearby Manhole.
2. Installation of a new below grade 2" water service from the Greenhouse to the 8" water main nearby. Water meter provided by City and installed per Greenhouse construction schedule.
3. The capacity of existing 2" Gas service will be evaluated
  - a. If the existing service is adequate for the new Greenhouse, the main gas pipe will be extended below grade to the Greenhouse. The existing Gas meter will also be repurposed.
  - b. If existing service is inadequate, existing 2" Gas service will be demolished back to original connection point. New service will be sized for both Industrial facility and the Greenhouse. The existing Gas meter will also be repurposed.
  - c. At the time of this study, it is assumed the existing service is adequate for the new Greenhouse.
4. A new 100A/3Ph feeder in 1.25" Schedule 40 PVC raceway will be installed from the existing Industrial Tech building to the front corner of the Greenhouse.
  - a. Assume 125' of feeder from outside of building to greenhouse. Feeder will be buried

- at least 18" below grade. An additional 25' of 1.25" EMT raceway and feeder from existing Panel L1S2 inside of the building to the exterior and below grade.
- b. Feeder will be trenched in. Trench to be 12"W x 18"D x 125'L. Trench will be cut in and backfilled once feeder and empty 2" are installed.
  - c. A new 100A/3P circuit breaker will be installed in the existing Panel L1S2. Available space is available for circuit breaker installation without removal of existing circuit breakers.
  - d. An empty 2" Schedule 40 PVC raceway are optional and included as a separate line item in the cost. The intention is for an additional feeder of different voltage or for use by a low voltage system for technology or telecommunications to the Greenhouse.
5. The scope of work will include mobilization charges for the various trades.
    - a. Mechanical Contractor is responsible for plumbing work that includes sanitary sewer, water service and gas service.
    - b. Electrical Contractor will install feeder with raceway and empty 2" raceway. The site Electrical Contractor will install new circuit breaker in existing panel L1S2 and terminate wiring as part of the feeder installation.
    - c. Mechanical and electrical trenching is assumed to be separate due to locations of utility connections being spread across the site.
  6. Contractors will mobilize to the site and set up for trenching and work as required for their relative scope of work.
  7. Contractors will each demobilize from the site at the completion of utilities.
  8. Estimated cost includes 10% OH&P (overhead and profit) for work by the trades.
  9. Contractors will be responsible for permits and inspections. Permit and inspections fees will be included or estimated and adjusted at the time of permit application.

DESIGN ENGINEERS

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