



**33 00 00**

**GENERAL UTILITIES REQUIREMENTS**

**1. GENERAL**

- A. Related sections:
  - i. 01 41 26.02 – Utility Information & Locate
  - ii. 23 05 19 – Meters and Gages
  - iii. 33 10 00 - Water Utilities – Public Water Distribution System
  - iv. 33 12 13.13 – Water Supply Backflow Preventer Assemblies
  - v. 33 30 00 – Sanitary Sewerage Utilities – Sanitary Sewer Collection Systems
  - vi. 33 60 00 – Hydronic and Steam Energy Utilities
  - vii. 33 71 19 – Electrical Underground Ducts & Manholes
  - viii. 33 80 00 – Communications Utilities
- B. Accessible isolation valves, identified as to function, shall be provided at new taps from existing utilities.
- C. Provide detectable aluminum foil plastic backed tape or detectable magnetic plastic tape manufactured specifically for warning and identification of buried utility.
- D. Existing services and equipment shall be specified to be removed from site and not be abandoned in place except with the written approval of FMD.
- E. The Contractor shall adjust all existing and new utility structures (manholes, valve boxes, etc.) to meet new grades as required to complete this project at part of the Cost of the Work or Base Bid.
- F. The engineer shall provide underground profile drawings of all utilities to be installed on campus (steam, chilled water electrical duct bank, sewer, storm, etc.) clearly indicating depths of existing underground utilities.
- G. Where utility excavation will be required, the engineer shall specify “maximum limits of excavation” and shall calculate anticipated rock and unsuitable soil allowances. In addition, the engineer shall specify that the contractor provide “unit prices” for rock, and unsuitable soils.



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**33 10 00**

**WATER UTILITIES – PUBLIC WATER DISTRIBUTION SYSTEM**

**1. GENERAL**

A. Related Section:

- i. 01 41 26.02 – Local Utility Information & Locate



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**33 12 13.13**

**WATER SUPPLY BACKFLOW PREVENTER ASSEMBLIES**

**1. GENERAL**

- A. Related Section:
  - i. 01 41 26.02 – Local Utility Information and Locate
- B. Building backflow preventers shall be designed and installed so that two backflow preventers are in parallel. This will allow for annual maintenance to occur without disruption of service.



**33 30 00**

**SANITARY SEWERAGE UTILITIES – SANITARY SEWER COLLECTION SYSTEM**

**1. GENERAL**

- A. Related Section:
  - i. 01 41 26.02 – Local Utility Information and Locate
- B. Prior to Material Completion, the Contractor shall camera all new sanitary sewer pipe installed exterior to the building perimeter, and 10' beyond the connection point with existing pipe. The Contractor shall provide the Design Professional and Project Manager with an electronic copy of the video footage for review. Cost of videoing the system shall be included in the Cost of the Work or Base Bid.



**33 60 00**

**HYDRONIC AND STEAM ENERGY UTILITIES**

**1. GENERAL**

- A. Related sections:
  - i. 23 00 00 General Mechanical Requirements
  - ii. 23 21 13 Hydronic Piping
  - iii. 23 22 13 Steam & Condensate Heating Piping
  - iv. 33 00 00 General Utilities Requirements
- B. Design Professional shall specify fiber reinforced polymer composite, traffic rated, secure locking lids for heavy electrical manhole covers. New cast iron covers will not be accepted.

**2. PRODUCTS**

- A. Vaults shall be cast-in-place, reinforced concrete construction and shall be water-proofed (top, bottom and sides) with a sheet membrane system that bonds to the concrete.
- B. Pipe penetrations shall be sleeved and the space between the piping outer jacket and the sleeve shall be sealed with link-seal, and the void filled with non-shrinking grout.
- C. Vaults shall be provided with sump pumps.
  - i. Chilled water vault sumps shall be electric.
  - ii. Steam vault sumps shall be steam-powered.
- D. Steam manhole cover equal to McGard, LLC FiberShield Manhole with lock
  - i. Fiber reinforced polymer
  - ii. H-20 and AASHTO HS-25 load rating for 80,000 lb.
  - iii. Self-containing locking system that provides cover to frame retention and security from unauthorized entry and uses a multipurpose T-Key.
  - iv. Egress handle:
    - a. Provide a manual pull handle for use by individual inside the manhole a means to exit
    - b. All plastic construction to resist corrosion, parts molded in high visibility yellow
    - c. Pulling the handle will latch open one of the cartridge assemblies and allow the person to push the cover out of the frame and then exit.
  - v. Ultraviolet radiation will not affect long term performance of composite manhole cover.
  - vi. Logo Plate: Stainless Steel plate 1/8" thick that says "STEAM".

**3. EXECUTION**

- A. Contractors shall coordinate with FMD welding shop (706-542-7593) before entering steam pits.
- B. Vaults sump pumps shall be piped to the nearest storm manhole.



**33 71 19**

**ELECTRICAL UNDERGROUND DUCTS & MANHOLES**

**1. GENERAL**

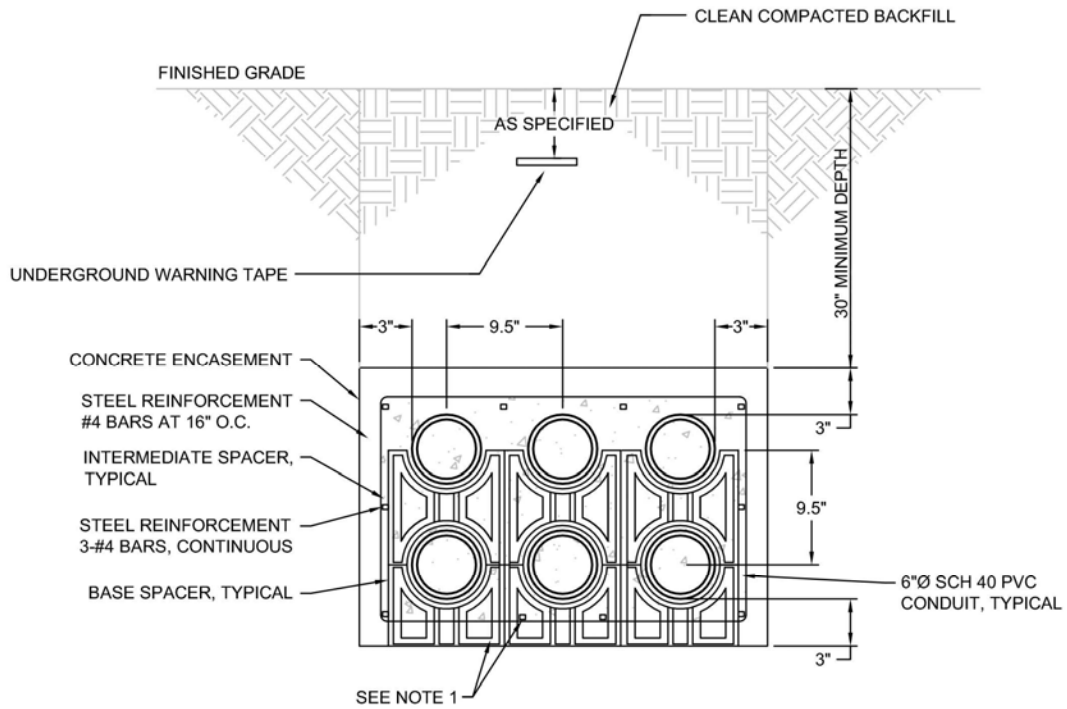
- A. Related sections:
  - i. 26 00 00 General Electrical Requirements
  - ii. 33 00 00 General Utilities Requirements
- B. Design Professional shall specify fiber reinforced polymer composite, traffic rated, secure locking lids for heavy electrical manhole covers. New cast iron covers will not be accepted.

**2. PRODUCTS**

- A. Electrical manhole cover equal to McGard, LLC FiberShield Manhole with lock
  - i. H-20 and AASHTO HS-25 load rating for 80,000 lb.
  - ii. Self-containing locking system that provides cover to frame retention and security from unauthorized entry and uses a multipurpose T-Key.
  - iii. Fiber reinforced polymer
  - iv. Egress handle:
    - a. Provide a manual pull handle for use by individual inside the manhole a means to exit
    - b. All plastic construction to resist corrosion, parts molded in high visibility yellow
    - c. Pulling the handle will latch open one of the cartridge assemblies and allow the person to push the cover out of the frame and then exit.
  - v. Ultraviolet radiation will not affect long term performance of composite manhole cover.
  - vi. Logo Plate: Stainless Steel plate 1/8" thick that as appropriate says "ELECTRIC" or "HIGH VOLTAGE".
- B. Refer to drawings at end of this section.



*SCHEMATIC DRAWINGS FOR GENERAL REFERENCE ONLY*



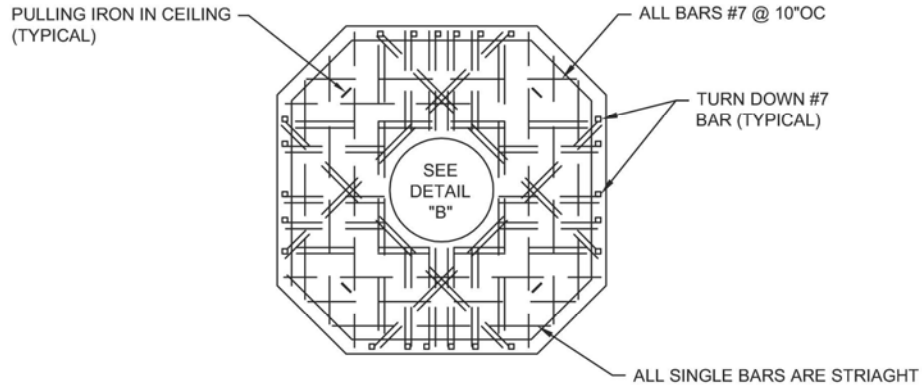
NOTES:

1. STEEL REINFORCEMENT IS REQUIRED FOR ALL LOCATIONS WHERE DUCT BANK IS BELOW ROADWAY OR DRIVEWAY PAVEMENT.

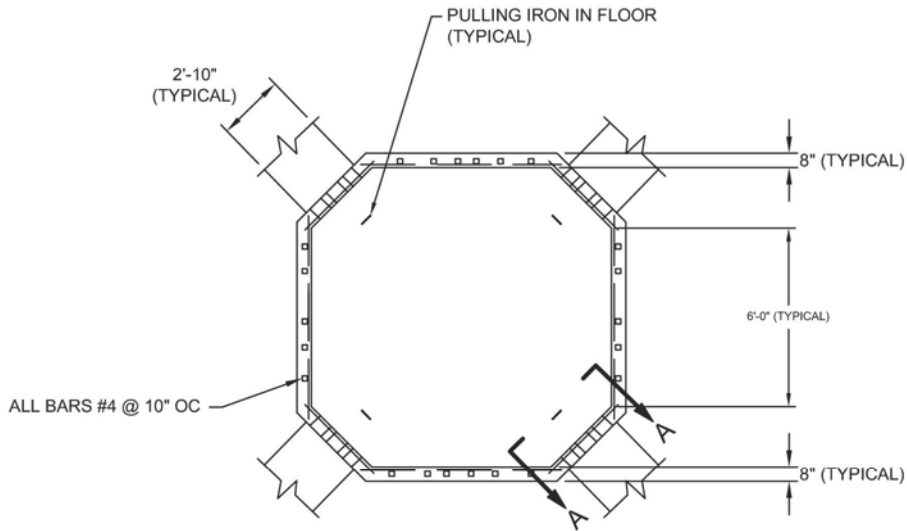
PRIMARY CONCRETE-ENCASED DUCTS  
NTS



*SCHEMATIC DRAWINGS FOR GENERAL REFERENCE ONLY*



**ROOF PLAN**  
NTS

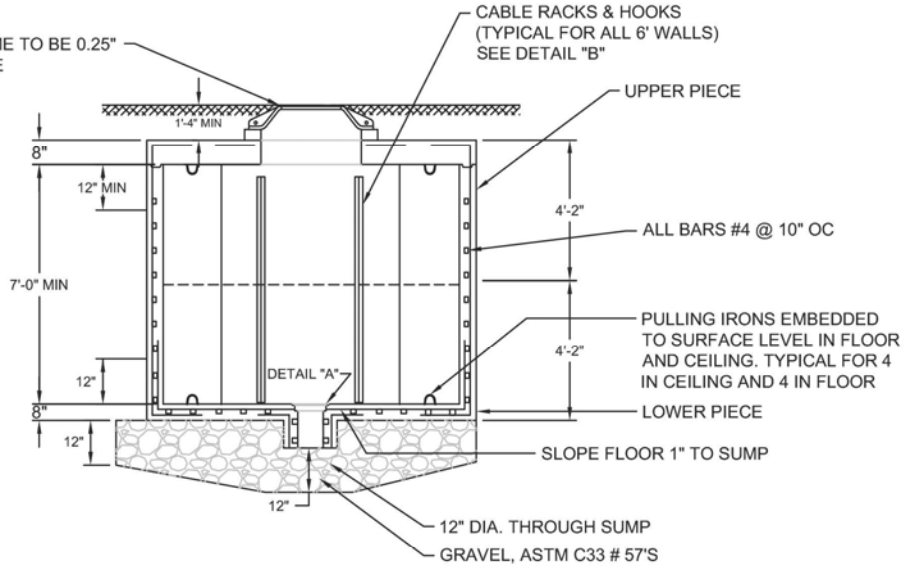


**PLAN BELOW ROOF**  
NTS

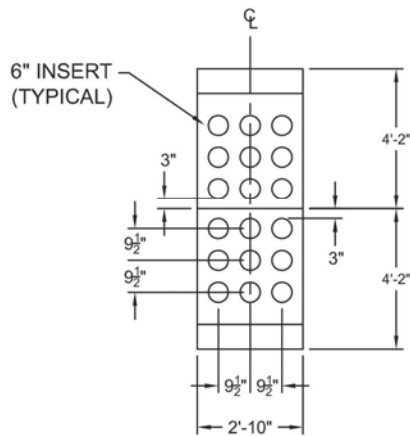




**SCHMATIC DRAWINGS FOR GENERAL REFERENCE ONLY**



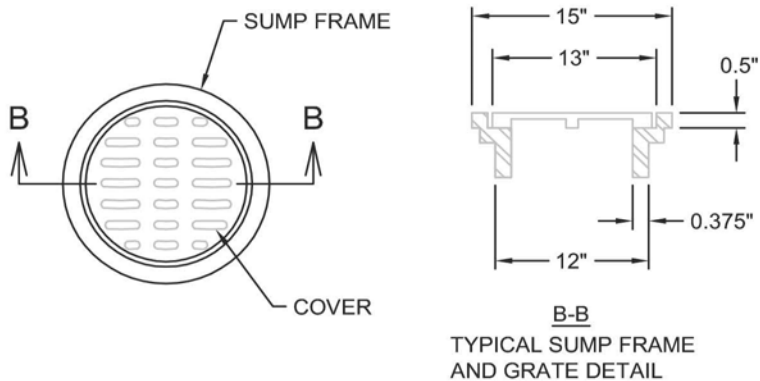
**ELEVATION**  
NTS



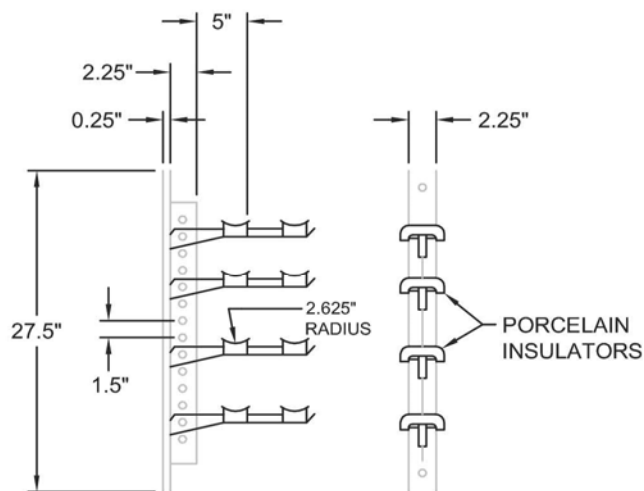
**SECTION A-A (TYPICAL 4 CORNERS)**  
NTS



*SCHEMATIC DRAWINGS FOR GENERAL REFERENCE ONLY*



DETAIL A – SUMP COVER  
NTS



NOTE: FASTEN BY MEANS OF 2.5" X 0.5"  
BOLTS AND EXPANSION SHIELDS

DETAIL B – CABLE RACKING  
NTS



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**33 80 00**  
**COMMUNICATIONS UTILITIES**

**1. GENERAL**

A. Related sections:

- i. 27 00 00 – General Communications Requirements
- ii. 27 05 43 – Underground Ducts & Raceways for Communications