CUY-90-14.90

PID 77332/85531

APPENDIX DR-10

City of Cleveland Drainage Provisions
(Contract Document)

State of Ohio
Department of Transportation
Jolene M. Molitoris, Director

Innerbelt Bridge
Construction Contract Group 1 (CCG1)

Revision Date: January 6, 2010

LATERAL SEWER CONNECTIONS, STANDPIPES AND TEST TEES – ITEM 603E

603.01E WORK INCLUDED

This work shall consist of the construction or reconstruction of lateral sewer connections, standpipes and test tees in accordance with these specifications. This work shall include: excavating for pipe and foundations for same, including removal of appurtenances encountered; furnishing and placing granular or concrete bedding and granular backfill as required, concrete encasement, coring of connecting to the main sewer, sheeting or bracing; pumping and dewatering, furnishing and installing all necessary pipe bends and branches of a type at least equal to the conduit of which they become a part; joining to existing and proposed appurtenances as required.

603.02E MATERIAL AND INSTALLATION

The pipe shall be of the size and kind listed in the contract, meeting the requirements of Section 603.02 of ODOT Specifications and the City Supplement thereto.

a. Vitrified Clay Pipe

All vitrified clay pipe shall be extra strength as per ASTM-C700 with ASTM-C425 Compression joint for bell spigot type. The method of installation shall be as per ASTM-C12.

603.03E SHEETING AND BRACING

Sheeting, sheet piling, planking, bracing, etc., as may be required shall conform to the requirements of 603.03 of City Supplemental to ODOT Specifications.

603.04E CLEANING SEWER CONNECTIONS

All existing house sewer connections, catch basin connections, and all drains encountered in prosecution of the work which are to be reconnected to the new sewer shall be thoroughly cleaned from main sewer to the property line or to the catch basin. This work shall be performed by the use of equipment and methods intended for that purpose, such as sewer rodding, snaking, flushing out with clean water, blowing out with compressed air, or hydraulic vacuuming. Following the cleaning, the connections and traps shall be tested by means of the flow from a 3” minimum fire hose, or another approved method.

603.05E SUPPORT OR UTILITIES OVER SEWER TRENCH

All utilities encountered during the progress of trench excavation shall be properly supported and the protective measures maintained until the backfill is in place.

The Contractor shall notify in writing the companies, owners, or persons in charge of structures or utilities encountered, and such notice shall be given in ample time to permit the representatives of utilities and the Contractor to work out the methods of support and protection.

603.06E PIPE BACKFILL

Pipe backfill shall be classified as premium backfill.

Materials selected by the Contractor for premium backfill shall be approved by the engineer prior to placement.

Premium backfill shall be used for the full depth of trench and it shall be compacted in layers not to exceed 4 inches in thickness with mechanical tampers. When compacting with water, the granular material may be placed in layers not to exceed 12 inches loose depth and each layer thoroughly saturated with water by flooding or jetting.

603.07E STUB CONNECTIONS AND Y-BRANCHES

Stub Connections and Y-Branches shall be furnished and placed for all house sewer connections, catch basin connections, and other connections and drains.

a. Stub Connections
    1. Stub Connections shall extend through the walls of the sewer pipe at such position as the Engineer shall direct. The end of each stub shall be flushed with the inside surface of the receiving pipe.
    2. The holes for clay sewer pipe stubs for house connections shall be cored using a rotary drill in the proper location and position after the pipe has been delivered to the site. The holes may be cored just prior to placing the pipe in the trench or after the pipe has been placed in the trench and has been partially backfilled. In either case extreme care shall be given to installing the pipe so that the hole is in the correct position (both longitudinally and radially) relative to the location of the existing pipe to be reconnected. Under no circumstances shall holes be made with a pneumatic hammer.
    3. The holes for 6" Clay Sewer Pipe Stubs shall be eight (8) inches in diameter. The holes for 12" Clay Sewer Pipe Stubs shall be sixteen inches in diameter.
    4. The Pipe Stubs shall be held in place with 1:2 Portland Cement Mortar.
b. Y-Branches

    Clay Pipe Y-Branches of the sizes specified shall be used in construction of house or other connections on clay pipe sewers and the pipe shall not be cut to insert stubs. When so specified of ordered, one or more lengths of pipe on existing sewers shall be removed by breaking out; and Y-Branches and closure sections of pipe of proper length and size shall be inserted and properly jointed in place as elsewhere specified.

    In the event pipe sewers of any type are to be constructed of such size that Y-Branches are not available, connections shall be made by means of stubs in holes, properly formed, through the walls of sewer pipe. All the provisions set forth for inserting stub connections in existing pipe sewers shall be complied with.

c. Materials

Stubs and Y-Branches shall be of material meeting the requirements elsewhere specified for sewer pipe. Unless otherwise permitted, stubs shall be provided with shoulders or lugs holding them properly in place and preventing extension beyond the inner surface of the pipe sewer.

603.08E STANDPIPES

Standpipe shall be constructed by the Contractor on such stub connections or Y-Branches as are shown on the construction plans or as may be directed during the progress of the work.

Standpipes shall be constructed in accordance with the attached standard drawings and all materials used in such construction shall conform to the standard requirements as elsewhere specified.

603.09E TEST TEES

Each lateral connection to building sites shall have a test tee of full size constructed one foot outside of the right of way line or public easement line where such are encountered. Test tee caps shall be cast or ductile iron.

MANHOLES, CATCH BASINS, INLETS, JUNCTION CHAMBERS OR MONUMENTS - ITEM 604

604.01 WORK INCLUDED

This work shall consist of the construction or reconstruction of manholes, catch basins, inlets, junction chambers, or monuments of the types and sizes specified, adjusting the existing castings to grade. The Contractor shall perform the required excavation and backfill, furnish all materials, and labor necessary.

604.02 MATERIALS AND METHODS OF CONSTRUCTION

The construction of structures specified shall conform to the requirements of Item 604 of ODOT Specifications of the City Specifications Supplement thereto. Excavation for structures shall conform to the latest safety requirements set forth in Section 604.04 of City of Cleveland Supplemental Specifications to ODOT.

604.03 STANDARD STRUCTURES

Standard manholes, catch basins, or inlets shall be constructed in accordance with the requirements set forth on the Standard Drawings. Precast concrete manholes shall be constructed of precast concrete riser sections meeting the requirements of ASTM C478 and the joints between the sections shall conform to ASTM C443.

604.04 JUNCTION CHAMBERS

Junction chambers or other structures specially designed and not conforming to Standard Drawings shall be constructed as called for and detailed on Contract Drawings.

When Contract Drawings do not provide the details and quantity of the reinforcing steel to be placed in junction chambers it will be Contractor's responsibility to prepare the Reinforcing Steel Placement Drawings and submit for approval by the Engineer as soon as possible after having been awarded the Contract.

The Contractor shall also submit for approval the Manufacturer's Shop Drawings for precast manhole riser sections whenever such sections contain prefabricated tees or any other specials which are to be used in the precast part of a manhole.

604.05 JOINING PIPES TO MANHOLES

Inlet and outlet pipes shall be joined to the manhole with a gasketed flexible water tight connection that provides for differential settlement to take place between the pipe and manhole wall. The type of connection shall be as specified or as approved by the Engineer.

604.06 STRUCTURES RECONSTRUCTED OR ADJUSTED TO GRADE

The work of adjusting existing manholes, catch basins, or inlets includes building the designated structures up to grade or removing and rebuilding a portion of a structure all within one foot change in elevation including the removal and resetting of castings. All work shall meet requirements of Section 604.03 of the City of Cleveland Specifications Supplemental to ODOT.

The work of reconstructing existing manholes, catch basins, or inlets includes removing and rebuilding a portion of structure greater than one foot in height, replacing manhole steps, bottom channels, loose brick, etc. Existing catch basins to be reconstructed shall be cleaned, adjusted to grade, shall have the "Z" trap replaced by the cast iron trap and any other repair work performed as ordered by the Engineer.

604.07 CLEANING EXISTING STRUCTURES

All existing manholes, catch basins, and inlets which constitute an integral part of project and are designated to remain shall be cleaned of debris and dirt as specified in Section 603.04 of these Specifications.

604.08 CASTING REUSED

Manhole frames and covers, catch basin frames, grates, or curb boxes and monument boxes removed may be reused to replace broken castings or parts of castings on existing structures within the limits of this contract which are designated to remain.

604.09 MONUMENT ASSEMBLIES

The City of Cleveland will mark the location where new monument assemblies are to be constructed. The Contractor shall notify the Chief Surveyor at (216) 664-2461, at least three (3) weeks prior to beginning their monument assembly operation in order to have the locations marked in the field. The Contractor shall furnish the following for each assembly: one (1) Cleveland Monument Box as directed on City of Cleveland Standard Drawings No. A-37 and MB-1C and one (1) one inch diameter epoxy steel deformed reinforcing bar thirty-six inches (36") long, flat on top with a round pointed end. The City of Cleveland shall install the pin (rebar) prior to setting the box.

Any person, Contractor, utility, or governmental agency, herein referred to as the Contractor, disturbing, removing and/or replacing pavement in the City of Cleveland's public right-or-way shall provide information as to the type of work and the limits of the work to the City of Cleveland Chief Surveyor prior to performing such work. The Chief Surveyor will determine which monuments, if any will be affected such work.

For Monuments located inside the Contractor's "work area" the City must reference these monuments prior to any of the work being performed. The Contractor shall notify the City of Cleveland Chief Surveyor at (216) 664-2461, at least ten (10) working days prior to the replacement or relocation of monuments to allow the Chief Surveyor to mark locations in the field.

The Contractor shall perform all other operations necessary to complete this work item, such as pavement removal, excavation, setting the box to grade, and pavement replacement.

For monuments outside the Contractor's "work area", but near enough to the "work area" that may be disturbed for any reason, the City must reference these monuments prior to any work being performed by the Contractor. The Contractor, after having completed the final pavement replacement, shall notify the City Chief Surveyor at (216) 664-2461, to have the monuments inspected for displacement. Should

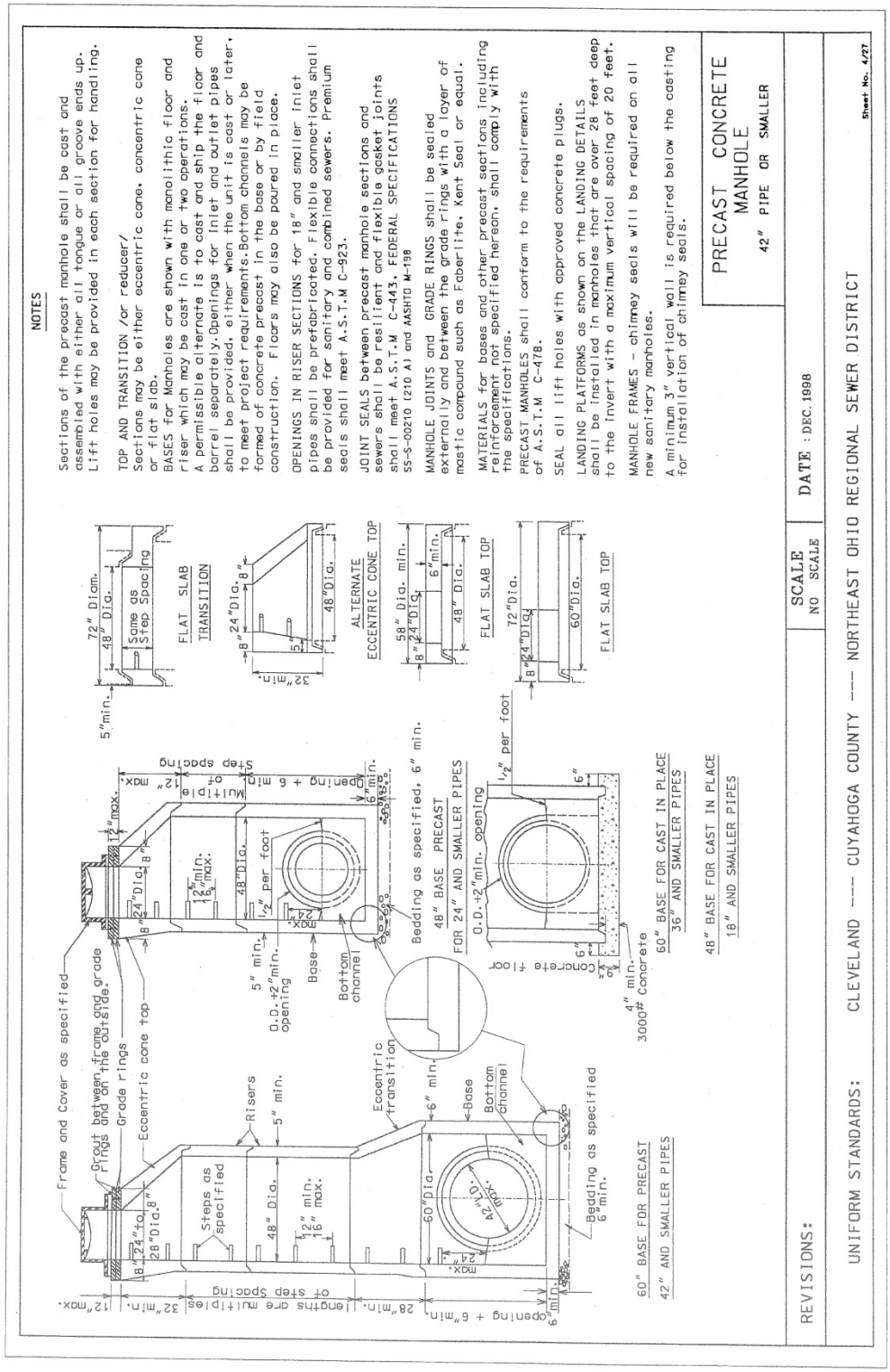
the monument be disturbed for any reason, the Contractor shall be responsible for the replacement as if the monument were originally inside the “work area” as herein specified.

604.10 FLOW REGULATOR

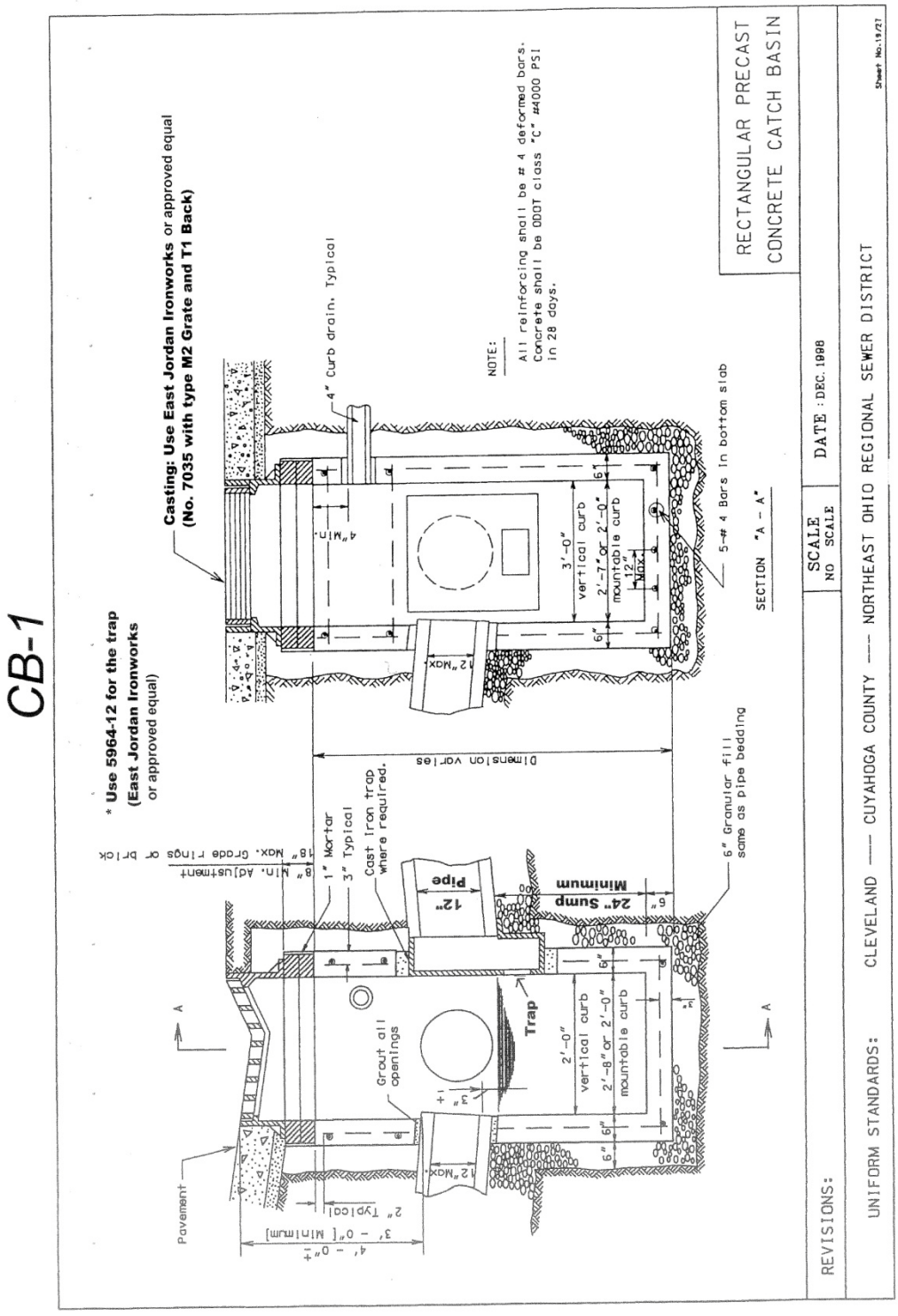
This item shall consist of furnishing and installing a Hydro-Brake, Hydro-Vex, or approved equal of type and size.

Prior to installing the Hydro-Brake, Hydro-Vex, or approved equal, the catch basin shall be cleaned and all water and debris pumped out of the sump.

PRECAST CONCRETE MANHOLE



RECTANGULAR PRECAST CONCRETE CATCH BASIN



* Use 12 inch VCP at 1% minimum grade for all catch basin connections
* Use a minimum of 3 foot cover for catch basin connections
* All catch basins should have a trap and 24 inch minimum sump