

CET 636 S—ADJUSTMENT OF UTILITY STEAM HARDWARE

This section describes the adjustment of existing utility steam castings requiring a concrete collar and the installation of a concrete collar around the adjusted steam castings.

A. Description

Building up or lowering the installation and resetting the steam castings shall consist of removing the existing frame and cover, building up or decreasing the existing installation, replacing the frame and/or cover if damaged, as determined by the facility operator, with a new frame and/or cover furnished by the owner, setting the frame and cover to the new elevation and placing a concrete collar around the steam casting all in accordance with the plans, the specifications, and the directions of the facility operator.

B. Materials

Concrete for collar shall comply with the requirement of Section 3.05, Class A-40, Type IIA; Cement shall be Type II Portland; Sand - Type 1A; coarse aggregate - Type 1, Grade B or Type 2, Size No. 57. An approved air-entraining agent shall be added at the time concrete ingredients are mixed with water.

Reinforcement shall be welded steel wire fabric complying with the requirements of ASTM Designation A185, with wire spacing and sizes shown on the plans.

Material used for vertical adjustment of castings shall comply with the standards of the facility operator having jurisdiction over the installations.

New steam castings of the various sizes required and deemed by the facility operator to be replaced shall be furnished to the Contractor. The Contractor shall be required to inform the facility operator in advance of the need for the castings. Materials supplied by the facility operator shall be delivered to the contractor's designated storage area. Contractor shall comply with Sections 2 and 3 of the General Provisions.

C. Method of Construction

The contractor shall breakout pavement and/or pavement base around existing casting, remove casting, protect opening, reinstall existing castings or install new castings to the proposed grades, grade and compact fill around casting, install concrete collar around casting, tack coat around frame, install and remove temporary pavement around casting when required and perform all work in accordance with the contract plans and the specifications.

Setting or resetting the castings shall be done with brick and mortar according to the standards of the facility operator having jurisdiction over the installation. Work shall be done in a workmanlike manner. Any damage resulting from the Contractor's operations to the existing installation which is to remain shall be satisfactorily corrected at the Contractor's own expense, as directed by the facility operator.

Castings, which are deemed unacceptable for resetting, shall become the property of the contractor and shall be removed and disposed of by him away from the site.

Placement of reinforced concrete to form a collar around the steam castings shall be done in accordance with the details shown on the plans, Sections 4.05.4, 4.05.5, and 4.05.6 of the Standard Specifications, and the directions of the Engineer.

No traffic shall be allowed on adjusted street hardware until permitted by the Resident Engineer.

During the course of adjusting or replacing castings, the Engineer may direct the contractor to perform minor structural repairs to any damaged utility structures prior to resetting the castings and that work shall be done and paid for in accordance with other items.

D. Method of Measurement

1. CET 636 SA

The quantity of concrete collars around steam castings to be measured for payment shall be the number of square feet (SF) of concrete collar constructed, measured in place, adjusted for thickness and strength deficiencies in accordance with Section 1.05.4. In determining the quantity of area to be paid, the areas occupied by castings will be deducted when they measure more than one (1) square foot and will not be deducted when they measure one (1) square foot or less. Also, the area of concrete haunch to be paved over with 3" asphalt concrete pavement shall be included in the area of measurement for the concrete collar.

2. CET 636 SB and SC

The quantity of adjusted steam castings to be measured for payment shall be the actual number (ea) of steam castings requiring a concrete collar that are adjusted to the proposed roadway grade. The size of each street hardware unit, measured in width, shall be defined as either the diameter of circular covers or the larger length or width of rectangular covers.

E. Price to Cover

1. Item 636 SA - The contract price for Item SA per square foot (SF) of Concrete Collar Around Steam Castings shall cover the cost of furnishing all labor, materials, plant, equipment, maintenance and protection of traffic, insurance and incidentals required to complete the work, including furnishing and placing reinforced concrete, inclusive of steel, supports, curing, etc., to furnish such samples for testing and to provide such testing laboratory space and facilities as may be required and to maintain the collar in good conditions as specified in Section 1.05.5., and completing the work in accordance with the plans, the specifications and the directions of the facility operator.

2. Items 636 SB and 636 SC

The contract price for:

1. Item 636 SB - Adjustment of Utility Steam Castings
(Under and including 8" Width)
2. Item 636 SC - Adjustment of Utility Steam Castings
(Above 8" to 34" Width)

Shall cover the cost of furnishing all labor, materials, plant, equipment, insurance and incidentals required to remove existing frames and covers; build up the existing installations with brick and mortar, or lower the existing installations by removing bricks and mortar; replace damaged frames and/or covers with frames and/or covers furnished by others; break out pavement and/or pavement base; protect existing opening and installation; set the frames and covers to new elevations; grade and compact fill; install base concrete; tack coat frame; install and remove temporary pavement; repair minor structural damage to existing installations prior to resetting frames; unloading of furnished castings at the contractor's yard and transporting castings from the contractor's yard to the job site as required; and complete the work in accordance with the plans, the specifications, and the directions of the facility operator's representative.

Adjustment of steam castings not requiring concrete collars shall be paid for under the appropriate CET 636 E item.

F. References

1. ASTM A185
2. CET 636 E

CET 700 - SPECIAL MODIFICATION OF WORK METHODS TO ACCOMMODATE/PROTECT UNDERGROUND FACILITIES WITH LIMITED COVER

A. Description

Under this section, the Contractor shall provide all labor, materials, equipment, insurance and incidentals required to maintain, protect and accommodate the integrity of utility facilities that include, but are not limited to:

1. Conduits;
2. Conductors;
3. Concrete encased Conduit banks;
4. Steel Pipes;
5. Oil-o-static Facilities; and
6. Non-cost Sharing Gas Facilities;

located within a zone beneath the existing pavement, base and/or sub-base. The zone shall be defined, for Utilities, as 12 inches of cover or less from the ultimate depth of excavation. The provisions of this item shall be applicable during the removal of existing and temporary pavement and other in-place material, backfilling or filling where required, grading, preparation of sub-grade, compacting, and installation of concrete base material and/or compatible sub-base material and temporary restoration material where applicable. The work shall be performed in accordance with the contract plans (see special care excavation plan), specifications and at the directions of the facility operator(s).

B. Materials – N/A

C. Methods of Operation/Construction

Once the clearances have been verified by available records, to the sole satisfaction of the facility operator(s), the Contractor shall exercise extreme caution, by utilizing appropriate methods of operation/construction, by employing specialized construction equipment and special operations and sequencing, within the area designated for protection and accommodation of utility facilities as shown on the plans or where the cover on the aforementioned subject utilities is equal to or less than 12" inches measured from the ultimate depth of excavation, or as otherwise directed by the facility operator(s). All work shall incorporate, but not be limited by the following restrictions:

1. Removal of Existing Pavement

Removal of temporary and existing pavement, base material, and all in-place material shall be performed by cutting, undermining and lifting, or any combination thereof, with excavators working off or from adjacent undisturbed pavement. This method shall be used in lieu of using earth moving excavator equipment to remove the existing roadway and/or base material by lifting and/or pushing pavement, or any combination thereof, ahead of it while the equipment is supported and/or running on the exposed earth, sub-grade or sub-base. All equipment and methods and maintenance and protection provisions shall require full authorization by the facility operator(s).

2. Preparation and Installation of New Pavement Base and Temporary Restoration Material

The backfilling, grading, and installation of base, compatible materials, (or other pavement material) in the areas designated within the specific zones of protection, shall be performed utilizing materials, equipment and methods of construction that will insure the integrity of the utility facilities which shall, for the purpose of this item, include the provision that the loading on the utilities including any impact loads, shall not be greater than a total of 4 kips and at the same time meet all requirements for this work as specified in other sections of this contract.

3. Compaction

The Contractor shall compact all sub-grade, new sub-base and temporary restoration material in the areas designated within the specified zones of protection by utilizing native and/or blended fill material, equipment and methods of construction that shall insure the integrity of the Utilities and at the same time meet all requirements for compaction as specified in other sections of this contract. The Contractor shall be required to initiate a test strip compaction operation in selected areas on site to verify the materials, procedures and equipment producing a sub-grade that is in compliance with contract specifications.

4. Powered Excavating Equipment Limitations

The Contractor shall not employ powered or mechanical excavating equipment over or closer than twelve inches in any direction from the staked, marked or otherwise designated or known, outside envelope or perimeter of said utilities unless permitted in writing. Such written permission shall be furnished to the excavator through the facility operator(s) (where applicable) and only where the Contractor has provided certified documentation, by a New York State licensed Professional Engineer, that loading(s), including impact, on facilities due to his/her operations is not greater than that during normal traffic conditions on the existing pavement. The Contractor shall not be permitted to store, stand and/or travel equipment/vehicles on specified unpaved zoned protection areas.

D. Method of Measurement

The quantity of Special Modification of Work Methods to Accommodate/Protect underground facilities with limited cover to be measured for payment shall be the number of cubic yards (C.Y.) of existing pavement and sub-grade material of whatever nature encountered, actually removed and disposed of from the existing roadway zone of protection area, measured in place between the top of existing surface and the ultimate depth of excavation necessary for the installation and or removal of pavement, and/or additional compatible material.

The horizontal zone of protection shall be defined, for the purpose of this item, as the boundary/area designated on the plans or a boundary/area 3 feet from the outer edge of each of the designated facilities, on a block-by-block basis based upon available records. Where overlapping of the zones occurs due to multiple facilities, the boundary/area shall be modified to one zone measured from the outside limits. Where the 3-foot area falls beyond the curb line, the outside boundary shall be the curb line. The areas measured for payment under this item shall be made for work related to the removal of existing pavement, in-place material, and installation of new pavements and/or compatible materials within a designated zoned protection. Installation and removal of the temporary restoration material shall not be measured for payment under this item. Modifications to work methods required in areas in between zones of protection for multiple utilities or CET facilities adjacent to any existing structure/curb shall not be measured for payment and are deemed to be included in the price bid for this item.

E. Price to Cover

The contract price bid per cubic yard (C.Y.) for Special Modification of Work Methods, etc., shall include the cost of all incremental labor, materials, time, equipment, insurance and incidentals required for excavation and disposal of pavement, all in-place material, installation of concrete base material to new sub-grade, grading, preparation of sub-grades, hand excavation, backfilling, removal of temporary asphalt concrete mixture, and compaction; all together with necessary incidentals, in accordance with the plans, the specifications and the directions of the facility operator(s). The price shall further include the cost of maintaining, protecting, and accommodating the integrity of utility facilities during the performance of roadway reconstruction within the areas designated on the plans or as encountered and directed by the facility operator(s), and the incremental additional work and effort made necessary to furnish and place an acceptable fill material, as may be required, install and remove temporary restoration material and install the new pavement (base concrete or other pavement as applicable) under other contract items.

Payment for all work herein specified shall be made on a one-time basis only; no payment for work herein specified shall be made for the same area more than one time. No payments will be made under this item if the Contractor excavates beyond the limits specified in the contract and enters the 12-inch zone of protection, unless directed by the facility operator(s). In addition, work under this item shall be paid in combination with other utility or facility accommodation items under other contract items.

CET 710 - REMOVAL OF ABANDONED UTILITY STEEL/CAST IRON/PLASTIC PIPES

A. Description

Under this section, the Contractor shall provide all labor, materials, equipment, insurance and incidentals required for the removal and disposal of abandoned steel and cast iron pipelines of various sizes, up to and including 20" diameter, and their appurtenances for non-cost sharing utility facilities. The item specified under this section shall not be measured for payment in conjunction with any other types of CET items. All work shall be performed in accordance with the contract plans, the specifications, and the directions of the facility operator.

B. Materials

All materials, including but not limited to clean backfill, shall be supplied by the Contractor and comply with the filling and backfilling requirements of Section 4.11 of the Bureau of Highway Standard Specifications.

C. Method of Construction

The Contractor shall excavate all materials of whatever nature encountered to remove abandoned pipe. Where necessary around and under other City and privately owned facilities, the Contractor shall be required to excavate by hand, using hand-held power tools. Removal of abandoned pipe shall be done by normal excavation equipment. Steel pipe shall be cut with torch or saw at intervals convenient for its removal. Prior to cutting any pipe whose end is not open and visible, the Facility Operator shall test and certify in a timely manner that the abandoned pipeline is free of combustible gas and/or live cable prior to removal. The Contractor shall notify facility operator through its authorized representative 48 hours in advance of work in areas where pipelines have been abandoned, as identified by the authorized facility operator representative. The Contractor shall then seal open end of pipe remaining in the excavation with concrete or caps (caps to be provided by the facility operator), where directed by the facility operator, and backfill the area with clean fill.

D. Method of Measurement

Removal of Abandoned Utility Steel/Cast Iron/Plastic Pipes shall be measured for payment per linear foot (LF) of pipe removed, measured in place along its axis between the inner faces of the pipe. Each pipe size classification will be paid for separately. The size classifications are defined as follows:

1. 710.1 Up to and including 12" diameter pipes.
2. 710.2 Over 12" and up to and including 20" diameter pipes.
3. 710.3 Over 20" diameter pipes.

E. Price to Cover

The contract price bid per linear foot for Removal of Abandoned Utility Steel/Cast Iron/Plastic Pipes shall cover the cost of all labor, equipment, insurance and incidentals required for the removal and disposal of abandoned steel and cast iron pipelines of various sizes, up to and including 20" diameter pipe, and their appurtenances for non cost sharing utility facilities in accordance with the plans, specifications, and the directions of the facility operator. Payment shall include but not be limited to the cost of excavation by hand around and other City and facility operator owned properties and, where necessary, support and protection of such properties, the breaking, cutting, and/or burning of abandoned pipes and their disposal from the site, sealing open ends remaining in the excavation with concrete or caps (caps top to be provided by the facility operator), and backfilling of the area with clean backfill where the pipeline has been removed.

CET 711 - USE SHEETING LINE AS FORM

A. Description

Under this item, the Contractor shall provide all labor, equipment, materials, insurance and incidentals necessary to utilize/modify the trench sheeting - as provided for NYC-DDC - as formwork for one side of the proposed sewer cradle. The required side is defined in the Contract Drawings. All work shall be in accordance with this specification and all applicable NYC-DDC specifications, including Section 4.05.4 (C).

B. Materials

The sheeting, within the limits of the cradle, shall be covered with a material selected by the Contractor that will allow the removal of the sheeting as required by NYC-DDC specification.

Materials shall conform to the applicable NYC-DDC design specifications for sheeting and formwork.

Submittals & Approvals - The Contractor shall submit a P.E. approved sheeting plan and calculations that comply with D.D.C. design specifications for sheeting systems and include this requirement. Submittals for approval shall be made to the applicable private utility and the DDC Resident Engineer.

C. Methods of Construction

Where any existing utilities or facilities are indicated on the plans or in NYS Industrial Code Rule 753 mark-outs adjacent to the proposed work, trenches shall be excavated as per the requirements of NYS Industrial Code Rule 753 to determine the limits of the existing facilities. This excavation and any excavation to remove any material, which stops the driving of sheeting, are included in this Item. Sheeting shall only be driven when the limit of adjacent utilities or facilities is known. It shall be the Contractor's responsibility to install sheeting in conformance with City, State and Federal Safety Codes.

Sheeting placed under this item shall be tight and continuous. Skeleton sheeting will not be permitted.

Where applicable, the excavation method and sheeting type and method of placement, shall take into account the removal or maintenance of the existing sewer, if required by NYC-DDC.

The formwork shall be lined in such a manner to prevent the infiltration of soil and water and to allow the removal of the sheeting upon hardening of the concrete.

During sheeting removal, place and tamp clean sand into the void created by the removal of the formwork.

The Contractor shall take all necessary precautions to prevent the undermining of adjacent utilities and facilities.

D. Method of Measurement

The quantity to be paid for under this item will be the number of linear feet of trench where the modified sheeting system is installed.

E. Price to Cover

The price per linear foot of trench where a modified sheeting is installed shall include the cost of all labor, equipment, materials, insurance and incidentals necessary to modify/install and remove the sheeting as form work including associated maintenance of traffic and furnishing, placing and tamping sand backfill over and above that paid under NYC-DDC Item(s). Payments to support and protect private utility facilities will be paid under the applicable CET Item. The price to locate all private utilities that are parallel or encroaching on the proposed trench shall be paid under the CET Test Pit Item.

F. References

1. NYS Industrial Code Rule 753

CET 781 - REMOVABLE CURB SIDEWALK PANEL FOR ACCESS TO UTILITY STRUCTURE OPENINGS

A. Description

This section describes the work required for construction of removable curb sidewalk panels for access to utility structure openings in accordance with the plans, the specifications, and the direction of the Engineer and utility representative.

The work shall consist of unloading, handling, storing, and installing curb panels (panels to be supplied by facility operator) over the existing structures to provide a continuation of the adjacent curbs over the structures and permit the removal of the curb piece for access to the structure covers. The work also includes the concrete foundation under the panel frame and all excavation required for the above operations.

B. Materials

Concrete shall be Class B-32, Type IIA; cement - Type II, Portland; sand - Type IA; and coarse aggregate - Type I, Grade B, or Type 2, Size No. 57. An approved air-entraining agent shall be added at the same time concrete ingredients are mixed with water.

All other materials shall conform to the requirements of the Consolidated Edison Company Drawing No. EO-13147-B, Rev. 10 "Removable Curb Sidewalk Panel for Access to Manhole Openings".

C. Method of Construction

Excavation shall comply with the requirements of Section 6.02 of the Con Edison Standard Specifications. All excess material resulting from excavation shall be removed from the site immediately.

All concrete work shall comply with the requirements of Section 4.06 of the Con Edison Standard Specifications.

The Contractor shall comply with Sections 2 and 3 of the General Provisions except that the contractor shall notify the facility operator's representative on the site at least two (2) weeks in advance as to when he requires delivery of the panels.

The installation of each panel must conform to actual field measurements and to the requirements of the Consolidated Edison Company Drawing No. EO-13147-B, Rev. 10 "Removable Curb Sidewalk Panel for Access to Manhole Openings."

D. Method of Measurement

The quantity to be measured for payment shall be the number of each (EA) Removable Curb Sidewalk Panel, actually incorporated into the work, complete.

E. Price to Cover

The unit price per each of the Removable Curb Sidewalk Panel shall cover the cost of furnishing all labor, materials, plant, equipment, insurance and incidentals required and completing the work including excavation; excess removal; concrete work; grouting; unloading, handling, storing, and installing of curb panels to be furnished by the facility operator; field measurements; field painting; curbing; and all necessary incidental work, in accordance with the plans, the specifications and the directions of the Engineer and facility operator's representative.

F. References

1. Con Ed Drawing EO-13147-B Rev. 10
2. Section 6.02 Con Edison Standard Spec
3. Section 4.06 Con Edison Standard Spec

CET 800 - MODIFICATION OF TROLLEY STRUCTURES REMOVAL WHEN CROSSING UTILITY FACILITIES

A. Description

Under this section, the Contractor shall provide all incremental labor, equipment, insurance and incidentals required to maintain and protect and accommodate the integrity of utility facilities that include but are not limited to:

1. Conduits;
2. Conductors;
3. Concrete encased Conduit banks;
4. Steel Pipes; Steam Facilities;
5. Oil-o-static Facilities; and
6. Non-cost Sharing Gas Facilities;

of various sizes and configurations crossing trolley structures at various angles located within a zone of protection, as indicated on Sketch CET 800A, during the removal of trolley structures and subsequent backfilling operations. Utility facilities that run parallel to trolley structures are not included within this item and will be paid for under the appropriate CET item. The work shall be performed in accordance with the contract plans, the specifications, and as encountered during construction and directed by the facility operator.

B. Materials – N/A

C. Method of Construction

The Contractor shall maintain, protect, and accommodate the integrity of all utility facilities of various sizes and configurations crossing trolley structures within a zone of protection as indicated in Sketch CET 800A, during removal of trolley structures and subsequent backfilling and compaction operations under other contract item(s). The facility operator shall identify the locations of all utilities within the contract area as required by New York State Industrial Code Rule 753. As provided by the Rule, the Contractor shall use hand excavation methods (pick and shovel or hand held power tools) directly below the pavement base to expose the utility and ascertain the numerical relationships and/or dimensions of these utilities with respect to the proposed excavation. Upon exposing the affected utilities sufficiently, and at the sole discretion of the facility operator to determine relationships and/or dimensions, the Contractor shall be permitted to proceed with hand held power tools to remove existing trolley structure within the zone of protection whose limit shall be defined as a perimeter located 36 inches from the outside face of each utility crossing.

D. Method of Measurement

The quantity to be measured for payment shall be the number of linear feet of modified trolley structure removal within the zone of protection as indicated on CET Sketch 800A, measured along the centerline of trench. The zone of protection shall be defined, for the purpose of this agreement, as the boundary/area designated on the plans or a boundary/area 3 feet to either side of each of the designated facilities, based upon available records and/or information obtained from prior or new test pits, or any combination thereof. Where overlapping of the zones occurs due to multiple facilities, the boundary/area shall be modified to one zone measured from the outside limits. The contract item specified under this section shall not be measured for

payment in conjunction with other types of utility items. Modifications to work methods required in areas between zones of protection for multiple utilities or CET facilities shall not be measured for payment and are included in the price bid for this item.

E. Price to Cover

The unit price per linear foot shall include the incremental cost for all labor, equipment, and incidentals required to maintain and protect and accommodate the integrity of utility facilities during the removal of trolley structures (including rails, timber ties, yokes, trolley conduits, main conduit, rail and yoke foundations), and backfilling and compacting within a zoned area designated for protection of utilities by the facility operator.

CET 801 - MODIFICATION OF TROLLEY STRUCTURES REMOVAL PARALLEL TO UTILITY FACILITIES

A. Description

Under this section, the Contractor shall provide all incremental labor, equipment, insurance and incidentals required to maintain, protect, support and accommodate the integrity of utility facilities that include but are not limited to:

1. Conduits;
2. Conductors;
3. Concrete encased Conduit banks;
4. Steel Pipes; Steam Facilities;
5. Oil-o-static Facilities; and
6. Non-cost Sharing Gas Facilities;
7. Steam Facilities;

of various sizes and configurations paralleling or encroaching trolley structures located within a zone of protection, as indicated on the Plans, during all trolley structure removal operations and subsequent backfilling operations. Utility facilities which cross over, under and between the trolley structures are not included within this item and will be paid for under the appropriate CET item. The work shall be performed in accordance with the contract plans, the specifications, and as encountered during construction and directed by the facility operator(s).

B. Materials – N/A

C. Method of Construction

The Contractor shall maintain, protect, support and accommodate the integrity of all utility facilities of various sizes and configurations paralleling or encroaching trolley structures within a zone of protection as indicated on the Plans, during removal of trolley structures and subsequent backfilling and compaction operations under other contract item(s). The facility operator(s) shall identify the locations of all utilities within the contract area as required by New York State Industrial Code Rule 753. As provided by the Rule, the Contractor shall use hand excavation methods (pick and shovel or hand held power tools) directly below the pavement base to expose the utility and ascertain the numerical relationships and/or dimensions of these utilities with respect to the proposed excavation. Upon exposing the affected utilities sufficiently, and at the sole discretion of the facility operator(s) to determine relationships and/or dimensions, the Contractor shall be permitted to proceed with hand held power tools to remove existing trolley structure within the zone of protection whose limit shall be defined as a perimeter located 36 inches from the outside face of each utility.

D. Method of Measurement

The quantity to be measured for payment shall be the number of linear feet of modified trolley structure removal within the zone of protection as indicated on the plans, measured along the centerline of trench. The contract item specified under this section shall not be measured for payment in conjunction with other types of utility items. Modifications to work methods required in areas between zones of protection for multiple utilities or CET facilities shall not be measured for payment and are included in the price bid for this item.

E. Price to Cover

The unit price per linear foot shall include the incremental cost for all labor, equipment, and incidentals required to maintain, protect, support and accommodate the integrity of utility facilities paralleling or encroaching trolley structures during the removal of trolley structures (including rails, timber ties, yokes, trolley conduits, main conduit, rail and yoke foundations), and backfilling and compacting within a zoned area designated for protection of utilities by the facility operator(s).

The price shall include any additional cutting, removing and disposing of roadway materials; hand or machine excavation; trucking and disposing of excavated materials, installation and removal of sheeting; and furnishing, installing and compacting backfill that may be required to support, protect, maintain and accommodate the integrity of utility facilities. The price shall also include the incremental cost for providing all vehicular and pedestrian traffic maintenance necessary to perform the work.

The Contractor shall be responsible for any and all damages resulting from and/or due to trolley demolition operations that are not performed in accordance with the specifications.

F. References

1. NYS Industrial Code Rule 753

CET 802 - SPECIAL MODIFICATION OF WORK FOR INSTALLATION OF NEW CURBS AND SIDEWALKS

A. Description

Under this Section, the Contractor shall be required to modify work methods of installing new curb and sidewalk in order to maintain, protect and accommodate the integrity of private Utility Facilities located within a zone of protection immediately beneath existing sidewalk and curb designated to be replaced under other Contract items. The zone of protection shall define an area of curb and sidewalk where: work is within the vicinity of private Utility Facilities as shown on the Special Care Excavation Plan or where utilities are encountered during construction that are within 18 inches of either face of curb and/or 12 inches of the base material of proposed curb and/or sidewalk.

B. Materials – N/A

C. Method of Operation/Construction

Once clearances have been verified by available records to the satisfaction of the facility operator, the Contractor shall exercise extreme caution to install new curb and sidewalks within zoned areas of protection. Exercising extreme caution shall mean utilizing appropriate methods of operation/construction, special operations and sequencing, and by employing hand labor, using hand held tools only, under the personal direction of the appropriate facility operator. The work shall incorporate, but not be limited by, the following restrictions:

Removal of Existing Curb and Sidewalk

Removal of existing curb and sidewalk material shall be performed by saw cutting the curb and sidewalk, for a depth of not less than 2", to assist the Contractor in breaking up the concrete curb and sidewalk for removal by hand. Curb and sidewalk removal shall be done with hand labor, using hand held tools only, working from adjacent undisturbed sidewalk and/or pavement. Furthermore, it shall be understood to mean that digging and/or excavating directly with power-mechanized earth moving equipment will not be permitted. Power mechanized earth moving equipment may only be used as a depository of material removed from the excavation by hand as described above. All equipment, methods, and maintenance and protection provisions shall require full authorization by the facility operator.

Preparation and Installation of New Curb and Temporary and New Sidewalk

Backfilling, filling, grading of sub base, and installation of new curb and both temporary and new sidewalk, as required under other Contract Items, shall be performed utilizing materials, equipment and methods of construction that will insure the integrity of the private utility facilities and at the same time meet all requirements for this work as specified in other sections of this contract.

Compaction

The Contractor shall compact all sub-grade and new sub-base materials by utilizing native and/or blended fill material, equipment and methods of construction that will ensure integrity of private Utility Facilities and at the same time meet all requirements for compaction as specified in Section 4.11 of the Standard Specifications.

4. Powered Excavating Equipment Limitations

The Contractor shall not employ powered or mechanical excavating equipment within the zone of protection. Powered or mechanical excavating equipment may only be used as a depository for material removed from the excavation by hand as described above.

The Contractor shall not be permitted to store, stand and/or travel equipment/vehicles on specified unpaved zoned protection areas.

D. Method of Measurement

1. ITEM CET 802A

The quantity of "Special Care Excavation and Restoration for Sidewalk Work" to be measured for payment shall be the number of square feet (SF) of new sidewalk actually installed under other contract items within the zone of protection areas requested by the facility operator. For payment purposes, the horizontal limits for a zone of protection area shall be defined as the area designated on the plans or an area equal to the length of the designated facility multiplied by its width plus 18 inches on each side. Where overlapping of zones occur due to multiple facilities, the area will be modified to one zone measured from the outside limits. Where the 18-inch area falls beyond the curb line the outside boundary shall be the curb line.

2. ITEM CET 802B

The quantity of "Special Care Excavation and Restoration for Curb Work" to be measured for payment shall be equal to the number of linear feet (LF) of new curb actually installed under other contract items within the zone of protection areas requested by the facility operator.

E. Price to Cover

1. ITEM 802A

The contract price per square foot for "Special Care Excavation and Restoration for Sidewalk Work" shall be the incremental cost difference of all labor, materials, equipment, insurance and incidentals required for excavation and disposal of pavement, base and all other material to new sub-grade within and adjacent to zone of protection areas; saw cutting, grading, preparation of sub-grades, backfilling and compaction within zone of protection areas; all in accordance with the plans, the specifications and the directions of the facility operator. The price shall further include the cost of maintaining, protecting and accommodating the integrity of private Utility

Facilities during the performance of sidewalk reconstruction (under other Contract Items) within zone of protection areas designated on the plans or as directed by the facility operator.

2. ITEM 802B

The contract price per linear foot for "Special Care Excavation and Restoration for Curb Work" shall be the incremental cost difference of all labor, materials, equipment, insurance and incidentals required to install new curbs and temporary restoration material under other Contract items, within and adjacent to zone of protection areas; all in accordance with the plans, the specifications and the directions of the facility operator. The price shall further include the cost of maintaining, protecting, and accommodating the integrity of private Utility Facilities during the performance of curb reconstruction (under other Contract Items) within zone of protection areas designated on the plans or as directed by the facility operator.

Payment for all work specified herein shall be made on a one-time basis only; no payment will be made for the same area of sidewalk or length of curb more than one time. In addition, work under these items shall not be paid in combination with other utility items.

F. References

Section 4.11 Standard Specs

CET 1006V - 1020V VERTICAL OR ROLLED WATERMAIN OFFSET

A. Description

Under this section, the contractor shall provide all incremental labor, materials, equipment, insurance and incidentals required to offset water mains for vertical or rolled movement around exposed subsurface utilities encountered during construction. The work shall be performed in accordance with the contract plans, specifications and at the direction of the facility operator, upon written approval from the resident engineer. The trenches to be excavated shall be determined by the size of the water main and the extent of adjustment required to avoid utilities interferences during all phases of contract work. This work shall be performed in accordance with all the applicable City and utility specifications, and at the direction of the facility operator.

B. Materials

The contractor shall supply all materials necessary to offset the city water main(s) in accordance with the City standard water main specifications and approved by the facility operator.

C. Methods of Construction

The contractor shall cut, break and remove various thicknesses of surface and base pavement, excavate by hand to expose all utility facilities within the trench. Upon exposing the affected utility(s) determine clearances at the sole discretion of the facility operator. The contractor shall then be permitted to proceed with a combination of hand and machine excavation sufficient to accommodate the appropriate water main offset(s) under or above all utility facilities interfering with the installation of the water main as directed by the facility operator.

The contractor shall layout, measure, load and transport, unload, job store, as necessary, handle and lay fittings or portion of pipe, including labor, equipment and material for the complete installation of a water main offset including, but not limited to, fittings, all types of joints, retainer glands, rods and bands.

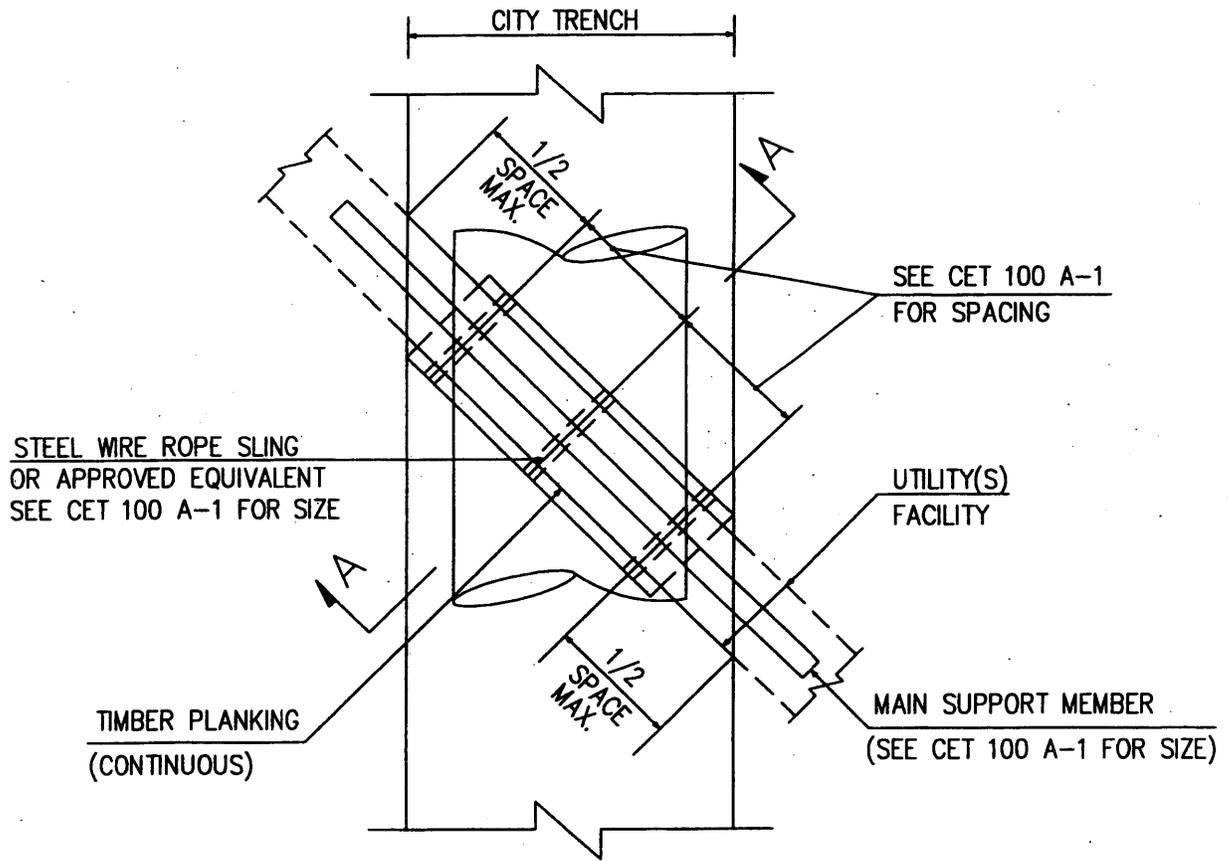
D. Method of Measurement

The quantity to be measured for vertical or rolled water main offset(s) shall be each (ea) water main offset which shall be defined as one (1) vertical or rolled water main offset in its final location with four (4) fittings and all appurtenances to avoid a single or multiple utility interference as directed by the facility operator. Each type of water main offset shall be paid for separately. The types of water main offsets are defined as follows:

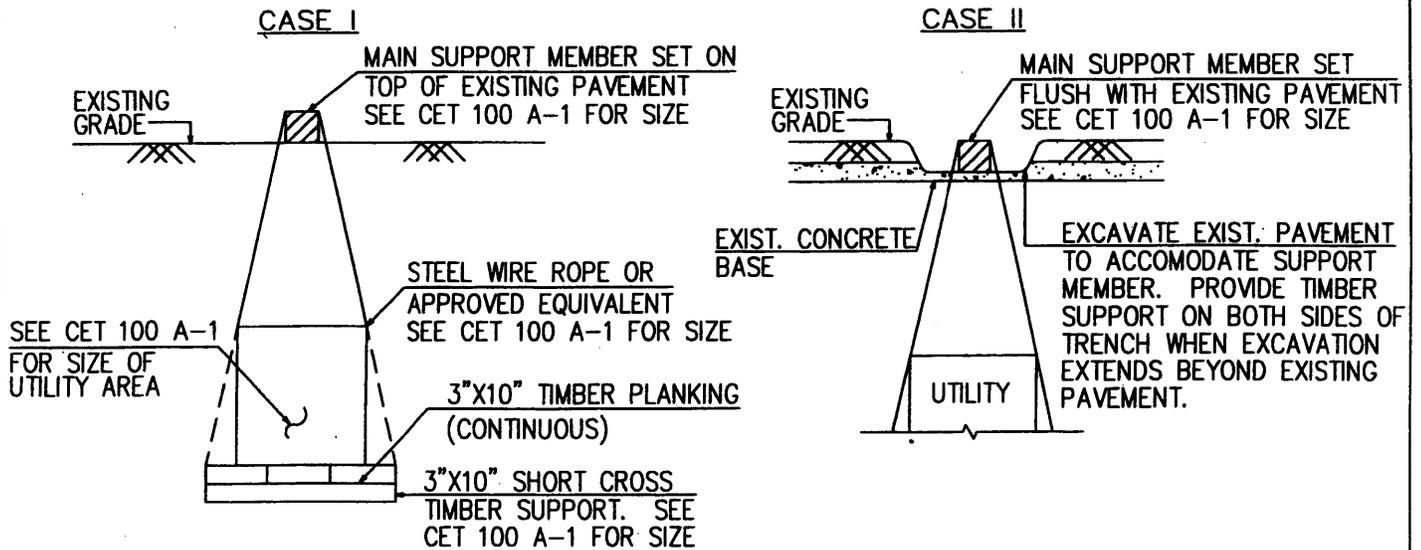
1. – CET-1006V – 6" Vertical or rolled water main offset
2. – CET-1008V – 8" Vertical or rolled water main offset
3. – CET-1012V – 12" Vertical or rolled water main offset
4. – CET-1016V – 16" Vertical or rolled water main offset
5. – CET-1020V – 20" Vertical or rolled water main offset

E. Price to Cover

The price for a water main offset shall include the cost of all labor, materials, equipment, insurance, and incidentals necessary to completely install a full water main offset inclusive of, but is not limited to, four (4) fittings, all types of joints, retainer glands, rods and bands. The contractor shall protect and maintain the integrity of the interfering facilities without disruption of service to the utility facility customers and in accordance with the contract documents. All associated maintenance of traffic, traffic plates, sheeting, cutting, breaking and removal of various thickness of surface and base pavement, excavating by hand to expose existing facilities, widening the trench to facilitate the work, snaking, furnish, place and tamp backfill after water main installation, required removing, trucking, storing, and dispensing of material shall be deemed included in the unit price. The price shall also include the cost of providing temporary pavement restoration, as required. Permanent pavement restoration and support and protection of utilities encountered while performing this work shall be paid under other items.



PLAN
N.T.S.



SECTION A-A
N.T.S.

NOTE:
VARIOUS ANGLES AND DEPTH
ARE AS DEFINED IN
ITEM CET 100-116.

CET SKETCH	
TEMPORARY SUPPORT OF UTILITY(S) CROSSING CITY TRENCH	
REVISIONS	
11-07-03	
CONTRACT NO.	SKETCH NO. CET 100 A

WATER/ SEWER DIAM.	CROSS SECTION AREA OF PRIVATE UTILITIES	INTERMEDIATE SUPPORT SLING *		NUMBER OF MAIN TIMBER SUPPORT MEMBERS				MAIN STEEL SUPPORT MEMBERS	TIMBER SHORT SIZE SEE NOTE 1
		NUMBER REQUIRED	UTILITY SUPPORT LENGTH	4' X 4'	4' X 8'	3' X 10'	4' X 12'	1 REQUIRED	1 PER SLING
D=12"	A<0.75 S.F.	1	7.1 FT	1	-	-	-	W 4 X 13	2" X 4"
	0.75<A<2.00 S.F.	2	7.1 FT	-	1	-	-	W 6 X 15	3" X 4"
	2.00<A<6.00 S.F.	3	7.1 FT	-	-	2	-	W 6 X 15	4" X 4"
	6.00<A<10.0 S.F.	4	7.1 FT	-	-	3	-	W 8 X 18	3" X 10"
	10.0<A<15.0 S.F.	4	7.1 FT	-	-	-	2	W 6 X 25	3" X 10"
	15.0<A<20.0 S.F. >20.0 S.F.	4	7.1 FT	-	-	-	3	W 6 X 25	4" X 10"
(METHOD OF SUPPORT TO BE SUBMITTED BY CONTRACTOR AND APPROVED BY FACILITY OPERATOR)									
12"<D<24"	A<0.75 S.F.	1	8.5 FT	2	-	-	-	W 4 X 13	2" X 4"
	0.75<A<2.00 S.F.	2	8.5 FT	-	1	-	-	W 6 X 15	3" X 4"
	2.00<A<6.00 S.F.	4	8.5 FT	-	-	3	-	W 6 X 15	4" X 4"
	6.00<A<10.0 S.F.	5	8.5 FT	-	-	4	-	W 8 X 18	3" X 10"
	10.0<A<15.0 S.F.	5	8.5 FT	-	-	-	3	W 6 X 25	3" X 10"
	15.0<A<20.0 S.F. >20.0 S.F.	5	8.5 FT	-	-	-	4	W 6 X 25	4" X 10"
(METHOD OF SUPPORT TO BE SUBMITTED BY CONTRACTOR AND APPROVED BY FACILITY OPERATOR)									
24"<D<36"	A<0.75 S.F.	1	9.9 FT	2	-	-	-	W 4 X 13	2" X 4"
	0.75<A<2.00 S.F.	3	9.9 FT	-	1	-	-	W 6 X 15	3" X 4"
	2.00<A<6.00 S.F.	4	9.9 FT	-	-	3	-	W 8 X 18	4" X 4"
	6.00<A<10.0 S.F.	6	9.9 FT	-	-	5	-	W 8 X 18	3" X 10"
	10.0<A<15.0 S.F.	6	9.9 FT	-	-	-	4	W 6 X 25	3" X 10"
	15.0<A<20.0 S.F. >20.0 S.F.	6	9.9 FT	-	-	-	5	W 8 X 31	4" X 10"
(METHOD OF SUPPORT TO BE SUBMITTED BY CONTRACTOR AND APPROVED BY FACILITY OPERATOR)									
36"<D<48"	A<0.75 S.F.	2	11.3 FT	3	-	-	-	W 4 X 13	2" X 4"
	0.75<A<2.00 S.F.	3	11.3 FT	-	2	-	-	W 6 X 15	3" X 4"
	2.00<A<6.00 S.F.	5	11.3 FT	-	-	4	-	W 8 X 18	4" X 4"
	6.00<A<10.0 S.F.	7	11.3 FT	-	-	7	-	W 8 X 18	3" X 10"
	10.0<A<15.0 S.F.	7	11.3 FT	-	-	-	5	W 8 X 31	3" X 10"
	15.0<A<20.0 S.F. >20.0 S.F.	7	11.3 FT	-	-	-	7	W 8 X 31	4" X 10"
(METHOD OF SUPPORT TO BE SUBMITTED BY CONTRACTOR AND APPROVED BY FACILITY OPERATOR)									
48"<D<54"	A<0.75 S.F.	2	12.0 FT	3	-	-	-	W 4 X 13	2" X 4"
	0.75<A<2.00 S.F.	3	12.0 FT	-	2	-	-	W 6 X 15	3" X 4"
	2.00<A<6.00 S.F.	5	12.0 FT	-	-	5	-	W 8 X 18	4" X 4"
	6.00<A<10.0 S.F.	7	12.0 FT	-	-	8	-	W 8 X 18	3" X 10"
	10.0<A<15.0 S.F.	7	12.0 FT	-	-	-	6	W 8 X 31	3" X 10"
	15.0<A<20.0 S.F. >20.0 S.F.	7	12.0 FT	-	-	-	7	W 10 X 33	4" X 10"
(METHOD OF SUPPORT TO BE SUBMITTED BY CONTRACTOR AND APPROVED BY FACILITY OPERATOR)									
** 54"<D<60"	A<0.75 S.F.	2	12.7 FT	3	-	-	-	W 4 X 13	2" X 4"
	0.75<A<2.00 S.F.	4	12.7 FT	-	2	-	-	W 6 X 15	3" X 4"
	2.00<A<6.00 S.F.	6	12.7 FT	-	-	5	-	W 8 X 18	4" X 4"
	6.00<A<10.0 S.F.	8	12.7 FT	-	-	9	-	W 8 X 18	3" X 10"
	10.0<A<15.0 S.F.	8	12.7 FT	-	-	-	6	W 8 X 31	3" X 10"
	15.0<A<20.0 S.F. >20.0 S.F.	8	12.7 FT	-	-	-	8	W 10 X 33	4" X 10"
(METHOD OF SUPPORT TO BE SUBMITTED BY CONTRACTOR AND APPROVED BY FACILITY OPERATOR)									
60"<D<72"	A<0.75 S.F.	2	14.1 FT	4	-	-	-	W 4 X 13	2" X 4"
	0.75<A<2.00 S.F.	4	14.1 FT	-	2	-	-	W 6 X 15	3" X 4"
	2.00<A<6.00 S.F.	7	14.1 FT	-	-	6	-	W 8 X 18	4" X 4"
	6.00<A<10.0 S.F.	9	14.1 FT	-	-	10	-	W 8 X 31	3" X 10"
	10.0<A<15.0 S.F.	9	14.1 FT	-	-	-	8	W 10 X 45	3" X 10"
	**15.0<A<20.0 S.F. >20.0 S.F.	9	14.1 FT	-	-	-	10	W 10 X 45	4" X 10"
(METHOD OF SUPPORT TO BE SUBMITTED BY CONTRACTOR AND APPROVED BY FACILITY OPERATOR)									
72"<D<84"	A<0.75 S.F.	2	15.5 FT	5	-	-	-	W 4 X 13	2" X 4"
	0.75<A<2.00 S.F.	5	15.5 FT	-	3	-	-	W 6 X 15	3" X 4"
	2.00<A<6.00 S.F.	7	15.5 FT	-	-	8	-	W 8 X 18	4" X 4"
	6.00<A<10.0 S.F.	10	15.5 FT	-	-	12	-	W 8 X 31	3" X 10"
	10.0<A<15.0 S.F.	10	15.5 FT	-	-	-	9	W 10 X 45	3" X 10"
	15.0<A<20.0 S.F. >20.0 S.F.	10	15.5 FT	-	-	-	12	W 10 X 45	4" X 10"
(METHOD OF SUPPORT TO BE SUBMITTED BY CONTRACTOR AND APPROVED BY FACILITY OPERATOR)									
> 84"	A<0.75 S.F.	2	15.5 FT	5	-	-	-	W 4 X 13	2" X 4"
	0.75<A<2.00 S.F.	5	15.5 FT	-	3	-	-	W 6 X 15	3" X 4"
	2.00<A<6.00 S.F.	7	15.5 FT	-	-	8	-	W 8 X 18	4" X 4"
	6.00<A<10.0 S.F.	10	15.5 FT	-	-	12	-	W 8 X 31	3" X 10"
	10.0<A<15.0 S.F.	10	15.5 FT	-	-	-	9	W 10 X 45	3" X 10"
	15.0<A<20.0 S.F. >20.0 S.F.	10	15.5 FT	-	-	-	12	W 10 X 45	4" X 10"
(METHOD OF SUPPORT TO BE SUBMITTED BY CONTRACTOR AND APPROVED BY FACILITY OPERATOR)									

NOTES

1. TIMBER SHORT CROSS SIZE SUPPORTING 3"x10" CONTINUOUS TIMBER PLANKS
2. THIS SKETCH SHALL NOT BE USED FOR COMPUTATION OF PAYMENT LINES. FOR PAYMENT SEE CET SKETCH 100E.
- * SLING SHALL BE 2" WIDE NYLON STRAP OR EQUIVALENT (SLING CAPACITY SHALL BE 6,000 LBS.) ONE (1) TIMBER SHORT CROSS REQUIRED AT EACH SLING SUPPORTING 3"x10" CONTINUOUS TIMBER PLANKS.

ASSUMPTIONS

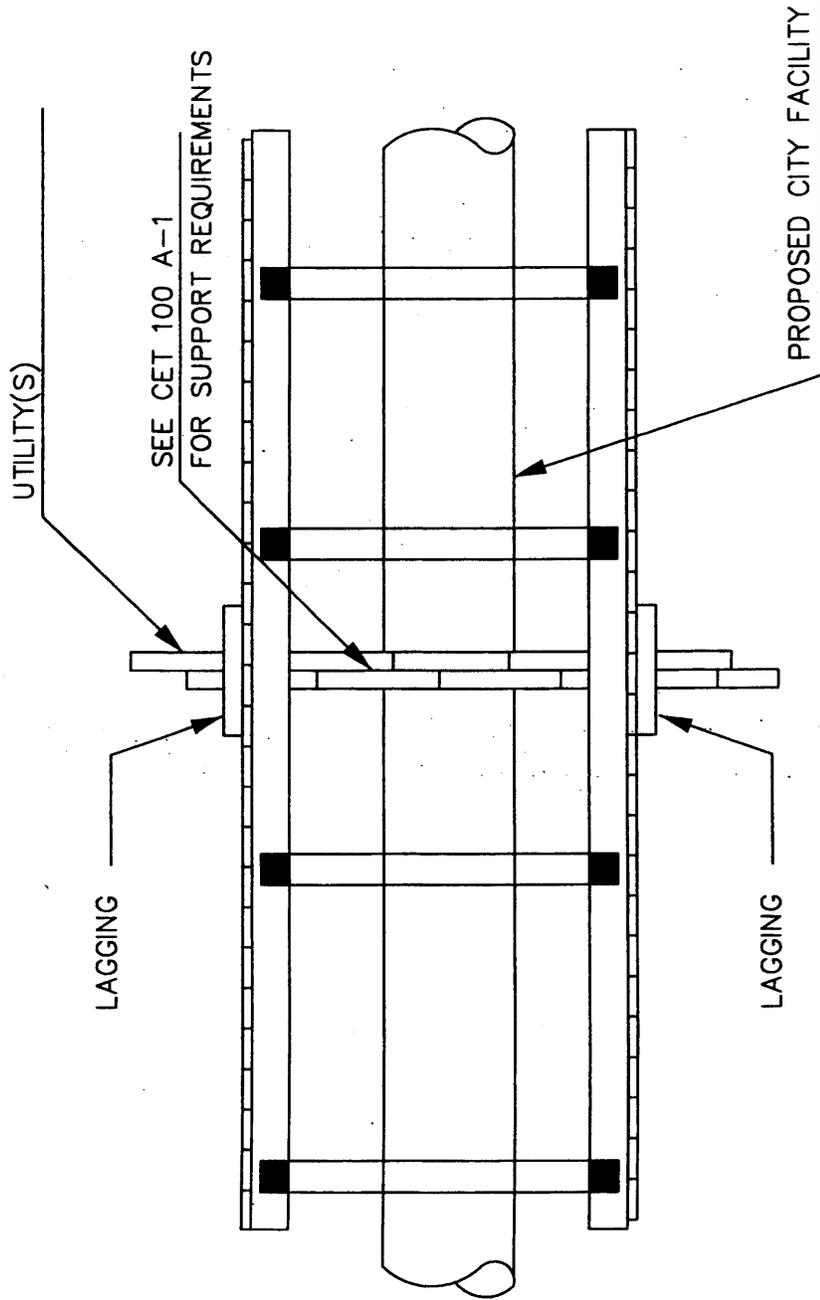
1. ASSUME CROSS SECTION AREAS ARE SOLID CONCRETE AT 150lb./C.F.
2. ASSUME ALLOWABLE BENDING STRESS FOR TIMBER MEMBERS IS 1200 PSI.
3. ASSUME ALLOWABLE TIMBER SHEER STRESS IS 90 PSI.
4. ASSUME ALLOWABLE SHEAR STRESS FOR STEEL MEMBERS IS 1000 PSI.

** ALSO APPLIES FOR 9'x9' EXCAVATIONS FOR CATCHBASINS UNDER ITEM CET 225

REVISIONS

11-07-03

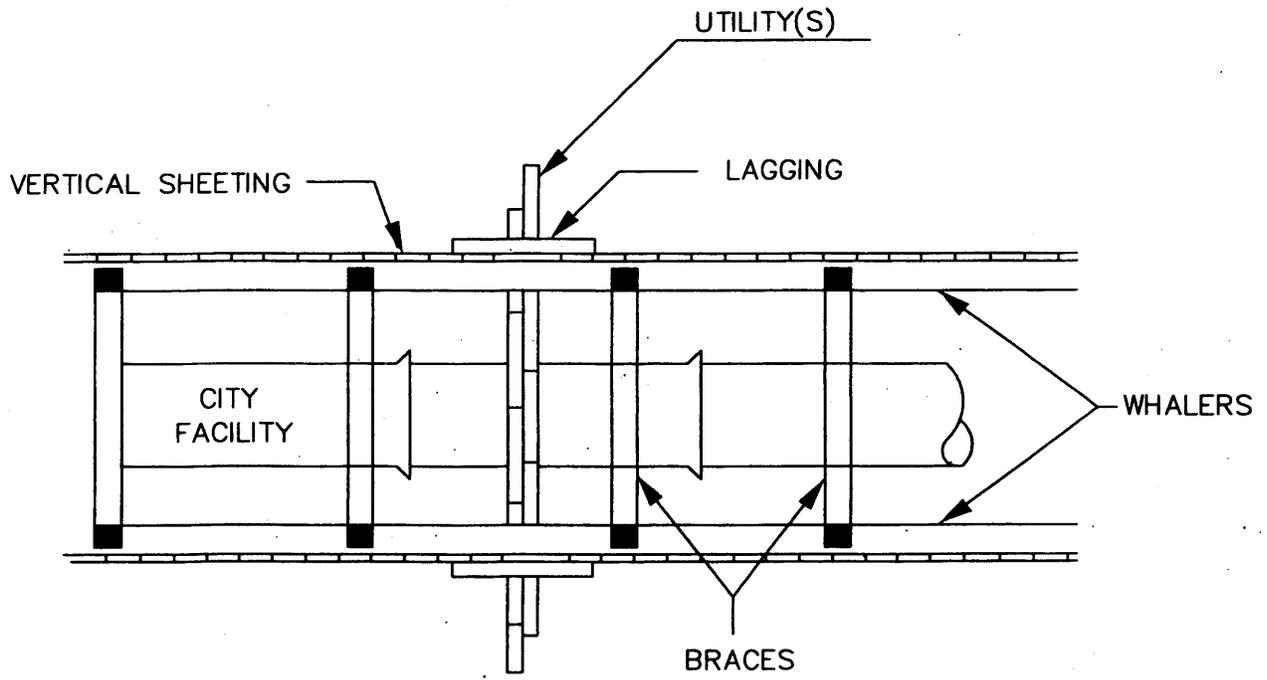
CET SKETCH	
SUPPORT REQUIREMENTS FOR PRIVATE UTILITY CROSSING ITEMS (PLAN & SECTION A-A SKETCH NO. 100 A)	
CONTRACT NO.	SKETCH NO. CET 100 A-1



PLAN VIEW

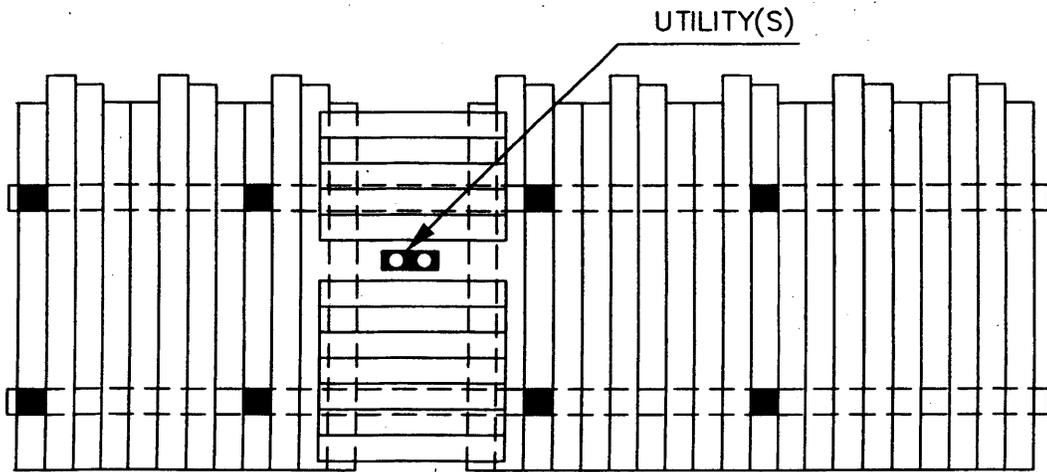
N.T.S.

CET SKETCH	
TYPICAL SUPPORT MAINTENANCE AND PROTECTION OF CET FACILITIES	
REVISIONS	CONTRACT NO.
11-17-00	SKETCH NO. CET 100 B



PLAN VIEW

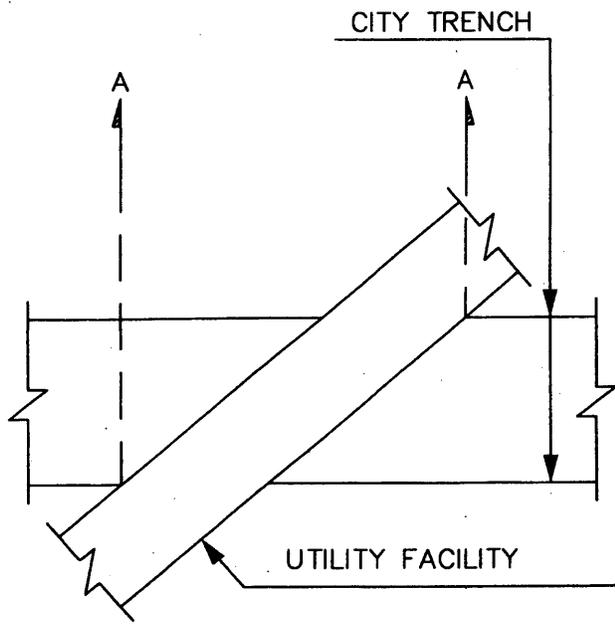
N.T.S.



PROFILE VIEW

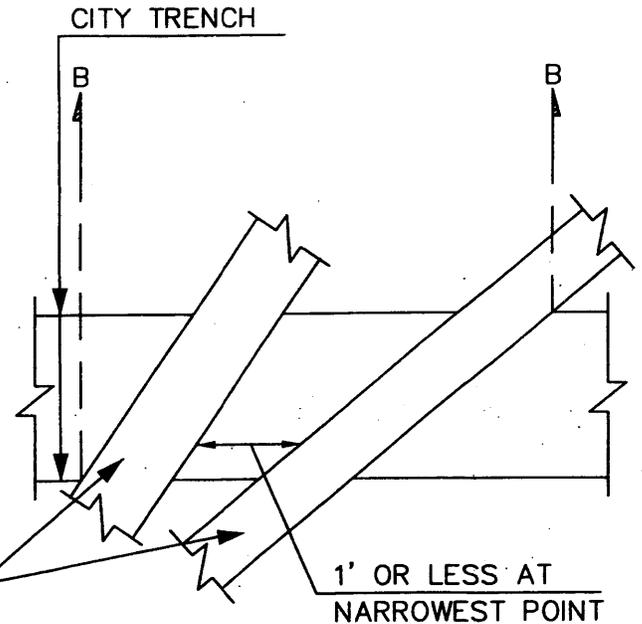
N.T.S.

CET SKETCH	
LAGGING	
REVISIONS	CONTRACT NO.
11-17-00	SKETCH NO. CET 100 C



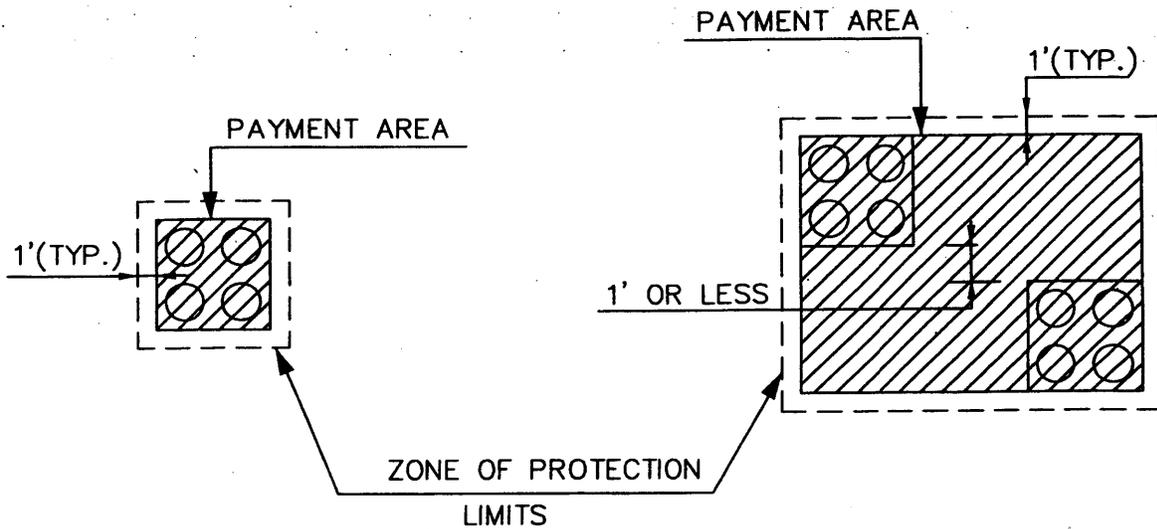
SINGLE UTILITY CROSSING

NOT TO SCALE



MULTIPLE UTILITY CROSSING

NOT TO SCALE



SECTION A-A

NOT TO SCALE

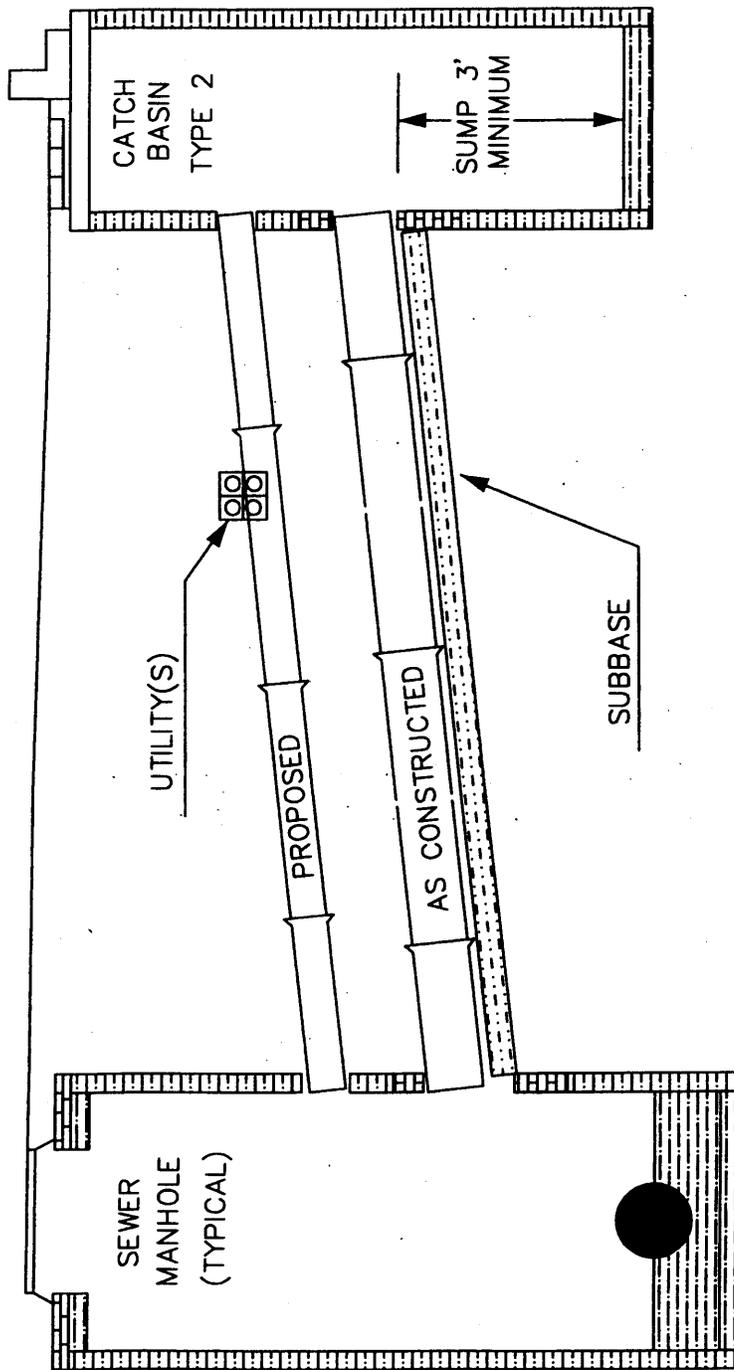
SECTION B-B

(AT WIDEST POINT)

NOT TO SCALE

NOTE:
 VARIOUS ANGLES AND DEPTH
 ARE AS DEFINED IN
 ITEM CET 100-116.

CET SKETCH	
TYPICAL METHOD OF MEASUREMENT FOR UTILITY(S) CROSSING	
REVISIONS	
11-07-03	
CONTRACT NO.	SKETCH NO. CET 100 E

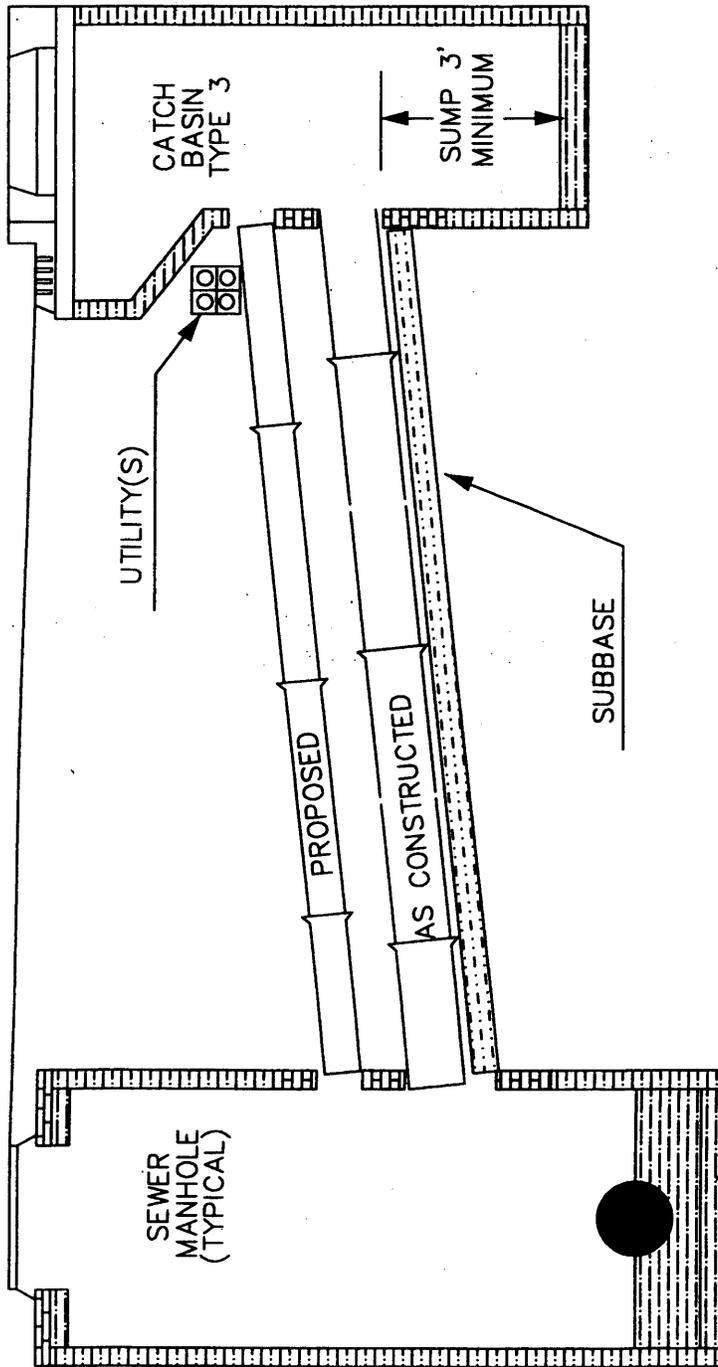


PROFILE
N.T.S.

NOTE:
VARIOUS ANGLES ARE AS
DEFINED IN CET 200.

REVISIONS
11-17-00

CET SKETCH	
ACCOMODATIONS OF UTILITIES DURING CATCH BASIN CHUTE CONNECTION PIPE INSTALLATION	
CONTRACT NO.	SKETCH NO. CET 200 A

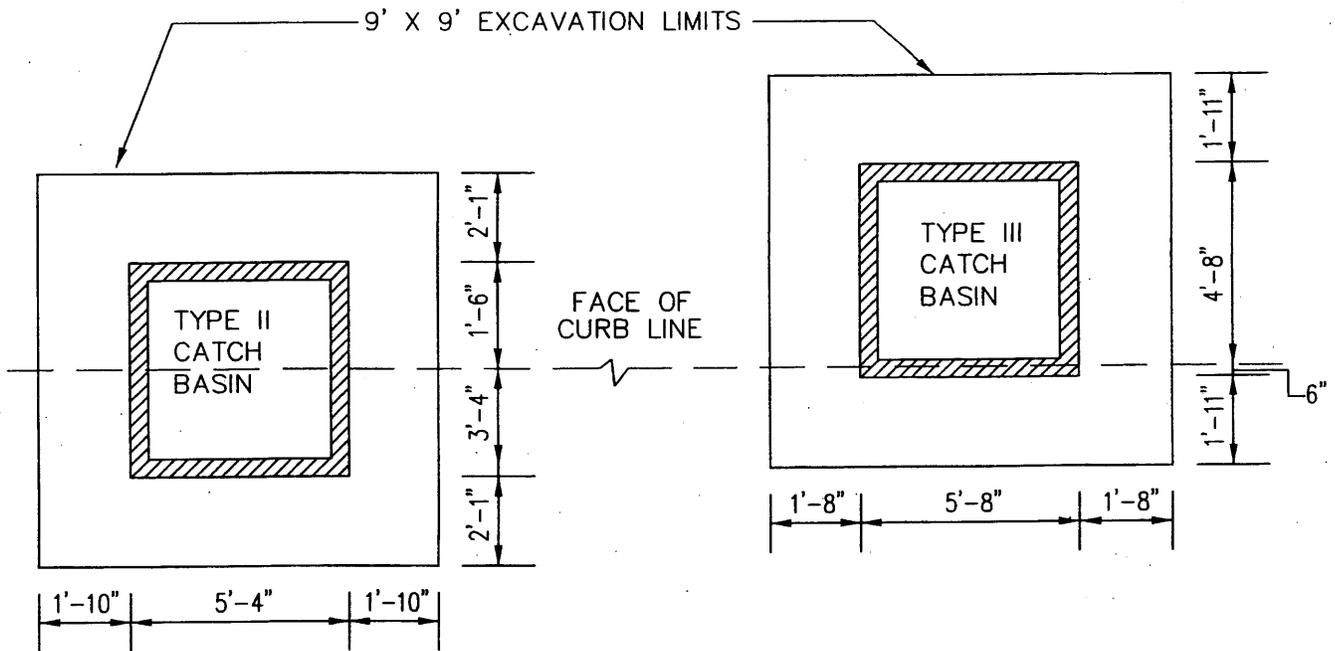


PROFILE
N.T.S.

NOTE:
VARIOUS ANGLES ARE AS
DEFINED IN CET 200.

REVISIONS
11-17-00

CET SKETCH	
ACCOMODATIONS OF UTILITIES DURING CATCH BASIN CHUTE CONNECTION PIPE INSTALLATION	
CONTRACT NO.	SKETCH NO. CET 200 B



CATCH BASIN ORIENTATION TO CURB LINE WITH EXCAVATION LIMITS CONCENTRIC TO BASINS
N.T.S.

CET 225 PAY LIMITS

CATCH BASIN TYPE	DIMENSION TO CET FACILITY PARALLEL FROM FACE OF CURB INTO STREET	DIMENSION TO CET FACILITY PARALLEL FROM FACE OF CURB INTO SIDEWALK	DIMENSION TO CET FACILITY PERPENDICULAR TO CURB FROM FACE OF CATCH BASIN
TYPE 2	3'-6" TO 5'-5"	1'-8" TO 3'-7"	0'-2" TO 1'-10"
TYPE 3	0'-8" TO 2'-5"	4'-10" TO 6'-7"	0'-2" TO 1'-8"

NOTES:

- CET FACILITIES WILL NOT ACCEPT ANY PAYMENT LIABILITY BEYOND THE 9'x9' EXCAVATION LIMITS.
- IN ADDITION, THE LIMIT OF EXCAVATION FOR NEW CATCH BASINS UNDER THIS CONTRACT SHALL NOT EXCEED A NINE (9') FOOT SQUARE AREA CONCENTRIC WITH THE CATCH BASIN AND NO ENLARGEMENT OF EXCAVATION WILL BE GRANTED FOR SHEETING. SUCH TRENCH WIDTH RESTRICTIONS, SPECIFIED ABOVE, FOR NEW CATCH BASINS AND CATCH BASIN CONNECTIONS MAY BE WAIVED UPON ENCOUNTERING AN OBSTRUCTION THAT NECESSITATES A SHIFT IN THE CATCH BASIN OR CONNECTION LOCATION, AS DIRECTED BY THE ENGINEER, AND THERE SHALL BE NO ADDITIONAL COST TO THE CITY FOR THE ENLARGEMENT OF THE EXCAVATION OR ADJUSTMENTS.

CET SKETCH	
INSTALLATION OF CATCH BASINS TO ACCOMMODATE CET FACILITIES	
REVISIONS	CONTRACT NO. SKETCH NO. CET 225
1-16-04	

VERTICAL PAYMENT LINE SHALL BE FROM
 BOTTOM OF EXISTING ROADWAY BASE TO
 5'-0" BELOW EXISTING STREET GRADE OR
 BOTTOM OF TRENCH, WHICHEVER IS LESS.

STREET
 SURFACE

ENCROACHING UTILITY
 AT FACE OR WITHIN
 EXCAVATION (TYP.)

STANDARD CITY TRENCH
 LINE AS DESIGNATED
 IN D.E.P. STANDARDS



PARALLEL UTILITY
 WITHIN 6" OF CITY
 TRENCH LINE AS
 DESIGNATED IN D.E.P.
 STANDARDS (TYP.)

6" OR LESS

CITY FACILITY



HORIZONTAL PAYMENT LINE
 (CET 300) ONE (1) FOOT FROM
 FACE OF ENCROACHING UTILITY

PROFILE
 N.T.S.

CET SKETCH	
UTILITY PARALLELING/ ENCROACHING IN CITY FACILITY TRENCH	
REVISIONS	
10-20-00	
CONTRACT NO.	SKETCH NO. CET 300 A

VERTICAL PAYMENT LINE SHALL BE FROM
 BOTTOM OF EXISTING ROADWAY BASE TO
 5'-0" BELOW EXISTING STREET GRADE OR
 BOTTOM OF THE OIL-O-STATIC PIPE,
 WHICHEVER IS GREATER

STREET
 SURFACE

ENCROACHING OIL-O-STATICS
 AT FACE OR WITHIN
 EXCAVATION (TYP.)

STANDARD CITY TRENCH
 LINE AS DESIGNATED
 IN D.E.P. STANDARDS

PARALLEL OIL-O-STATICS
 WITHIN 1'-0" OF CITY
 TRENCH LINE AS
 DESIGNATED IN D.E.P.
 STANDARDS (TYP.)

1'-0" OR LESS

CITY FACILITY

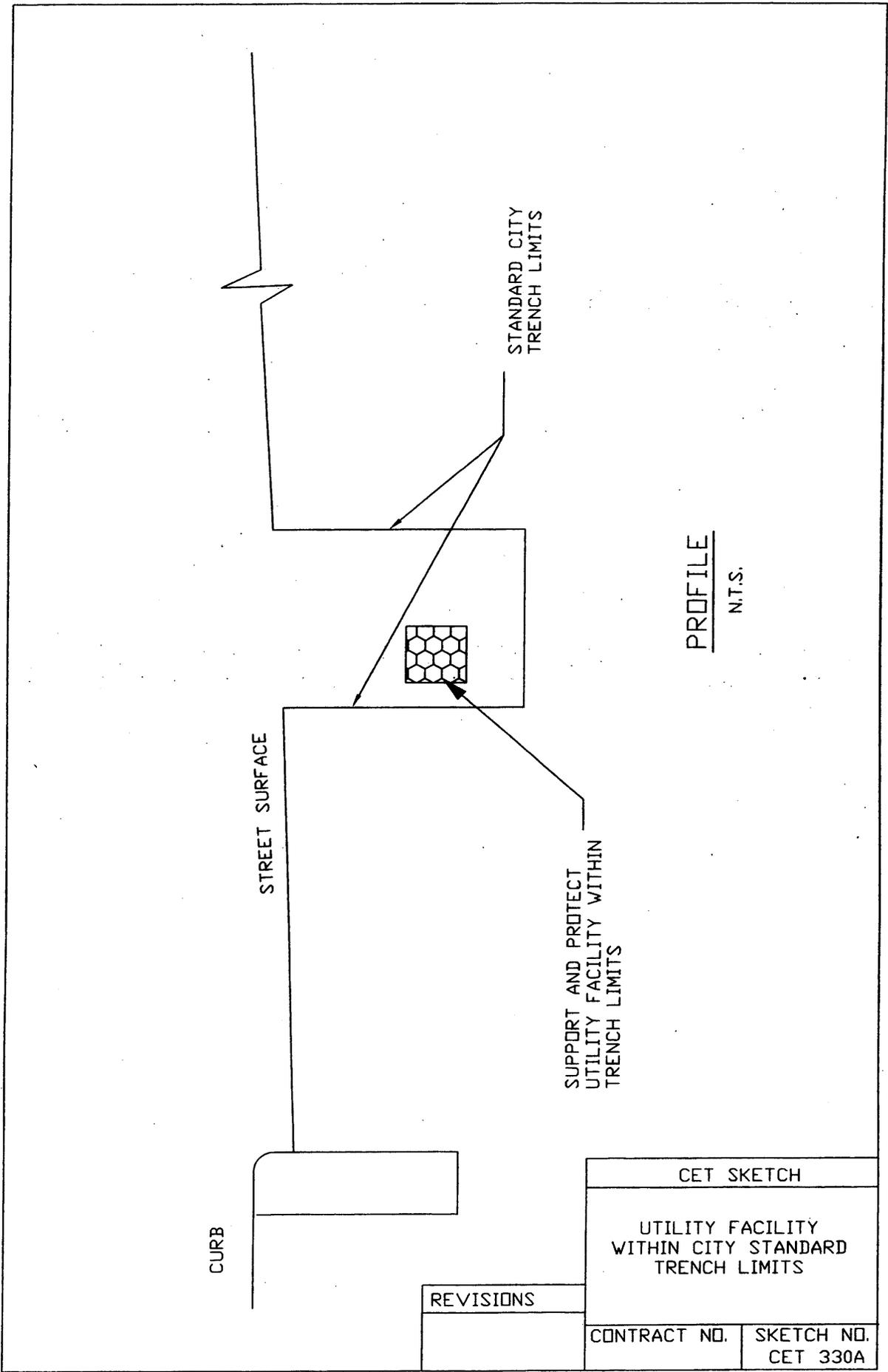
HORIZONTAL PAYMENT LINE (CET 301)
 ONE (1) FOOT FROM FACE OF
 ENCROACHING OIL-O-STATICS

PROFILE

N.T.S.

REVISIONS
10-20-00

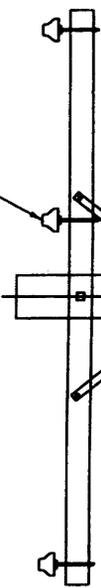
CET SKETCH	
OIL-O-STATIC PIPES PARALLELING/ENCROACHING IN CITY FACILITY TRENCH	
CONTRACT NO.	SKETCH NO. CET 301 A



PROFILE
N.T.S.

CET SKETCH	
UTILITY FACILITY WITHIN CITY STANDARD TRENCH LIMITS	
REVISIONS	
CONTRACT NO.	SKETCH NO. CET 330A

PRIMARY ELECTRICAL WIRES



SECONDARY ELECTRIC WIRES (INSULATED)

STREET LIGHTING BRACKET

1'-0" OR 3" SEE NOTE 10

1'-8" OR 4" SEE NOTE 11

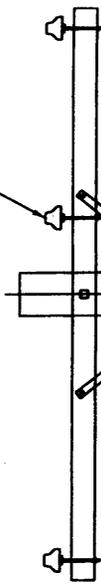
DRIP LOOP

C.A.T.V. CABLE OR EQUIPMENT

(SEE NOTE 5)

TELEPHONE CABLE OR EQUIPMENT

PRIMARY ELECTRICAL WIRES



TRANSFORMER OR OTHER POLE EQUIPMENT (CASE GROUNDED)

SECONDARY ELECTRIC WIRES (INSULATED)

C.A.T.V. CABLE OR EQUIPMENT

(SEE NOTE 5)

TELEPHONE CABLE OR EQUIPMENT

LINE POLE WITH STREET LIGHTING BRACKET - TYPICAL CONFIGURATION
NOT TO SCALE

TRANSFORMER POLE - TYPICAL CONFIGURATION
NOT TO SCALE

NOTE: CABLE INSULATION PER CON EDISON SPECIFICATIONS EO-16-6 & EO-17 (SUBJECT TO FIELD ASSESSMENT BY CON EDISON)

REVISIONS

01/11/01

CET SKETCH

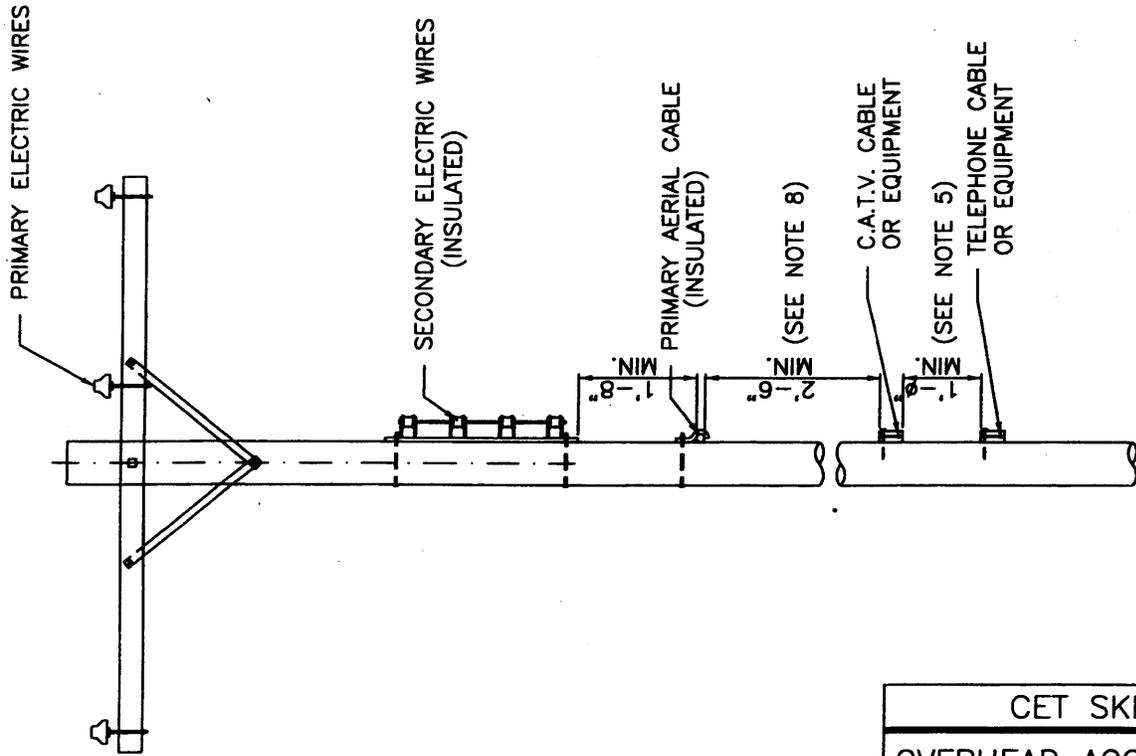
OVERHEAD ACCOMODATION PROTECTION OF OVERHEAD FACILITES, POLES AND APPURTENANCES

CONTRACT NO.

SKETCH NO. CET 350A-1

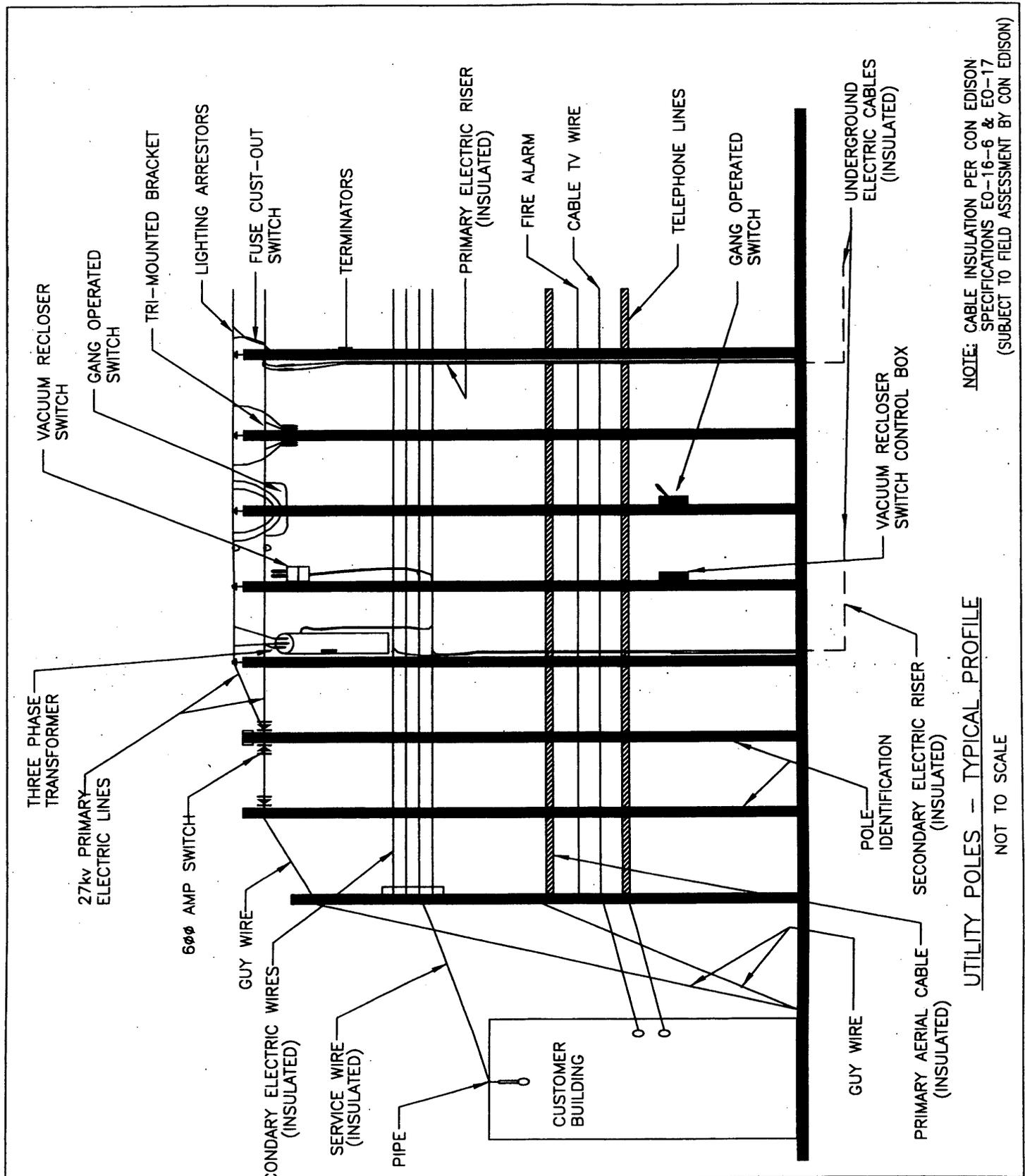
NOTES:

1. ALL CLEARANCES ALSO APPLY TO ARMLESS CONSTRUCTION.
2. WHERE PRIMARY AERIAL CABLE IS INSTALLED, MAINTAIN 2'-6" MIN. CLEARANCE BETWEEN THIS PRIMARY CABLE AND C.A.T.V. FACILITIES.
3. C.A.T.V. RISERS NOT ALLOW ON POLES WHERE POWER OR TELEPHONE RISERS ARE PRESENT OR PROPOSED.
4. POLE STEPS ARE LIMITED TO POLES CARRYING EQUIPMENT OTHER THAN WIRES. LOWEST STEP SHALL BE 9'-0" ABOVE GROUND.
5. THIS DIMENSION IS IN AGREEMENT WITH BELL SYSTEM MANUAL OF CONSTRUCTION PROCEDURES. WHERE COMMUNICATION EQUIPMENT IS MOUNTED ON BOTH SIDES OF POLE, REFER TO THIS MANUAL FOR REQUIRED CLEARANCE.
6. A 2'-6" SQUARE CLIMBING SPACE SHALL BE PROVIDED TANGENT TO THE POLE AND SHALL BE KEPT CLEAR OF SERVICE DROPS. ITS HEIGHT AND DEPTH SHALL EXTEND AT LEAST 3'-4" ABOVE AND BELOW ANY COMMUNICATION CABLE OR FACILITY. VARIOUS TYPICAL CLIMBING CONFIGURATIONS ARE SHOWN IN BELL SYSTEM MANUAL OF CONSTRUCTION PROCEDURES.
7. ONE CURBSIDE QUADRANT SHOULD BE KEPT CLEAR OF SERVICE DROPS TO FACILITATE POLE REPLACEMENT.
8. MINIMUM MID-SPAN CLEARANCE OF 0'-10" BETWEEN UTILITY AERIAL CABLE AND C.A.T.V.
9. GROUND FOR STREET LIGHT SHALL BE #6 AWG COPPER FROM BOTTOM OF STREET LIGHT BRACKET TO NEUTRAL.
10. 3" IF DRIP IS COVERED BY SUITABLE 1/2" NON-METALLIC COVERING (STK.NO.596-0745) WHICH EXTENDS AT LEAST 2" BEYOND THE LOOP.
11. 4" IF LIGHTING BRACKET IS EFFECTIVELY GROUNDED AND DRIP LOOP IS COVERED BY A SUITABLE 3/4" NON-METALLIC COVERING (STK.NO.596-0737).
12. CABLE INSULATION PER CON EDISON SPECIFICATIONS EO-16-6 & EO-17 (SUBJECT TO FIELD ASSESSMENT BY CON EDISON)



**LINE POLE
TYPICAL CONFIGURATION
NOT TO SCALE**

CET SKETCH	
OVERHEAD ACCOMODATION PROTECTION OF OVERHEAD FACILITES, POLES AND APPURTENANCES	
REVISIONS	
01/11/01	
CONTRACT NO.	SKETCH NO. CET 350B-1

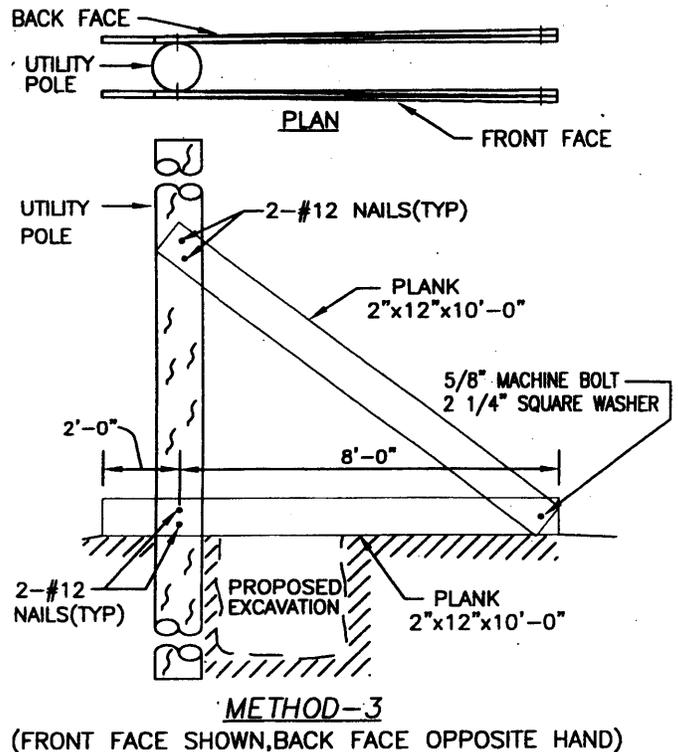
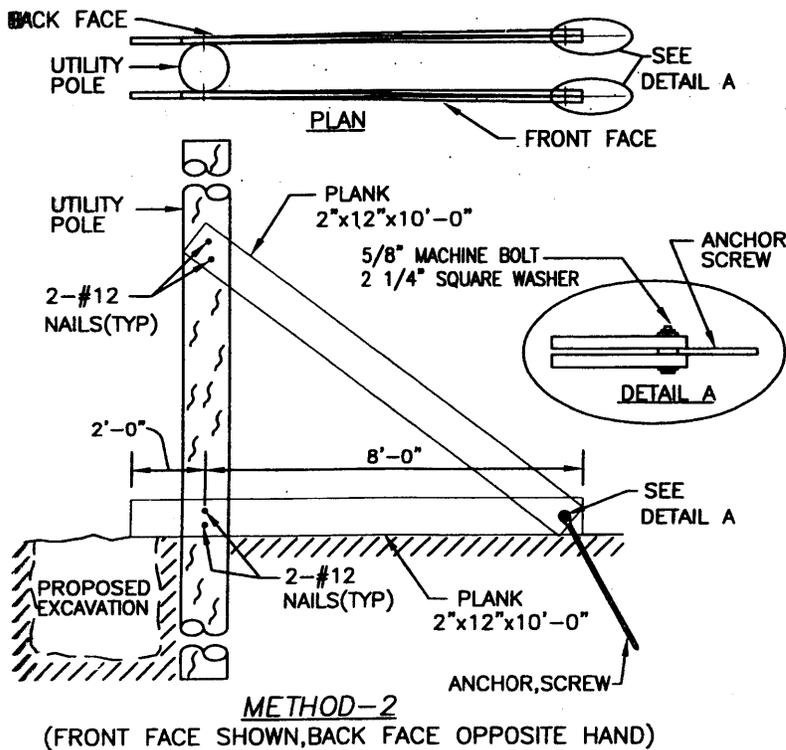
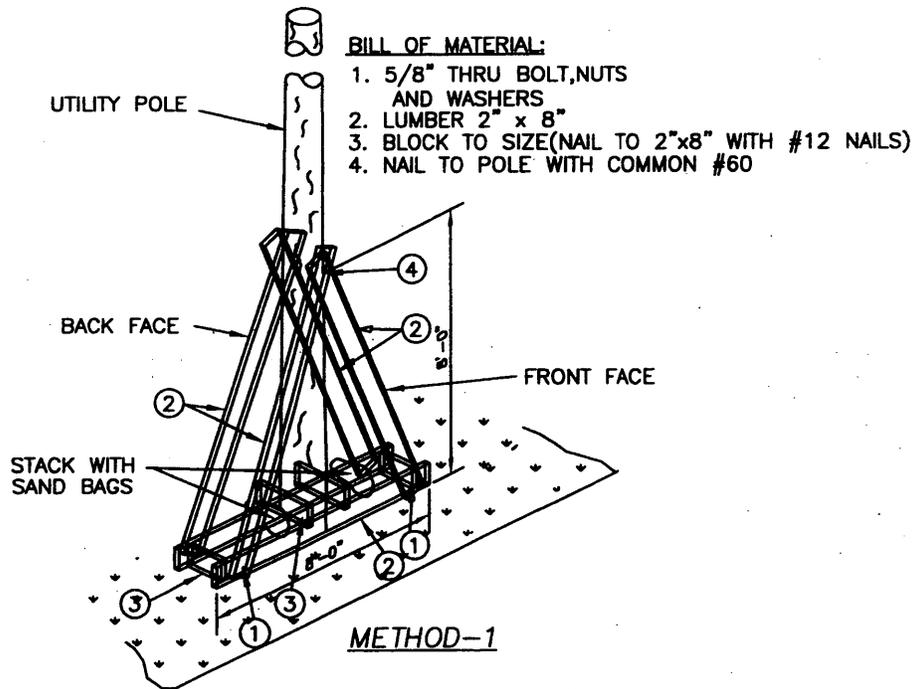


NOTE: CABLE INSULATION PER CON EDISON SPECIFICATIONS EO-16-6 & EO-17 (SUBJECT TO FIELD ASSESSMENT BY CON EDISON)

UTILITY POLES - TYPICAL PROFILE
NOT TO SCALE

CET SKETCH	
OVERHEAD ACCOMODATION PROTECTION OF OVERHEAD FACILITES, POLES AND APPURTENANCES	
REVISIONS	
01/11/01	
CONTRACT NO.	SKETCH NO.
	CET 350C-1

METHODS OF SHORING UTILITY POLES

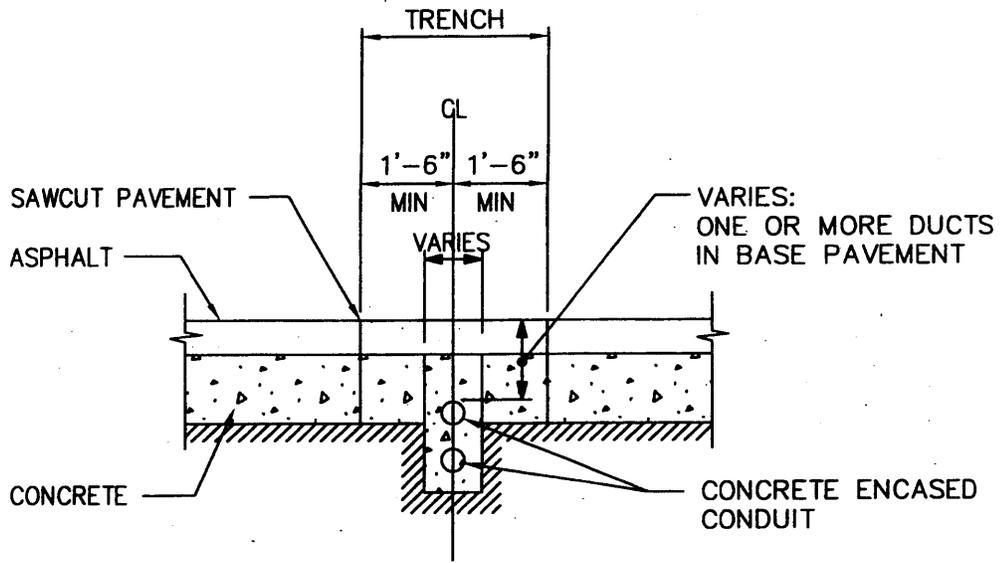


NOTES:

THESE METHODS OF SHORING ARE GENERAL GUIDES. FIELD CONDITIONS WILL DICTATE WHICH METHOD WILL BE USED. VARIATIONS OF THESE METHODS WHICH ACCOMPLISH THE SAME PURPOSE MAY ALSO BE UTILIZED WHEN APPROVED BY OVERHEAD CONSTRUCTION DEPARTMENT.

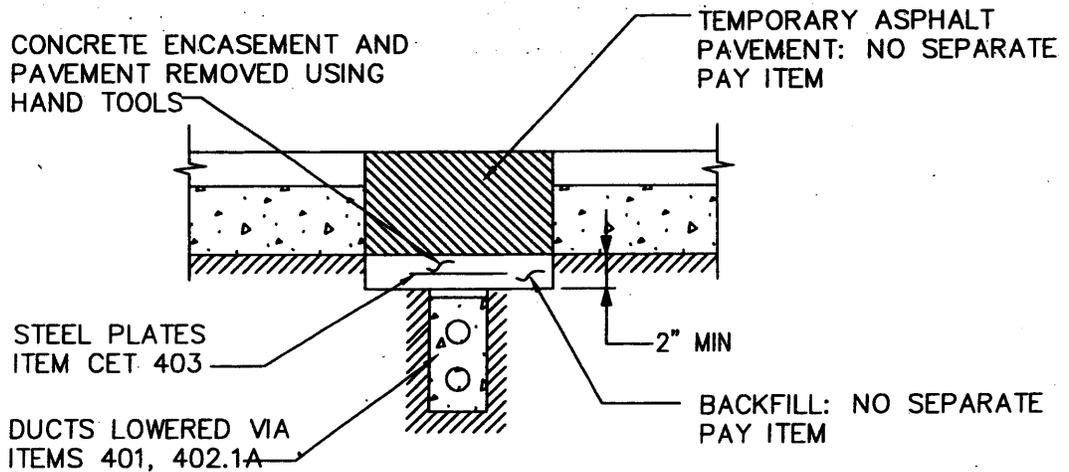
ANY INFORMATION NOT SHOWN WILL BE DETERMINED IN THE FIELD TO SUIT THE FIELD CONDITIONS WHEN APPROVED BY THE OVERHEAD CONSTRUCTION DEPARTMENT.

CET SKETCH	
METHODS OF SHORING UTILITY POLES	
11-17-00	CET 351



DUCTS WITHIN BASE PAVEMENT
EXISTING TYPICAL SECTION

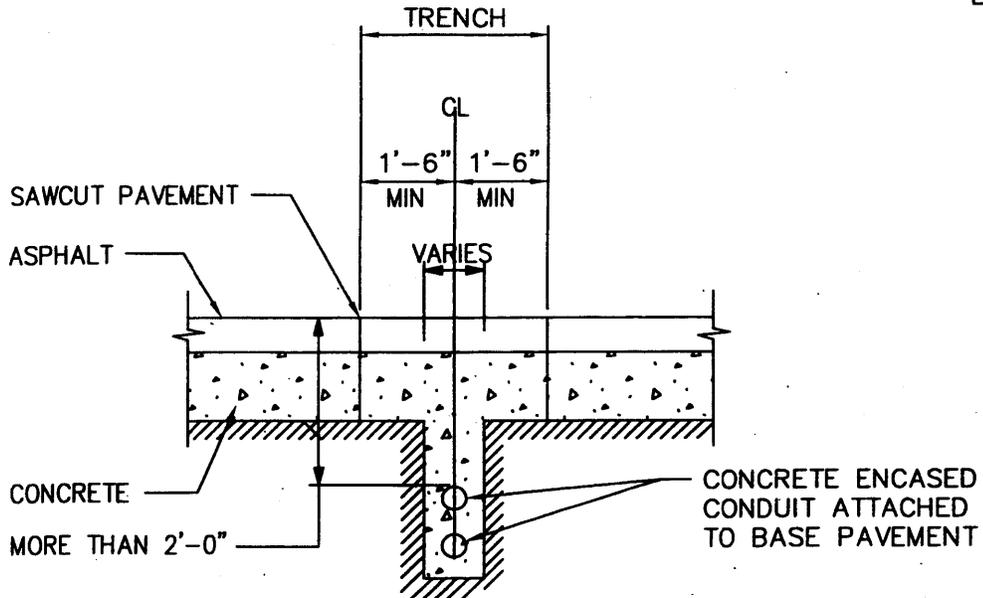
N.T.S.



DUCTS WITHIN BASE PAVEMENT
PROPOSED TYPICAL SECTION

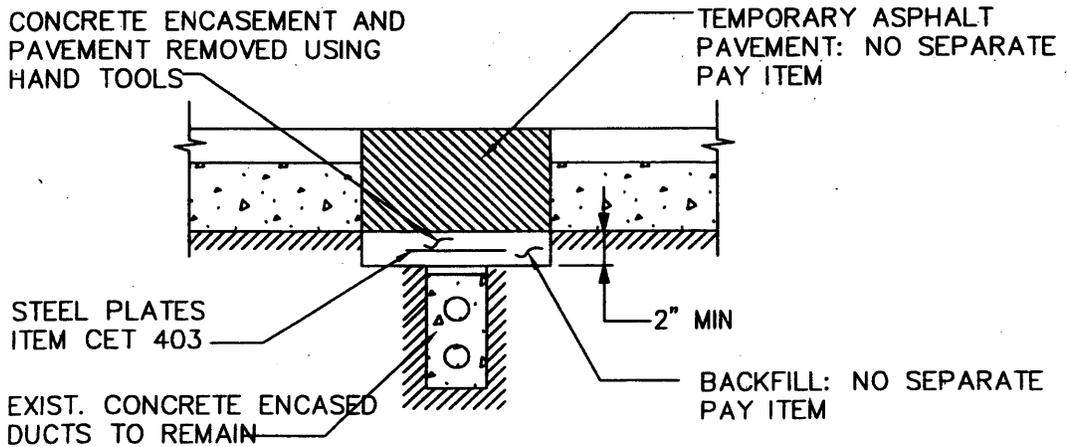
N.T.S.

CET SKETCH	
SPECIAL CARE PAVEMENT EXCAVATION FOR ADJUSTMENT OF CABLE TV. FACILITIES CONNECTED TO THE BASE PAVEMENT	
REVISED 11/15/00	CONTRACT NO. SKETCH NO. CET 401AC1



DUCTS BELOW BASE PAVEMENT
EXISTING TYPICAL SECTION

N.T.S.



DUCTS BELOW BASE PAVEMENT
PROPOSED TYPICAL SECTION

N.T.S.

CET SKETCH

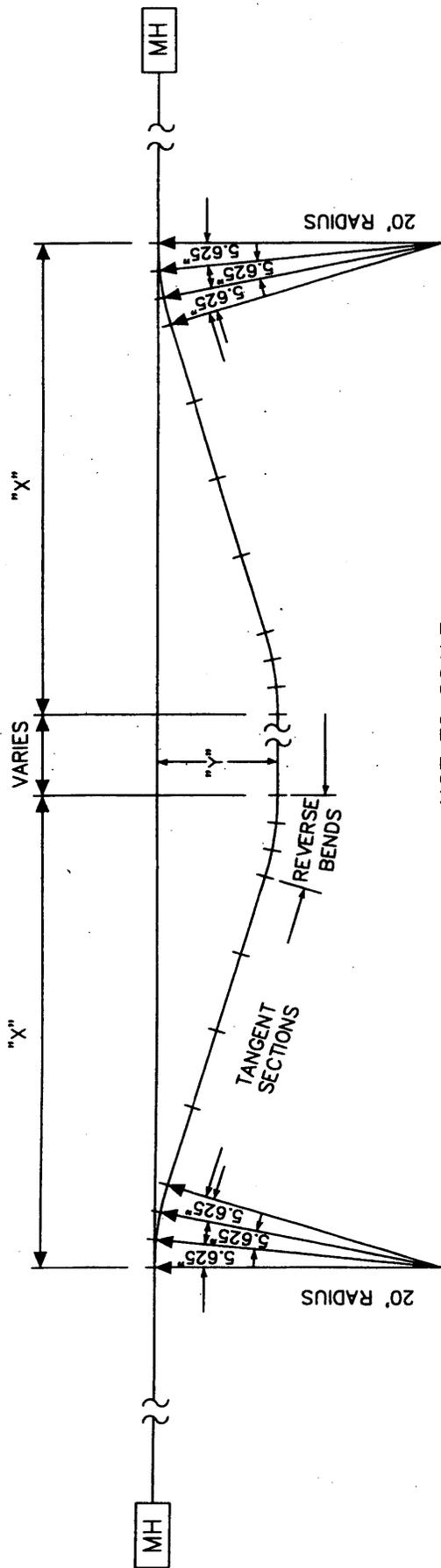
SPECIAL CARE PAVEMENT
EXCAVATION FOR
ADJUSTMENT OF CABLE TV
FACILITIES CONNECTED
TO THE BASE PAVEMENT

REVISED

11/15/00

CONTRACT NO.

SKETCH NO.
CET 401AC2



NOT TO SCALE

"Y" OFFSET OF DUCT AXIS	COMBINATION OF 20' RADIUS- BEND SECTIONS AND TANGENT SECTIONS		"X" HORIZONTAL & VERTICAL DISTANCE FROM START OF OFFSET TO POINT OF MAXIMUM OFFSET
	BEND	TANGENT REV. BEND	
0.8 FEET	2	0 2	7.8 FEET
1.7 FEET	3	0 3	11.6 FEET
2.9 FEET	3	1 3	15.4 FEET
4.1 FEET	3	2 3	19.3 FEET
5.2 FEET	3	3 3	23.1 FEET
6.4 FEET	3	4 3	26.9 FEET

BEND SECTIONS ARE 20' RADIUS, 5' 5/8" LONG.
TANGENT SECTIONS ARE 4' LONG STRAIGHT.

REVISIONS

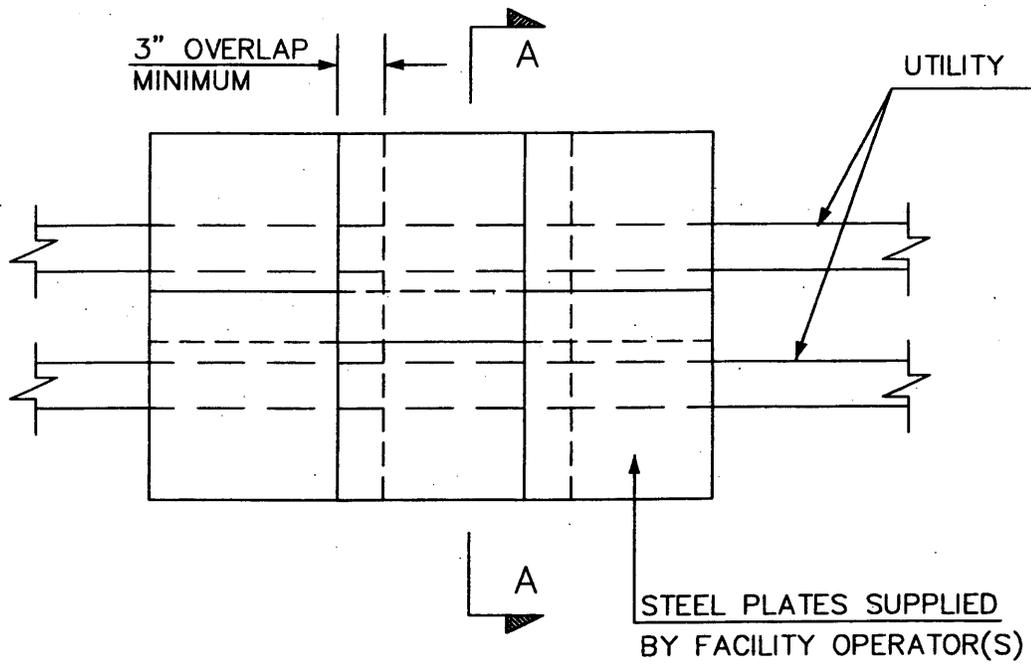
11-20-01

CET SKETCH

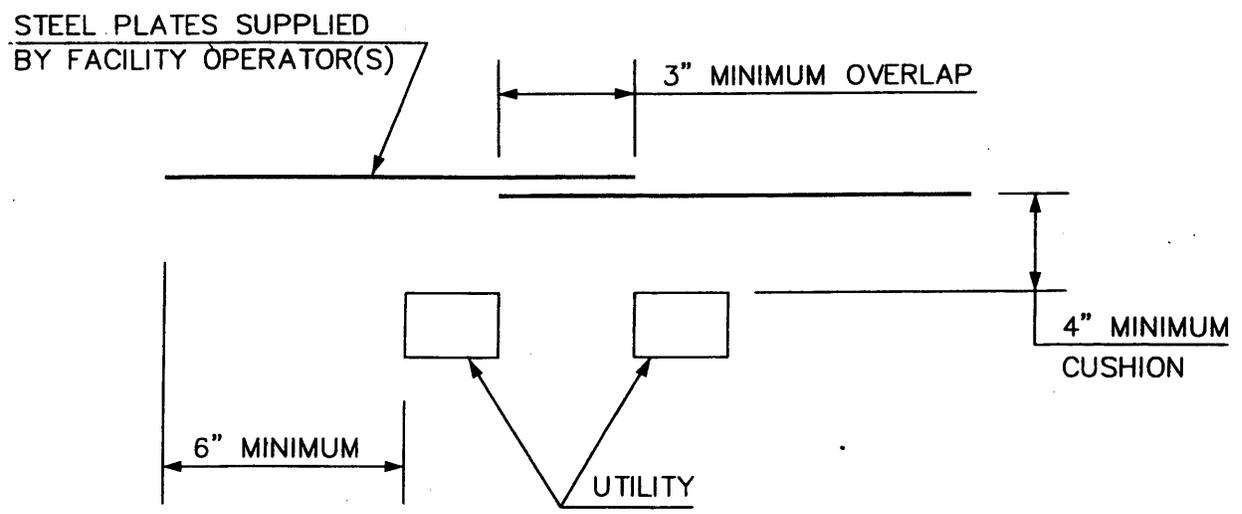
HORIZONTAL/VERTICAL
ADJUSTMENTS
FOR ELECTRIC

CONTRACT NO.

SKETCH NO.
CET 402 A



PLAN
NOT TO SCALE

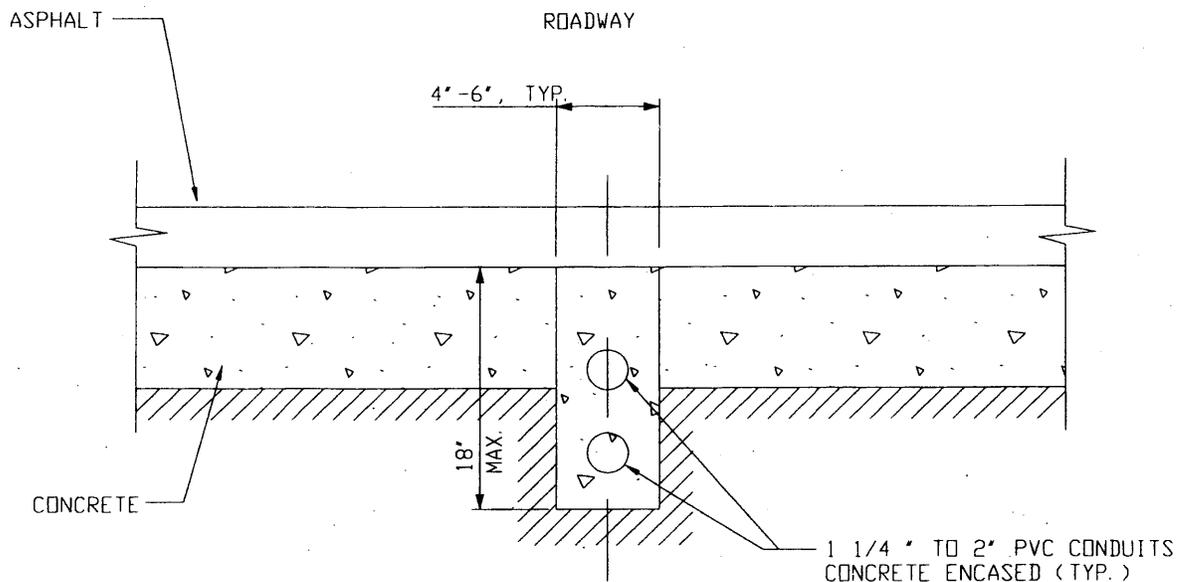


SECTION A-A
NOT TO SCALE

- TYPICAL PLATE SIZES:
 15" x 21" x 3/8"
 16" x 24" x 3/8"
 21" x 27" x 3/8"

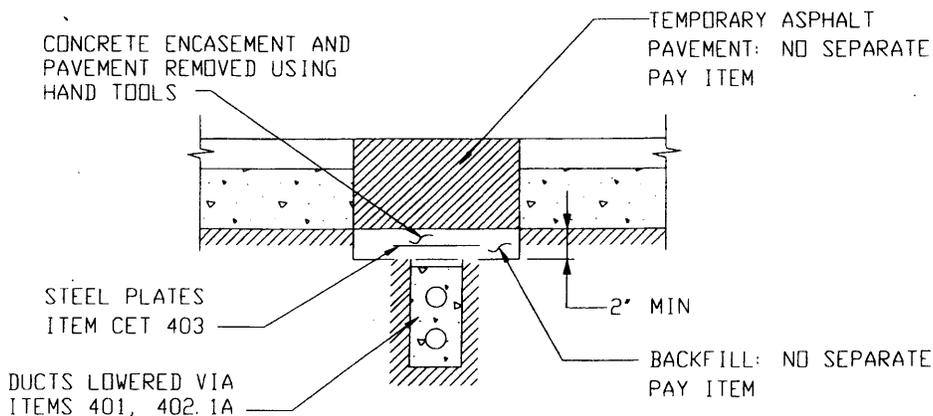
REVISIONS
11-17-00

CET SKETCH	
PLACING STEEL PROTECTION PLATES FOR ELECTRIC AND TELEPHONE FACILITIES	
CONTRACT NO.	SKETCH NO. CET 403 A



TYPICAL SECTION: CABLE TELEVISION DUCTS ATTACHED TO BASE PAVEMENT

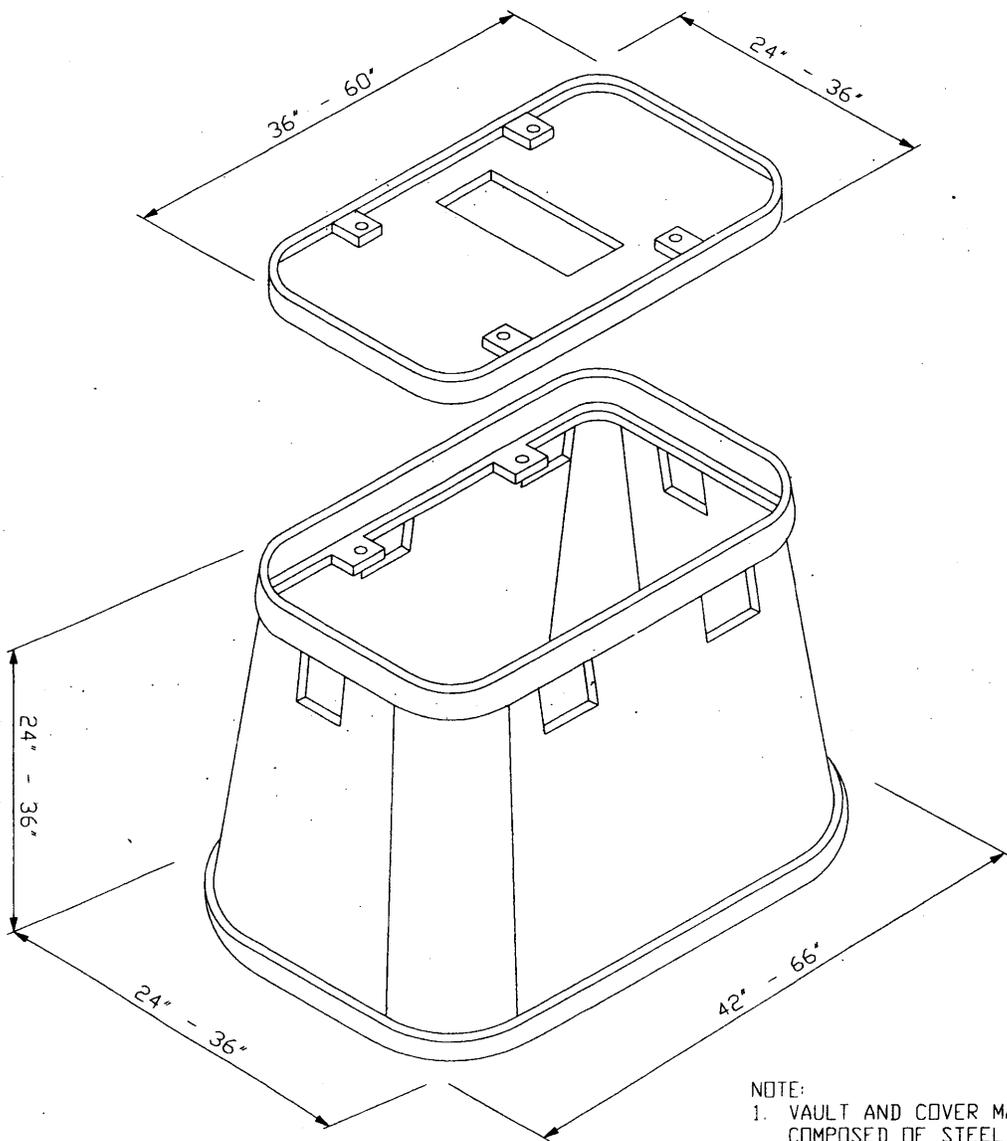
N. T. S.



DUCTS WITHIN BASE PAVEMENT PROPOSED TYPICAL SECTION

N. T. S.

CET SKETCH	
CABLE TELEVISION DUCT BANK ATTACHED TO BASE PAVEMENT (TYPICAL)	
NEW.	
11/19/03	CONTRACT NO. SKETCH NO. CET 500.1

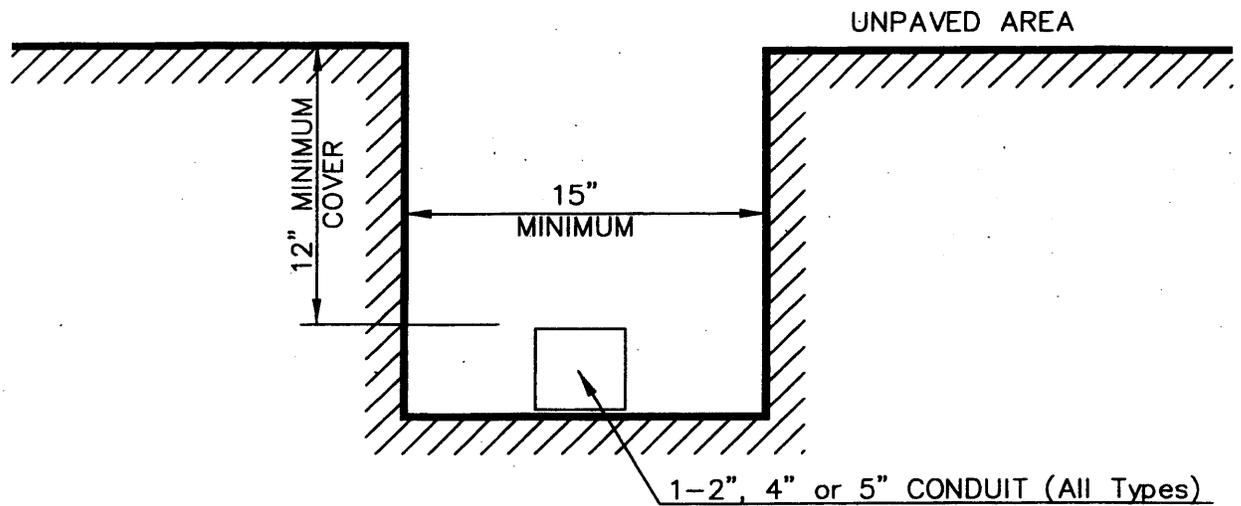


- NOTE:
1. VAULT AND COVER MAY BE COMPOSED OF STEEL, PLASTIC, COMPOSITES AND/OR POLYMER CONCRETE MATERIALS
 2. VAULT BOTTOMS ARE OPEN-ENDED AND FILLED WITH GRAVEL

CABLE TELEVISION SIDEWALK VAULT - TYPICAL

NTS

CET SKETCH	
CABLE TELEVISION SIDEWALK VAULT (TYPICAL)	
REVISIONS	CONTRACT NO.
11/19/03	SKETCH NO. CET 501.1



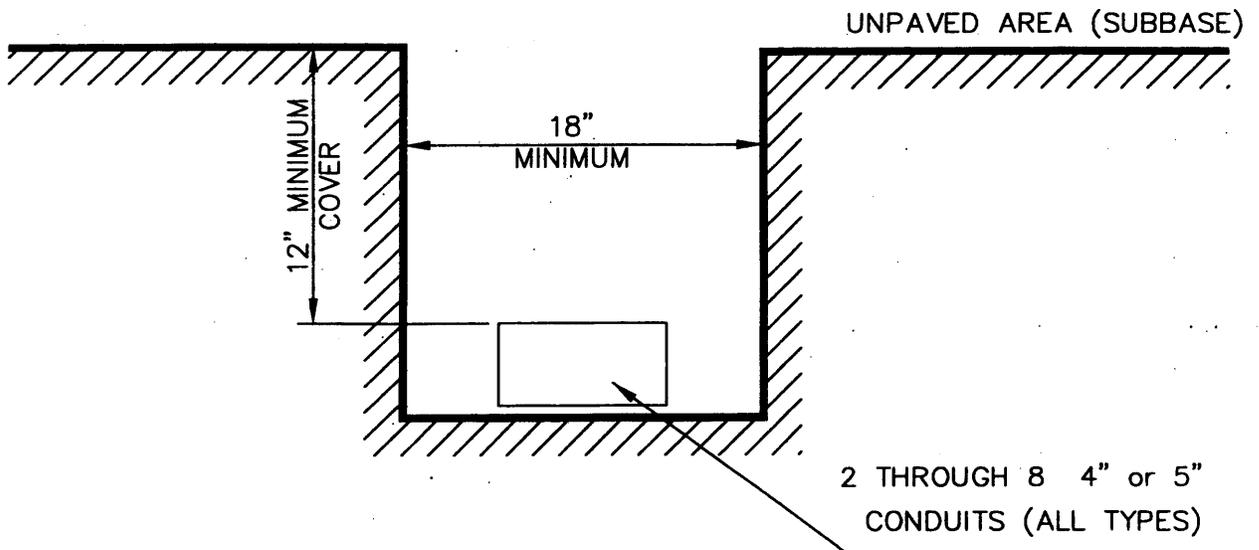
EXCAVATION OF THE TRENCH —

THE BOTTOM OF THE TRENCH SHALL BE GRADED SMOOTH AND TAMPED TO MINIMIZE INITIAL SETTLEMENT AND TO AVOID "POINT" SUPPORT OF CONDUITS. ALL STONES PROJECTING INTO THE TRENCH SHALL BE REMOVED FROM THE TRENCH BOTTOM AND THE VOIDS BACKFILLED BEFORE CONDUIT INSTALLATION. THE CONDUIT INSTALLATION SHALL BE IN AS STRAIGHT ALIGNMENT AS POSSIBLE WITH CONTINUOUS CONCENTRIC BORES AND FLUSH JOINTS TO PERMIT SMOOTH, EASY PULLING OF CABLE WITHOUT DAMAGE. THE INTERIOR OF THE CONDUIT MUST BE FREE OF IMPERFECTIONS AND CARE SHALL BE EXERCISED TO PREVENT INTRODUCTION OF FOREIGN MATERIAL.

COUPLINGS —

SLIP OR PLASTIC COUPLINGS SHALL BE USED AS REQUIRED, TO JOIN ALL CONDUIT.

CET SKETCH	
TRENCH EXCAVATION FOR 1-2", 4" or 5" CONDUIT (All Types)	
REVISIONS	
11/07/03	
CONTRACT NO.	SKETCH NO.
	CET-600.1-A



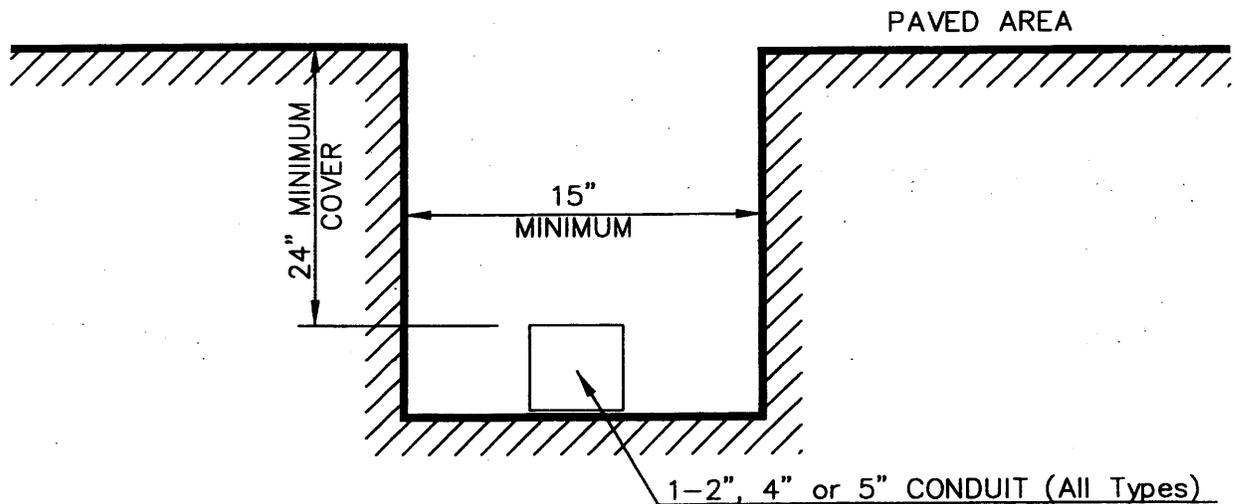
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COUPLINGS -

PLASTIC COUPLINGS SHALL BE USED TO JOIN ALL CONDUIT.

CET SKETCH	
TRENCH EXCAVATION FOR 2 Through 8 Conduits (ALL TYPES)	
REVISIONS	
11-07-03	CONTRACT NO. SKETCH NO. CET-600.2-A



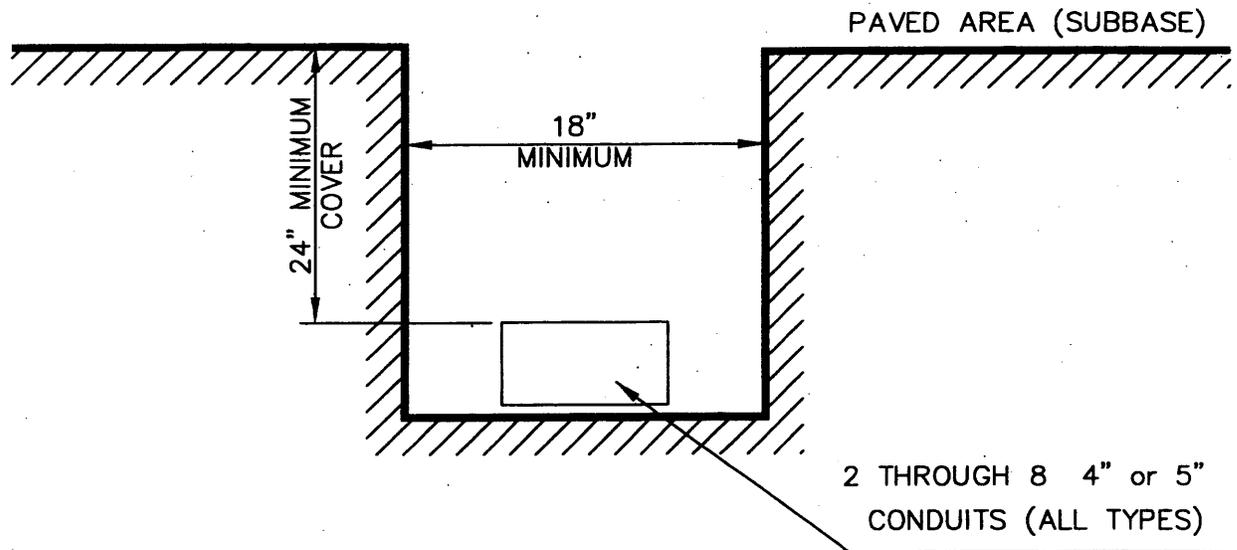
EXCAVATION OF THE TRENCH -

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COUPLINGS -

SLIP OR PLASTIC COUPLINGS SHALL BE USED AS REQUIRED, TO JOIN ALL CONDUIT.

CET SKETCH	
TRENCH EXCAVATION FOR 1-2", 4" or 5" CONDUIT (ALL TYPES)	
NEW	
11-07-03	CONTRACT NO.
	SKETCH NO. CET-601.1-A



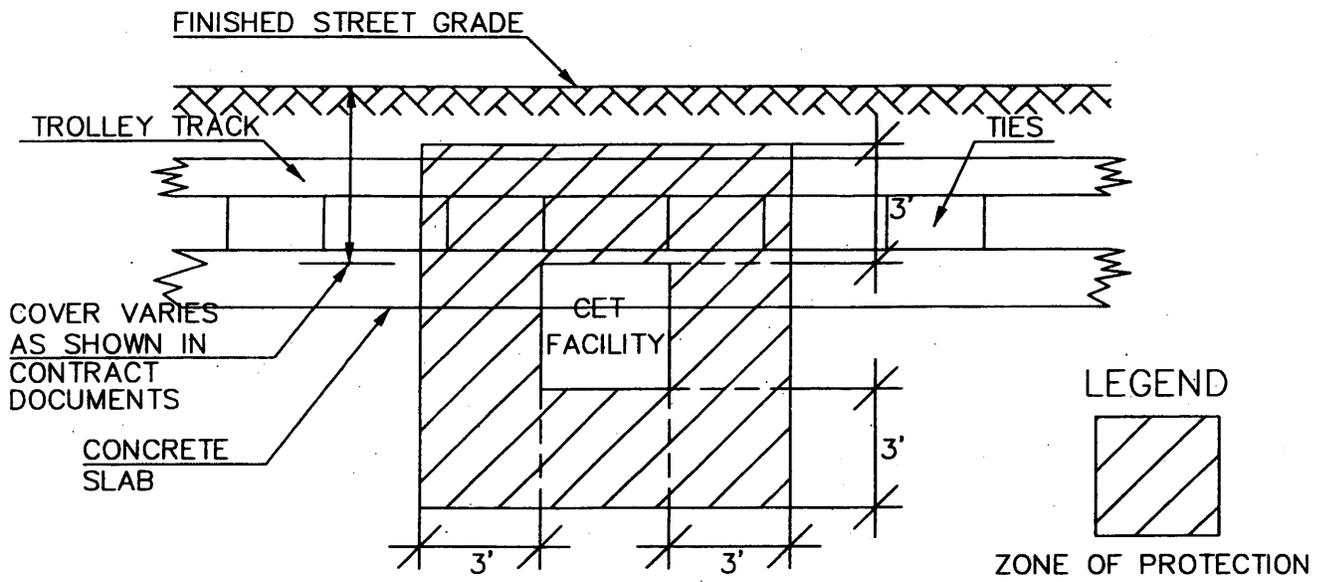
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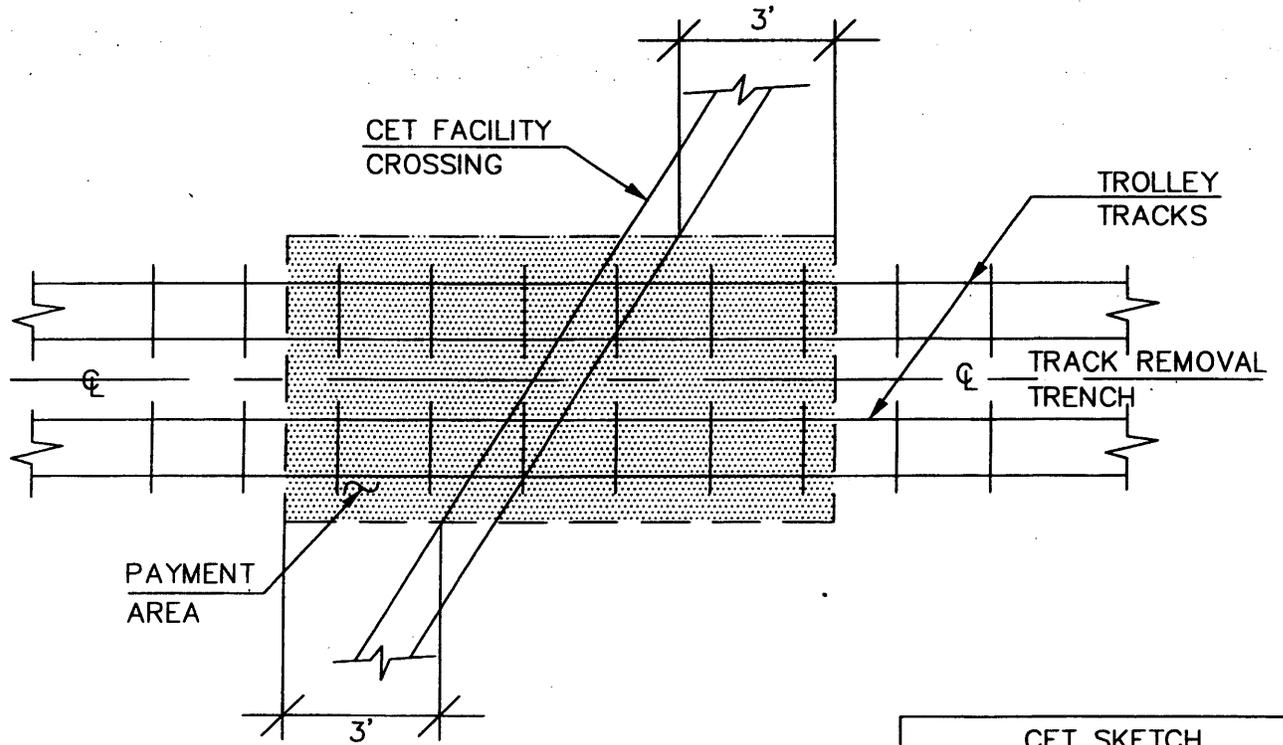
COUPLINGS -

PLASTIC COUPLINGS SHALL BE USED TO JOIN ALL CONDUIT.

CET SKETCH			
TRENCH EXCAVATION FOR 2 Through 8 Conduits (ALL TYPES)			
NEW			
11-07-03	<table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">CONTRACT NO.</td> <td style="width: 50%;">SKETCH NO. CET-601.2-A</td> </tr> </table>	CONTRACT NO.	SKETCH NO. CET-601.2-A
CONTRACT NO.	SKETCH NO. CET-601.2-A		

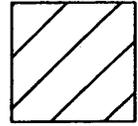


SECTION OF CET FACILITIES CROSSING TROLLEY TRACKS



PLAN OF CET FACILITIES CROSSING TROLLEY TRACKS

LEGEND



ZONE OF PROTECTION

CET SKETCH	
CET ACCOMODATION SECTIONS AT TROLLEY RAILROAD STRUCTURES	
REVISIONS	CONTRACT NO.
11-17-00	SKETCH NO. CET 800-A