

2" CONDUIT UNDER STREET PAVEMENT

I. Quantity

The base bid shall include the indicated number of feet of 2" conduit under pavement located as shown on the drawings.

II. Material

- a. Conduit - The non-metallic conduit shall be schedule 40 polyvinyl chloride. It shall be designed to form a sound, strong duct, free from defects. It shall be non-magnetic, resistant to corrosive action, unaffected by electrolysis and shall not soften, deform or deteriorate when exposed to the maximum safe operating temperature of cables. The inside surface of the conduit shall be smooth, and round and shall have a 2" nominal inside diameter. The conduit shall be Carlon Plus 40, Heritage, Cantex or approved equal.
- b. Couplings - The couplings shall be of the same material as the conduit, and shall be sufficiently tight to prevent silt or concrete from entering the conduit.
- c. Spacers - Plastic base type for 2" conduit.

III. Installation DOE DWG 01S0023

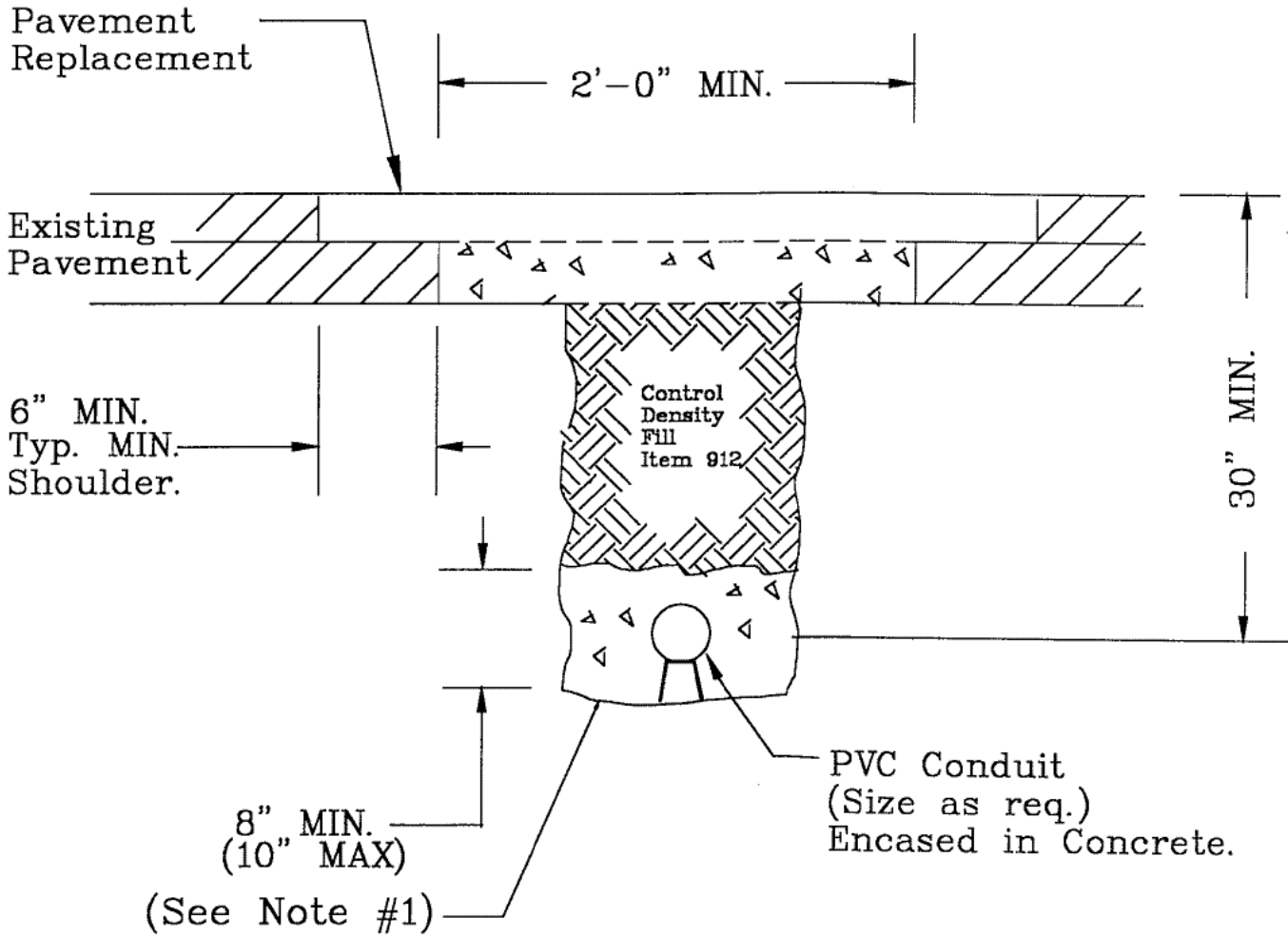
- a. The conduit shall be installed as shown on the detailed drawings of conduit "under street pavement".
- b. If the conduit is installed in an area to be paved under a separate item of this or another contract, backfill shall be appropriate for the paving indicated. No other surface restoration will be required.
- c. The trench shall be dug as indicated on the detailed drawings. The bottom of the trench shall be level and free of all stones and rocks. excess excavated material shall be disposed of by the contractor as specified in Section 203.05 of the City of Columbus construction and material specifications.

- d. The pavement cut, excavation, backfill, and pavement repair shall be as shown on the Division of Transportation standard 1441 Drawing A.
- e. After the duct lines are installed, a flexible mandrel not less than 12" long, having a diameter approximately 1/4" less than the conduit shall be pulled through each conduit after which an oversize conduit swab shall be pulled through to make certain there are no particles left in the conduit.
- f. Three spacers shall be installed under each 10' section of conduit. One in the middle and one on each end of the section to insure total encasement of the conduit.

IV. Quotation

The concrete encased 2" PVC conduits under pavement hereinbefore specified shall be quoted for as a unit price per lineal foot in the appropriate place of this document.

Pavement Repair & C.D.F. Backfill
 Per Division of Engineering & Construction
 Standard 1441 Dr. A.



NOTES:

- 1) Concrete encasement 3" MIN.(4"MAX) all sides item 499 Class C.
- 2) Conduit to pass under curbs and sub-drains.
- 3) Item numbers are from the City of Columbus Construction and materials Specifications.

4-10-91
 8-17-99

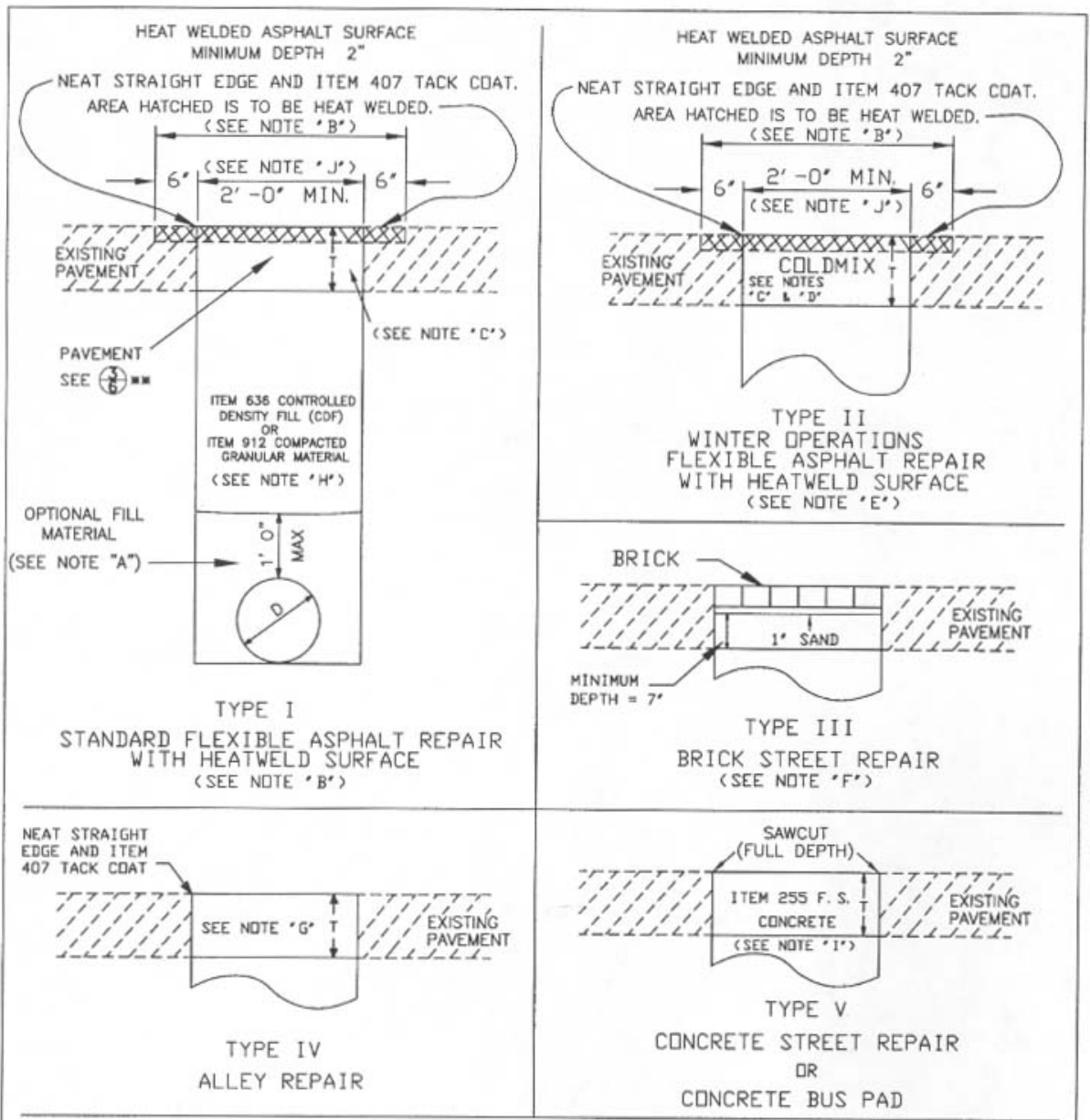
REVISIONS

MELP

MUNICIPAL ELECTRIC LIGHT & POWER SYSTEM
 CITY OF COLUMBUS, OHIO
 DEPT. OF UTILITIES & AVIATION - DIV. OF ELECTRICITY

CONDUIT UNDER STREET PAVEMENT

SCALE NONE	DRAWN PC 4/91	DRAWING NO. 01S0023
C. D. NUMBER	APPROVED	SHEET 1 OF 1



NOTE: BACKFILL FOR ALL TYPES SHALL MEET THE REQUIREMENTS SHOWN IN TYPE I ABOVE.
 T: MATCH EXISTING PAVEMENT THICKNESS, HOWEVER, MINIMUM OF 9" ON ALL STREET CUTS.

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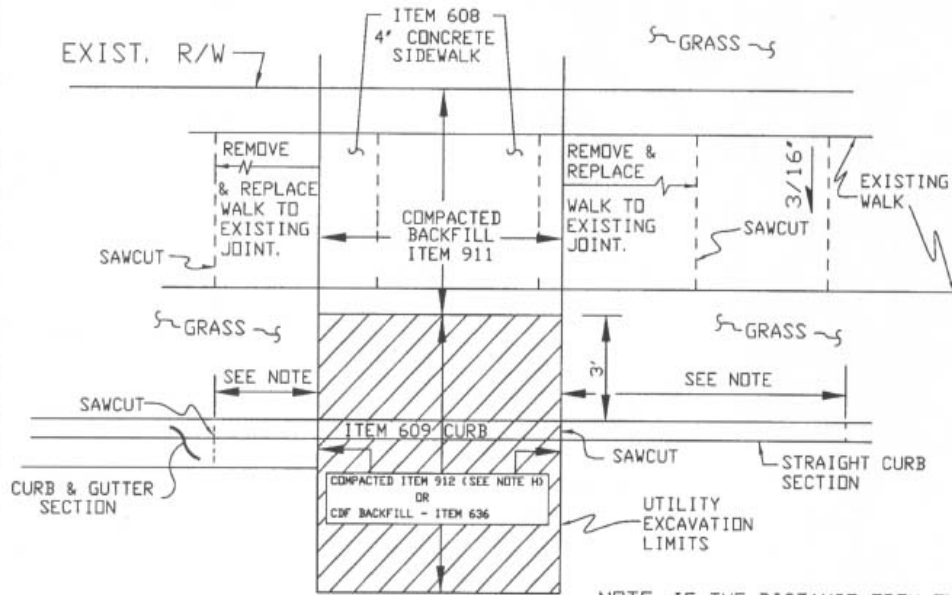
**PAVEMENT & UTILITY CUT
 REPAIR STANDARDS**

APPROVED: *[Signature]* 9/24/02
 CITY ENGINEER DATE

REV. 07/15/02
 REV. 01/29/98

1441 DR. A (1/6)

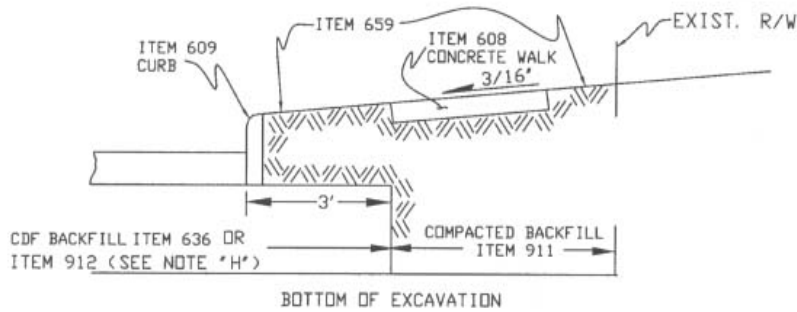
SIDEWALK AND CURB REPAIR DETAILS



PLAN VIEW

CDF
BACKFILL
ITEM 636 

NOTE: IF THE DISTANCE FROM THE CUT TO THE NEAREST JOINT IN THE CURB IS LESS THAN 5', THE CURB/GUTTER SHALL BE REMOVED AND REPLACED TO THE JOINT. IF THE DISTANCE IS GREATER THAN 5', THE CURB MAY REMAIN.



ALL GRASS AREAS SHALL BE SEEDED IN ACCORDANCE WITH ITEM 659 SEEDING AND MULCHING.

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WHEN A TRENCH EXCEEDS 100 FEET IN LENGTH, THE REPAIR SHALL INCLUDE PLANING AN 11' PAVEMENT WIDTH AND 1-1/4" IN DEPTH THE ENTIRE LENGTH OF THE TRENCH. THE PLANED AREA SHALL THEN BE RE-PAVED WITH A PAVER IN ACCORDANCE WITH CURRENT CITY STANDARD SPECIFICATIONS. ITEM 413 CRACK SEALING SHALL BE APPLIED TO EXPOSED JOINTS ONCE THE PAVING OPERATION HAS BEEN COMPLETED.

MARKING OF UTILITY PAVEMENT CUTS:

THE CITY REQUIRES THE MARKING OF REPAIR WORK IN PUBLIC RIGHT-OF-WAY PAVED SURFACES RESULTING FROM EXCAVATION PERMITS. EACH PAVEMENT CUT SHALL BE PERMANENTLY TAGGED AND CONFORM TO THE REQUIREMENTS OF THE RULES AND REGULATIONS FOR THE TRANSPORTATION DIVISION. BRICK REPAIR WORK IS EXEMPT FROM THIS MARKING REQUIREMENT.

SPECIAL NOTES

NOTE "A": WHEN USING FPDF, THE OPTIONAL FILL AREA OVER THE CONDUIT MAY BE BACKFILLED WITH SAND, GRANULAR MATERIAL, OR OTHER SUITABLE 912 MATERIAL, FOR A DISTANCE NOT TO EXCEED 1'-0". A PROTECTIVE BARRIER OF VISQUEEN OR SIMILAR MATERIAL IS PERMITTED.

NOTE "B": FOR TYPE I AND TYPE II CUT REPAIRS, THE AREA TO BE HEAT-WELDED IS TO INCLUDE THE CUT AND EXTENDING FOR SIX INCHES BEYOND EACH SIDE OF THE CUT FOR A NOMINAL DEPTH OF TWO INCHES.

NOTE "C": FOR TYPE I AND TYPE II PAVEMENT REPAIR THE ITEM 404 HOT ASPHALT OR COLD MIX SHALL BE PLACED IN LIFTS NOT EXCEEDING THREE INCHES AND COMPACTED WITH A COMBINATION VIBRATORY PLATE COMPACTOR EQUIPMENT, OR A VIBRATORY STEEL WHEELED ROLLER WITH A MINIMUM CERTIFIED FORCE OF 2000 POUNDS. IN ALL CASES THE SURFACE LIFT SHALL BE COMPACTED WITH THE VIBRATORY STEEL WHEELED ROLLER. WHEN PLACING HPM COLDMIX FULL DEPTH, MATERIAL TEMPERATURE SHALL BE 70° OR ABOVE.

NOTE "D": COLD MIX SHALL BE HPM COLD MIX OR OTHER COLD MIX APPROVED BY THE CITY OF COLUMBUS. IN LIEU OF COLD MIX THE CONTRACTOR MAY STOCKPILE 404 ASPHALT AND REHEAT IT TO PLACE IN CUT AS PAVEMENT REPAIR. TYPE II PAVEMENT REPLACEMENT SHALL CONSIST OF FULL DEPTH HPM COLDMIX FOR SMALL EXCAVATIONS. LARGE EXCAVATIONS SHALL REQUIRE A MINIMUM OF SEVEN (7) INCHES OF FAST SETTING PORTLAND CEMENT AND TWO (2) INCHES OF HPM COLD MIX.

NOTE "E": THE COLD MIX IS TO BE REPLACED WITH ITEM 404 ASPHALT WHICH IS TO BE HEAT-WELDED AS SET FORTH IN NOTE "B". THIS WORK SHALL BE PERFORMED AS SOON AS HOT ASPHALT IS AVAILABLE.

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NOTE 'F': REPAIR OF BRICK STREETS:

1. BRICKS REMOVED FROM A REPAIR AREA SHALL BE STORED IN A SAFE PLACE, BY THE CONTRACTOR, FOR REUSE. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPLACING ANY BRICKS THAT ARE STOLEN OR DAMAGED, AT NO ADDITIONAL COST TO THE CITY.
2. BRICKS MAY BE PURCHASED FROM THE CITY AT A NOMINAL COST TO THE CONTRACTOR. IF BRICKS ARE SUPPLIED BY THE CONTRACTOR, THEY MUST FIRST BE APPROVED BY THE CITY BEFORE THEY ARE USED.
3. SAW CUTTING: ALL PARTIAL BRICKS SHALL BE SAWCUT. FURTHER, NO BRICK WILL BE PERMITTED TO BE CUT, FOR REPLACEMENT, TO A LENGTH LESS THAN ONE-HALF OF ITS ORIGINAL LENGTH. THIS MAY REQUIRE SAW CUTTING OF ADJACENT UNDISTURBED BRICK(S).
4. THE PERIMETER FACES OF THE EXISTING BASE MATERIAL SHALL BE CUT BACK TO AS NEARLY A VERTICAL ORIENTATION AS POSSIBLE. IF SHEARING OF THE ADJACENT BASE RESULTS, THE CONTRACTOR WILL BE PAID FOR THE ADDITIONAL AREAS OF REMOVAL AS DESCRIBED ON THE ATTACHED DETAIL SHEET.
5. THE MAXIMUM WIDTH OF A BRICK MORTAR JOINT SHALL BE 1/2". THIS RESTRICTION WILL ALSO APPLY TO THE JOINT FORMED ADJACENT TO THE PERIMETER OF A REPAIR AREA, WHERE THE ROWS MAY NOT BE PARALLEL TO ONE ANOTHER.
6. MORTARING OF JOINTS: ALL JOINTS SHALL BE MORTARED, WITH A 50/50 MIXTURE BY VOLUME OF SAND/CEMENT, SO AS TO PROVIDE FOR A FLUSH FINISH. THIS MAY REQUIRE MORE THAN ONE APPLICATION. FURTHER, MECHANICAL VIBRATION WILL BE REQUIRED FOR CONSOLIDATION OF DRY MORTAR MIX.
7. ALLOWABLE BASE MATERIAL SHALL BE DETERMINED BY THE TRENCH SIZE AS APPLICABLE FOR SMALL OR LARGE EXCAVATIONS, AS SPECIFIED ON PAGE 3 OF 6.

NOTE 'G': FOR ALLEY REPAIRS, THE PROPOSED PAVEMENT REPLACEMENT SHALL CONFORM TO THE EXISTING TYPE AND THICKNESS OF THE PAVEMENT. CHIP AND SEAL TYPE ALLEYS SHALL REQUIRE MATCHING THE EXISTING THICKNESS OF PAVEMENT WITH THE APPROPRIATE COMBINATION OF MATERIALS BASED ON THE SIZE OF THE EXCAVATION. THE MINIMUM SHALL CONSIST OF THREE (3) INCHES OF ITEM 404 ASPHALT CONCRETE. FINISH CONCRETE PAVEMENT IS NOT PERMITTED. MATERIALS USED SHALL CONFORM TO THE REQUIREMENT OF THE CURRENT CMSC.

IF MORE THAN 1/3 OF THE WIDTH OF AN ALLEY IS REMOVED, THE PAVEMENT SHALL BE REPLACED AS PER TYPICAL AND THEN OVERLAID OVER THE TOTAL WIDTH OF PAVEMENT AND LENGTH OF TRENCH WITH A FEATHER SECTION AT BOTH ENDS.

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NOTE 'H': ITEM 912 - COMPACTED GRANULAR BACKFILL: THIS METHOD OF BACKFILL CAN ONLY BE USED WITH FULL TIME CITY INSPECTION. AN INSPECTION FEE MUST BE POSTED WHEN THE PERMIT IS ISSUED.

NOTE 'I': CONCRETE BASE OR PAVEMENT: IF PAVING REQUIREMENTS ALLOW FOR SUFFICIENT CURING TIME SO FAST SET CONCRETE IS NOT NEEDED. STANDARD CONCRETE BASE OR PAVEMENT MAY BE PLACED USING ITEM 305, ITEM 451 OR ITEM 301 AGGREGATE BASE OF CMSC AS APPROPRIATE. THIS OPTION MUST BE NOTED ON THE PERMIT APPLICATION AND APPROVED BY THE CITY OF COLUMBUS.

NOTE 'J': THE TRENCH WIDTH FOR SMALL PIPES AND CONDUITS SHALL BE OF SUFFICIENT WIDTH TO ALLOW FOR PROPER PLACEMENT OF THE BACKFILL MATERIAL. THE PAVEMENT PORTION OF THE TRENCH SHALL BE A MINIMUM OF 2'-0" IN WIDTH. THIS IS TO ALLOW FOR PROPER COMPACTION OF THE ASPHALT PAVEMENT. IF THE TRENCH FOR PLACING THE CONDUIT IS NARROWER THAN 2' THEN THE PAVEMENT PORTION SHALL BE CUT BACK TO PROVIDE THE 2'-0" MINIMUM FOR PAVING OPERATIONS.

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GENERAL NOTES

EXCAVATION PERMIT REQUIRED: A CITY OF COLUMBUS STREET EXCAVATION PERMIT IS REQUIRED FOR ALL EXCAVATIONS WITHIN THE PUBLIC RIGHT-OF-WAY, AS SET FORTH BY COLUMBUS CITY CODE, CHAPTER 903 AND ISSUED IN ACCORDANCE WITH PROVISIONS IN THE GENERAL RULES AND REGULATIONS OF THE TRANSPORTATION DIVISION.

SCOPE OF WORK:

THIS WORK SHALL CONSIST OF PAVEMENT REMOVAL, NECESSARY EXCAVATION, AND PAVEMENT REPLACEMENT IN ACCORDANCE WITH THE DETAILS SHOWN HEREIN. ALL WORK AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS (CCMS).

PROCEDURES USED FOR THE PAVEMENT REMOVAL AND REPLACEMENT SHALL NOT CAUSE SPALLING OR CRACKING OF ADJACENT PAVEMENT.

WHEN THE PAVEMENT HAS BEEN REMOVED AND THE CONTRACTOR IS UNABLE TO COMPLETE THE REQUIRED REPLACEMENT IN TIME FOR IT TO BE OPENED TO TRAFFIC AS INDICATED ON THE PERMIT, THE EXCAVATION SHALL BE FILLED WITH A PATCH MATERIAL WITH A DURABLE SURFACE OR PLATED. THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN THESE PATCHES WHILE THEY ARE IN SERVICE. THE COST OF PLACING, MAINTAINING, REMOVING, AND DISPOSING OF THE TEMPORARY PATCHES OR PLATES WILL BE AT THE CONTRACTOR'S EXPENSE.

WHEN ITEM 636 FPDF IS USED AS A BACKFILL, NO PAVEMENT SHALL BE PLACED UNTIL BLEED WATER HAS BEEN EVAPORATED FROM THE FPDF SURFACE OR HAS BEEN DRAINED OR REMOVED FROM THE SURFACE.

THE BACKFILLING PAVEMENT REPAIR AND/OR HEAT WELDING SHALL BE DONE BY THE CONTRACTOR OR PERMITEE IN ACCORDANCE WITH CITY SPECIFICATIONS. IF DESIRED ANY OR ALL THIS WORK CAN BE PERFORMED BY THE CITY OF COLUMBUS. THE CITY SHALL COLLECT APPROPRIATE FEES AT THE TIME THE PERMIT IS ISSUED FOR SAID WORK.

RESTORATION OF ANY SIDEWALK, CURB, STREET PAVEMENT, ETC... SHALL OCCUR NO LATER THAN 30 DAYS AFTER CONCLUSION OF ANY UTILITY REPAIR OR INSTALLATION ACTIVITY. CONSTRUCTION ACTIVITY COMPLETED DECEMBER THRU APRIL, SHALL BE RESOLVED NO LATER THAN MAY 31st. ADDITIONAL PERMITS SHALL NOT BE ISSUED UNTIL THE VIOLATIONS ARE CORRECTED TO THE SATISFACTION OF THE CITY ENGINEER. IN ADDITION, EACH VIOLATION MAY BE DEALT WITH IN ACCORDANCE WITH SECTION 903.99 OF THE COLUMBUS CITY CODE.

** PAVING STANDARDS FOR LARGE TRENCHES OR PAVEMENT AREAS:

A SMALL LATERAL TRENCH CUT AND SMALL PAVEMENT AREAS SHALL BE DEFINED AS 5 FEET IN WIDTH OR LESS AND 100 FEET IN LENGTH. WHEN REPAIR AREAS EXCEED THESE DIMENSIONS, THE PAVEMENT REPAIR SECTION SHALL CONFORM TO 2' OF ITEM 404 ASPHALT CONCRETE OR EITHER 7' ITEM 301 BITUMINOUS AGGREGATE BASE OR ITEM 305 PORTLAND CEMENT CONCRETE BASE - ARTERIAL. OTHERWISE PLANS SHOULD REFLECT REPLACEMENT OF THE PAVEMENT IN ACCORDANCE WITH CITY STANDARD TYPICAL SECTIONS AND ARE SUBJECT TO APPROVAL BY THE CITY ENGINEER.

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