

# GENERAL

## DS-0 REVISIONS TO CITY DETAILED SPECIFICATIONS

In addition to the revisions made in the Supplemental Detailed Specifications (Part DS), the following changes are made to the City of Cleveland Detailed Specifications (Part D):

**D-5 Contractor Hours:** REMOVE the second paragraph from this Specification.

**D-29 Asphalt Concrete Item 301, 446, and 448:** REMOVE all references to “446” in this Specification.

**D-73 Asphalt Rejuvenating Agent (Item Special):** REMOVE this Detailed Specification in its entirety.

# ROADWAY

## DS-1 ITEM 202 – GRANITE CURB REMOVED FOR REUSE

Work under this item shall include all materials, equipment, and labor necessary to remove and store the existing granite curb for reuse in this project. This Detail Specification supersedes Supplemental General Condition C-12, “GRANITE CURB REMOVED.”

All existing granite curb within the project shall be removed, cleaned, and stored by the Contractor. The Contractor shall exercise reasonable care in the removal and storage of the existing granite curb. The method of removal shall not damage the curb. If necessary, the Contractor shall hand excavate to ensure that the curb is not damaged. All mortar and concrete shall be removed from the existing curb.

The existing curb shall be stacked neatly, out of the way of construction equipment and pedestrian access paths, at a location approved by the City. Should the Contractor choose to remove the curb from the site, they shall be stacked on wooden pallets and secured tightly for transit.

At the conclusion of the project, all unused granite curb shall become property of the City of Cleveland and shall be delivered by the Contractor to the Division of Streets storage yard, Eaton Building, 2301 East 65th Street.

## DS-2 ITEM 202 - REMOVAL, MISC.: PARKING METER

All existing parking meters located within the project are to be removed. The City of Cleveland forces will remove the meter head. The Contractor shall contact Reginald Matthews, Manager of Parking, at (216) 664-2748 to coordinate removal of the parking meter heads at least one week prior to construction. After the City removes the meter head, the Contractor shall remove and dispose of the meter post and any foundation.

The Contractor shall in no case remove any parking meter post until the City has removed the meter head.

**DS-3 ITEM 202 - REMOVAL, MISC.: TREE PIT FRAME AND GRATE**

Work under this item shall include all materials, equipment, and labor necessary to remove the existing tree pit frame and grates. The grates shall be cleaned by the Contractor and stored on site for removal by the City. The frames shall be disposed of by the Contractor. This item shall also include the removal and disposal of the existing concrete frame support.

**DS-4 ITEM 202 - REMOVAL, MISC.: TREE PIT FRAME AND GRATE**

Work under this item shall include all materials, equipment, and labor necessary to remove the existing curbed tree pits, including decorative iron fence where applicable. All fence removed shall become property of the Contractor.

**DS-5 ITEM 202 – REMOVAL, MISC.: BENCHES, TRASH CANS, AND BIKE RACKS**

All existing benches, trash cans, and bike racks identified on the Drawings shall be removed and by the Contractor and stored on site in a location designated by the Engineer for removal by the City.

**DS-6 ITEM SPECIAL – BIORETENTION CELL**

1. **General:** Construct the bioretention cells as shown on the Drawings and to the satisfaction of the Engineer. Do not use the completed bioretention cell as temporary sediment control facilities during construction. Do not operate construction equipment within the perimeter of the bioretention facility during excavation, underdrain placement, backfilling, planting, or mulching of the facility.
2. **Materials:**
  - a. **Mulch:** Shredded hardwood as specified below in Detailed Specifications DS-31 (paragraph 2.01 C.2.). No other mulching material is acceptable for installation in the bioretention cells
  - b. **Soil Media:**
    - i. 50% sand (ASTM C33 fine).
    - ii. 20% composted organic (leaf compost).
    - iii. 30% topsoil, consisting of USDA textural classification of loamy sand or sandy loam meeting the criteria in the following table:

<b>TOPSOIL FOR BIORETENTION CELLS</b>	
<b>ITEM</b>	<b>CRITERIA</b>
Corrected PH	5.5-7.0
Organic Matter	1.5%-10%
Magnesium	32 PPM Minimum
Phosphorous (P205)	69 PPM Minimum
Potassium (K20)	78 PPM Minimum
Soluble Salts	550 PPM Maximum

- c. Pea Gravel: #7, #8, or #78 stone.
- d. Underdrain Pipe: 4-inch diameter rigid Schedule 40 PVC perforated with 3/8-inch holes @ 6 inches c/c, 4 holes per rows.
- e. Filter Fabric: Conforming to ODOT Item 712.09 Type D, Geotextile Fabrics for Subgrade-Base Separation or Stabilization.

3. **Construction:**

- a. Protection during construction: Bioretention materials as specified in this Supplemental Detailed Specification shall not be installed until the contributing drainage area is stabilized.
- b. Testing the Bioretention Soil Mix:
  - i. The soil media shall be a uniform mix, free of stones, stumps, roots, or other similar objects larger than two inches (2"). No other materials or substances shall be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of noxious weeds.
  - ii. When soil media is mixed by the Contractor at the project site, the mix shall be tested according to this Supplemental Detailed Specification. A textural analysis is required from the topsoil stockpiled on the project site and all imported topsoil. All testing results shall come from the same testing facility.
  - iii. Should the PH of the soil media fall out of the acceptance range, it may be modified (higher) with lime or (lower) with iron sulfate plus sulfur. Should the mix not meet the minimum requirements for magnesium, it may be modified with magnesium sulfate. Should the soil media not meet the minimum requirements for potassium, it may be modified with potash. Magnesium sulfate and potash must be mixed uniformly into the soil media mixture prior to use in bioretention facilities.
- c. Excavation: The bioretention facility shall be excavated to the dimensions, side slopes, and elevations shown on the Drawings. The method of excavation shall minimize the compaction of the bottom of the facility. Excavators and backhoes operating on the ground adjacent to the facility shall be used to excavate the facility. Excavated materials shall be removed from the project site.

- d. Underdrain Installation: Place the underdrain according to the Detail on the Drawings. Ensure a minimum of three inches (3”) of No. 57 gravel is placed over the pipe, plus the additional two inches (2”) of pea gravel.
  - e. Placing the Soil Media Mixture:
    - i. The bioretention soil media mixture shall be placed and graded using excavators and/or backhoes operating on the ground adjacent to the bioretention cell.
    - ii. The mixture shall be placed in horizontal layers not to exceed twelve inches (12”) in thickness over the entire area of the cell. Materials shall be graded by hand methods. The elevation of the mix may be a maximum of two inches (2”) above the final grade at installation in anticipation of settling.
  - f. Plant Installation for Bioretention Cells:
    - i. After placing the soil mixture, trees, shrubs, and other specified plant materials shall be planted. Planting shall be conducted between May 1 and June 15 or between September 15 and November 1. Root stock of plant materials should be kept moist during transport from the source until planted.
    - ii. Bioretention cells shall be planted in accordance with the Planting Plan.
    - iii. All planting pits shall be dug by hand and excavated to 1 ½ times the width of the root mass. The planting pit shall be deep enough to allow the first lateral root of the root mass to be flush with the existing grade. Remove all non-organic debris from the pit and tamp loose soil in the bottom of the pit by hand.
    - iv. Mix a minimum of 500 spores of endomycorrhizal fungi and 30 million spores of ectomycorrhizal fungi to each cubic foot of backfill from trees and shrub planting. Backfill planting pit with existing soil and hand tamp as pit is being backfilled to completely fill all voids and air pockets. Do not over compact soil. Make sure plants remain straight during backfill/tamping procedure. Do not cover the top of the root mass with soil.
    - v. An eighteen inch (18”) diameter area of shredded hardwood mulch as specified in this Supplemental Detailed Specification shall be placed around each plant, two to three inches (2”-3”) thick. Mulch shall not be placed directly against the stem of the plant.
    - vi. Water plant thoroughly immediately after planting.
4. **Catch Basin:** The furnishing and installation of the catch basin and outlet pipe are specified under Supplementary Detailed Specifications DS-9 and DS-10.
5. **Trees, Shrubs and Plants:** are specified under Supplementary Detailed Specification DS-31.

**DS-7 ITEM 608 – 6’ CONCRETE WALK, AS PER PLAN**

In addition to the requirements of Item 608 and Detailed Specification D-23, all internal longitudinal and transverse sidewalk joints shall be sawcut. Tooled joints shall be

placed at the edges of the sidewalks, against curbs and existing sidewalks and pavements that are not disturbed by this project.

**DS-8 ITEM 608 – CURB RAMP WITH TILE, INCLUDING LAYOUT**

Work under this item shall include all provisions of ODOT Item 608, City of Cleveland Detailed Specification D-27 and the City of Cleveland Curb Ramp Special Provisions and Standard Drawings, with the following exception:

- The width of the ramp shall be five feet (5'). Detectable Warnings shall be installed for the entire width of the ramp at the adjacent curb line.
- The truncated domes shall be Detectable/Tactile Warning Surface Tiles in accordance with ODOT Standard Drawings, brick red color.

**DRAINAGE**

**DS-9 ITEM 604 – 2-2B CATCH BASIN WITH SUMP AND TRAP**

In addition to the requirements of ODOT Item 604 and Standard Construction Drawing CB-1.1, the 2-2B Catch Basin shall be constructed with a trap conforming to City of Cleveland Standard Drawing CB-1 and a 2'-0" deep sump (measured from the bottom of the trap to the floor of the catch basin).

**DS-10 ITEM 605 – 6" UNCLASSIFIED PIPE UNDERDRAIN, AS PER PLAN**

In addition to the provisions of ODOT Item 605 and City of Cleveland Detailed Specification D-42, the unit price bid for this item shall include, but not be limited to, the furnishing and installation of a fabric sock on the underdrain pipe. The sock shall completely cover the perforated underdrain pipe and shall be secured to the pipe in such a way to prevent infiltration of trench backfill material.

The knitted fabric sock shall be a continuous one piece material that fits over the pipe like a sleeve. It shall be knitted of continuous 150 denier yarn and shall be free from any chemical treatment or coating that might significantly reduce porosity and permeability.

The knitted fabric sock shall comply with the following physical properties:

Weight, applied (oz./sq. yd.)	3.5 min.	ASTM D3887
Grab tensile strength (lbs.)	50 min.*	ASTM D5034
Equivalent opening size (EOS No.)	25 min.**	Corps of Engineers CW-02215-77
Burst Strength (psi)	100 min.**	ASTM D3877

\* Tested wet.

\*\* Manufacturer's certification to meet test requirement.

# PAVEMENT

## **DS-11 ITEM 254 – PAVEMENT PLANING, ASPHALT CONCRETE, AS PER PLAN**

This work shall consist of planing the existing asphalt pavement to the depth as indicated on the Drawings and disposal of the cuttings in accordance with ODOT Item 254. In locations where the existing concrete base is encountered within the required depth of planing, the concrete shall be planed to the required depth and shall be included with this item for measurement and payment.

Pavement planing operations shall be as directed by the Engineer and in conformance with the construction sequences as described in the Maintenance of Traffic notes. One or more planing passes shall be made over the designated area as necessary to remove irregularities such as bumps, corrugations, and wheel ruts, and to establish the new pavement surface.

Cuttings shall be removed from the surface following each pass of the equipment. Before opening the planed pavement to traffic, the surface shall be cleaned thoroughly of all loose material that may create a hazard, a nuisance, or would be deposited back into the surface. Cuttings shall be disposed of in accordance with ODOT Item 105.16.

Effective measures shall be taken throughout the planing operation to control dust and smoke, contamination of the underlying pavement or adjacent pavement to remain and the scattering of loose particles during planing and cleaning operations.

Where sound pavement has been gouged, torn, or otherwise damaged during planing operations due to the Contractor's negligence, the damaged area shall be repaired at no additional cost in a manner satisfactory to the Engineer.

All castings encountered shall be set to grade after the intermediate course has been placed and compacted. The adjustment of castings in the area of planed pavement is included under Detailed Specifications D-39 and D-41.

## **DS-12 ITEM 407 – TACK COAT, TRACKLESS TACK, BY COURSE**

1. **Description:** This work consists of preparing and treating a paved surface with a trackless tack coat. Materials and installation shall meet the requirements of ODOT Item 407, Tack Coat, except as noted below. Manufacturers of this product include:
  - a. NTSS-1HM; produced by Blacklidge Emulsions, Inc.
  - b. An equivalent material approved by the Engineer.
2. **Material:** Conform to the following physical properties in the following tables.

Parameter	Test Method	Min.	Max.
Saybolt Furol Viscosity, SFS @ 25 °C	ASTM D88	15	100
Storage Stability, 24 hrs, %	ASTM D244	----	1
Storage Stability, 5 days, %	ASTM D244	----	5
Residue by Distillation, %	ASTM D244	50	----
Oil Distillate, %	ASTM D244	----	1
Sieve Test, %	ASTM D244	----	0.3
<b>Test on Residue</b>			
Penetration @ 25 °C	ASTM D5	----	20
Softening Point Range Deg C	ASTM D36	65	----
Solubility, %	ASTM D2042	97.5	----
Original Binder DSR @ 82 °C G*/sin Δ, 10 rad/sec	AASHTO T111	1	----

Tack coat product should not contain filler such as clay, etc. The material shall not be stored in such a manner that the temperature falls below 32 degrees F. Submit certified test data to Engineer showing the material supplied was tested for meets the above properties.

3. **Equipment:** All requirements of ODOT Item 407.03 apply. Follow manufacturer's recommendations for correct distributor settings. Thoroughly clean all equipment if cationic emulsion was previously used.
4. **Application of Asphalt Material:** Uniformly apply the asphalt material with a distributor per the requirements of ODOT Item 407.06, except as noted below:
  - a. If product is stored for an extended period of time, prior to application, agitate or gently circulate the material.
  - b. All nozzles and spray patterns shall be identical to one another along the distributor spray bar. The angle of the nozzle should be a 15 to 30 degree angle to the spray bar axis to maximize overlap or as recommended by the nozzle manufacturer. Contact the Manufacturer's representative for required spray nozzle size, and distributor and nozzle settings.
  - c. Apply at the rate indicated on the Typical Sections in the drawings. Recommended application temperature is 160°F to 180°F. Do not exceed 180°F.
  - d. Dilution is not allowed.

The Engineer and Manufacturer's representative will approve rate of application, temperature, distributor settings, and areas to be treated before application of the tack coat. The Engineer will determine the actual application in gallons per square yard by a check on the Project.

The application is considered satisfactory when the material is applied uniformly with no visible evidence of streaking or ridging and the application rate is  $\pm 10\%$  of the specified rate.

**DS -13 ITEM 609 – CURB, TYPE 6, AS PER PLAN**

1. **Description:** Where indicated on the Drawings, the Contractor shall furnish and install an integrally colored cast in place concrete curb as per the Detail on the Drawings and as specified herein.

In addition to the provisions of ODOT Item 609 and City of Cleveland Detailed Specifications, this item shall include, but not be limited to the furnishing and installation of the integrally colored concrete admixture in conformance with this Supplemental Detailed Specification

2. **Materials:**

- a. **Admixture:** A colored, water-reducing admixture containing no calcium chloride with coloring agents that are limeproof and UV resistant. The colored admixture shall conform to the following:
  - i. ASTM C979 – Standard Specification for Pigments for Integrally Colored Concrete.
  - ii. ASTM C494 – Standard Specification for Chemical Admixtures for Concrete.
  - iii. AASHTO M194 – Chemical Admixtures.
- b. **Curing Compound for Colored Concrete:** Curing compound shall comply with ASTM C309 and be approved by color additive manufacturer for use with colored concrete.
- c. **Sealant:** Joint sealers shall be color-matched to the concrete and specially formulated for high-performance pedestrian and vehicular traffic areas.
- d. **Concrete Mix Design:** Concrete mix shall conform to Detailed Specification D-24 with the following additions:
  - i. Calcium chloride shall not be added to the mix.
  - ii. Supplemental admixtures, such as additional water-reducing admixtures, water-proofing agents, and super plasticizers shall not be used.
  - iii. Color additives: Mix in accordance with manufacturer's instructions. Mix until color additives are uniformly dispersed without mixture and disintegrating bags, if used, have disintegrated.
  - iv. Do not add water to the mix in the field.

3. **Concrete Colors:**

- a. Match colors selected by Owner from color additive manufacturer's color line.
- b. Colored admixture shall be added to the mix per manufacturer's written instructions in a premeasured bag and shall not be added by weight of cement content.



4. **Curing:** Apply curing compound for colored concrete in accordance with manufacturer's instructions using manufacturer's recommended application techniques. Apply curing compound at consistent time for each pour to maintain close color consistency.

**DS-14 ITEM 609 – CURB, MISC.: GRANITE CURB RESET**

Under this item the Contractor shall install the existing granite curb removed and salvaged under separate bid item.

This item shall include, but not be limited to, the following:

- Excavation and disposal of the excavated material to the width and depth required to install the granite curb.
- Furnishing and installation of the Class "C" concrete bed. The bed shall be continuous, 10 inches in width and 6 inches in depth.
- Placing of the granite curb. Prior to placing granite curb, a string line shall be installed true to the vertical and horizontal alignment of the proposed curb. The curb shall then be placed, ensuring that the granite curb is set true to line and grade. If necessary, trim the granite curb prior to resetting. If the condition of the end faces preclude making a neat butt joint (when the blocks are placed the maximum gap between the blocks should be  $\leq \frac{1}{8}$  inch), then the end face(s) of the granite curb blocks should be sawn prior to the placement of the blocks.

## **WATER WORK**

**DS-15 ITEM SPECIAL- REMOVE EXISTING VAULT/MANHOLE**

Where shown on the Contract Drawings, or where ordered, the Contractor, under this Supplemental Detailed Specification, shall remove and dispose of the existing water vault structures and/or manhole structures. The Contractor shall provide all labor, materials, tools, and equipment necessary to perform the work shown, or where ordered, including all excavating, sheeting and shoring, and all other work as required. City of Cleveland, Division of Water records show that the meters have previously removed from these vaults.

Furnishing and installing the backfill material shall be included under Detailed Specification D-31.

**DS-16 ITEM SPECIAL- RECONSTRUCT VAULT/MANHOLE FRAME AND COVER TO GRADE**

This item shall be performed at locations where water vault/manhole covers must be raised more than one (1) foot from existing elevation, or lowered more than six (6) inches from existing elevation. This work shall be as performed as specified in

Detailed Specification Part E, Item12-1 C3. The Engineer will examine each structure to determine whether the casting is to be adjusted to grade or reconstructed to grade prior to the work being performed.

## **TRAFFIC CONTROL**

### **DS-17 ITEM 630- SIGN, FLAT SHEET, AS PER PLAN**

Signs supplied under this item shall meet the requirements of 630, except that reflective sheeting will not be used. The background color of the sign shall be type F sheet material.

### **DS -18 ITEM 630 – SIGNING, MISC.: STREET NAME SIGN (16” OR 12”)**

Under this item the Contractor shall furnish and install street name signs in conformance with ODOT standards except as modified by the City of Cleveland. Complete illustrations, descriptions and application guidelines are contained within the Bid Documents.

Street Name Signs for non-signalized intersections shall be City of Cleveland Type D.3 and be mounted on utility poles, light poles, or channel installations, if absolutely necessary. Channel installation must be accepted by the City of Cleveland Division of Traffic Engineering before installation.

Street name signs furnished and installed under these items shall be per the City of Cleveland Production, Installation and Management Specifications, contained within the Bid Documents. An example must be presented to the City of Cleveland Division of Traffic Engineering before any fabrication of signs.



**Content and Placement Criteria**

In urban and suburban areas the street name is a frequently used and basic information component in locating destinations. The street name signage system described below aids wayfinding through larger, distinctive messages, creating awareness of downtown districts, and selective identification of street block addresses for orientation. The type of information accompanying the basic street name is based upon the type of intersection and knowledge that visitors usually travel on arterial streets.



Districts shall be identified at arterial intersections with arterials and through secondary streets. (The street is continuous, without breaks)



Districts and street block addresses shall be identified along Euclid and key North/South through streets intersecting with major East/West arterials. Euclid is the division between the 1000 and 2000 block addresses on North/South streets.



Street names only should be used along secondary street intersections with secondary streets and arterial intersections with non-through secondary streets. These streets are used less frequently by out-of-town visitors and commercial delivery vehicles.



Outside of downtown districts, the neighborhood name may be used to identify and reinforce those neighborhoods officially recognized by the City of Cleveland Council.



**Program Rationale**

The street name sign is utilized at intersections 1) where signal mast arm street name signs are not utilized; or 2) in conjunction with mast arm street name signs for intersection corners without signal mast arm street name signs. It identifies street names, and downtown districts (or city approved neighborhood names primarily for pedestrians and secondarily for vehicular traffic. It reinforces district/neighborhood entrances and boundaries, as well as providing directions to districts/neighborhoods along streets serving as boundaries between streets, i.e., E 9th Street.

**Design Expression**

The sign features a larger 7" cap height more legible street name size using a distinctive bright blue reflectorized background and white message. The message utilizes the Unifers 65 font, initial caps, centered horizontally & vertically on the blue and violet segments of the sign. The messages shall be screen printed whereby the background colors are screened and the message "drops out" in white from the high intensity grade reflectorized sheeting. When block address numbers are included for key north/south through streets; this may be applied using pre-spaced machine cut reflectorized vinyl characters flanking the district name.

Sign panels are .080" thk. aluminum with a consistent width (16"). Three panel sizes are available to accommodate varying message lengths. (3'-0", 3'-6", 4'-0")

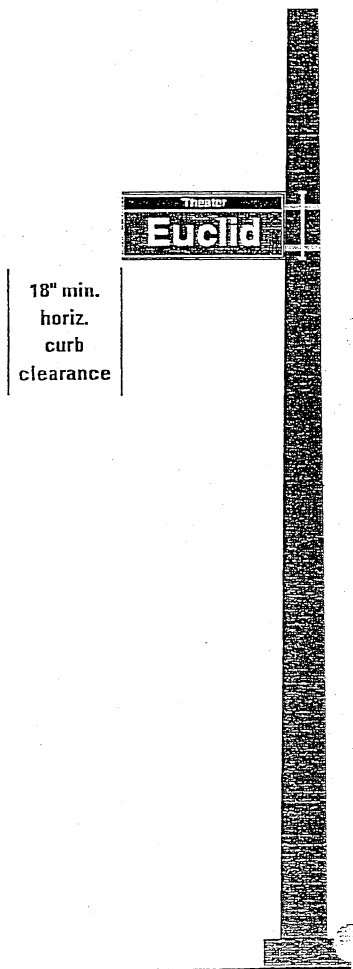
**Placement Criteria**

Sign panels are roadside mounted to existing light or signal poles utilizing a sign-fix or equivalent bracket and stainless steel strapping. Minimum of 8'-0" vertical clearance and 18" horizontal curb clearance to prevent being hit by trucks.

Signs are located diagonally opposed on light or signal poles at the near side corner of the intersection for the arterial roadway approach.

**References**

- Appendix A - General Specifications
- Appendix B - Production, Installation, Management Specifications - *Drawing D1-D4.1*
- Appendix C - Program Matrix



Scale 1/2"=1'-0"



#### Program Rationale

The street name sign is utilized at intersections 1) where signal mast arms exist; or 2) where mast arms exist along only one approach in conjunction with cantilevered pole-mounted street name signs for approaches without signal mast arms. It identifies street names primarily for vehicular traffic as well as pedestrians. It reinforces district/neighborhood identification and provides directions to districts/neighborhoods along streets serving as boundaries between districts, e.g., E 9th Street.

#### Design Expression

The sign features a larger 12" cap height, more legible street name size, using a distinctive bright blue reflectorized background and white message. The message utilizes the Univers 65 font, initial caps, centered horizontally and vertically on the blue and violet segments of the sign. The messages shall be screen printed, whereby the background colors are screened and the message "drops out" in white from the high-intensity grade reflectorized sheeting. When block address numbers are included for key north/south through streets, these may be applied using pre-spaced machine cut reflectorized vinyl characters flanking the district name.

Sign panels are .080" thk. aluminum with a consistent width (26"). Three panel sizes are available to accommodate varying message lengths (6'-0", 7'-0" and 8'-0").

#### Placement Criteria

Sign panels are mounted on the mast arms of signal or light poles between the signal head and curb, using stainless steel straps and standard City of Cleveland brackets and hardware mechanically fastened to panel stiffeners bonded to the back of the panel.

Signs are located at the far side of intersection, facing all approaches whenever possible.

#### References

- Appendix A - General Specifications
- Appendix B - Production, Installation, Management Specifications - Drawing D1-D4.1
- Appendix C - Program Matrix





**Program Rationale**

The street name sign is utilized at intersections 1) where signal mast arm street name signs cannot be utilized; or 2) in conjunction with mast arm street name signs for intersection approaches with signal mast arm street name signs. It identifies street names primarily for pedestrians and secondarily for vehicular traffic along secondary lower traffic volume streets.

**Design Expression**

The sign features a larger 7" cap height, more legible street name size using a distinctive bright blue reflectorized background and white message. The message utilizes the Univers 65 font, initial caps, centered horizontally and vertically on the panel. The messages shall be screen printed, whereby the background colors are screened and the message "drops out" in white from the high-intensity grade reflectorized sheeting.

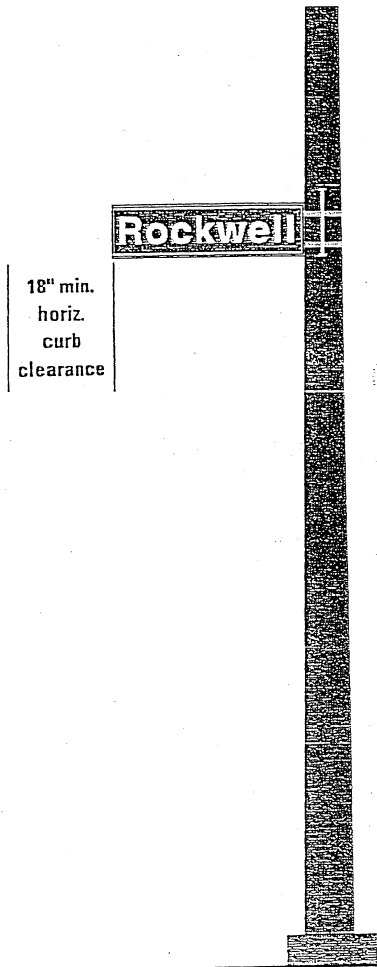
Sign panels are .080" thk. aluminum with a consistent width (12"). Three panel sizes are available to accommodate varying message lengths (3'-0", 3'-6" and 4'-0"). Where existing post strength or windloading is a concern, the Engineer may reduce this to a 10" high panel with 6" copy.

**Placement Criteria**

Sign panels are roadside mounted to existing light or signal mast arm poles, utilizing a sign-fix or equivalent bracket and stainless steel strapping. Minimum of 8'-0" vertical clearance and 18" horizontal curb clearance to prevent being hit by trucks. Signs are located diagonally opposed on light or signal poles at the near side corner of the intersection for the arterial roadway approach.

**References**

- Appendix A - General Specifications
- Appendix B - Production, Installation, Management Specifications - *Drawing D1-D4.1*
- Appendix C - Program Matrix



Scale 1/2"=1'-0"



#### Program Rationale

The street name sign is utilized at intersections 1) where signal mast arms exist; or 2) in conjunction with cantilevered pole-mounted (Type D.3 signs) street name signs for approaches without signal mast arms. It identifies street names primarily for vehicular traffic as well as pedestrians along secondary lower traffic volume streets.

#### Design Expression

The sign features a larger 12" cap height, more legible street name size using a distinctive bright blue reflectorized background and white message. The message utilizes the Univers 65 font, initial caps, centered horizontally and vertically on the panel. The message shall be screen printed, whereby the background colors are screened and the message "drops out" in white from the high-intensity grade reflectorized sheeting.

Sign panels are .080" thk. aluminum with a consistent width (20"). Three panel sizes are suggested to accommodate varying message lengths (6'-0", 7'-0" and 8'-0").

#### Placement Criteria

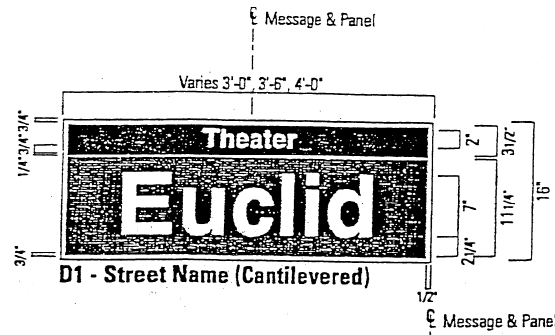
Sign panels are mounted on mast arms of signal or light poles between the signal head and curb, using stainless steel straps and standard City of Cleveland brackets and hardware mechanically fastened to panel stiffeners bonded to the back of the panel.

Signs are located at the far side of the intersection, facing all approaches whenever possible.

#### References

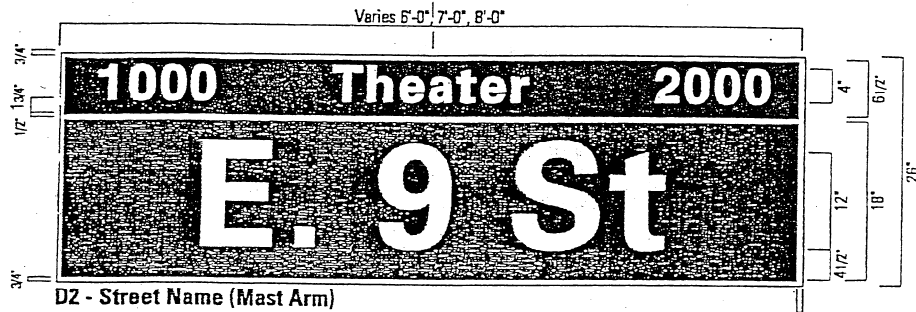
- Appendix A - General Specifications
- Appendix B - Production, Installation, Management Specifications - *Drawing D1-D4.1*
- Appendix C - Program Matrix





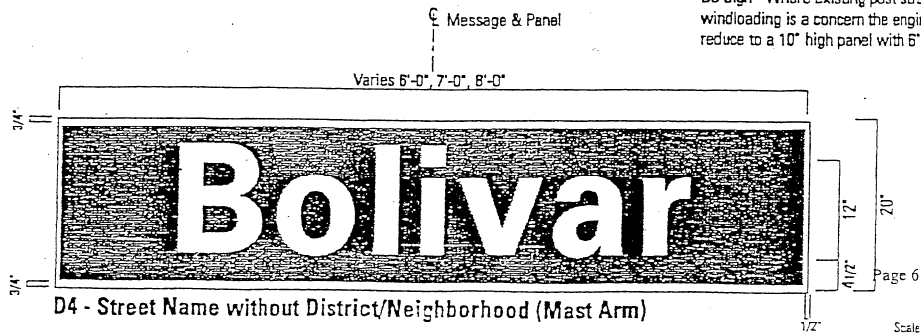
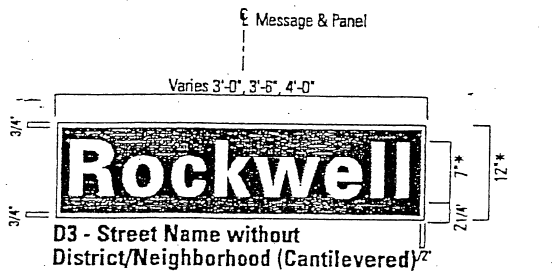
NOTES:

1. All panels .080" thk. aluminum with 3M High Intensity Grade reflective sheeting.
2. Background colors/messages reverse screen printed or equivalent color transparent film.
3. Block addresses, if used, applied with machine-cut reflective sheeting.
4. Use heavy duty Sign-Fix bracket for cantilever mounting.



5. Colors:

- Name bkgd: Blue Scotchlite ink #863 or equivalent transparent film.
- District bkgd: Violet Scotchlite ink #893 or equivalent transparent film.
- Message: Scotchlite High Intensity Grade silver #3870.
- \* D3 Sign - Where existing post strength or windloading is a concern the engineer may reduce to a 10" high panel with 6" copy.



Scale 3/4" = 1'-0"





The Univers family is the official letter style for the Greater Cleveland Master Signage Program. This style is readily available from manufacturers of signs, or sign making equipment and features a wide variety of proportions and stroke widths adaptable to the various program applications. Univers Bold is utilized throughout all applications as sign messages and text. Univers Condensed Bold is utilized on Pedestrian Directional signs and printed maps. Univers Condensed is utilized primarily on maps and other printed applications.

Among various manufacturers and letter cutting equipment, there is not total uniformity as to letter form. This is especially true with Univers Condensed. It is important that there be a match with the examples shown in this manual. Univers Condensed has a lighter stroke width for internal illumination to minimize the "halation effect", where the stroke will appear to glow and enlarge.

All non-tactile sign word messages are to be in initial upper case followed by lower case to enhance word signature readability unless specified otherwise. Examples of exceptions are "EXIT" and "DO NOT ENTER", where these word signatures are learned in all upper case. Other exceptions are to distinguish a heading from body copy or to emphasize the importance of a word or phrase.

As required by ADA, any tactile messages shall be all upper case. Univers Bold braille messages do not have to be all upper case except to emphasize the importance of a word or phrase.

**ABCDEFGHIJK  
LMNOPQRSTU  
VWXYZ.,-:;! '&?  
abcdefghijklmnop  
opqrstuvwxyz  
\$1234567890**

Univers Bold - 65

**ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
abcdefghijklmnopq  
rstuvwxyz.,-:;! '&?  
\$1234567890**

Univers Condensed Bold - 57

**ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
abcdefghijklmnopq  
rstuvwxyz.,-:;! '&?  
\$1234567890**

Univers Condensed Regular - 57



The final layout and/or assembly of letters on a sign panel requires careful letter spacing guidelines to assure maximum legibility.

This manual recommends normal spacing for signs that are ambiantly lighted or externally lighted. Normal spacing should result in approximately one stroke width between straight vertical letters such as (i) and (n). All other letter spacing combinations should be visually proportional to one stroke width. Tight letter spacing shall not be considered and is not within the guidelines of this manual since legibility would be compromised.

This manual recommends wide spacing for signs that are internally-illuminated and normal spacing for letters that are reflective. Wide spacing should result in approximately 1 1/4 (1.25) times the stroke width.

Spacing between words is equally as important to achieve good legibility as inter-letter and inter-line spacing. Word spacing shall be 3/4 (.75) times the cap letter height. Thus, lettering using 4" cap letters will have 3" between words. This space guideline also applies to abbreviations, initials, etc.

Line spacing shall be 1/2 (.50) times the cap letter height for words of a related message line such as "Metroparks Zoo". Spacing between unrelated message lines shall be 1 times the cap letter height.

Signage margins for left, right, top and bottom spacing shall be a standard 3/4 (.75) times the cap letter height and for exceptions where there are space limitations, 1/2 (.50) times cap letter height.

Univers 67 Condensed

Spacing

Univers 65

Spacing

Spacing NOT APPROVED (Tight)

Univers 67 Condensed

Spacing

Univers 65

Spacing

Spacing APPROVED (Normal) for ambiantly & externally illuminated & reflective letters

Univers 67 Condensed

Spacing

Univers 65

Spacing

Spacing APPROVED (Wide) for internally illuminated letters

# LIGHTING AND ELECTRICAL

## DS-19 ITEM 625, LIGHTING, MISC.: PULL BOX REMOVED AND REPLACED

Under this item the Contractor shall remove the existing precast concrete lighting pull boxes and replace them with composite pull boxes.

Before replacing the existing pull box, the Contractor shall disconnect the existing conduit from the pull box. The existing concrete pull box shall be removed and disposed of and the new pull box installed in conformance with CPP standards. The Contractor shall furnish and install new conduit as necessary to connect the existing conduits to the new pull box.

Refer to Supplemental Detailed Specification DS-21 for pull box details.

## DS-20 ELECTRICAL UTILITIES

### 1. SAFETY

- a. It shall be the responsibility of the Contractor to see that all personnel comply with Chapter IC-3, Specific Safety Requirements of the Industrial Commission of Ohio Relating to Construction and the latest Federal Regulations of the Department of Labor, Bureau of Labor Standards and the Occupational Safety and Health Act (O.S.H.A.), PART 1926 - SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION.
- b. This Contractor shall conduct safety training classes and set up specific safety meetings regarding the work of this project. This Contractor and this Contractor's employees shall be familiar with and shall comply with N.F.P.A. 70E "ELECTRICAL SAFETY REQUIREMENTS FOR EMPLOYEE WORKPLACES".
- c. This Contractor and all employees shall comply with and fully understand the National Electrical Safety Code. The electrical utilities of several utility companies are located in the area of construction. All electrical construction workers should be qualified and experienced in medium voltage to work on this Project.

## DS-21 CLEVELAND PUBLIC POWER GUIDELINES

GUIDELINES FOR INSTALLATION OF ELECTRICAL SERVICE  
INSTALLATIONS TO BE IN ACCORDANCE WITH CPP STANDARDS

### **GENERAL CONTRACTOR'S RESPONSIBILITIES:**

1. To appoint a person to coordinate the installation of utilities.
2. Establish final grade before trenching and setting transformers and utility boxes.
3. Provide excavation and clean backfill for all trenches. See backfill procedure.

4. Furnish and install all primary conduit, 5" PVC Type EB primary conduits; for each of two primary power sources to each transformer, or as shown on the Drawings. Install 5" bell ends. Provide a 3/8" pulling line in each of the 5" conduits. **NOT REQUIRED.**
5. All electrical conduits shall be Type EB & must be encased with a minimum 3" concrete envelope; & constructed with base spacers and intermediate spacers.
6. All vertical and horizontal curves are to be constructed by using 2' 6" chord lengths and appropriate 5 degree couplings, or as noted on plan view, or approved by the Engineering section of Cleveland Public Power.
7. All conduit runs are to be installed at a minimum of 30" below existing and/or proposed grades
8. CPP will furnish and install cable to the primary side of the transformer, also from the secondary side of the transformer to the meter socket.
9. Provide trench per CPP standard drawing 10-23.
  - a. Width 24" x 48" depth relative to the finished grade.
  - b. First layer of sand to be 6" depth.
  - c. Backfill around CPP ducts with 6" depth of sand.
  - d. Backfill and properly compact trench to grade level.
10. Furnish and install grounding per The National Electric Code and/or The City of Cleveland Code requirements at the service point of each house.
11. Furnish and install a pre-cast concrete pad 4" above finish grade per CPP standard Drawing 10-7 for each pad mounted transformer. Properly compact and level soil before setting pad. **NOT REQUIRED**
12. Furnish and install an equipment ground rod on transformer pad; & grounding for each transformer per CPP standard drawing 10-8.
13. Furnish and install pull boxes and utility boxes per CPP design drawings:
  - a. Pull box (Street lighting & Secondary service connections): CPP standard drawing 13-3-1-1.
  - b. Place 6" of wash gravel below each utility box extending a minimum of 6" beyond the perimeter of the box.
  - c. Each utility box is to be free of all foreign objects and debris.
14. All manholes outside walls and conduits runs are to have a minimum clearance of 5' horizontally from all water and gas lines. Vertical clearance shall be 1'- 6". Clearance between other utilities shall be one foot. CPP's ductbank shall cross over or under other utilities at an angle of no less than 45 degrees.
15. Any conduit runs that are crossing any steam lines shall have a minimum clearance of 3' 6". In the event this cannot be accomplished, notify the engineering section of Cleveland Public Power prior to final construction.
16. For Street lights furnish and install the following:
  - a. Street light pole base foundation per CPP standard PBOXE-1
  - b. 2 - 2" PVC ducts and pull boxes per CPP design standard 13-3-1-1.
  - c. Pull box at each street light pole per CPP standard PBDXE-1 and 13-3-1-1
17. Contractor shall be responsible for all electrical service charges, until accounts are transferred to the resident's name.

### **BACKFILL PROCEDURE:**

1. Backfill material: The sand material shall be natural river or bank sand; free of silt, clay, loam, friable or soluble materials and organic matter.
2. Employ a placement method that does not disturb conduits.
3. Place and tamp sand in 6" loose layers around the conduits, to a minimum of 1' 6" below existing and/or proposed grade line. A rugged polyethylene material warning tape capable of resisting high or low PH conditions must be placed 6" above electrical conduits. This warning tape is to be six inches wide, red in color, and imprinted with the words "DANGER - BURIED HIGH VOLTAGE CABLES BELOW". This shall conform with the standards set by Ohio Utilities Protection Service.
4. Place & tamp the remaining with normal earth spoil. Tamp earth soil in continuous 6" layers

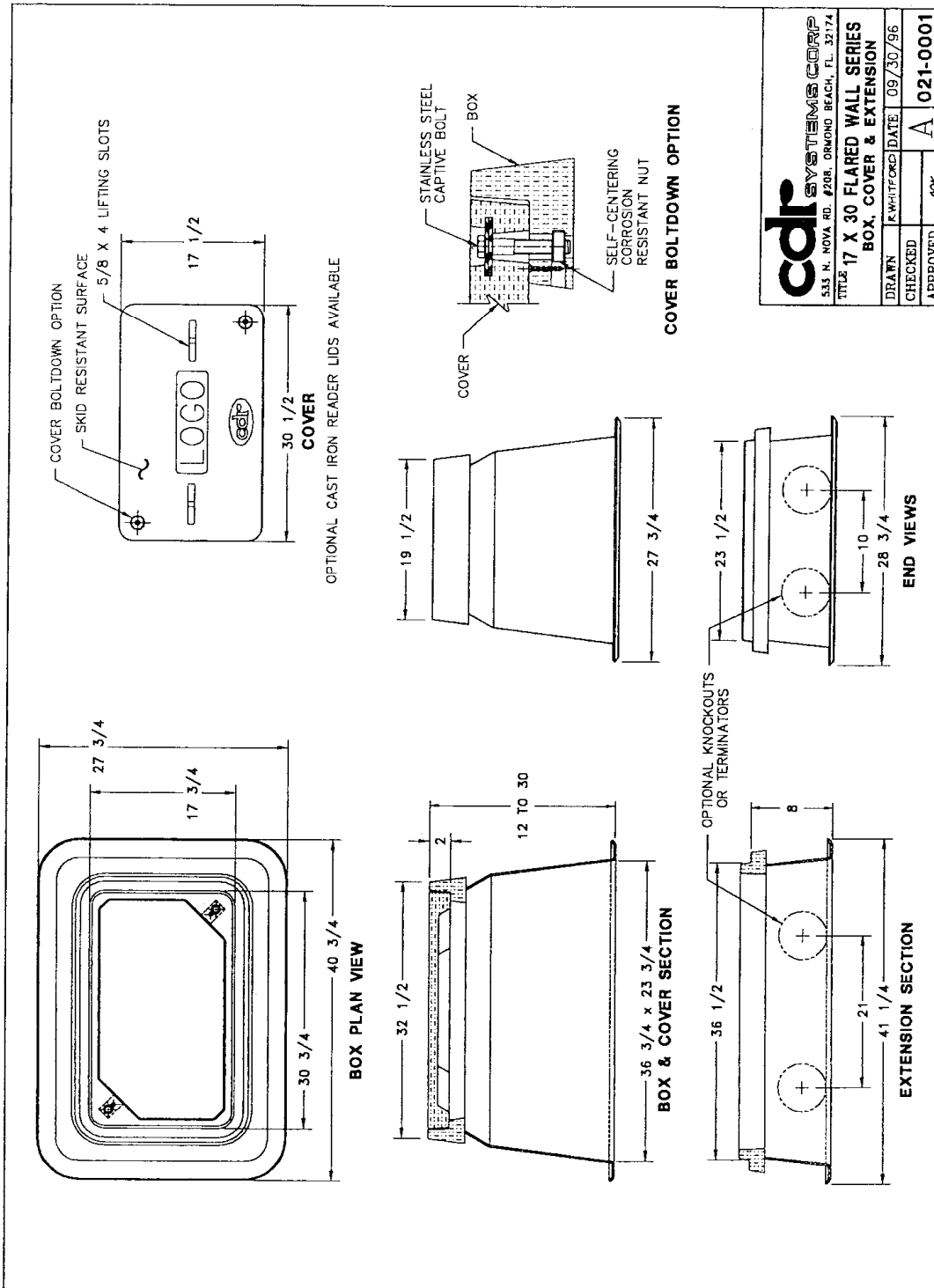
### **CLEVELAND PUBLIC POWER'S RESPONSIBILITIES:**

1. Furnish and install all high voltage cable in underground duct; provided by the contractor, per CPP specifications. **NOT REQUIRED**
2. Furnish and install transformers.
3. Furnish and install secondary cables from the utility box/transformer location to the meter.
4. Furnish and install meters and secondary cable terminations at the meter enclosures

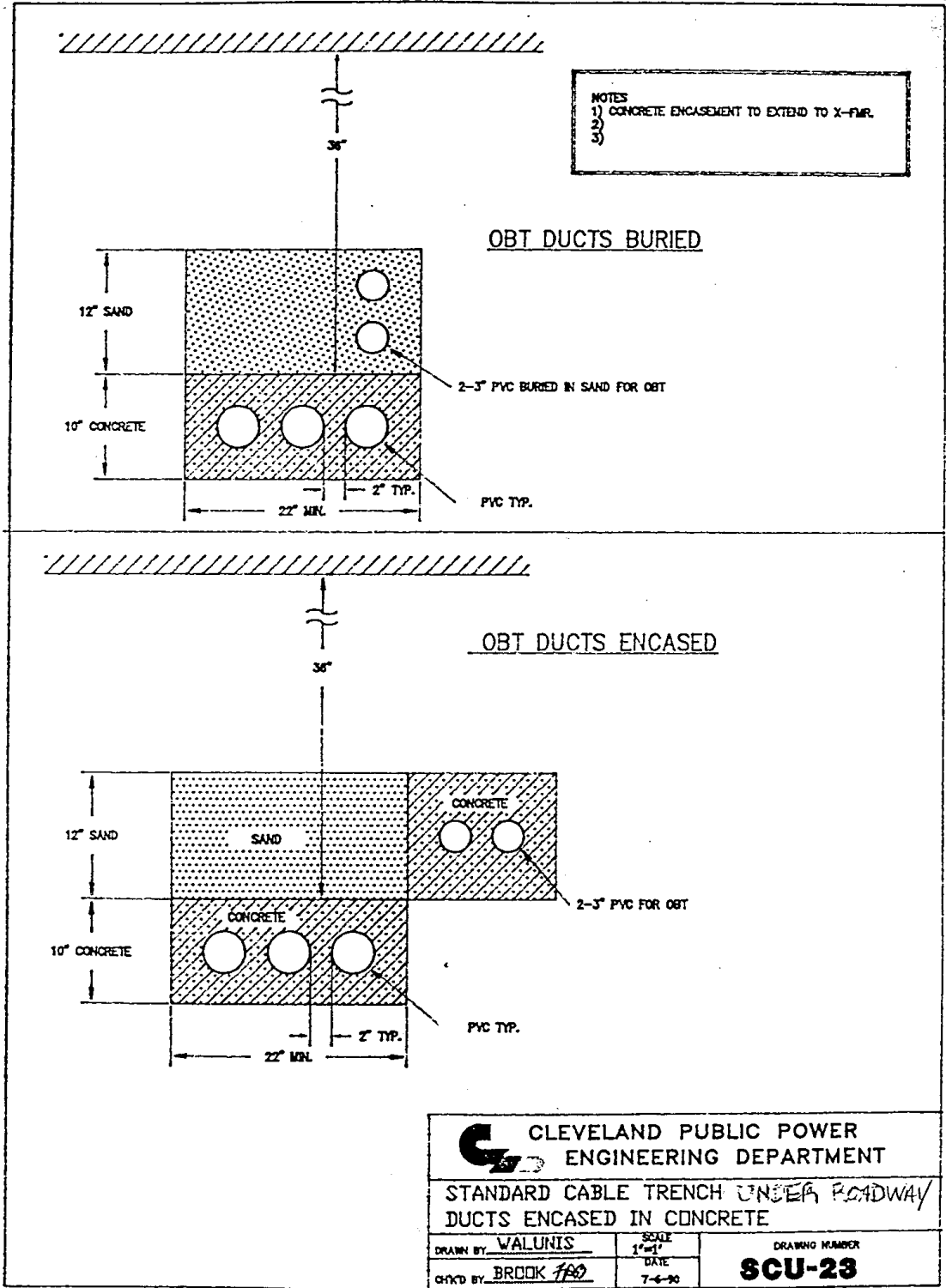
### **UNDERGROUND CONDUIT INSTALLATION NOTES**

1. Contact Ohio Utilities Protection Service, two working days prior to start of construction. In Ohio call toll free (800) 362-2764.
2. All power duct construction to be constructed by using 5" PVC Type EB conduit, encased with a 3" concrete envelope, unless otherwise noted on plans provided by Cleveland Public Power.
3. Install a rugged polyethylene material warning tape capable of resisting high or low PH conditions. This tape shall be six inches (6") wide, red in color, imprinted with the words "DANGER --BURIED HIGH VOLTAGE CABLES BELOW", as required by Ohio Utilities Protection Service. It is the Law. Tape shall be place 6" above the electrical conduit run.
4. All vertical and horizontal curves shall have a radius of no less than 30 feet. These curves are to be constructed by using 2.5' chord lengths and the appropriate 5 degree couplings, or unless noted on the plans provided by Cleveland Public Power.
5. All conduit runs are to be installed at a minimum depth of 30" below existing and/or proposed grades, except those that are under the RTA tracks. These conduits will be installed at a minimum depth of 60" below the rail ties.
6. All manhole outside walls and conduits runs are to have a minimum clearance of 5' both vertically and horizontally of all water and gas lines. Clearance between other utilities shall be no less than 1 foot.
7. Horizontal crossings of other utilities shall be at an angle of no less than 45 degrees.
8. Any conduit runs that are crossing any steam line shall have a minimum clearance of 3' - 6". In the event that this can not be accomplished, notify the engineering unit of Cleveland Public Power prior to final installation.

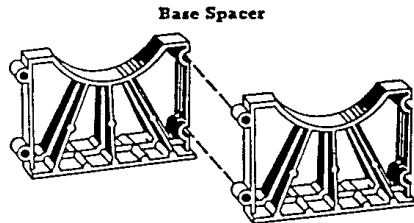
9. Each manhole is to be free of all foreign objects and debris. The general contractor shall also provide a 1/2" pulling line in each of the 5" conduits.
10. The general contractor shall provide Cleveland Public Power with as-built plans of the newly installed conduit system, showing both vertical and horizontal locations. These locations shall be at 50' intervals.



(Also acceptable: "Synertech" 17x30 Junction Box, manufactured by Oldcastle Precast, or approved equal).







To provide a rigid, firm foundation for the duct installation and maintain the desired gradient before grout is poured, base spacers are furnished with a 3-inch base.

**Placing the Grout Envelope**

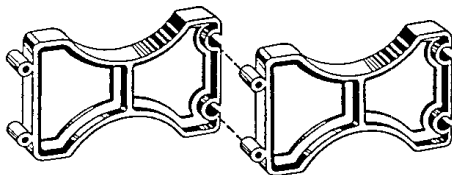
Whenever possible grout should be machine mixed. Grout mixed too wet or sloppy has more of a tendency to lift and float the fibre structure. Even with grout of the proper mass consistency, to insure flowing of grout between and under the individual fibre conduits, liberal and continuous puddling is necessary. While the built-up method offers speed as an inducement for its use, voids and air pockets can be formed through careless puddling of the grout envelope.

NOTE: Exercise care when puddling or using an automatic tamper to prevent abrasion of fibre tube.

		<i>TYPICAL BASE SPACER OR EQUIVALENT</i>	
DATE	BY	DIVISION OF LIGHT & POWER	CLEVELAND, OHIO
REVISION		DRAWN BY	CHECKED BY
			DATE

Two types of spacers, Intermediate and Base, are primarily used for monolithic block types of fibre conduit installations. They are available for 2-inch, 3-inch, 3-1/2-inch, 4-inch, 4-1/2-inch, 5-inch and 6-inch conduit. These spacers are made in a basic one-way design.

**Intermediate Spacer**

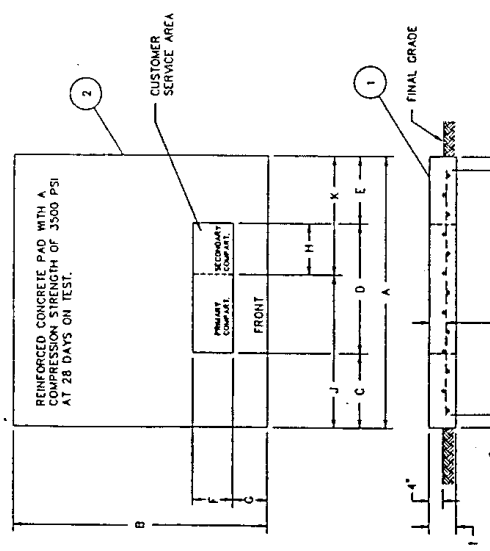


So that any number of three-way and four-way spacer combinations can be produced, Intermediate spacers have an integral locking device on both ends.

		<i>TYP. INTERMEDIATE SPACER, OR EQUIVALENT</i>		
DATE	BY	DIVISION OF LIGHT & POWER		CLEVELAND, OHIO
REVISION	DRAWN BY	CHECKED BY	DATE	



BILL OF MATERIALS			
ITEM NO.	ITEM	STOCK NO.	NO. REQ'D AS REQ'D.
1	F J REBAR		AS REQ'D.
2	3500 PSI CONCRETE		AS REQ'D.



NOTE: TRANSFORMER BASE SIZE TO BE DETERMINED BY TRANSFORMER PAD TYPE  
 ● 750 KVA IS CHOSEN

SEE CONSTRUCTION DRAWINGS FOR INSTALLATION/CONSTRUCTION DETAILS AND NOTES.

TRANSFORMER KVA	REBAR FT.												CU. YD. CONC.							
	MIN	MAX	A	B	C	D	E	F	G	H	I	J		K	L					
1	75	1500	120"	120"	35"	50"	35"	15"	24"	25"	12"	60"	60"	8"	15	8	5	CC	415	3.51
2	75	1500	120"	120"	35"	50"	35"	15"	24"	25"	12"	60"	60"	8"	15	8	5	CC	415	3.51

BECK PARTITION		CLEVELAND PUBLIC POWER	
UNIVERSAL THREE PHASE TRANSFORMER PADS 75 TO 2500KVA	REV. 11.18	DATE	8500.3

# MAINTENANCE OF TRAFFIC

## **DS -22 ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS**

In addition to the requirements of 614 and the latest edition of the Ohio Manual of Uniform Traffic Control Devices (OMUTCD), a uniformed law enforcement officer and official patrol car with working top mounted emergency flashing lights, shall be provided for controlling traffic for the following tasks:

1. For lane closures and shifts: during initial set-up periods, tear down periods, substantial shifts of a closure point, or where new lane closures are initiated.
2. During the entire advance preparation and closure sequence, where complete blockage of traffic is required.

The law enforcement officers (LEOs) are considered to be employed by the Contractor and the Contractor shall be responsible for their actions. Although they are employed by the Contractor, the Engineer shall have control over their placement. Any patrol car utilized shall be a public safety vehicle as required by the Ohio Revised Code.

The hours paid shall include minimum show-up time required by the law enforcement agency involved. The Contractor shall make arrangements for these services with:

City of Cleveland Department of Public Safety  
Division of Police  
1300 Ontario Avenue  
Cleveland, Ohio 44113-1600  
Phone: (216) 623-5000

Law Enforcement Officers required by the traffic maintenance tasks above shall be paid for on a unit price (hourly) basis under Item 614, Law Enforcement Officer with Patrol Car.

Law Enforcement Officers (LEOs) should not be utilized where the OMUTCD intends that flaggers be used. However, if the Contractor wishes to use LEOs for flagging and traffic control other than for that required in these plans, he may do so at his own expense.

Payment for utilizing LEOs in this manner will be included under Item 614-Maintaining Traffic.

## **DS-23 ITEM 614, MAINTAINING TRAFFIC, MISC.: MAINTENANCE OF PEDESTRIAN TRAFFIC**

The Contractor shall furnish and install all necessary barriers to ensure that pedestrians are protected from the construction areas. Pedestrian control barriers may consist of plastic and/or metal fencing and securely positioned supports, and/or portable concrete barrier at the Contractor's discretion, and as described herein.

Shop Drawings: Prior to commencing the work, the Contractor shall submit a Pedestrian Control Plan and shop drawings for each location showing installation of plastic and/or metal fencing, supports for same, and signage for approval by the Engineer. The Pedestrian Control Plan shall include signage, locations of pedestrian walkways, provisions to ensure pedestrians are protected from tripping hazards and moving equipment, areas that require cordoning off, and the type of protection to be used. If the whole sidewalk between two intersections needs to be cordoned off with pedestrians crossing to the other side of the street, then both barriers and necessary directional or detour signage are required.

The Maintenance of Traffic drawings provide a minimum standard. The Pedestrian Control Plan shall include drawings for enclosing the perimeter of the work site with OSHA/ODOT compliant barriers (blaze orange fencing and/or chain link fencing) as stipulated herein and/or concrete barriers. Access for work vehicles shall also be included where necessary.

Permits: The Contractor shall be responsible for obtaining all necessary permits to comply with the Pedestrian Control Plan.

Fence Supports: If fence is used, supports shall be ODOT drums or stakes as specified herein at the Contractor's discretion. Drums used to delineate the work zone may be used as pedestrian control fence supports.

Fencing: Pedestrian control fencing, if used, shall consist of one of the following, approved by the Engineer:

- Plastic fencing: Blaze orange, heavy duty, plastic mesh, minimum 4 feet high, securely attached to metal posts set into fixed placements.
- Galvanized chain link fencing: Four foot (4') high securely affixed to posts or stakes.
- Stakes for fencing shall be 2 inch by 6 foot high galvanized steel posts, driven into fixed placements. Posts shall be placed at 6 feet o.c. minimum.

Walking surfaces: The walkways for pedestrians must meet all OSHA and ADA accessibility requirements for surface, cross slope, longitudinal slope, etc. Pedestrian walkways should have a non-slip surface and be maintained free of any obstructions and hazards such as holes, debris, mud, construction equipment, stored materials, etc. If deemed necessary by the Engineer, temporary asphalt should be used to ensure a level walking surface. All pedestrian walkways should be at least 6 feet wide.

Pedestrian Signage: Signage shall conform to ODOT Construction and Materials Specifications Section 614.06. Contractor shall furnish and install signage. "SIDEWALK CLOSED" (R9-9) signage, where required, shall be located ahead of the closed sidewalk. Directional signage shall direct pedestrians to cross at the open intersection.

Removal of Protection Devices: Except as otherwise indicated or requested by the Engineer, temporary protection devices installed during the course of the work shall be removed only after all work which might injure or harm pedestrians is completed.

Measurement and Payment: Payment of all of the work indicated in this specification shall be included in the lump sum price bid for Item 614, Maintaining Traffic, Misc.: Maintenance of Pedestrian Traffic.

## **STREETSCAPE**

### **DS-24 ITEM 608 – WALKWAY, MISC.: INTEGRALLY COLORED AND STAMPED CONCRETE SIDEWALK**

Where indicated on the Drawings, the Contractor shall furnish and install integrally colored and stamped concrete sidewalks. Concrete materials for this item shall conform to Detailed Specifications D-23 and D-24 except as specifically modified hereibn.

#### **PART 1 GENERAL:**

##### 1.1 References:

- A. ACI 303.1: Specifications for Structural Concrete for Buildings.
- B. ASTM C494: Standard Specifications for Chemical Admixtures for Concrete.
- C. ASTM C979: Standard Specifications for Pigments for Integrally Colored Concrete.
- D. AASHTO M194: Chemical Admixtures.

##### 1.2 Stamped Concrete Paving Mockups:

- A. Construct a mockup panel, approximately 10 foot by 10 foot in area, at location to be determined by the Engineer. The mockup shall use the materials, processes, and techniques required for the work, including curing processes. Installer for the work shall construct the mockup. The mockup panel can be a part of the work, subject to the review and approval of the Engineer.
- B. For accurate color, the quantity of concrete mixed to produce the sample shall not be less than 3 cubic yards (or not less than 1/3 the capacity of the mixing drum on the ready-mix truck) and should always be in full cubic yard increments. Excess material shall be discarded according to local regulations.
- C. Prior to commencement of the work, the Contractor shall obtain the Engineer's acceptance of the mockup.
- D. The mockup shall remain in place until completion of the work to serve as a quality control standard for the work. Contractor shall provide suitable protections to preclude damage to the mockup.
- E. If the mockup is not located as a part of the work the Contractor shall demolish and remove the mockup from the site when directed.

- 1.3 Delivery, Storage, and Handling: Deliver colored admixtures in original, unopened packaging. Store in dry conditions.

## **PART 2 PRODUCTS:**

### 2.1 Manufacturers:

- A. Basis of Design: L.M. Scofield Company, 4155 Scofield Road, Douglasville, Georgia 30134
- B. Alternate manufacturers:
  1. Davis Colors, 3700 East Olympic Boulevard, Los Angeles, California 90023
  2. Butterfield Color, 625 West Illinois Avenue, Aurora, Illinois 60506
  3. Other equivalent with the prior approval of the Engineer.

### 2.2 Materials:

- A. Concrete: Concrete shall be as specified in Detailed Specification D-23. Mix design shall conform to Detail Specification D-24.
- B. Colored Admixture for Integrally Colored Concrete: Admixture shall be a colored, water-reducing admixture containing no calcium chloride with coloring agents that are lime proof and UV resistant. Colored admixture shall conform to the requirements of ACI 303.1, ASTM C979, ASTM C494, and AASHTO M194.
- C. Imprinting Tools: System of matched tools for imparting textures and patterns into freshly placed concrete surfaces.
- D. Release Agent: Colorless, odorless liquid formulated to break the bond between imprinting tools and surface of color-hardened concrete, evaporate completely, leaving no residue. VOC content less than 3.75 lb/gal.
- E. Curing and Sealing Compound: Curing and sealing compound shall comply with ASTM C309 and be of same manufacturer as colored admixture, for use with integrally colored concrete.

### 2.3 Colors and Patterns:

- A. Colored admixture: Color shall match L.M. Scofield Company C-14 French Gray.
- B. Imprinting pattern: Pattern shall be brick herringbone.
- C. Curing compound: Color shall match the colored concrete.

## **PART 3 EXECUTION:**

### 3.1 Installation:

- A. General: Refer to Detailed Specification D-23 for concrete installation and surface finishing requirements.
- B. Apply stamping pattern according to tool manufacturer's instructions. Touch up pattern and finish edges with hand tools as necessary.



- C. The Contractor shall not allow foot or vehicular traffic on surfaces which have been sealed until such time as they are thoroughly dry, as determined by the Engineer.
- D. Areas not having uniform color, stamping, or other specified requirements shall be removed and replaced by the Contractor at no additional cost to the project.

3.2 Curing:

- A. Apply curing and sealing compound for integrally colored concrete according to manufacturer's instructions using manufacturer's recommended application techniques. Apply curing and sealing compound at consistent time for each pour to maintain close color consistency.
- B. Precautions shall be taken in hot weather to prevent plastic cracking resulting from excessively rapid drying at surface as described in CIP 5 Plastic Shrinkage Cracking published by the National Ready Mixed Concrete Association.
- C. Do not cover concrete with plastic sheeting.

3.3 Tolerances: Minor variations of colored concrete, which are similar to natural variations in color and appearance of uncolored concrete, are acceptable.

**DS-25 DESIGN, FABRICATION AND INSTALLATION OF PUBLIC ART (WEST SIXTH STREET) - 100% LOCAL PARTICIPATION ITEM**

This item shall cover the costs to engage an artist, as selected by the City of Cleveland, to design, fabricate, deliver, and install two (2) public art works on West Sixth Street. The art work will include specially prepared panels to be mounted to the framework outlined in Supplemental Detailed Specification DS-26. These structures shall be located at the following locations:

- Station 12+25 (±), Lt. Side.
- Station 16+45 (±), Rt. Side.

An Allowance of 10,000 Dollars (\$10,000) shall be included in Contractor's costs to be allocated for the Artist's design, furnishing, and installation of the Public Art Projects. All of the Contractor's costs to coordinate this work, protection of the work, overhead and profit are included under Detailed Specification DS-27 below, not in the Allowance amount.

The Contractor shall coordinate with the Artist as to not delay the Project.

**DS-26 FABRICATION AND INSTALLATION OF PUBLIC ART FOUNDATION (WEST SIXTH STREET)**

This item shall include the furnishing and installation of the concrete foundation and framework for the placement of the public art piece defined in Supplemental Detailed Specification DS-25. This item shall include, but not be limited to the following:

- Excavation to the required depth and to the dimensions that allows for installation of formwork.
- Disposal of excavated material.
- All necessary formwork.
- Furnishing and placement of the foundation and reinforcing to the dimensions indicated on the Detail in the Drawings. All concrete furnished shall be Class C. All reinforcing steel shall conform to ODOT 709.00.
- Furnishing and installation of the aluminum framing and angles and all necessary anchor bolts, plates, etc. required to connect the framing to the concrete foundation. The Contractor shall coordinate this work with the Artist.
  - Aluminum extrusions: ASTM B221.
  - Aluminum Sheet and Plate: ASTM B209.
  - Anodized Finish: AAMA Class 1, clear.
  - Bolts, nuts & washers: ASTM A354 stainless steel.
  - Welding materials: AWS D1.2
- Furnishing, installation, and compaction of backfill to the proposed sidewalk subgrade elevation.

**DS-27 DESIGN OF PUBLIC ART (PROFESSOR STREET INTERSECTIONS)  
100% LOCAL PARTICIPATION ITEM**

This item shall cover the costs to engage an artist, as selected by the City of Cleveland, to design and install one (1) public art work on Professor Street. This structure shall be located at the following location:

- Station 10+36 (±), Lt. Side.

An Allowance of 10,000 Dollars (\$10,000) shall be included in Contractor's costs to be allocated for the Artist's design, furnishing, and installation of the Public Art Projects. All of the Contractor's costs to coordinate this work, protection of the work, overhead and profit are included under Detailed Specification DS-28 below, not in the Allowance amount.

The Contractor shall coordinate with the Artist as to not delay the Project.

**DS-28 FABRICATION AND INSTALLATION OF PUBLIC ART (PROFESSOR STREET INTERSECTIONS)**

The public art sculpture, designed by an artist under Supplemental Detailed Specification DS-27 will be fabricated and installed by the Contractor as a design-build element of the Work. For this part of the project, the work of the Artist will be assigned to the General Contractor for the work outlined below. The following notes and processes shall be employed to fabricate and install the sculpture:

**A. Materials:**

1. Reinforcing Steel: Deformed steel bars per ODOT Item 709.01. Bar sizes as directed by the structural engineer designer.

2. Wire Fabric:
  - a. Galvanized 20 gage wire mesh with straight twist
  - b. 1-inch to 2-inch hexagonal openings as directed by the Artist
3. Concrete materials:
  - a. Conform to Detailed Specification D-24 except as modified herein.
  - b. Cement: White.
  - c. Sand: White
  - d. Fiber Reinforcement: ASTM C1116, high strength, industrial grade fibers.
    - 1) Fiber Length: ¾-inch
    - 2) Fiber Count: 34 million per pound
    - 3) Tensile Strength: 130ksi
    - 4) Toughness: 15 ksi.
4. Stainless Steel:
  - a. ¼ inch thick plate
  - b. Top surface polished to a mirror finish.
5. Adhesive: Suitable for attaching stainless steel and concrete. Adhesive shall be capable of bonding in outdoor conditions typically found in the Cleveland, Ohio area.

**B. Framework:**

1. Detailed drawings shall be provided by a Professional Engineer, licensed to practice in the State of Ohio. The Engineer shall determine, prior to fabrication, whether the work will be a single form or separate pieces for the base (head form) and superstructure (tree form).
2. Bend and weld deformed steel reinforcing bars (ASTM A615) to form a skeleton or framework for the head and tree. Use closely spaced, small diameter bars to create a grid-like pattern to shape the framework.
3. The intent is to shape the framework to give form to the face, tree trunk and upper branches.

**C. Wire Mesh:**

1. Form four to eight layers of wire mesh over the framework, creating a metal “skin” to shape the head and tree in more detail and dimension.
2. Attach the wire mesh layers to the framework with wire ties.

**D. Concrete:**

1. Apply in thin layers over the wire mesh forms.
2. Trowel concrete into wire mesh to form a bond. Apply sufficient layers of material to build up the concrete surface a minimum of one inch of concrete over the mesh.
3. If the piece is to be formed in two or more pieces, provision shall be made to join the structure such that the joint becomes as invisible as possible.
4. A pattern of the labyrinth shall be pressed into the surface of the uncured concrete base to form a depression into which the stainless steel pieces can be set.
5. The sculpture shall be moist cured for a minimum of seven days and a maximum of thirty days in a temperature and moisture controlled environment. During the initial cure, the sculpture shall be covered with dampened burlap

cloths. The cloths shall be watered daily during the cure period. Note that the piece will cure at differing rates. The curing shall be monitored daily.

E. **Labyrinth:**

1. Water jet cut the ¼ inch thick polished stainless steel plate to match the pattern provided by the Artist.
2. Prior to cutting, the Artist and fabricator shall agree on the number and shape of the pieces to be produced.
3. The cut labyrinth pattern shall be inset into the top of the sculpture seamlessly. Secure the labyrinth to the concrete base with adhesive.

F. **Transportation and Installation:**

1. The completed, cured piece shall be transported to the location designated on the Drawings. Proper lifts and vehicles shall be used to ensure the piece is placed without damage.
2. It shall be the responsibility of the Professional Engineer for this sculpture to determine how best to fabricate the piece to ensure proper transportation and installation.
3. If the piece is formed in more than one piece, the joint shall be filled with additional concrete materials of the same color and appearance as the piece. It is intended that there be no color or texture difference between the piece and the joining material and that the joint not be apparent once the materials are cured.
4. Once the piece is in place, the surface shall be sealed with white or clear protective sealant as directed by the Artist.

G. **Securing the Sculpture:**

1. The sculpture shall be secured to the sidewalk by such means as are determined by the Professional Engineer for this component. The intent is that the piece shall be set flush to the surface of the sidewalk, neither raised above nor set into the surrounding concrete.

H. **Artist's involvement:**

1. The Artist for this work shall be Olga Ziemska, Olga Ziemska Studio, (216) 376-7650, olgaziemskastudio@gmail.com
2. The Artist will supervise the shape and dimensions of the framework for the base and the superstructure.
3. The Artist will work directly with the fabricators to apply the wire mesh to the framework and sculpting the shape of the metal "skin."
4. The Artist will work directly with the fabricators in applying the concrete mixture to the wire mesh and framework. The Artist will trowel the concrete mixture into place and hand-smooth the surface to create a clean and even finish.
5. Concrete Curing: The Artist will work directly with the fabricators in overseeing the continuous moisture conditioning of the piece.
6. Labyrinth: The Artist will provide a detailed design layout and review and approve the conversion of the layout to an electronic image to allow for exact replication. The Artist will supervise the cutting of the design out of the polished stainless steel. The Artist will also supervise the attachment of the labyrinth to the concrete base.

7. Transportation: The Artist will attend the transportation of the piece to the designated site.
8. Installation: The Artist will supervise the installation. The position and rotation of the piece on the site will be solely the responsibility of the Artist.
9. Securing the Sculpture: The Artist will supervise the process of securing the sculpture to the concrete pavement. The Artist will assist in patching separate pieces together and any incidental repairs that are required at the installation.

**DS-29 ITEM SPECIAL – STREETScape, MISC.: TREE PIT**

This item shall include the work necessary to complete the expansion of the existing five foot by five foot (5'x5') tree pits on West Sixth Street. to become five feet by ten feet (5'x10') 5' x 10' as detailed on the plans.

This item shall include, but not be limited to, the following:

- Protection of the existing trees during construction of the project. The Contractor may not park or store equipment, materials, refuse, or excavated soils within the tree pit area. The use of the existing tree as a support or anchorage is prohibited.
- Pruning of the existing trees in conformance with Detailed Specification D-69, subject to the direction of the City Forester or Urban Forestry Representative.
- Pruning of the existing tree roots as necessary in conformance with Detailed Specification D-71.
- Provide and install planting soil and mulch in conformance with Supplemental Detailed Specification DS-31 (paragraphs 2.1.C, 3.2, 3.4.E and 3.8)

**DS-30 ITEM SPECIAL – STREETScape, MISC: ORNAMENTAL FENCING FOR TREE PITS**

- A. **General:** The Contractor shall furnish and install all items necessary to complete the ornamental fencing located at the perimeter of the expanded tree pits on West Sixth Street as specified in Detailed Specification DS-29 above.
- B. **Materials:**
  1. The fence materials shall be manufactured from aluminum extrusions to the dimensions indicated in the Detail on the Drawings.
  2. The aluminum shall have a minimum tensile strength of 35,000 psi, using 6061 or 6063 T6 alloy for structural components.
  3. The fence materials shall be coated with a TGIC polyester powder-coat finish system. The finish shall have a cured film thickness of at least 2.0 mils. The final color of the fence shall be black.
- C. **Construction:** Install the ornamental fence per the Detail on the Drawings.

## **DS-31 PLANTINGS**

### **PART 1 GENERAL**

#### **1.1 DESCRIPTION**

- A. Work of this Section includes street trees and landscaping in beds.

#### **1.2 QUALITY ASSURANCE**

- A. General. Ship landscape materials with certificates of inspection required by governing authorities. Comply with regulations applicable to landscape materials.
- B. Do not make substitutions. If specified landscape material is not obtainable, submit proof of non-availability to the Engineer, together with a proposal for use of equivalent materials.
- C. Analysis and Standards. Package standard products with manufacturer's certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.
- D. Trees, Shrubs and Plants. Provide trees, shrubs and plants of quantity, size, genus, species and variety shown and scheduled for landscape work and complying with recommendations and requirements of ANSI Z60.1 "American Standard for Nursery Stock." Provide healthy, vigorous stock, grown in recognized nursery in accordance with good horticultural practice and free of disease, insects, eggs, larvae and defects such as knots, sun-scald, injuries, abrasions, or disfigurement.
- E. Label each tree and shrub with securely attached waterproof tag bearing legible designation of botanical and common name.
- F. Landscape Inspection. The Engineer may inspect trees and shrubs, either at place of growth or at site before planting, for compliance with requirements for genus, species, variety, size and quality. The Engineer retains right to further inspect trees and shrubs for size and condition of balls and root systems, insects, injuries and latent defects, and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from project site.

#### **1.3 SUBMITTALS**

- A. Certification. Submit manufacturers' or vendors' certified analysis for soil amendments and fertilizer materials. Submit other data substantiating that materials comply with specified requirements.
- B. Planting Schedule. Submit proposed planting schedule, indicating dates for each type of landscape work during normal seasons for such work in area of site. Correlate with specified maintenance periods to provide maintenance from date of substantial completion.
- C. Maintenance Instructions. Submit typewritten instructions recommending procedures to be established by the Director for maintenance of landscape work for one full year. Submit prior to expiration of required maintenance period(s).

#### 1.4 DELIVERY, STORAGE AND HANDLING

- A. The landscape contractor will be expected to secure landscape materials at the nursery source at the time the general contract is awarded with the anticipation that the material will be held, continue to grow and be available for digging at the sizes specified at the time of installation.
- B. Packaged Materials. Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site.
- C. Trees and Shrubs. Provide freshly-dug trees and shrubs. Do not prune prior to delivery unless otherwise approved by the Engineer. Do not bend or bind-tie trees or shrubs in such manner as to damage bark, break branches or destroy natural shape. Provide protective covering during delivery. Do not drop balled and burlapped stock during delivery.
- D. Deliver trees, shrubs and plants after preparations for planting have been completed and plant immediately. If planting is delayed more than six (6) hours after delivery, set trees, shrubs and plants in shade, protect them from weather and mechanical damage, and keep roots moist by covering with mulch, burlap or other acceptable means for retaining moisture.

#### 1.5 JOB CONDITIONS

- A. Proceed with and complete landscape work as rapidly as portions of site become available, working within seasonal limitations for each kind of landscape work required.
- B. Utilities. Determine location of underground utilities through notification to the Ohio Utilities Protection Service and perform work in a manner which will avoid possible damage. Hand excavate, as required.
- C. Excavation. When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify the Engineer before planting.

#### 1.6 SPECIAL PROJECT WARRANTY

- A. Warranty trees and shrubs against defects including death or unsatisfactory growth for a period of one year after date of substantial completion, except for defects resulting from neglect by the City of Cleveland, abuse or damage by others, or unusual phenomena or incidents which are beyond Contractor's control.
- B. Remove and replace trees, shrubs or other plants found to be dead or in unhealthy condition during warranty period. Make replacements during growth season following end of warranty period. Replace trees and shrubs which are in doubtful condition at end of warranty period; unless, in opinion of the Engineer, it is advisable to extend warranty period for a full growing season.
  - 1. An inspection will be conducted at end of extended warranty period to determine acceptance or rejection. Only one replacement (per tree, shrub or plant) will be required at end of warranty period, except for losses or replacements due to failure to comply with specified requirements.

## **PART 2 PRODUCTS**

### **2.1 SOIL AMENDMENTS**

- A. Lime. Granular agricultural lime from a dealer whose brands are registered or licensed by the State of Ohio Department of Agriculture. The material shall meet or exceed the requirements of ODOT Item 659.03.
- B. Leaf Humus. Utilize screened decomposed leaf compost as available from:
  - 1. Greater Cleveland Ecology Association (216) 687-1266
  - 2. Kurtz Brothers, Inc. (216) 986-7000
  - 3. Approved equivalent source, acceptable to the Engineer.
- C. Mulch. Organic mulch free from deleterious materials and suitable for top dressing of trees, shrubs or plants and consisting of one of the following:
  - 1. For tree pits and planters: shredded hardwood bark .
  - 2. For bioretention cells: three-quarters to one inch (3/4" to 1") hardwood chips, aged a minimum of one (1) year.
- D. Commercial Fertilizer. Complete fertilizer of neutral character, with some elements derived from organic sources and containing the not less than 12% total nitrogen, 12% available phosphoric acid and 12% soluble potash. Deliver fertilizer to the site in bags or other convenient containers, each fully labeled as required by the State of Ohio Department of Agriculture and bearing the name, trade name or trademark, and warranty of the producer.

### **2.2 PLANT MATERIALS**

- A. Quality. Provide trees, shrubs, and other plants of size, genus, species and variety shown and scheduled for landscape work and complying with recommendations and requirements of ANSI Z60.1 "American Standard for Nursery Stock."
- B. Deciduous Trees. Provide trees of height and caliper scheduled or shown and with branching configuration recommended by ANSI Z60.1 for type and height of tree listed. Deciduous trees shall be balled and burlapped (B&B) for delivery to the project site.
- C. Deciduous Shrubs. Provide shrubs of the height shown or listed and with not less than minimum number of canes required by ANSI Z60.1 for type and height of shrub listed.
  - 1. Provide balled and burlapped (B&B) deciduous shrubs.
  - 2. Container-grown deciduous shrubs will be acceptable in lieu of balled and burlapped deciduous shrubs subject to specified limitations for container-grown stock.

### **2.3 MISCELLANEOUS LANDSCAPE MATERIALS**

- A. Anti-Desiccant. Emulsion type, film-forming agent designed to permit transpiration but retard excessive loss of moisture from plants. Deliver in manufacturer's fully-identified containers and mix in accordance with manufacturer's instructions.
- B. Herbicide. Round up or Kleenup.



- C. Wrapping. Tree-wrap tape not less than four inches (4") wide, designed to prevent bore damage and winter freezing.
- D. Stakes and Guys. Provide stakes and deadmen of sound new hardwood, treated softwood, or redwood, free of knot holes and other defects. Provide wire ties and guys of 2-strand, twisted, pliable galvanized iron wire not lighter than 12 gage with zinc-coated turnbuckles. Provide not less than one-half inch (1/2") diameter rubber or plastic hose, cut to required lengths and of uniform color, material and size to protect tree trunks from damage by wire.
- E. Soil Moisturizer: In non-irrigated planting areas, add "Terra-Sorb AG" or approved equivalent granules to the soil mix in accordance with the manufacturer's recommendations.

## **PART 3 EXECUTION**

### **3.1 LAYOUT**

- A. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations and outline areas and secure the Engineer's acceptance before the start of the planting work. Make minor adjustments as may be requested.

### **3.2 PREPARATION OF PLANTING SOIL**

- A. Before mixing, clean topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful or toxic to plant growth.
- B. For pit and trench type backfill, mix planting soil prior to backfilling. Stockpile at the site.
- C. Prevent lime from contacting roots of ericaceous plants.
- D. Soil mixture for backfilling to be two parts topsoil and one part leaf humus. Build up beds six (6) inches above finish grade.
- E. Scarify the upper two inches (2") of subgrade where topsoil is scheduled for planting beds and in areas where construction equipment has compacted the soil.

### **3.3 PREPARATION FOR PLANTINGS**

- A. Excavate tree pits as necessary to accommodate the ball or roots and to permit the required preparation of the bottom of the pit such that, when the tree is settled into the pit, it will not be necessary to raise or lower the tree.
- B. Excavate pits to a width two (2) feet greater than the diameter of the burlapped ball or the spread of the roots.
- C. Remove stones over 1 1/2 inches in any dimension, and sticks, stones, rubbish and other extraneous matter.
- D. Beds and trenches shall be excavated with vertical sides and with bottom of excavation slightly raised at center to provide proper drainage.
- E. Fill excavations for trees and shrubs with water and allow to percolate out before planting.

### **3.4 PLANTING TREES AND SHRUBS**

- A. Space plants as shown on plant list.

- B. Dig holes large enough to allow for spreading of roots and backfill with planting soil. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water. Water thoroughly after planting, taking care not to cover crowns of plants with wet soils.
- C. Set balled and burlapped (B&B) stock on undisturbed subgrade, plumb and in center of pit or trench with top of ball at same elevation or slightly higher than adjacent finished landscape grades so that when settled they will bear the same relation to the required grade as they bore to natural grade before being transplanted. Remove burlap from top of balls; retain on sides and bottoms. When set, place additional backfill around base and sides of top of ball at same elevation as adjacent finished landscape grades. When excavation is approximately 2/3 full, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again after placing final layer of backfill.
- D. Dish top of backfill to allow for mulching.
- E. Mulch pits, trenches and planted areas. Provide not less than three inch (3") thickness of mulch. Work into top of backfill and finish level with adjacent finish grades. Apply anti-desiccant using power spray to provide an adequate film over trunks, branches, stems, twigs and foliage of all evergreen and broad leaf evergreen trees.
  - 1. If deciduous trees or shrubs are moved in full-leaf, spray with anti-desiccant at nursery before moving and again two (2) weeks after planting.
- F. Prune, thin out and shape trees and shrubs in accordance with standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise directed by the Engineer, do not cut tree leaders, and remove only injured or dead branches from flowering trees, if any. Prune shrubs to retain natural character.
- G. Remove and replace excessively pruned or malformed stock resulting from improper pruning.
- H. Wrap single stem tree trunks of two inch (2") caliper and larger. Start at ground and cover trunk to height of first branches and securely attach. Inspect tree trunks for injury, improper pruning and insect infestation and take corrective measures before wrapping.
- I. Guy and stake trees immediately after planting, as indicated.

### 3.5 MAINTENANCE OF PLANTINGS

- A. Begin maintenance immediately after planting.
- B. Maintain trees, shrubs and other plants until final acceptance but in no case less than 60 days after substantial completion of planting.
- C. Maintain trees, shrubs and other plants by pruning, cultivating, watering and weeding as required for healthy growth. Restore planting saucers. Tighten and repair stake and guy supports and reset trees and shrubs to proper grades or vertical position as required. Restore or replace damaged wrappings. Spray as required to keep trees and shrubs free of insects and disease.

### 3.6 CLEANUP AND PROTECTION

- A. During landscape work, keep pavements clean and work area in an orderly condition.
- B. Protect landscape work and materials from damage due to landscape operations, operations by other contractors and trades and trespassers. Maintain protection during installation and maintenance periods. Treat, repair or replace damaged landscape work as directed.

### 3.7 INSPECTION AND ACCEPTANCE

- A. When landscape work is completed, including maintenance, the Engineer will, upon request, make an inspection to determine the acceptability of the work.
  - 1. Landscape work may be inspected for acceptance in part agreeable to the Engineer, provided work offered for inspection is complete.
- B. When inspected landscape work does not comply with requirements, replace rejected work and continuous specified maintenance until re-inspected by Engineer and found to be acceptable. Remove rejected plants and materials promptly from project site.

### 3.8 SCHEDULE OF PLANTING SOIL MIXTURE REQUIREMENTS

- A. For backfill for trees and shrubs, provide specified material in not less than the following quantities:
  - 1. 1 part of loose leaf humus to 2 parts of topsoil by volume.
  - 2. 1/2 lb. of commercial fertilizer per inch of caliber.

## **DS-32 STREETSCAPE FURNISHINGS**

### **PART 1 GENERAL**

#### 1.1 DESCRIPTION

- A. Work of this Section includes the furnishing and installation of streetscape amenities, including bike racks, trash receptacles, and benches.

#### 1.2 SUBMITTALS

- A. Provide manufacturer's catalogue cut sheets and color palette for approval to Engineer prior to furnishing and installing.

#### 1.3 QUALITY ASSURANCE

- A. Acceptable Manufacturer: Meet quality objectives of specified materials and manufacturers or equivalent, approved by the Engineer.

#### 1.4 WARRANTY

- A. Written warranty from landscape furnishings manufacturer for a period of three years against defects in material and/or workmanship.

### **PART 2 PRODUCTS**

#### 2.1 BIKE RACKS

- A. Bike racks furnished and installed shall be of the “Inverted U” Type and meet the following requirements:
  - 1. Basis of Design: “U-Bike Rack” by Metro Metal Works, a program of the Lutheran Metropolitan Ministry (216) 658-7218 or sales@metrometalworks.com.
  - 2. Other equivalent with prior approval of the Engineer.
- B. The bike rack shall be fabricated from 2”x2” heavy gauge steel tubing. The U shall measure 36 inches high by 30 inches wide. A 7”x7”x1/4” stainless steel base plate shall be welded to each leg of the U.
- C. After fabrication, the rack shall be finished with a black powdercoat.
- D. Anchors shall be stainless steel as specified below for the Trash Receptacles.

## 2.2 TRASH RECEPTACLES

- A. Manufacturers:
  - 1. Basis of Design: “Chase Park,” Landscape Forms, Inc., 431 Lawndale Avenue, Kalamazoo, Michigan 49048.
  - 2. Alternate Manufacturers:
    - a. Victor Stanley, Inc., P.O. Drawer 330, Dunkirk, MD, 20754
    - b. Maglin Site Furniture, 999 18<sup>th</sup> Street, Suite 1100, Denver, CO, 80202
    - c. Other equivalent with prior approval of the Engineer.
- B. Trash receptacles to be 40 gallon top-opening style.
  - 1. Diameter: 24 inches.
  - 2. Height: 39 inches.
- C. Mounting: Surface mounted.
- D. Materials:
  - 1. Base: Ductile cast iron, ASTM A536, Grade 65-45-12.
  - 2. Sides and Door: Cast 319 aluminum.
  - 3. Lid: 0.100-inch thickness, spun 1100-0 aluminum.
  - 4. Lid Bracket: 1 inch by 1 inch by ¼ inch aluminum angle.
  - 5. Liners: Black, formed polyethylene.
  - 6. Fasteners: Stainless Steel.
- E. Accessories:
  - 1. Anchor Bolts: Stainless steel
    - a. Hilti HIT HY150/HIT-ICE
    - b. Simpson Strong Tie ET-High Stength Epoxy adhesive
    - c. Other equivalent with the prior approval of the Engineer.
- F. Finishes:
  - 1. Primer: Rust inhibitor.
  - 2. Topcoat: Thermosetting polyester powder coat, UV, chip, and flake resistant.
  - 3. Test Results:
    - a. Gloss Consistency, Gardner 60 Degrees, ASTM D523: ±5 percent from standard.
    - b. UV Resistance, Color, and Gloss, ASTM G155, Cycle 7: Delta E less than 2 at 2.0 mils and less than 20 percent loss.
    - c. Cross-Hatch Adhesion, ASTM D3359, Method B: 100 percent pass.
    - d. Flexibility Test, Mandrel, ASTM D522: 3 mm at 2 mils.

- e. Erichsen Cupping, ISO 1520: 8 mm.
- f. Impression Hardness, Buchholz, ISO 2815: 95.
- g. Impact Test, ASTM D2794: 60 inch-pounds at 2.5 mils.
- h. Pencil Hardness, ASTM D3363: 2H minimum.
- i. Corrosion Resistance, 1,500-Hour Test, ASTM B117: Max undercutting 1 mm.
- j. Humidity Resistance, 1,500-Hour Test, ASTM D2247: Max blisters 1 mm.

G. Color: Black

## 2.3 BENCHES

A. Manufacturers:

- 1. Basis of Design: "Balustrade," Landscape Forms, Inc., 431 Lawndale Avenue, Kalamazoo, Michigan 49048.
- 2. Alternate Manufacturers:
  - a. Fairweather Site Furnshings 1540 Leader International Drive, Port Orchard, Washington, 98367
  - b. Taylor & Associates, Inc, 445 Boones Station Road, Johnson City Tennessee, 37615
  - c. Other equivalent with the prior approval of the Engineer.

B. Style: Backless

- 1. Depth: 23 inches.
- 2. Seat Height: 17 inches.
- 3. Length: 60 inches.

C. Support Style: Surface Mounted.

D. Materials:

- 1. Boards:
  - a. Interior boards: 2 ½ inches by 1 ½ inches.
  - b. Face boards: 3 ½ inches by 2 ½ inches.
  - c. Each board: Individually fastened to steel profile straps.
  - d. Board Edges and Ends: Eased.
  - e. Fasteners: Black, phosphate-plated screws.
- 2. Supports: Square tubular steel. Powdercoated black.
- 3. Board Material: Redwood, clear, all heart, solid stock.

E. Accessories:

- 1. Anchor Bolts: Stainless steel
  - a. Hilti HIT HY150/HIT-ICE
  - b. Simpson Strong Tie ET-High Stength Epoxy adhesive
  - c. Other equivalent with the prior approval of the Engineer.

## PART 3 EXECUTION

### 3.1 BIKE RACK INSTALLATION

- A. Bike Racks shall be mounted to the concrete sidewalk using masonry wedge style anchors through each of four (4) 5/8" mounting holes in each base plate. Racks shall be set firm and aligned with a tolerance of ±1/4" from plumb.

Where required, steel tapered shims shall be installed prior to anchoring in place. Any departure of the base plate from grade by more than 3/8" shall require the separation to be filled with high-strength epoxy non-shrinking grout and made level.

### 3.2 TRASH RECEPTACLE INSTALLATION

#### A. Examination:

1. Examine areas to receive trash receptacles.
2. Notify Engineer of conditions that would adversely affect installation or subsequent use.
3. Do not begin installation until unacceptable conditions are corrected.

#### B. Installation:

1. Install trash receptacles in accordance with manufacturer's instructions at locations indicated on the Drawings.
2. Install trash receptacles level and plumb.
3. Anchor trash receptacles securely in place.

#### C. Adjusting:

1. Finish Damage: Repair minor damage to finish in accordance with manufacturer's instructions and as approved by the Engineer.
2. Component Damage: Remove and replace damaged components that cannot be successfully repaired as determined by the Engineer.

#### D. Cleaning:

1. Clean trash receptacles promptly after installation in accordance with manufacturer's instructions.
2. Do not use harsh cleaning materials or methods that could damage finish.

#### E. Protect installed trash receptacles to ensure that, except for normal weathering, receptacles will be without damage or deterioration at time of Substantial Completion.

### 3.3 BENCH INSTALLATION

#### A. Examination:

1. Examine areas to receive benches.
2. Notify the Engineer of conditions that would adversely affect installation or subsequent use.
3. Do not begin installation until unacceptable conditions are corrected.

#### B. Installation:

1. Install benches in accordance with manufacturer's instructions at locations indicated on the Drawings.
2. Install benches level.
3. Anchor benches securely in place.

#### C. Adjusting:

1. Finish Damage: Repair minor damage to finish in accordance with manufacturer's instructions and as approved by the Engineer.
2. Component Damage: Remove and replace damaged components that cannot be successfully repaired as determined by the Engineer.

#### D. Cleaning:

1. Clean benches promptly after installation in accordance with manufacturer's instructions.
  2. Do not use harsh cleaning materials or methods that could damage finish.
- E. Protect installed benches to ensure that, except for normal weathering, benches will be without damage or deterioration at time of Substantial Completion.

**DS-33 ITEM SPECIAL, PATTERNED CROSSWALK, AS PER PLAN (PROFESSOR STREET)**

This item includes painting the crosswalks at the Professor Street intersections with a specially patterned stencil. The Contractor shall prepare a stencil based on the pattern shown on the plans and as designed by the Tremont West Development Corporation. The stencil shall be constructed such that it can be moved from place to place during the project and can be transported without significant damage. At the conclusion of the project, the stencil shall be turned over to the Engineer for use elsewhere in the Tremont neighborhood.

The pattern is to be placed on the pavement, between the crosswalk lines as shown on the Drawings. Paint material shall be ODOT Item 644, Thermoplastic Pavement Marking paint, white, as specified for crosswalk lines. Glass beads are not required for the patterned crosswalks.

## **MISCELLANEOUS**

**DS-34 ITEM 619, FIELD OFFICE, AS PER PLAN**

Revise City Specification D-45 by adding the following:

The unit price per month of Item 619, Field Office, As Per Plan shall also include a high speed internet DSL line to be installed and operational.

**DS-35 ITEM SPECIAL, COMPUTER EQUIPMENT REMAINING CONTRACTOR'S**

The requirements of D-46 for the Computer Equipment shall be removed from that item and they shall be applicable to this pay item. The Contractor shall furnish, install, and maintain the following items for the life of the Contract. All items furnished shall be for the exclusive use of the Engineer and staff and shall be operable by the first day of work.

This system shall not experience down time exceeding 48 hours from notification by the Engineer. The Contractor shall replace stolen, vandalized, or units otherwise inoperable within 48 hours after notification from the Engineer. Upon completion of the Contract, the hardware and software shall remain property of the Contractor.

The Contractor's failure to provide equipment as required below may result in the withholding of payment estimates.

## **Computer Hardware**

### **Type A, B, C Offices**

One (1) personal computer consisting of and including the following:

- One IBM PC compatible notebook with an Intel i5-460M processor or desktop (as directed by the City) computer with an Intel i7-870 processor or as directed by the City. The computer shall be provided with the following as a minimum:

#### Laptop:

- Minimum 250 Gig Hard Disk.
- 6 GB DDR3 – 1333 RAM.
- 7-in-1 Digital Media Reader.
- Lightscribe 8X DVD +/- RW with Dual layer support or higher.
- High Speed Wi-Fi internal 802.11 b/g/n WLAN.
- LED color display with HD graphics (1366 x 768).
- One serial port, HDMI, 4 – USB (2.0), LAN.
- Wireless 365 Bluetooth.
- Touchpad.
- One docking station, including 19" LED monitor or approved equal.
- AC adapter and two (2) 6-cell 47 WHr lithium ion batteries.
- Operating system – Windows 7 Professional – 64 bit.
- Software – MSOFFICE 2010 Professional.
- Software – McAfee Enterprise version 8.7i or newer.

#### Desktop (AutoCAD Ready):

- Minimum 500 Gig Hard Disk.
  - 8 GB DDR3 – 1066 SDRAM.
  - 19-in-1 Digital Media Reader.
  - 16X DVD +/- RW with Dual layer support or higher.
  - LED color display with HD graphics (1366 x 768).
  - One serial port, HDMI, 4 – USB (2.0), 10/100/1000 Network.
  - ATI Radeon HD 5770 or approved equal.
  - 22" LED monitor or approved equal.
  - Operating system – Windows 7 Professional – 64 bit.
  - Software – MSOFFICE 2010 Professional.
  - Software – McAfee Enterprise version 8.7i or newer.
- 
- Hewitt-Packard Officejet Pro 8500 All-in-One Printer or approved equivalent, and USB cable.
  - Surge protector, 15 amp six (6) outlet with circuit breaker and surge protector light.



Payment shall be made under the Bid Item for Item Special, Computer Equipment Remaining Contractor's.

## **DS-36 RECORD DRAWINGS**

### **GENERAL**

The requirements of D-47 for as-built drawings shall be removed from that item and they shall be applicable to this pay item.

Contractor shall maintain and provide the City with record drawings as specified herein. Record drawings shall include complete documentation of field revisions to the Contract Documents.

### **FILING**

1. The Contractor shall maintain in his field office and in clean, dry, legible condition the following: contract drawings, specifications, addenda, conforming shop drawings, change orders, other modifications of contract, test records, survey data and all other documents pertinent to the Contractor's work.
2. The Contractor shall provide files and racks for proper storage and easy access. Filing shall be established in a format acceptable to the City.
3. The Contractor shall make documents available at all times for inspection by the City or their representatives.
4. Record drawings shall not be used for any other purpose and shall not be removed from their filed location without the City's approval.

### **RECORDING**

1. The Contractor shall keep all record drawings current.
2. The Contractor shall not permanently conceal any work until required information has been recorded.
3. Contract Drawings shall be legibly marked to record actual construction including:
  - a. Depths of various elements of foundation in relation to datum.
  - b. Horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements.
  - c. Field changes of dimension and detail.
  - d. Changes made by Change Order or Field Order.
  - e. Details not on original Contract Drawings.
4. Specifications and Addenda: Legibly mark each section to record:
  - a. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
  - b. Changes made by Change Order or Field Order.
  - c. Other matters not originally specified.

## **MAINTENANCE**

1. The Contractor shall maintain the project during the course of the construction including the period of the as-built certification shall notify the engineer a minimum of 2 weeks prior to completion
2. The Contractor shall maintain the integrity of the project until final acceptance of the record drawings and a determination by the Engineer that no errors or omissions have been made by the Contractor during the course of construction. The Engineer shall notify the Contractor as to the acceptability or rejection of the construction of the project. The Contractor shall correct any errors/omissions prior to final acceptance of the record drawings for the project.
3. The Contractor shall maintain shop drawings and legibly annotate changes made after review.

## **SUBMITTALS**

1. The Contractor shall annotate all record drawing revisions onto electronic copies of plan drawings provided by the Engineer using AutoCAD 2007, or later software, as approved by the Engineer. At the completion of the project, deliver one (1) mylar copy, one (1) paper copy, and one (1) electronic copy in AutoCAD of record drawing original documents to the Engineer. Highlight changes with clouds and show changes on a separate AutoCAD layer.
2. Provide transmittal letter containing the following information:
  - a. Date.
  - b. Project title and project number.
  - c. Contractor's name and address.
  - d. Title and number of each drawing.
  - e. Certification that each document as submitted is complete and accurate.
  - f. Signature of Contractor or his authorized representative

## **PAYMENT**

Payment for all the above shall be lump sum upon the proper execution of all the work of this item as determined by the Engineer.

## **DS-37 UTILITY NOTES**

The Contractor shall take notice of the Exhibit "B" Utility Adjustments on the following pages of these Detailed Specifications.

**DS-38 UTILITY OWNERSHIP**

The following utilities and owners are located within the work area of this project:

- |   |   |
|---|---|
| <p>1. <b>AT&amp;T</b><br/>13630 Lorain Avenue - 2nd Floor<br/>Cleveland, Ohio 44111<br/>James Janis, Design Manager<br/>(216) 476-6142</p>                      | <p>5. <b>Dominion East Ohio Gas Company</b><br/>320 Springside Drive<br/>Failawn, Ohio 44333<br/>Ed Goubeaux, Project Manager<br/>(330) 664-2494</p>  |
| <p>2. <b>City of Cleveland<br/>Division of Public Power</b><br/>1300 Lakeside Avenue<br/>Cleveland, Ohio 44114<br/>Chris Hirzel<br/>(216) 664-3922, ext.115</p> | <p>6. <b>Illuminating Company</b><br/>6896 Miller Road<br/>Brecksville, Ohio 44141<br/>Mark Robinson, Contract Specialist<br/>(440) 717-6845</p>      |
| <p>3. <b>City of Cleveland<br/>Water Pollution Control Division</b><br/>12302 Kirby Avenue<br/>Cleveland, Ohio 44108<br/>Rachid Zoghaib<br/>(216) 664-3785</p>  | <p>7. <b>Northeast Ohio Regional<br/>Sewer District</b><br/>3900 Euclid Avenue<br/>Cleveland, Ohio 44115-2504<br/>Gary Hoffman<br/>(216) 881-6600</p> |
| <p>4. <b>City of Cleveland<br/>Division of Water</b><br/>1201 Lakeside Avenue<br/>Cleveland, Ohio 44114<br/>Guy Singer<br/>(216) 664-2444, ext. 5555</p>        | <p>8. <b>Time Warner Cable</b><br/>8179 Dow Circle<br/>Strongsville, Ohio 44136<br/>Paul Silvestro<br/>(216) 575-8016, ext. 5034</p>                  |

**NOTE:**

The Contractor must notify the Ohio Utilities Protect Service (O.U.P.S.) 1-800-362-2764 at least seventy-two (72) hours before work begins. The Contractor will have to furnish to the Engineer the reference number.

**DS-39 ITEM 108 – CRITICAL PATH METHOD PROGRESS SCHEDULE PER PN 107**

A Construction Progress Schedule shall be prepared by the Contractor and submitted to the Engineer within fifteen (15) days of the issuance of a Notice to Proceed. This schedule shall be in substantial compliance with the requirements of ODOT Plan Note 107, a copy of which is bound into this specification.

The Contractor shall take particular notice of the dates of Substantial Completion listed on the Drawings under Construction Sequence, Maintenance of Traffic General Notes.

## **DS-40 INSERTS**

The following information has been inserted into this section for the use and information of the Contractor:

- “City of Cleveland Task Order #52,” prepared by Professional Services Industries, Inc. and dated February 28, 2012.
- “Special Provisions – Curb Ramps Last Revision: 3-15-2007”, including Standard Curb Ramp Drawings.
- Ohio Department of Transportation Supplemental Specification 800, “Revisions to the 2010 Construction and Materials Specifications,” dated July 20, 2012.
- Ohio Department of Transportation Supplemental Specification 832, “Temporary Sediment and Erosion Control,” dated May 5, 2009.
- Ohio Department of Transportation Proposal Note 417, “Design Requirements for Plant Mix Pavements (Medium),” dated July 15, 2005.
- Exhibit “B” Utility Adjustments and 4A Notes.
- List of Encroachments.