

# East Riverfront Transportation Improvements



## Urban Design Committee Meeting

May 5, 2016



# Project Elements



- Multi-Modal Streetscape Project
  - Roadways
  - Connectivity to Riverfront Area
  - Landscape/Plantings
  - Street Lighting
  - Sidewalks/Crosswalks
  - Bike Lanes
  - Bus



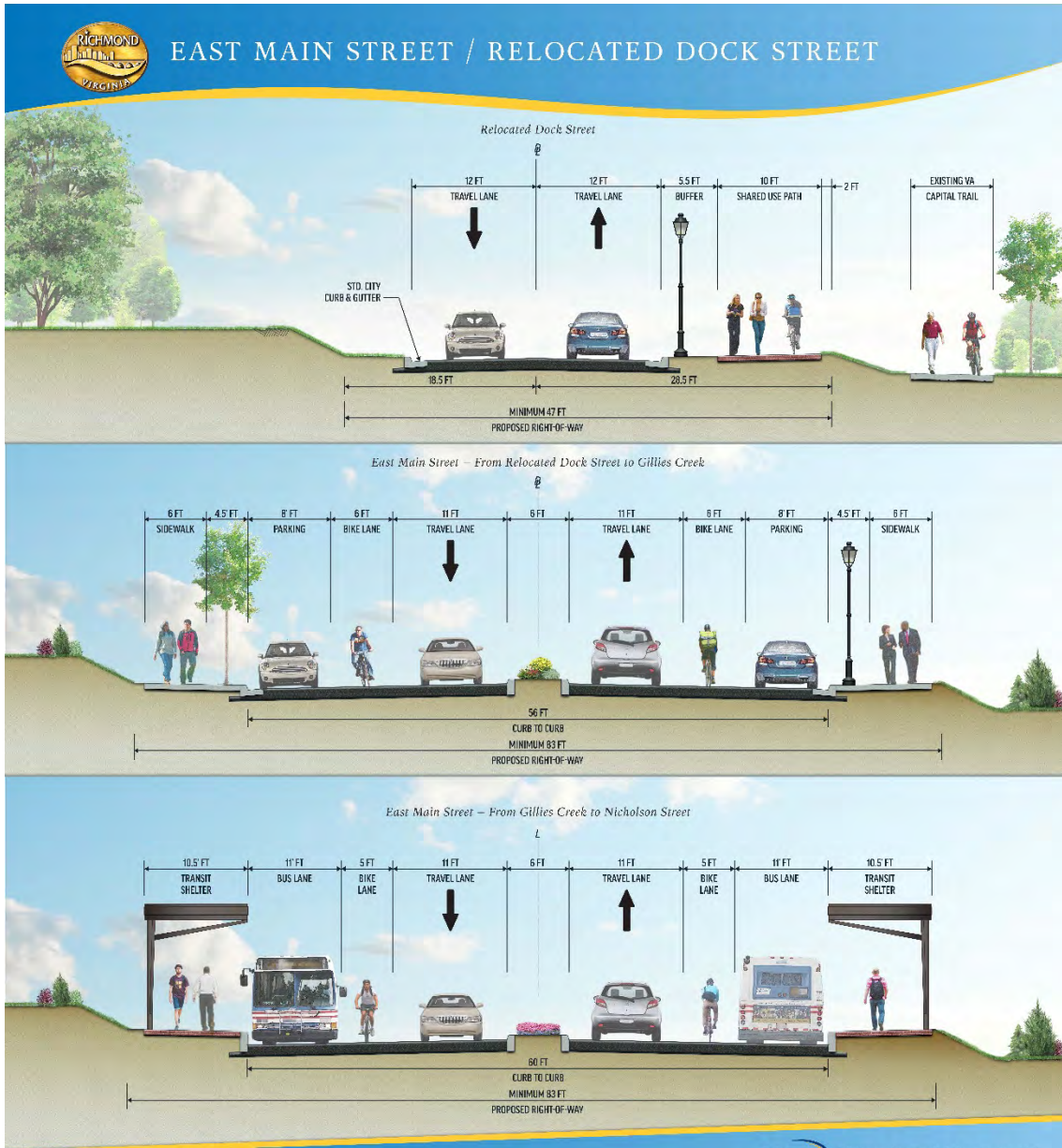
# Design – Streets and Improvements



- Relocated Dock Street
- Roundabout
- East Main Street
- Nicholson Street
- BRT



# Typical Sections





# EAST MAIN STREET/ RELOCATED DOCK STREET EAST RIVERFRONT TRANSPORTATION IMPROVEMENT

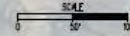






# EAST MAIN STREET/ RELOCATED DOCK STREET

- LEGEND**
- PROPOSED CONCEPTUAL DESIGN PAVEMENT
  - DEMOLISH PAVEMENT
  - PROPOSED GRASS MEDIAN
  - PROPOSED SIDEWALK



April 27, 2016



# Schedule



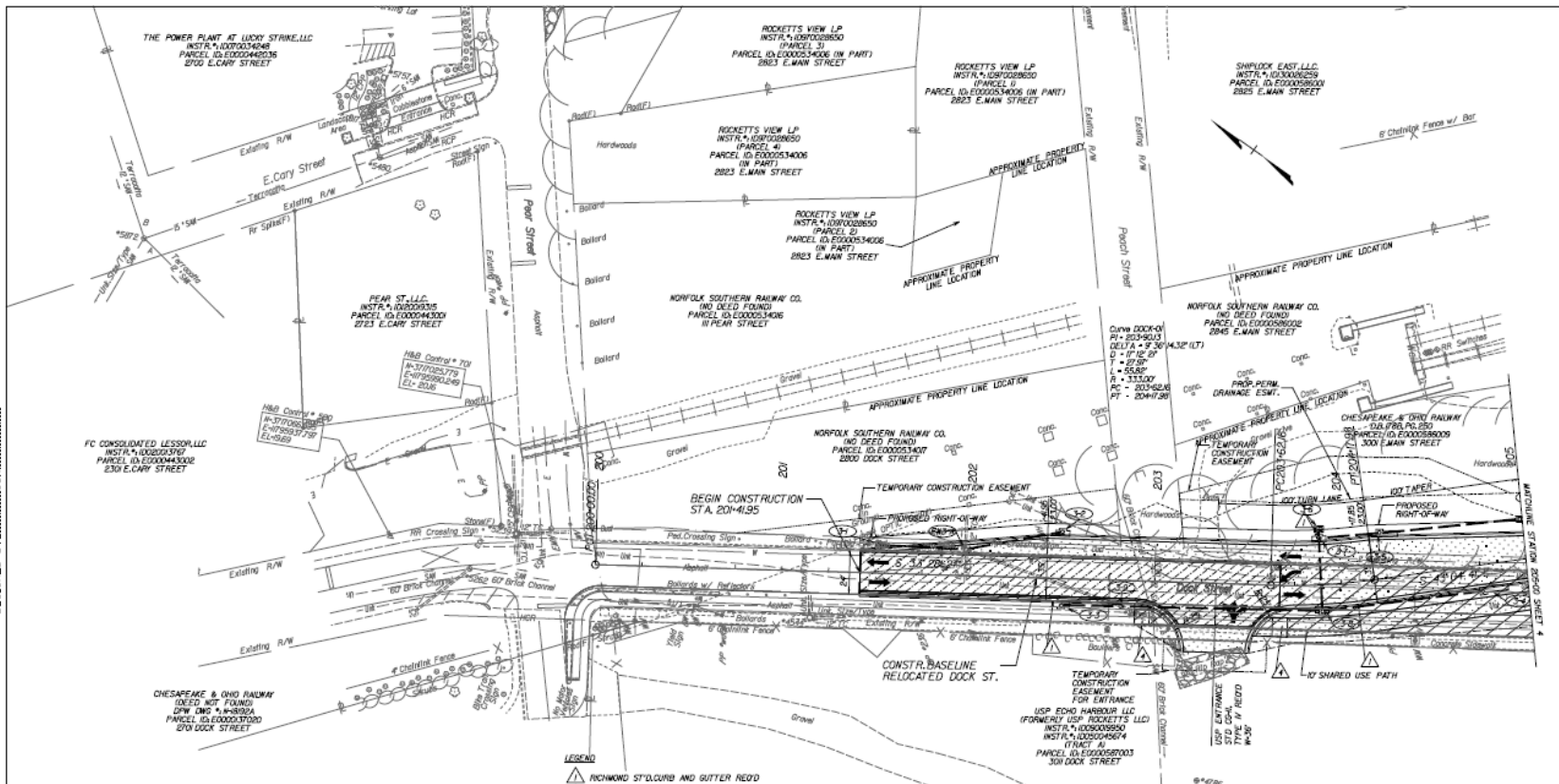
- Advertisement
  - December 2016
- Phase I
  - East Main Street September 2017
- Complete Construction
  - December 2017



# QUESTIONS







SUPERVISED BY: CITY OF RICHMOND, VA  
 DESIGNED BY: WRA

- LEGEND**
- ▲ RICHMOND ST/DOCK AND GUTTER REED
  - ▲ VDOT ST/D. CD-3 MODIFIED REED
  - ▲ VDOT ST/D. MS-2 REED
  - ▲ VDOT ST/D. CD-12, TYPE B REED
  - ▲ VDOT ST/D. CD-12, TYPE A REED
  - ▲ VDOT ST/D. CD-12, TYPE NR REED
  - ▲ RICHMOND ST/0 CLMD REED
  - DENOTES CONSTRUCTION LIMITS IN CUTS
  - DENOTES CONSTRUCTION LIMITS IN FILLS

- LEGEND**
- DENOTES PROPOSED PAVEMENT
  - DENOTES OVERLAY OF PAVEMENT
  - DENOTES BRICK SIDEWALK
  - DENOTES CONCRETE SIDEWALK
  - DENOTES DEMOLITION OF PAVEMENT
  - DENOTES COBBLESTONE TRUCK APRON

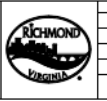
**30% PLANS**  
 THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY.

| REFERENCES  |                    |
|-------------|--------------------|
| SHEET       | DESCRIPTION        |
| (C1)-(C3)   | ALIGN. & SUR. DATA |
| (21)-(24)   | DRAINAGE PROFILES  |
| 3A          | ROADWAY PROFILE    |
| (S1) - (S7) | SIGNING/MARKING    |
| (L1) - (L7) | LANDSCAPE PLAN     |

**NOTES**

1. See dimensions in parentheses on tree detail.
2. Property owner consent on all...
3. Minimum Radius...
4. Slope...
5. Gravel...

| Existing  | Proposed  |
|---|---|
| <ul style="list-style-type: none"> <li>Asphalt</li> <li>Concrete</li> <li>Gravel</li> <li>Grass</li> <li>Soil</li> <li>Water</li> </ul> | <ul style="list-style-type: none"> <li>Asphalt</li> <li>Concrete</li> <li>Gravel</li> <li>Grass</li> <li>Soil</li> <li>Water</li> </ul> |



| Technical                                  | Administrative                             |
|--|--|
| Name: _____<br>Title: _____<br>Date: _____ | Name: _____<br>Title: _____<br>Date: _____ |

EAST RIVERFRONT TRANSPORTATION IMPROVEMENT  
**PLAN**

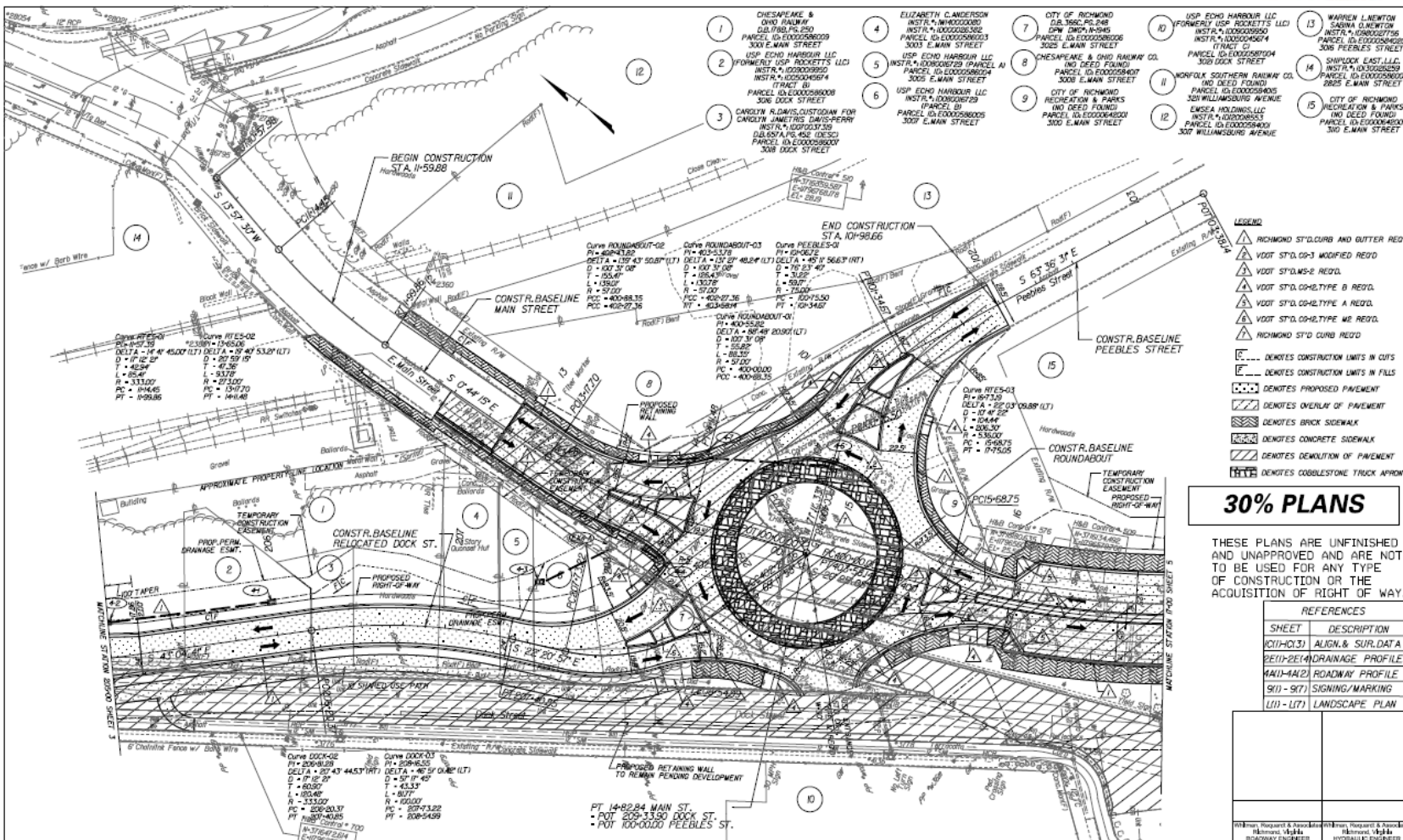
DEPARTMENT OF PUBLIC WORKS  
 RICHMOND, VIRGINIA

SHEET NO. 01  
 TOTAL SHEETS 01





SURVEYED BY: CITY OF RICHMOND, VA  
 SUPERVISED BY: KSV  
 DESIGNED BY: JG



- LEGEND**
- ▲ RICHMOND STOLCMB AND BITTER REGR
  - ▲ VDOT STD. 03-2 MODIFIED REGR
  - ▲ VDOT STOLMS-2 REGR
  - ▲ VDOT STD. 03-2 TYPE B REGR.
  - ▲ VDOT STD. 03-2 TYPE A REGR.
  - ▲ VDOT STD. 03-2 TYPE W6 REGR.
  - ▲ RICHMOND STD CURB REGR
  - DENOTES CONSTRUCTION LIMITS IN CUTS
  - DENOTES CONSTRUCTION LIMITS IN FILLS
  - ▨ DENOTES PROPOSED PAVEMENT
  - ▨ DENOTES OVERLAY OF PAVEMENT
  - ▨ DENOTES BRICK SIDEWALK
  - ▨ DENOTES CONCRETE SIDEWALK
  - ▨ DENOTES DEMOLITION OF PAVEMENT
  - ▨ DENOTES COBBLESTONE TRUCK APRON

### 30% PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY.

| REFERENCES   |                    |
|--------------|--------------------|
| SHEET        | DESCRIPTION        |
| 011-HC-3     | ALIGN. & SUR. DATA |
| 2E11-2E14-DR | DRAINAGE PROFILES  |
| 4A11-4A21    | ROADWAY PROFILE    |
| 9(1) - 9(7)  | SIGNING/MARKING    |
| (11) - (17)  | LANDSCAPE PLAN     |

| NOTES  | LEGEND                                |
|--|---------------------------------------|
| 1. List dimensions in parentheses are three feet.  | Existing curb cut lines               |
| 2. Property lines shown as of 1/1/2010.  | Proposed curb cut lines               |
| 3. All proposed work is to be done in accordance with the City of Richmond Standard Specifications for Public Works. | Proposed curb cut lines to be removed |
| 4. All proposed work is to be done in accordance with the City of Richmond Standard Specifications for Public Works. | Proposed curb cut lines to be removed |

DEPARTMENT OF PUBLIC WORKS  
RICHMOND, VIRGINIA

**PLAN**

0-26708

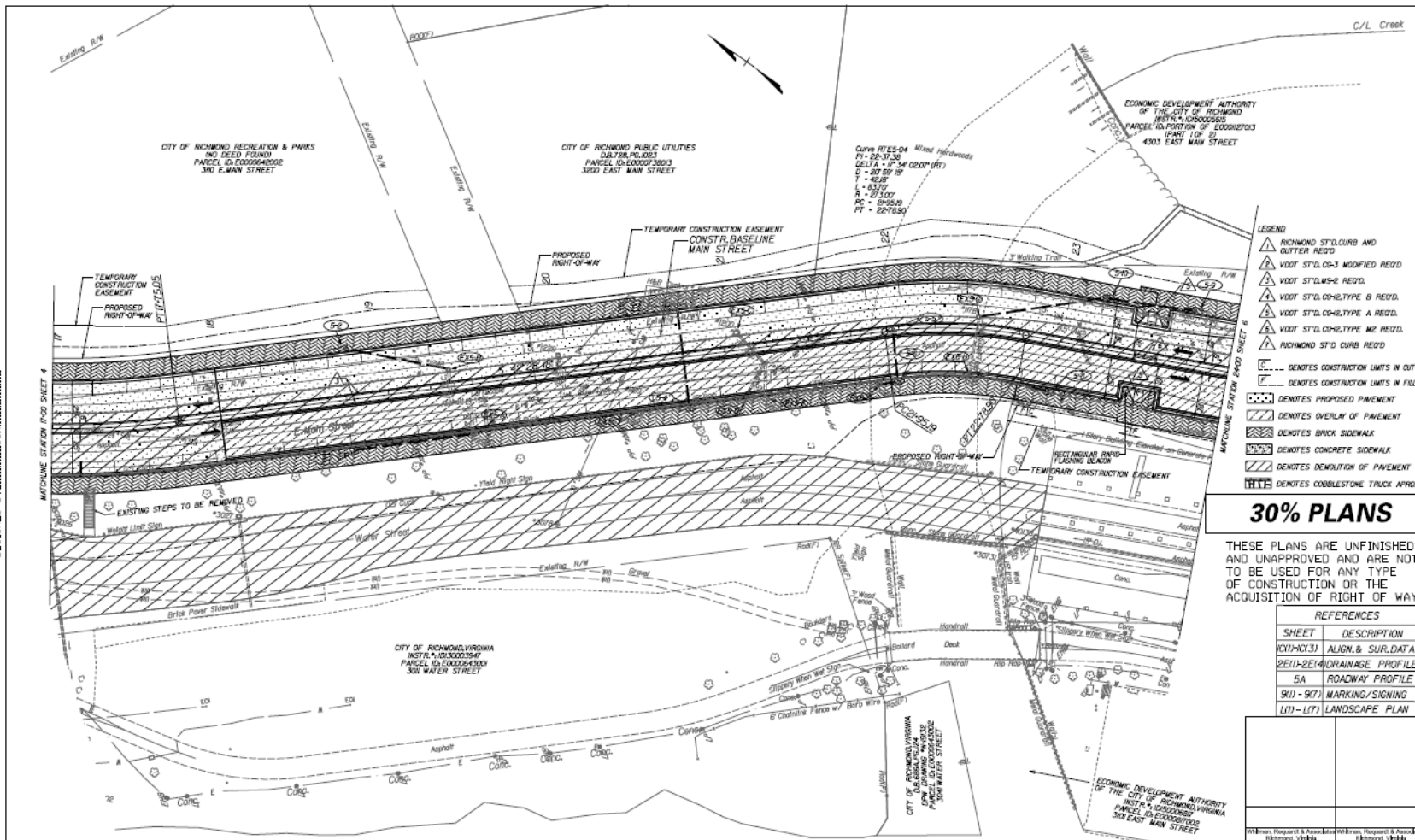
| DATE     | BY | DESCRIPTION        |
|----------|----|--------------------|
| 04/18/10 | JG | ISSUED FOR BIDDING |







SURVEYED BY: CITY OF RICHMOND  
 SUPERVISED BY: ASV  
 DESIGNED BY: JG



**LEGEND**

- △ RICHMOND STD CURB AND OUTER REED
- △ VOID STD. 09-3 MODIFIED REED
- △ VOID STD. 15-2 REED
- △ VOID STD. 09-2 TYPE B REED
- △ VOID STD. 09-2 TYPE A REED
- △ VOID STD. 09-2 TYPE W2 REED
- △ RICHMOND STD CURB REED
- DENOTES CONSTRUCTION LIMITS IN CUTS
- DENOTES CONSTRUCTION LIMITS IN FILLS
- ▨ DENOTES PROPOSED PAVEMENT
- ▨ DENOTES OVERLAY OF PAVEMENT
- ▨ DENOTES BRICK SIDEWALK
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- ▨ DENOTES DEMOLITION OF PAVEMENT
- ▨ DENOTES COBBLESTONE TRUCK APRON

**30% PLANS**

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**REFERENCES**

| SHEET        | DESCRIPTION        |
|--------------|--------------------|
| XXI-PC-3     | ALIGN. & SUR. DATA |
| 2011-2014    | DRAINAGE PROFILES  |
| SA           | ROADWAY PROFILE    |
| 9011-917     | MARKING/SIGNING    |
| (L11) - (L7) | LANDSCAPE PLAN     |

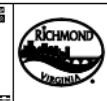
| DATE | BY | DESCRIPTION |
|------|----|-------------|
|      |    |             |
|      |    |             |

**NOTES**

- Let dimensions to parentheses and from center.
- Property lines shown as in plan.
- Reference markers.
- As shown.
- As proposed.

**REVISIONS**

| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
|     |      |             |



| Technical             | Administrative                |
|-----------------------|-------------------------------|
| Survey Organization   | Capital Project Administrator |
| Project Engineer      | Senior Surveyor               |
| Business Engineer     | Inspector / Public Works      |
| City Traffic Engineer | Director of Public Works      |

**EAST RIVERFRONT TRANSPORTATION IMPROVEMENT**

**PLAN**

|               |            |           |              |
|---------------|------------|-----------|--------------|
| PROJECT NO.   | DATE       | SHEET NO. | TOTAL SHEETS |
| 00001-003-000 | APRIL 2014 | 5         | 5            |

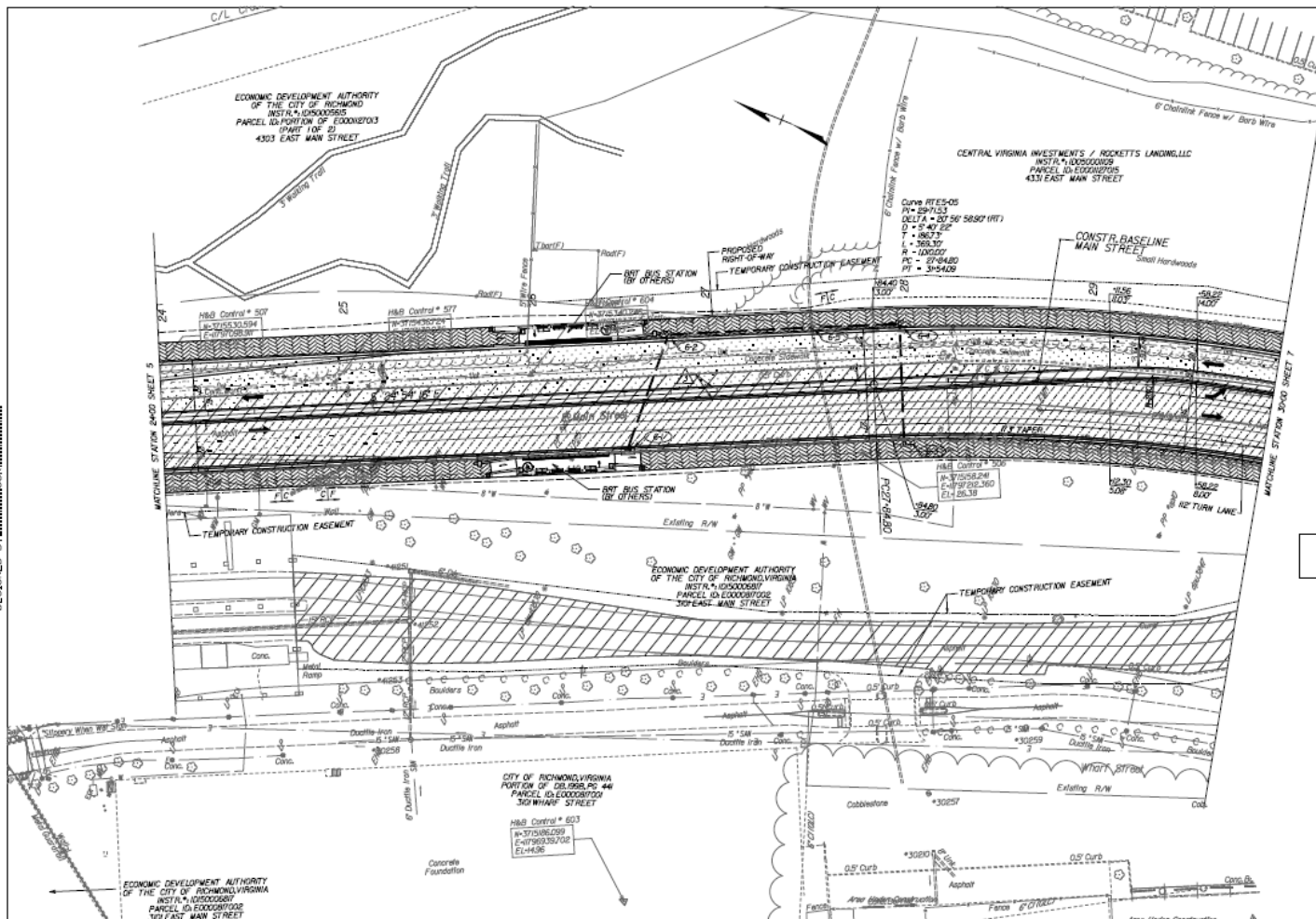
SCALE: 1" = 40'







REVIEWED BY: CITY OF RICHMOND...  
 SUBMITTED BY: ...  
 DESIGNED BY: ...



- LEGEND**
- RICHMOND STD CURB & GUTTER REED
  - VDOT STD. CD-3 MODIFIED REED
  - VDOT STD. MS-2 REED
  - VDOT STD. CD-2 TYPE B REED
  - VDOT STD. CD-2 TYPE A REED
  - VDOT STD. CD-2 TYPE MR REED
  - RICHMOND STD CURB REED
  - DENOTES CONSTRUCTION LIMITS IN CUTS
  - DENOTES CONSTRUCTION LIMITS IN FILLS
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  - DENOTES OVERLAY OF PAVEMENT
  - DENOTES BRICK SIDEWALK
  - DENOTES CONCRETE SIDEWALK
  - DENOTES DEMOLITION OF PAVEMENT
  - DENOTES COBBLESTONE TRUCK APPROX

### 30% PLANS

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| REFERENCES  |                    |
|-------------|--------------------|
| SHEET       | DESCRIPTION        |
| IC11HC13    | ALIGN. & SUR. DATA |
| 2E10-2E14   | DRAINAGE PROFILES  |
| 6A          | ROADWAY PROFILE    |
| 911 - 917   | SIGNING/MARKING    |
| (L1) - (L7) | LANDSCAPE PLAN     |

| NOTES   |  |
|---|--|
| 1. Lot dimensions in parentheses are from Aerial. |  |
| 2. Property owners named as of 1/18.              |  |
| 3. Reference Stationing.                          |  |
| 4. As noted.                                      |  |
| 5. As noted.                                      |  |
| 6. As noted.                                      |  |
| 7. As noted.                                      |  |
| 8. As noted.                                      |  |

| REVISIONS | DATE | BY | DESCRIPTION |
|-----------|------|----|-------------|
|           |      |    |             |

| RICHMOND VIRGINIA   |   |
|---|---|
| <b>TECHNICAL</b><br>Design Engineer<br>Project Engineer<br>Stationing Engineer<br>City Traffic Engineer<br>Director of Public Works | <b>ADMINISTRATIVE</b><br>Deputy Superintendent<br>Capital Project Administrator<br>Senior Technical Representative / Public Works<br>Director of Public Works |

EAST RIVERFRONT TRANSPORTATION IMPROVEMENT

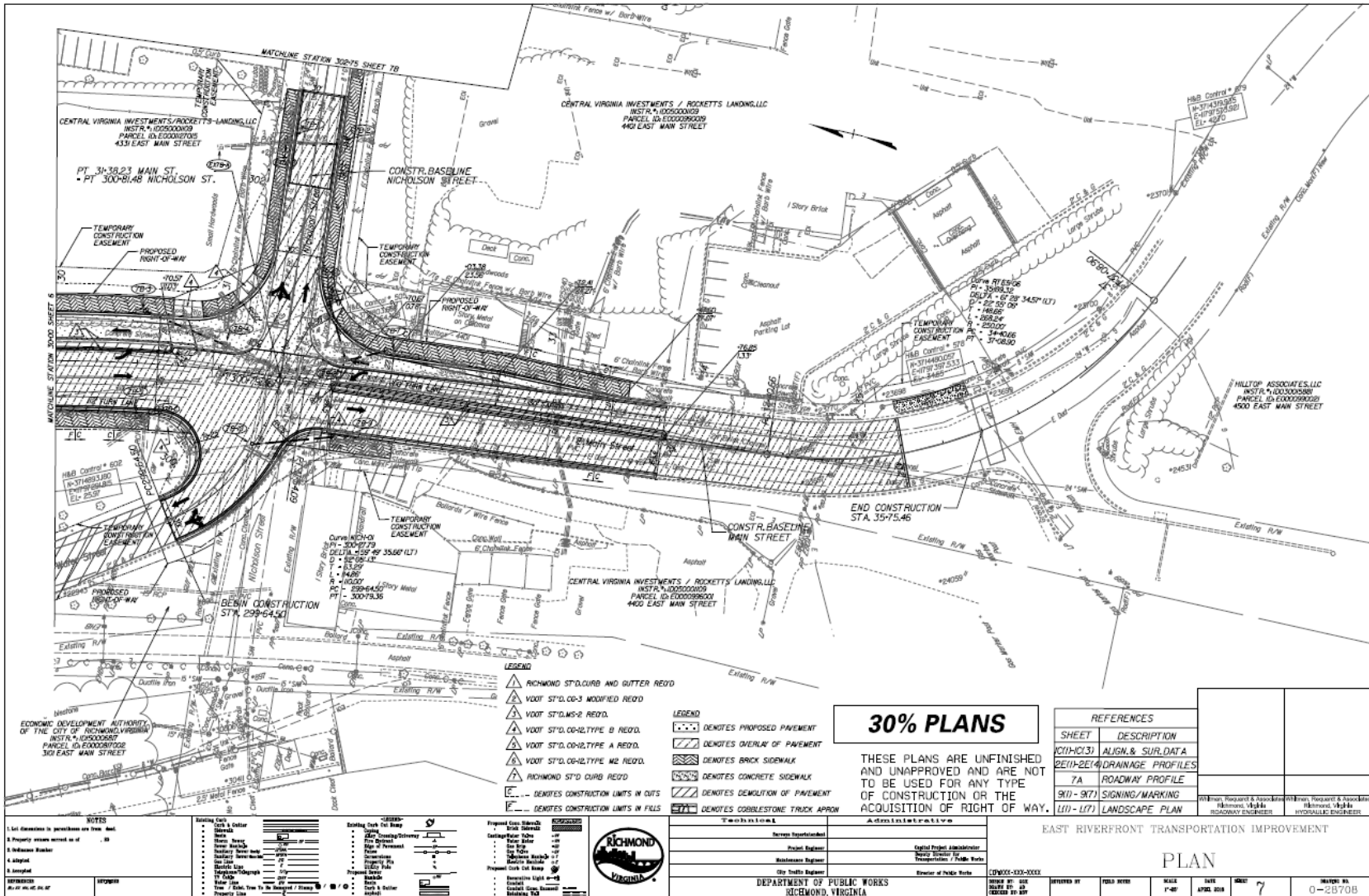
PLAN

|                                     |                   |                      |                      |                     |                        |                    |                        |
|-------------------------------------|-------------------|----------------------|----------------------|---------------------|------------------------|--------------------|------------------------|
| PROJECT NO. <b>CD0003-0003-0001</b> | DRAWN BY <b> </b> | DESIGNED BY <b> </b> | FIELD NOTES <b> </b> | SCALE <b>1"=40'</b> | DATE <b>APRIL 2018</b> | SHEET NO. <b>6</b> | TOTAL SHEETS <b>10</b> |
|-------------------------------------|-------------------|----------------------|----------------------|---------------------|------------------------|--------------------|------------------------|





SUPERVISED BY: CITY OF RICHMOND...  
 SUPERVISED BY: MSY...  
 DESIGNED BY: GSK...



THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION OR THE ACQUISITION OF RIGHT OF WAY.

| REFERENCES  |                    |
|-------------|--------------------|
| SHEET       | DESCRIPTION        |
| K01-H(3)    | ALIGN. & SUR. DATA |
| 2E(1)-2E(4) | DRAINAGE PROFILES  |
| 7A          | ROADWAY PROFILE    |
| 9(1)-9(7)   | SIGNING/MARKING    |
| (111)-(117) | LANDSCAPE PLAN     |

| LEGEND  |  |
|---|--|
| Technical   | Administrative   |
| <ul style="list-style-type: none"> <li>Proposed Pavement</li> <li>Overlay</li> <li>Brick Sidewalk</li> <li>Concrete Sidewalk</li> <li>Demolition of Pavement</li> <li>Demolition of Right-of-Way</li> </ul> | <ul style="list-style-type: none"> <li>Project Engineer</li> <li>Business Engineer</li> <li>City Traffic Engineer</li> <li>Capital Project Administrator</li> <li>Senior Planner - Public Works</li> <li>Director of Public Works</li> </ul> |

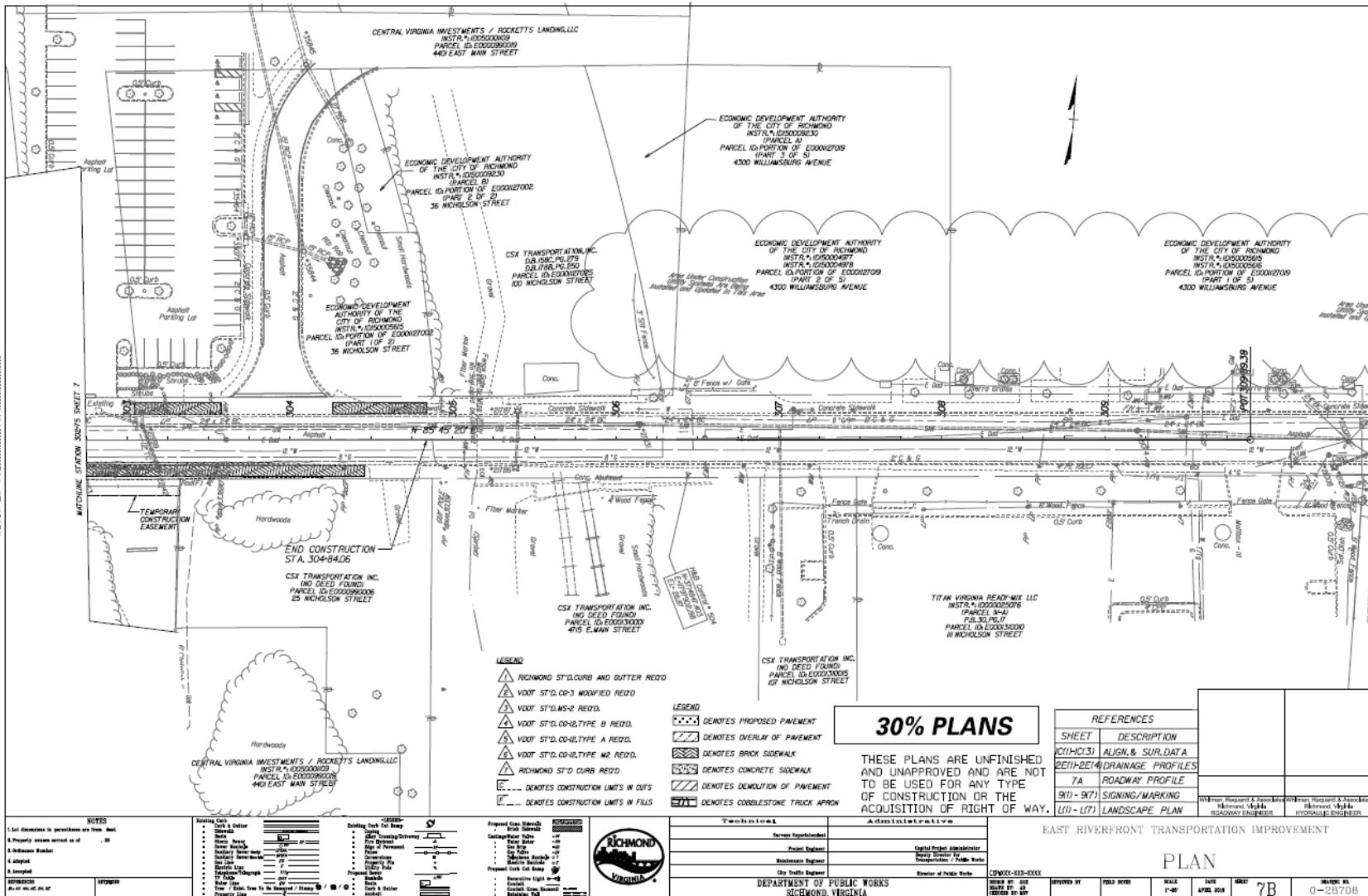
  

| NOTES   |  |
|---|--|
| 1. All dimensions in parentheses are from last. |  |
| 2. Property lines shown as of 10/10/10.         |  |
| 3. Reference markers.                           |  |
| 4. Asphalt.                                     |  |
| 5. Temporary.                                   |  |





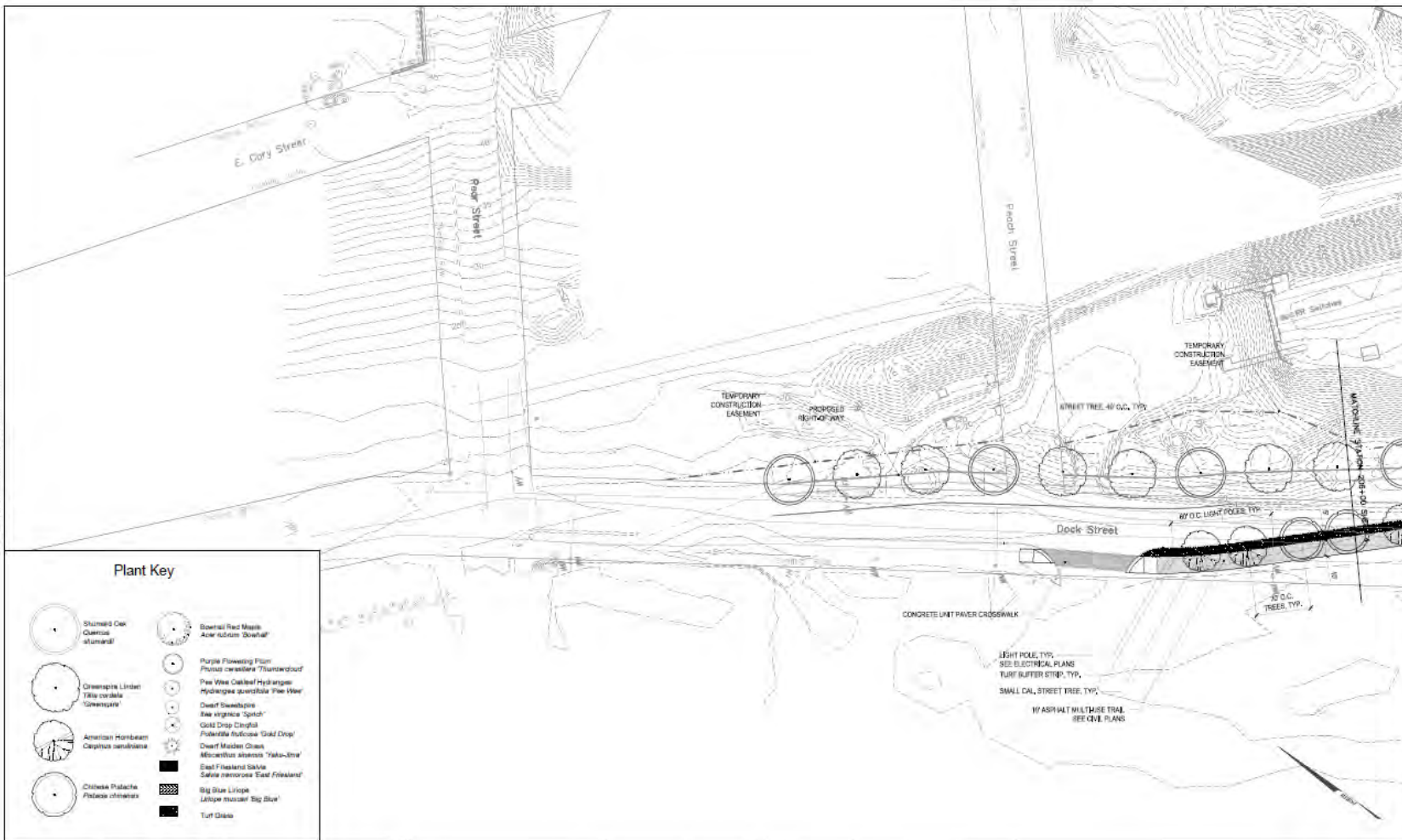
SURVEYED BY: CITY OF RICHMOND,  
 SUPERVISED BY: ASV  
 DESIGNED BY: ASV







SURVEYED BY: CITY OF RICHMOND  
 SUPERVISED BY: MSV  
 CHECKED BY: JCK



**Plant Key**

- |  |  |  |   |
|--|--|--|---|
|  | Shumard Oak<br><i>Quercus shumardii</i>              |  | Bohemian Red Maple<br><i>Acer rubrum 'Bohemian'</i>                   |
|  | Greenleaf Linden<br><i>Tilia cordata 'Greenleaf'</i> |  | Purple Flowering Plum<br><i>Prunus cerasifera 'Thundercloud'</i>      |
|  | American Hornbeam<br><i>Carpinus caroliniana</i>     |  | Pine Wee Oakleaf Hydrangea<br><i>Hydrangea quercifolia 'Pine Wee'</i> |
|  | Chinese Palmetto<br><i>Palmetto chinensis</i>        |  | Dwarf Sheepsbane<br><i>Rosa virginica 'Spind'</i>                     |
|  |  |  | Red Virginia Spindle<br><i>Gold Drop Coughlin</i>                     |
|  |  |  | Dwarf Maiden Grass<br><i>Miscanthus sinensis 'Yaku-Suei'</i>          |
|  |  |  | East Fringed Salvia<br><i>Salvia maritima 'East Fringed'</i>          |
|  |  |  | Big Blue Liriodie<br><i>Liriodie muscari 'Big Blue'</i>               |
|  |  |  | Turf Grass  |

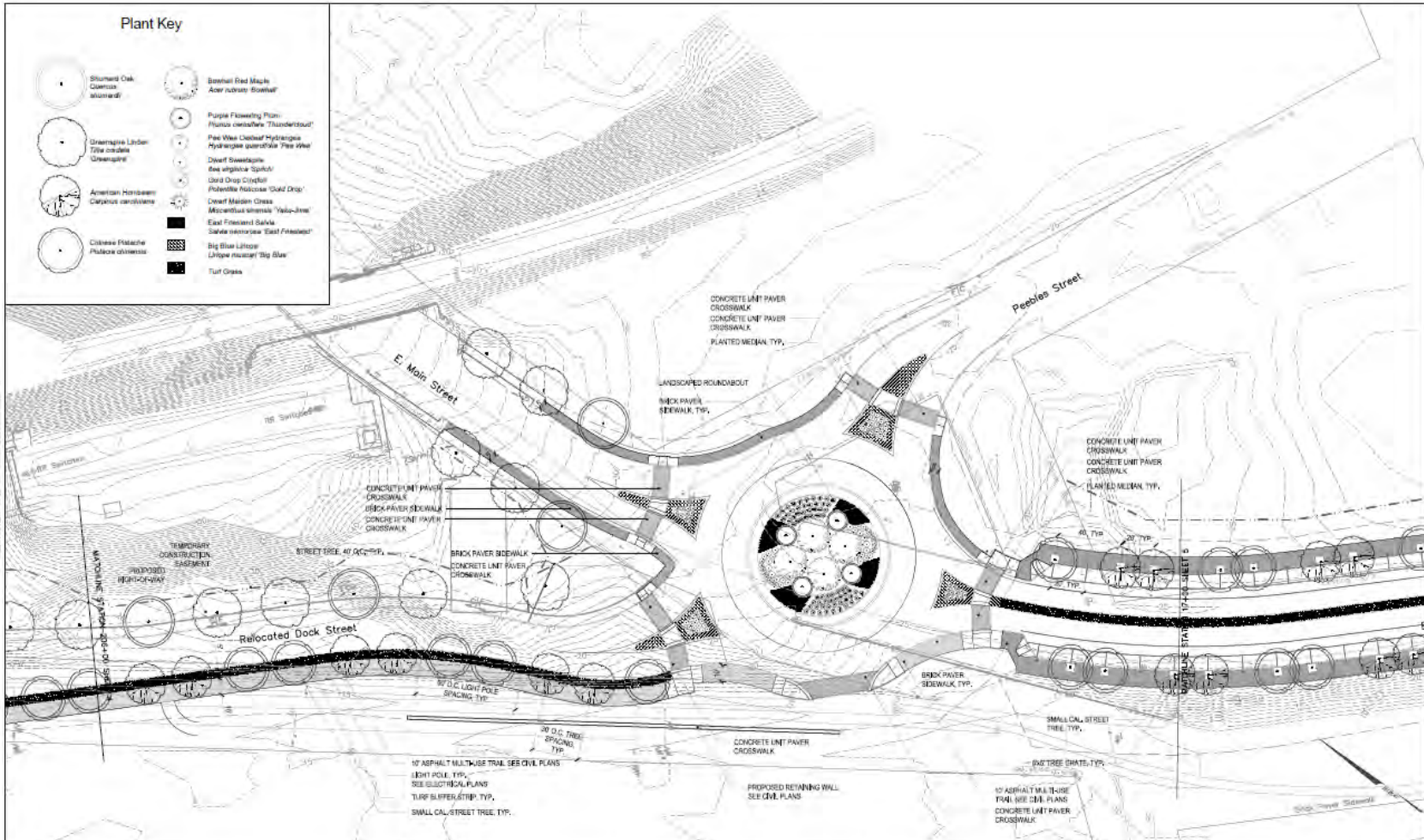
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|--|--|--|--|--|--|--|--|---|--|--|--|-----------------------------|--|---------------------------|--|-----------------------------|--|---------------------------|--|
| <b>REVISIONS</b><br>1. 01/15/2014<br>2. 02/10/2014 |  | <b>PLANTING SCHEDULE</b><br>1. 01/15/2014<br>2. 02/10/2014 |  | <b>CONSTRUCTION SCHEDULE</b><br>1. 01/15/2014<br>2. 02/10/2014 |  | <b>CONTRACTOR SCHEDULE</b><br>1. 01/15/2014<br>2. 02/10/2014 |  | <b>DEPARTMENT OF PUBLIC WORKS</b><br>RICHMOND, VIRGINIA |  | <b>EAST RIVERFRONT TRANSPORTATION IMPROVEMENT</b><br>LPDA<br>LANDSCAPE DEVELOPMENT & DESIGN<br>1000 N. 10TH ST. #100<br>RICHMOND, VA 23219<br>(804) 781-1111 |  | <b>SCALE</b><br>1" = 40'-0" |  | <b>DATE</b><br>01/15/2014 |  | <b>PROJECT NO.</b><br>1.001 |  | <b>DATE</b><br>01/15/2014 |  |
|--|--|--|--|--|--|--|--|---|--|--|--|-----------------------------|--|---------------------------|--|-----------------------------|--|---------------------------|--|





**Plant Key**

|  |  |  |   |
|--|--|--|---|
|  | Shumard Oak<br><i>Quercus shumardii</i>                        |  | Emerald Red Maple<br><i>Acer rubrum 'Emerald'</i>                 |
|  | Greenhouse Linden<br><i>Tilia cordata</i><br><i>Greenhouse</i> |  | Purple Flowering Plum<br><i>Prunus cerasifera 'Thunderbolt'</i>   |
|  | American Hornbeam<br><i>Carpinus caroliniana</i>               |  | Pee Wee Deedee Hydrangea<br><i>Hydrangea paniculata 'Pee Wee'</i> |
|  | Chinese Pistache<br><i>Pistacia chinensis</i>                  |  | Dwarf Spirea<br><i>Spiraea japonica 'Gold Drop'</i>               |
|  |  |  | Golden Mosaic 'Gold Drop'<br><i>Polenta 'Golden Mosaic'</i>       |
|  |  |  | Dwarf Maiden Grass<br><i>Miscanthus sinensis 'Yaku-Jima'</i>      |
|  |  |  | East Fringed Salvia<br><i>Salvia nemorosa 'East Fringed'</i>      |
|  |  |  | Big Blue Lirioden<br><i>Lirioden 'Big Blue'</i>                   |
|  |  |  | Turf Grass  |



SUBMITTED BY: CITY OF RICHMOND  
 DESIGNED BY: WSA  
 CHECKED BY: JCR

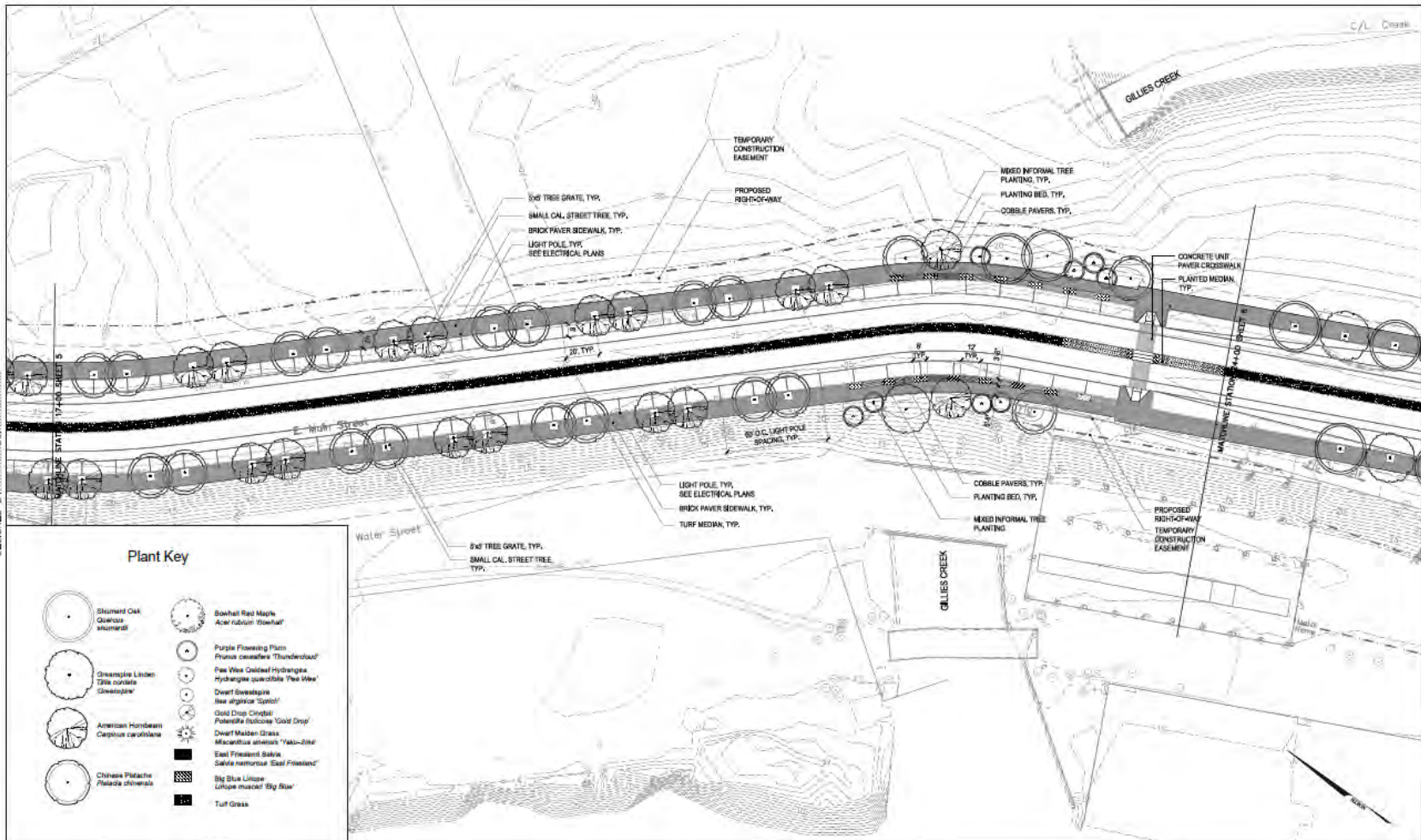
| <p><b>REVISIONS</b></p> <table border="1"> <tr><th>NO.</th><th>DATE</th><th>DESCRIPTION</th></tr> <tr><td> </td><td> </td><td> </td></tr> </table> | NO.         | DATE        | DESCRIPTION |  |  |  | <p><b>PLANT KEY</b></p> <table border="1"> <tr><th>SYMBOL</th><th>PLANT NAME</th></tr> <tr><td> </td><td> </td></tr> </table> | SYMBOL | PLANT NAME |  |  | <p><b>CONSTRUCTION NOTES</b></p> <table border="1"> <tr><th>NO.</th><th>DESCRIPTION</th></tr> <tr><td> </td><td> </td></tr> </table> | NO. | DESCRIPTION |  |  | <p><b>GENERAL NOTES</b></p> <table border="1"> <tr><th>NO.</th><th>DESCRIPTION</th></tr> <tr><td> </td><td> </td></tr> </table> | NO. | DESCRIPTION |  |  | <p><b>PROJECT INFORMATION</b></p> <p>DEPARTMENT OF PUBLIC WORKS<br/>RICHMOND, VIRGINIA</p> | <p><b>EAST RIVERFRONT TRANSPORTATION IMPROVEMENT</b></p> <p>LPDA<br/>LAND PLANNING &amp; DESIGN</p> |
|--|-------------|-------------|-------------|--|--|--|---|--------|------------|--|--|--|-----|-------------|--|--|---|-----|-------------|--|--|--|---|
| NO.  | DATE        | DESCRIPTION |             |  |  |  |   |        |            |  |  |  |     |             |  |  |   |     |             |  |  |  |   |
|  |             |             |             |  |  |  |   |        |            |  |  |  |     |             |  |  |   |     |             |  |  |  |   |
| SYMBOL   | PLANT NAME  |             |             |  |  |  |   |        |            |  |  |  |     |             |  |  |   |     |             |  |  |  |   |
|  |             |             |             |  |  |  |   |        |            |  |  |  |     |             |  |  |   |     |             |  |  |  |   |
| NO.  | DESCRIPTION |             |             |  |  |  |   |        |            |  |  |  |     |             |  |  |   |     |             |  |  |  |   |
|  |             |             |             |  |  |  |   |        |            |  |  |  |     |             |  |  |   |     |             |  |  |  |   |
| NO.  | DESCRIPTION |             |             |  |  |  |   |        |            |  |  |  |     |             |  |  |   |     |             |  |  |  |   |
|  |             |             |             |  |  |  |   |        |            |  |  |  |     |             |  |  |   |     |             |  |  |  |   |







SUPERVISED BY: CITY OF RICHMOND, VA  
 SUPERVISOR: JAMES W. HAYES  
 DESIGNED BY: GCK



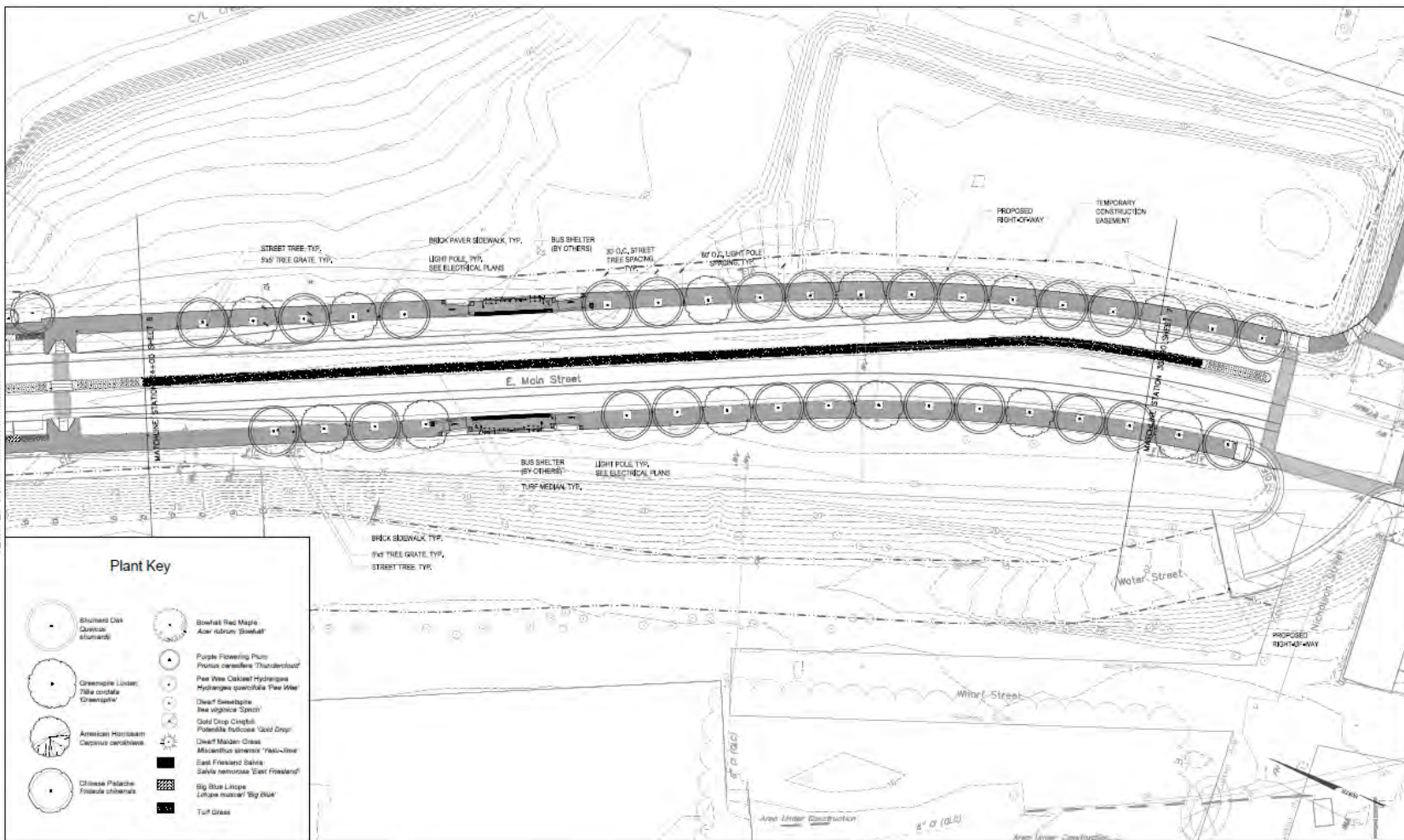
| <b>NOTES</b><br>1. Let another person do the bid.<br>2. See notes on sheet 10.<br>3. See notes on sheet 11.<br>4. See notes on sheet 12.<br>5. See notes on sheet 13. |               | <b>REVISIONS</b><br><table border="1"> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> <tr> <td>1</td> <td>Issue for bid</td> <td>10/1/10</td> </tr> <tr> <td>2</td> <td>Issue for bid</td> <td>10/1/10</td> </tr> <tr> <td>3</td> <td>Issue for bid</td> <td>10/1/10</td> </tr> <tr> <td>4</td> <td>Issue for bid</td> <td>10/1/10</td> </tr> <tr> <td>5</td> <td>Issue for bid</td> <td>10/1/10</td> </tr> <tr> <td>6</td> <td>Issue for bid</td> <td>10/1/10</td> </tr> <tr> <td>7</td> <td>Issue for bid</td> <td>10/1/10</td> </tr> <tr> <td>8</td> <td>Issue for bid</td> <td>10/1/10</td> </tr> <tr> <td>9</td> <td>Issue for bid</td> <td>10/1/10</td> </tr> <tr> <td>10</td> <td>Issue for bid</td> <td>10/1/10</td> </tr> </table> |  | No. | Description | Date | 1 | Issue for bid | 10/1/10 | 2 | Issue for bid | 10/1/10 | 3 | Issue for bid | 10/1/10 | 4 | Issue for bid | 10/1/10 | 5 | Issue for bid | 10/1/10 | 6 | Issue for bid | 10/1/10 | 7 | Issue for bid | 10/1/10 | 8 | Issue for bid | 10/1/10 | 9 | Issue for bid | 10/1/10 | 10 | Issue for bid | 10/1/10 | <b>DEPARTMENT OF PUBLIC WORKS</b><br>RICHMOND, VIRGINIA |  | <b>PROJECT INFORMATION</b><br>EAST RIVERFRONT TRANSPORTATION IMPROVEMENT<br>2010-10-01-2010-10-01<br>1.003 0-XXXX |  |
|---|---------------|---|--|-----|-------------|------|---|---------------|---------|---|---------------|---------|---|---------------|---------|---|---------------|---------|---|---------------|---------|---|---------------|---------|---|---------------|---------|---|---------------|---------|---|---------------|---------|----|---------------|---------|---|--|---|--|
| No.   | Description   | Date  |  |     |             |      |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |    |               |         |   |  |   |  |
| 1   | Issue for bid | 10/1/10   |  |     |             |      |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |    |               |         |   |  |   |  |
| 2   | Issue for bid | 10/1/10   |  |     |             |      |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |    |               |         |   |  |   |  |
| 3   | Issue for bid | 10/1/10   |  |     |             |      |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |    |               |         |   |  |   |  |
| 4   | Issue for bid | 10/1/10   |  |     |             |      |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |    |               |         |   |  |   |  |
| 5   | Issue for bid | 10/1/10   |  |     |             |      |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |    |               |         |   |  |   |  |
| 6   | Issue for bid | 10/1/10   |  |     |             |      |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |    |               |         |   |  |   |  |
| 7   | Issue for bid | 10/1/10   |  |     |             |      |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |    |               |         |   |  |   |  |
| 8   | Issue for bid | 10/1/10   |  |     |             |      |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |    |               |         |   |  |   |  |
| 9   | Issue for bid | 10/1/10   |  |     |             |      |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |    |               |         |   |  |   |  |
| 10  | Issue for bid | 10/1/10   |  |     |             |      |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |   |               |         |    |               |         |   |  |   |  |







SURVEYED BY: CITY OF RICHMOND  
 SUPERVISED BY: [Name]  
 DESIGNED BY: [Name]

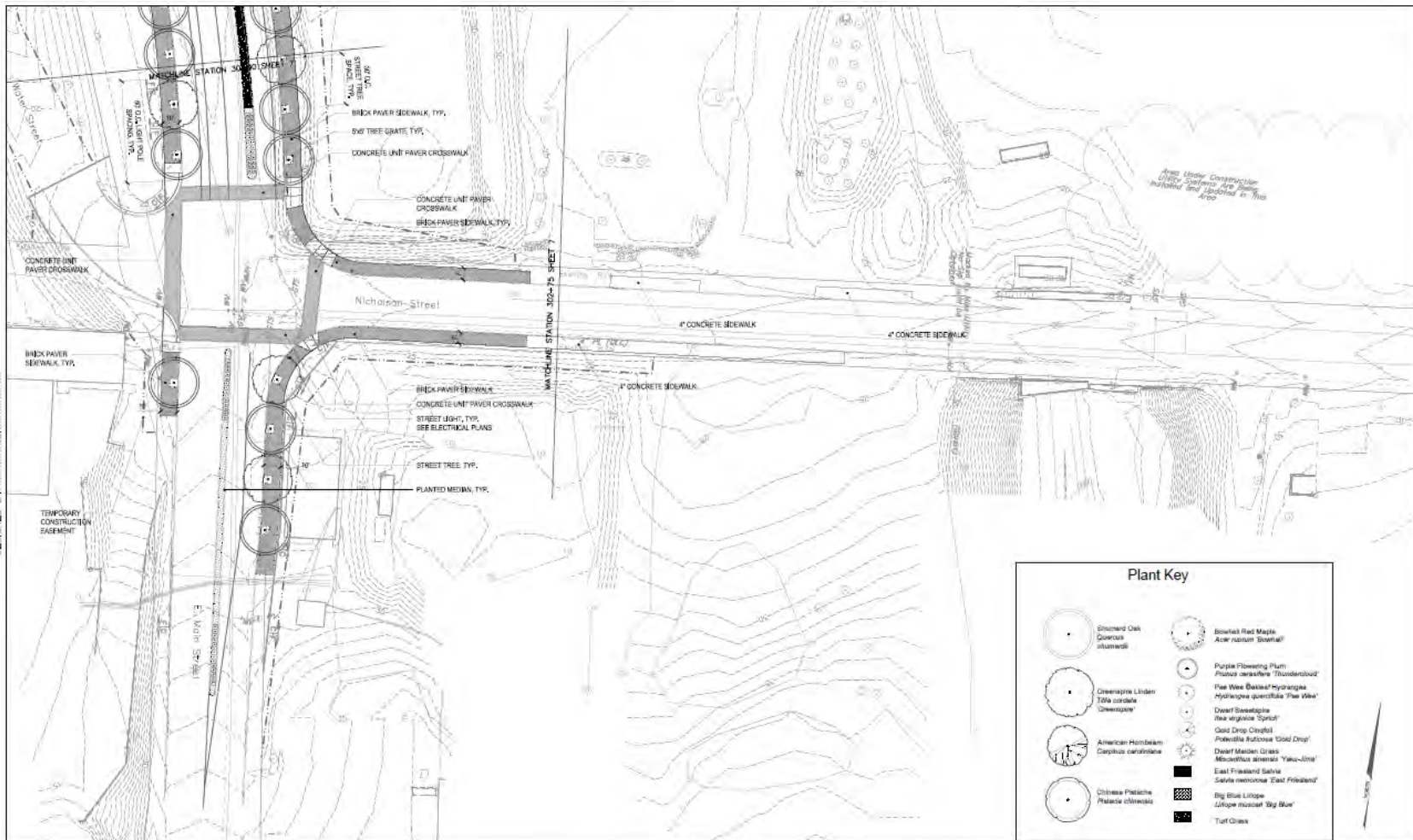


**Plant Key**

- |  |   |  |  |
|--|---|--|--|
|  | Shumard Oak<br><i>Quercus shumardii</i>                         |  | Snowfall Red Maple<br><i>Acer rubrum</i> 'Snowfall'                    |
|  | Greenleaf Linden<br><i>Tilia cordata</i><br>Greenleaf           |  | Purple Flowering Plum<br><i>Prunus cerasifera</i> 'Thunderbolt'        |
|  | American Hornbeam<br><i>Carpinus canadensis</i>                 |  | Fast Tree Cuckoo Hydrangea<br><i>Hydrangea quercifolia</i> 'Fast Tree' |
|  | Chinese Palmetto<br><i>Fatsia chinensis</i>                     |  | Dwarf Snowflake<br><i>Leea virginica</i> 'Snowflake'                   |
|  | Snowfall Red Maple<br><i>Acer rubrum</i> 'Snowfall'             |  | Gold Drop Cereus<br><i>Forsythia fortunei</i> 'Gold Drop'              |
|  | Purple Flowering Plum<br><i>Prunus cerasifera</i> 'Thunderbolt' |  | Dwarf Maiden Grass<br><i>Miscanthus sinensis</i> 'YAMA-Ume'            |
|  | Greenleaf Linden<br><i>Tilia cordata</i><br>Greenleaf           |  | East Frinkland Salix<br><i>Salix nemoralis</i> 'East Frinkland'        |
|  | American Hornbeam<br><i>Carpinus canadensis</i>                 |  | Big Blue Liriodie<br><i>Lilium monatum</i> 'Big Blue'                  |
|  | Chinese Palmetto<br><i>Fatsia chinensis</i>                     |  | Turf Grass   |

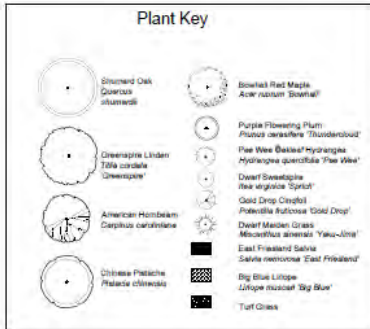
| <p><b>NOTES:</b></p> <p>1. See separate portion of the bid.</p> <p>2. See separate portion of the bid.</p> |      | <p><b>PLANT KEY:</b></p> <p>1. Shumard Oak</p> <p>2. Greenleaf Linden</p> <p>3. American Hornbeam</p> <p>4. Chinese Palmetto</p> <p>5. Snowfall Red Maple</p> <p>6. Purple Flowering Plum</p> <p>7. Fast Tree Cuckoo Hydrangea</p> <p>8. Dwarf Snowflake</p> <p>9. Gold Drop Cereus</p> <p>10. Dwarf Maiden Grass</p> <p>11. East Frinkland Salix</p> <p>12. Big Blue Liriodie</p> <p>13. Turf Grass</p> |  | <p><b>CONSTRUCTION NOTES:</b></p> <p>1. See separate portion of the bid.</p> <p>2. See separate portion of the bid.</p> |  | <p><b>DEPARTMENT OF PUBLIC WORKS</b></p> <p>REVISIONS:</p> <table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table> |  | NO. | DATE | DESCRIPTION |  |  |  |  |  |  | <p><b>LAST RIVERSIDE TRANSPORTATION IMPROVEMENT</b></p> <p>LPDA<br/>Landscape Planning &amp; Design<br/>1000 N. 10th St., Suite 100<br/>Richmond, VA 23219<br/>Tel: 804-644-1100<br/>Fax: 804-644-1101</p> <p>DATE: 10/10/2010<br/>DRAWN BY: [Name]<br/>CHECKED BY: [Name]</p> <p>SCALE: 1" = 40'-0"</p> <p>PROJECT: 1.004<br/>SHEET NO: 01-XXXX</p> |  |
|--|------|--|--|---|--|---|--|-----|------|-------------|--|--|--|--|--|--|--|--|
| NO.  | DATE | DESCRIPTION  |  |   |  |   |  |     |      |             |  |  |  |  |  |  |  |  |
|  |      |  |  |   |  |   |  |     |      |             |  |  |  |  |  |  |  |  |
|  |      |  |  |   |  |   |  |     |      |             |  |  |  |  |  |  |  |  |





SURVEYED BY: CITY OF RICHMOND  
 SUPERVISED BY: MSV  
 DESIGNED BY: GSK

**Plant Key**



| NO. | DESCRIPTION | DATE | BY | CHECKED BY |
|-----|-------------|------|----|------------|
| 1   | PREPARED BY |      |    |            |
| 2   | DESIGNED BY |      |    |            |
| 3   | CHECKED BY  |      |    |            |
| 4   | APPROVED BY |      |    |            |
| 5   | DATE        |      |    |            |



|                  |  |
|------------------|--|
| PROJECT NO.      | 1005                                       |
| DATE             | 10/20/11                                   |
| SCALE            | AS SHOWN                                   |
| PROJECT NAME     | EAST RIVERFRONT TRANSPORTATION IMPROVEMENT |
| PROJECT LOCATION | NICHOLSON STREET, RICHMOND, VIRGINIA       |

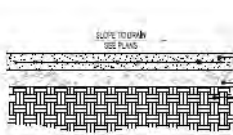
|                  |  |
|------------------|--|
| PROJECT NO.      | 1005                                       |
| DATE             | 10/20/11                                   |
| SCALE            | AS SHOWN                                   |
| PROJECT NAME     | EAST RIVERFRONT TRANSPORTATION IMPROVEMENT |
| PROJECT LOCATION | NICHOLSON STREET, RICHMOND, VIRGINIA       |



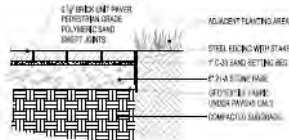




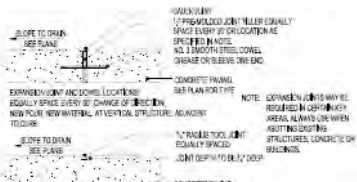
**DRAFT**



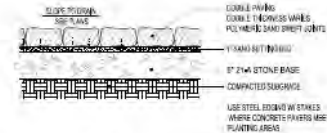
1 2" CONCRETE  
1' = 1'



4 CLAY BRICK UNIT PAVERS  
1' = 1'



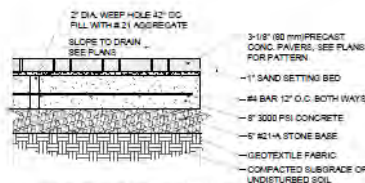
2 CONCRETE JOINTS - EXPANSION AND CONTROL  
NTS



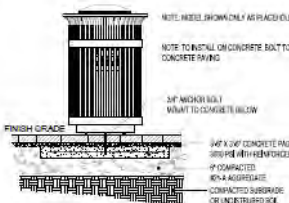
5 COBBLE PAVING  
1' = 1'



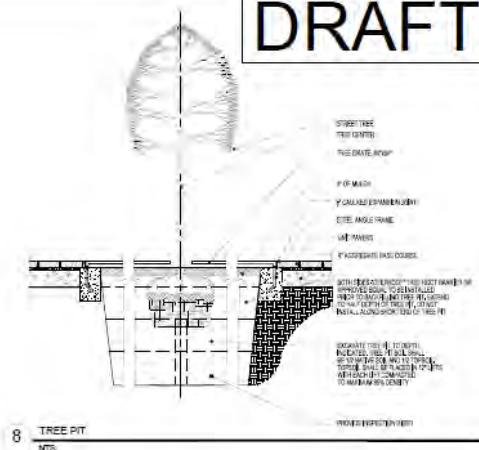
6 BENCH  
3/4" = 1'



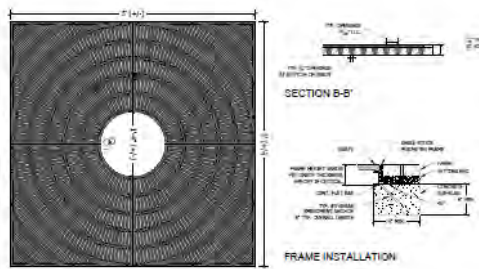
3 CONCRETE UNIT PAVERS - (CROSSWALKS)  
1' = 1'



7 TRASH RECEPTACLE  
3/4" = 1'



8 TREE PIT  
NTS



8 TREE GRATE  
NOTE: MODEL SHOWN ONLY AS PLACEHOLDER

SECTION A-A'

9 TREE GRATE  
NTS

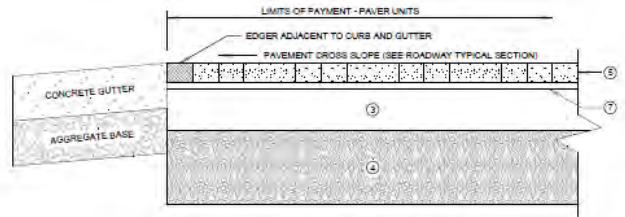
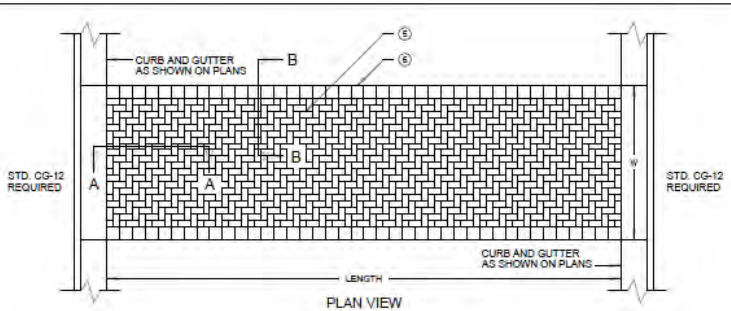
SUBMITTED BY: CITY OF RICHMOND  
DESIGNED BY: [Faint text]  
REVIEWED BY: [Faint text]

| NO. | DESCRIPTION   | QTY | UNIT    | PRICE | TOTAL   |
|-----|---------------|-----|---------|-------|---------|
| 1   | CONCRETE      | 100 | SQ. YD. | 10.00 | 1000.00 |
| 2   | AGGREGATE     | 200 | CY      | 5.00  | 1000.00 |
| 3   | STONE         | 100 | SQ. YD. | 10.00 | 1000.00 |
| 4   | PAVERS        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 5   | COBBLES       | 100 | SQ. YD. | 10.00 | 1000.00 |
| 6   | REINFORCEMENT | 100 | LBS.    | 1.00  | 100.00  |
| 7   | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 8   | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 9   | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 10  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 11  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 12  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 13  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 14  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 15  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 16  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 17  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 18  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 19  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 20  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |

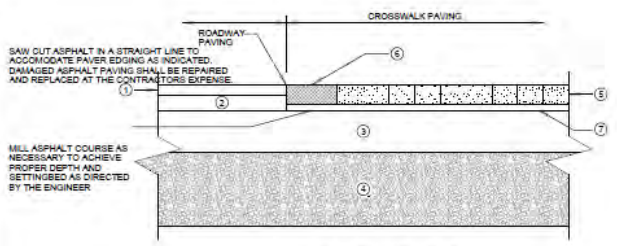
| NO. | DESCRIPTION   | QTY | UNIT    | PRICE | TOTAL   |
|-----|---------------|-----|---------|-------|---------|
| 21  | CONCRETE      | 100 | SQ. YD. | 10.00 | 1000.00 |
| 22  | AGGREGATE     | 200 | CY      | 5.00  | 1000.00 |
| 23  | STONE         | 100 | SQ. YD. | 10.00 | 1000.00 |
| 24  | PAVERS        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 25  | COBBLES       | 100 | SQ. YD. | 10.00 | 1000.00 |
| 26  | REINFORCEMENT | 100 | LBS.    | 1.00  | 100.00  |
| 27  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 28  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 29  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 30  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 31  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 32  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 33  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 34  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 35  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 36  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 37  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 38  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 39  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |
| 40  | PAVING        | 100 | SQ. YD. | 10.00 | 1000.00 |







SECTION VIEW A - A

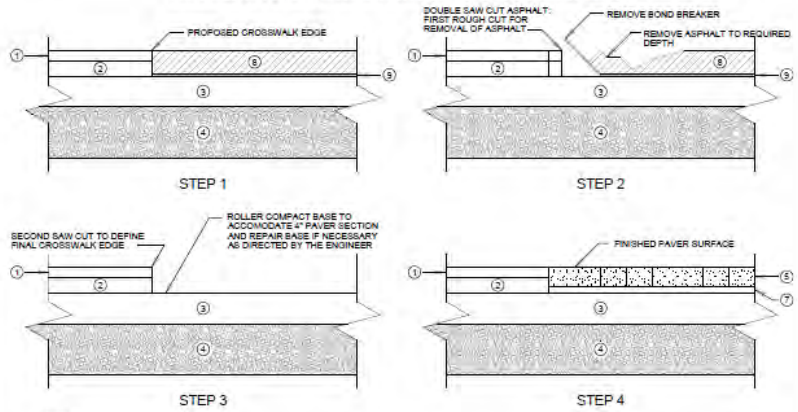


SECTION VIEW B - B

NOTES:

- COLOR OF PAVING UNITS SHALL MATCH THE COLOR DESCRIPTION IN THE ATTACHED SPECIAL PROVISIONS FOR UNIT PAVERS OR AS INDICATED ON THE PLANS. A SAMPLE OF THE PAVING UNITS TO BE USED SHALL BE SUBMITTED AND THE FINAL COLOR SELECTION SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT.
- PAVING WORK WILL BE PLUMB AND TRUE TO LINE AND GRADE AND SHALL BE INSTALLED TO PROPERLY COINCIDE WITH ADJACENT WORK AND ELEVATIONS. THE CUTTING OF THE PAVERS SHALL BE CLEAN WITH NO APPARENT SPALLS OR BREAKS.
- PAVING UNITS SHALL BE PLACED AND VIBRATED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS WITH A MINIMUM OF THREE PASSES OVER THE PAVERS.
- PATTERN FOR PAVING UNITS SHALL BE A HERRINGBONE PATTERN WITH 90° ANGLES TO THE CONCRETE EDGE RESTRAINT OR LONGITUDINAL EDGE UNLESS OTHERWISE NOTED ON THE PLANS.
- JOINTS (EXCEPT FOR EXPANSION-JOINTS) BETWEEN PAVING UNITS SHALL BE HAND TIGHT, SAND SWEEPED, AND A MAXIMUM OF 1/8" WIDE FOR BOTH CONCRETE AND BRICK.
- JOINTS AROUND ALL APPURTENANCES SUCH AS MANHOLES AND WATER METERS THAT EXTEND INTO OR THROUGH THE CROSSWALK SHALL BE FILLED WITH JOINT FILLER AND SEALED WITH SILICONE JOINT SEALANT ACCORDING TO STANDARD PR-2.
- EXISTING PAVEMENT TO BE REMOVED WILL BE REMOVED BY SAW CUTTING AND EXCAVATING AS NECESSARY FOR THE PLACEMENT OF THE BASE MATERIAL, AND WILL BE REPLACED BY NEW MATERIAL AS DIRECTED BY THE ENGINEER.
- HIGH WATER TABLE, WET SOILS OR POOR SOILS MAY REQUIRE ADDITIONAL DRAINAGE AS SHOWN ON PLANS OR DIRECTED BY THE ENGINEER.

SUGGESTED SEQUENCE OF CONSTRUCTION



LEGEND:

- ① ASPHALT CONCRETE SURFACE COURSE
- ② ASPHALT CONCRETE INTERMEDIATE COURSE
- ③ ASPHALT CONCRETE BASE COURSE
- ④ AGGREGATE BASE
- ⑤ 8" x 4" x 3/4" PAVERS - PAVER UNITS HAND TIGHT AND SAND SWEEPED
- ⑥ 8" x 8" x 3/4" PAVERS - INSTALL FLUSH WITH SAW CUT ASPHALT
- ⑦ APPROXIMATELY 1" DEEP CONCRETE BEDDING SAND
- ⑧ ASPHALT SURFACE OVERLAY
- ⑨ GEOTEXTILE FABRIC (BOND BREAKER) UNDERLAY FOR EASY REMOVAL OF ASPHALT

DRAFT

10 UNIT PAVER CROSSWALK INSTALLATION

| NO. | DESCRIPTION   | QUANTITY | UNIT | PRICE | TOTAL |
|-----|---|----------|------|-------|-------|
| 1   | Asphalt Concrete Surface Course                                       |          |      |       |       |
| 2   | Asphalt Concrete Intermediate Course                                  |          |      |       |       |
| 3   | Asphalt Concrete Base Course  |          |      |       |       |
| 4   | Aggregate Base  |          |      |       |       |
| 5   | 8" x 4" x 3/4" Pavers   |          |      |       |       |
| 6   | 8" x 8" x 3/4" Pavers   |          |      |       |       |
| 7   | Approximately 1" Deep Concrete Bedding Sand                           |          |      |       |       |
| 8   | Asphalt Surface Overlay   |          |      |       |       |
| 9   | Geotextile Fabric (Bond Breaker) Underlay for Easy Removal of Asphalt |          |      |       |       |



| Technical    | Administrative    |
|--------------|-------------------|
| Drawn by     | Checked by        |
| Designed by  | Reviewed by       |
| Estimated by | Approved by       |
| On the Date  | Scale of this set |

EAST RIVERFRONT TRANSPORTATION IMPROVEMENT

DEPARTMENT OF PUBLIC WORKS  
 RICHMOND, VIRGINIA

SHEET NO. 1007  
 OF 1007



SURVEYED BY: CITY OF RICHMOND  
 DESIGNED BY: WSV  
 CHECKED BY: WSV