

# RICHMOND, VIRGINIA RIVERFRONT IMPROVEMENTS: PRIORITY 1

# T. TYLER POTTERFIELD MEMORIAL BRIDGE



VICINITY PLAN

0' 500' 1000' 2000'

## BID SET

## 24 OCTOBER 2014

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- XS-550 DETAILS - INT-1 INTERPRETIVE RAIL
- XS-551 DETAILS - INT-1 INTERPRETIVE RAIL
- XS-552 DETAILS - INT-1 INTERPRETIVE RAIL

#### PROJECT INFORMATION

Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
 RICHMOND, VIRGINIA

#### CITY OF RICHMOND

900 E. Broad St.  
 Richmond, VA 23219  
 www.richmondgov.com

#### Landscape Architecture

**HARGREAVES ASSOCIATES**  
 113 Magazine Street  
 Cambridge, MA 02139  
 www.hargreaves.com

#### Civil Engineering / Permitting / Local Project Management

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 115 South 15th Street, Suite 200  
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#### Marine & Structural Engineering

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#### Geotechnical

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 Midlothian, VA 23113  
 www.dmy-inc.com

#### SEAL/SIGNATURE

#### ISSUE

#### REVISIONS

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
|     | SCHEMATIC DESIGN   | 03-28-2014 |
|     | DESIGN DEVELOPMENT | 06-27-2014 |
|     | 85% CONSTRUCTION   | 10-03-2014 |
|     | BID SET            | 10-24-2014 |

#### KEY MAP

#### SHEET INFORMATION

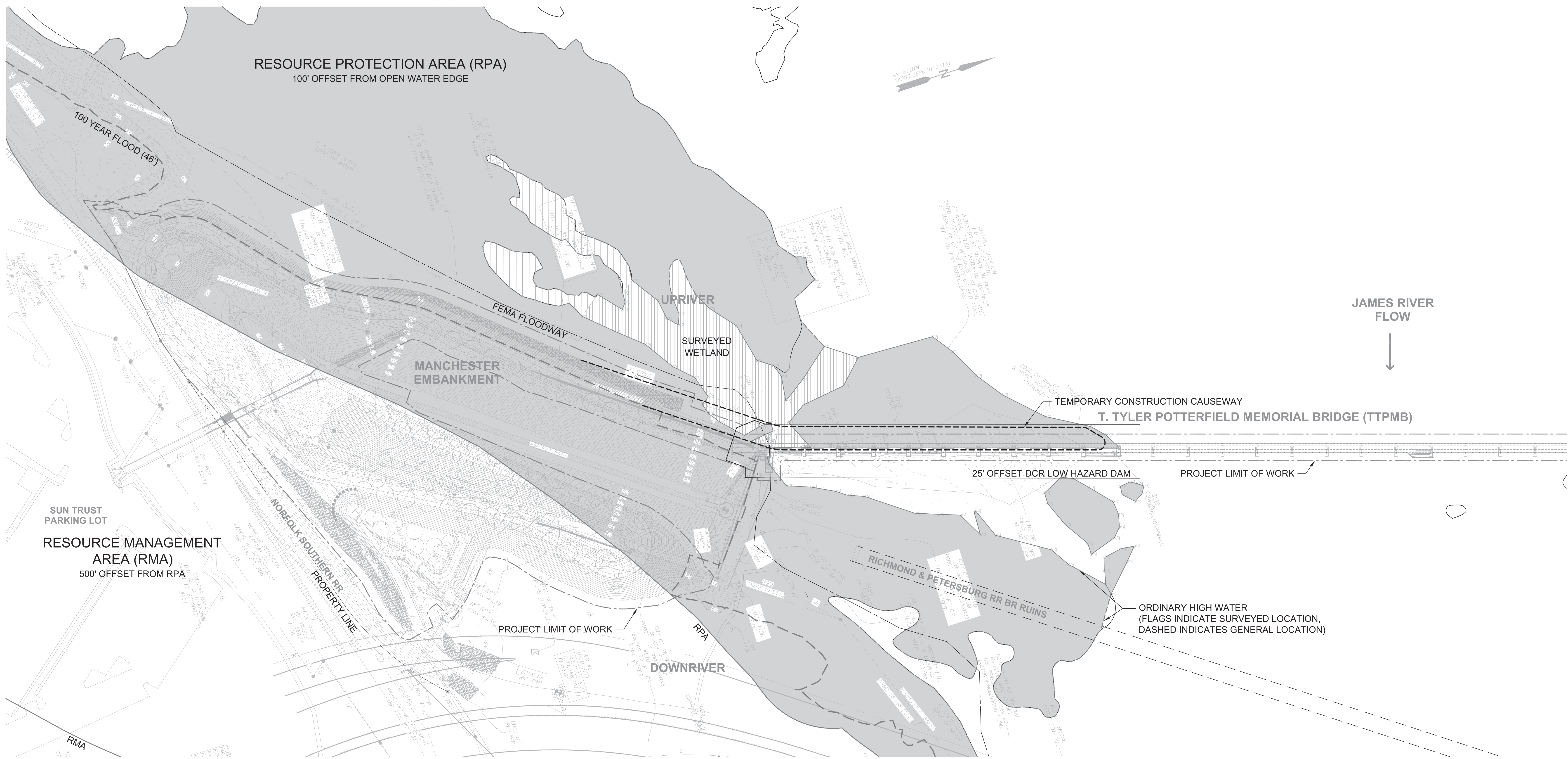
Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: NTS

#### SHEET TITLE

**GENERAL COVER SHEET**

#### SHEET NO.

**G-001**



**PROJECT INFORMATION**

Richmond, Virginia Riverfront  
Improvements: Priority 1  
**T. TYLER  
POTTERFIELD  
MEMORIAL BRIDGE**  
RICHMOND, VIRGINIA

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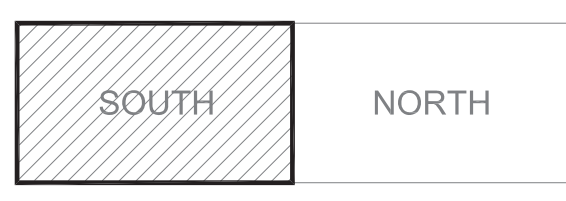


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**KEY MAP**



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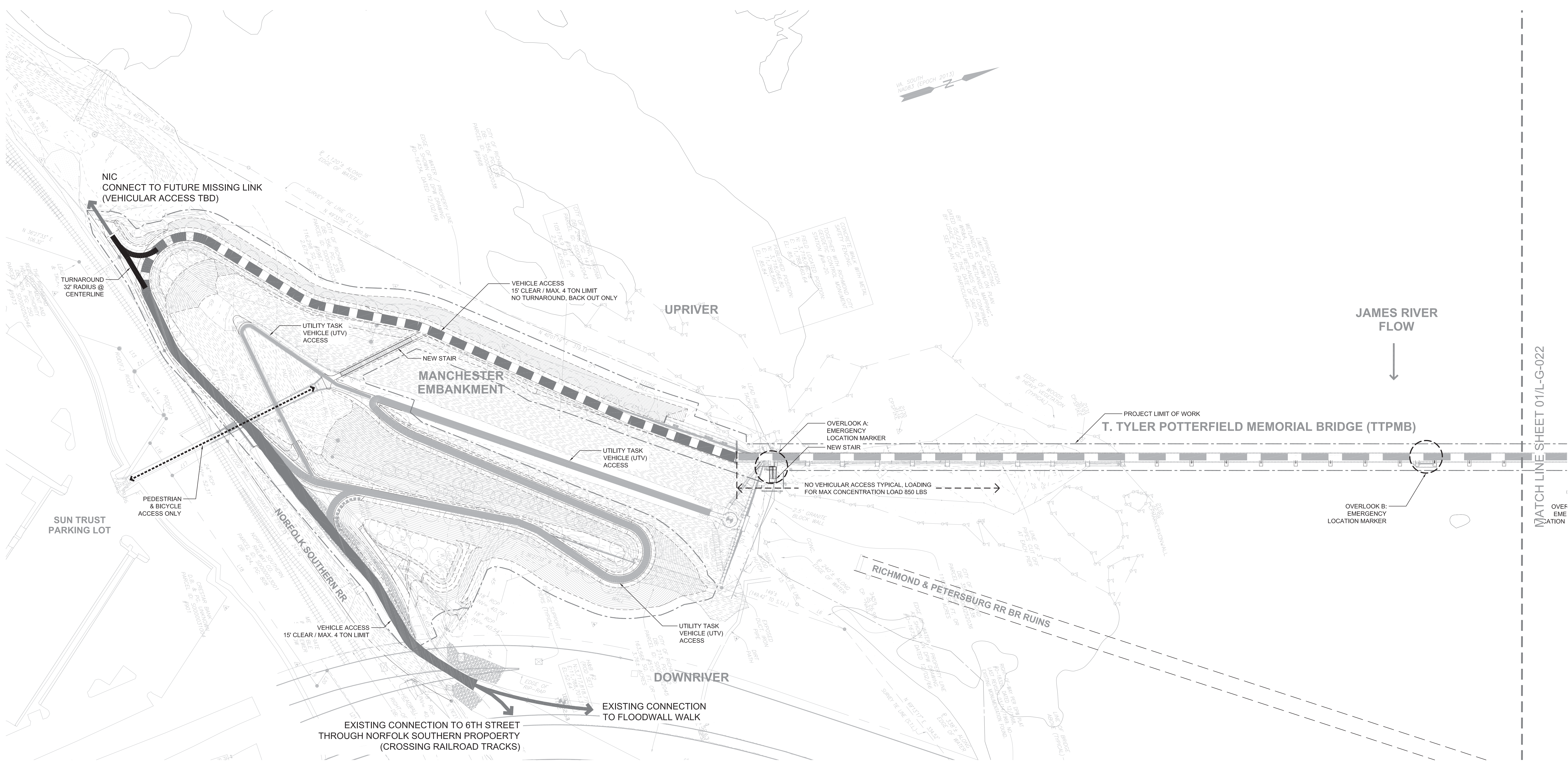
Project No.: RVA 1301  
Drawn By: ML  
Checked By: KR  
Date: 10/24/2014  
Scale: 1"=50'

**SHEET TITLE**

**GENERAL  
WATER RESOURCES  
PLAN - SOUTH**

SHEET NO.

**G-011**



**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront  
 Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
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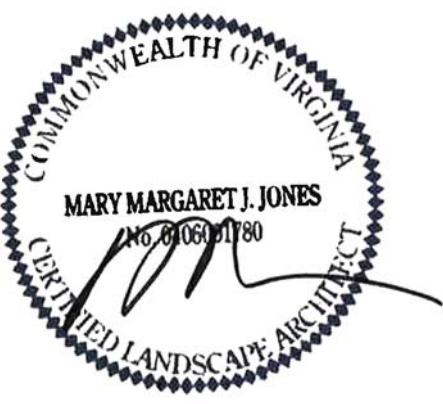
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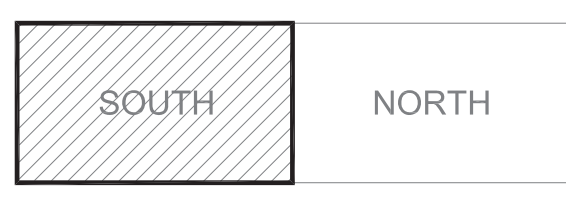


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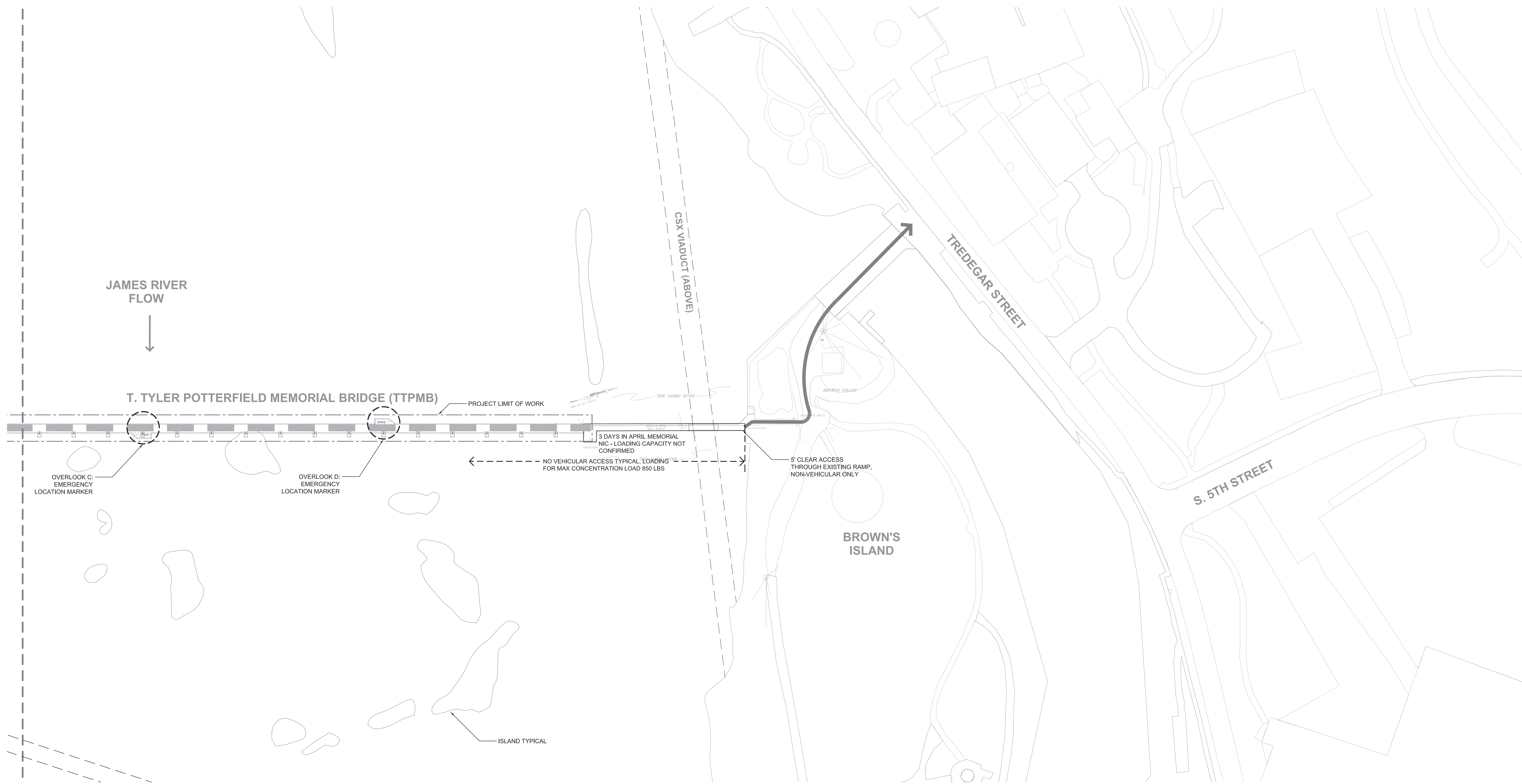
**MAINTENANCE & EMERGENCY ACCESS PLAN - SOUTH**

SHEET NO.

**G-021**

MATCH LINE SHEET 01/L-G-022

MATCH LINE SHEET 01/L-G-021



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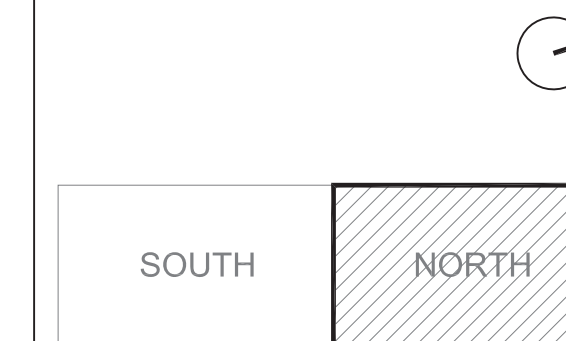


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KEY MAP



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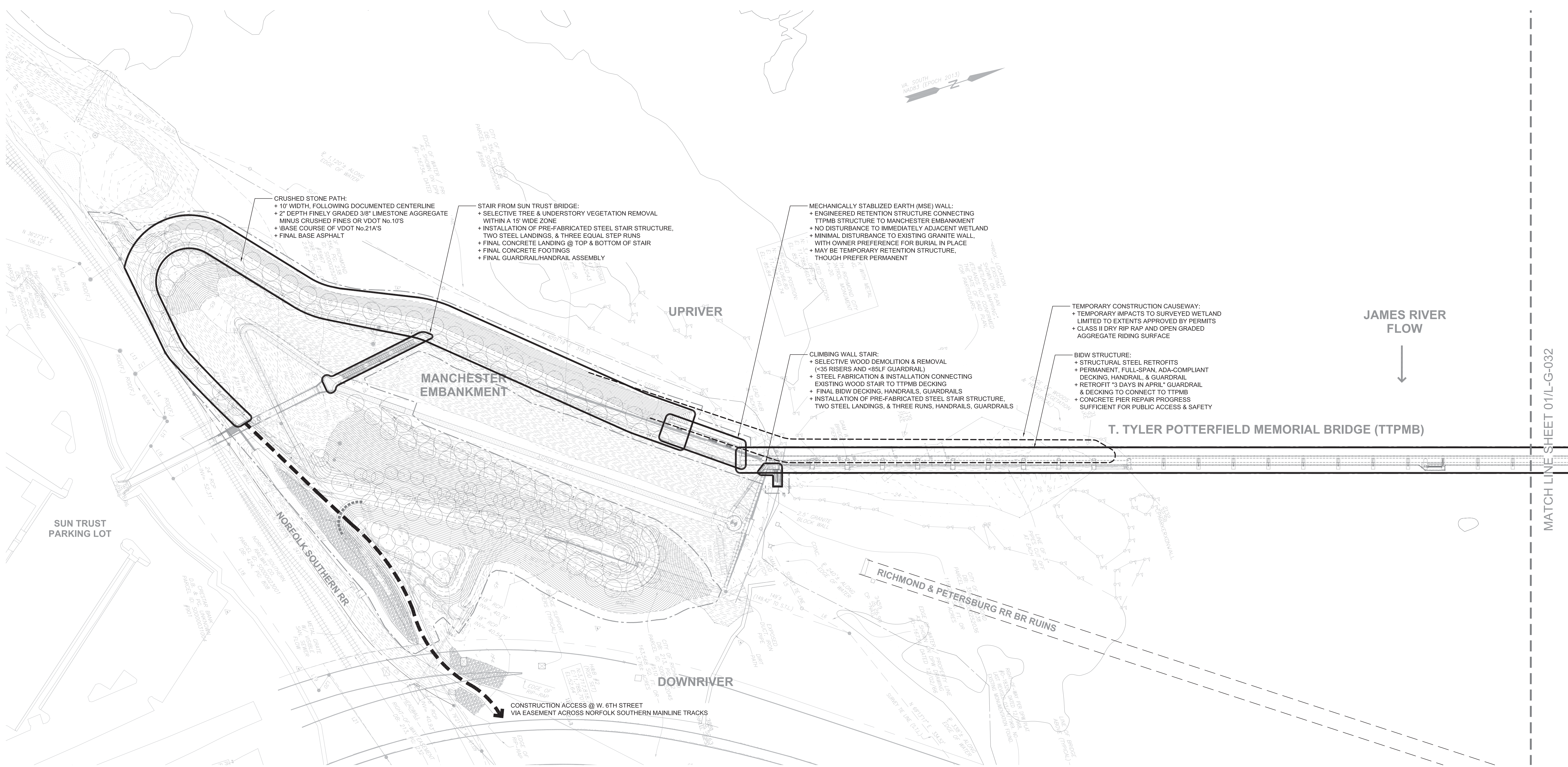
Project No.: RVA 1301  
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 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=50'

SHEET TITLE

**MAINTENANCE & EMERGENCY ACCESS PLAN - NORTH**

SHEET NO.

**G-022**



**CRUSHED STONE PATH:**  
 + 10' WIDTH, FOLLOWING DOCUMENTED CENTERLINE  
 + 2" DEPTH FINELY GRADED 3/8" LIMESTONE AGGREGATE MINUS CRUSHED FINES OR VDOT No. 10'S  
 + BASE COURSE OF VDOT No. 21A'S  
 + FINAL BASE ASPHALT

**STAIR FROM SUN TRUST BRIDGE:**  
 + SELECTIVE TREE & UNDERSTORY VEGETATION REMOVAL WITHIN A 15' WIDE ZONE  
 + INSTALLATION OF PRE-FABRICATED STEEL STAIR STRUCTURE, TWO STEEL LANDINGS, & THREE EQUAL STEP RUNS  
 + FINAL CONCRETE LANDING @ TOP & BOTTOM OF STAIR  
 + FINAL CONCRETE FOOTINGS  
 + FINAL GUARDRAIL/HANDRAIL ASSEMBLY

**MECHANICALLY STABILIZED EARTH (MSE) WALL:**  
 + ENGINEERED RETENTION STRUCTURE CONNECTING TPMB STRUCTURE TO MANCHESTER EMBANKMENT  
 + NO DISTURBANCE TO IMMEDIATELY ADJACENT WETLAND  
 + MINIMAL DISTURBANCE TO EXISTING GRANITE WALL, WITH OWNER PREFERENCE FOR BURIAL IN PLACE  
 + MAY BE TEMPORARY RETENTION STRUCTURE, THOUGH PREFER PERMANENT

**CLIMBING WALL STAIR:**  
 + SELECTIVE WOOD DEMOLITION & REMOVAL (<35 RISERS AND <85LF GUARDRAIL)  
 + STEEL FABRICATION & INSTALLATION CONNECTING EXISTING WOOD STAIR TO TPMB DECKING  
 + FINAL BIDW DECKING, HANDRAILS, GUARDRAILS  
 + INSTALLATION OF PRE-FABRICATED STEEL STAIR STRUCTURE, TWO STEEL LANDINGS, & THREE RUNS, HANDRAILS, GUARDRAILS

**TEMPORARY CONSTRUCTION CAUSEWAY:**  
 + TEMPORARY IMPACTS TO SURVEYED WETLAND LIMITED TO EXTENTS APPROVED BY PERMITS  
 + CLASS II DRY RIP RAP AND OPEN GRADED AGGREGATE RIDING SURFACE

**BIDW STRUCTURE:**  
 + STRUCTURAL STEEL RETROFITS  
 + PERMANENT, FULL-SPAN, ADA-COMPLIANT DECKING, HANDRAIL, & GUARDRAIL  
 + RETROFIT "3 DAYS IN APRIL" GUARDRAIL & DECKING TO CONNECT TO TPMB  
 + CONCRETE PIER REPAIR PROGRESS SUFFICIENT FOR PUBLIC ACCESS & SAFETY

CONSTRUCTION ACCESS @ W. 6TH STREET  
 VIA EASEMENT ACROSS NORFOLK SOUTHERN MAINLINE TRACKS

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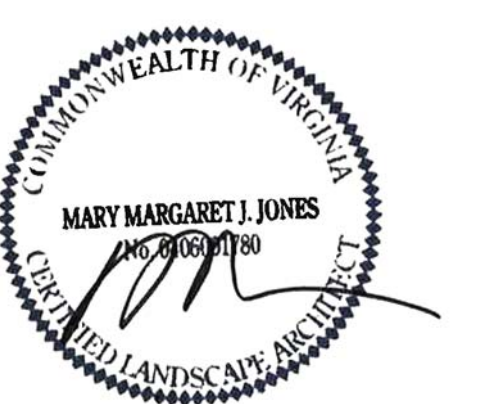
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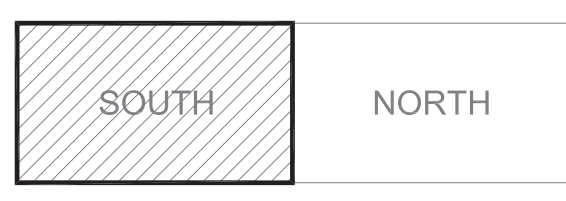


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KEY MAP



SHEET INFORMATION

Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=50'

SHEET TITLE

**CONSTRUCTION PHASING**  
**PRE-SEPT. 2015**  
**PLAN - SOUTH**

SHEET NO.

**G-031**

MATCH LINE SHEET 01/L-G-032



**CONTRACT DOCUMENTS**

- 1. THE WORK SHALL CONFORM TO THE CONTRACT DOCUMENTS.
2. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY. READ THE DRAWINGS IN CONJUNCTION WITH THE SPECIFICATIONS AND EXECUTE THE WORK AS THOUGH SHOWN ON ALL.
3. THE WORK IS DEPENDENT ON SEVERAL DISCIPLINES. READ THE DRAWINGS BY CROSS-REFERENCING BETWEEN DISCIPLINES.
4. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER'S REPRESENTATIVE FOR DIRECTION BEFORE PROCEEDING WITH THE WORK.

**SITE ACCESS & PROTECTION**

- 1. STAGING AREA IS WITHIN THE CONTRACT LIMIT LINE. STAGING AREA DOES NOT INCLUDE ACCESS ROUTES TO THE SITE. THE CONSTRUCTION (AND REMOVAL) OF TEMPORARY STAGING AREAS AND/OR ACCESS ROUTES SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY AND EXPENSE.
2. ALL CONSTRUCTION RELATED VEHICLES REQUIRED FOR THE WORK EXITING AND/OR ENTERING THE SITE SHALL NOT DEPOSIT DIRT, MUD, OR OTHER DELETERIOUS MATERIALS THAT WOULD PRESENT A NUISANCE OR HAZARD TO THE PUBLIC TRAVELING ON RIGHT OF WAYS. ALL PREVENTION AND CLEANING SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY AND EXPENSE.
3. NO WORK, EQUIPMENT OR STAGING IS PERMITTED IN THE RIGHT OF WAY AT ANY TIME UNLESS THE CONTRACTOR HAS APPROVAL FROM THE GOVERNMENT AUTHORITIES HAVING JURISDICTION. ALL COORDINATION PERMITS AND TRAFFIC CONTROL REQUIRED SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY AND EXPENSE.
4. THE DOCUMENTS DO NOT SPECIFY SAFETY MATERIALS, EQUIPMENT, METHODS OR SEQUENCING TO PROTECT PERSONS AND PROPERTY. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY AND EXPENSE TO DIRECT AND IMPLEMENT SAFETY OPERATIONS TO PROTECT PERSONS AND PROPERTY.

**QUALITY ASSURANCE**

- 1. EXECUTE THE WORK AND SCHEDULE INSPECTIONS IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL STANDARDS, LAWS AND REGULATIONS.
2. ENSURE SUBCONTRACTORS, MANUFACTURERS AND SUPPLIERS HAVE THE LATEST CONTRACT DOCUMENTS PRIOR TO THE SUBMITTAL OF THEIR SHOP DRAWINGS AND/OR DELEGATED DESIGN DRAWINGS.
3. REFER TO THE SPECIFICATION FOR REQUIRED SUBMITTALS, INSPECTIONS AND NOTICE PERIODS.

**EXISTING CONDITIONS SURVEY**

- 1. THE DOCUMENTS ARE BASED ON THE FOLLOWING TOPOGRAPHIC AND UTILITY SURVEY:
- H & B SURVEYING AND MAPPING, LLC SURVEY 'WR1312.01 Browns Island West - CADD File by H&B' DATED 11/15/2013 & 'WR1312.01 Browns Island Walkway- CADD File by H&B' DATED 10/07/2013, UNDERTAKEN BY IN-FIELD METHODS SUBJECT TO PRECISION AND ACCURACY TOLERANCES.
2. SURVEYED UNDERGROUND UTILITIES ARE PROVIDED FOR INFORMATION ONLY AS THEY ARE INFERRED BY SURFACE MARKINGS AND FEATURES AND AS SUCH MAY NOT BE ACCURATE OR COMPLETE.

**GEOTECHNICAL REPORT**

- 1. THE DOCUMENTS ARE BASED ON THE FOLLOWING GEOTECHNICAL REPORT:
- DMY INC. REPORT DATED AUGUST 2014, UNDERTAKEN BY IN-FIELD METHODS SUBJECT TO PRECISION AND ACCURACY TOLERANCES.
2. THE GEOTECHNICAL REPORT IS MADE AVAILABLE FOR INFORMATION ONLY AS SOME RECOMMENDATIONS IN THE REPORT MAY NOT BE RELEVANT OR USED IN THE DOCUMENTS.

**UTILITIES**

- 1. THE LOCATIONS AND SIZES OF EXISTING UTILITIES (IF SHOWN) ARE APPROXIMATE ONLY. IDENTIFY, LOCATE AND PROTECT ALL UNDERGROUND AND OVERHEAD UTILITIES TO REMAIN.
2. COORDINATE WITH THE LOCAL UTILITY COMPANIES AND/OR AGENCIES. NOTIFY THE LOCAL ONE CALL CENTER NO LESS THAN 72 HOURS PRIOR TO DIGGING TO LOCATE UNDERGROUND UTILITIES OR AS REQUIRED BY LOCAL REGULATIONS.
3. BE FULLY RESPONSIBLE FOR THE COST OF ANY AND ALL DAMAGES WHICH OCCUR AS A RESULT OF A FAILURE TO ACCURATELY LOCATE AND/OR RETAIN ANY AND/OR ALL UTILITIES TO REMAIN.
4. POWER SOURCE POINT OF CONNECTION LOCATIONS ON BOTH SIDES OF THE RIVER ARE ILLUSTRATED ON NON-FIELD VERIFIED GIS-QUALITY LINE WORK PROVIDED BY THE CITY OF RICHMOND, PLANNING & DESIGN REVIEW DEPARTMENT. THE DATA IS PROVIDED FOR CONTEXT & RELATIVE RELATIONSHIPS BETWEEN EXISTING INFRASTRUCTURE TO REMAIN, AND THE ANTICIPATED ROUTE OF UNDERGROUND ELECTRICAL CONDUIT TO BE PROVIDED BY CONTRACTOR. FIELD VERIFY.

**LAYOUT**

- 1. THE HORIZONTAL CONTROL FOR THE PROJECT IS: STATE PLANE COORDINATE SYSTEM NORTH AMERICAN DATUM (NAD83) UNLESS OTHERWISE NOTED.
2. THE VERTICAL CONTROL FOR THE PROJECT IS: NORTH AMERICAN VERTICAL DATUM (NAVD88) OR NATIONAL GEODETIC DATUM (NGVD29) UNLESS OTHERWISE NOTED.
3. VERIFY THE LOCATION OF EXISTING FEATURES TO REMAIN THAT CONNECT TO NEW WORK, ALL DIMENSIONAL CLEARANCES, SETBACKS AND OFFSETS AND VERTICAL DATUM. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER'S REPRESENTATIVE FOR DIRECTION BEFORE PROCEEDING WITH THAT PORTION OF THE WORK.
4. VERIFY ALL PREVIOUS UNDERLYING TRADEWORK CONFORMS TO THE DOCUMENTS PRIOR TO PROCEEDING WITH OVERLYING TRADEWORK. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER'S REPRESENTATIVE FOR DIRECTION BEFORE PROCEEDING WITH THAT PORTION OF THE WORK.
5. GENERAL CONTRACTOR SHALL RETAIN SURVEY CONTROL FOR LAYOUT OF THE WORKS AND AS-BUILT SURVEYS.
6. COORDINATE AND COLLATE SUBCONTRACTOR'S SURVEYS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY EXISTING SITE CONDITIONS AND EVOLVING SITE CONDITIONS PRIOR TO THE START OF ANY SITE WORK. ANY DISCREPANCY AND/OR UNFORESEEN CONDITIONS FOUND SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE OWNER'S REPRESENTATIVE PRIOR TO STARTING THE SITE WORK. DO NOT BEGIN WORK IN ANY SUCH AFFECTED AREA UNTIL THE DISCREPANCY HAS BEEN RESOLVED.
7. ERECT AND INSTALL ALL WORK LEVEL, PLUMB, SQUARE, TRUE, STRAIGHT AND IN PROPER ALIGNMENT.
8. DO NOT SCALE FROM DRAWINGS. USE DIMENSIONS SHOWN.

- 9. DIMENSIONS NOTED [CLR] OR CLEAR MUST BE STRICTLY MAINTAINED ALLOWING FOR THICKNESS OF ALL FINISHES. FIELD VERIFY PRIOR TO CONSTRUCTION.
10. ALL ANGLES ARE 90 DEGREES UNLESS OTHERWISE NOTED.
11. ALL CURVES FOR PAVING, BANDS, PATHS, EDGING AND HEADER BOARDS SHALL BE SMOOTH AND CONTINUOUS WITHOUT ABRUPT CHANGES, OBVIOUS TANGENTS OR BENDS.
12. PITCH EVENLY BETWEEN SPOT GRADES AND CONTOUR LINES UNLESS GRADE BREAKS, RIDGELINES, SWALES ARE INDICATED OR OTHERWISE NOTED. ALL PAVED AREAS SHALL PITCH AT A MINIMUM OF 1% UNLESS OTHERWISE NOTED ON DRAWINGS. ANY DISCREPANCIES OR CONDITIONS NOT ALLOWING THIS TO OCCUR SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE FOR RESOLUTION PRIOR TO CONTINUING WORK.
13. PEDESTRIAN SIDEWALKS AND PAVING SHALL HAVE A CROSS PITCH LESS THAN 2% UNLESS OTHERWISE NOTED TO MEET ADA REQUIREMENTS.
14. REQUEST A FIELD REVIEW BY THE LANDSCAPE ARCHITECT OF THE LAYOUT OF ELEMENTS AS SHOWN. STAKE ALL LOCATIONS. OBTAIN LANDSCAPE ARCHITECT'S APPROVAL OF LAYOUT BEFORE INSTALLING THE FOLLOWING;

- ALL SITE LIGHTING FIXTURES, JUNCTION BOXES, TRANSFORMERS,
- ALL SITE UTILITY FIXTURES, INCLUDING BUT NOT LIMITED TO BOXES, VAULTS, PULL BOXES, MAN HOLES, AIR RELEASE VALVES, VENTS, BFF, AND OTHER CIVIL, MECHANICAL, ELECTRICAL, PLUMBING, TELECOM, HEATING/COOLING, AND IRRIGATION STRUCTURES,
- ALL FORMWORK OR A TYPICAL FORMWORK PORTION REPRESENTING SIMILAR WORK. OBTAIN LANDSCAPE ARCHITECTS APPROVAL OF FORMWORK FOR FLATWORK AND WALL WORK PRIOR TO CONCRETE POURING,
- ALL TREE LOCATIONS. STAKE ALL TREE LOCATIONS. OBTAIN APPROVAL OF LANDSCAPE ARCHITECT BEFORE PLANTING TREES,
- ALL CURVED EDGING AND CUTTING,
- EXPANSION JOINTS IN CONCRETE PAVING,
15. COORDINATE PLANT LAYOUT WITH IRRIGATION EQUIPMENT LAYOUT. PLANT LAYOUT TAKES PRECEDENCE OVER IRRIGATION EQUIPMENT LAYOUT.

**WATERING**

- 1. AREAS NOT SHOWN TO BE IRRIGATED PERMANENTLY BUT ARE PLANTED SHALL BE WATERED BY TEMPORARY MEANS UNTIL PLANTS ARE ESTABLISHED.
2. TEMPORARY WATERING MEANS, METHODS AND SCHEDULING SHALL BE THE CONTRACTORS' RESPONSIBILITY. REMOVE ALL TEMPORARY WATERING EQUIPMENT UPON PLANT ESTABLISHMENT.

**WORK BY OTHERS**

- 1. COOPERATE AND COORDINATE WITH OTHER CONTRACTORS WORKING CONCURRENTLY SO AS TO NOT VIOLATE EACH OTHER'S PERMITS AND TO AVOID DAMAGE TO EACH OTHER'S WORK. OTHER CONTRACTS THAT MAY BE ACTIVE DURING THIS WORK ARE:
- UTILITY INSTALLATION,
- STRUCTURAL,
- GRADING, SUBDRAINAGE AND UTILITIES, RIVER WORK, PLANTING,
2. EACH CONTRACTOR SHALL PROTECT AND MAINTAIN THEIR OWN WORK FOR THE DURATION OF THEIR CONTRACTS.

**CODE COMPLIANCE**

- 1. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LAWS, CODES AND REQUIREMENTS OF REGULATORY AGENCIES HAVING JURISDICTION.
2. NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCY BETWEEN THE WORK AND APPLICABLE CODES. DO NOT WORK IN ANY SUCH AFFECTED AREA UNTIL THE DISCREPANCY HAS BEEN RESOLVED.
3. VERIFY ALL CODES IN EFFECT AT THE TIME OF THE NOTICE TO PROCEED AND STAY CURRENT WITH ALL CODE CHANGES WHICH AFFECT THE WORK UNTIL SUBSTANTIAL COMPLETION.
4. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN AND PAY FOR ALL CONSTRUCTION RELATED PERMITS.

**CODES IN EFFECT**

- 1. THE FOLLOWING CODES ARE APPLICABLE AND IN EFFECT:
- 2003 IBC-INTERNATIONAL BUILDING CODE
- ASCE 7-02 (WIND DESIGN)
- ACI 318-02 (CONCRETE DESIGN)
- AISC LRFD 3RD (EDITION OR ASD 8TH EDITION) NOTED BELOW
- 2000-IFC-INTERNATIONAL FIRE CODE
- 2000-UMC- UNIFORM MECHANICAL CODE
- 2000-UPC-UNIFORM PLUMBING CODE
- 2005-NEC-NATIONAL ELECTRIC CODE
- CITY OF RICHMOND SIGN CODE
- AISC LRFD 3RD EDITION OR ASD 8TH EDITION
- CITY OF RICHMOND TREE AND SHRUB ORDINANCE
- CITY OF RICHMOND NOISE ORDINANCE
2. ANY REVISIONS TO THE APPROVED AND PERMITTED DRAWINGS OR DOCUMENTS SHALL BE SUBMITTED TO THE CITY BUILDING DEPARTMENT FOR REVIEW. NOTIFY THE OWNER'S REPRESENTATIVE OF THE PROCESSING TIME FOR EACH REVISION SUBMITTED FOR PLAN CHECK.

**COPYRIGHT AND REPRODUCTION**

- 1. THE USE OF REPRODUCTIONS OF THE CONTRACT DOCUMENTS OR ELECTRONIC FILES AS SHOP DRAWING DOCUMENTS BY THE CONTRACTOR IS AT THEIR OWN RISK. THE DESIGN CONSULTANTS ASSUME NO LIABILITY AS A RESULT OF THE USE OF REPRODUCTIONS OF THE CONTRACT DOCUMENTS FOR SHOP DRAWINGS AND/OR DELEGATED DESIGN DRAWINGS.
2. THE ENTIRE CONTRACT DOCUMENT PACKAGE HEREIN IS THE ORIGINAL AND UNPUBLISHED PROPERTY OF CITY OF RICHMOND AND MAY NOT BE DUPLICATED, USED OR DISCLOSED WITHOUT THE PRIOR EXPLICIT WRITTEN CONSENT OF PLANNING & DEVELOPMENT REVIEW.
3. THE USE OF DIGITAL DESIGN FILES SHALL REQUIRE THE CONTRACTOR TO AGREE TO PRIME CONSULTANT'S LICENSE CONDITIONS BEFORE USE.

**CONSTRUCTION LOADS, DAMAGES & REPAIRS**

- 1. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR SLOPE STABILITY AND DEWATERING DURING THE WORKS UNLESS UNKNOWN CONDITIONS ARE ENCOUNTERED.
2. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROTECTING THE WORKS FROM CONSTRUCTION LOADS AND DAMAGES TO EXISTING STRUCTURES TO REMAIN, NEW STRUCTURES AND NEW PAVEMENTS DURING THE WORKS.

- 3. BE FULLY RESPONSIBLE FOR THE COST OF ANY AND ALL DAMAGES WHICH OCCUR AS A RESULT OF A FAILURE TO MITIGATE CONSTRUCTION LOADS AND/OR PROTECT THE WORKS FROM ANY CONSTRUCTION RELATED IMPACTS. REPAIRS SHALL BE TO A NEW OR BETTER CONDITION COMPARED TO THE EXISTING CONDITION BEFORE DAMAGE, AND AS APPROVED BY THE OWNER'S REPRESENTATIVE.
4. ON-GRADE PAVEMENTS HAVE BEEN ENGINEERED TO SUPPORT VEHICLE LOADING UP TO 4 TON, AS THE BASIS OF DESIGN.
5. CONFIRM ON-STRUCTURE UNIFORM AND POINT LOAD LIMITS WITH ENGINEER PRIOR TO IMPORTING AND HANDLING LANDSCAPE MATERIALS OVER VAULTS, AND/OR TUNNELS, INCLUDING UTILITY STRUCTURES, AND FLOOD CONTROL STRUCTURES.

**CONSTRUCTION WASTE MANAGEMENT**

- 1. REMOVE FROM THE SITE ANY EXCESS MATERIAL AND/OR DEBRIS. DISPOSAL OF MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL EXCESS MATERIAL AND/OR DEBRIS NOT ABLE TO BE RECYCLED OR REUSED SHALL BE DISPOSED OF OFF THE PROJECT SITE IN A PERMITTED LANDFILL.

**ABBREVIATIONS**

Table with 2 columns: Abbreviation and Full Name. Includes terms like AMP (AMPERE), BFP (BACKFLOW PREVENTER), DAT (DATUM), GALV (GALVANIZED), H (HIGH), ID (INSIDE DIMENSION), etc.

**SYMBOLS**

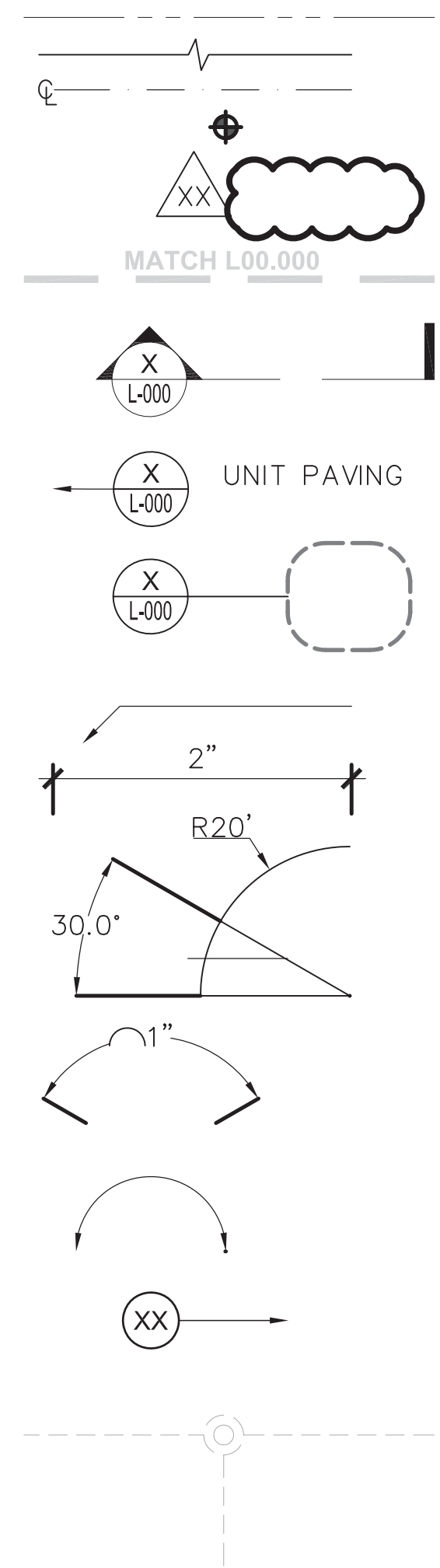


Table with 2 columns: Abbreviation and Full Name. Includes terms like OH (OVERHANG), PB (PULL BOX), PC (POINT OF CURVE), PCC (PRECAST CONCRETE), PERF (PERFORATED), PERP (PERPENDICULAR), PH (PHASE), PI (POINT OF INTERSECTION), etc.

**PROJECT INFORMATION**

Richmond, Virginia Riverfront Improvements: Priority 1
T. TYLER
POTTERFIELD MEMORIAL BRIDGE
RICHMOND, VIRGINIA

**CITY OF RICHMOND**

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**SEAL/SIGNATURE**



**ISSUE**

**REVISIONS**

Table with 3 columns: NO., DESCRIPTION, DATE. Lists revision history for Schematic Design, Design Development, 85% Construction, and Bid Set.

**KEY MAP**

**SHEET INFORMATION**

Project No.: RVA 1301
Drawn By: ML
Checked By: KR
Date: 10/24/2014
Scale: NTS

**SHEET TITLE**

LANDSCAPE GENERAL NOTES & ABBREVIATIONS

**SHEET NO.**

L-001





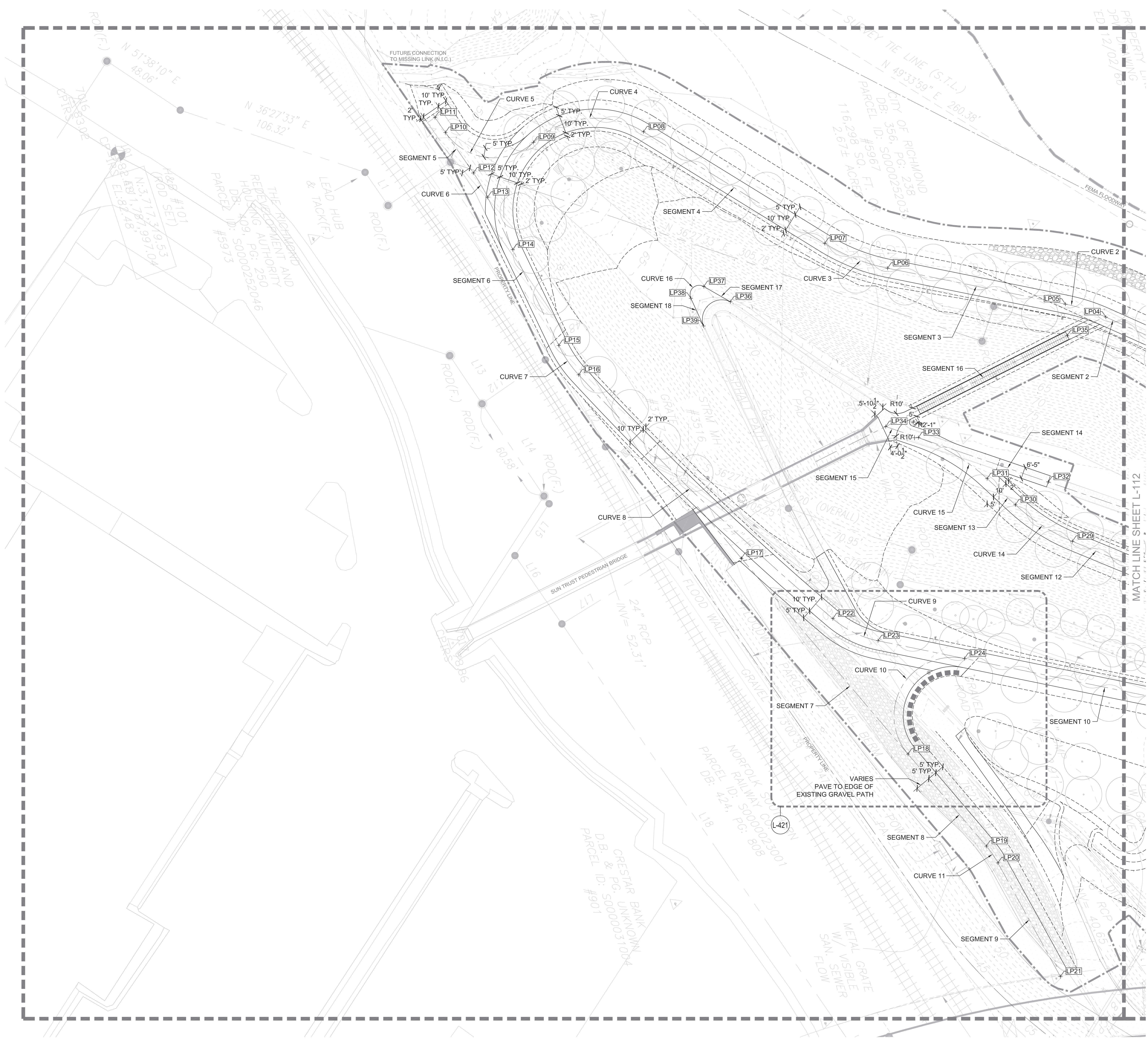












**SHEET NOTES**

- SEE SHEET L-001 FOR GENERAL LANDSCAPE NOTES, ABBREVIATIONS & SYMBOLS.
- SEE LANDSCAPE MATERIALS PLANS AND PLANTING PLANS FOR RELATIONSHIP OF MATERIALS AND PLANTING.
- SEE LANDSCAPE FURNITURE, RAILING, LIGHTING & SIGNAGE PLANS AND PLANTING PLANS AND ENLARGEMENTS FOR ADDITIONAL LAYOUT INFORMATION.
- PROVIDE SLEEVES UNDER PAVEMENTS FOR CIVIL AND LANDSCAPING SUBDRAINAGE AS NECESSARY. SEE CIVIL DWGS: LANDSCAPE PLANTING PLANS AND DETAILS; AND LANDSCAPE SOILS AND SUBDRAINAGE PLANS.

**LEGEND**

- LIMIT OF WORK
- LAYOUT CENTER LINE
- LAYOUT POINT
- PAVING LAYOUT LINE
- GRADING BREAK LINE

**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
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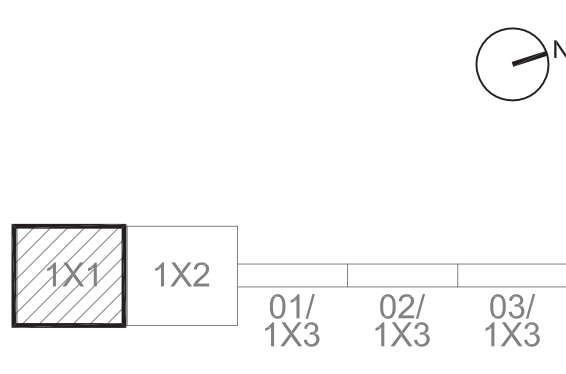


ISSUE

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 03-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

**KEY MAP**



**SHEET INFORMATION**

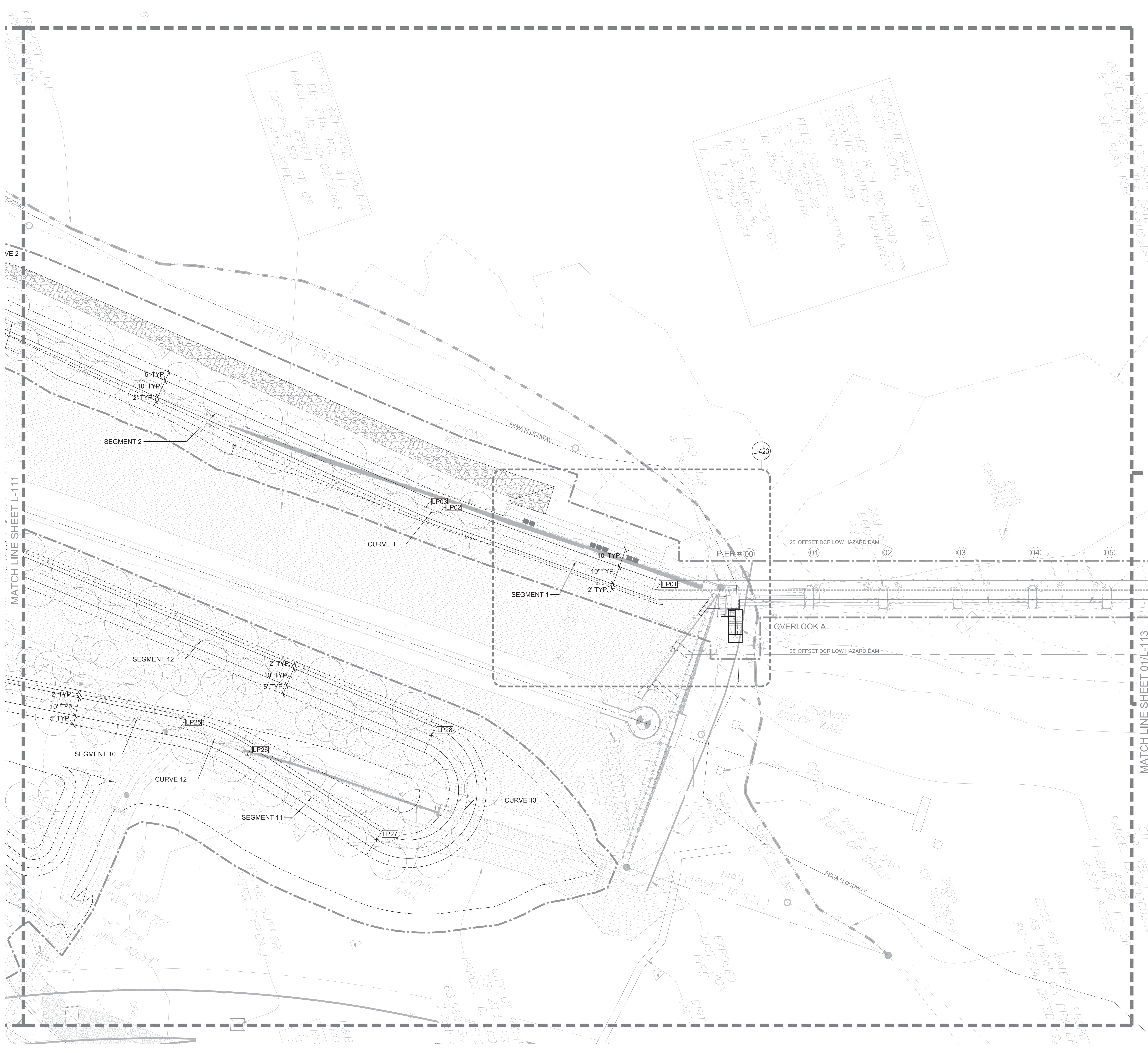
Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=20'

**SHEET TITLE**

**LANDSCAPE LAYOUT PLAN**

SHEET NO.

**L-111**



**SHEET NOTES**

- SEE SHEET L-001 FOR GENERAL LANDSCAPE NOTES, ABBREVIATIONS & SYMBOLS.
- SEE LANDSCAPE MATERIALS PLANS AND PLANTING PLANS FOR RELATIONSHIP OF MATERIALS AND PLANTING.
- SEE LANDSCAPE FURNITURE, RAILING, LIGHTING & SIGNAGE PLANS AND PLANTING PLANS AND ENLARGEMENTS FOR ADDITIONAL LAYOUT INFORMATION.
- PROVIDE SLEEVES UNDER PAVEMENTS FOR CIVIL AND LANDSCAPING SUBDRAINAGE AS NECESSARY. SEE CIVIL DWGS: LANDSCAPE PLANTING PLANS AND DETAILS; AND LANDSCAPE SOILS AND SUBDRAINAGE PLANS.

**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront Improvements: Priority 1  
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**LEGEND**

- LIMIT OF WORK
- - - LAYOUT CENTER LINE
- ⊕ LPXX LAYOUT POINT
- PAVING LAYOUT LINE
- - - GRADING BREAK LINE

SEAL/SIGNATURE

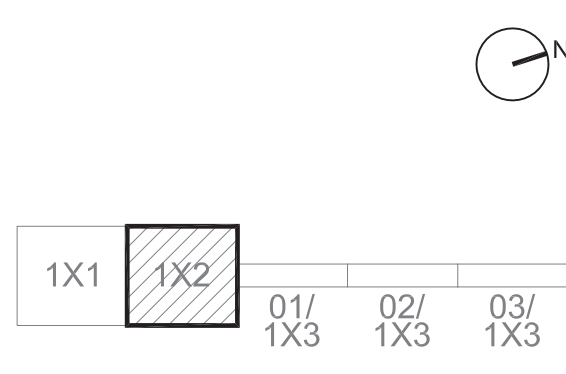


ISSUE

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 03-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

**KEY MAP**



**SHEET INFORMATION**

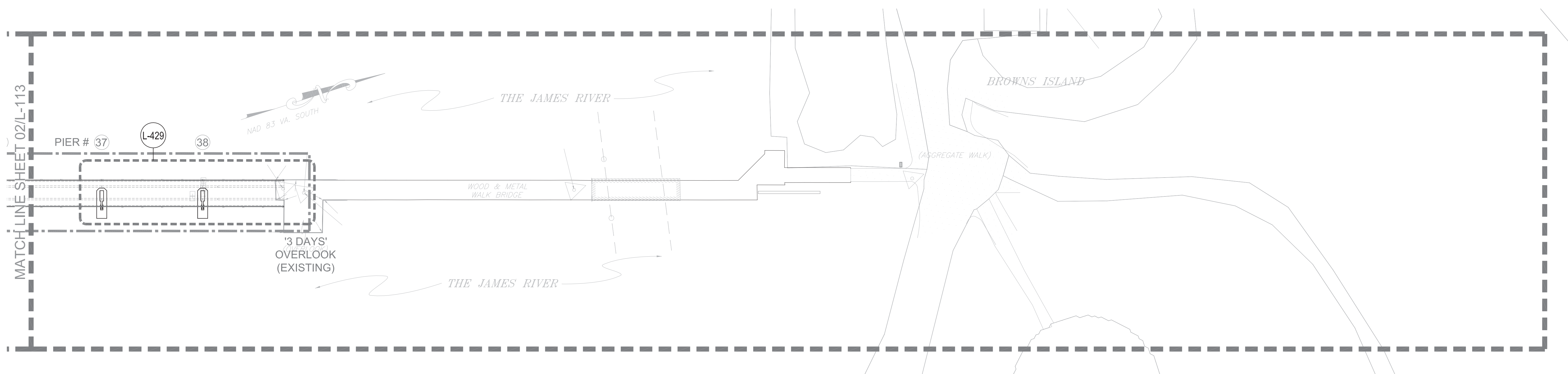
Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=20'

**SHEET TITLE**

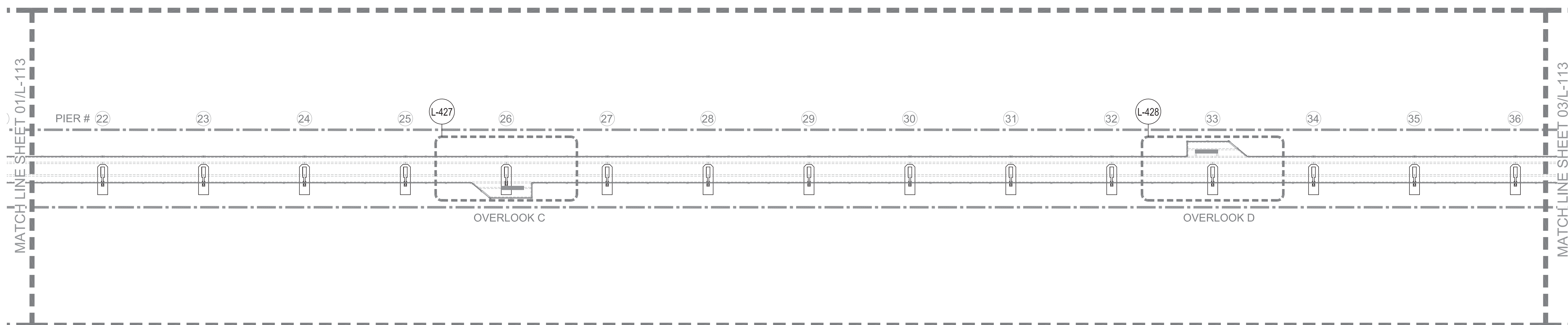
**LANDSCAPE LAYOUT PLAN**

SHEET NO.

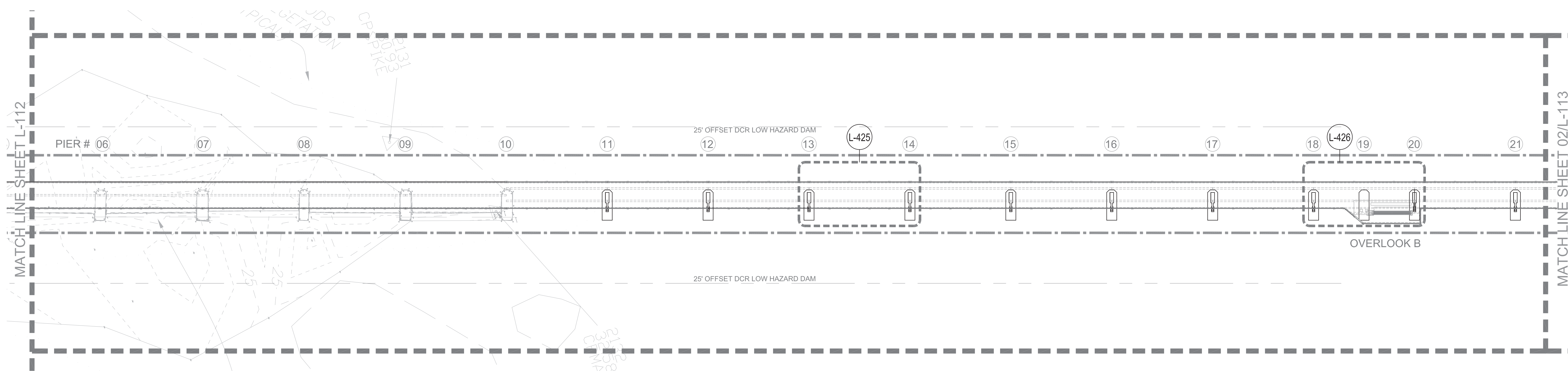
**L-112**



03 LAYOUT PLAN  
SCALE: AS SHOWN



02 LAYOUT PLAN  
SCALE: AS SHOWN



01 LAYOUT PLAN  
SCALE: AS SHOWN

**SHEET NOTES**

- SEE SHEET L-001 FOR GENERAL LANDSCAPE NOTES, ABBREVIATIONS & SYMBOLS.
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**PROJECT INFORMATION**  
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**LEGEND**

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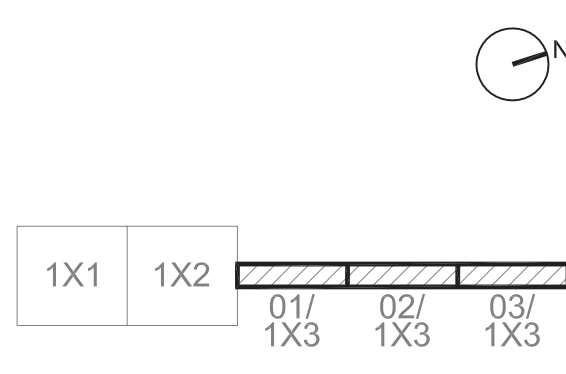


ISSUE

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 02-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

KEY MAP



**SHEET INFORMATION**

Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=20'

SHEET TITLE

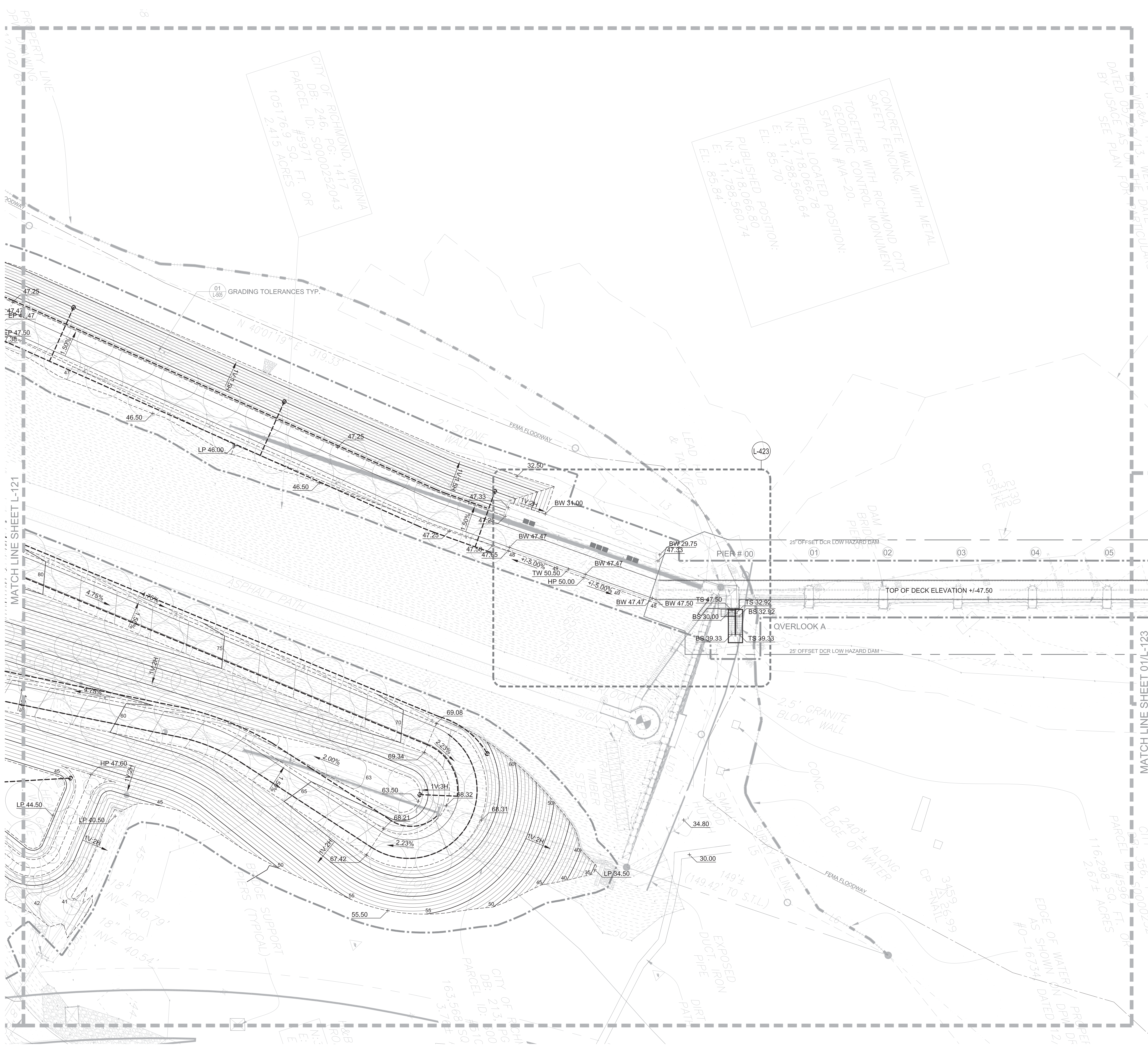
**LANDSCAPE LAYOUT PLAN**

SHEET NO.

**L-113**







**SHEET NOTES**

- SEE SHEET L-001 FOR GENERAL LANDSCAPE NOTES, ABBREVIATIONS & SYMBOLS.
- SEE LANDSCAPE LAYOUT PLANS, LANDSCAPE FURNITURE, RAILING, LIGHTING & SIGNAGE PLANS, PLANTING PLANS AND ENLARGEMENTS FOR LAYOUT INFORMATION. PROVIDE SLEEVES UNDER PAVEMENTS FOR CIVIL AND LANDSCAPING SUBDRAINAGE AS NECESSARY. SEE CIVIL DWGS: LANDSCAPE PLANTING PLANS AND DETAILS; AND LANDSCAPE SOILS AND SUBDRAINAGE PLANS FOR LOCATION, TYPE, AND LAYOUT.
- SEE DETAIL 01L-505 GRADING TOLERANCES TYP. FOR REFERENCE.

**LEGEND**

- LIMIT OF WORK
- EXISTING CONTOUR
- PROPOSED CONTOUR (MAJOR)
- PROPOSED CONTOUR (MINOR)
- BREAK LINE
- SPOT GRADE
- SLOPE
- TREE UNDERDRAIN
- TREE UNDERDRAIN - OUTFALL SEE CIVIL DWGS

**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront Improvements: Priority 1  
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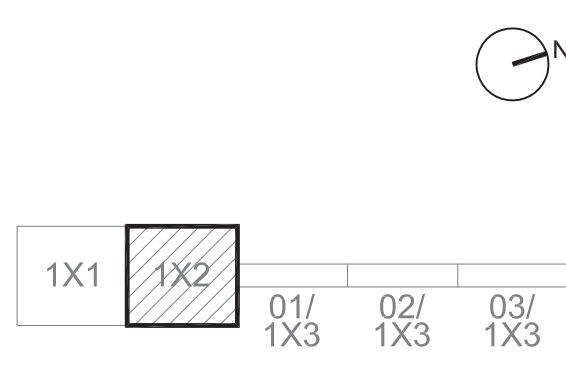


ISSUE

REVISIONS

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 03-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

KEY MAP



SHEET INFORMATION

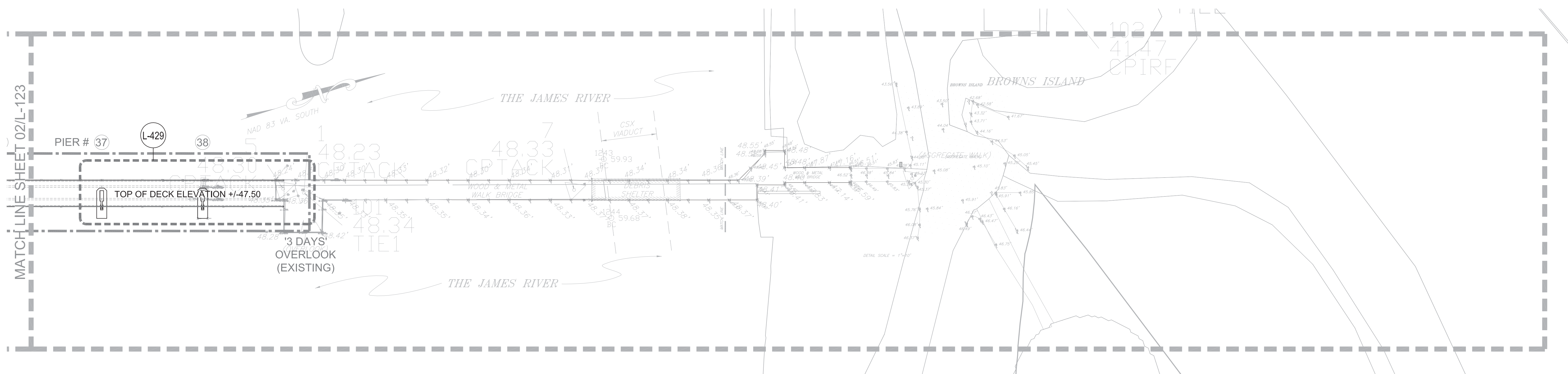
Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=20'

SHEET TITLE

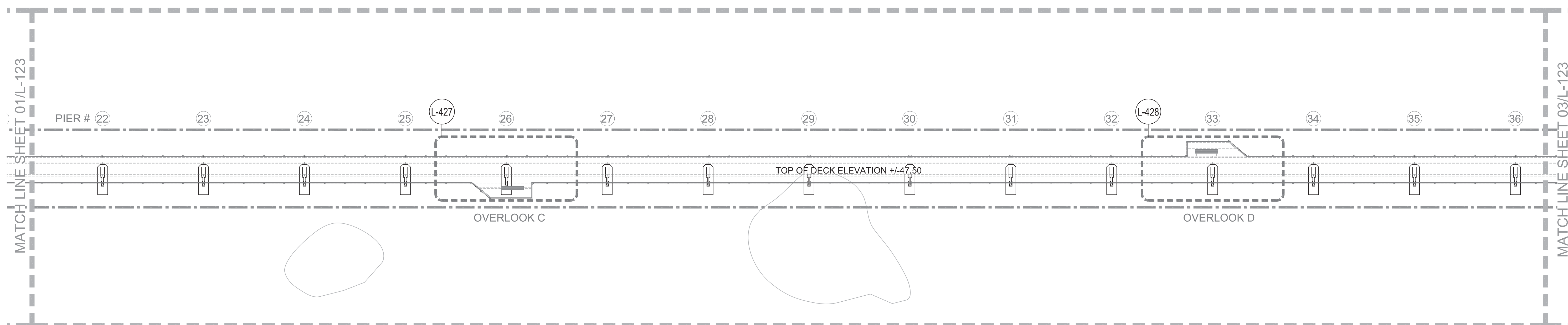
**LANDSCAPE GRADING PLAN**

SHEET NO.

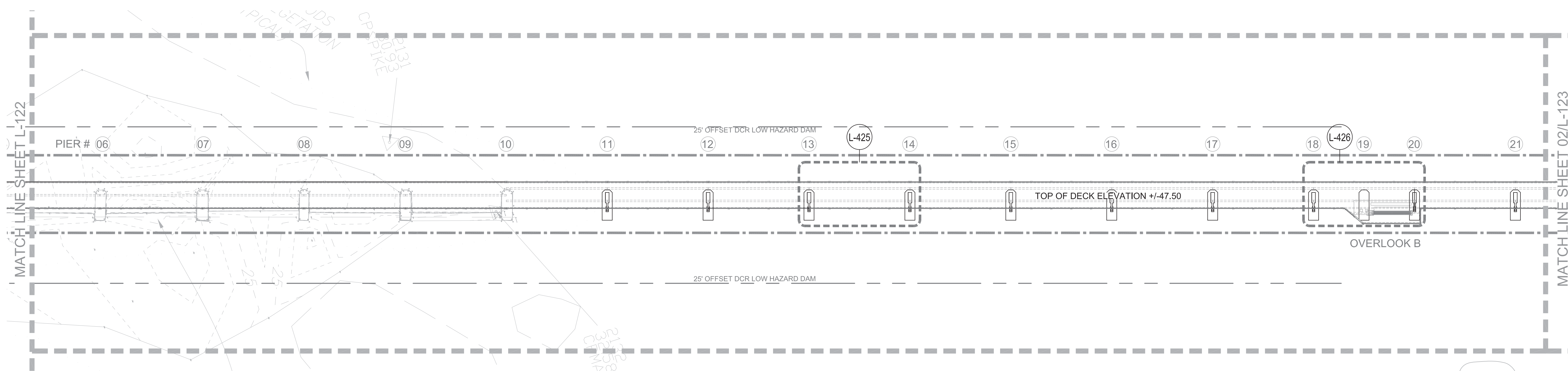
**L-122**



03 GRADING PLAN  
SCALE: AS SHOWN



02 GRADING PLAN  
SCALE: AS SHOWN



01 GRADING PLAN  
SCALE: AS SHOWN

**SHEET NOTES**

- SEE SHEET L-001 FOR GENERAL LANDSCAPE NOTES, ABBREVIATIONS & SYMBOLS.
- SEE LANDSCAPE LAYOUT PLANS, LANDSCAPE FURNITURE, RAILING, LIGHTING & SIGNAGE PLANS, PLANTING PLANS AND ENLARGEMENTS FOR LAYOUT INFORMATION. PROVIDE SLEEVES UNDER PAVEMENTS FOR CIVIL AND LANDSCAPING SUBDRAINAGE AS NECESSARY. SEE CIVIL DWGS: LANDSCAPE PLANTING PLANS AND DETAILS; AND LANDSCAPE SOILS AND SUBDRAINAGE PLANS FOR LOCATION, TYPE, AND LAYOUT.
- SEE DETAIL 01L-505 GRADING TOLERANCES TYP. FOR REFERENCE.

**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
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**Geotechnical**  
**DMY INC.**  
 14241 Midlothian Turnpike, Suite 230  
 Midlothian, VA 23113  
 www.dmy-inc.com

**LEGEND**

- LIMIT OF WORK
- - - - - EXISTING CONTOUR
- PROPOSED CONTOUR (MAJOR)
- PROPOSED CONTOUR (MINOR)
- - - - - BREAK LINE
- XX.XX SPOT GRADE
- X.XX% SLOPE
- - - - - TREE UNDERDRAIN
- ☉ TREE UNDERDRAIN - OUTFALL  
SEE CIVIL DWGS

**SEAL/SIGNATURE**

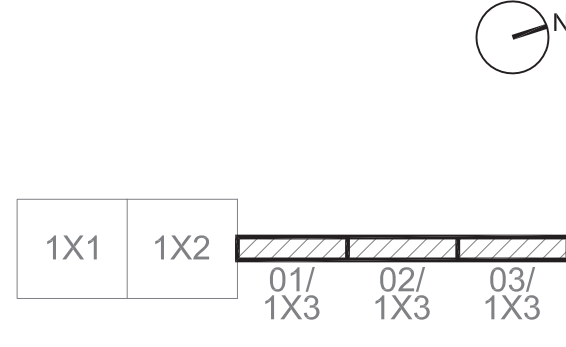


**ISSUE**

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
|     | SCHEMATIC DESIGN   | 02-28-2014 |
|     | DESIGN DEVELOPMENT | 06-27-2014 |
|     | 85% CONSTRUCTION   | 10-03-2014 |
|     | BID SET            | 10-24-2014 |

**KEY MAP**



**SHEET INFORMATION**

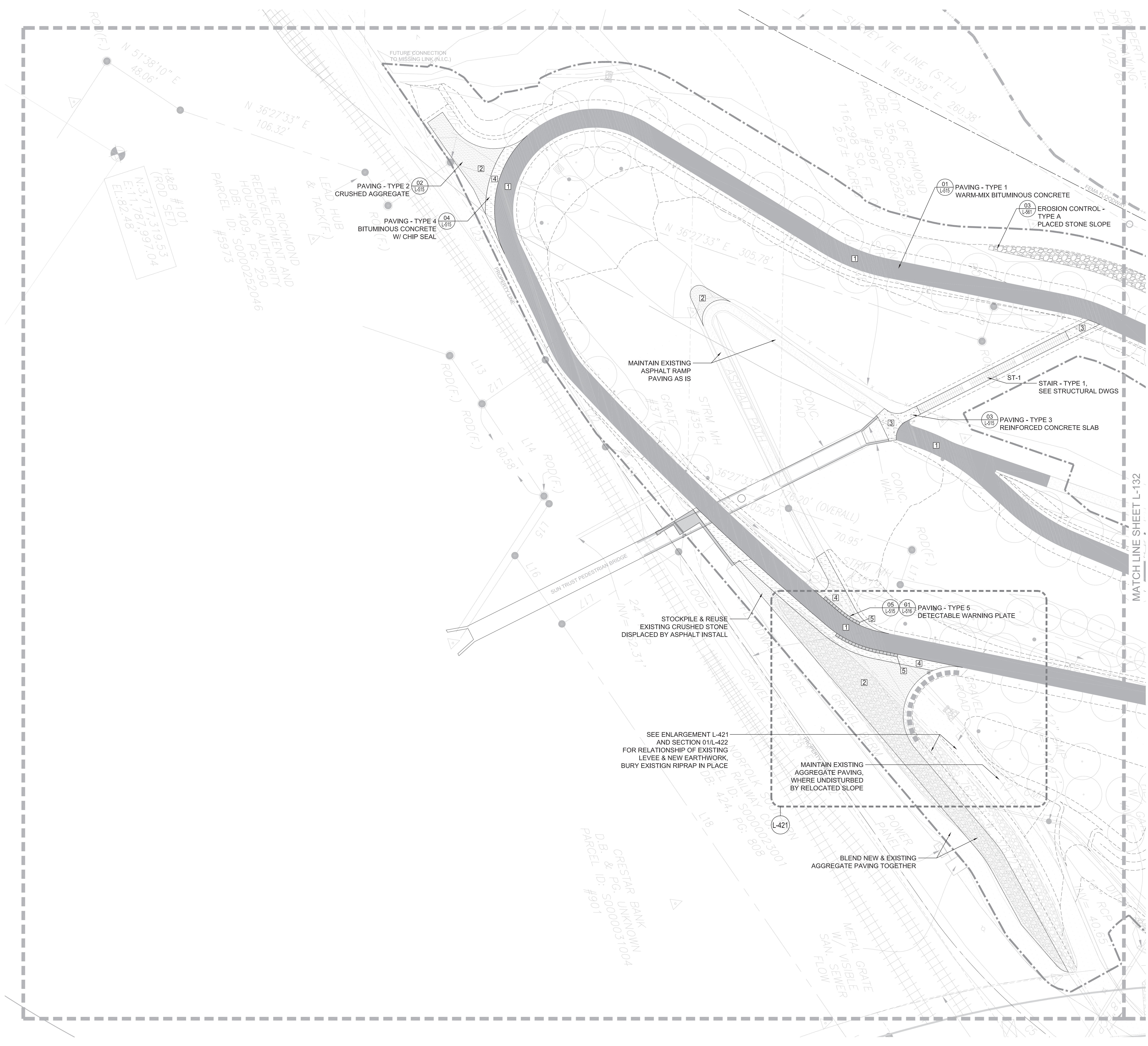
Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=20'

**SHEET TITLE**

**LANDSCAPE GRADING PLAN**

**SHEET NO.**

**L-123**



**SHEET NOTES**

- SEE SHEET L-001 FOR GENERAL LANDSCAPE NOTES, ABBREVIATIONS & SYMBOLS.
- SEE SHEET L-030 FOR MATERIALS SCHEDULE.
- SEE LAYOUT PLANS L-111, L-112, AND ENLARGEMENTS L-421 TO L-430 FOR LAYOUT AND DIMENSIONS OF MATERIALS.

**LEGEND**

- LIMIT OF WORK
- 1 PAVING - TYPE 1 (01 L-515)
- 2 PAVING - TYPE 2 (02 L-515)
- 3 PAVING - TYPE 3 (03 L-515)
- 4 PAVING - TYPE 4 (04 L-515)
- 5 PAVING - TYPE 5 (05 L-515)
- A EROSION CONTROL - TYPE A
- WL-1 WALL - TYPE 1
- DKG-1 DECKING - TYPE 1
- - - - - DEMOLITION / REMOVAL
- ST-1 STAIR - TYPE 1
- ST-2 STAIR - TYPE 2

**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront Improvements: Priority 1  
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SEAL/SIGNATURE

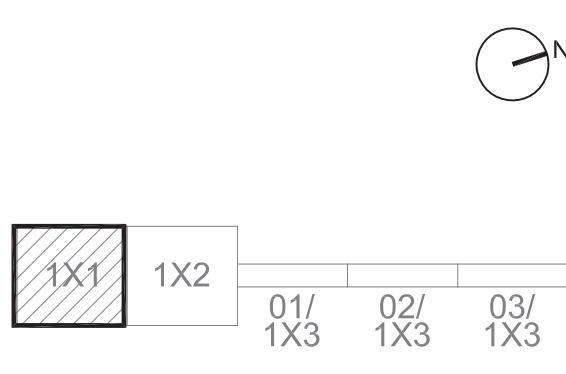


ISSUE

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
|     | SCHEMATIC DESIGN   | 03-28-2014 |
|     | DESIGN DEVELOPMENT | 06-27-2014 |
|     | 85% CONSTRUCTION   | 10-03-2014 |
|     | BID SET            | 10-24-2014 |

**KEY MAP**



**SHEET INFORMATION**

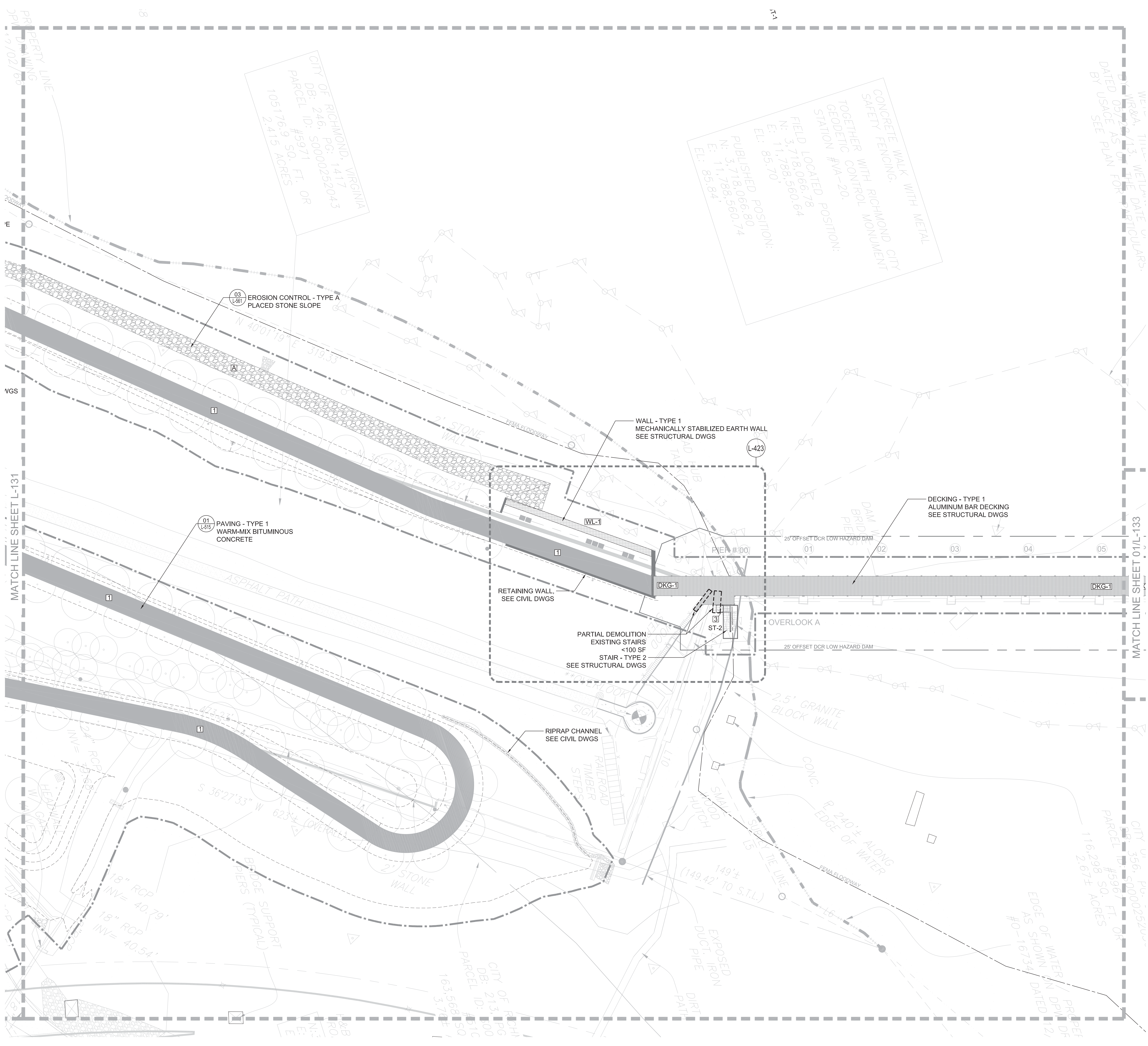
Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=20'

**SHEET TITLE**

**LANDSCAPE MATERIALS PLAN**

SHEET NO.

**L-131**



### SHEET NOTES

- SEE SHEET L-001 FOR GENERAL LANDSCAPE NOTES, ABBREVIATIONS & SYMBOLS.
- SEE SHEET L-030 FOR MATERIALS SCHEDULE.
- SEE LAYOUT PLANS L-111, L-112, AND ENLARGEMENTS L-421 TO L-430 FOR LAYOUT AND DIMENSIONS OF MATERIALS.

**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront  
 Improvements: Priority 1  
**T. TYLER  
 POTTERFIELD  
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### LEGEND

- LIMIT OF WORK
- 1 PAVING - TYPE 1 (01 L-515)
- 2 PAVING - TYPE 2 (02 L-515)
- 3 PAVING - TYPE 3 (03 L-515)
- 4 PAVING - TYPE 4 (04 L-515)
- 5 PAVING - TYPE 5 (05 L-515)
- A EROSION CONTROL - TYPE A
- WL-1 WALL - TYPE 1
- DKG-1 DECKING - TYPE 1
- DEMOLITION / REMOVAL
- ST-1 STAIR - TYPE 1
- ST-2 STAIR - TYPE 2

### SEAL/SIGNATURE

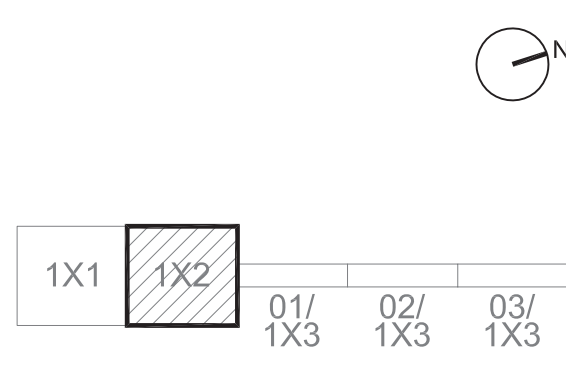


### ISSUE

### REVISIONS

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 03-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

### KEY MAP



### SHEET INFORMATION

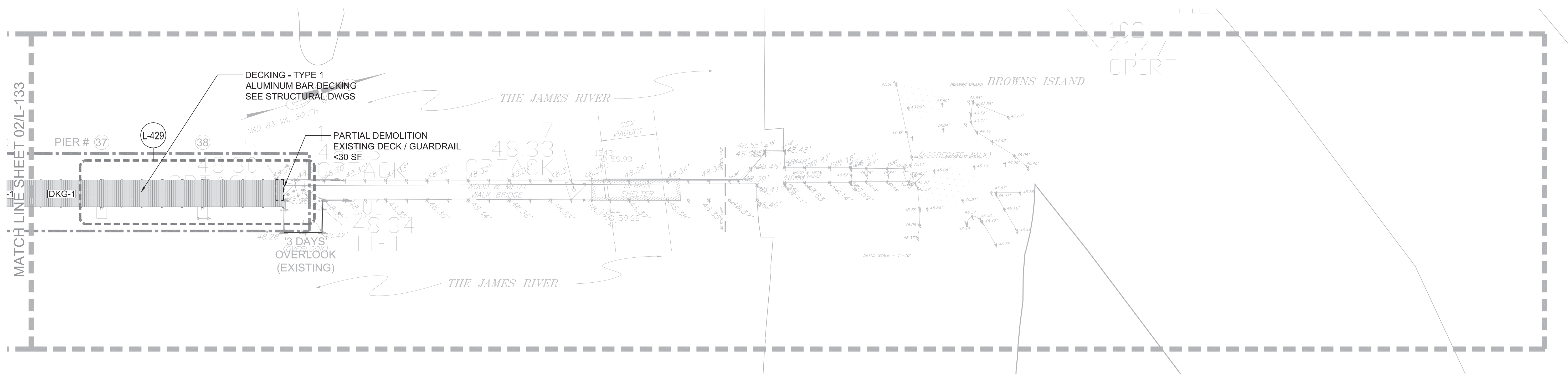
Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=20'

### SHEET TITLE

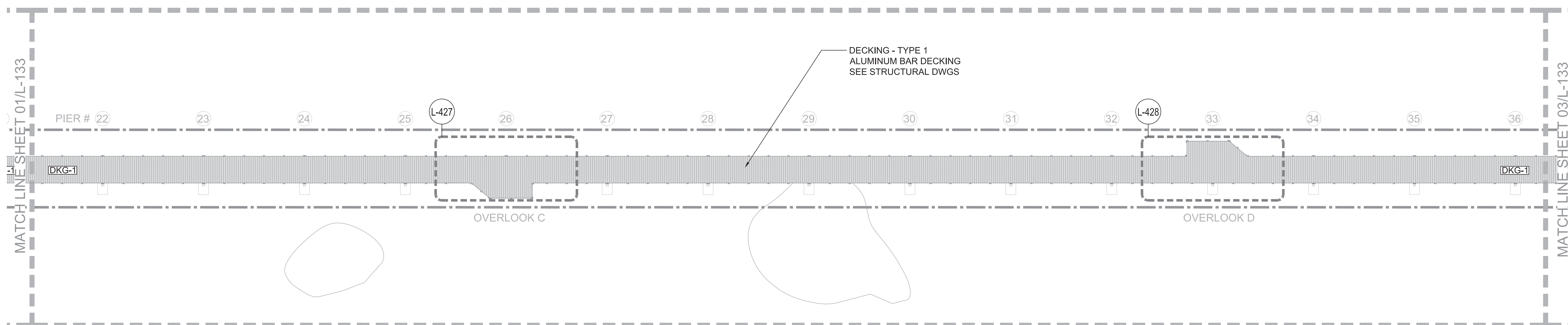
**LANDSCAPE  
 MATERIALS  
 PLAN**

### SHEET NO.

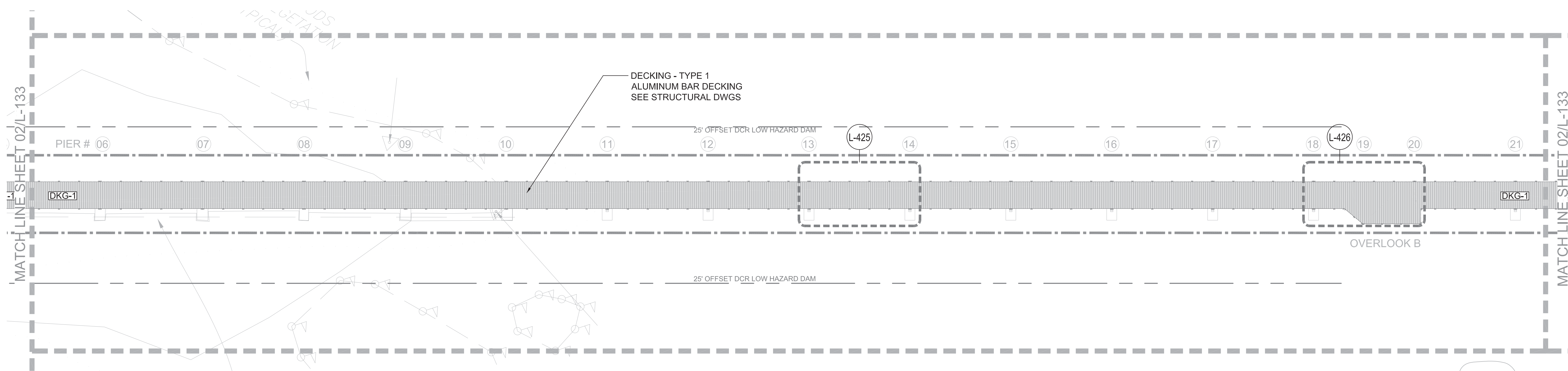
**L-132**



03 MATERIALS PLAN  
SCALE: AS SHOWN



02 MATERIALS PLAN  
SCALE: AS SHOWN



01 MATERIALS PLAN  
SCALE: AS SHOWN

**SHEET NOTES**

- SEE SHEET L-001 FOR GENERAL LANDSCAPE NOTES, ABBREVIATIONS & SYMBOLS.
- SEE SHEET L-030 FOR MATERIALS SCHEDULE.
- SEE LAYOUT PLANS L-111, L-112, AND ENLARGEMENTS L-421 TO L-430 FOR LAYOUT AND DIMENSIONS OF MATERIALS.

**PROJECT INFORMATION**

Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
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**LEGEND**

- LIMIT OF WORK
- 1 PAVING - TYPE 1 (01 L-515)
- 2 PAVING - TYPE 2 (02 L-515)
- 3 PAVING - TYPE 3 (03 L-515)
- 4 PAVING - TYPE 4 (04 L-515)
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- - - DEMOLITION / REMOVAL
- ST-1 STAIR - TYPE 1
- ST-2 STAIR - TYPE 2

**SEAL/SIGNATURE**

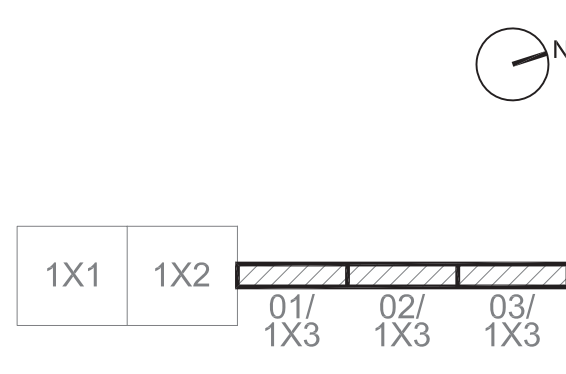


**ISSUE**

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
|     | SCHEMATIC DESIGN   | 03-28-2014 |
|     | DESIGN DEVELOPMENT | 06-27-2014 |
|     | 85% CONSTRUCTION   | 10-03-2014 |
|     | BID SET            | 10-24-2014 |

**KEY MAP**



**SHEET INFORMATION**

Project No.: RVA 1301  
Drawn By: ML  
Checked By: KR  
Date: 10/24/2014  
Scale: 1"=20'

**SHEET TITLE**

**LANDSCAPE MATERIALS PLAN**

**SHEET NO.**

**L-133**

PROJECT INFORMATION

Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER**  
**POTTERFIELD**  
**MEMORIAL BRIDGE**  
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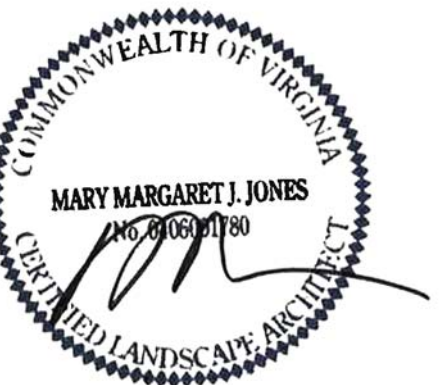
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SEAL/SIGNATURE



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REVISIONS

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
|     | SCHEMATIC DESIGN   | 02-28-2014 |
|     | DESIGN DEVELOPMENT | 06-27-2014 |
|     | 85% CONSTRUCTION   | 10-03-2014 |
|     | BID SET            | 10-24-2014 |

KEY MAP



|     |     |        |        |        |
|-----|-----|--------|--------|--------|
| 1X1 | 1X2 | 01/1X3 | 02/1X3 | 03/1X3 |
|-----|-----|--------|--------|--------|

SHEET INFORMATION

Project No.: RVA 1301  
Drawn By: ML  
Checked By: KR  
Date: 10/24/2014  
Scale: NTS

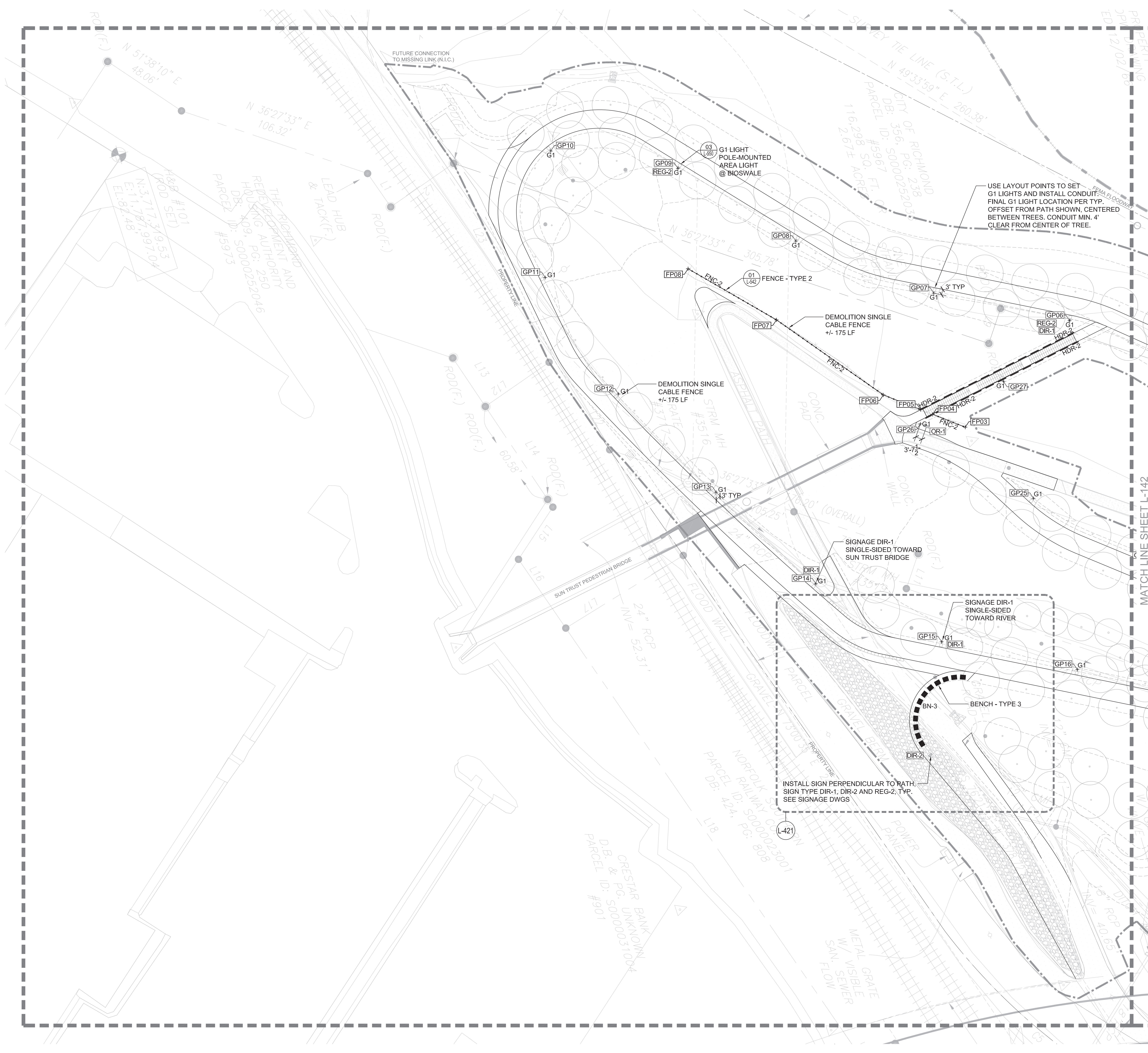
SHEET TITLE

**LANDSCAPE**  
**FURNITURE, RAILING,**  
**LIGHTING & SIGNAGE**  
**PLAN LAYOUT DATA**  
SHEET NO.

**L-140**

| LIGHTPOLE LAYOUT POINTS |              |               |
|-------------------------|--------------|---------------|
| GPXX                    | NORTHING     | EASTING       |
| GP01                    | 3718065.5290 | 11788481.7576 |
| GP02                    | 3718005.9833 | 11788436.1581 |
| GP03                    | 3717948.1466 | 11788386.5283 |
| GP04                    | 3717892.2597 | 11788336.3126 |
| GP05                    | 3717837.0527 | 11788286.7078 |
| GP06                    | 3717781.9481 | 11788240.4029 |
| GP07                    | 3717716.5338 | 11788203.7154 |
| GP08                    | 3717654.1080 | 11788153.9855 |
| GP09                    | 3717605.4140 | 11788096.9434 |
| GP10                    | 3717542.7630 | 11788066.8345 |
| GP11                    | 3717518.9304 | 11788131.1484 |
| GP12                    | 3717537.3375 | 11788203.2921 |
| GP13                    | 3717571.3237 | 11788270.1425 |
| GP14                    | 3717607.5277 | 11788333.8715 |
| GP15                    | 3717662.7061 | 11788384.6686 |
| GP16                    | 3717728.0277 | 11788421.5209 |
| GP17                    | 3717793.3744 | 11788458.3874 |
| GP18                    | 3717859.7070 | 11788501.4746 |
| GP19                    | 3717909.1216 | 11788560.2195 |
| GP20                    | 3717951.3794 | 11788573.6917 |
| GP21                    | 3717958.2909 | 11788524.3061 |
| GP22                    | 3717901.1571 | 11788475.7336 |
| GP23                    | 3717844.0767 | 11788427.2065 |
| GP24                    | 3717786.9246 | 11788378.5874 |
| GP25                    | 3717733.8710 | 11788326.0195 |
| GP26                    | 3717687.9452 | 11788268.8407 |
| GP27                    | 3717737.7764 | 11788260.6443 |

| FENCE LAYOUT POINTS |              |               |
|---------------------|--------------|---------------|
| FPXX                | NORTHING     | EASTING       |
| FP01                | 3717902.3394 | 11788582.7956 |
| FP02                | 3717968.5993 | 11788532.9139 |
| FP03                | 3717710.4993 | 11788277.9881 |
| FP04                | 3717695.8215 | 11788265.9525 |
| FP05                | 3717690.4202 | 11788261.5235 |
| FP06                | 3717673.6313 | 11788247.7948 |
| FP07                | 3717631.0504 | 11788191.3488 |
| FP08                | 3717593.9768 | 11788150.3211 |



**SHEET NOTES**

- SEE SHEET L-001 FOR GENERAL LANDSCAPE NOTES, ABBREVIATIONS & SYMBOLS.
- SEE SHEET L-040 FOR FURNITURE & RAILING SCHEDULES. SEE L-140 FOR LAYOUT DATA.
- SEE ELECTRICAL DRAWINGS FOR LIGHTING SCHEDULE, CONDUIT AND CIRCUITRY.
- SEE SIGNAGE DWGS FOR SIGNAGE SCHEDULE AND DETAILS.
- FURNITURE SIZES SHOWN ON PLAN ARE NOMINAL - SEE DETAILS FOR EXACT SIZES. CUSTOM FURNITURE DIMENSIONS SHOWING STRUCTURAL SPANS, MEMBERS AND ATTACHMENT SYSTEMS ARE INDICATIVE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRUCTURAL DESIGN AND FABRICATION OF CUSTOM FURNITURE.

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**LEGEND**

- LIMIT OF WORK (10' OFFSET)
- FURNITURE**
- BN-1 BENCH - TYPE 1 (01 L-565)
  - BN-2 BENCH - TYPE 2 (01 L-546)
  - BN-3 BENCH - TYPE 3 (01 L-546)
- RAILING**
- FNC-1 FENCE - TYPE 1 (01 L-540)
  - FNC-2 FENCE - TYPE 2 (01 L-542)
  - GDR-1 GUARDRAIL - TYPE 1 (01 L-535)
  - GDR-2 GUARDRAIL - TYPE 2 (01 L-535)
  - HDR-1 HANDRAIL - TYPE 1 (01 L-538)
  - HDR-2 HANDRAIL - TYPE 2 (01 L-538)
- LIGHTING**  
 SEE ELECTRICAL DWGS
- G1 G1 LIGHT (02-03 L-550)
  - S1 S1 LIGHT (01 L-550)
  - L1 L1 LIGHT (04-05 L-550)
  - R1 WATERPROOF RECEPTACLE (06-07 L-550)
- SIGNAGE**  
 SEE SIGNAGE DWGS
- DIR-1 SIGNAGE - DIRECTIONAL 1
  - DIR-2 SIGNAGE - DIRECTIONAL 2
  - ID-1 SIGNAGE - IDENTIFICATION
  - INT-1 SIGNAGE - INTERPRETIVE
  - REG-1 SIGNAGE - REGULATORY 1
  - REG-2 SIGNAGE - REGULATORY 2
  - OR-1 SIGNAGE - TRAILHEAD

SEAL/SIGNATURE

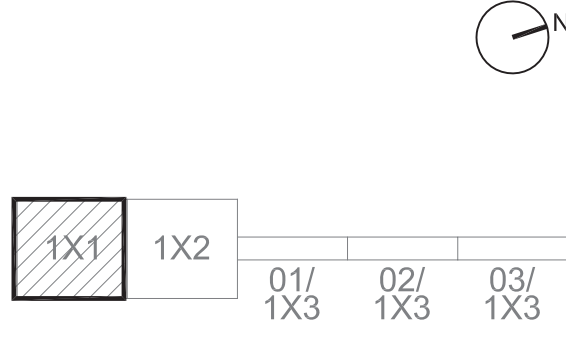


ISSUE

REVISIONS

| NO. | DESCRIPTION        | DATE       |
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|     | SCHEMATIC DESIGN   | 03-28-2014 |
|     | DESIGN DEVELOPMENT | 06-27-2014 |
|     | 85% CONSTRUCTION   | 10-03-2014 |
|     | BID SET            | 10-24-2014 |

KEY MAP



SHEET INFORMATION

Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
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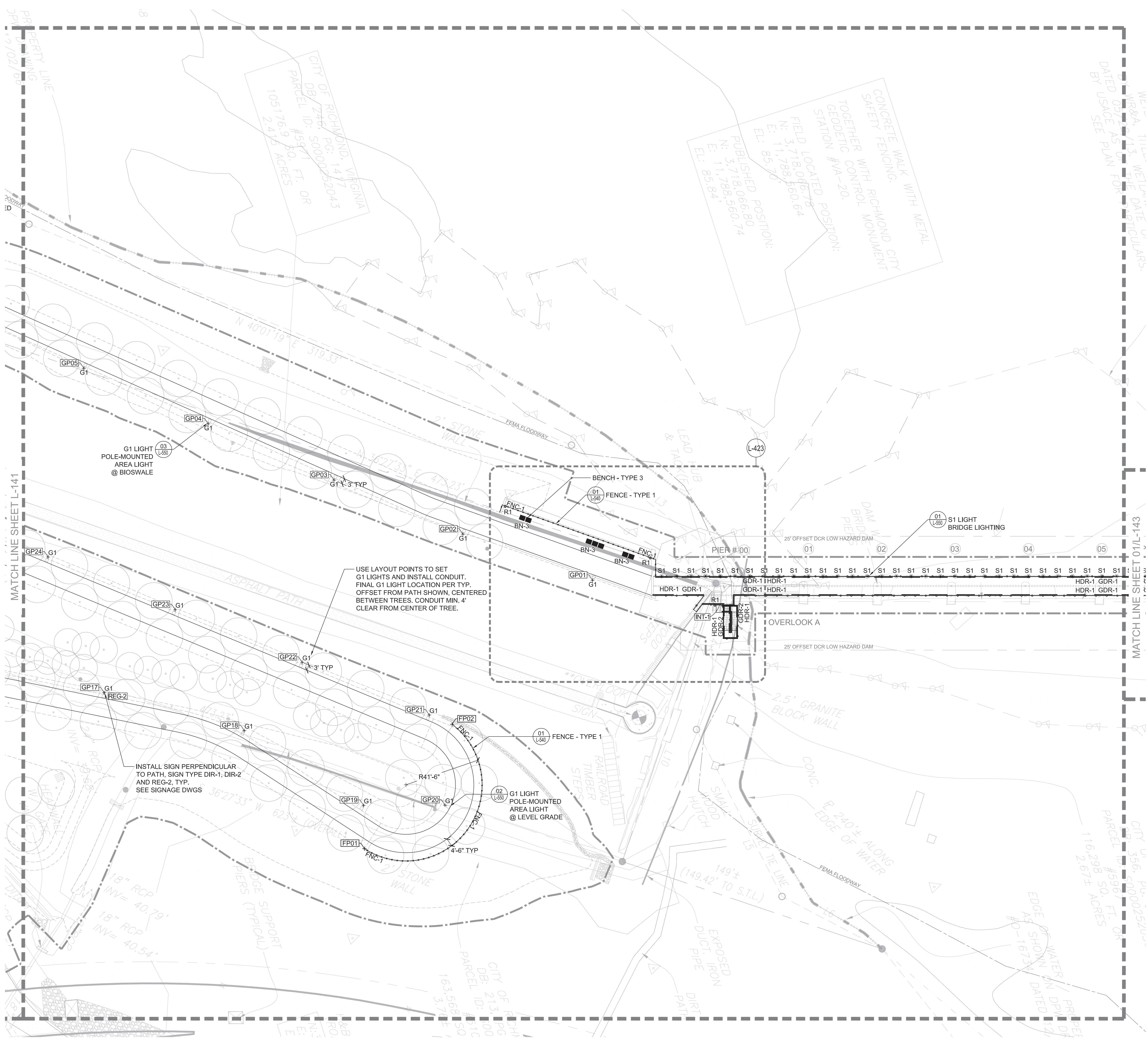
SHEET TITLE

**LANDSCAPE FURNITURE, RAILING, LIGHTING & SIGNAGE PLAN**

SHEET NO.

**L-141**





### SHEET NOTES

- SEE SHEET L-001 FOR GENERAL LANDSCAPE NOTES, ABBREVIATIONS & SYMBOLS.
- SEE SHEET L-040 FOR FURNITURE & RAILING SCHEDULES. SEE L-140 FOR LAYOUT DATA.
- SEE ELECTRICAL DRAWINGS FOR LIGHTING SCHEDULE, CONDUIT AND CIRCUITRY.
- SEE SIGNAGE DWGS FOR SIGNAGE SCHEDULE AND DETAILS.
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### LEGEND

- LIMIT OF WORK (10' OFFSET)
- FURNITURE**
  - BN-1 BENCH - TYPE 1
  - BN-2 BENCH - TYPE 2
  - BN-3 BENCH - TYPE 3
- RAILING**
  - FNC-1 FENCE - TYPE 1
  - FNC-2 FENCE - TYPE 2
  - GDR-1 GUARDRAIL - TYPE 1
  - GDR-2 GUARDRAIL - TYPE 2
  - HDR-1 HANDRAIL - TYPE 1
  - HDR-2 HANDRAIL - TYPE 2
- LIGHTING**  
SEE ELECTRICAL DWGS
  - G1 G1 LIGHT
  - S1 S1 LIGHT
  - L1 L1 LIGHT
  - R1 WATERPROOF RECEPTACLE
- SIGNAGE**  
SEE SIGNAGE DWGS
  - DIR-1 SIGNAGE - DIRECTIONAL 1
  - DIR-2 SIGNAGE - DIRECTIONAL 2
  - ID-1 SIGNAGE - IDENTIFICATION
  - INT-1 SIGNAGE - INTERPRETIVE
  - REG-1 SIGNAGE - REGULATORY 1
  - REG-2 SIGNAGE - REGULATORY 2
  - OR-1 SIGNAGE - TRAILHEAD

**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
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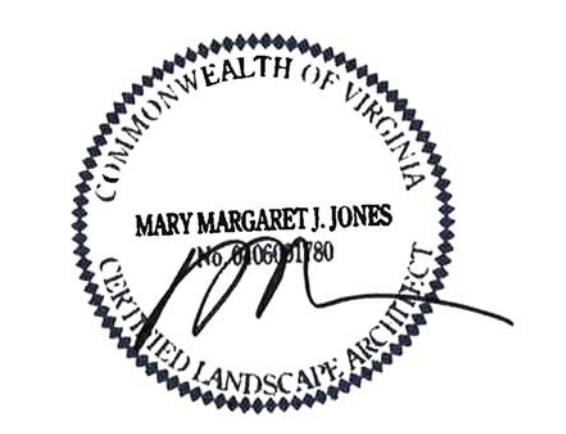
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**DMY INC.**  
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 www.dmy-inc.com

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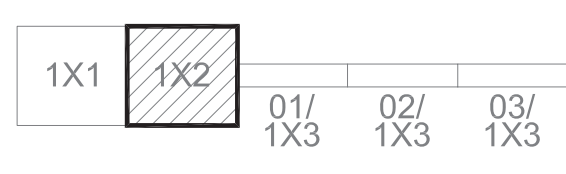


ISSUE

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 02-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

KEY MAP



**SHEET INFORMATION**

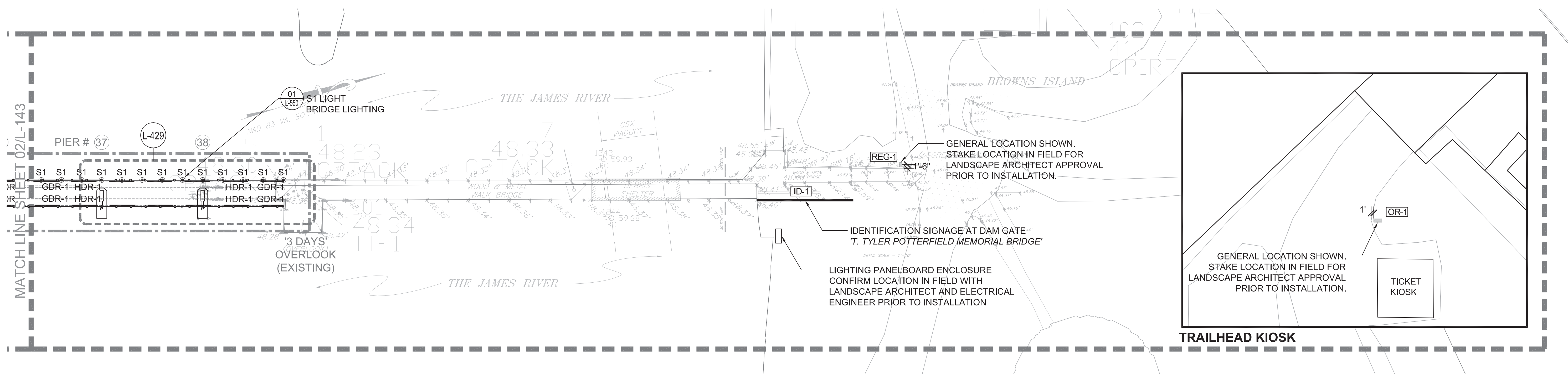
Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=20'

**SHEET TITLE**

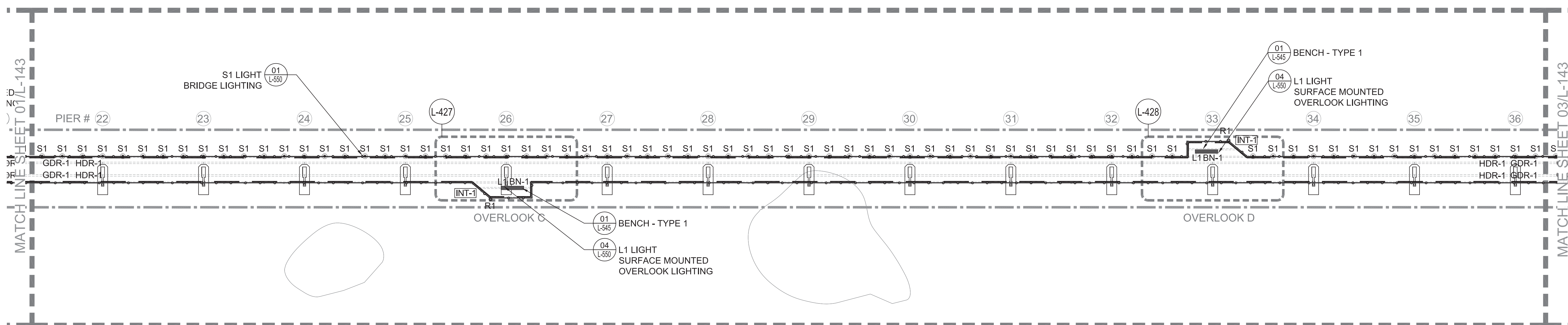
**LANDSCAPE FURNITURE, RAILING, LIGHTING & SIGNAGE PLAN**

**SHEET NO.**

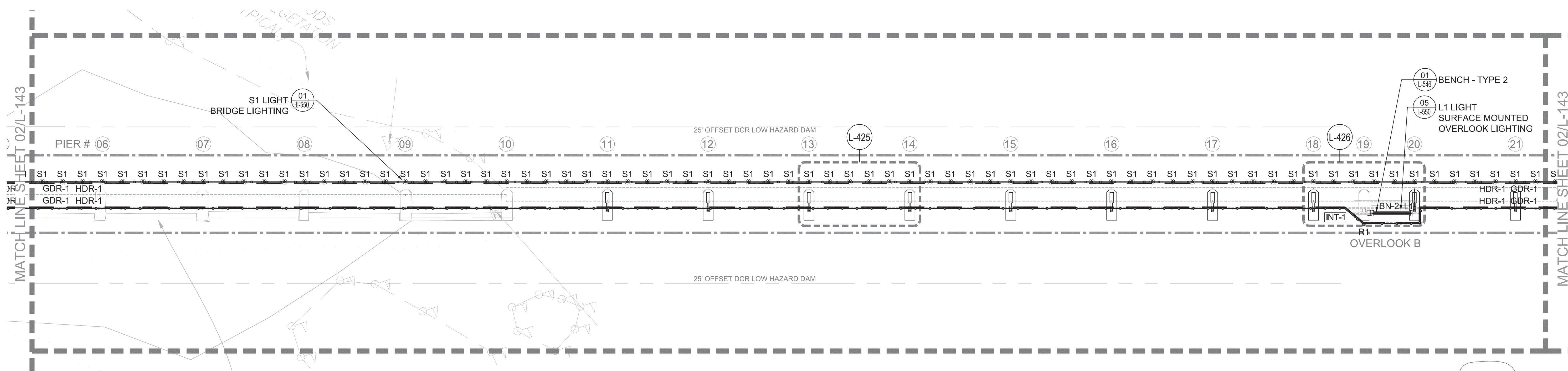
**L-142**



03 FURNITURE, RAILING, LIGHTING & SIGNAGE PLAN  
SCALE: AS SHOWN



02 FURNITURE, RAILING, LIGHTING & SIGNAGE PLAN  
SCALE: AS SHOWN



01 FURNITURE, RAILING, LIGHTING & SIGNAGE PLAN  
SCALE: AS SHOWN

**SHEET NOTES**

- SEE SHEET L-001 FOR GENERAL LANDSCAPE NOTES, ABBREVIATIONS & SYMBOLS.
- SEE SHEET L-040 FOR FURNITURE & RAILING SCHEDULES. SEE L-140 FOR LAYOUT DATA.
- SEE ELECTRICAL DRAWINGS FOR LIGHTING SCHEDULE, CONDUIT AND CIRCUITRY.
- SEE SIGNAGE DWGS FOR SIGNAGE SCHEDULE AND DETAILS.
- FURNITURE SIZES SHOWN ON PLAN ARE NOMINAL - SEE DETAILS FOR EXACT SIZES.
- CUSTOM FURNITURE DIMENSIONS SHOWING STRUCTURAL SPANS, MEMBERS AND ATTACHMENT SYSTEMS ARE INDICATIVE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRUCTURAL DESIGN AND FABRICATION OF CUSTOM FURNITURE.

**PROJECT INFORMATION**  
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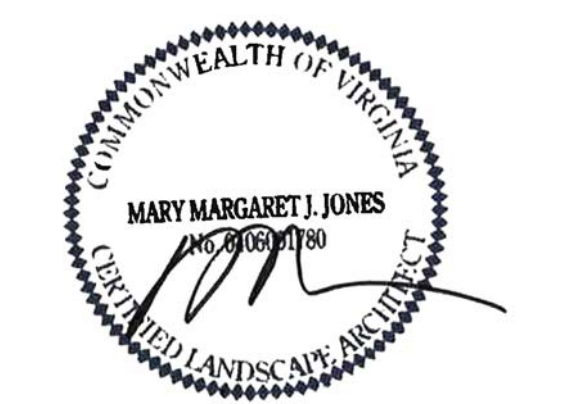
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 14241 Midlothian Turnpike, Suite 230  
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 www.dmy-inc.com

**LEGEND**

- LIMIT OF WORK (10' OFFSET)
- FURNITURE**
- BN-1 BENCH - TYPE 1
  - BN-2 BENCH - TYPE 2
  - BN-3 BENCH - TYPE 3
- RAILING**
- FNC-1 FENCE - TYPE 1
  - FNC-2 FENCE - TYPE 2
  - GDR-1 GUARDRAIL - TYPE 1
  - GDR-2 GUARDRAIL - TYPE 2
  - HDR-1 HANDRAIL - TYPE 1
  - HDR-2 HANDRAIL - TYPE 2
- LIGHTING**  
 SEE ELECTRICAL DWGS
- G1 G1 LIGHT
  - S1 S1 LIGHT
  - L1 L1 LIGHT
  - R1 WATERPROOF RECEPTACLE
- SIGNAGE**  
 SEE SIGNAGE DWGS
- DIR-1 SIGNAGE - DIRECTIONAL 1
  - DIR-2 SIGNAGE - DIRECTIONAL 2
  - ID-1 SIGNAGE - IDENTIFICATION
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  - REG-1 SIGNAGE - REGULATORY 1
  - REG-2 SIGNAGE - REGULATORY 2
  - OR-1 SIGNAGE - TRAILHEAD

SEAL/SIGNATURE

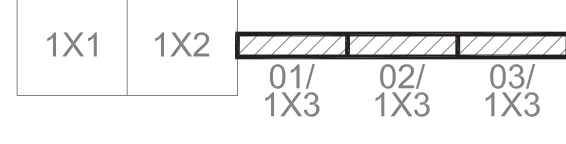


ISSUE

REVISIONS

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 02-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

KEY MAP



SHEET INFORMATION

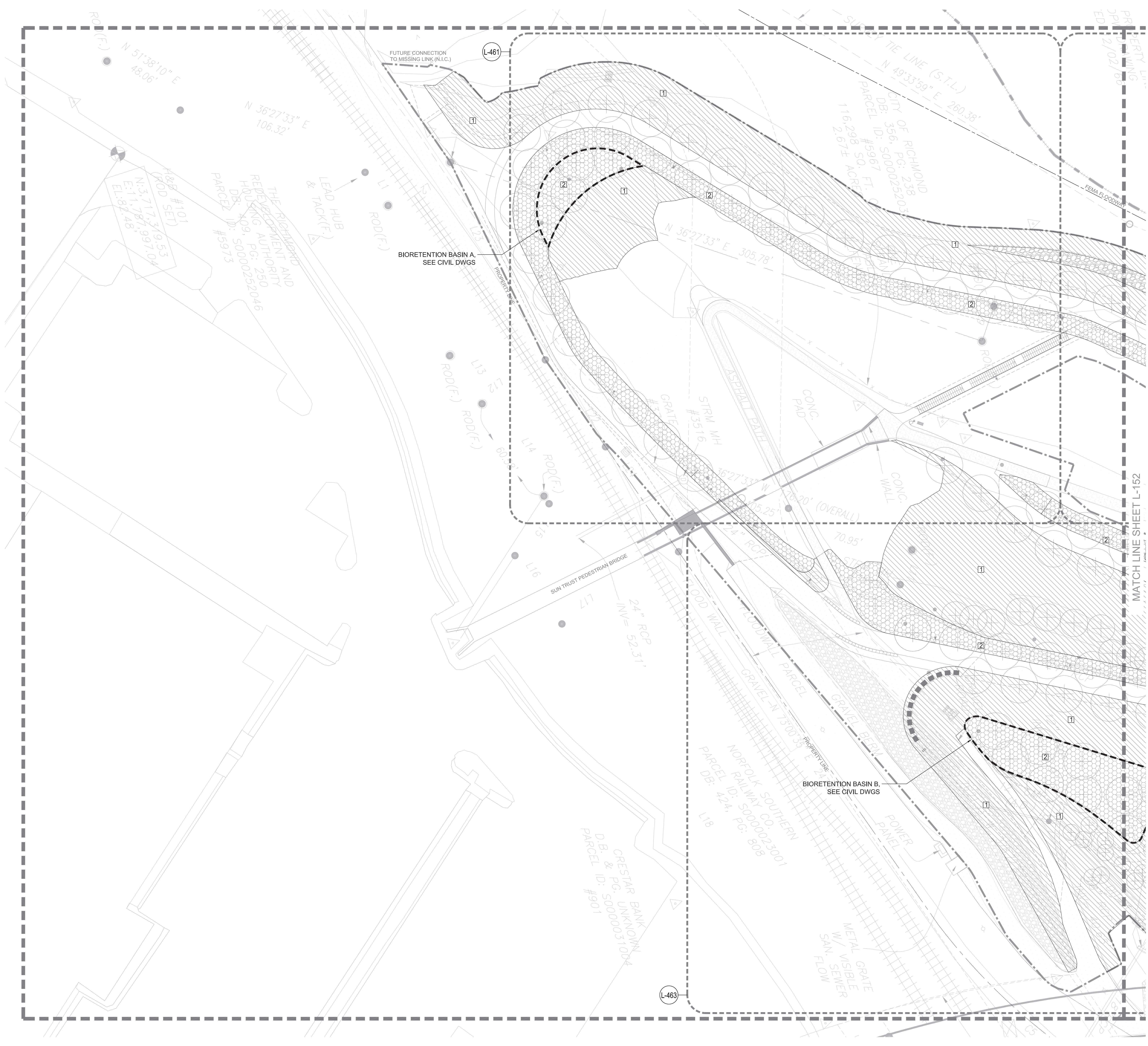
Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=20'  
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SHEET TITLE

**LANDSCAPE FURNITURE, RAILING, LIGHTING & SIGNAGE PLAN**

SHEET NO.

**L-143**



**SHEET NOTES**

- SEE SHEET L-001 FOR GENERAL LANDSCAPE NOTES, ABBREVIATIONS & SYMBOLS.
- SEE LANDSCAPE PLANTING PLANS AND ENLARGEMENTS FOR SPECIES TYPE AND LOCATION.
- SEE PLANTING SCHEDULE AND LANDSCAPE PLANTING DETAILS FOR INFORMATION ON ASSEMBLY OF PLANTING SOILS.
- SEE LANDSCAPE GRADING PLANS, LANDSCAPE PLANTING DETAILS, AND CIVIL DWGS FOR INFORMATION ON SUBDRAINAGE.

**LEGEND**

- LIMIT OF WORK
- TREE
- LANDSCAPE SOILS - TYPE 1
- LANDSCAPE SOILS - TYPE 2
- BIORETENTION BASIN

**PROJECT INFORMATION**

Richmond, Virginia Riverfront Improvements: Priority 1  
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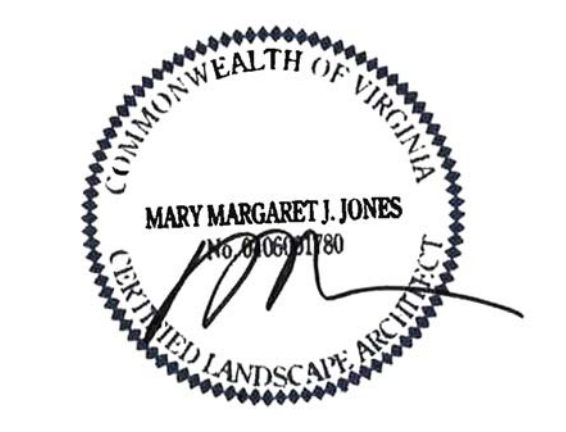
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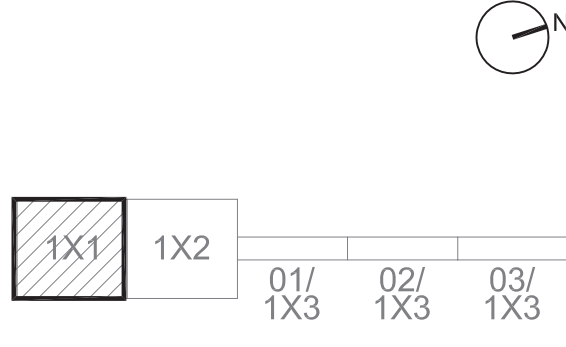


**ISSUE**

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
|     | SCHEMATIC DESIGN   | 03-28-2014 |
|     | DESIGN DEVELOPMENT | 06-27-2014 |
|     | 85% CONSTRUCTION   | 10-03-2014 |
|     | BID SET            | 10-24-2014 |

**KEY MAP**



**SHEET INFORMATION**

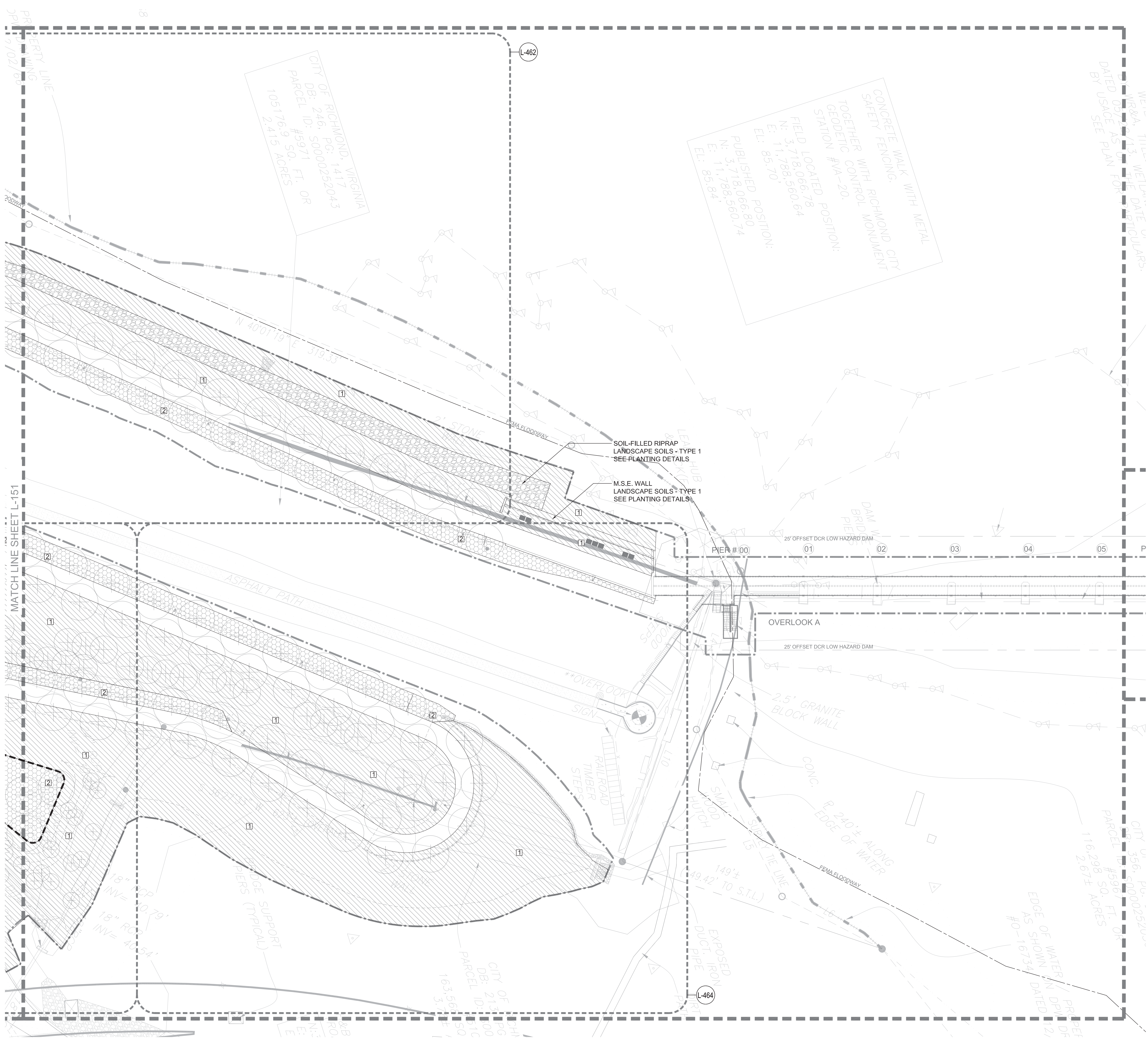
Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=20'

**SHEET TITLE**

**LANDSCAPE PLANTING SOILS PLAN**

**SHEET NO.**

**L-151**



**SHEET NOTES**

- SEE SHEET L-001 FOR GENERAL LANDSCAPE NOTES, ABBREVIATIONS & SYMBOLS.
- SEE LANDSCAPE PLANTING PLANS AND ENLARGEMENTS FOR SPECIES TYPE AND LOCATION.
- SEE PLANTING SCHEDULE AND LANDSCAPE PLANTING DETAILS FOR INFORMATION ON ASSEMBLY OF PLANTING SOILS.
- SEE LANDSCAPE GRADING PLANS, LANDSCAPE PLANTING DETAILS, AND CIVIL DWGS FOR INFORMATION ON SUBDRAINAGE.

**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
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**LEGEND**

- LIMIT OF WORK
- ⊕ TREE
- 1 LANDSCAPE SOILS - TYPE 1
- 2 LANDSCAPE SOILS - TYPE 2
- BIORETENTION BASIN

SEAL/SIGNATURE

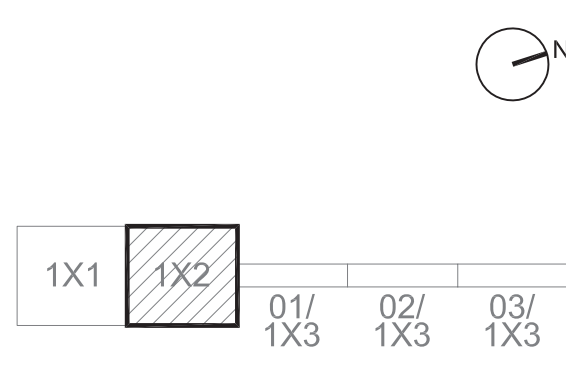


ISSUE

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 03-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

**KEY MAP**



**SHEET INFORMATION**

Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=20'

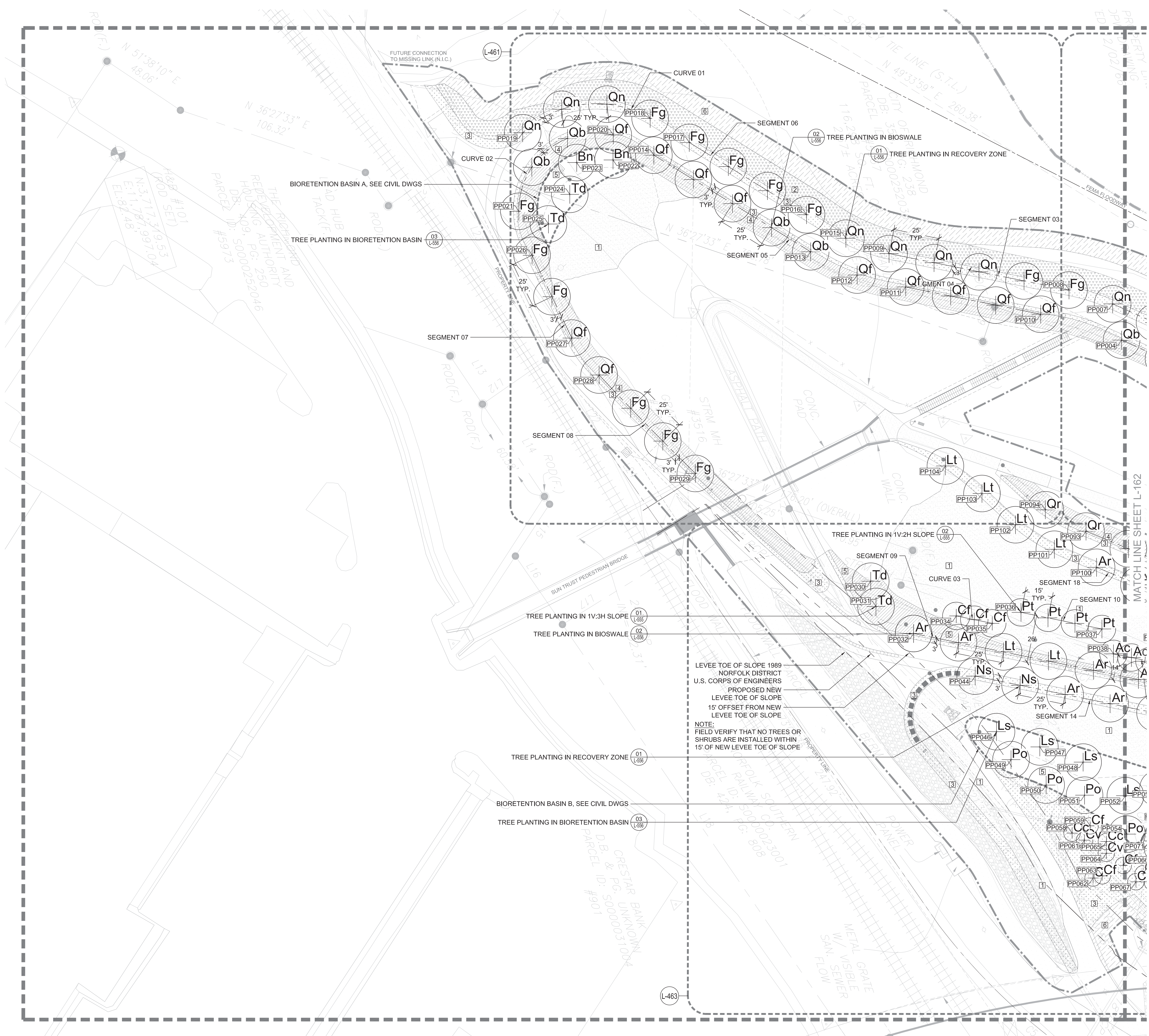
**SHEET TITLE**

**LANDSCAPE PLANTING SOILS PLAN**

SHEET NO.

**L-152**





**SHEET NOTES**

- SEE SHEET L-001 FOR GENERAL LANDSCAPE NOTES, ABBREVIATIONS & SYMBOLS.
- SEE SHEETS L-060 AND L-061 FOR PLANTING SCHEDULE.
- SEE LANDSCAPE LAYOUT PLANS FOR LAYOUT OF GROUNDCOVER PLANTING AND RELATIONSHIP OF MATERIALS TO PLANTING. SEE SHEET L-160 FOR TREE LAYOUT DATA INFORMATION. LAYOUT POINTS, SEGMENT DATA, AND CURVE DATA IS PROVIDED FOR SUBSURFACE LAYOUT; FINAL LAYOUT OF TREES TO CONFORM TO TYPICAL OFFSETS FROM PATHWAYS, EQUAL SPACING, AND TYPICAL RELATIONSHIP TO LIGHT POLES.
- SEE SHEETS L460 - L463 FOR SHRUB LOCATION, LAYOUT AND TYPE.
- SLEEVES FOR SUBDRAINAGE TO BE PROVIDED UNDER PAVEMENTS AS NECESSARY. SEE CIVIL DWGS; LANDSCAPE PLANTING DETAILS; AND LANDSCAPE SOILS AND SUBDRAINAGE PLANS.

**LEGEND**

- LIMIT OF WORK
- LAYOUT CENTER LINE
- TREE LAYOUT POINT
- TREE
- VINES
- GROUNDCOVER - TYPE 1
- GROUNDCOVER - TYPE 2
- GROUNDCOVER - TYPE 3
- GROUNDCOVER - TYPE 4
- GROUNDCOVER - TYPE 5
- GROUNDCOVER - TYPE 6

**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront Improvements: Priority 1  
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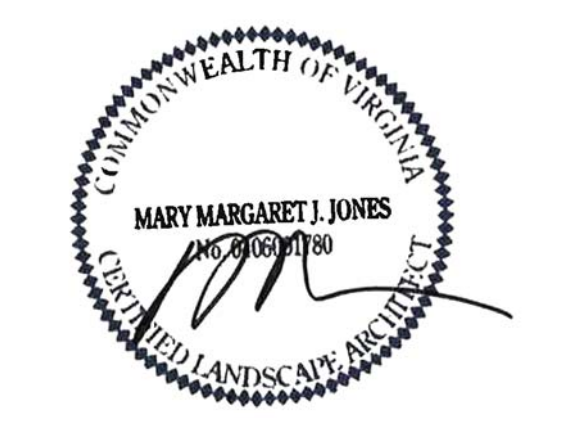
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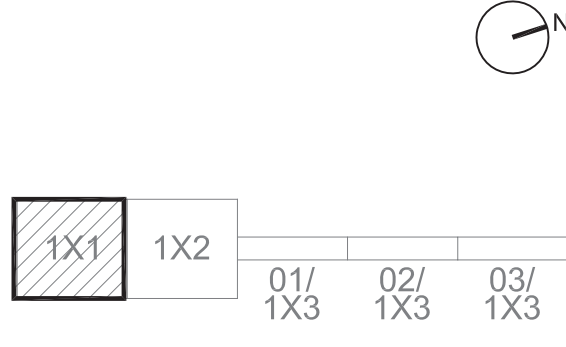


ISSUE

REVISIONS

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
|     | SCHEMATIC DESIGN   | 03-28-2014 |
|     | DESIGN DEVELOPMENT | 06-27-2014 |
|     | 85% CONSTRUCTION   | 10-03-2014 |
|     | BID SET            | 10-24-2014 |

KEY MAP



SHEET INFORMATION

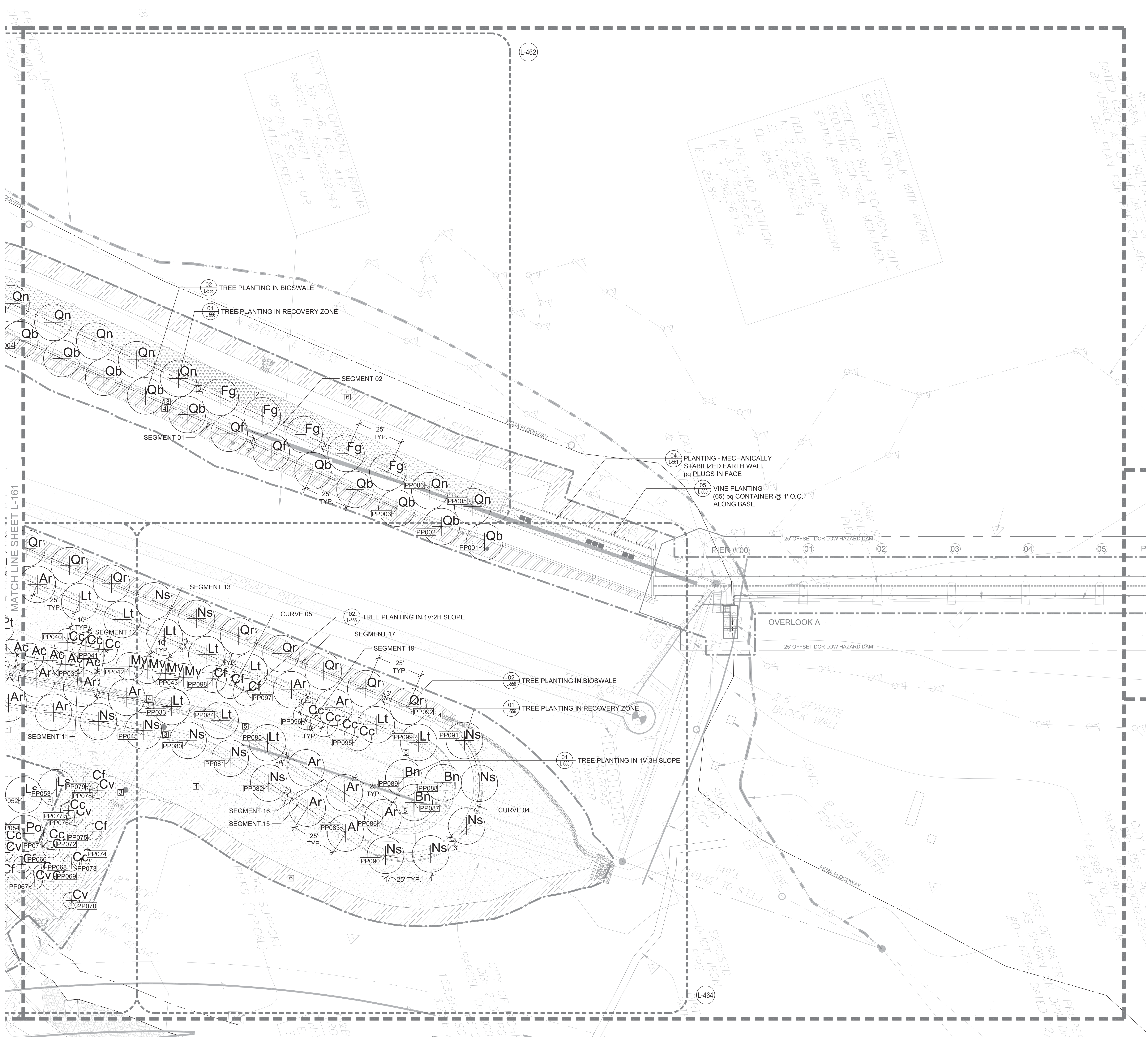
Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=20'

SHEET TITLE

**LANDSCAPE TREE & GROUNDCOVER PLANTING PLAN**

SHEET NO.

**L-161**



**SHEET NOTES**

- SEE SHEET L-001 FOR GENERAL LANDSCAPE NOTES, ABBREVIATIONS & SYMBOLS.
- SEE SHEETS L-060 AND L-061 FOR PLANTING SCHEDULE.
- SEE LANDSCAPE LAYOUT PLANS FOR LAYOUT OF GROUNDCOVER PLANTING AND RELATIONSHIP OF MATERIALS TO PLANTING. SEE SHEET L-160 FOR TREE LAYOUT DATA INFORMATION. LAYOUT POINTS, SEGMENT DATA, AND CURVE DATA IS PROVIDED FOR SUBSURFACE LAYOUT; FINAL LAYOUT OF TREES TO CONFORM TO TYPICAL OFFSETS FROM PATHWAYS, EQUAL SPACING, AND TYPICAL RELATIONSHIP TO LIGHT POLES.
- SEE SHEETS L460 - L463 FOR SHRUB LOCATION, LAYOUT AND TYPE.
- SLEEVES FOR SUBDRAINAGE TO BE PROVIDED UNDER PAVEMENTS AS NECESSARY. SEE CIVIL DWGS; LANDSCAPE PLANTING DETAILS; AND LANDSCAPE SOILS AND SUBDRAINAGE PLANS.

**LEGEND**

- LIMIT OF WORK
- LAYOUT CENTER LINE
- PPXX TREE LAYOUT POINT
- Xx TREE
- x- VINES
- [1] GROUNDCOVER - TYPE 1
- [2] GROUNDCOVER - TYPE 2
- [3] GROUNDCOVER - TYPE 3
- [4] GROUNDCOVER - TYPE 4
- [5] GROUNDCOVER - TYPE 5
- [6] GROUNDCOVER - TYPE 6

**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
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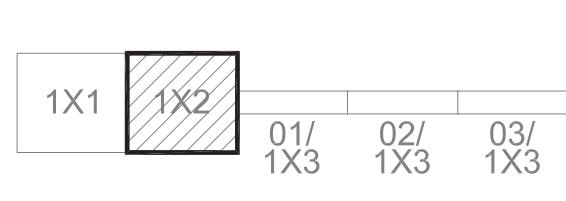


ISSUE

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 02-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

KEY MAP



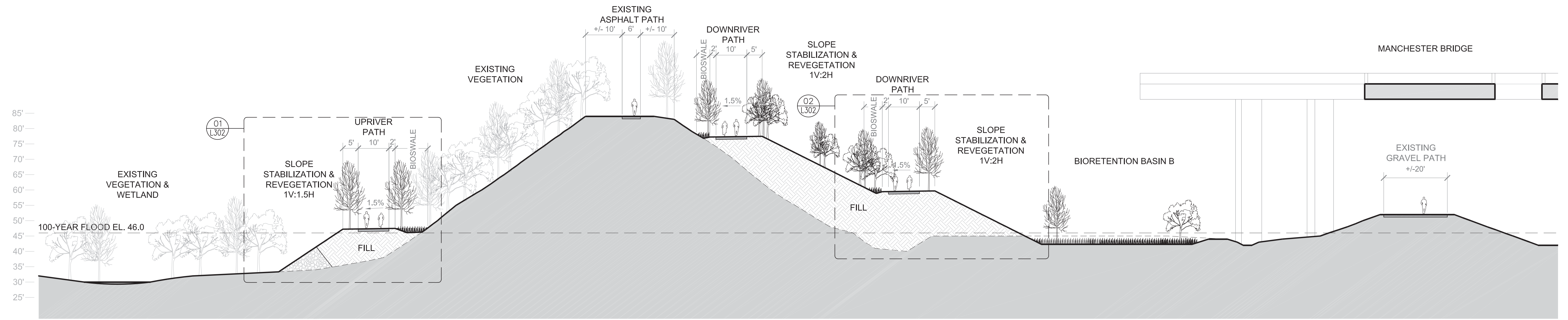
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 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=20'

**SHEET TITLE**  
**LANDSCAPE TREE & GROUNDCOVER PLANTING PLAN**

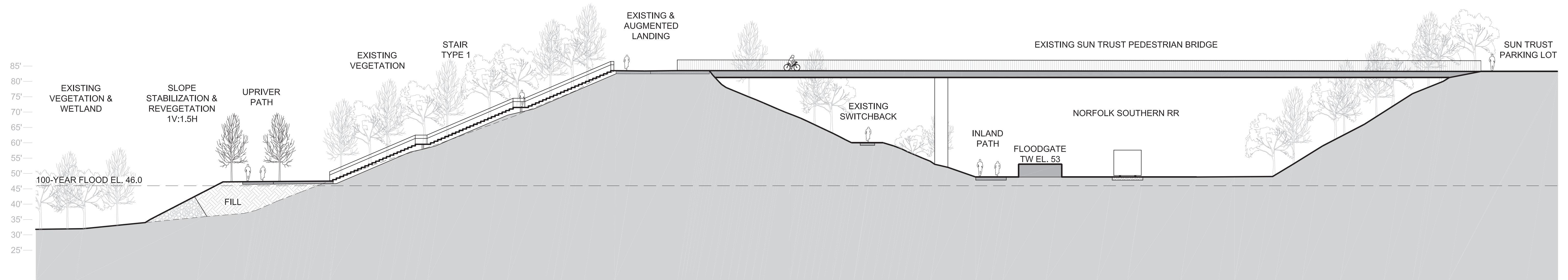
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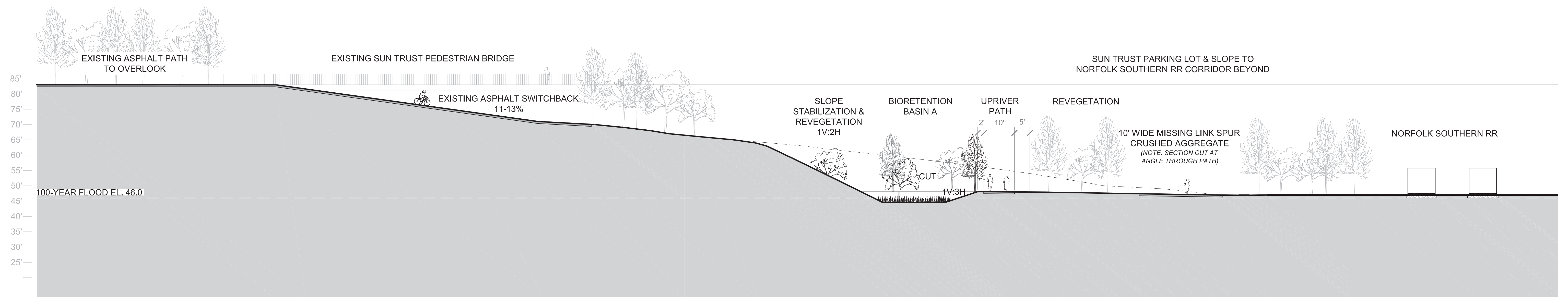




03 SITE SECTION 0' 16'



02 SITE SECTION 0' 16'



01 SITE SECTION 0' 16'

PROJECT INFORMATION

Richmond, Virginia Riverfront Improvements: Priority 1  
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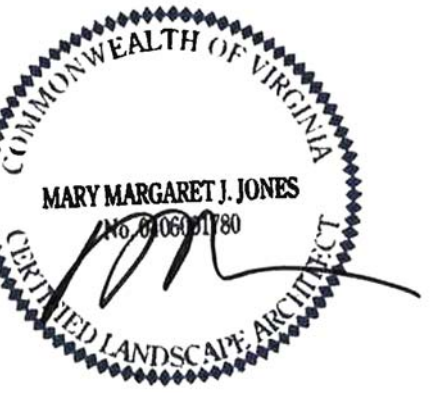
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ISSUE

REVISIONS

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 02-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

KEY MAP

SHEET INFORMATION

Project No.: RVA 1301  
 Drawn By: ML, AL  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: N/A

SHEET TITLE

**LANDSCAPE SITE SECTIONS SOUTH BANK**

SHEET NO.

**L-301**

**PROJECT INFORMATION**

Richmond, Virginia Riverfront  
Improvements: Priority 1  
**T. TYLER**  
**POTTERFIELD**  
**MEMORIAL BRIDGE**  
RICHMOND, VIRGINIA

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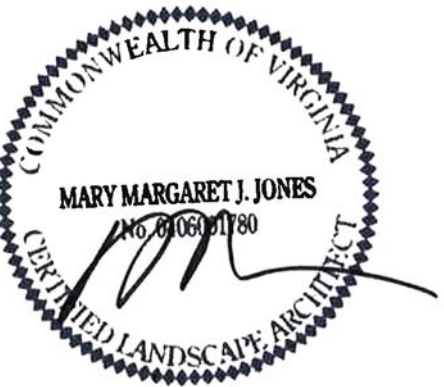
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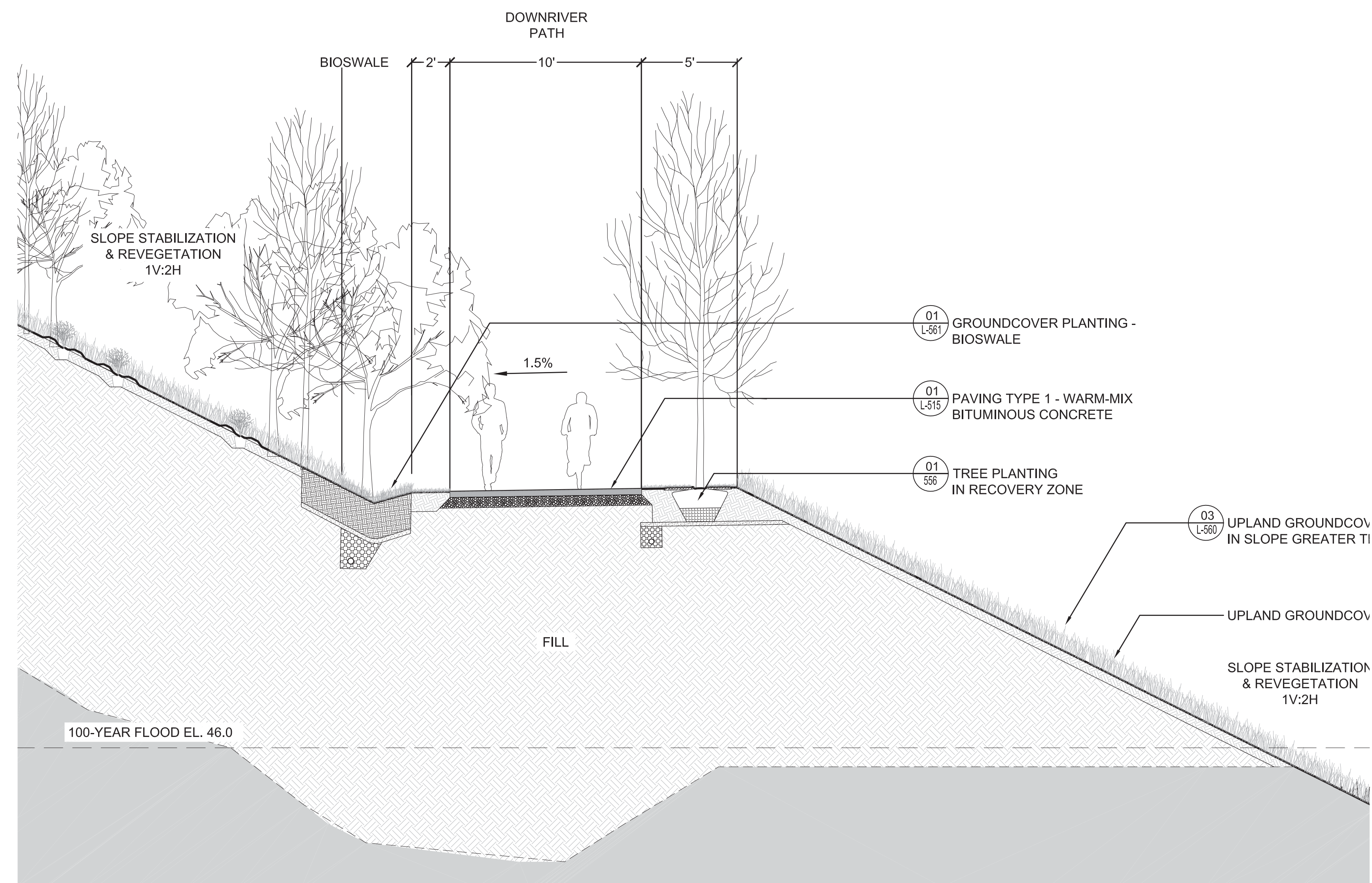
Project No.: RVA 1301  
Drawn By: ML, AL  
Checked By: KR  
Date: 10/24/2014  
Scale: N/A

**SHEET TITLE**

**LANDSCAPE**  
**SITE SECTIONS**  
**DAM WALK**

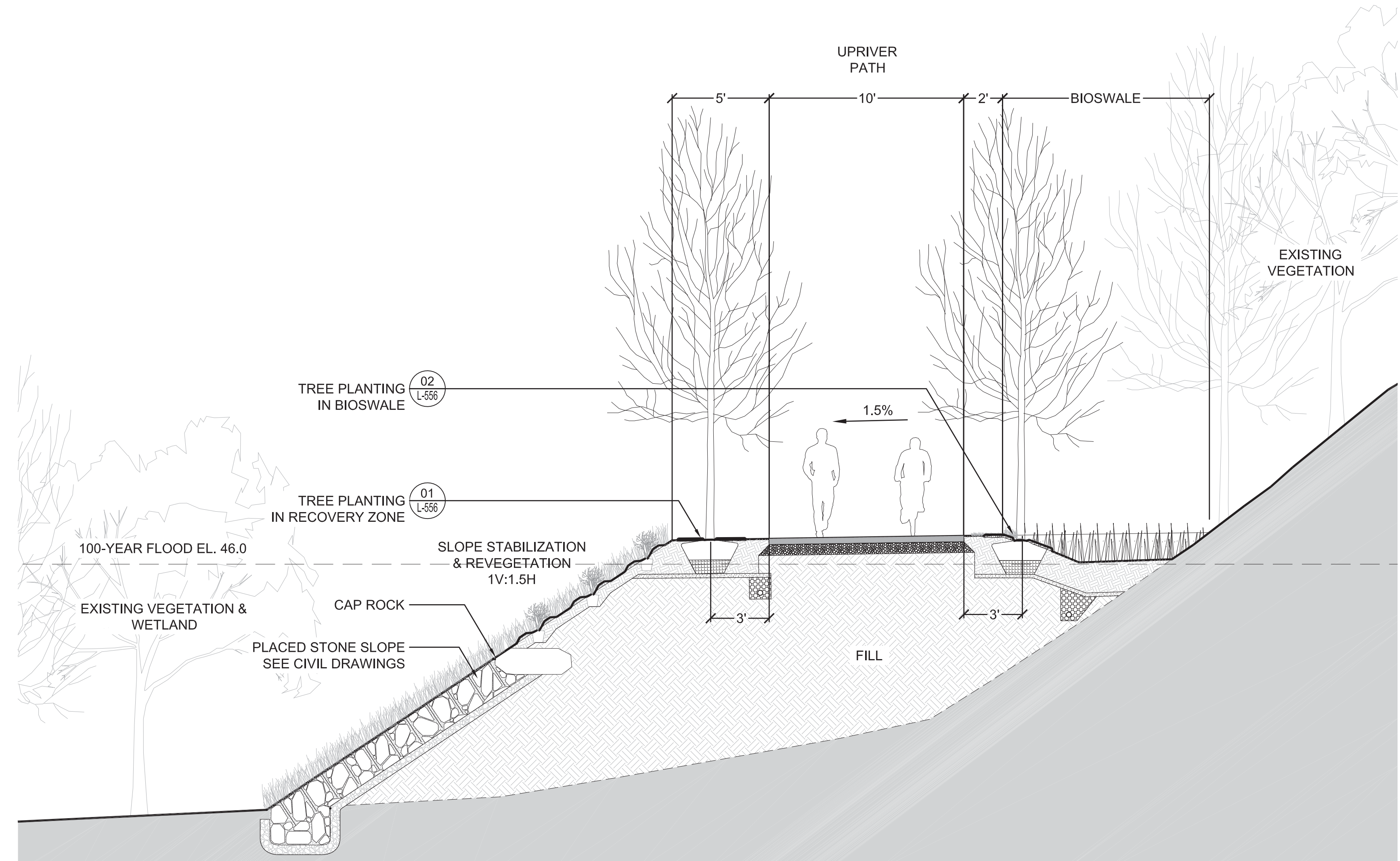
**SHEET NO.**

**L-302**



**02 SITE SECTION**

0' 4'



**01 SITE SECTION**

0' 4'









**SHEET NOTES**

1. SEE L110-L113 FOR PATH LAYOUT
2. SEE L160-L162 FOR TREE LAYOUT
3. SEE L460-L464 FOR SHRUB LAYOUT

**PROJECT INFORMATION**

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Improvements: Priority 1  
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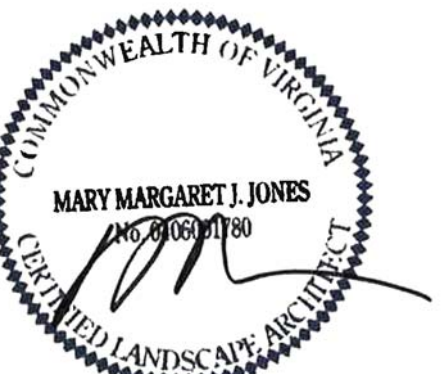
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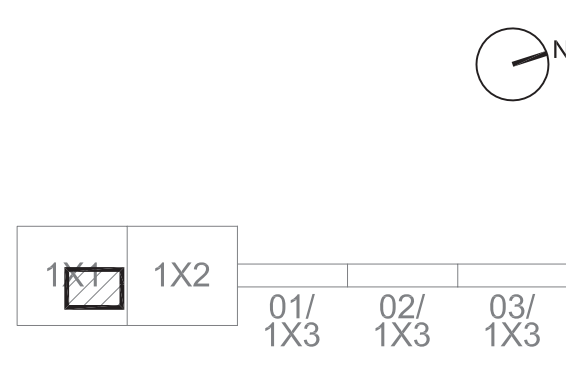


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**KEY MAP**



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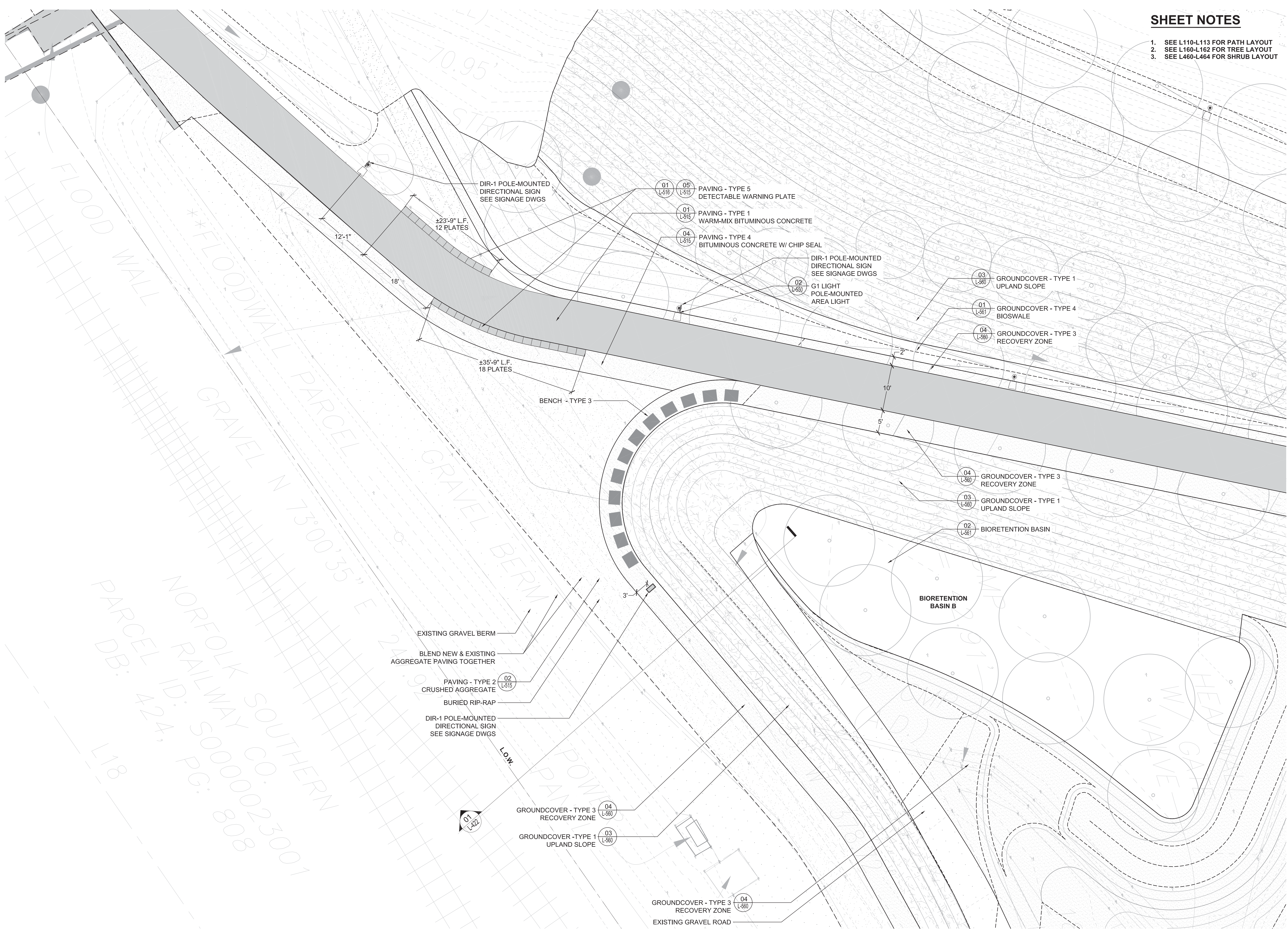
**SHEET TITLE**

**LANDSCAPE  
ENLARGEMENT  
CONFLUENCE POINT**

**SHEET NO.**

**L-421**

01 CONFLUENCE POINT - PLAN  
SCALE: AS SHOWN



FLOOD WALL  
FLOODWALL PARCEL  
GRAVEL N 73°00'35" E 241.9'  
PARCEL DB: 424, PG: 808  
NORFOLK SOUTHERN  
RAILWAY CO.  
ID: S0000023001

EXISTING GRAVEL BERM  
BLEND NEW & EXISTING  
AGGREGATE PAVING TOGETHER  
PAVING - TYPE 2  
CRUSHED AGGREGATE  
BURIED RIP-RAP  
DIR-1 POLE-MOUNTED  
DIRECTIONAL SIGN  
SEE SIGNAGE DWGS

GROUNDCOVER - TYPE 3  
RECOVERY ZONE  
GROUNDCOVER - TYPE 1  
UPLAND SLOPE

GROUNDCOVER - TYPE 3  
RECOVERY ZONE  
EXISTING GRAVEL ROAD

DIR-1 POLE-MOUNTED  
DIRECTIONAL SIGN  
SEE SIGNAGE DWGS

PAVING - TYPE 5  
DETECTABLE WARNING PLATE  
PAVING - TYPE 1  
WARM-MIX BITUMINOUS CONCRETE  
PAVING - TYPE 4  
BITUMINOUS CONCRETE W/ CHIP SEAL

DIR-1 POLE-MOUNTED  
DIRECTIONAL SIGN  
SEE SIGNAGE DWGS  
G1 LIGHT  
POLE-MOUNTED  
AREA LIGHT

GROUNDCOVER - TYPE 1  
UPLAND SLOPE  
GROUNDCOVER - TYPE 4  
BIOSWALE  
GROUNDCOVER - TYPE 3  
RECOVERY ZONE

GROUNDCOVER - TYPE 3  
RECOVERY ZONE  
GROUNDCOVER - TYPE 1  
UPLAND SLOPE  
BIORETENTION BASIN

BIORETENTION  
BASIN B

BENCH - TYPE 3

±35'-9" L.F.  
18 PLATES

±23'-9" L.F.  
12 PLATES

L.O.W.

01  
L-421

3'

10'

5'

12'-1"

18'

70.95'

STRV

POWER

PAVING

GRAVEL BERM

GRAVEL PARCEL

FLOODWALL

FLOOD WALL

PARCEL DB: 424, PG: 808

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±23'-9" L.F.  
12





PROJECT INFORMATION

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Improvements: Priority 1  
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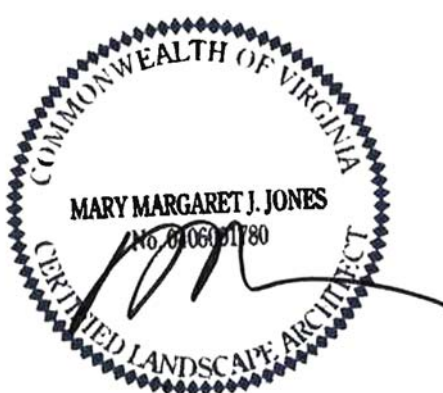
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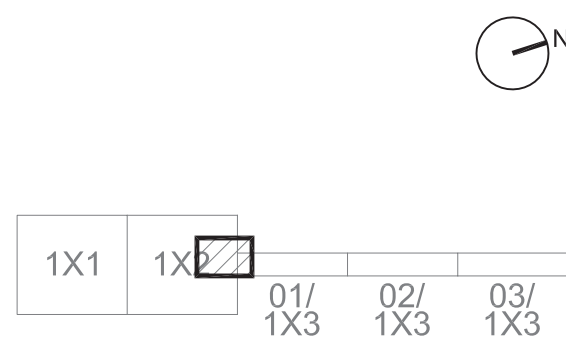


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KEY MAP



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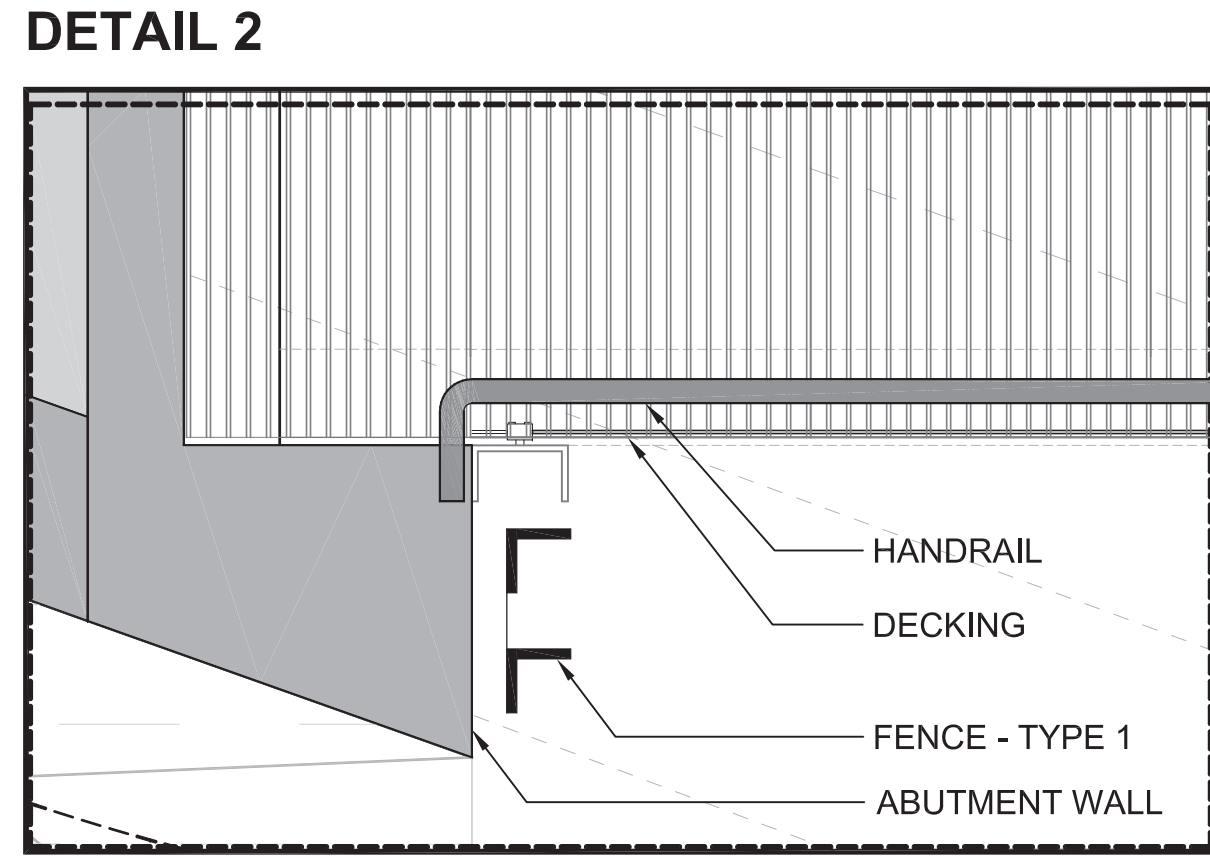
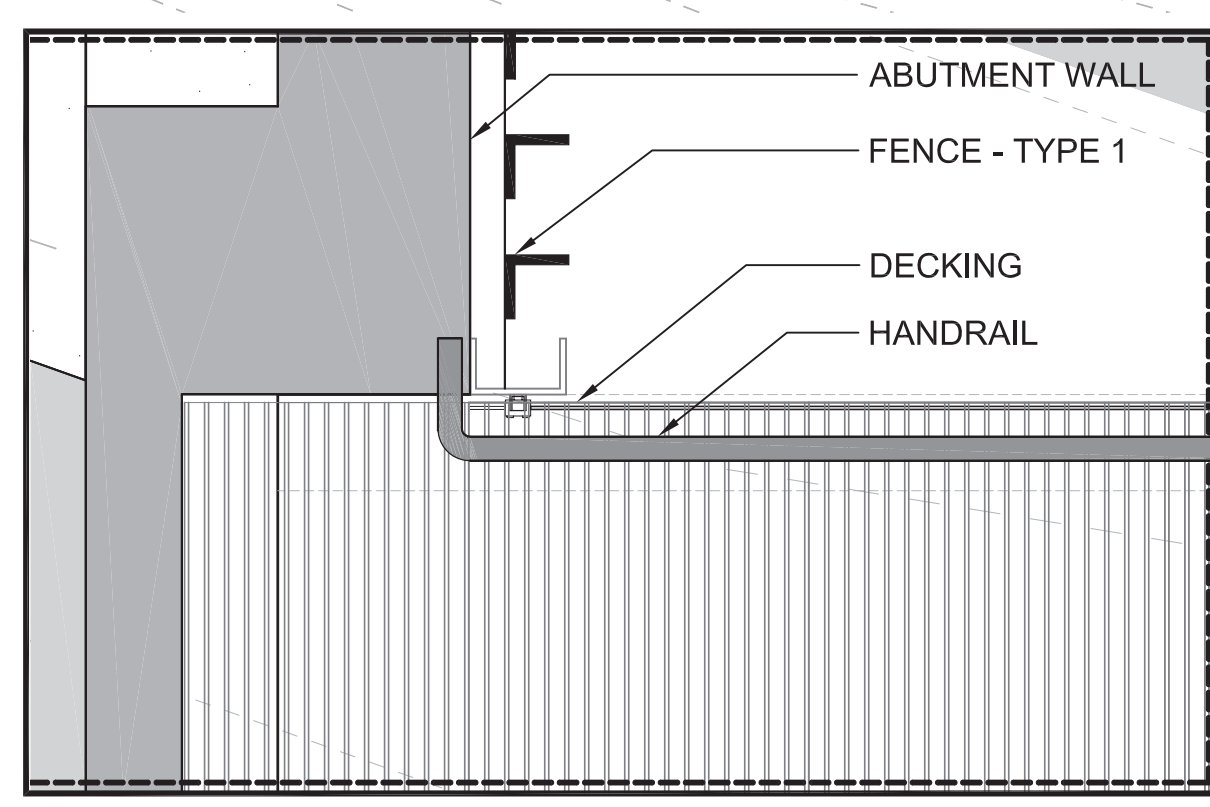
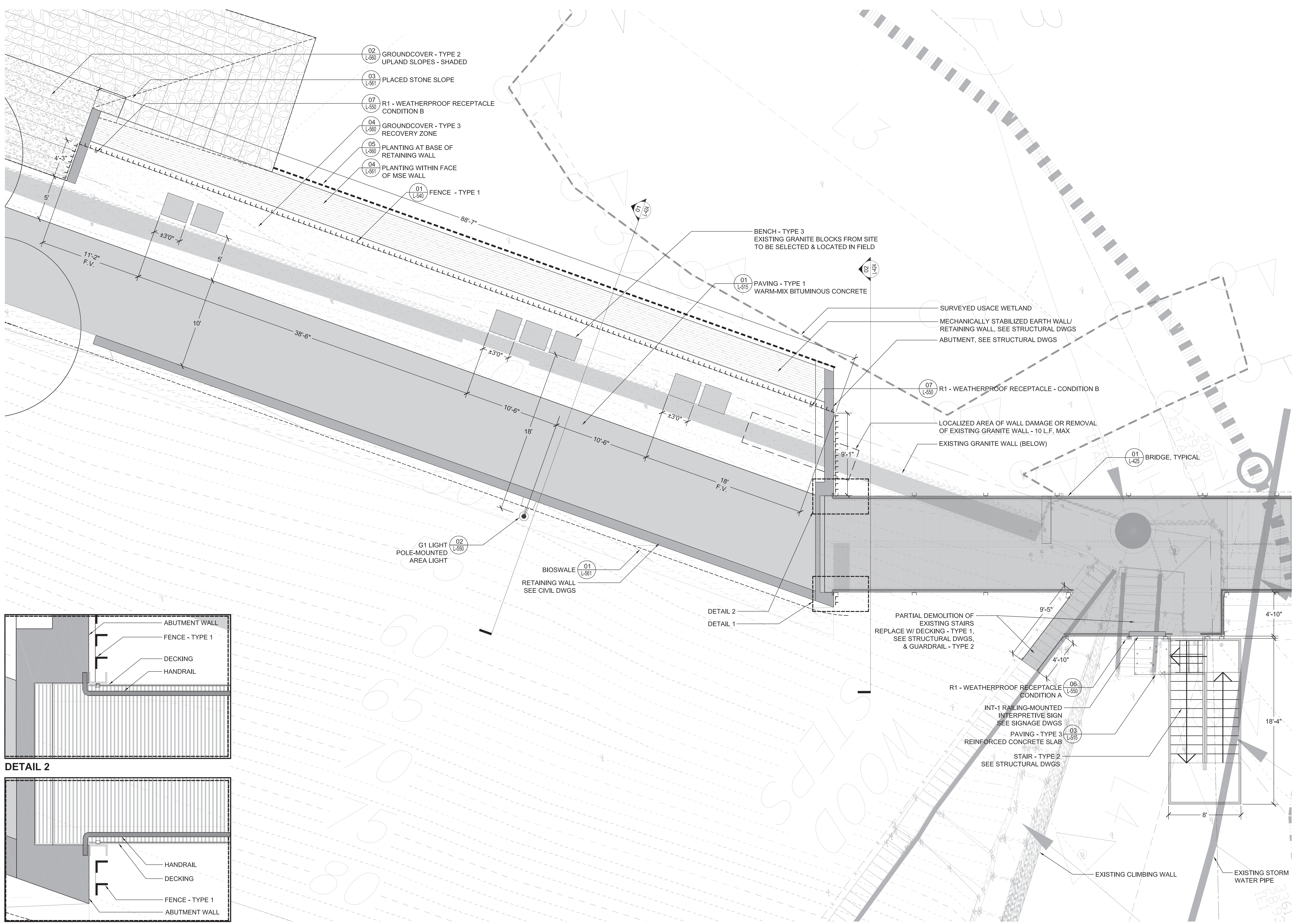
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Scale: 1/4"=1'-0"

SHEET TITLE

**LANDSCAPE**  
**ENLARGEMENTS**  
**OVERLOOK A / MAN.**  
**EMB. INTERFACE**

SHEET NO.

**L-423**



DETAIL 2

DETAIL 1

01 OVERLOOK A / MANCHESTER EMBANKMENT INTERFACE - PLAN  
SCALE: AS SHOWN

**PROJECT INFORMATION**

Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER**  
**POTTERFIELD MEMORIAL BRIDGE**  
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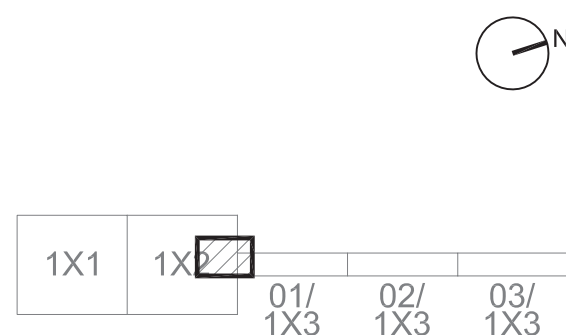


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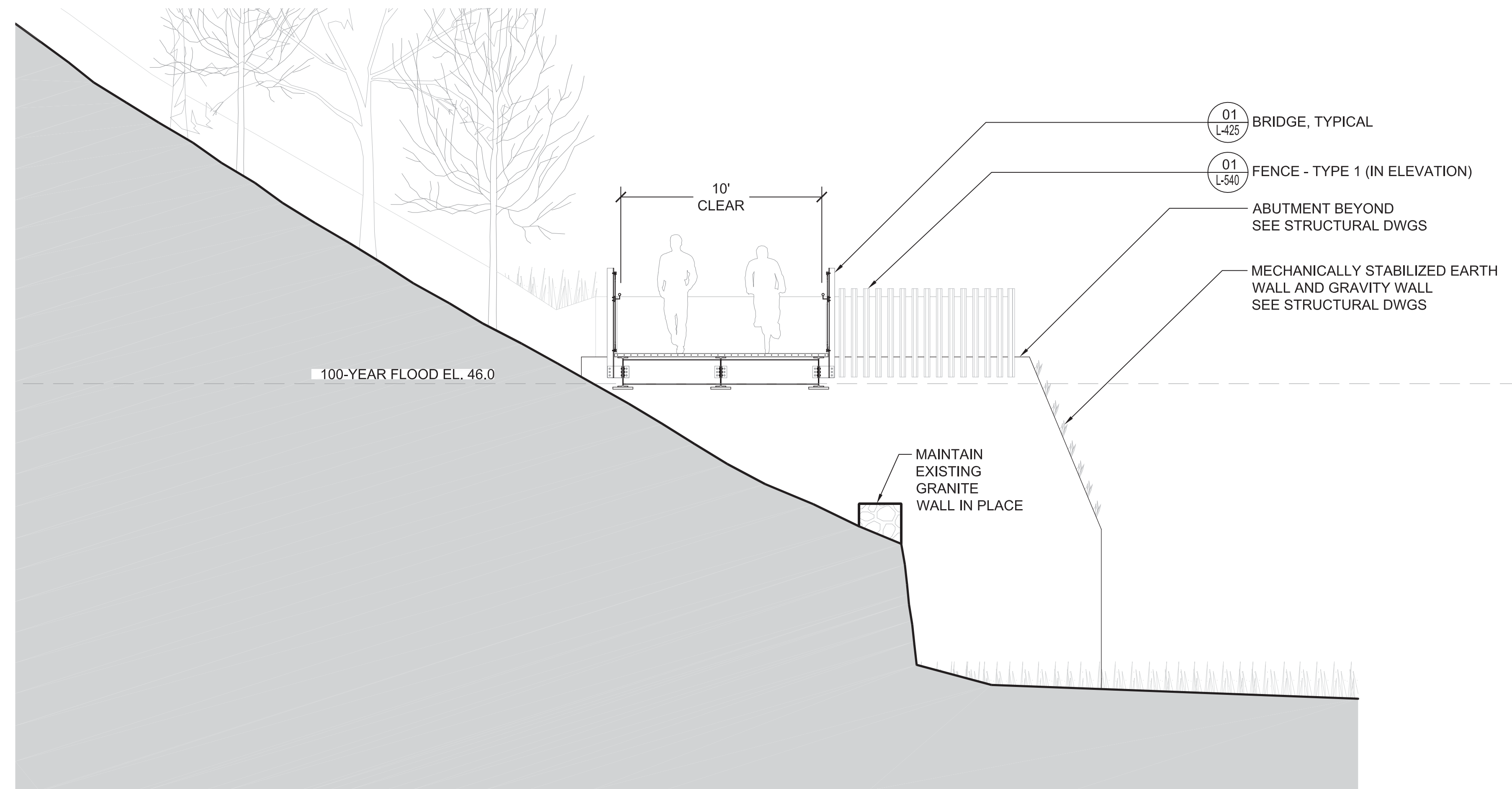


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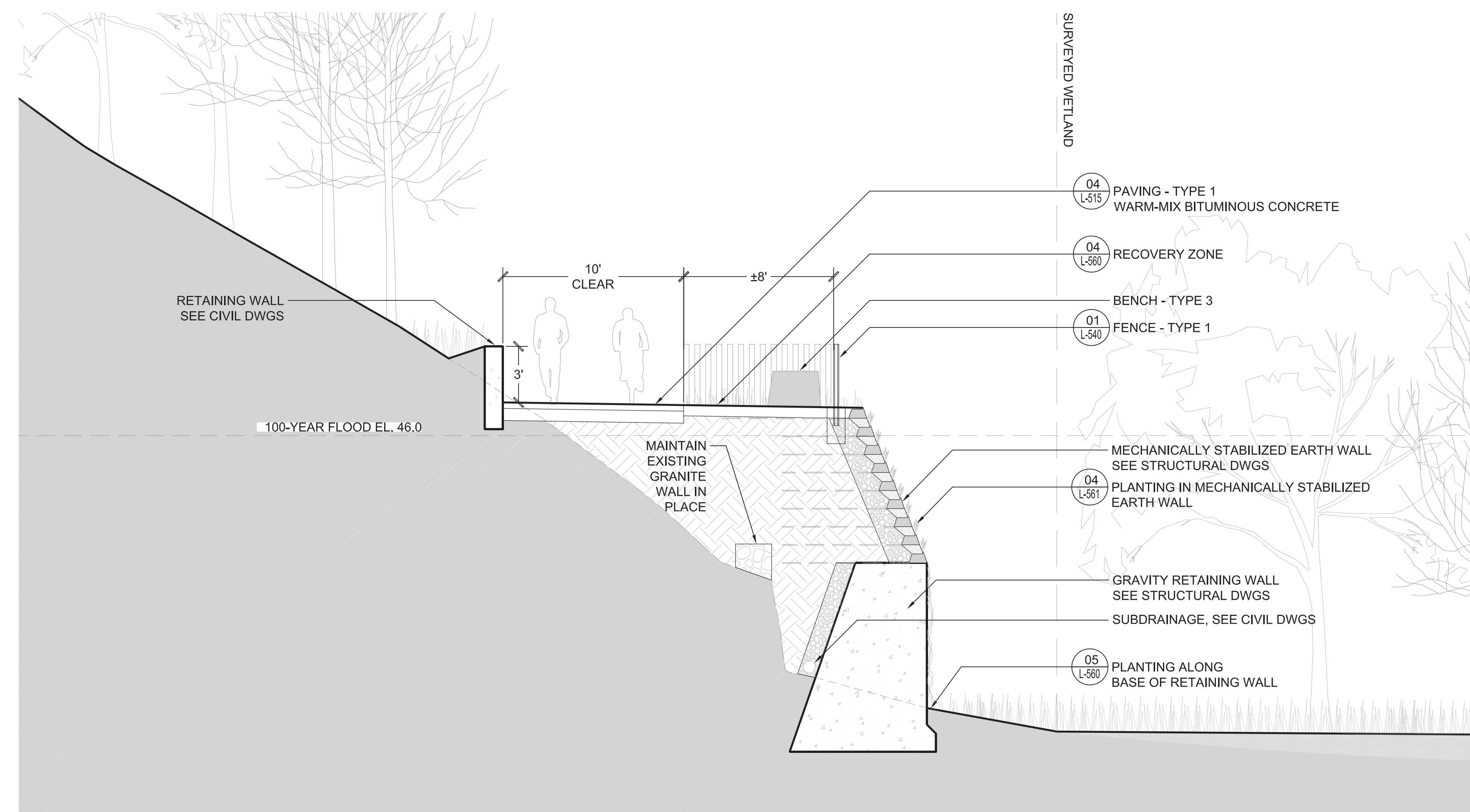
**LANDSCAPE ENLARGEMENTS OVERLOOK A / MAN. EMB. INTERFACE**

SHEET NO.

**L-424**



**02 MANCHESTER EMBANKMENT - SECTION/ELEVATION**  
 SCALE: AS SHOWN



**01 MANCHESTER EMBANKMENT INTERFACE - SECTION**  
 SCALE: 1/4"=1'-0"

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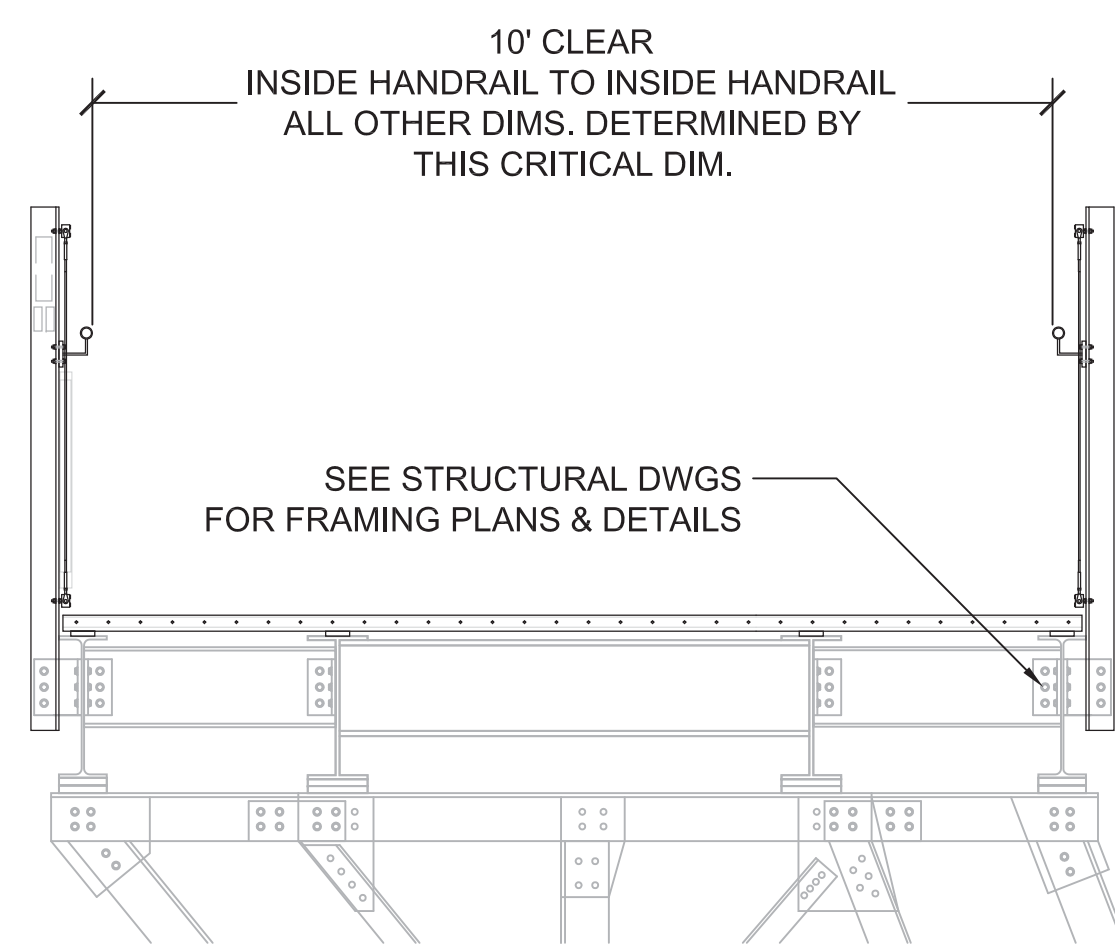
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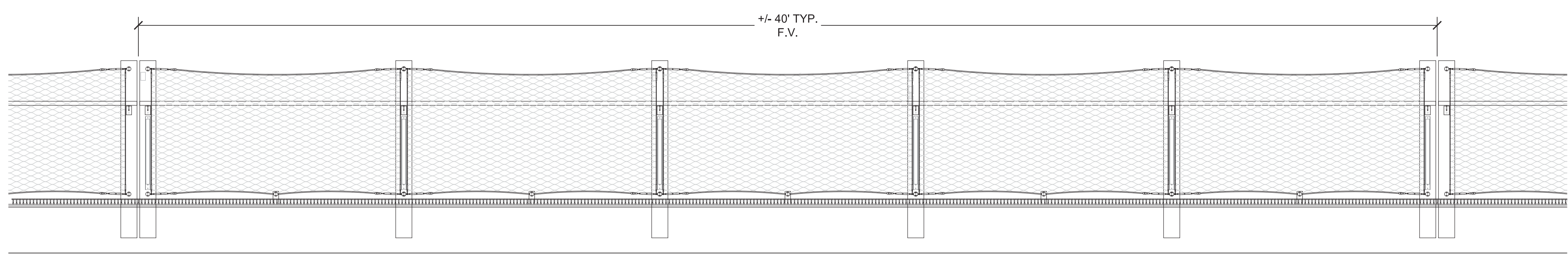
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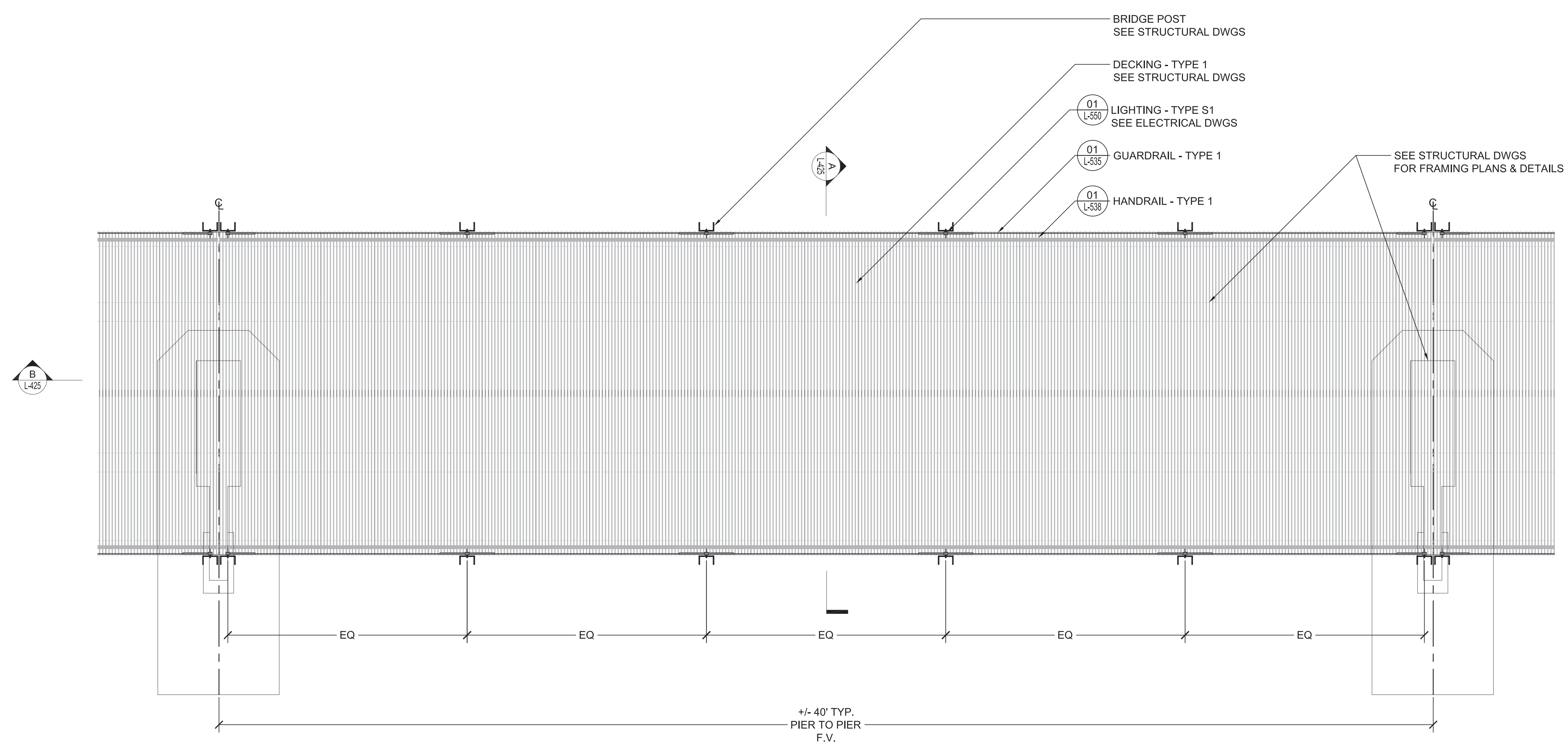
UPRIVER | DOWNRIVER



SECTION A - TRANSVERSE BRIDGE SECTION, TYP.



SECTION B - LONGITUDINAL BRIDGE SECTION, TYP.



PLAN - BRIDGE, TYP.

SEAL/SIGNATURE

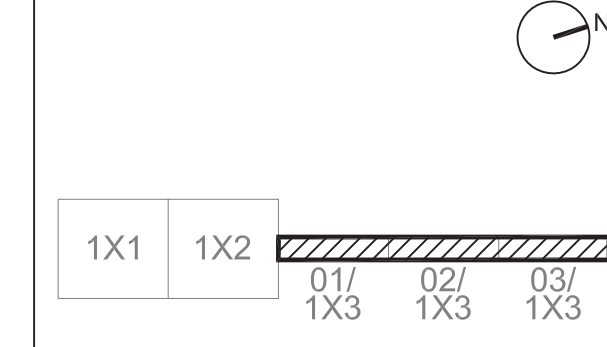


ISSUE

REVISIONS

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 03-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

KEY MAP



SHEET INFORMATION

Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1/2" = 1'-0"

SHEET TITLE

**LANDSCAPE ENLARGEMENTS**  
**BRIDGE, TYPICAL**

SHEET NO.

01 BRIDGE, TYPICAL  
 SCALE: AS SHOWN

**L-425**

SEAL/SIGNATURE

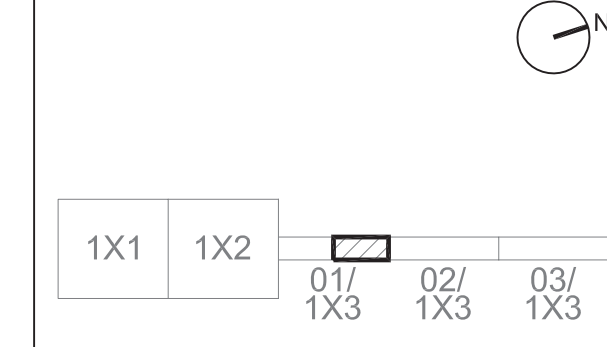


ISSUE

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| 04  | BID SET            | 10-24-2014 |

KEY MAP



SHEET INFORMATION

Project No.: RVA 1301  
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 Checked By: KR  
 Date: 10/24/2014  
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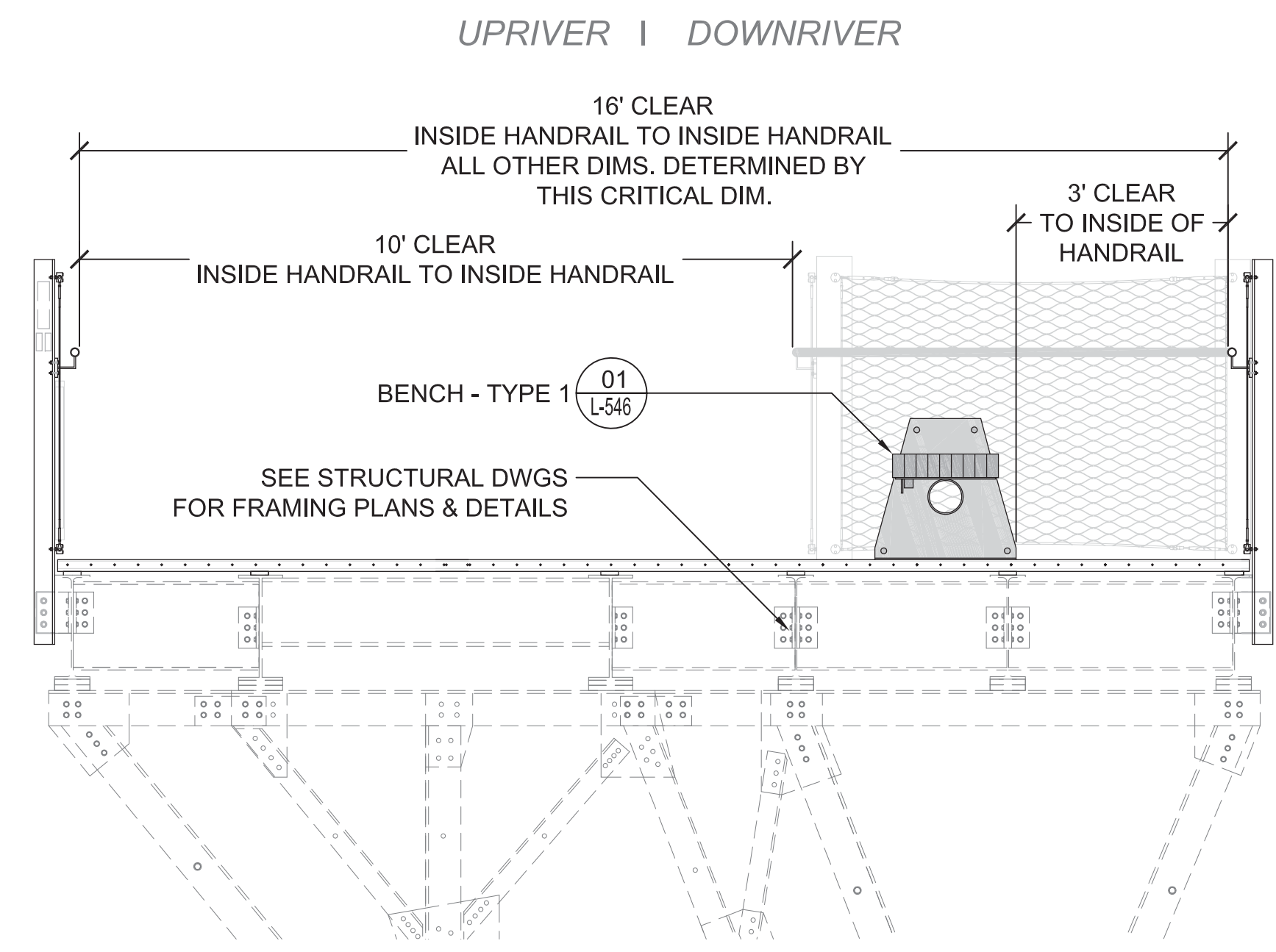


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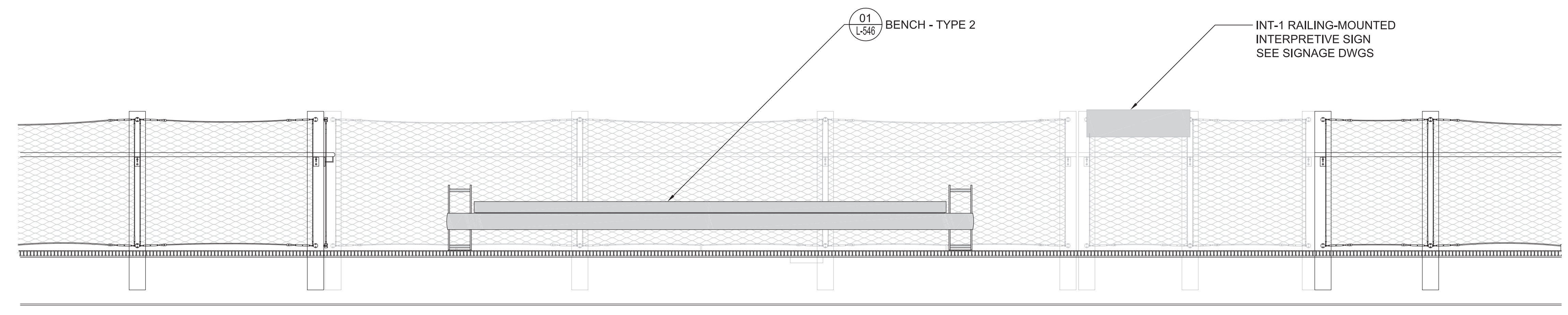
**LANDSCAPE ENLARGEMENTS OVERLOOK B**

SHEET NO.

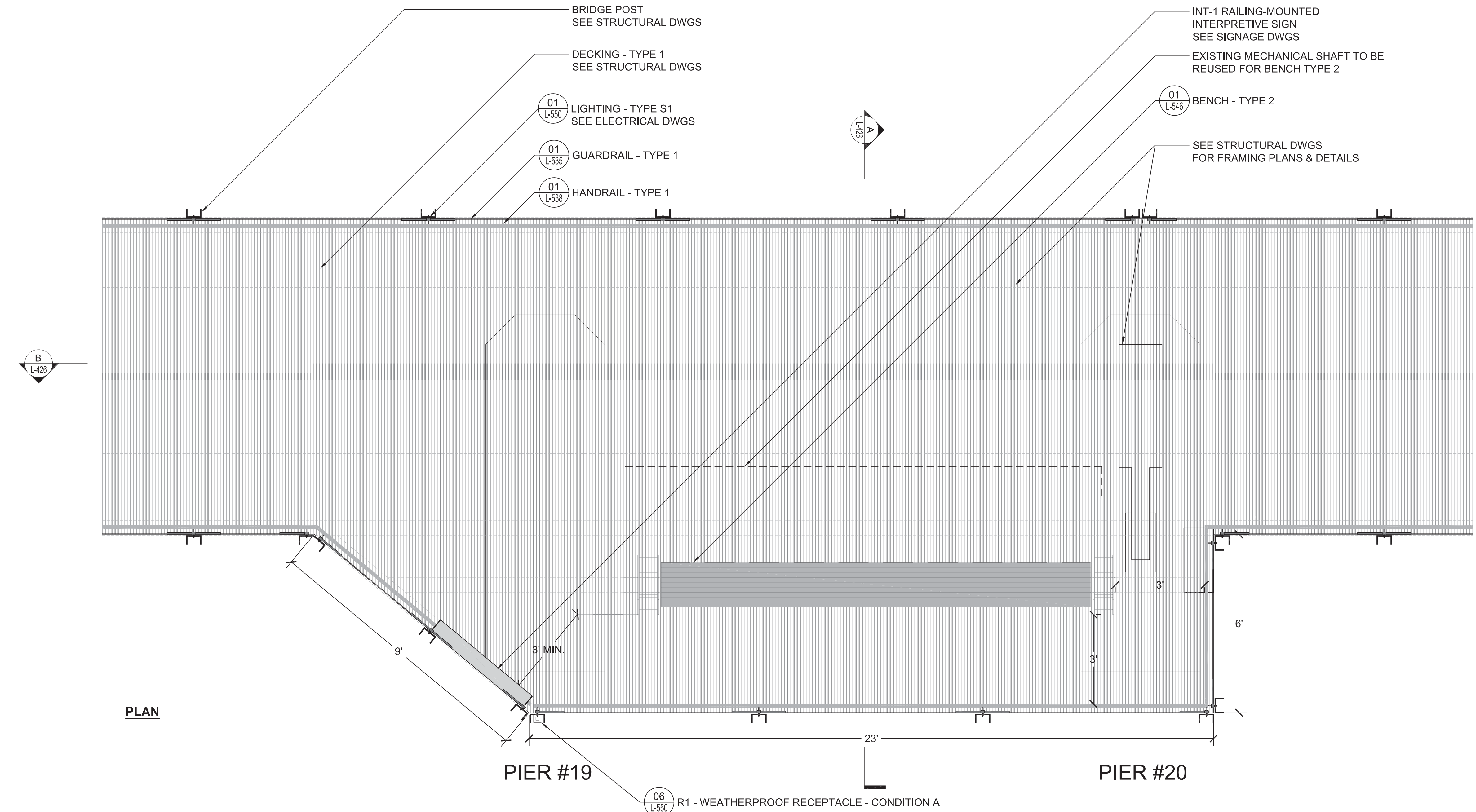
**L-426**



SECTION A



SECTION B



PLAN

01 OVERLOOK B  
 SCALE: AS SHOWN

**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront  
 Improvements: Priority 1  
**T. TYLER**  
**POTTERFIELD**  
**MEMORIAL BRIDGE**  
 RICHMOND, VIRGINIA

**CITY OF RICHMOND**  
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 Richmond, VA 23219  
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 www.hargreaves.com

*Civil Engineering / Permitting / Local Project Management*  
**VHB**  
 115 South 15th Street, Suite 200  
 Richmond, VA 23219  
 www.vhb.com

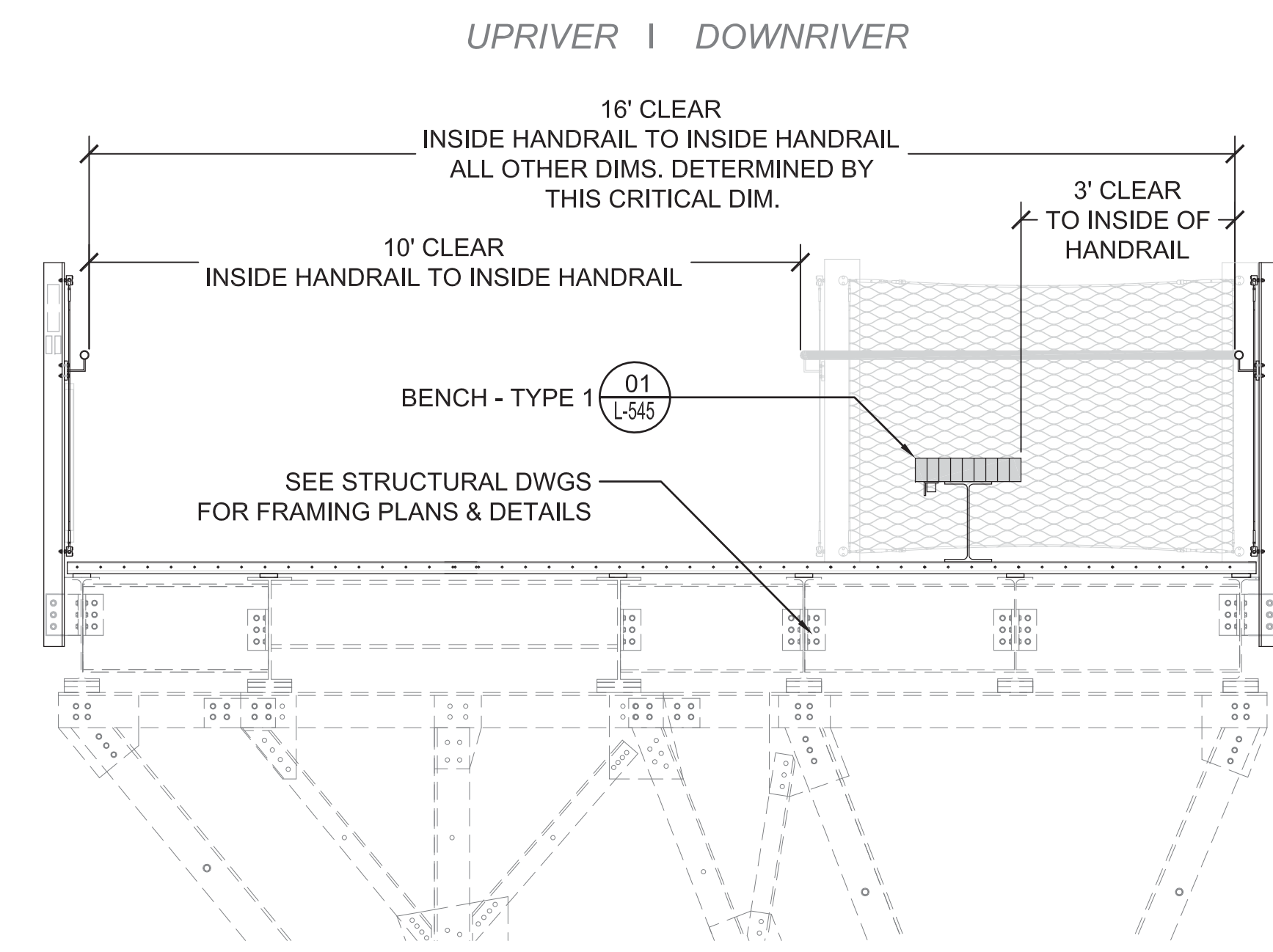
*Marine & Structural Engineering*  
**MOFFATT & NICHOL**  
 1100 Soulders Parkway, Suite 350  
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 www.moffattnichol.com

*Electrical Engineering*  
**HCYU Building Engineered Solutions**  
 919 East Main Street, Suite 1602  
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 www.hcyu.com

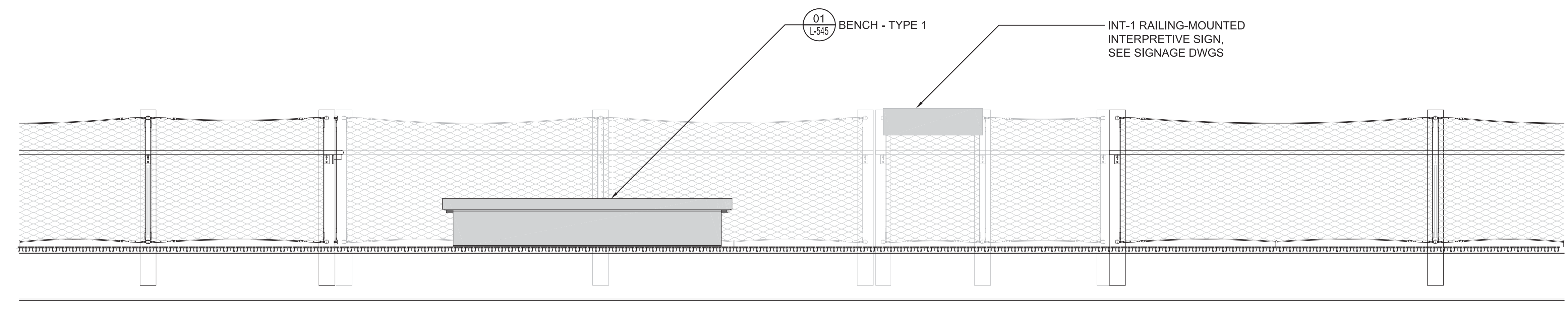
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*Wayfinding / Signage*  
**1717 DESIGN**  
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 www.1717design.com

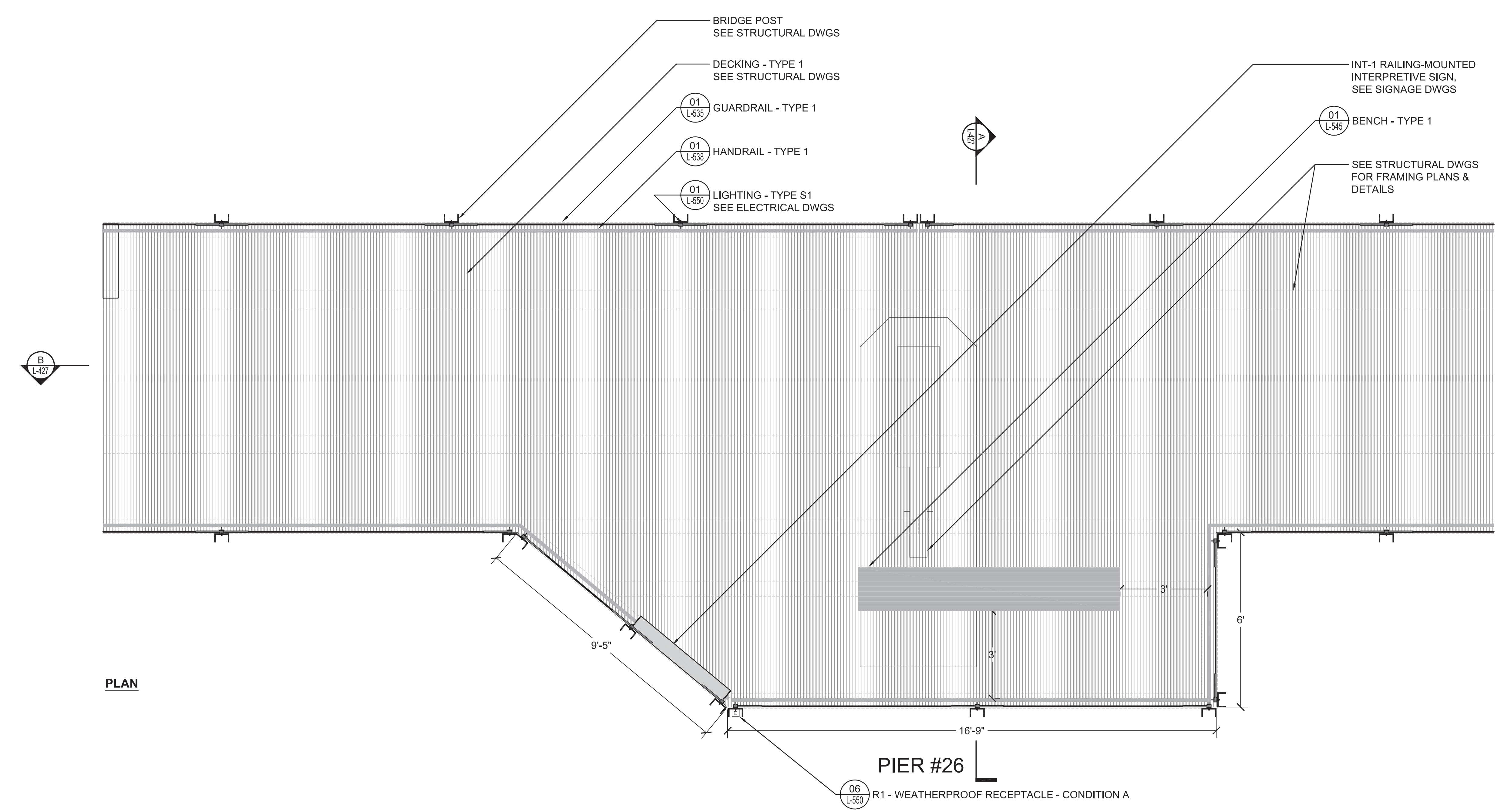
*Geotechnical*  
**DMY INC.**  
 14241 Midlothian Turnpike, Suite 230  
 Midlothian, VA 23113  
 www.dmy-inc.com



**SECTION A**



**SECTION B**



**PLAN**

**PIER #26**

**01 OVERLOOK C**  
 SCALE: AS SHOWN

SEAL/SIGNATURE

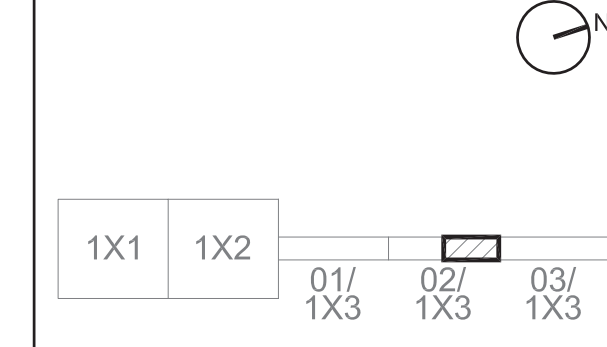


ISSUE

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| 4   | BID SET            | 10-24-2014 |

KEY MAP



SHEET INFORMATION

Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1/2" = 1'-0"

SHEET TITLE

**LANDSCAPE ENLARGEMENTS OVERLOOK C**

SHEET NO.

**L-427**

**PROJECT INFORMATION**

Richmond, Virginia Riverfront  
Improvements: Priority 1  
**T. TYLER**  
**POTTERFIELD**  
**MEMORIAL BRIDGE**  
RICHMOND, VIRGINIA

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**SEAL/SIGNATURE**



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| 04  | BID SET            | 10-24-2014 |

**KEY MAP**



|     |     |        |        |        |
|-----|-----|--------|--------|--------|
| 1X1 | 1X2 | 01/1X3 | 02/1X3 | 03/1X3 |
|-----|-----|--------|--------|--------|

**SHEET INFORMATION**

Project No.: RVA 1301  
Drawn By: ML  
Checked By: KR  
Date: 10/24/2014  
Scale: 1/2" = 1'-0"

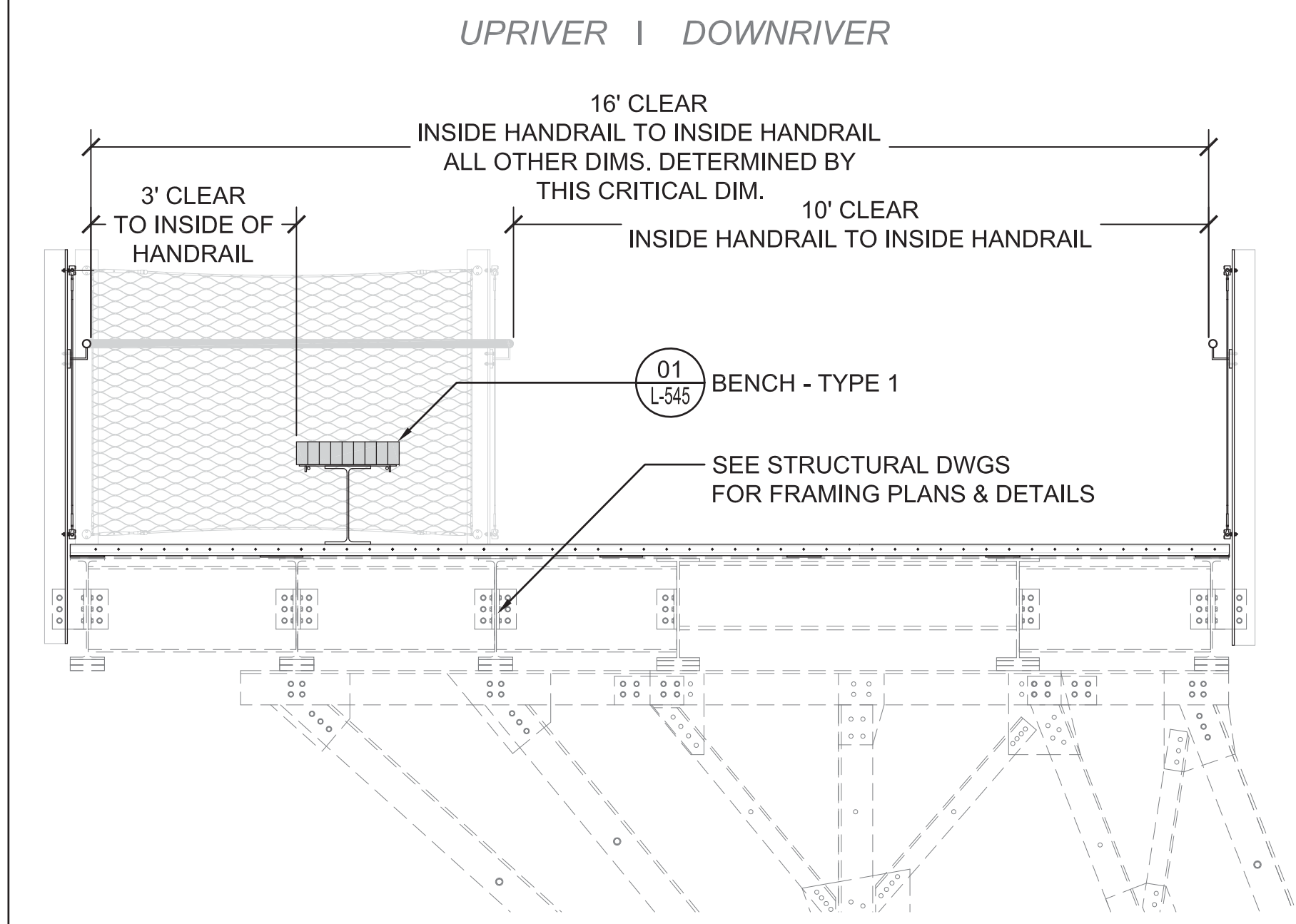


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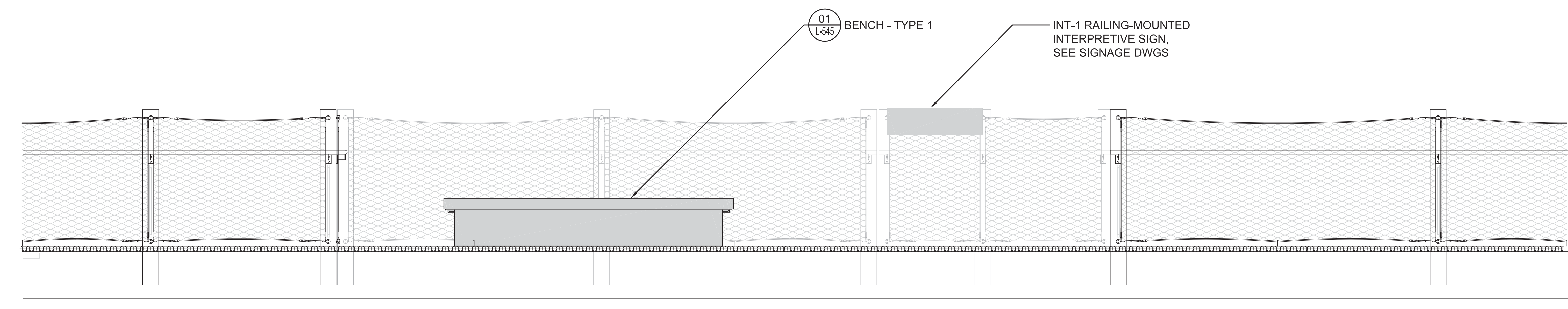
**LANDSCAPE ENLARGEMENTS OVERLOOK D**

SHEET NO.

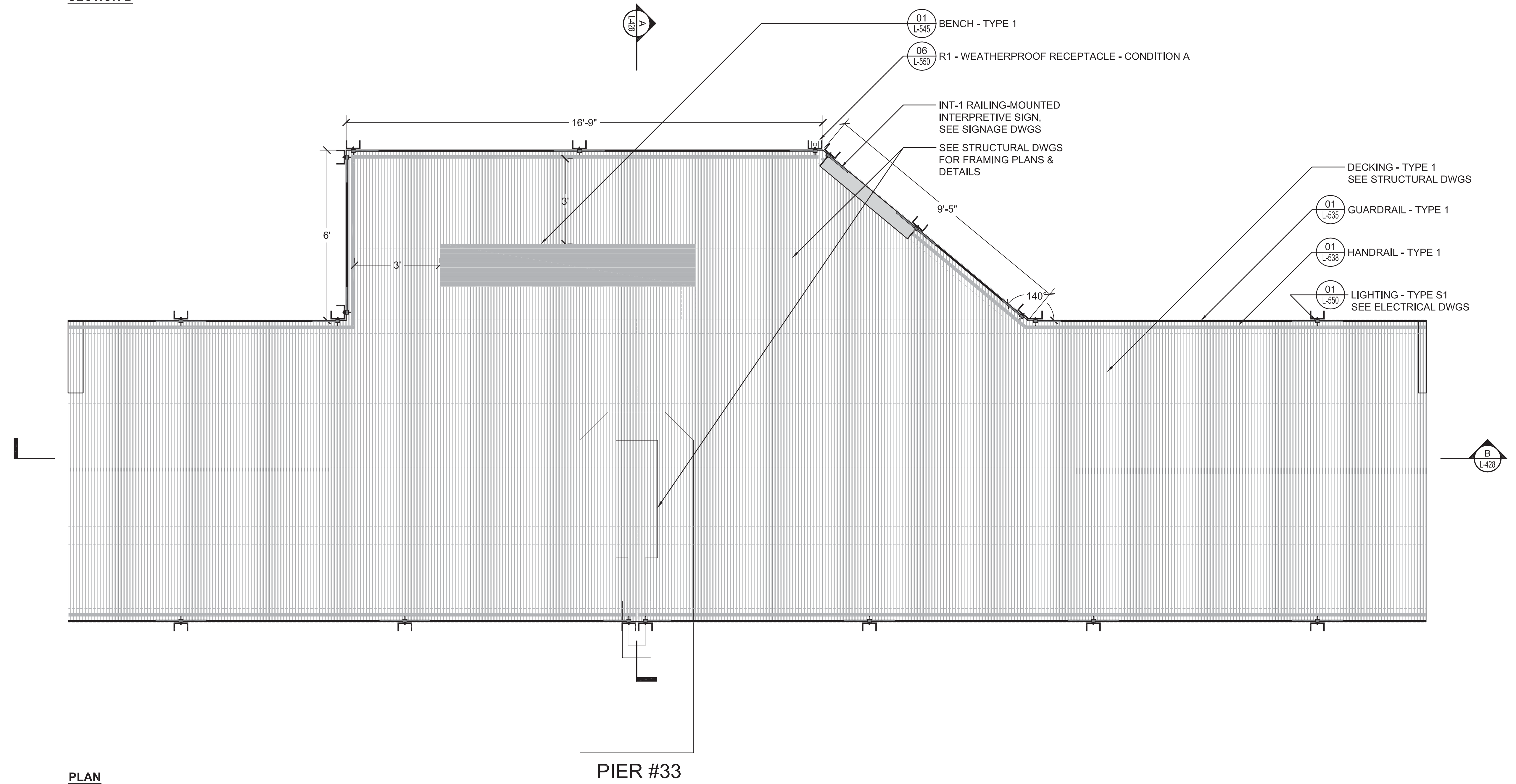
**L-428**



**SECTION A**



**SECTION B**



**PLAN**

**PIER #33**

**01 OVERLOOK D**  
SCALE: AS SHOWN



**PROJECT INFORMATION**

Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER**  
**POTTERFIELD MEMORIAL BRIDGE**  
 RICHMOND, VIRGINIA

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 Midlothian, VA 23113  
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SEAL/SIGNATURE

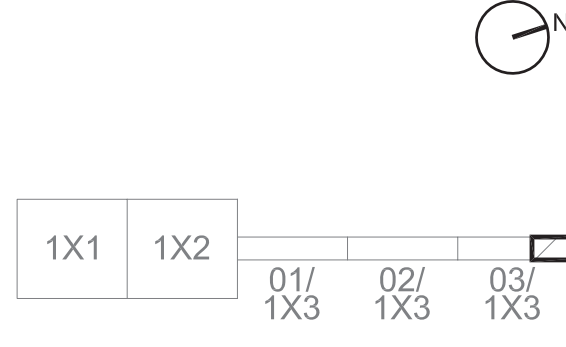


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**KEY MAP**



**SHEET INFORMATION**

Project No.: RVA 1301  
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 Checked By: KR  
 Date: 10/24/2014  
 Scale: AS SHOWN

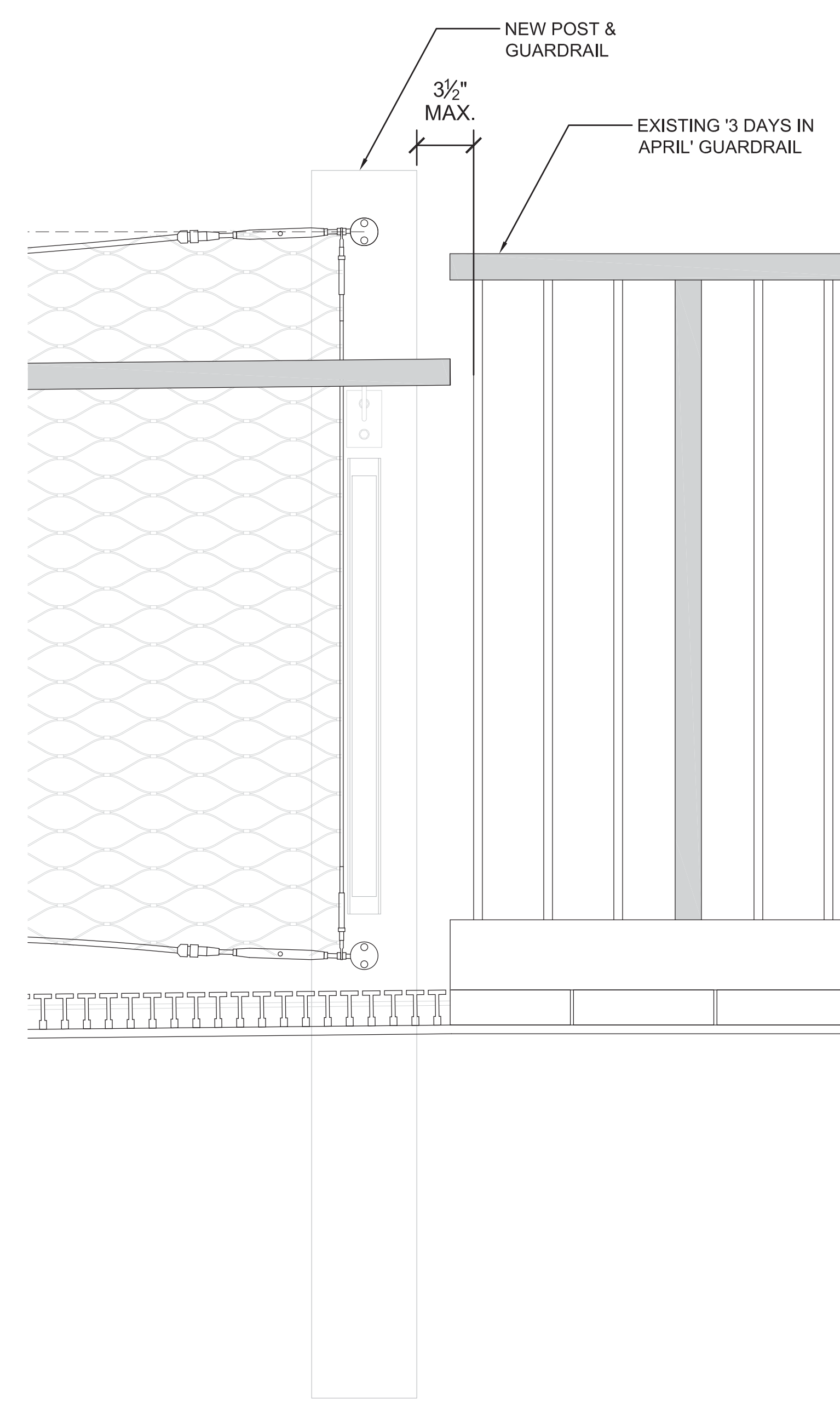


**SHEET TITLE**

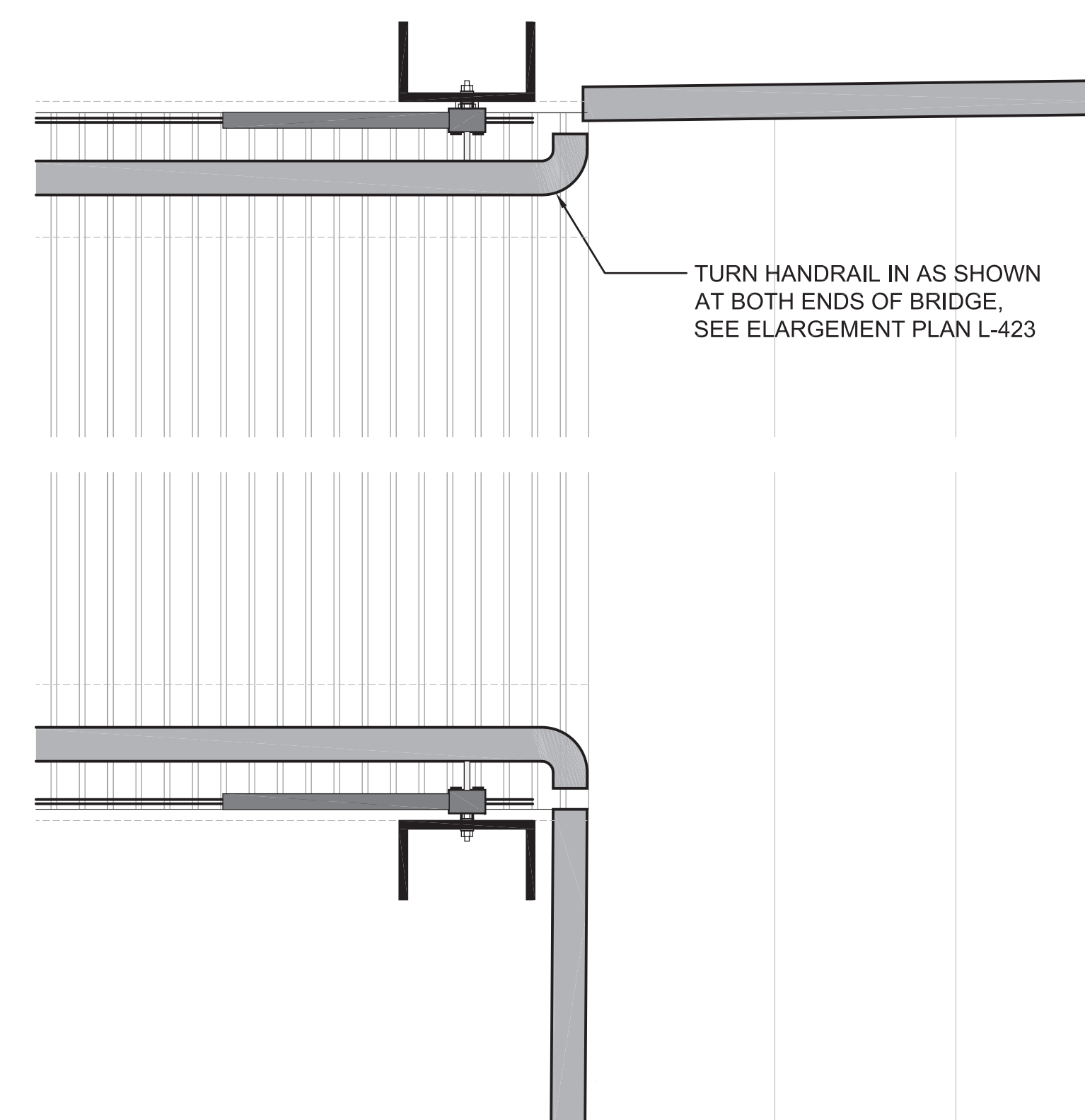
**LANDSCAPE '3 DAYS IN APRIL' INTERFACE**

SHEET NO.

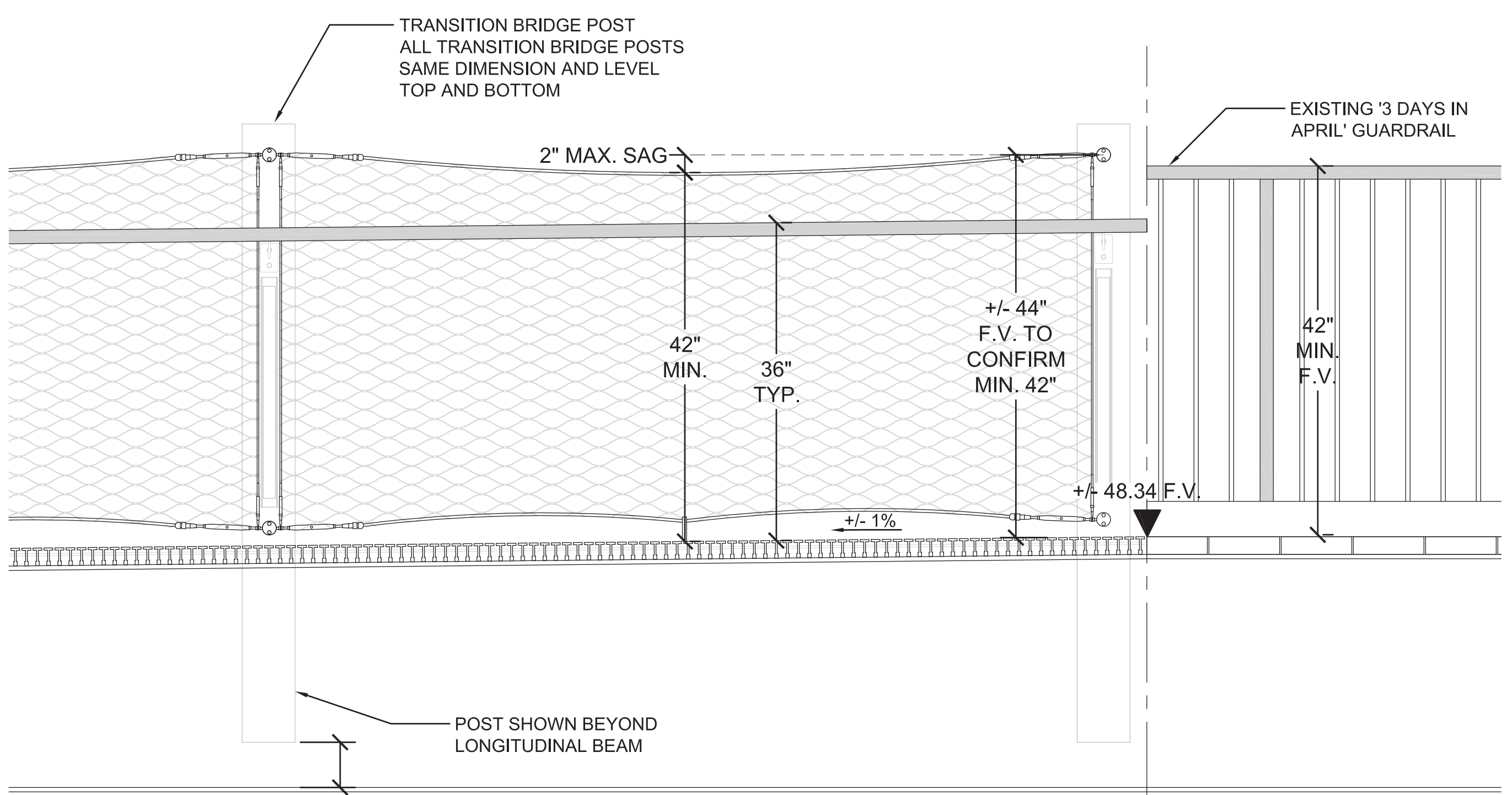
**L-430**



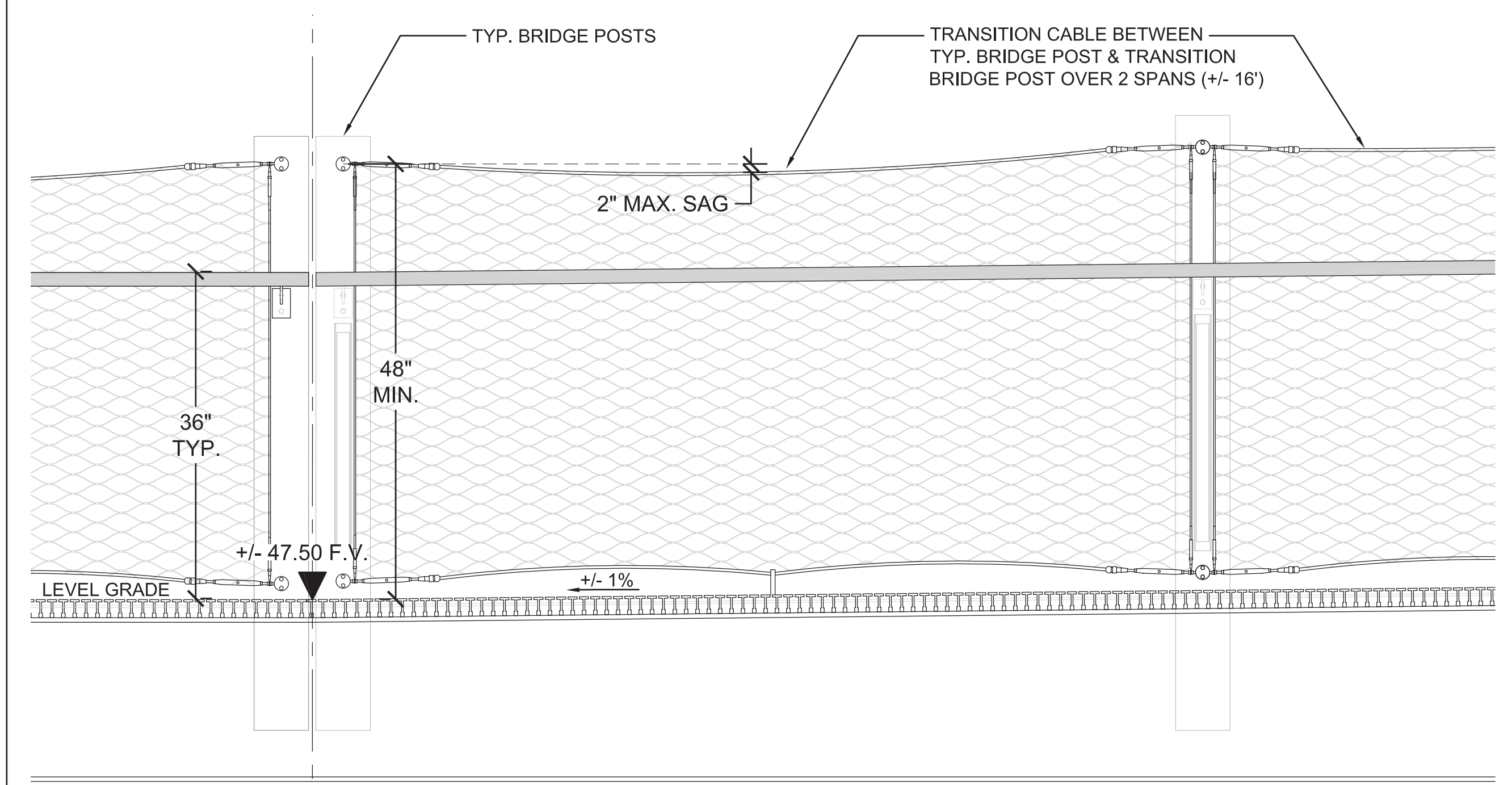
**02 '3 DAYS IN APRIL' INTERFACE - SECTION**  
 SCALE: 2" = 1'-0"



**01 '3 DAYS IN APRIL' INTERFACE - PLAN**  
 SCALE: 2" = 1'-0"



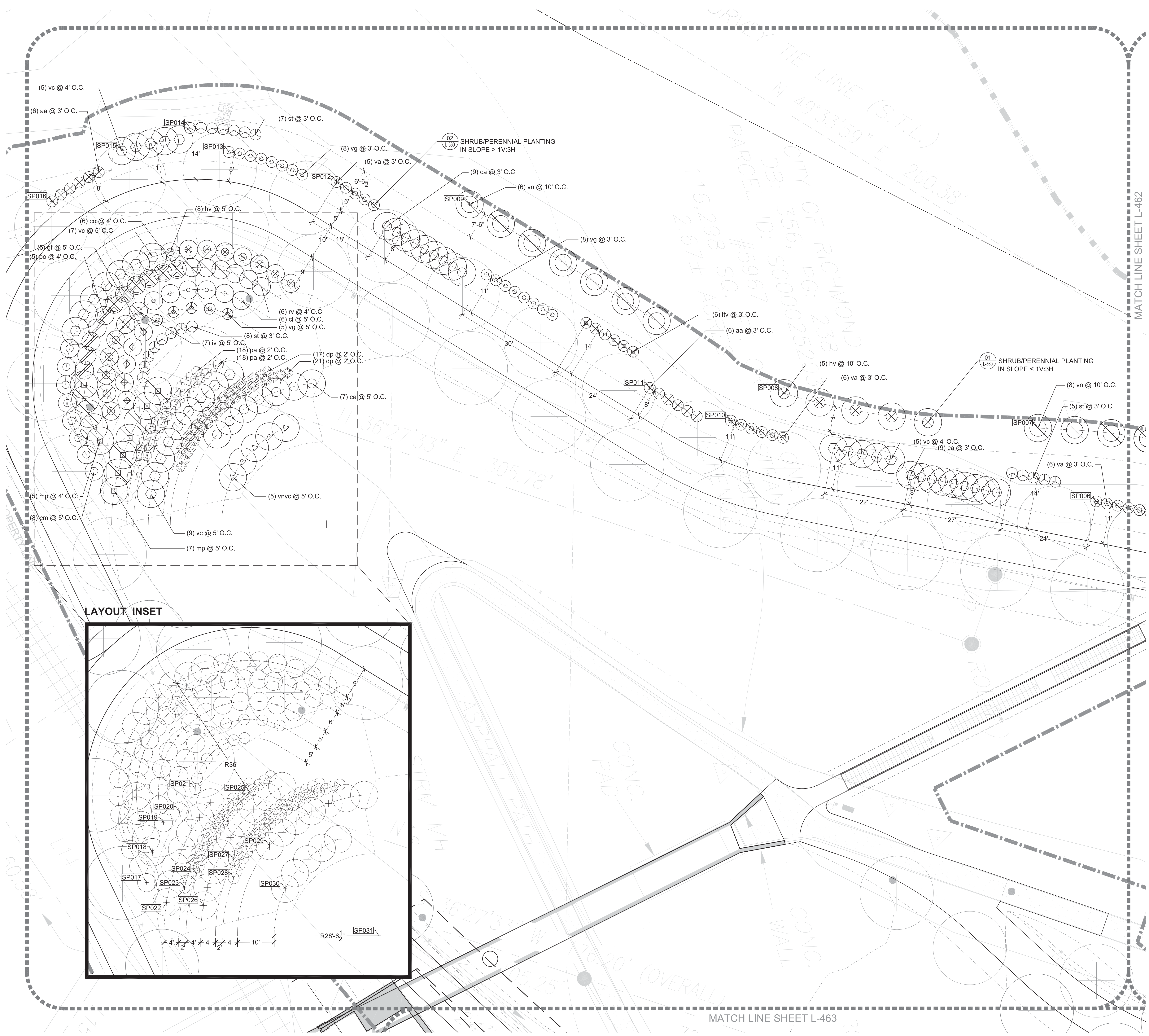
**03 '3 DAYS IN APRIL' INTERFACE - ELEVATION A**  
 SCALE: 1" = 1'-0"



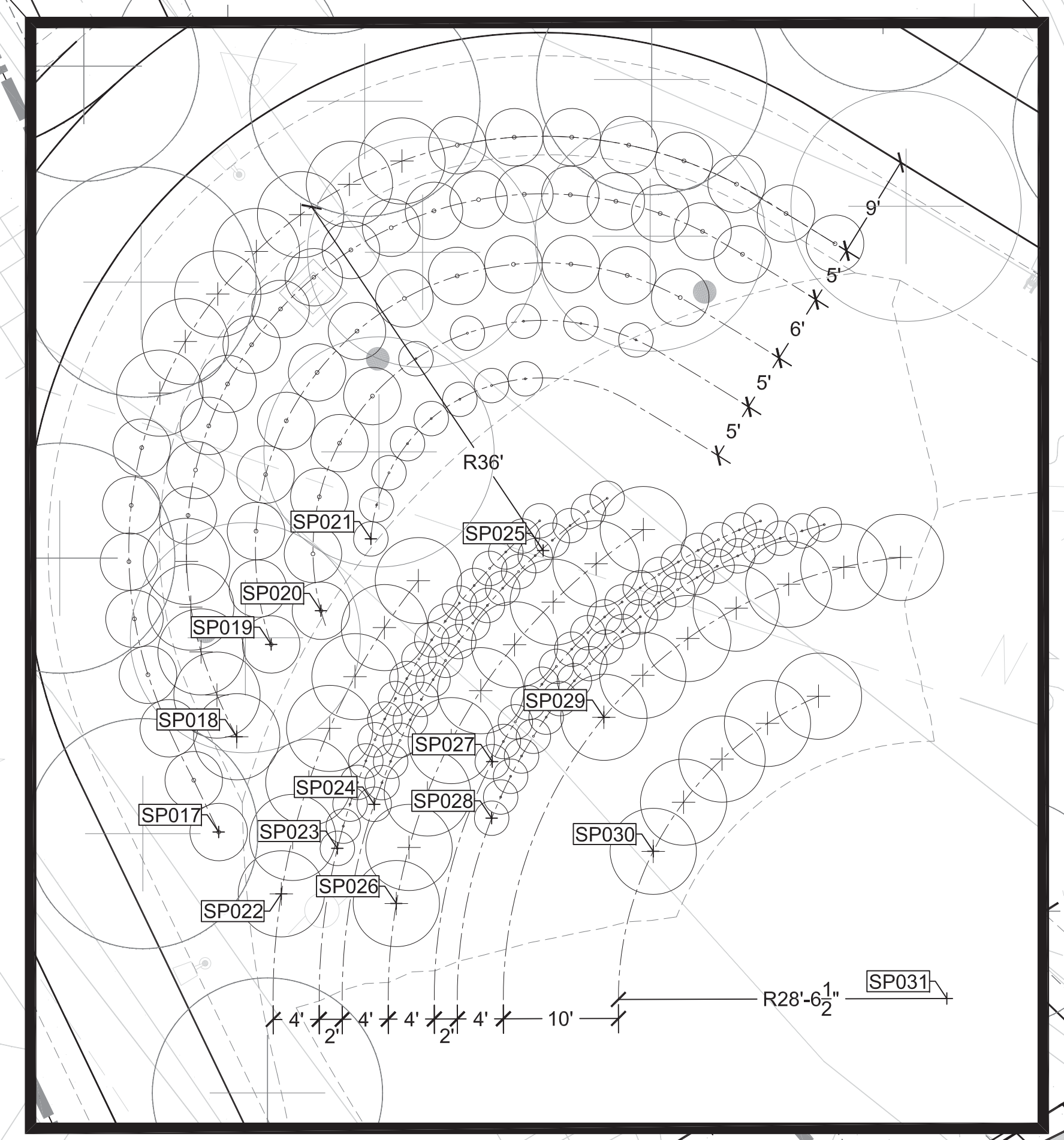
**04 '3 DAYS IN APRIL' INTERFACE - ELEVATION B**  
 SCALE: 1" = 1'-0"







LAYOUT INSET



**SHEET NOTES**

- SEE SHEET L-060, L-061 & L-062 FOR PLANTING SCHEDULE.

**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
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 Midlothian, VA 23113  
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**LEGEND**

- LIMIT OF WORK
- LAYOUT CENTER LINE
- SHRUB LAYOUT POINT
- SHRUBS AND FERNS
- TREE

SEAL/SIGNATURE

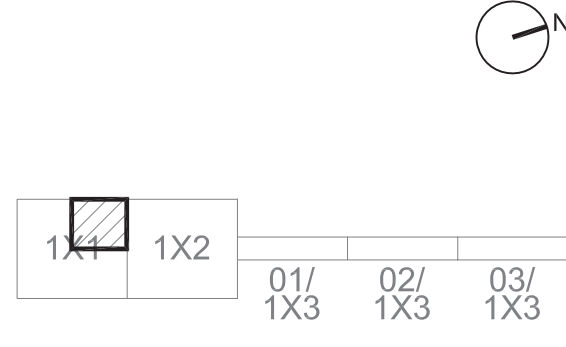


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| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

KEY MAP



SHEET INFORMATION

Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=10'

SHEET TITLE

**LANDSCAPE ENLARGEMENTS PLANTING**

SHEET NO.

**L-461**

MATCH LINE SHEET L-463



MATCH LINE SHEET L-461

MATCH LINE SHEET L-462

### SHEET NOTES

- SEE SHEET L-060, L-061 & L-062 FOR PLANTING SCHEDULE.

### PROJECT INFORMATION

Richmond, Virginia Riverfront  
Improvements: Priority 1  
**T. TYLER**  
**POTTERFIELD**  
**MEMORIAL BRIDGE**  
RICHMOND, VIRGINIA

### CITY OF RICHMOND

900 E. Broad St.  
Richmond, VA 23219  
www.richmondgov.com

### LANDSCAPE ARCHITECTURE

**HARGREAVES ASSOCIATES**  
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### Civil Engineering / Permitting / Local Project Management

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Richmond, VA 23219  
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### Marine & Structural Engineering

**MOFFATT & NICHOL**  
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Richmond, VA 23225  
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### Electrical Engineering

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### Lighting Design

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### Wayfinding / Signage

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www.1717design.com

### Geotechnical

**DMY INC.**  
14241 Midlothian Turnpike, Suite 230  
Midlothian, VA 23113  
www.dmy-inc.com

### LEGEND

- LIMIT OF WORK
- LAYOUT CENTER LINE
- SHRUB LAYOUT POINT
- SHRUBS AND FERNS
- TREE

### SEAL/SIGNATURE



### ISSUE

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| 4   | BID SET            | 10-24-2014 |

### KEY MAP



|     |     |        |        |        |
|-----|-----|--------|--------|--------|
| 1X1 | 1X2 | 01/1X3 | 02/1X3 | 03/1X3 |
|-----|-----|--------|--------|--------|

### SHEET INFORMATION

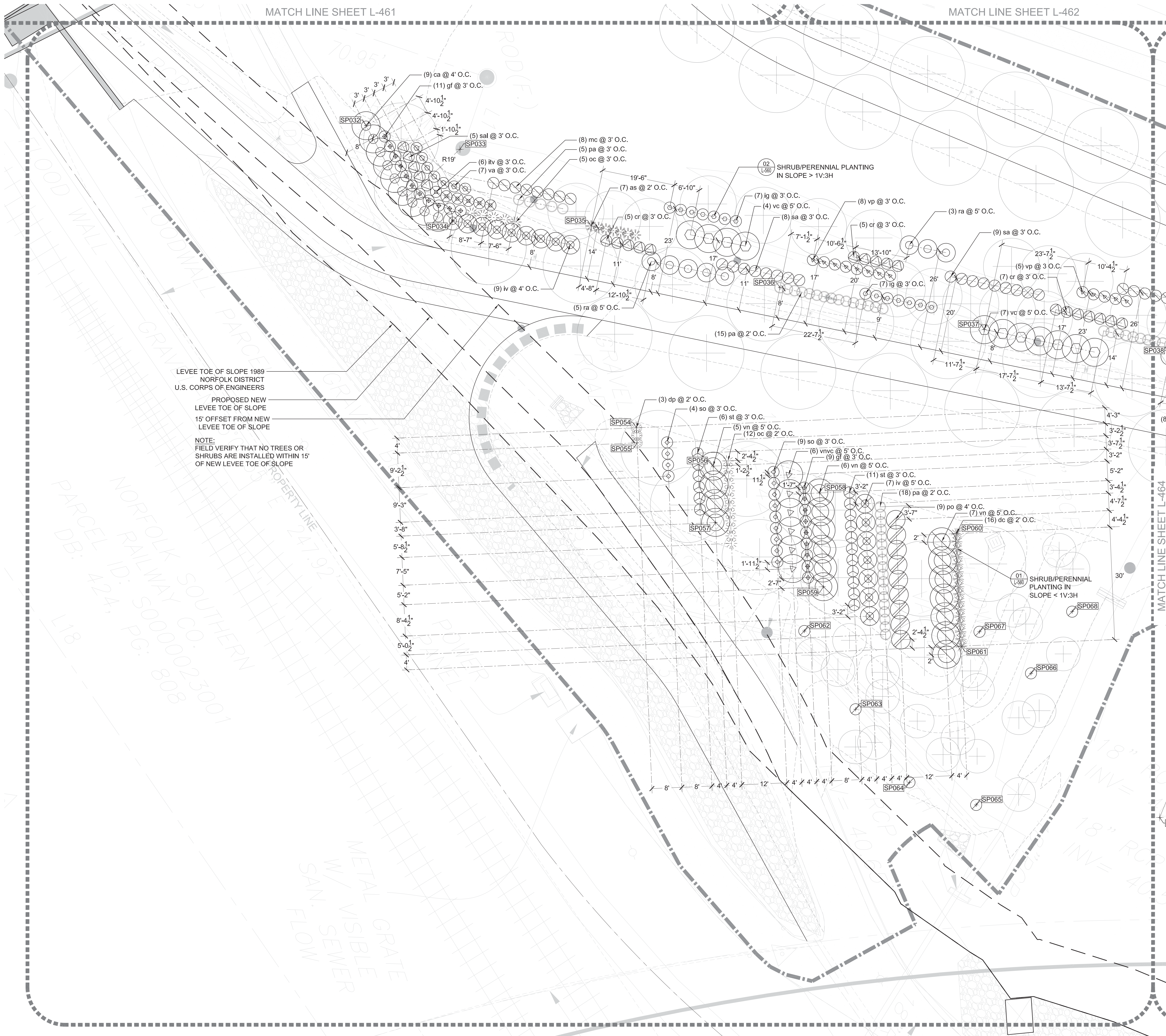
Project No.: RVA 1301  
Drawn By: ML  
Checked By: KR  
Date: 10/24/2014  
Scale: 1"=10'

### SHEET TITLE

**LANDSCAPE ENLARGEMENTS PLANTING**

### SHEET NO.

**L-463**



LEVEE TOE OF SLOPE 1989  
NORFOLK DISTRICT  
U.S. CORPS OF ENGINEERS

PROPOSED NEW  
LEVEE TOE OF SLOPE  
15' OFFSET FROM NEW  
LEVEE TOE OF SLOPE

NOTE:  
FIELD VERIFY THAT NO TREES OR  
SHRUBS ARE INSTALLED WITHIN 15'  
OF NEW LEVEE TOE OF SLOPE

PARCEL ID: 50000023001  
PG: 808

NORFOLK SOUTHERN  
PROPERTY LINE

247.92'

18" INV = 40.5'

18" INV = 40.5'

METAL GRATE  
W/ VISIBLE  
SEWER  
FLOW

MATCH LINE SHEET L-464

**SHEET NOTES**

- SEE SHEET L-060, L-061 & L-062 FOR PLANTING SCHEDULE.

**PROJECT INFORMATION**

Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
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**SEAL/SIGNATURE**

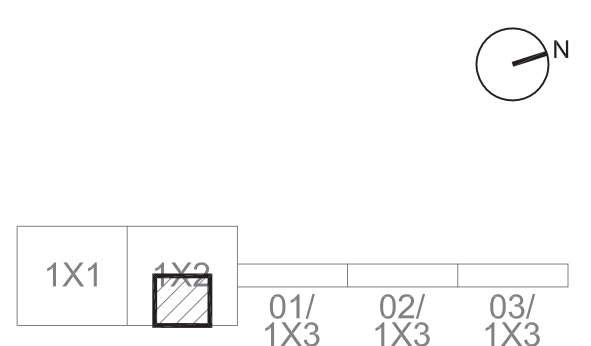


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**KEY MAP**



**SHEET INFORMATION**

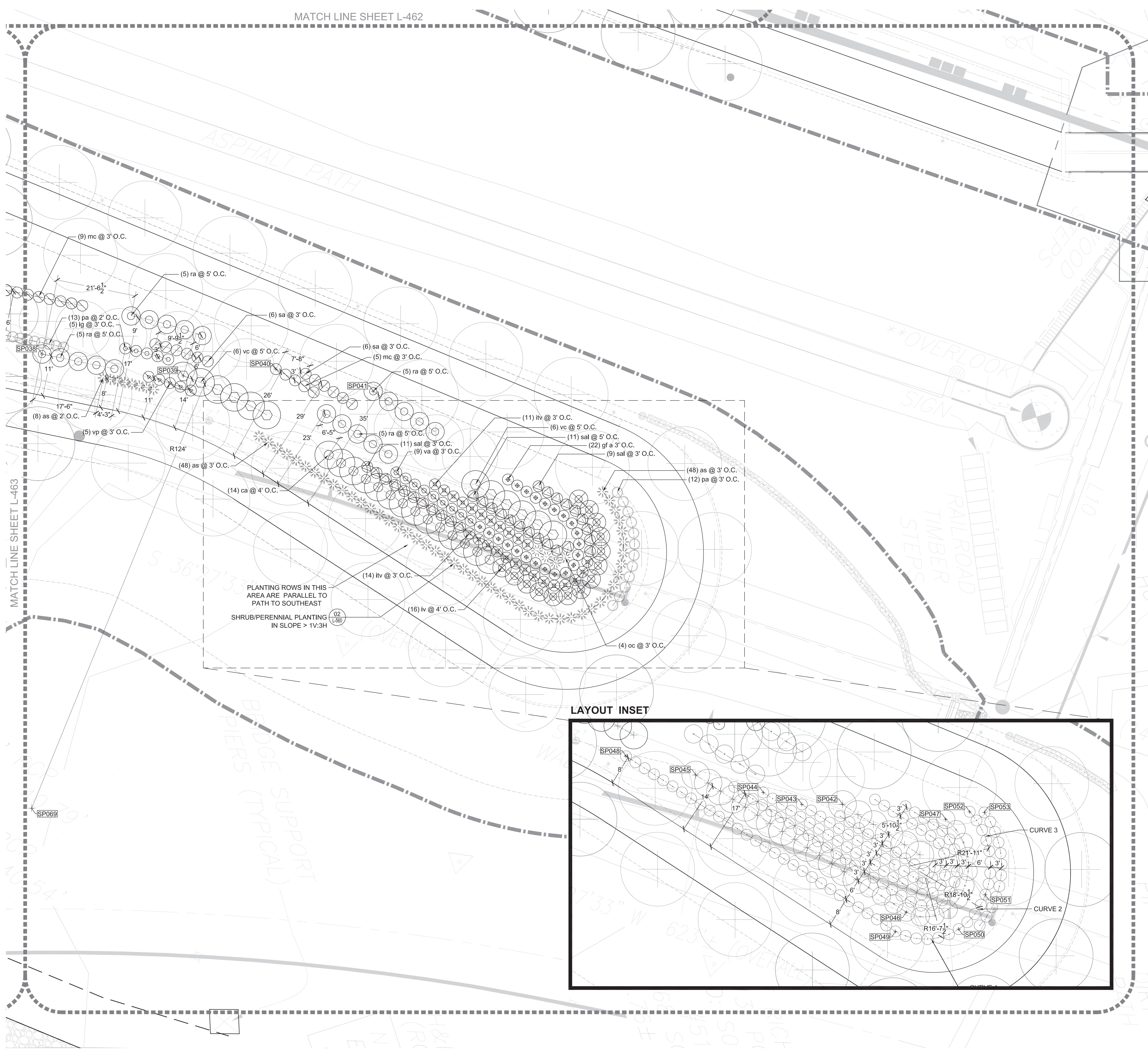
Project No.: RVA 1301  
 Drawn By: ML  
 Checked By: KR  
 Date: 10/24/2014  
 Scale: 1"=10'

**SHEET TITLE**

**LANDSCAPE ENLARGEMENTS PLANTING**

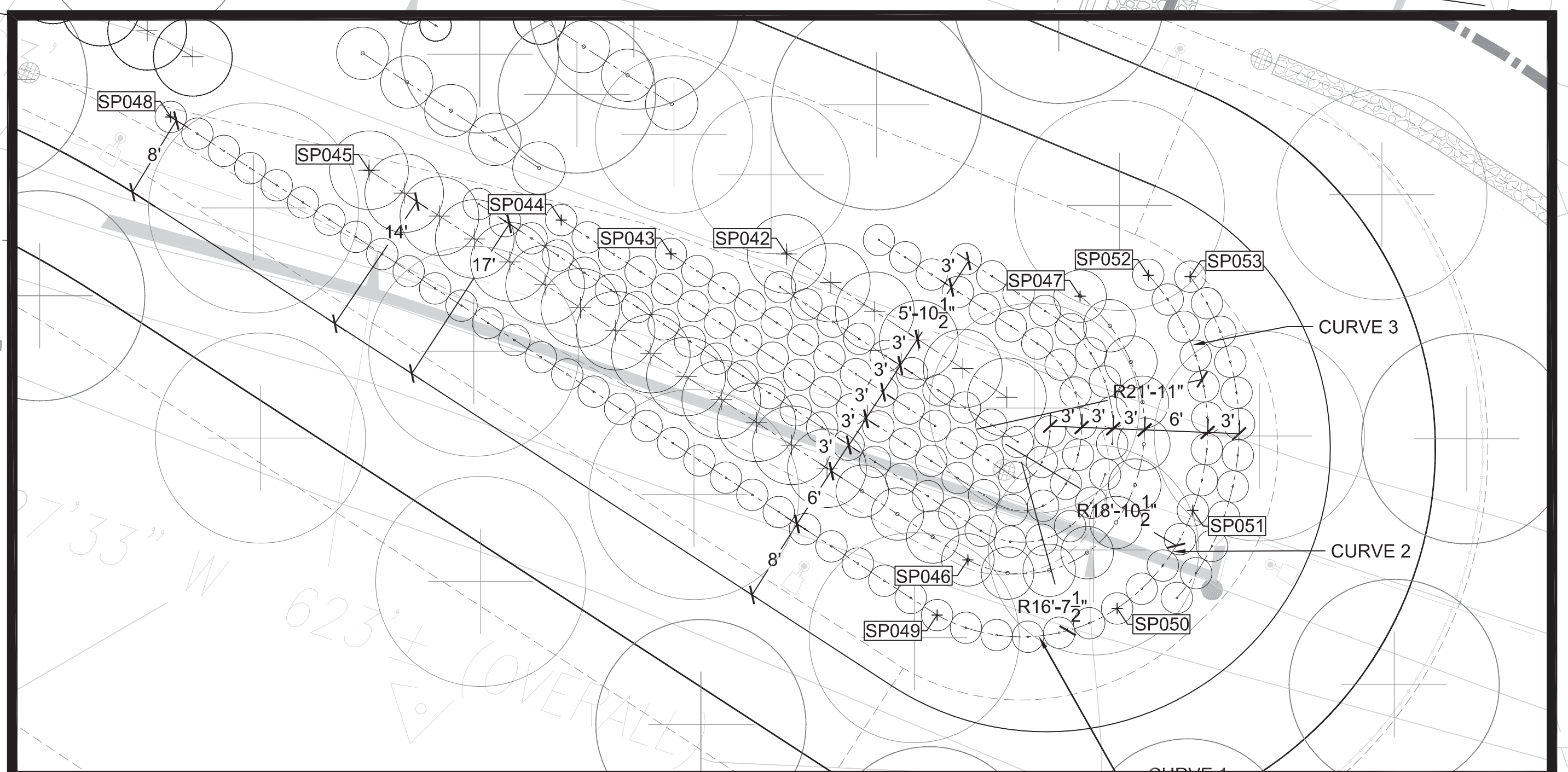
**SHEET NO.**

**L-464**



PLANTING ROWS IN THIS AREA ARE PARALLEL TO PATH TO SOUTHEAST  
 SHRUB/PERENNIAL PLANTING IN SLOPE > 1V:3H

**LAYOUT INSET**



MATCH LINE SHEET L-463

ASPHALT PATH

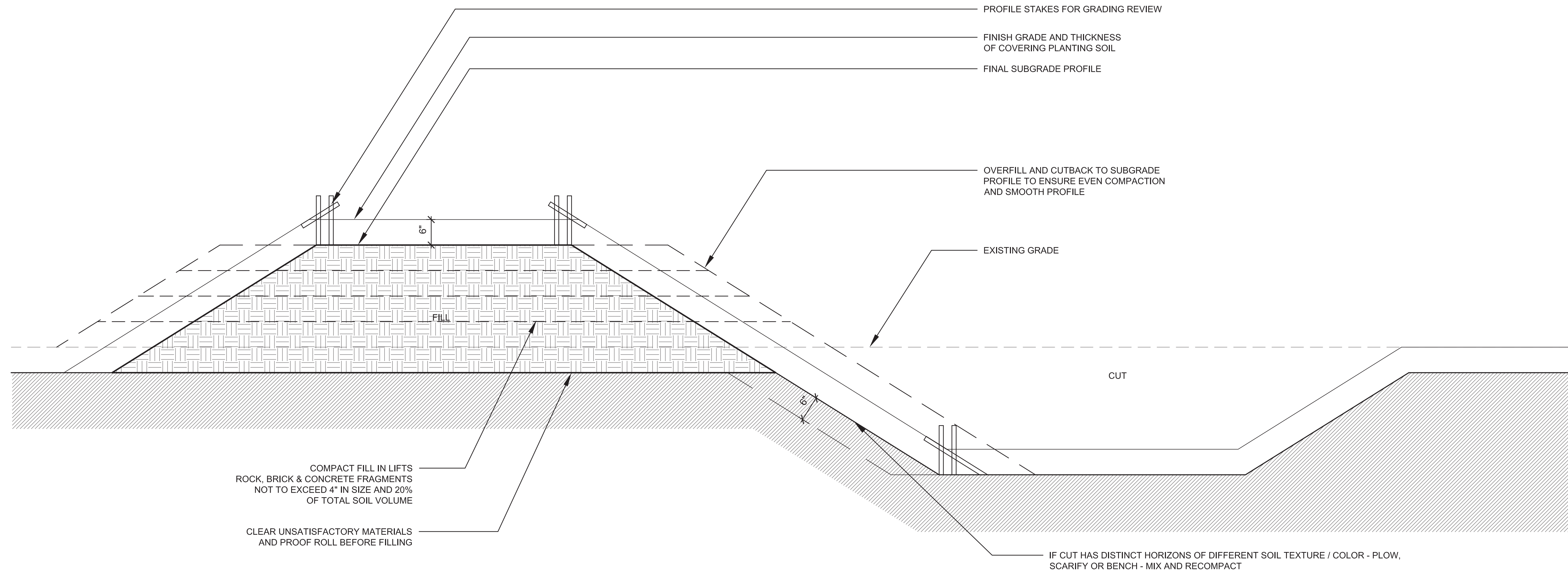
\*\*OVERLOOK SIGN

RAILROAD TIMBER STEPS

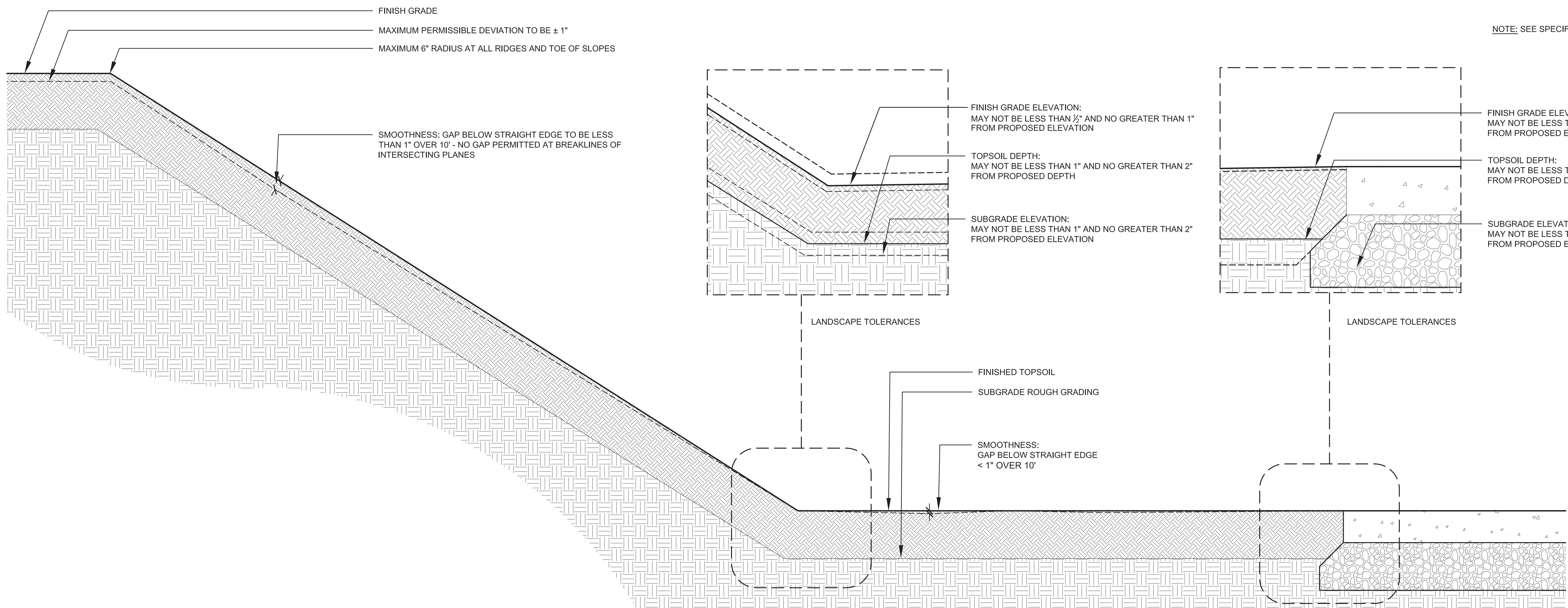
BRIDGE SUPPORT PIERS (TYPICAL)

CURVE 3

CURVE 2



02 GRADING LANDFORMS, TYP.  
SCALE: 1" = 1'-0"



01 GRADING TOLERANCES, TYP.  
SCALE: 2" = 1'-0"

**PROJECT INFORMATION**  
Richmond, Virginia Riverfront  
Improvements: Priority 1  
**T. TYLER**  
**POTTERFIELD**  
**MEMORIAL BRIDGE**  
RICHMOND, VIRGINIA

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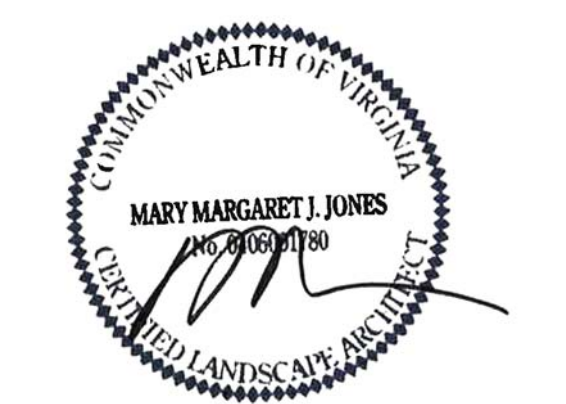
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KEY MAP

SHEET INFORMATION

Project No.: RVA 1301  
Drawn By: ML  
Checked By: KR  
Date: 10/24/2014  
Scale: AS SHOWN

SHEET TITLE

**LANDSCAPE  
DETAILS  
GRADING**

SHEET NO.

**L-505**

























SEAL/SIGNATURE



ISSUE

REVISIONS

| NO.                | DESCRIPTION | DATE |
|--------------------|-------------|------|
| SCHEMATIC DESIGN   | 03-28-2014  |      |
| DESIGN DEVELOPMENT | 06-27-2014  |      |
| 85% CONSTRUCTION   | 10-03-2014  |      |
| BID SET            | 10-24-2014  |      |

KEY MAP

SHEET INFORMATION

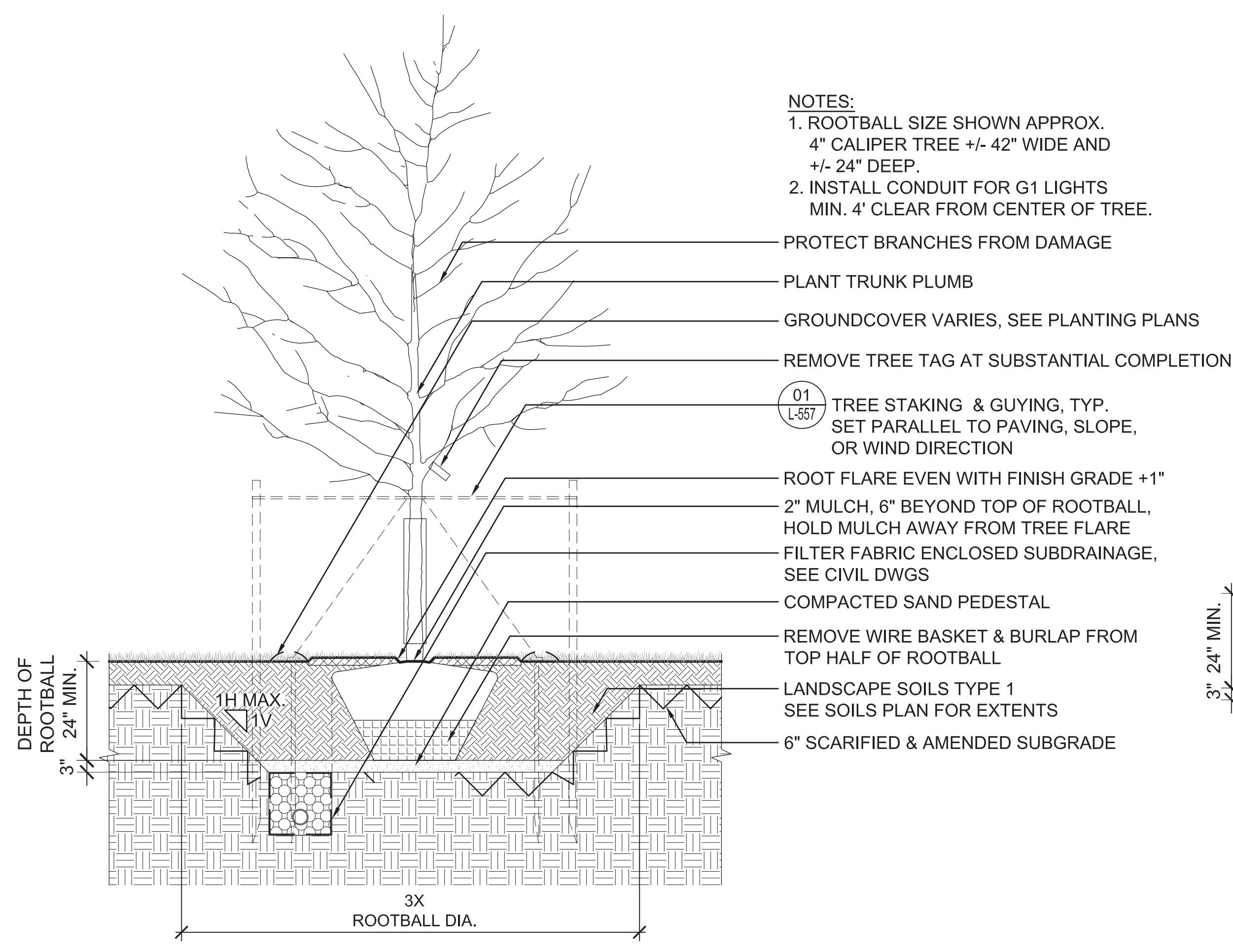
Project No.: RVA 1301  
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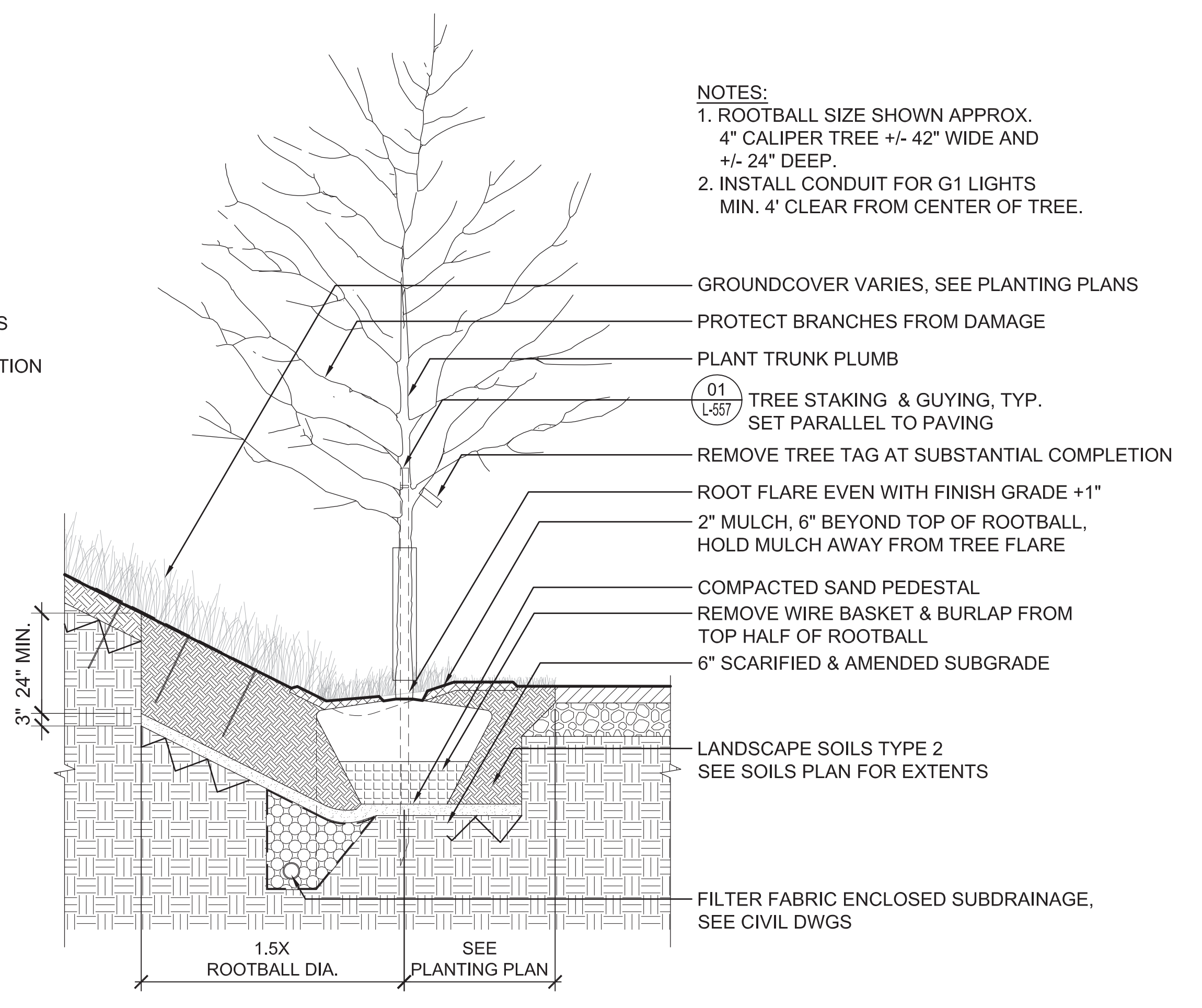
**LANDSCAPE  
 DETAILS  
 TREE PLANTING**

SHEET NO.

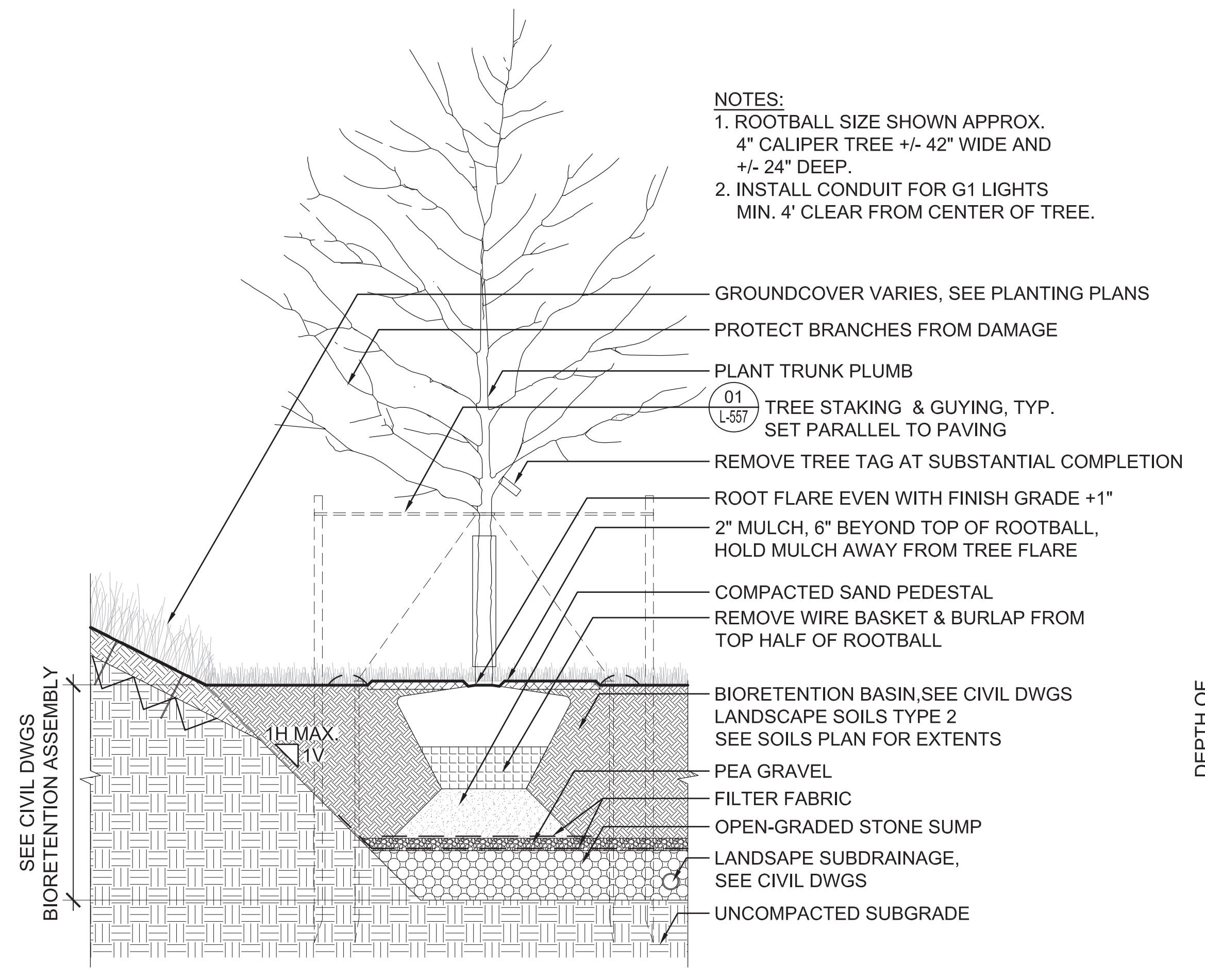
**L-556**



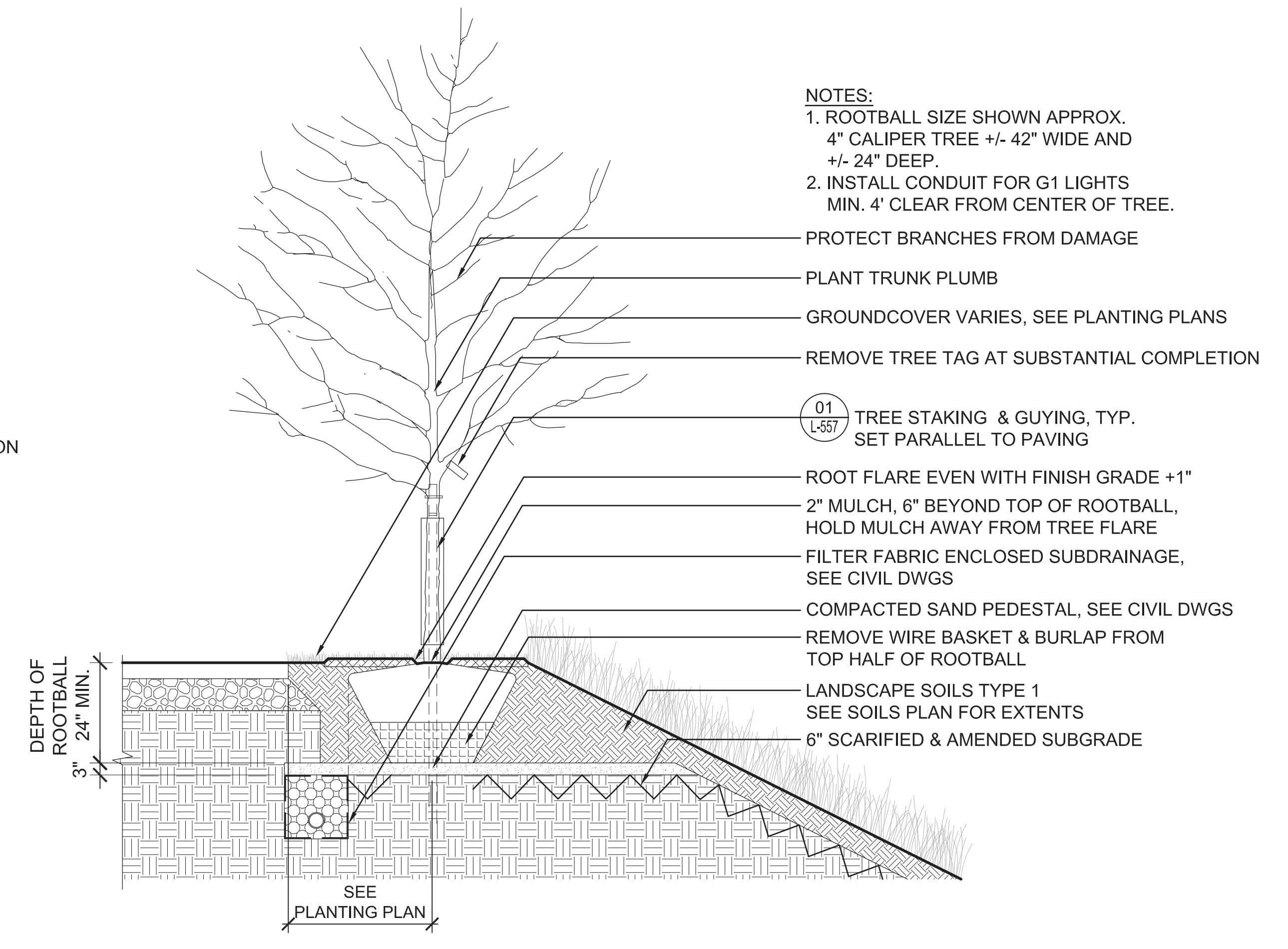
**04 TREE PLANTING IN LEVEL GRADE**  
 SCALE: 1/2" = 1'-0"



**02 TREE PLANTING IN BIOSWALE**  
 SCALE: 1/2" = 1'-0"



**03 TREE PLANTING IN BIORETENTION BASIN**  
 SCALE: 1/2" = 1'-0"



**01 TREE PLANTING IN RECOVERY ZONE**  
 SCALE: 1/2" = 1'-0"

- NOTES:**  
 1. ROOTBALL SIZE SHOWN APPROX.  
 4" CALIPER TREE +/- 42" WIDE AND  
 +/- 24" DEEP.  
 2. INSTALL CONDUIT FOR G1 LIGHTS  
 MIN. 4' CLEAR FROM CENTER OF TREE.

- PROTECT BRANCHES FROM DAMAGE
- PLANT TRUNK PLUMB
- GROUNDCOVER VARIES, SEE PLANTING PLANS
- REMOVE TREE TAG AT SUBSTANTIAL COMPLETION
- 01 TREE STAKING & GUYING, TYP.  
 SET PARALLEL TO PAVING, SLOPE,  
 OR WIND DIRECTION
- ROOT FLARE EVEN WITH FINISH GRADE +1"
- 2" MULCH, 6" BEYOND TOP OF ROOTBALL,  
 HOLD MULCH AWAY FROM TREE FLARE
- FILTER FABRIC ENCLOSED SUBDRAINAGE,  
 SEE CIVIL DWGS
- COMPACTED SAND PEDESTAL
- REMOVE WIRE BASKET & BURLAP FROM  
 TOP HALF OF ROOTBALL
- LANDSCAPE SOILS TYPE 1  
 SEE SOILS PLAN FOR EXTENTS
- 6" SCARIFIED & AMENDED SUBGRADE

- NOTES:**  
 1. ROOTBALL SIZE SHOWN APPROX.  
 4" CALIPER TREE +/- 42" WIDE AND  
 +/- 24" DEEP.  
 2. INSTALL CONDUIT FOR G1 LIGHTS  
 MIN. 4' CLEAR FROM CENTER OF TREE.

- GROUNDCOVER VARIES, SEE PLANTING PLANS
- PROTECT BRANCHES FROM DAMAGE
- PLANT TRUNK PLUMB
- 01 TREE STAKING & GUYING, TYP.  
 SET PARALLEL TO PAVING
- REMOVE TREE TAG AT SUBSTANTIAL COMPLETION
- ROOT FLARE EVEN WITH FINISH GRADE +1"
- 2" MULCH, 6" BEYOND TOP OF ROOTBALL,  
 HOLD MULCH AWAY FROM TREE FLARE
- COMPACTED SAND PEDESTAL
- REMOVE WIRE BASKET & BURLAP FROM  
 TOP HALF OF ROOTBALL
- 6" SCARIFIED & AMENDED SUBGRADE
- LANDSCAPE SOILS TYPE 2  
 SEE SOILS PLAN FOR EXTENTS
- FILTER FABRIC ENCLOSED SUBDRAINAGE,  
 SEE CIVIL DWGS

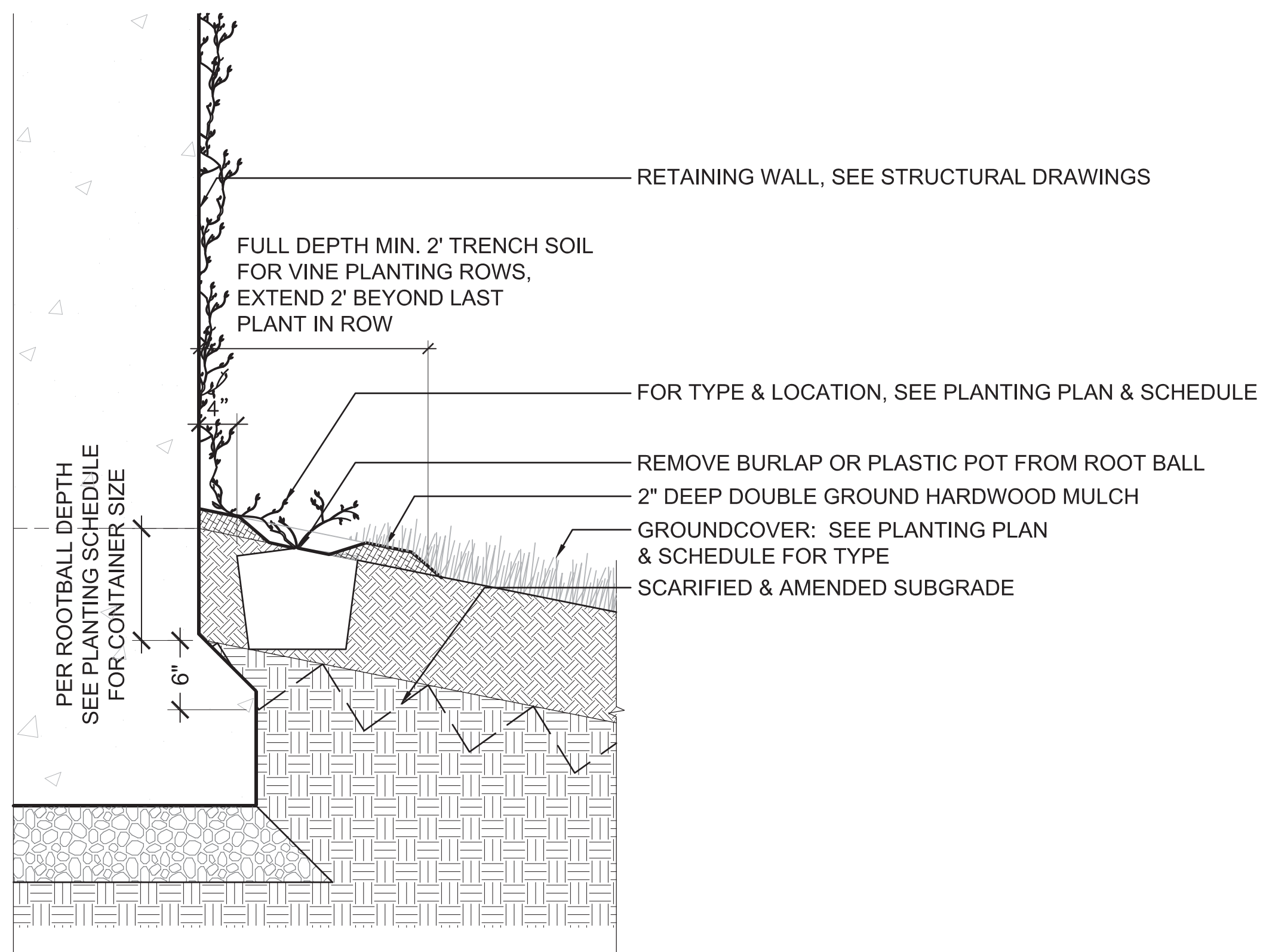
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 2. INSTALL CONDUIT FOR G1 LIGHTS  
 MIN. 4' CLEAR FROM CENTER OF TREE.

- GROUNDCOVER VARIES, SEE PLANTING PLANS
- PROTECT BRANCHES FROM DAMAGE
- PLANT TRUNK PLUMB
- 01 TREE STAKING & GUYING, TYP.  
 SET PARALLEL TO PAVING
- REMOVE TREE TAG AT SUBSTANTIAL COMPLETION
- ROOT FLARE EVEN WITH FINISH GRADE +1"
- 2" MULCH, 6" BEYOND TOP OF ROOTBALL,  
 HOLD MULCH AWAY FROM TREE FLARE
- COMPACTED SAND PEDESTAL
- REMOVE WIRE BASKET & BURLAP FROM  
 TOP HALF OF ROOTBALL
- BIORETENTION BASIN, SEE CIVIL DWGS
- LANDSCAPE SOILS TYPE 2  
 SEE SOILS PLAN FOR EXTENTS
- PEA GRAVEL
- FILTER FABRIC
- OPEN-GRADED STONE SUMP
- LANDSCAPE SUBDRAINAGE,  
 SEE CIVIL DWGS
- UNCOMPACTED SUBGRADE

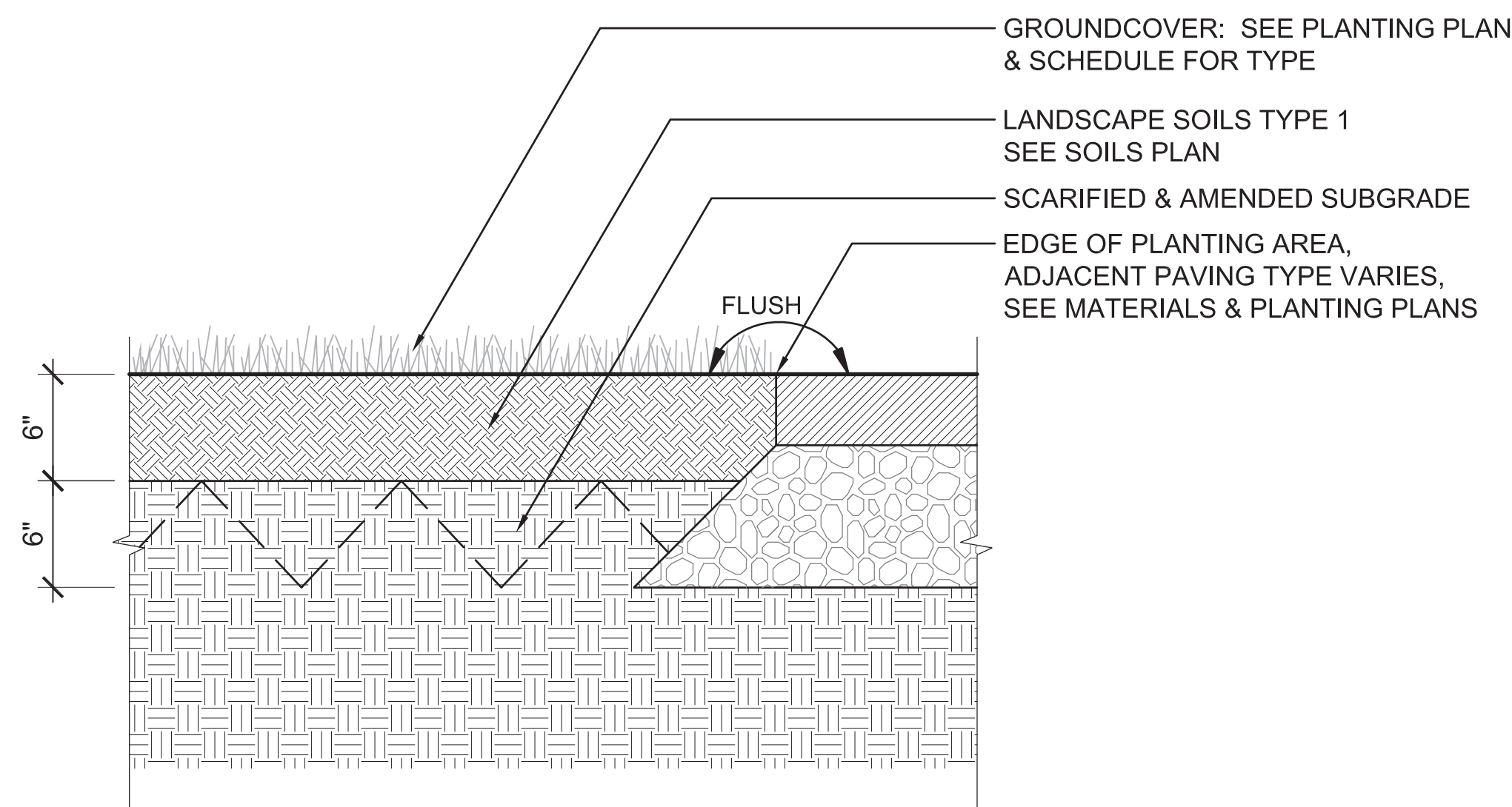
- NOTES:**  
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 SEE CIVIL DWGS
- COMPACTED SAND PEDESTAL, SEE CIVIL DWGS
- REMOVE WIRE BASKET & BURLAP FROM  
 TOP HALF OF ROOTBALL
- LANDSCAPE SOILS TYPE 1  
 SEE SOILS PLAN FOR EXTENTS
- 6" SCARIFIED & AMENDED SUBGRADE

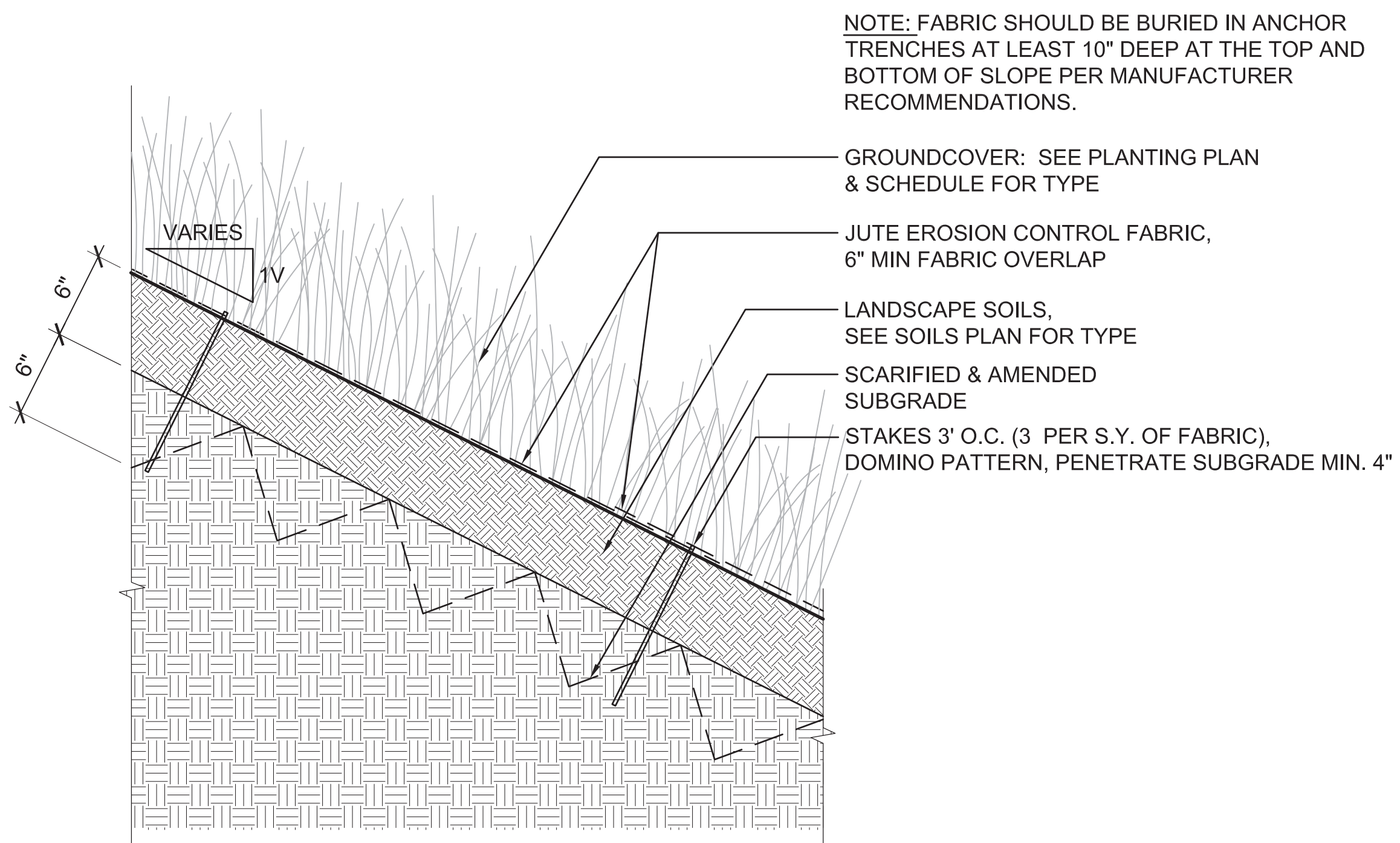




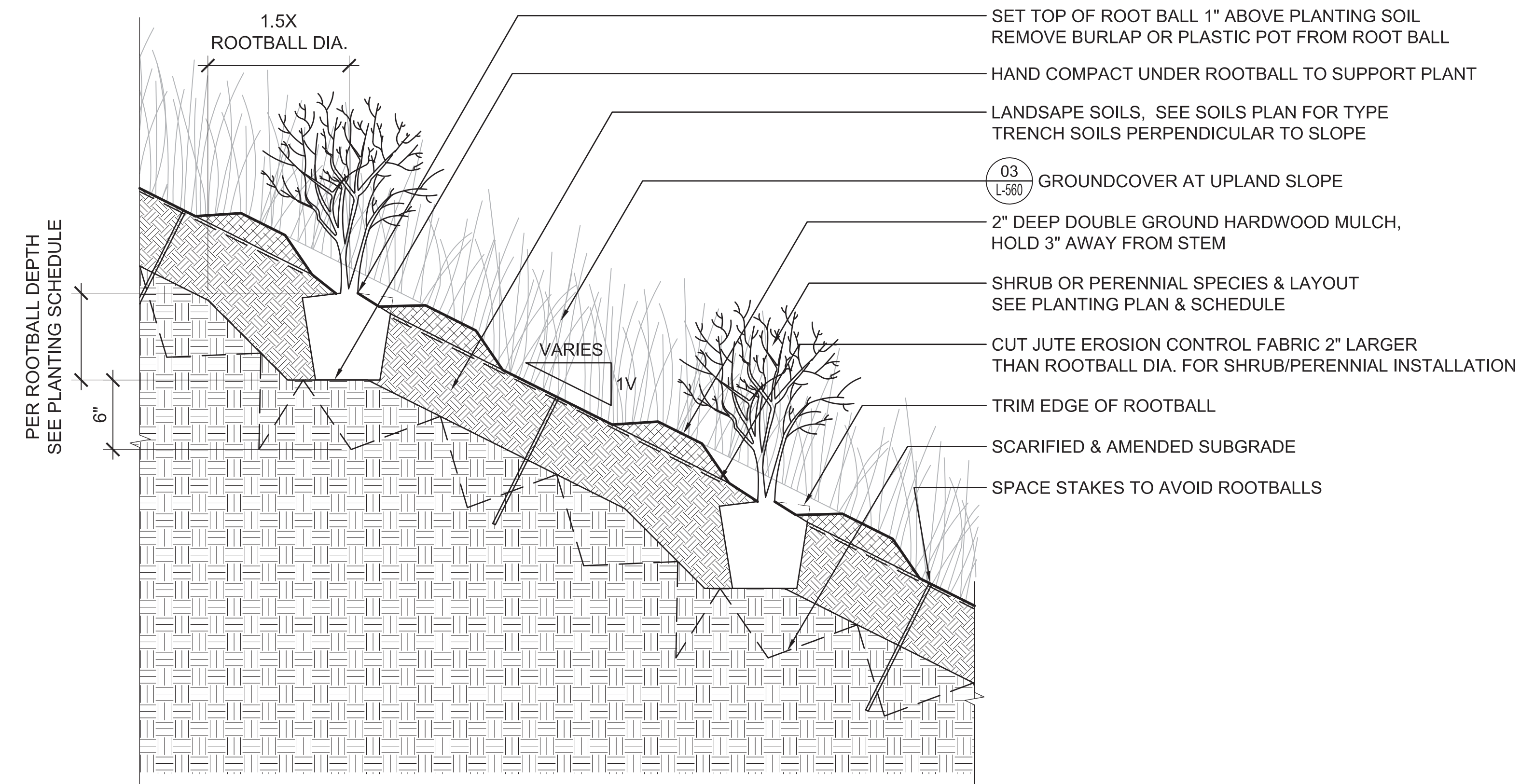
05 VINE PLANTING  
SCALE: 1" = 1'-0"



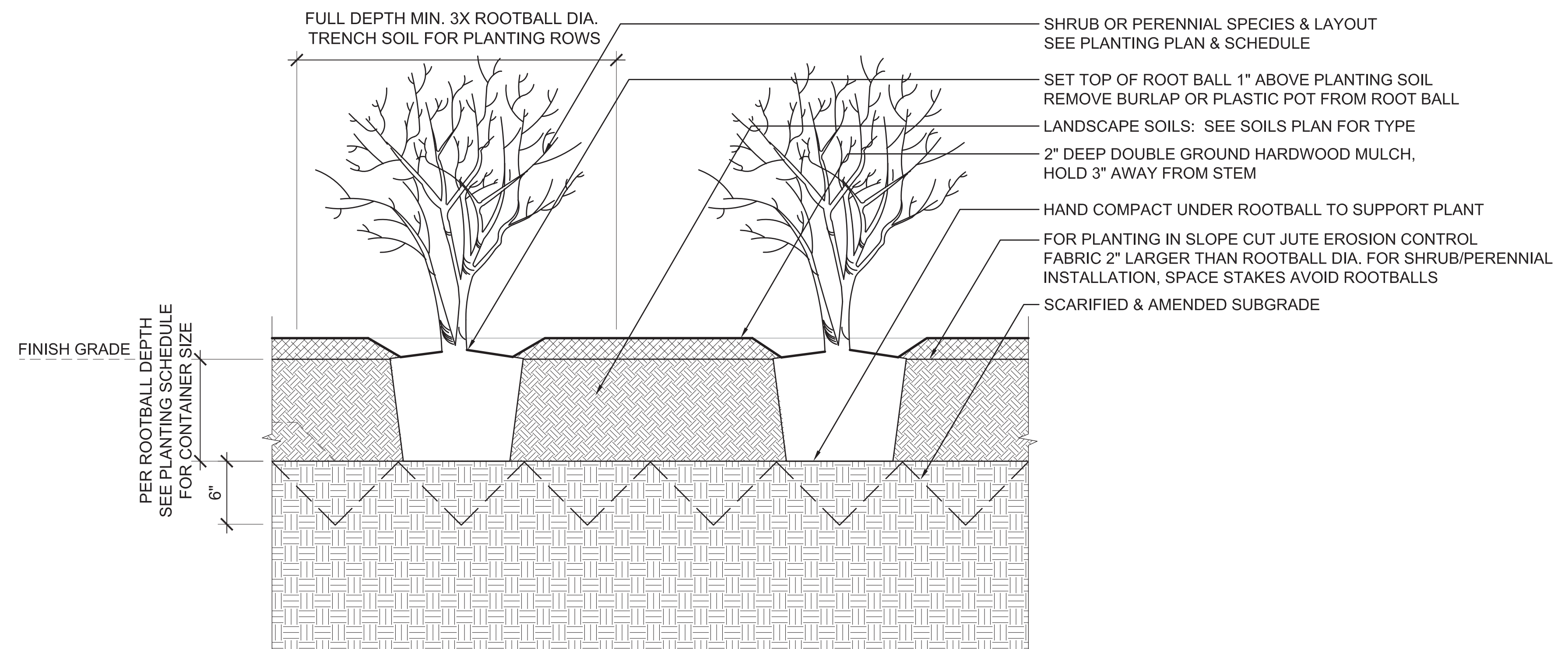
04 GROUNDCOVER PLANTING - RECOVERY ZONE  
SCALE: 1 1/2" = 1'-0"



03 GROUNDCOVER PLANTING - UPLAND SLOPES  
SCALE: 1-1/2" = 1'-0"



02 SHRUB/PERENNIAL PLANTING - IN SLOPE GREATER THAN 1V:3H  
SCALE: 1 1/2" = 1'-0"



01 SHRUB/PERENNIAL PLANTING - FLAT AREAS & SLOPES LESS THAN 1V:3H  
SCALE: 1 1/2" = 1'-0"

PROJECT INFORMATION

Richmond, Virginia Riverfront Improvements: Priority 1  
T. TYLER  
POTTERFIELD  
MEMORIAL BRIDGE  
RICHMOND, VIRGINIA

CITY OF RICHMOND  
900 E. Broad St.  
Richmond, VA 23219  
www.richmondgov.com

Landscape Architecture  
HARGREAVES ASSOCIATES  
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Marine & Structural Engineering  
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Richmond, VA 23225  
www.moffattnichol.com

Electrical Engineering  
HCYU Building Engineered Solutions  
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Geotechnical  
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Midlothian, VA 23113  
www.dmy-inc.com

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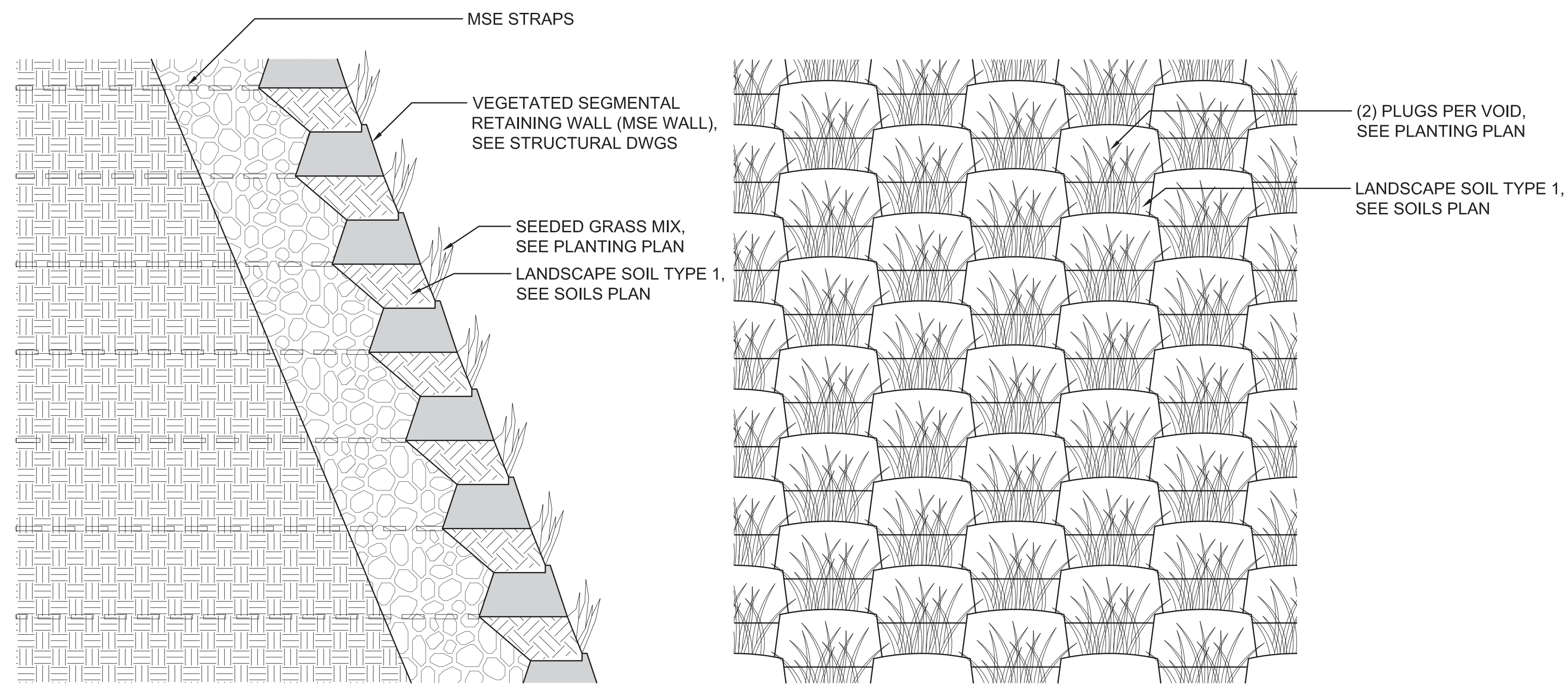
Project No.: RVA 1301  
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Scale: AS SHOWN

SHEET TITLE

LANDSCAPE  
DETAILS  
PLANTING

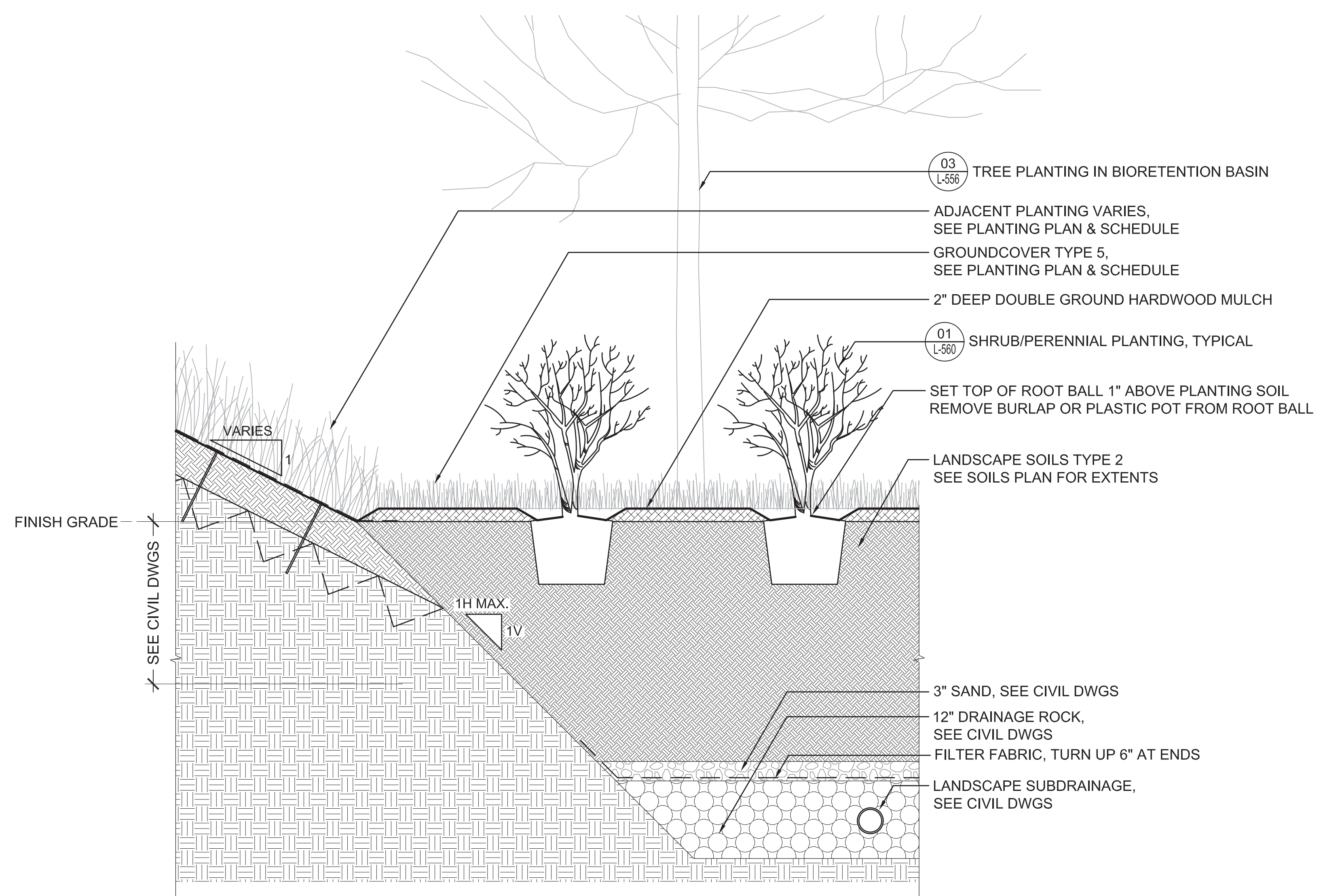
SHEET NO.

L-560

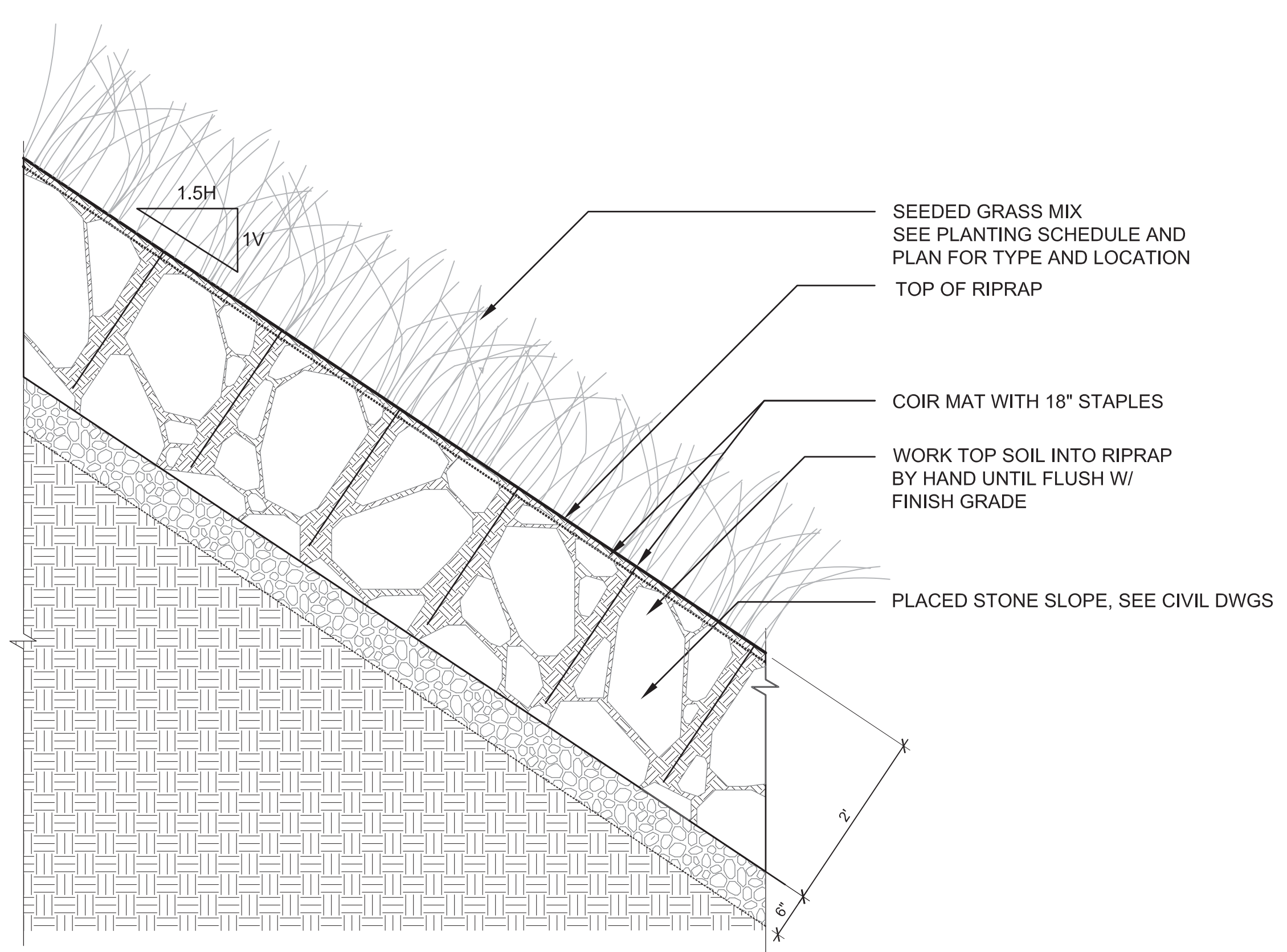


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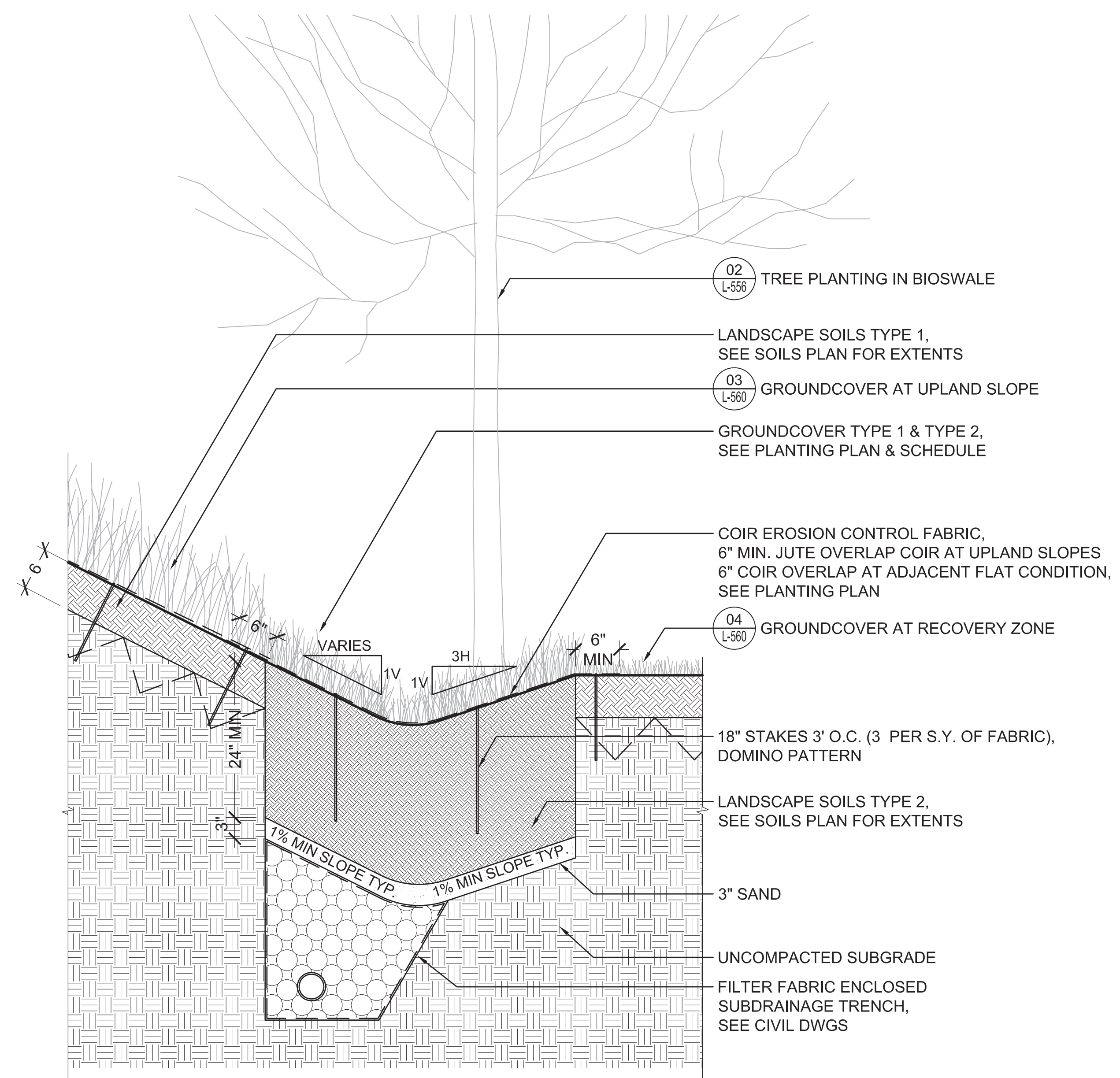
**04 PLANTING - MECHANICALLY STABILIZED EARTH WALL**  
SCALE: 1" = 1'-0"



**02 GROUNDCOVER PLANTING - BIORETENTION BASIN**  
SCALE: 1" = 1'-0"



**03 GROUNDCOVER PLANTING - PLACED STONE SLOPE**  
SCALE: 1" = 1'-0"



**01 GROUNDCOVER PLANTING - BIOSWALE**  
SCALE: 1" = 1'-0"

**PROJECT INFORMATION**  
Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
RICHMOND, VIRGINIA

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SEAL/SIGNATURE



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KEY MAP

SHEET INFORMATION

Project No.: RVA 1301  
Drawn By: ML  
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SHEET TITLE

**LANDSCAPE DETAILS PLANTING**

SHEET NO.

**L-561**



**Demolition**

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED ON FIELD OBSERVATIONS AND INFORMATION OF RECORD. THEY ARE NOT WARRANTED TO BE EXACTLY LOCATED NOR IS IT WARRANTED THAT ALL UNDERGROUND UTILITIES OR OTHER STRUCTURES ARE SHOWN ON THIS PLAN.
2. CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING MANMADE SURFACE FEATURES WITHIN THE LIMIT OF WORK INCLUDING BUILDINGS, STRUCTURES, PAVEMENTS, SLABS, CURBING, FENCES, UTILITY POLES, SIGNS, ETC. UNLESS INDICATED OTHERWISE ON THE DRAWINGS. REMOVE AND DISPOSE OF EXISTING UTILITIES, FOUNDATIONS, AND UNSUITABLE MATERIAL WITHIN THE PROPOSED BUILDING FOOTPRINT, PER DRAWINGS AND SPECIFICATIONS.
3. EXISTING UTILITIES SHALL BE TERMINATED, UNLESS OTHERWISE NOTED, IN CONFORMANCE WITH LOCAL, STATE AND INDIVIDUAL UTILITY COMPANY STANDARDS SPECIFICATIONS, AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES.
4. CONTRACTOR SHALL DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND STATUTES.
5. CONTRACTOR SHALL APPLY FOR, PAY FOR, AND OBTAIN ALL NECESSARY PERMITS FROM LOCAL AND STATE AUTHORITIES TO COMPLETE THE WORK.
6. THE DEMOLITION INFORMATION IS INTENDED TO AID THE CONTRACTOR DURING THE BIDDING AND CONSTRUCTION PROCESS AND IS NOT INTENDED TO DEPICT EACH AND EVERY ELEMENT OF DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING THE DETAILED SCOPE OF DEMOLITION BEFORE SUBMITTING ITS BID/PROPOSAL TO PERFORM THE WORK AND SHALL MAKE NO CLAIMS AND SEEK NO ADDITIONAL COMPENSATION FOR CHANGED CONDITIONS OR UNFORESEEN OR LATENT SITE CONDITIONS RELATED TO ANY CONDITIONS DISCOVERED DURING EXECUTION OF THE WORK.
7. UNLESS OTHERWISE SPECIFICALLY PROVIDED ON THE PLANS OR IN THE SPECIFICATIONS, THE ENGINEER HAS NOT PREPARED DESIGNS FOR AND SHALL HAVE NO RESPONSIBILITY FOR THE PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF HAZARDOUS MATERIALS, TOXIC WASTES OR POLLUTANTS AT THE PROJECT SITE. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY CLAIMS OF LOSS, DAMAGE, EXPENSE, DELAY, INJURY OR DEATH ARISING FROM THE PRESENCE OF HAZARDOUS MATERIAL AND CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE ENGINEER FROM ANY CLAIMS MADE IN CONNECTION THEREWITH. MOREOVER, THE ENGINEER SHALL HAVE NO ADMINISTRATIVE OBLIGATIONS OF ANY TYPE WITH REGARD TO ANY CONTRACTOR AMENDMENT INVOLVING THE ISSUES OF PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF ASBESTOS OR OTHER HAZARDOUS MATERIALS.
8. ALL PUBLIC AND PRIVATE UTILITIES TO ADJACENT PROPERTIES, INCLUDING CABLE TV, FIBER OPTIC, GAS, AND ELECTRICAL SERVICE, SHALL BE MAINTAINED AT ALL TIMES. CONTRACTOR SHALL COORDINATE SERVICE INTERRUPTIONS WITH UTILITY PROVIDERS AND ADJACENT PROPERTY OWNERS PRIOR TO COMMENCING DEMOLITION OPERATIONS.

**Pumping of Stormwater**

SHOULD IT BE NECESSARY TO PUMP STORMWATER DURING CONSTRUCTION BECAUSE THE GRADING WILL NOT ALLOW FOR GRAVITY FLOW, THEN THE PUMPED STORMWATER MUST BE FILTERED USING A METHOD APPROVED BY THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. DETAILS OF ACCEPTABLE METHODS OF DEWATERING HAVE BEEN PROVIDED ON THE EROSION CONTROL DETAILS SHEET OF THESE PLANS, C-505.

**Tree Protection**

TREE PROTECTION IS USED TO PROTECT DESIRABLE TREES FROM MECHANICAL AND OTHER INJURY DURING LAND DISTURBING AND CONSTRUCTION ACTIVITY. IN SPITE OF PRECAUTIONS, SOME DAMAGE TO PROTECTED TREES MAY OCCUR. IN SUCH CASES, THE FOLLOWING MAINTENANCE GUIDELINES SHOULD BE FOLLOWED:

1. SOIL AERATION - THE GROUND SHALL BE AERATED IF THE SOIL BECOMES COMPACTED OVER THE ROOT ZONE.
2. REPAIR OF DAMAGE.
3. FERTILIZATION - BROADLEAF TREES THAT HAVE BEEN STRESSED OR DAMAGED SHALL RECEIVE A HEAVY APPLICATION OF FERTILIZER TO AID THEIR RECOVERY.

ALL TREE PROTECTION SHALL BE INSTALLED IN ACCORDANCE WITH VESCH STANDARD AND SPECIFICATION 3.38. IF THE SOIL BECOMES COMPACTED OVER THE ROOT ZONE OF ANY TREE, THE GROUND SHALL BE AERATED BY PUNCHING HOLES WITH AN IRON BAR. BROADLEAF TREES THAT HAVE BEEN STRESSED OR DAMAGED SHALL RECEIVE A HEAVY APPLICATION OF FERTILIZER TO AID THEIR RECOVERY.

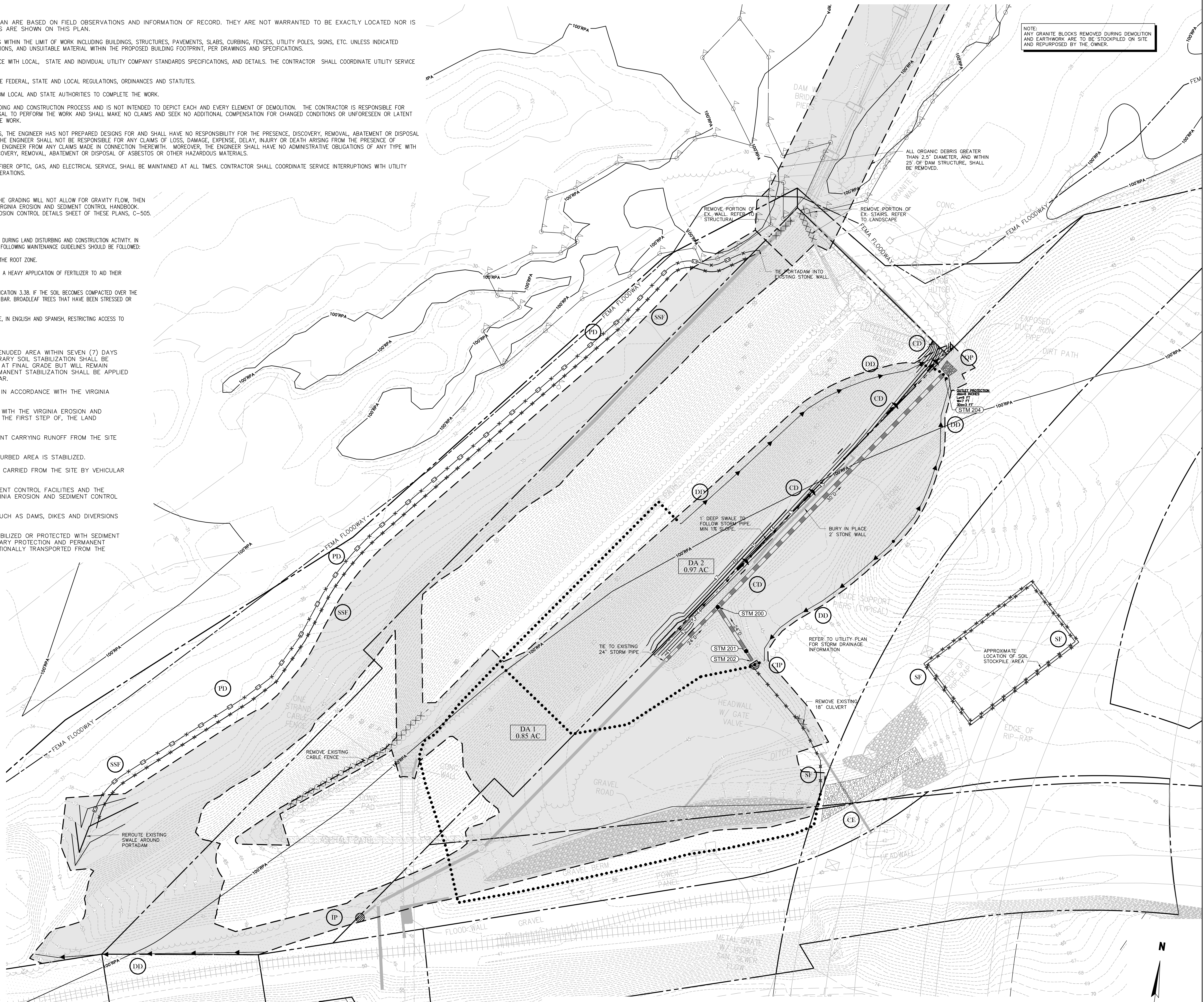
ALL TREE PROTECTION AREAS SHALL HAVE 4 FOOT HIGH FENCING WITH MINIMUM 4 INCH SIGNAGE, IN ENGLISH AND SPANISH, RESTRICTING ACCESS TO FENCED AREAS. CONTRACTOR IS RESPONSIBLE FOR RESTRICTING ACCESS TO FENCED AREAS.

**City of Richmond Erosion Control Notes:**

1. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREA WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN FOURTEEN (14) DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE (1) YEAR.
2. EXCESS EXCAVATION DISPOSED OF OFF THE SITE SHALL BE DISPOSED OF IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.
3. EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND SHALL BE PLACED PRIOR TO, OR AS THE FIRST STEP OF, THE LAND DISTURBING ACTIVITY.
4. EROSION AND SEDIMENT CONTROL SHALL BE MAINTAINED SO THAT SEDIMENT CARRYING RUNOFF FROM THE SITE WILL NOT ENTER STORM DRAINAGE FACILITIES.
5. EROSION AND SEDIMENT CONTROLS SHALL BE MAINTAINED UNTIL THE DISTURBED AREA IS STABILIZED.
6. PROPERTIES ADJOINING THE SITE SHALL BE KEPT CLEAN OF MUD OR SILT CARRIED FROM THE SITE BY VEHICULAR TRAFFIC OR RUNOFF.
7. THE DISPOSAL OF WASTE MATERIALS REMOVED FROM EROSION AND SEDIMENT CONTROL FACILITIES AND THE DISPOSAL OF THESE FACILITIES SHALL BE IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.
8. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
9. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.

**Sequence of Construction:**

1. A PRE-CONSTRUCTION MEETING MUST TAKE PLACE PRIOR TO ANY LAND DISTURBING ACTIVITIES. THE OWNER'S REPRESENTATIVE, ENGINEER, EROSION CONTROL INSPECTOR AND CONTRACTOR MUST BE PRESENT AT THIS MEETING. THE SITE WORK CONTRACTOR SHALL GIVE THE CITY INSPECTOR ((804)646-0770)) TWO WORKING DAYS NOTIFICATION.
2. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL INSTALL PERIMETER CONTROL EROSION CONTROL MEASURES AS SHOWN ON THE PHASE I PLANS AND AS IDENTIFIED IN FEDERAL, STATE AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
3. ONCE PERIMETER CONTROLS ARE IN PLACE, INSTALL STORM SEWER FOR OFFSITE DRAINAGE, AS SHOWN IN THIS PLAN.
4. INSTALL PRELIMINARY GRADING, AS SHOWN IN THIS PLAN, TO FILL SWALE OVERTOP OF STORM SEWER.
5. BEGIN DEMOLITION AS NOTED, INCLUDING TREE REMOVAL, CLEARING, AND GRUBBING.
6. PROCEED TO THE PHASE 2 EROSION AND SEDIMENT CONTROL PLAN UPON APPROVAL OF THE CITY INSPECTOR. INSTALL PHASE 2 E&S MEASURES.
7. ONCE PHASE 2 MEASURES ARE IN PLACE, CONTRACTOR MAY BEGIN GRADING OPERATIONS AND TRAIL CONSTRUCTION. INSTALL LANDSCAPING AND PERMANENT SEEDING AS NECESSARY.
8. ANY TOPSOIL STOCKPILES SHALL BE STABILIZED AND SILT FENCE PLACED AROUND THE PERIMETER TOE OF STOCKPILE AREA.
9. THE CONTRACTOR WILL BE RESPONSIBLE FOR SCHEDULING AND CONDUCTING ALL NECESSARY INSPECTIONS WITH THE APPROPRIATE LOCAL AND STATE OFFICIALS. COORDINATION WITH THE APPROPRIATE ENTITIES WILL BE PERFORMED BY THE CONTRACTOR.
10. DURING CONSTRUCTION, SOIL STABILIZATION ON SITE SHALL CONFORM TO THE CITY OF RICHMOND STANDARD EROSION CONTROL NOTES AND THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH), LATEST EDITION.
11. INSPECT AND REPAIR ALL EROSION CONTROL DEVICES WEEKLY AND WITHIN 12 HOURS AFTER ALL RAIN EVENTS. ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATION VR 625 02 00.



NOTE: ANY GRANITE BLOCKS REMOVED DURING DEMOLITION AND EARTHWORK ARE TO BE STOCKPILED ON SITE AND REPURPOSED BY THE OWNER.

**PROJECT INFORMATION**

Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD**  
**METTERFIELD BRIDGE**  
 RICHMOND, VIRGINIA

**CITY OF RICHMOND**  
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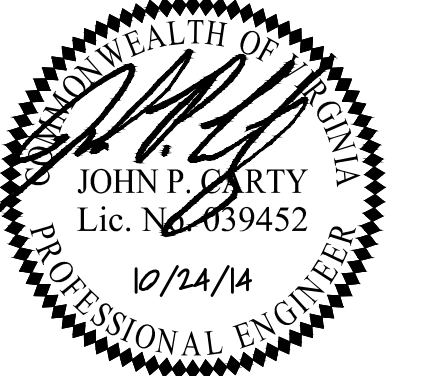
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**KEY MAP**

**SHEET INFORMATION**

Project No.: RVA 1301  
 Drawn By: CAC  
 Checked By: JPC  
 Date: 10/03/2014

**SHEET TITLE**

**CIVIL DEMOLITION PLAN & EROSION CONTROL PLAN - PHASE 1**

**SHEET NO.**

**C-101**

**Erosion Control Legend**

|     |  |     |   |
|-----|--|-----|---|
| CE  | 3.02 - CONSTRUCTION ENTRANCE           | IP  | 3.07 - STORM DRAIN INLET PROTECTION       |
| TP  | 3.38 - TREE PRESERVATION AND FENCING   | OP  | 3.18 - OUTLET PROTECTION                  |
| CL  | 3.01 - CHAIN-LINK FENCE 6' MIN. HEIGHT | SF  | 3.05 - SILT FENCE                         |
| PD  | PORTADAM - INSTALLED TO 40' ELEV.      | SSP | 3.05 - "SUPER" SILT FENCE w/ WIRE BACKING |
| DD  | 3.09 - TEMPORARY DIVERSION DIKE        | CD  | 3.20 - ROCK CHECK DAM                     |
| CHP | 3.08 - CULVERT INLET PROTECTION        |     | LIMITS OF WORK                            |
|     |  |     | DRAINAGE AREA                             |

**Demolition Legend**

|               |   |
|---------------|---|
| (Dashed Line) | ALL TREES WITHIN LIMITS OF WORK TO BE REMOVED AND LAND CLEARED FOR DEVELOPMENT. |
| (X)           | DENOTES REMOVAL OF UNDERGROUND UTILITY AND/OR CURBING, FENCES AND GATES.        |
| (X)           | TREES AND UTILITY POLES TO BE REMOVED   |



**Erosion Control Construction Narrative**

**Project Description and Schedule**  
 THIS PLAN INCLUDES THE CONSTRUCTION OF THE T. TYLER POTTERFIELD MEMORIAL BRIDGE AND ACCESSIBLE PATH. THE SITE IS LOCATED NEAR THE CORNER OF WEST COMMERCE ROAD AND SEMMES AVE., ON THE SOUTH SIDE OF THE JAMES RIVER BANK IN THE CITY OF RICHMOND.

THE PROPOSED SITE DISTURBED ACREAGE IS APPROXIMATELY 3.6 ACRES.

**Objective of the Erosion and Sediment Control Plan**  
 THE OBJECTIVE OF THIS EROSION AND SEDIMENT CONTROL PLAN IS TO ESTABLISH SPECIFIC GUIDELINES FOR CONTROLLING SOIL EROSION AND SEDIMENTATION DURING AND AFTER THE CLEARING, GRUBBING, AND EARTHWORK ASSOCIATED WITH PREPARATION OF THE SITE FOR CONSTRUCTION. MOREOVER, THIS PLAN SPECIFIES THE CONTROL MEASURES THAT WILL BE EMPLOYED TO PROVIDE A PRACTICAL AND WORKABLE MEANS OF MINIMIZING DETRIMENTAL IMPACTS TO SOILS AND WATER RESOURCES AS A RESULT OF THE CONSTRUCTION ACTIVITIES. ALL MEASURES ARE DESIGNED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THIRD EDITION, 1992.

**Existing Conditions / General Description**  
 THE SITE IS CURRENTLY A STEEP EMBANKMENT (2:1 SLOPES) WITH AN ASPHALT PATH ON TOP LEADING TO AN OVERLOOK AND THE CLIMBING WALL. THE ENTIRE SITE LIES WITHIN THE CITY OF RICHMOND DESIGNATED RPA (RESOURCE PROTECTION AREA).

THE ENTIRE SITE DRAINS DIRECTLY INTO THE JAMES RIVER, WITH A DRAINAGE DIVIDE AT THE TOP OF THE EMBANKMENT WHICH DRAINS EITHER UP OR DOWN RIVER OF THE SITE. THERE WILL BE AN INCREASE IN IMPERVIOUS AREA, SO BOTH WATER QUALITY AND WATER QUANTITY TREATMENTS WILL BE REQUIRED. TWO BIORETENTION BASINS WILL BE PROVIDED (ONE PER SIDE OF EMBANKMENT) TO DETAIN RUNOFF AS WELL AS PROVIDE PHOSPHOROUS REMOVAL.

**Cleaning and Grubbing**  
 THIS SITE REQUIRES CLEANING AND GRUBBING. ANY DEMOLISHED MATERIALS WILL BE REMOVED FROM THE SITE AND DISPOSED OF AT A CERTIFIED LANDFILL OR RECYCLED. WHERE POSSIBLE, TOPSOIL WILL BE STRIPPED AND STOCKPILED FOR FUTURE USE. ALL TOPSOIL STOCKPILES SHALL REQUIRE EROSION AND SEDIMENT CONTROL MEASURES.

EXCAVATED SOIL, AS USEABLE, WILL BE UTILIZED IN ON SITE GRADING.

**Adjacent Site**  
 THE SITE IS BOUND BY NORFOLK SOUTHERN RAIL ROAD TRACKS TO THE SOUTH AND EAST AND THE JAMES RIVER TO THE NORTH AND WEST. NONE OF THESE PROPERTIES WILL BE DISTURBED WITH THIS DEVELOPMENT.

**Off-Site Areas**  
 THERE WILL NOT BE ANY OFF-SITE LAND DISTURBING ACTIVITIES WITH THIS DEVELOPMENT.

**Soils**  
 THE NATURAL RESOURCES CONSERVATION SERVICE SOILS MAP SHOWS THE SITE'S SOIL TYPE TO BE AS FOLLOWS:  
 40 - UDOURTHENTS-DUMPS COMPLEX, PITS, HYDROLOGIC GROUP D  
 45F - WATEREE-MEDOWEE-ROCK OUTCROP COMPLEX, 45-60% SLOPES, HYDROLOGIC GROUP A

K-FACTOR: 0.24 (MODERATE ERODIBILITY)

**Critical Areas**  
 PORTIONS OF THE DISTURBED AREA ARE DIRECTLY ADJACENT TO THE JAMES RIVER. THESE AREAS ARE DEEMED CRITICAL AREAS. THE CONTRACTOR WILL REGULARLY INSPECT AND MAINTAIN EROSION CONTROL MEASURES ALONG THE BANK OF THE RIVER TO ENSURE SEDIMENTATION IS MINIMIZED. ALSO, MUCH OF THE THE DISTURBED AREA HAS STEEP SLOPES (2:1).

**Permanent Stabilization**  
 ALL NON-IMPERVIOUS AREAS REMAINING SHALL BE PERMANENTLY SEEDED PER VESCH STANDARDS AND SPECIFICATION 3.32, OR THE LANDSCAPE PLAN SPECIFICATION.

**Tree Protection Notes**  
 TREE PROTECTION SHALL BE IN PLACE PRIOR TO CONSTRUCTION AND SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION. THE TREE PROTECTION'S FENCING SHALL BE AT LEAST FOUR FEET HIGH, AND IT SHALL BE SIGNED AS A TREE PROTECTION AREA WITH SIGN LETTERS AT LEAST FOUR INCHES HIGH.

**Maintenance of Erosion and Sediment Control Facilities**  
 ALL MAINTENANCE OF TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL FACILITIES SHALL BE CARRIED OUT IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS (9VAC25-840-60). DURING THE PERIOD THAT THE PROJECT SITE IS UNDER CONSTRUCTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE OF THE EROSION AND SEDIMENT CONTROL FACILITIES. THE CONTRACTOR WILL INSPECT EROSION AND SEDIMENT CONTROL FACILITIES ON A REGULAR BASIS, ESPECIALLY AFTER PERIODS OF HEAVY RAINFALL. ANY DAMAGE DISCOVERED WILL BE REPAIRED PROMPTLY BY THE CONTRACTOR. FURTHERMORE, A READILY AVAILABLE SUPPLY OF EROSION AND SEDIMENT CONTROL MATERIALS WILL BE MAINTAINED BY THE CONTRACTOR AT ALL TIMES.

**Final Site Cleanup**  
 NO EROSION AND SEDIMENT CONTROL MEASURES CAN BE REMOVED WITHOUT APPROVAL OF THE ENVIRONMENTAL INSPECTOR FOR THE PROJECT. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES WILL BE REMOVED ONLY WHEN ALL PREVIOUSLY DENIED AREAS PROTECTED BY DEVICES HAVE BECOME STABILIZED. THE STONE AND/OR ROCK USED AT CONSTRUCTION ENTRANCES AND ANY OTHER LOCATION ON THE SITE WILL BE REMOVED AND DISPOSED OF IN THE APPROPRIATE MANNER. THE SILT FENCES USED ALONG THE LIMITS OF WORK WILL BE REMOVED IF VEGETATIVE COVER AND SLOPE STABILITY HAVE BEEN ATTAINED.

**Stormwater Management Runoff**  
 DUE TO THE INCREASE IN IMPERVIOUS AREA, STORMWATER MANAGEMENT WILL BE REQUIRED. THE BIORETENTION AREAS WILL PROVIDE SUFFICIENT STORAGE AND DETENTION TO MEET RUNOFF REDUCTION METHOD REQUIREMENTS.

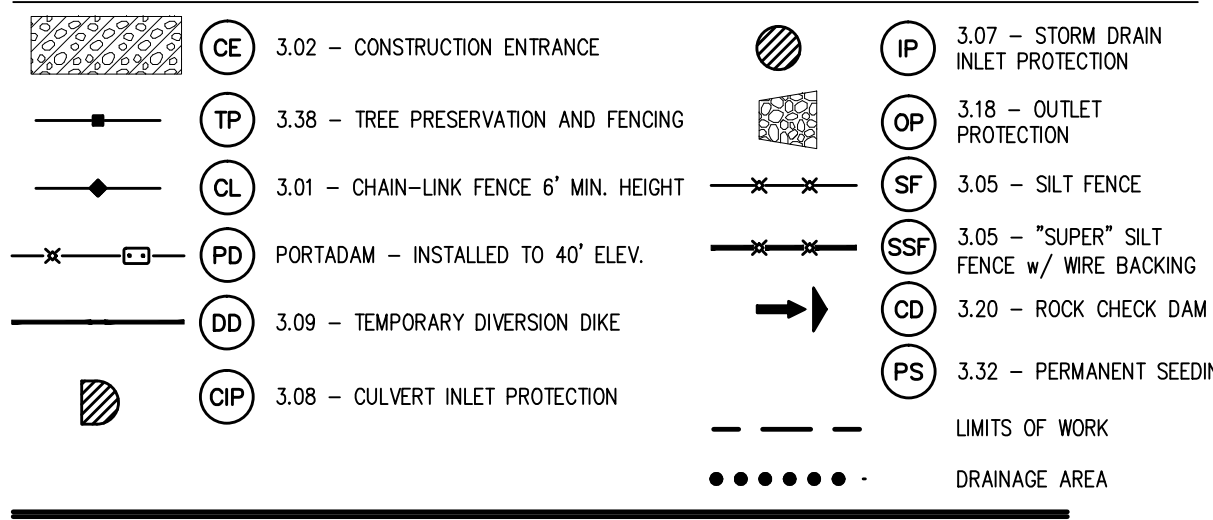
**Pumping of Stormwater**  
 SHOULD IT BE NECESSARY TO PUMP STORMWATER DURING CONSTRUCTION BECAUSE THE GRADING WILL NOT ALLOW FOR GRAVITY FLOW, THEN THE PUMPED STORMWATER MUST BE FILTERED THROUGH A SILT SACK, OR SIMILAR SEDIMENT TRAPPING DEVICE, BEFORE OUTLETING INTO THE STORM SEWER SYSTEM.

**Chesapeake Bay Narrative**

**Existing Conditions and Vegetation**  
 THE PROPOSED SITE HAS BEEN PREVIOUSLY DEVELOPED WITH AN EXISTING RECREATIONAL PATH AND IS 10% IMPERVIOUS AND 69% FORESTED. SOME OF THE FORESTED AREA WILL BE CLEARED DURING THE PROPOSED DEVELOPMENT.

**Chesapeake Bay Measures**  
 SINCE THE IMPERVIOUS AREA IS INCREASING WITH THIS DEVELOPMENT, WATER QUALITY TREATMENT WILL BE PROVIDED, AS REQUIRED IN A CHESAPEAKE BAY AREA. TWO BIORETENTION BASINS ARE PROPOSED WHICH WILL CAPTURE RUNOFF FROM THE IMPERVIOUS SURFACES. THE BASINS WILL PROVIDE SUFFICIENT PHOSPHOROUS REMOVAL TO MEET THE REQUIREMENTS. REFER TO THE CALCULATIONS PROVIDED IN THE PLANS FOR MORE INFORMATION.

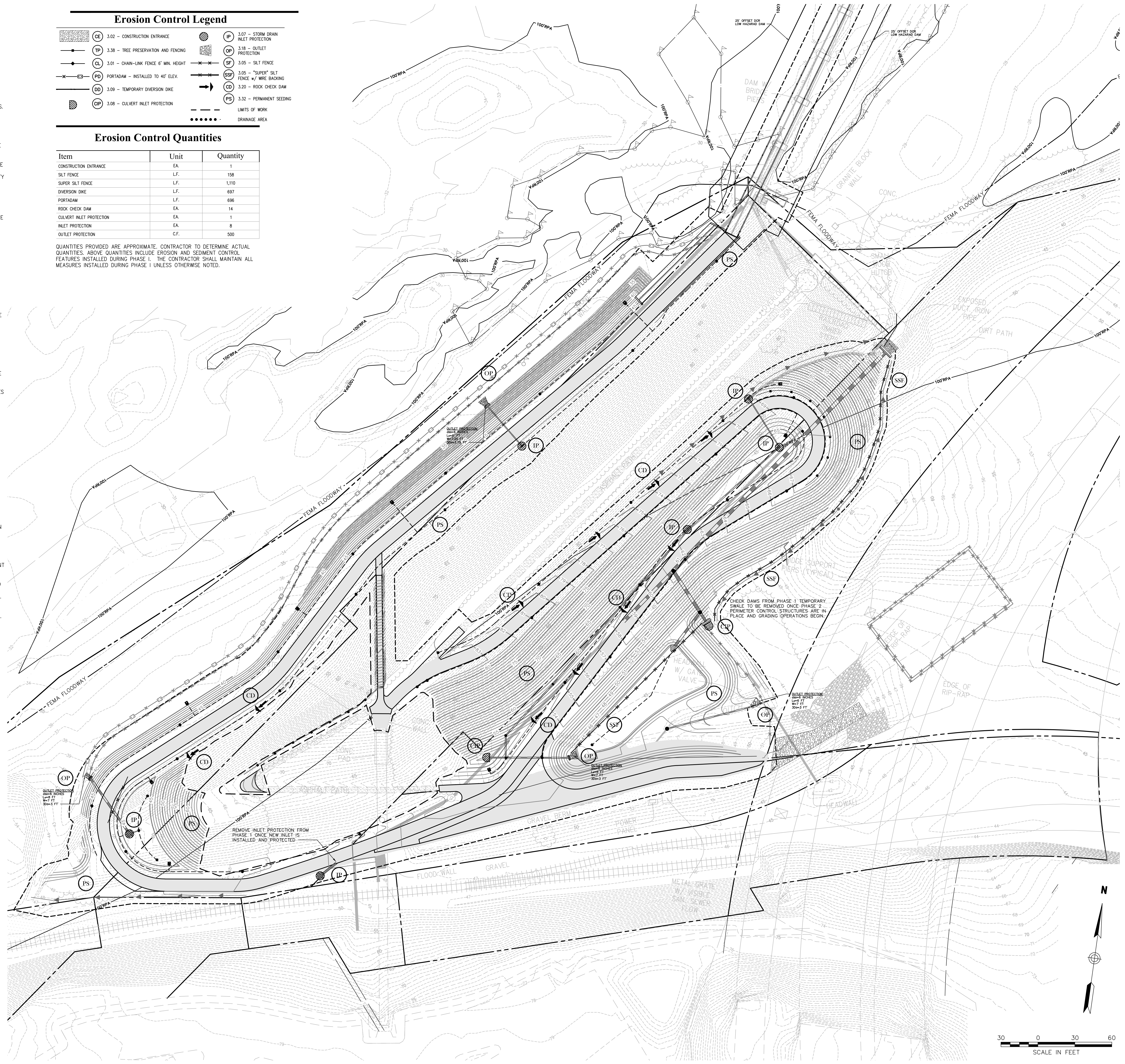
**Erosion Control Legend**



**Erosion Control Quantities**

| Item                     | Unit | Quantity |
|--------------------------|------|----------|
| CONSTRUCTION ENTRANCE    | EA.  | 1        |
| SILT FENCE               | L.F. | 158      |
| SUPER SILT FENCE         | L.F. | 1,110    |
| DIVERSION DIKE           | L.F. | 697      |
| PORTADAM                 | EA.  | 696      |
| ROCK CHECK DAM           | EA.  | 14       |
| CULVERT INLET PROTECTION | EA.  | 1        |
| INLET PROTECTION         | EA.  | 8        |
| OUTLET PROTECTION        | C.F. | 500      |

QUANTITIES PROVIDED ARE APPROXIMATE. CONTRACTOR TO DETERMINE ACTUAL QUANTITIES. ABOVE QUANTITIES INCLUDE EROSION AND SEDIMENT CONTROL FEATURES INSTALLED DURING PHASE I. THE CONTRACTOR SHALL MAINTAIN ALL MEASURES INSTALLED DURING PHASE I UNLESS OTHERWISE NOTED.



**PROJECT INFORMATION**

Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
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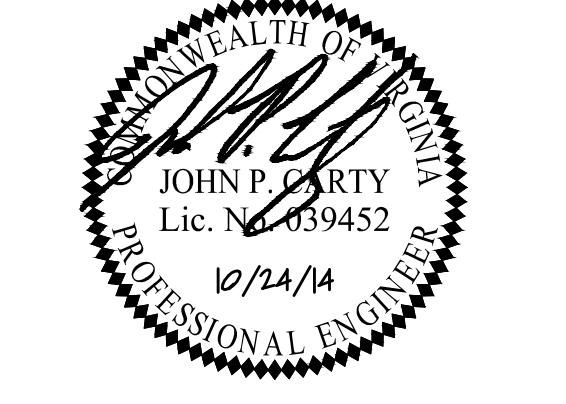
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**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 02-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

**KEY MAP**

**SHEET INFORMATION**

Project No.: RVA 1301  
 Drawn By: CAC  
 Checked By: JPC  
 Date: 10/03/2014

**SHEET TITLE**

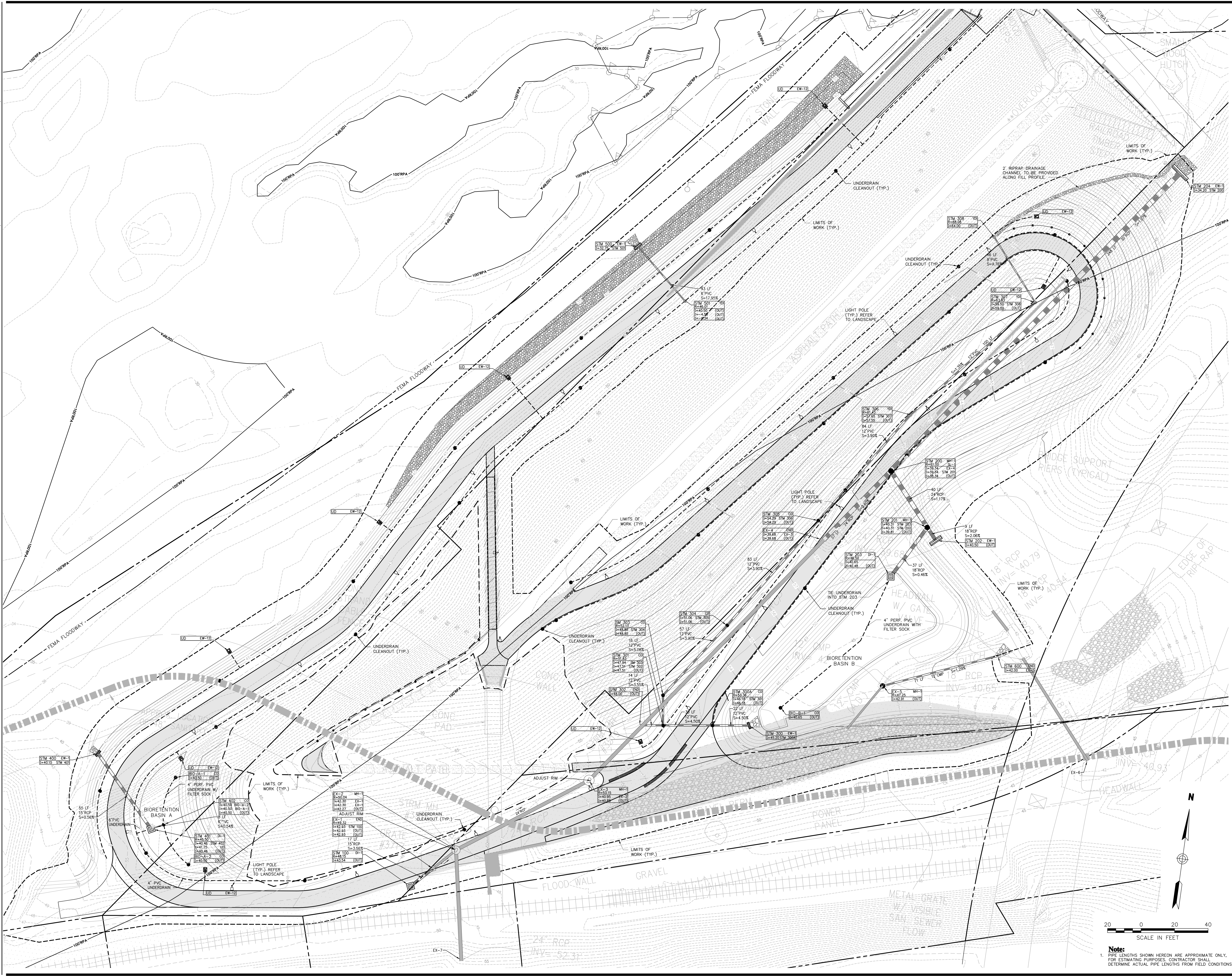
**CIVIL EROSION CONTROL PLAN - PHASE 2**

**SHEET NO.**

**C-102**

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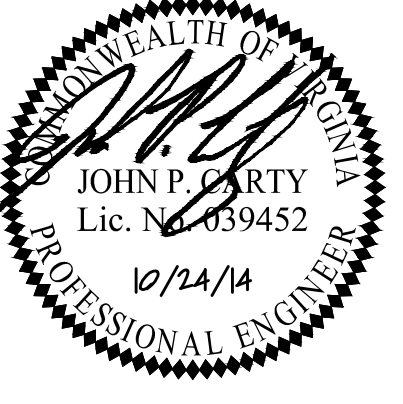
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SHEET TITLE

**CIVIL STORMWATER & UTILITY PLAN**

SHEET NO.

**C-201**

SCALE IN FEET



**Note:**  
 1. PIPE LENGTHS SHOWN HEREON ARE APPROXIMATE ONLY. FOR ESTIMATING PURPOSES, CONTRACTOR SHALL DETERMINE ACTUAL PIPE LENGTHS FROM FIELD CONDITIONS.

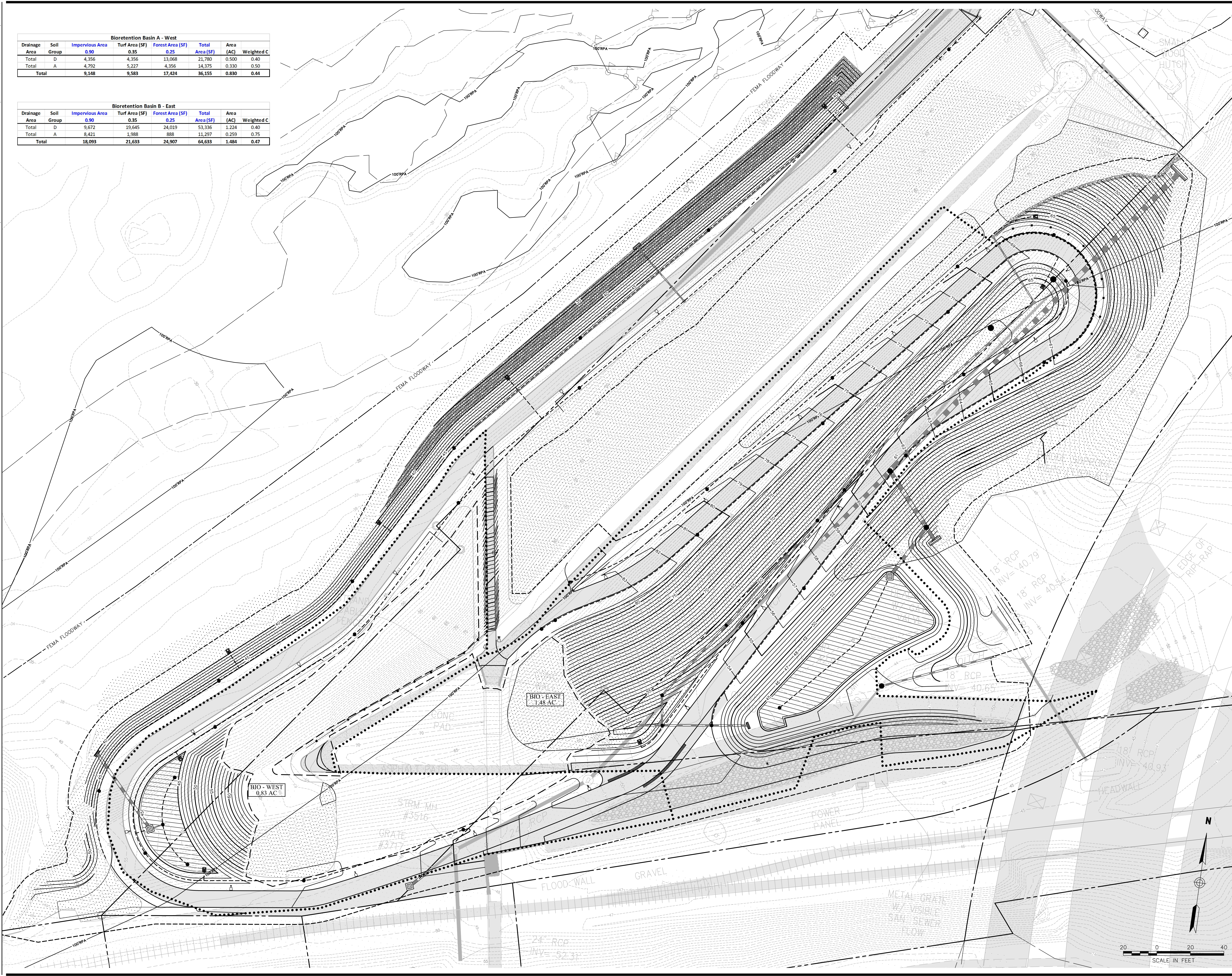


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| Bioretention Basin A - West |            |                 |                |                  |                 |              |
|-----------------------------|------------|-----------------|----------------|------------------|-----------------|--------------|
| Drainage Area               | Soil Group | Impervious Area | Turf Area (SF) | Forest Area (SF) | Total Area (SF) | Area (AC)    |
| Total                       | D          | 4,356           | 4,356          | 13,068           | 21,780          | 0.500        |
| Total                       | A          | 4,792           | 5,227          | 4,356            | 14,375          | 0.330        |
| <b>Total</b>                |            | <b>9,148</b>    | <b>9,583</b>   | <b>17,424</b>    | <b>36,155</b>   | <b>0.830</b> |

| Bioretention Basin B - East |            |                 |                |                  |                 |              |
|-----------------------------|------------|-----------------|----------------|------------------|-----------------|--------------|
| Drainage Area               | Soil Group | Impervious Area | Turf Area (SF) | Forest Area (SF) | Total Area (SF) | Area (AC)    |
| Total                       | D          | 9,672           | 19,645         | 24,019           | 53,336          | 1.224        |
| Total                       | A          | 8,421           | 1,988          | 888              | 11,297          | 0.259        |
| <b>Total</b>                |            | <b>18,093</b>   | <b>21,633</b>  | <b>24,907</b>    | <b>64,633</b>   | <b>1.484</b> |



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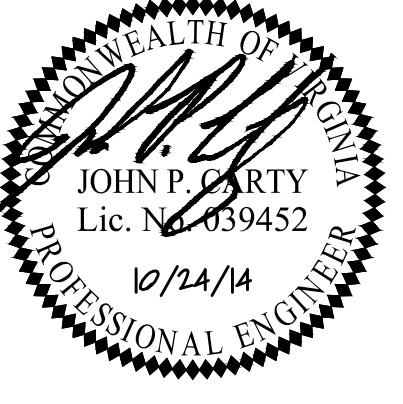
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KEY MAP

SHEET INFORMATION

Project No.: RVA 1301  
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 Date: 10/03/2014

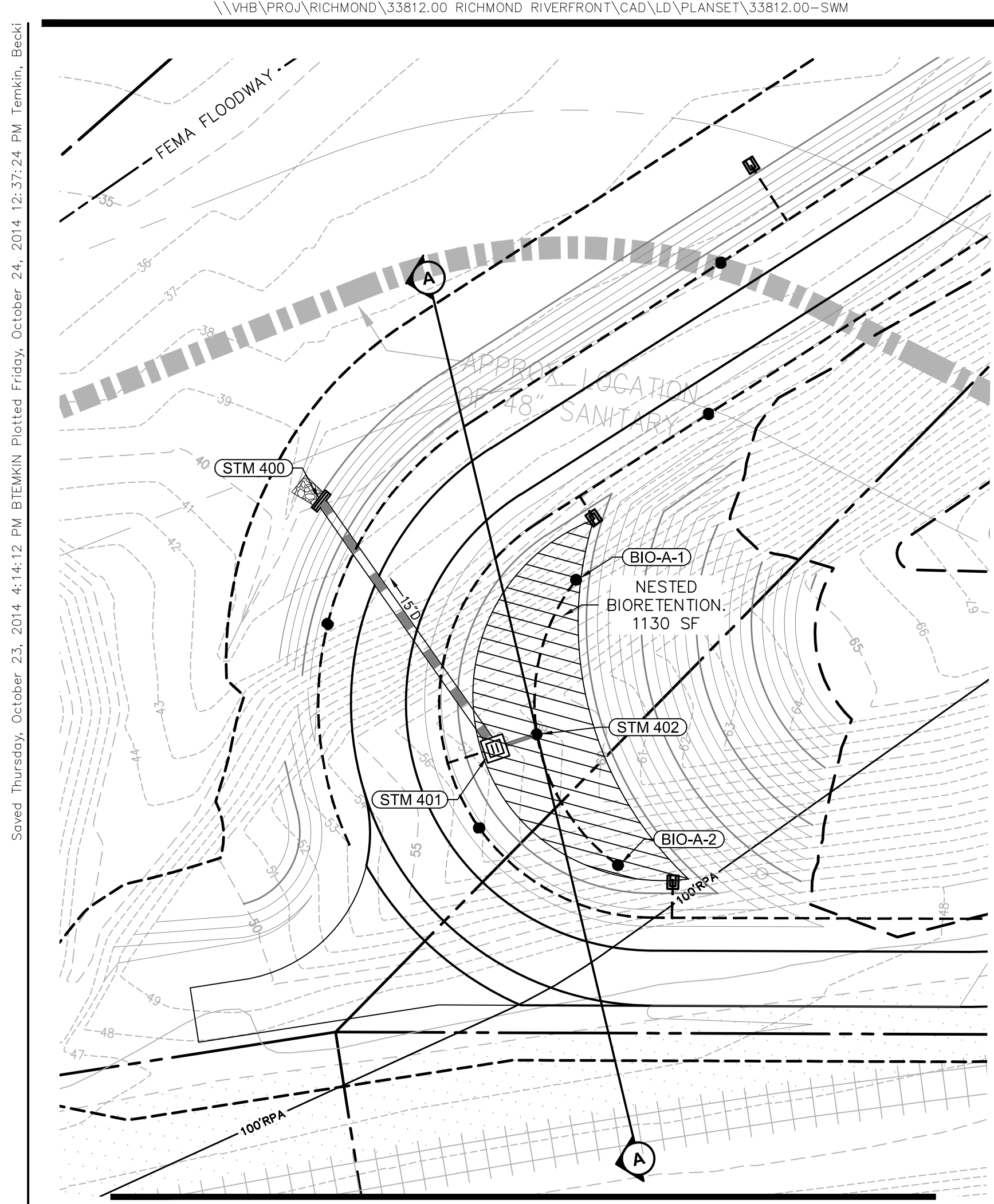
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**CIVIL BIORETENTION DRAINAGE AREAS**

SHEET NO.

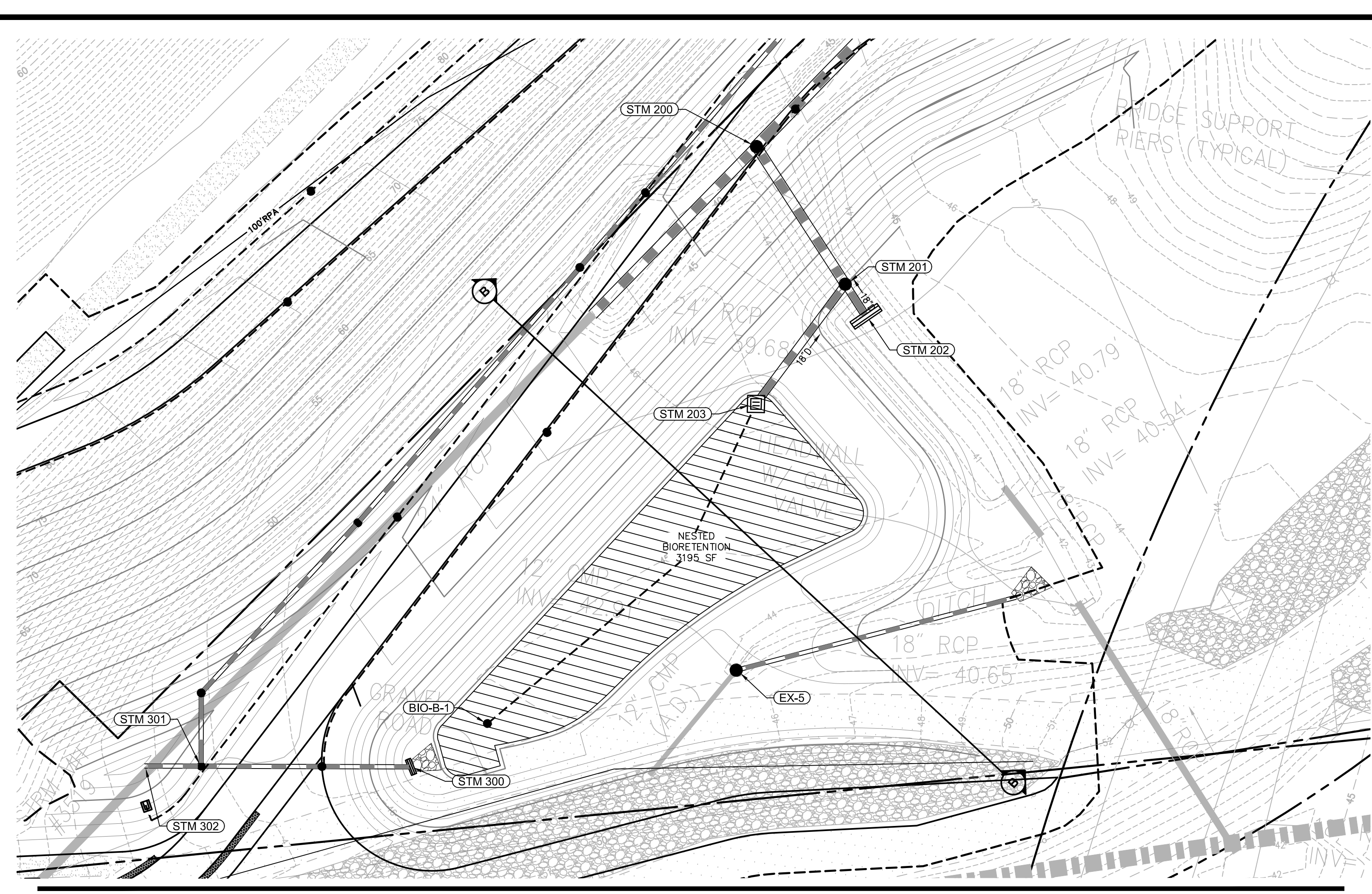
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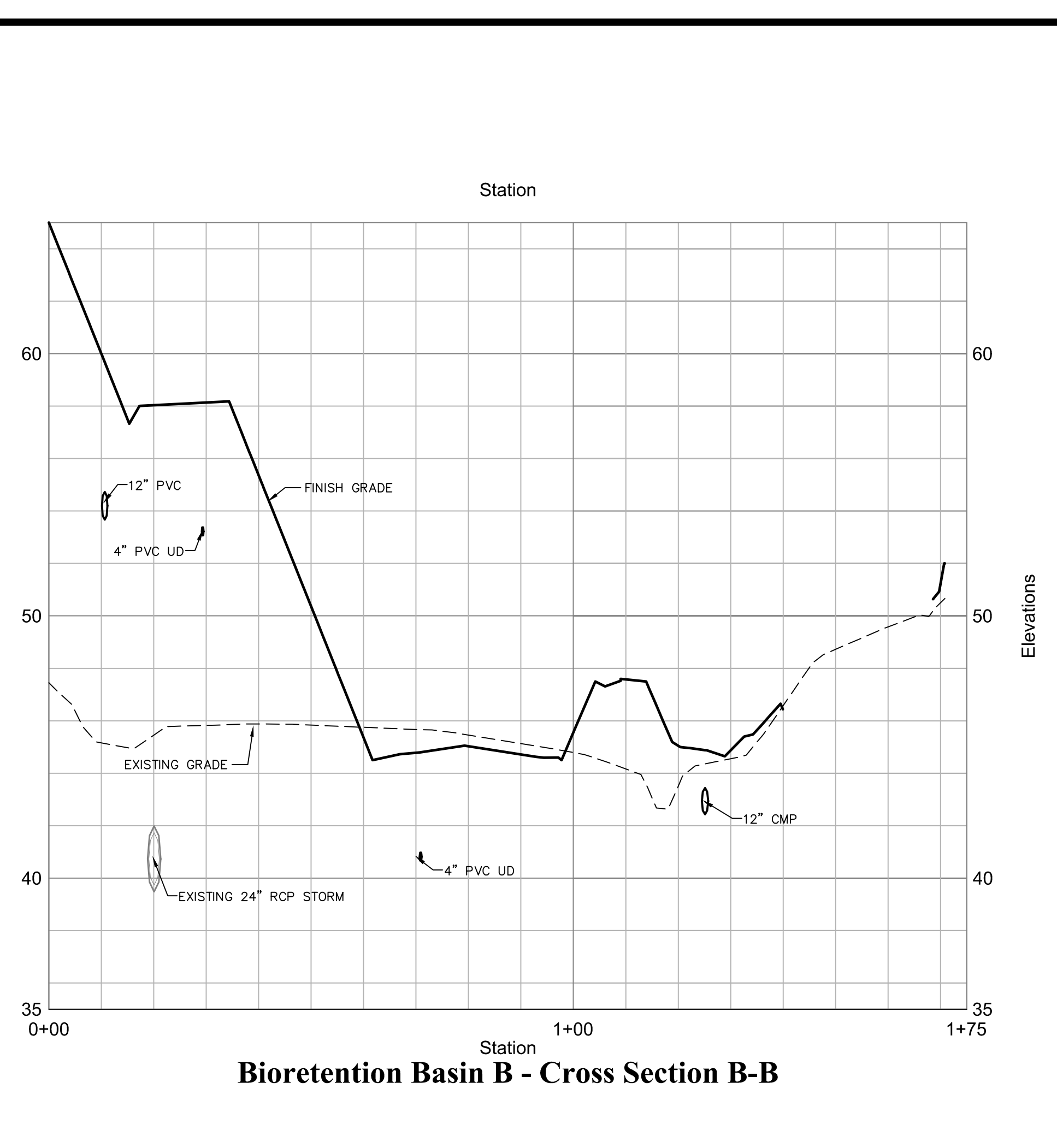
**Bioretention Basin A**

1"=20'  
Station

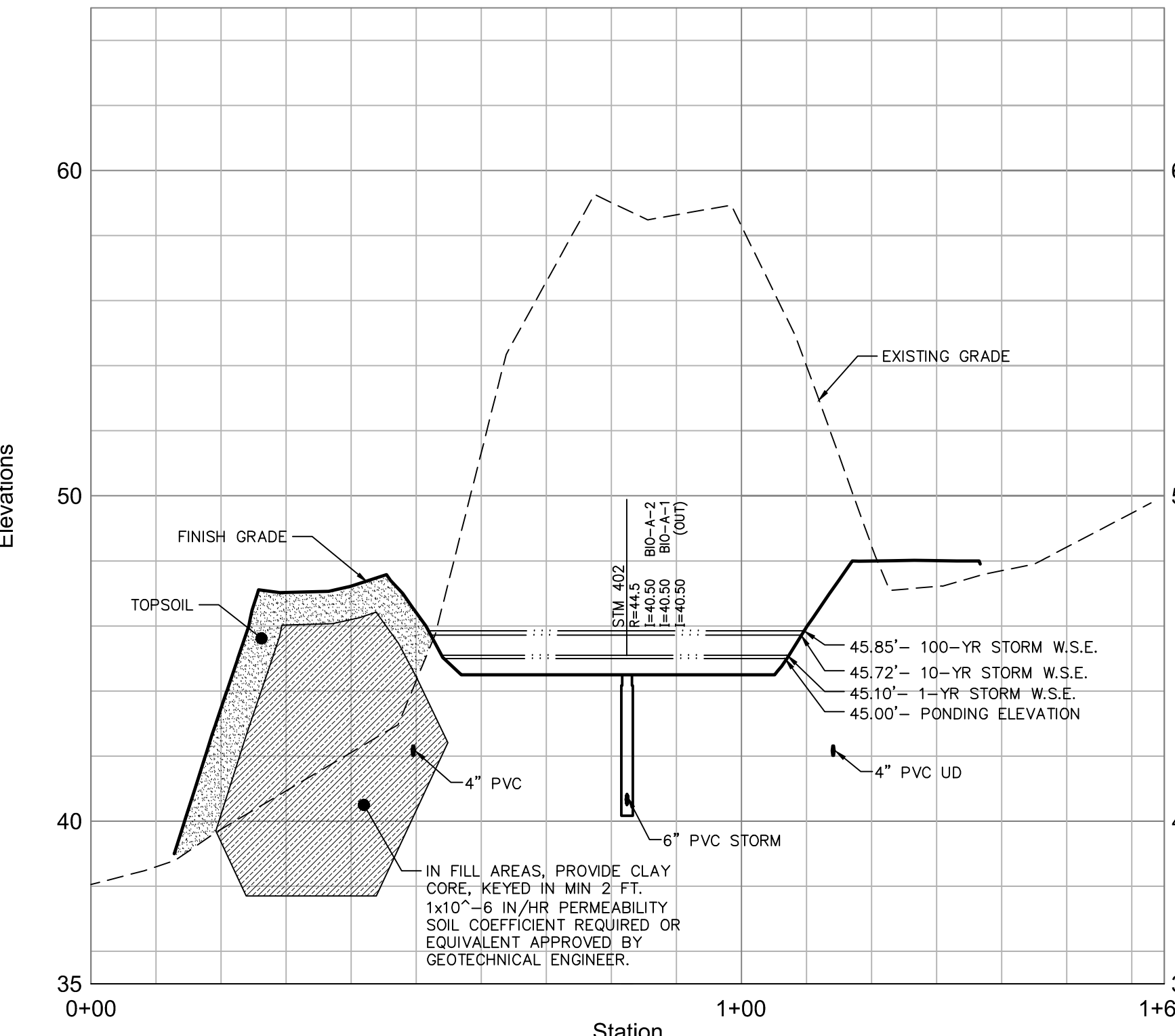


**Bioretention Basin B**

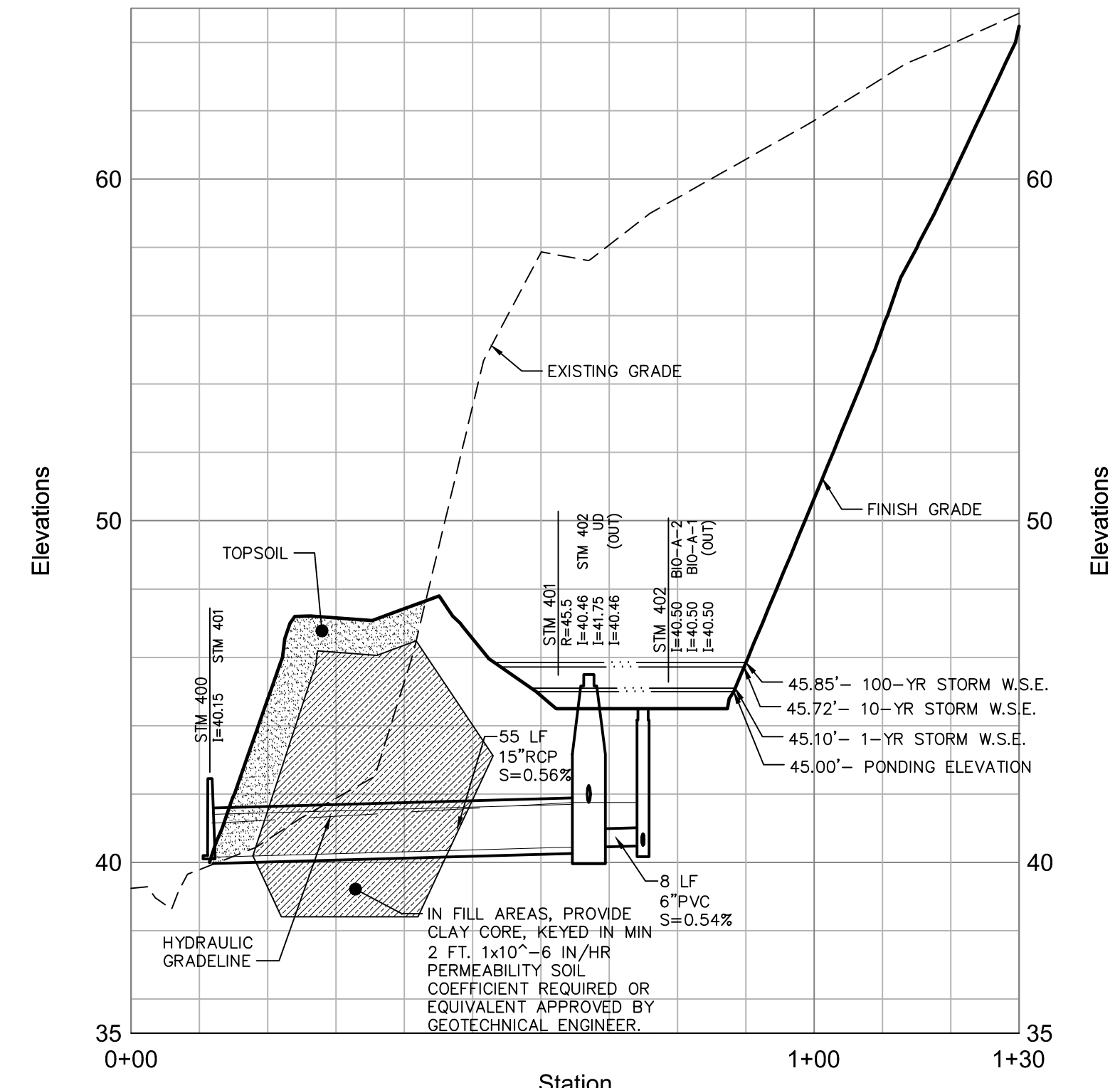
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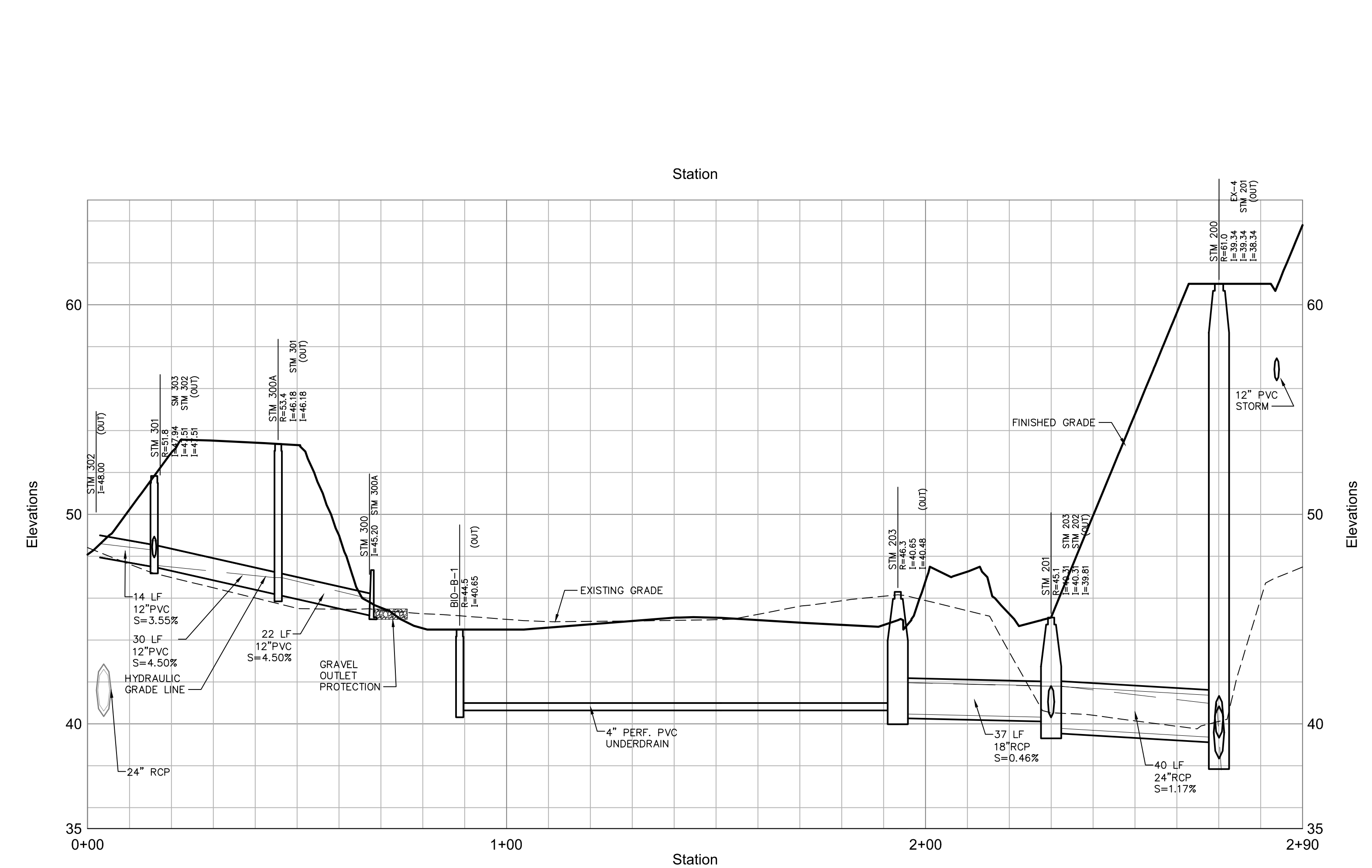
**Bioretention Basin B - Cross Section B-B**



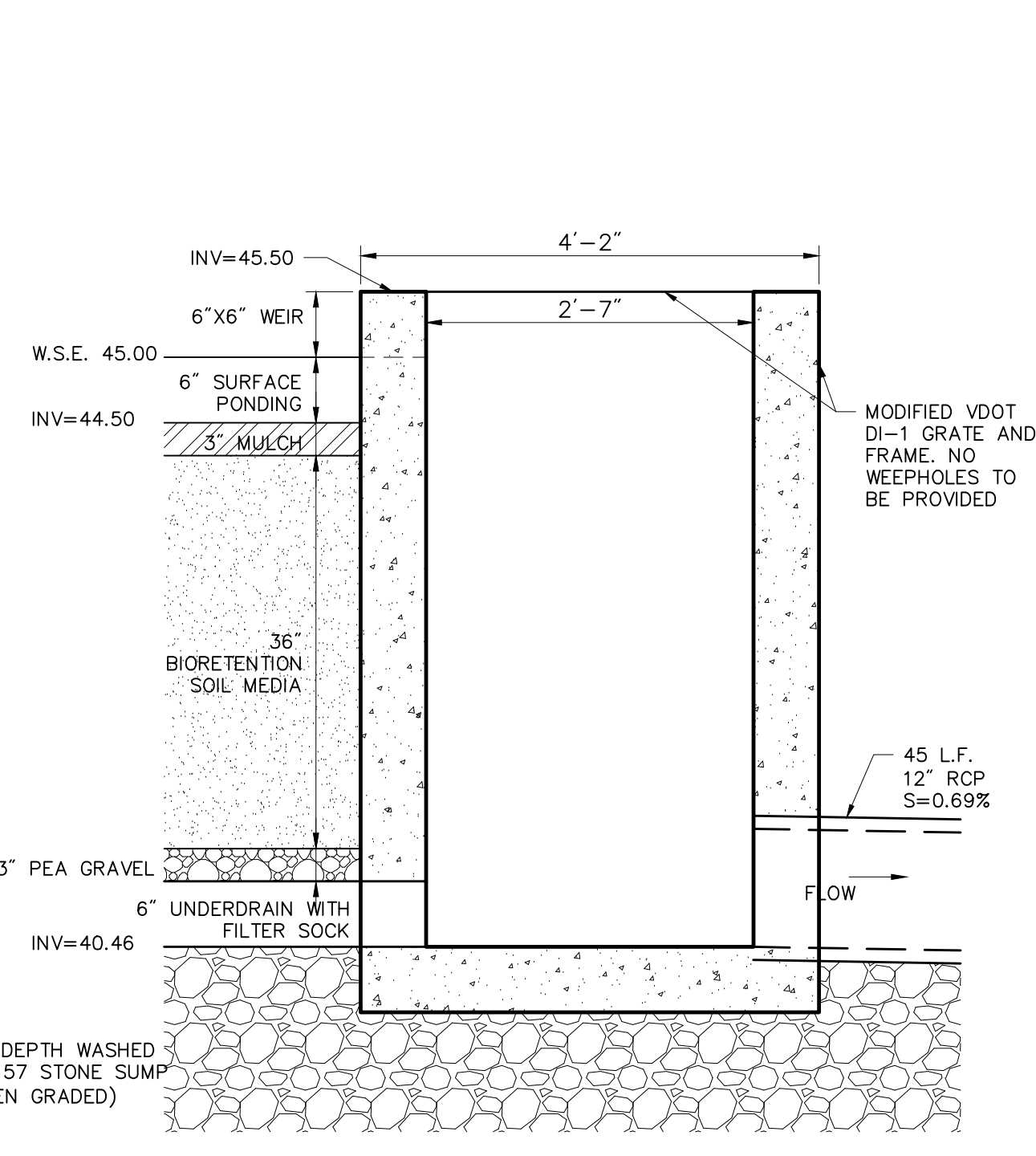
**Bioretention Basin A - Cross Section A-A**



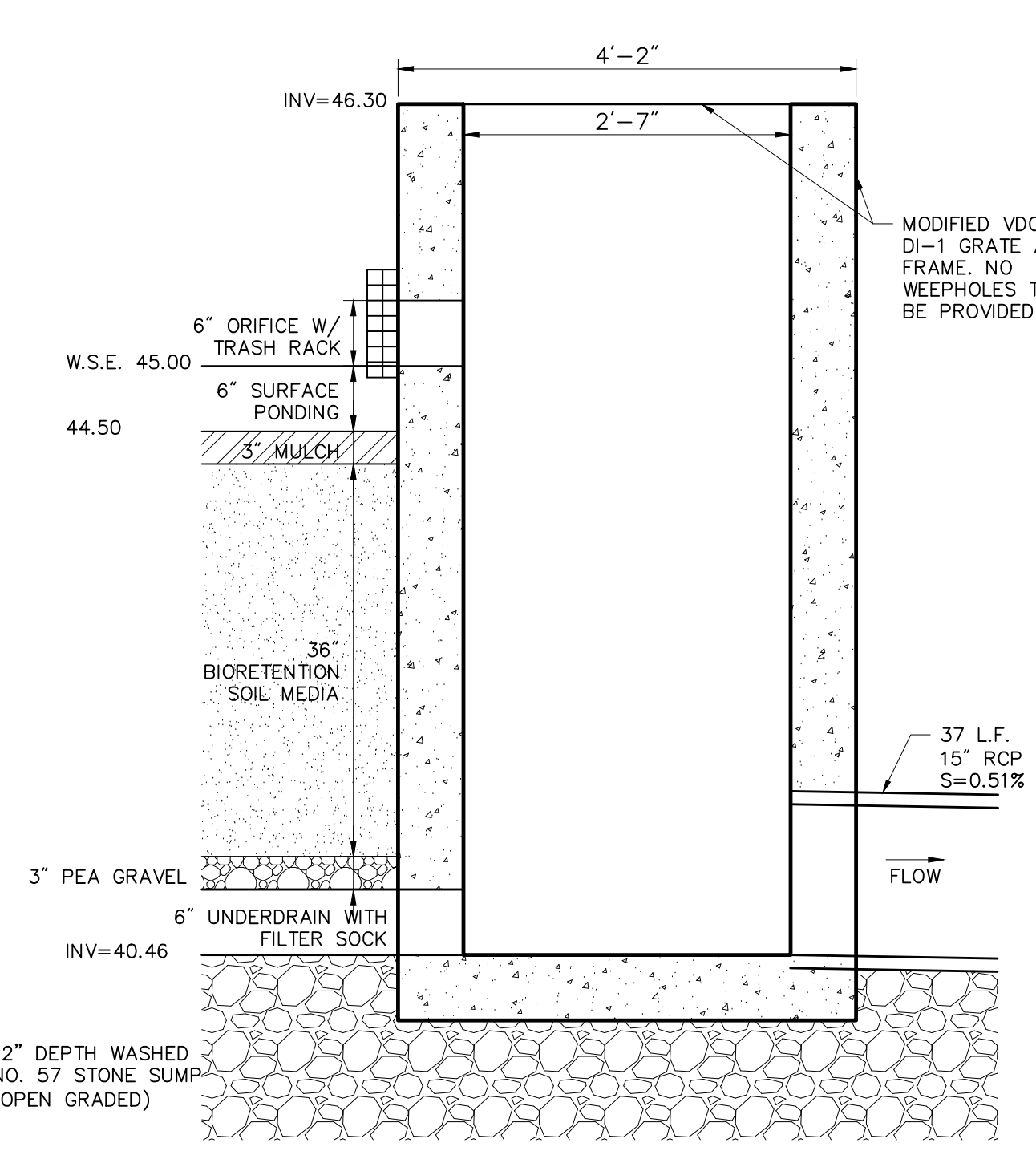
**Bioretention Basin A - Profile**



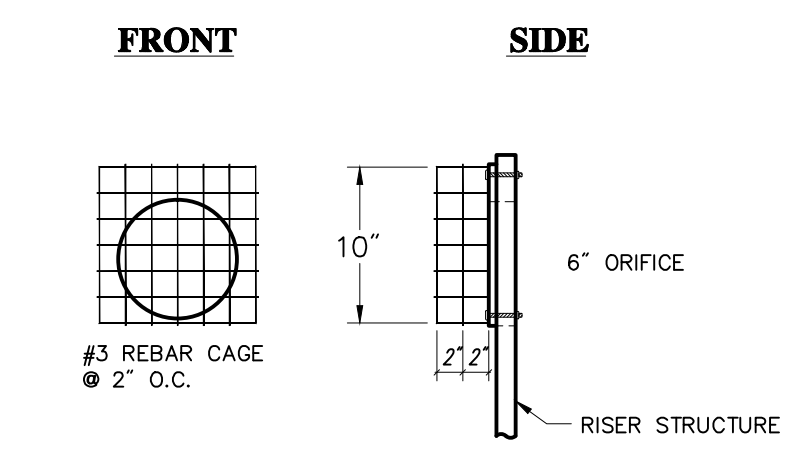
**Bioretention Basin B - Profile**



**Basin A Multi-Stage Outlet Structure (STM 401)**  
N.T.S. Source: VHB



**Basin B Multi-Stage Outlet Structure (STM 203)**  
N.T.S. Source: VHB



**Trash Rack Detail**  
N.T.S. Source: VHB

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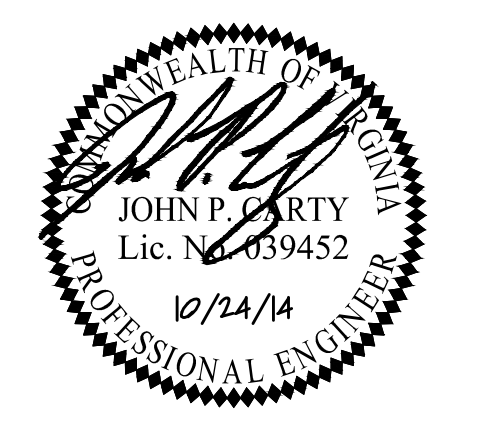
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KEY MAP

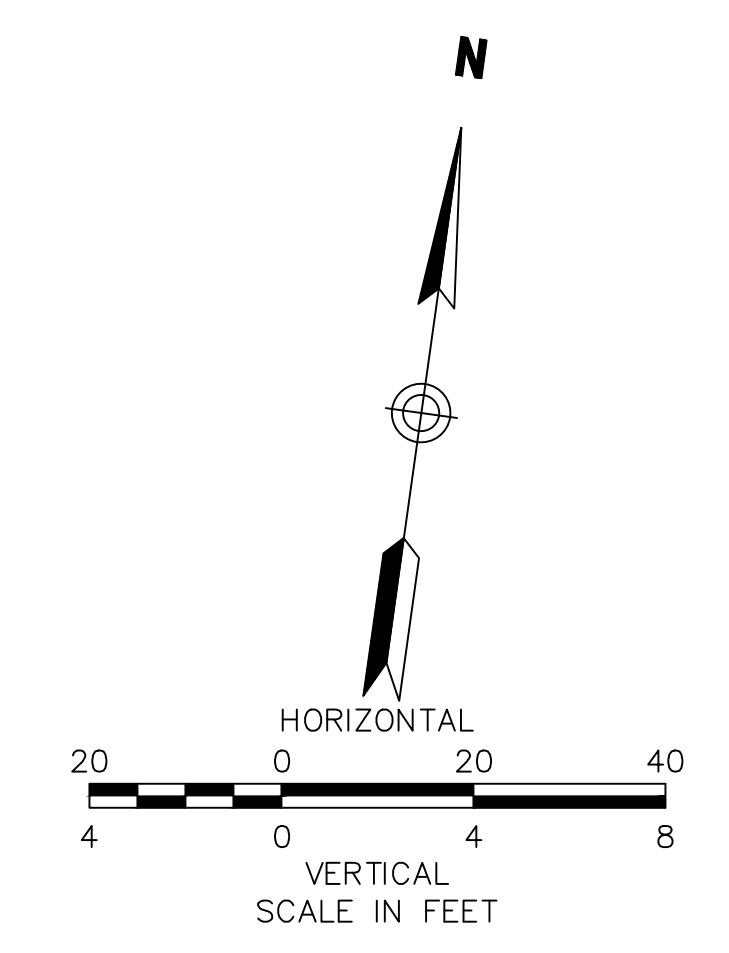
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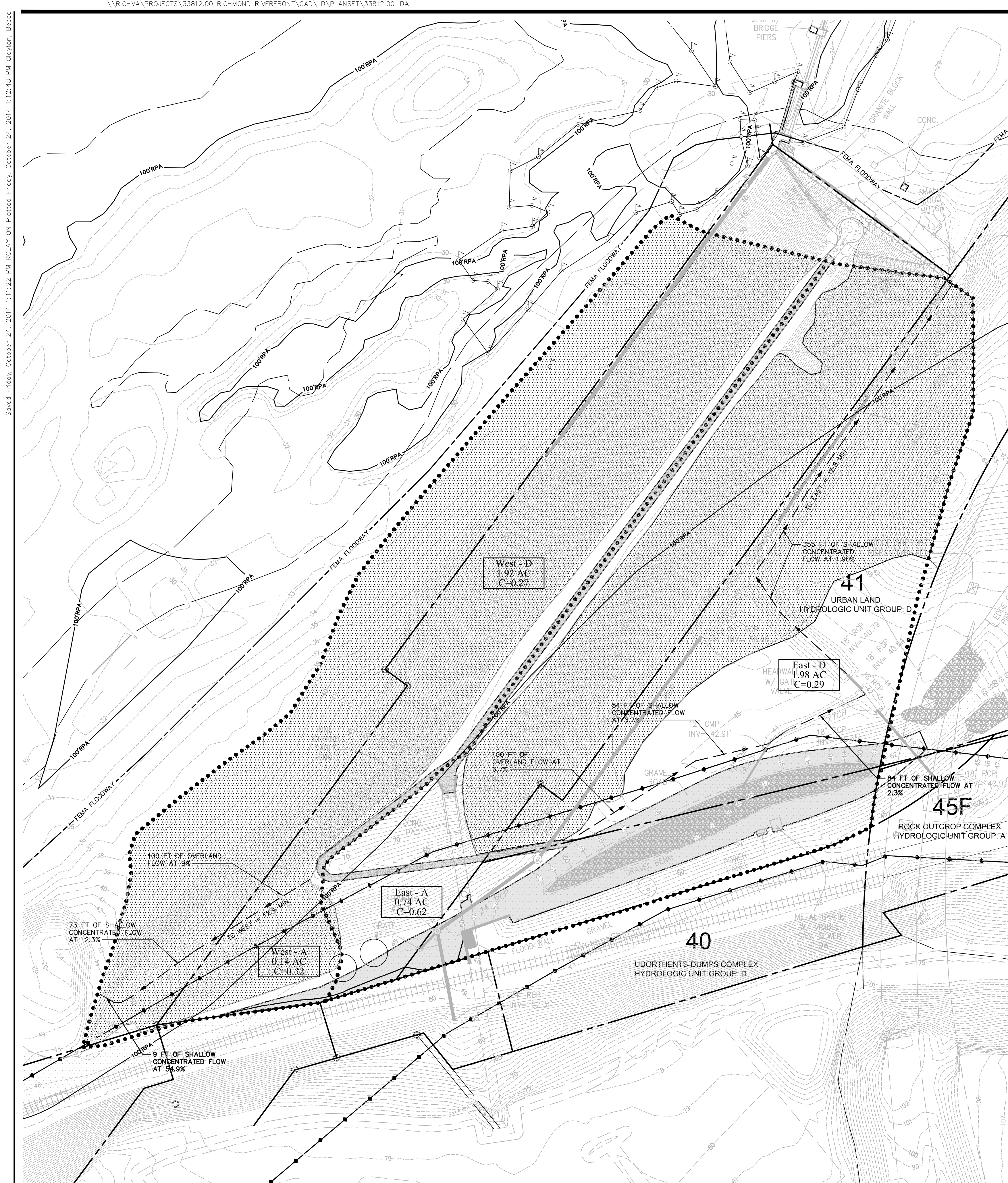
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**CIVIL BIORETENTION ENLARGEMENTS**

SHEET NO.

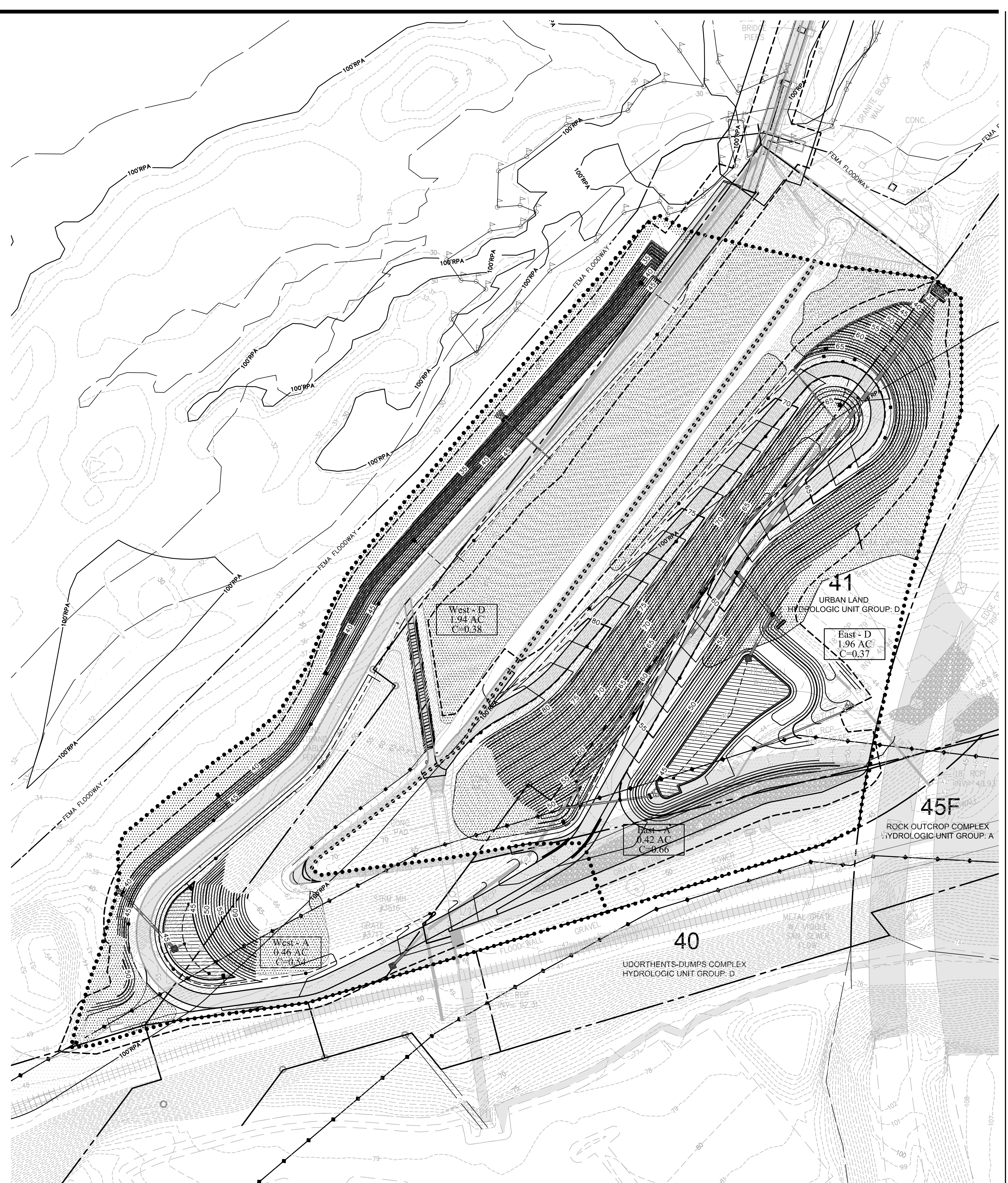
**C-302**





**1 Pre-Development**  
SCALE: 1" = 40'

| Pre-Development Drainage Areas |            |                 |                |                  |                 |           |            |
|--------------------------------|------------|-----------------|----------------|------------------|-----------------|-----------|------------|
| Drainage Area                  | Soil Group | Impervious Area | Turf Area (SF) | Forest Area (SF) | Total Area (SF) | Area (AC) | Weighted C |
| West                           | D          | 2,234           | 3,684          | 77,800           | 83,718          | 1.922     | 0.27       |
|                                | A          | 552             | 1,021          | 4,681            | 6,255           | 0.144     | 0.32       |
| East                           | D          | 2,116           | 24,418         | 59,586           | 86,119          | 1.977     | 0.29       |
|                                | A          | 16,084          | 14,530         | 1,475            | 32,089          | 0.737     | 0.62       |
| Total                          | D          | 4,350           | 28,102         | 137,385          | 169,838         | 3.899     | 0.28       |
|                                | A          | 16,637          | 15,551         | 6,156            | 38,344          | 0.880     | 0.57       |
| Total                          |            | 20,986          | 87,307         | 143,541          | 208,181         | 4.779     | 0.41       |

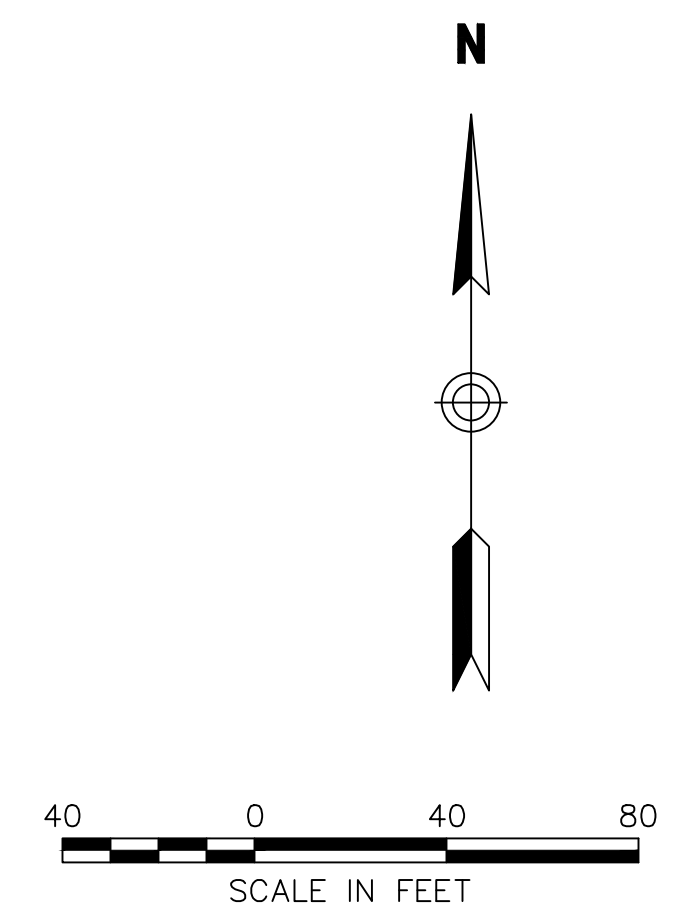


**2 Post-Development**  
SCALE: 1" = 40'

| Post-Development Drainage Areas |            |                 |                |                  |                 |           |            |
|---------------------------------|------------|-----------------|----------------|------------------|-----------------|-----------|------------|
| Drainage Area                   | Soil Group | Impervious Area | Turf Area (SF) | Forest Area (SF) | Total Area (SF) | Area (AC) | Weighted C |
| West                            | D          | 14,135          | 18,846         | 51,547           | 84,528          | 1.940     | 0.38       |
|                                 | A          | 7,624           | 9,556          | 2,908            | 20,088          | 0.461     | 0.54       |
| East                            | D          | 9,875           | 35,080         | 40,355           | 85,310          | 1.958     | 0.37       |
|                                 | A          | 10,464          | 7,145          | 646              | 18,255          | 0.419     | 0.66       |
| Total                           | D          | 24,010          | 53,926         | 91,902           | 169,838         | 3.899     | 0.37       |
|                                 | A          | 18,088          | 16,701         | 3,554            | 38,343          | 0.880     | 0.60       |
| Total                           |            | 42,098          | 70,627         | 95,456           | 208,181         | 4.779     | 0.42       |

**Legend**

- ..... DRAINAGE AREA DIVIDE
- SOIL DIVIDE
- DA - A 0.25 AC C=0.90 DRAINAGE AREA ID - SOIL GROUP TOTAL ACREAGE RUNOFF COEFFICIENT
- FORESTED AREA
- IMPERVIOUS AREA



**PROJECT INFORMATION**  
Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
RICHMOND, VIRGINIA

**CITY OF RICHMOND**  
900 E. Broad St.  
Richmond, VA 23219  
www.richmondgov.com

**Landscape Architecture**  
**HARGREAVES ASSOCIATES**  
118 Magazine Street  
Cambridge, MA 02149  
www.hargreaves.com

**Civil Engineering / Permitting / Local Project Management**  
**VHB**  
115 South 15th Street, Suite 200  
Richmond, VA 23219  
www.vhb.com

**Marine & Structural Engineering**  
**MOFFATT & NICHOL**  
1100 Boulders Parkway, Suite 350  
Richmond, VA 23225  
www.moffattnichol.com

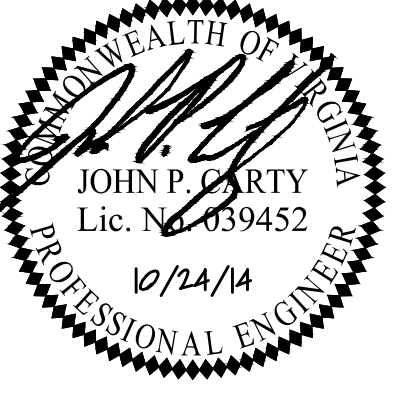
**Electrical Engineering**  
**HCYU Building Engineered Solutions**  
919 East Main Street, Suite 1602  
Richmond, VA 23219  
www.hcyu.com

**Lighting Design**  
**LAM Partners**  
84 Sherman Street  
Cambridge, MA 02140  
www.lampartners.com

**Wayfinding / Signage**  
**1717 DESIGN**  
1717 E. Cary Street  
Richmond, VA 23223  
www.1717design.com

**Geotechnical**  
**DMY INC.**  
14241 Midlothian Turnpike, Suite 230  
Midlothian, VA 23113  
www.dmy-inc.com

SEAL/SIGNATURE



ISSUE

REVISIONS

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 02-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

KEY MAP

SHEET INFORMATION

Project No.: RVA 1301  
Drawn By: CAC  
Checked By: JPC  
Date: 10/03/2014

SHEET TITLE

**CIVIL PRE- AND POST- DEVELOPMENT DRAINAGE AREAS**  
SHEET NO.

**C-401**



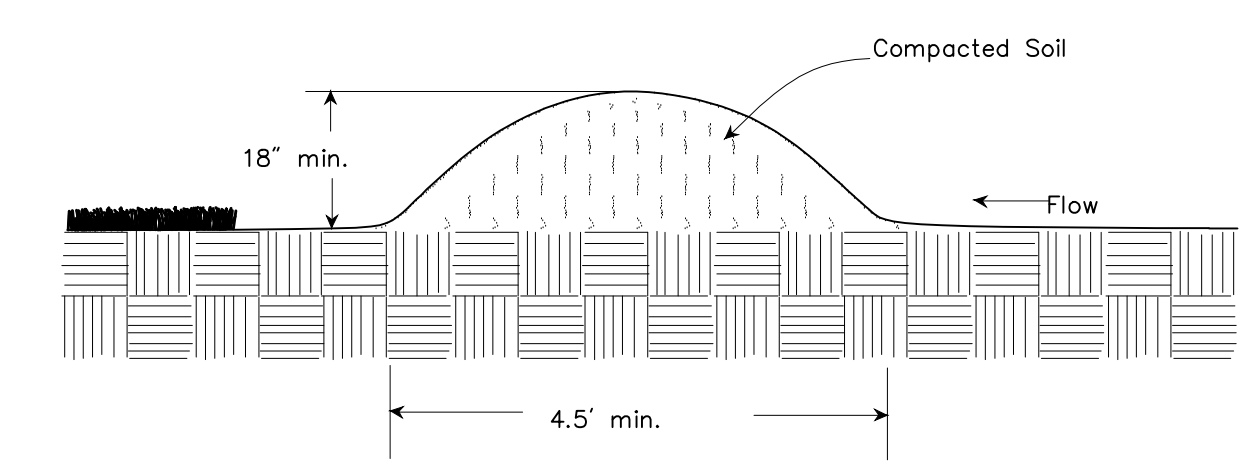
**Minimum Standards**

AN EROSION AND SEDIMENT CONTROL PROGRAM ADOPTED BY A DISTRICT OR LOCALITY MUST BE CONSISTENT WITH THE FOLLOWING CRITERIA, TECHNIQUES AND METHODS:

- PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT ARE NOT AT FINAL GRADE BUT WILL REMAIN DENUDED FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DENUDED FOR LONGER THAN 14 DAYS.
- DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL MATERIALS ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
- A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GRASS COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.
- SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.
- STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
- SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.
  - THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.
  - SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPOSED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTLET SYSTEM SHALL BE AT A MINIMUM MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A TWENTY-FIVE YEAR STORM OF 24-HOUR DURATION. RUNOFF FROM THE BASIN SHALL BE CALCULATED AND SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.
- CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SOIL STABILIZING MEASURES UNTIL THE PROGRAM IS CORRECTED.
- CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
- WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
- ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
- BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
- WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND CONFERRERS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF APPROVED BY NONERODIBLE COVER MATERIALS.
- WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.
- ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.
- THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.
- UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
  - NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
  - EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
  - EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
  - MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND FROST STABILIZATION.
  - RESTALLATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THIS CHAPTER.
  - APPLICABLE SAFETY REQUIREMENTS SHALL BE COMPLIED WITH.
- WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO THE PAVED SURFACE, IT SHALL BE REMOVED IMMEDIATELY. SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOULDERING MATERIAL SHALL BE USED FOR THE CONTROL. DISPOSAL AREA STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.
- ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
- PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORM RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA: STREAM RESTORATION AND RELOCATION PROJECTS THAT INCORPORATE NATURAL CHANNEL DESIGN CONCEPTS THAT ARE NOT MAN-MADE CHANNELS AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS.
  - CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.
  - ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
    - THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION; OR
    - NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS; AND
    - ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND
    - PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.
  - IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:
    - IMPROVE THE CHANNEL TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL, BED OR BANKS; OR
    - IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES; OR
    - DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR
    - PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE PLAN-APPROVING AUTHORITY TO PREVENT DOWNSTREAM EROSION.
  - THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.
  - ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT CONDITION OF THE SUBJECT PARCEL.
  - IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION HE SHALL OBTAIN APPROVAL FROM THE LOCALITY OF A PLAN FOR MAINTENANCE AND DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.
  - OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.
  - ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.
  - INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE OVERTOP TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.
  - IN APPLYING THE STORMWATER RUNOFF CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT WITH PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.
  - ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL, AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.
  - ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO (i) DETAIN THE WATER QUALITY VOLUME AND TO RELEASE IT OVER 48 HOURS; (ii) DETAIN AND RELEASE OVER A 24-HOUR PERIOD THE EXPECTED RAINFALL RESULTING FROM THE ONE YEAR, 24-HOUR STORM; AND (iii) REDUCE THE ALLOWABLE PEAK FLOW RATE RESULTING FROM THE 1.5, 2, AND 10-YEAR, 24-HOUR STORMS TO A LEVEL THAT IS LESS THAN OR EQUAL TO THE PEAK FLOW RATE FROM THE SITE ASSUMING IT WAS IN A GOOD FORESTED CONDITION. ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO § 62.1-44.15:54 OR 62.1-44.15:65 OF THE ACT.
  - FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 62.1-44.15:52 A OF THE ACT AND THIS SUBSEQUENT SECTION SHALL BE SATISFIED BY THE COMPLIANCE OF THE WATER QUALITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§ 62.1-44.15:24 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LAND-DISTURBING ACTIVITIES ARE IN ACCORDANCE WITH §§62.2-870-48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSM) REGULATIONS.
  - COMPLIANCE WITH THE WATER QUALITY MINIMUM STANDARDS SET OUT IN 9VA225-870-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSM) REGULATIONS SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF SUBDIVISION 19 OF THIS SUBSECTION.

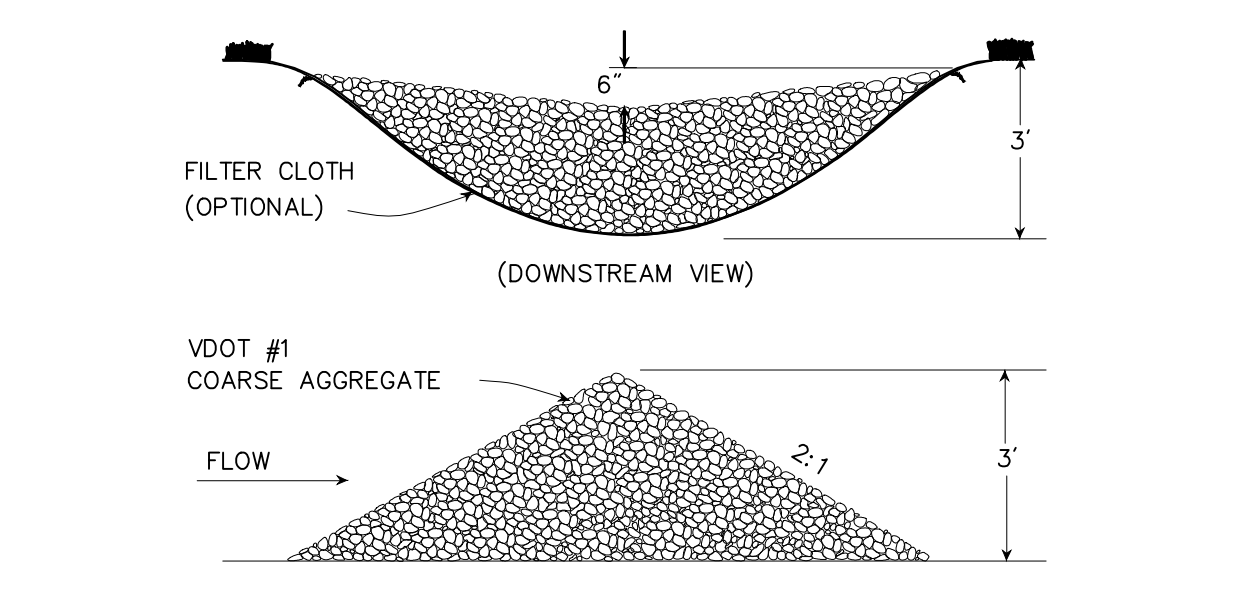
**General Erosion and Sediment Control Notes (Table 6-1 VESCH)**

- ES-1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS SVACS-840 EROSION AND SEDIMENT CONTROL REGULATIONS.
- ES-2: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO FINAL INSPECTION.
- ES-3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.
- ES-4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
- ES-5: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.
- ES-6: THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.
- ES-7: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
- ES-8: DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
- ES-9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT, ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

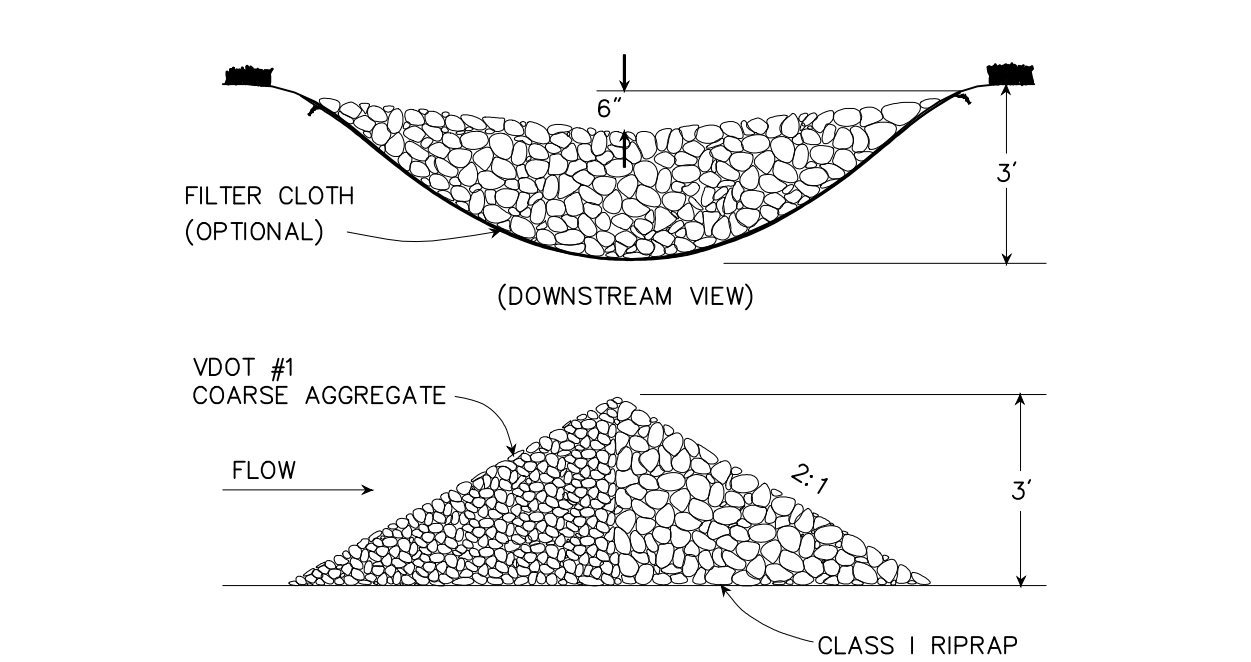


**Temporary Diversion Dike** 6/08  
N.T.S. Source: Virginia Erosion And Sediment Control Handbook Plate 3.09-1

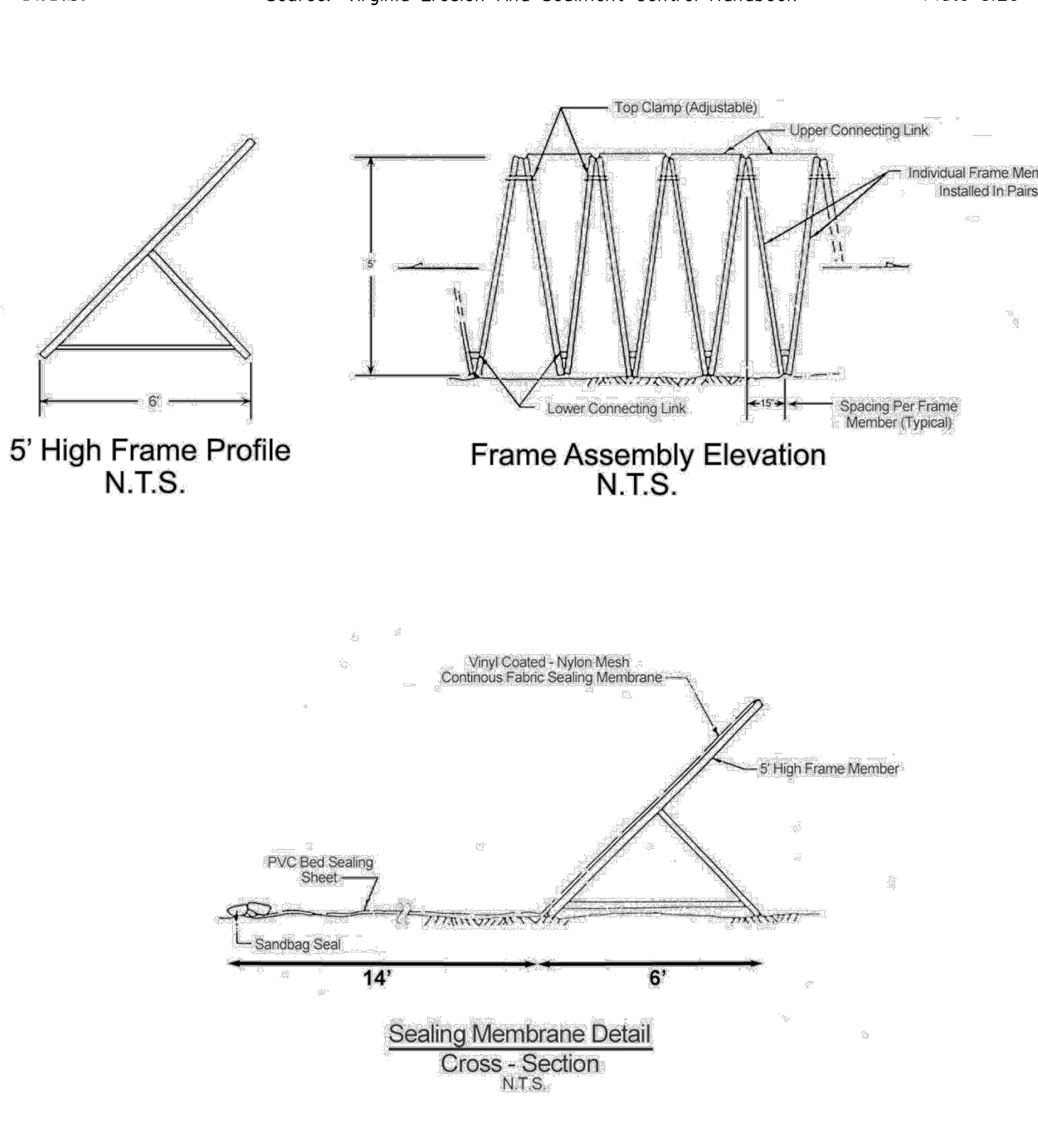
**2 Acres Or Less Of Drainage Area:**



**2-10 Acres Of Drainage Area:**



**Rock Check Dam** 6/08  
N.T.S. Source: Virginia Erosion And Sediment Control Handbook Plate 3.20-1



**5' High Frame Profile** N.T.S.  
**Frame Assembly Elevation** N.T.S.  
**Sealing Membrane Detail** N.T.S.

**5' Portadam Framework and Sealing Membrane** N.T.S. Source: Portadam, Inc.

**Table 3.31-B**

**ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS**

**"QUICK REFERENCE FOR ALL REGIONS"**

| Planting Dates    | Species   | Rate (lbs./acre) |
|-------------------|---|------------------|
| Sept. 1 - Feb. 15 | 50/50 Mix of Annual Ryegrass (Lolium multi-florum) & Cereal (Winter) Rye (Secale cereale) | 50 - 100         |
| Feb. 16 - Apr. 30 | Annual Ryegrass (Lolium multi-florum)   | 60 - 100         |
| May 1 - Aug. 31   | German Millet (Setaria italica)   | 50               |

Note: Contractor shall coordinate all temporary seeding with owner's representative.

**Temporary Seeding Specifications** 6/08

N.T.S. Source: Virginia Erosion And Sediment Control Handbook PL 3.31-B

**Table 3.32-E**

**Permanent Seeding Specifications For Coastal Plain Area**

| MINIMUM CARE LAWN - COMMERCIAL OR RESIDENTIAL              | TOTAL LBS. PER ACRE                                   |
|--|---|
| TALL FESCUE OR BERMUDAGRASS (SEED) OR SEASONAL NURSE CROPS | 175-200 LBS.  |
| TALL FESCUE  | 200-250 LBS.  |
| BERMUDAGRASS (SEED) OR SEASONAL NURSE CROPS                | 40 LBS. (UNHULLED) 30 LBS. (HULLED)                   |
| GENERAL SLOPE (3:1 OR LESS)                                | 128 LBS. 2 LBS. 150 LBS.                              |
| LOW MAINTENANCE SLOPE (STEEPER THAN 3:1)                   | 93-108 LBS. 0-15 LBS. 2 LBS. 20 LBS. 20 LBS. 150 LBS. |

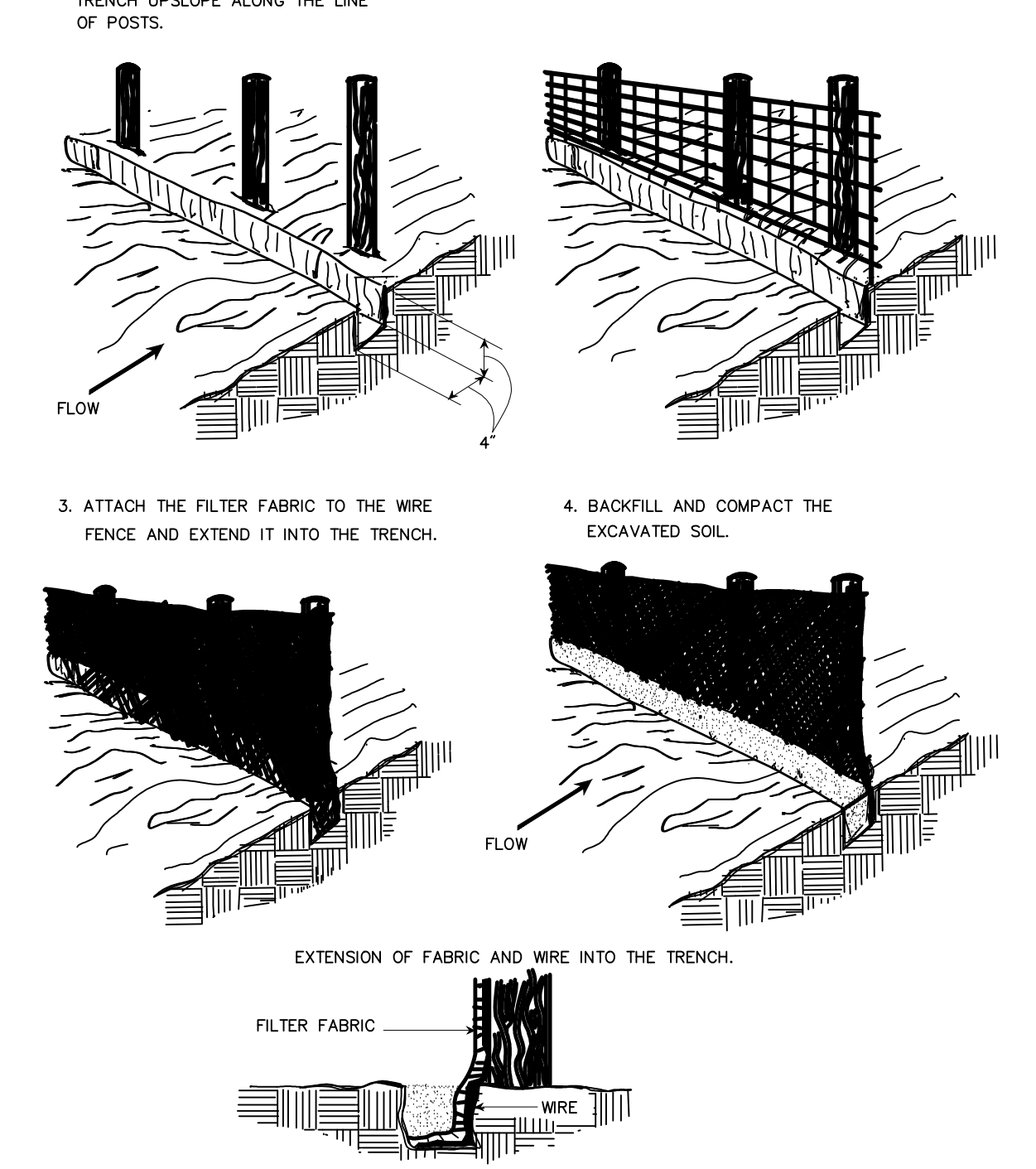
- WHEN SELECTING VARIETIES OF TURFGRASS, USE THE VIRGINIA CROP IMPROVEMENT ASSOCIATION (VCA) RECOMMENDED TURFGRASS VARIETY LIST. QUALITY SEED WILL BEAR A LABEL INDICATING THAT THEY ARE APPROVED BY VCA. A CURRENT TURFGRASS VARIETY LIST IS AVAILABLE AT THE LOCAL COUNTY EXTENSION OFFICE OR THROUGH VCA AT 804-746-4884 OR AT <http://www.vca.org/extension/extensionpublications2.html>
- USE SEASONAL NURSE CROP IN ACCORDANCE WITH SEEDING DATES AS STATED BELOW:
  - FEBRUARY, MARCH - APRIL ANNUAL RYE
  - MAY 1ST - AUGUST FOXTAIL MILLET
  - SEPTEMBER, OCTOBER - NOVEMBER 15TH ANNUAL RYE
  - NOVEMBER 16TH - JANUARY WINTER RYE
- MAY THROUGH OCTOBER, USE HULLED SEED. ALL OTHER SEEDING PERIODS, USE UNHULLED SEED. IF WEEPING LOVERGRASS IS USED, INCLUDE IN ANY SLOPE OR LOW MAINTENANCE MATURE DURING WARMER SEEDING PERIODS, INCREASE 30-40 LBS./ACRE.

- Fertilizer & Lime**
- APPLY 10-20-10 FERTILIZER AT A RATE OF 500 LBS./ACRE (OR 12 LBS./1,000 S.F.)
  - APPLY PULVERIZED AGRICULTURAL LIMESTONE AT A RATE OF 2 TONS/ACRE (OR 90 LBS./1,000 S.F.)
- A SOIL TEST IS NECESSARY TO DETERMINE THE ACTUAL AMOUNT OF LIME REQUIRED TO ADJUST THE SOIL PH OF SITE.
  - INCORPORATE THE LIME AND FERTILIZER INTO THE TOP 4-6 INCHES OF THE SOIL BY DISKING OR BY OTHER MEANS.
  - WHEN APPLYING SLOWLY AVAILABLE NITROGEN, USE RATES AVAILABLE IN EROSION & SEDIMENT CONTROL TECHNICAL BULLETIN # 2003, NUTRIENT MANAGEMENT FOR DEVELOPMENT SITES AT <http://www.ces.state.virginia.edu/erodocs/>

**Permanent Seeding Specifications** 6/08

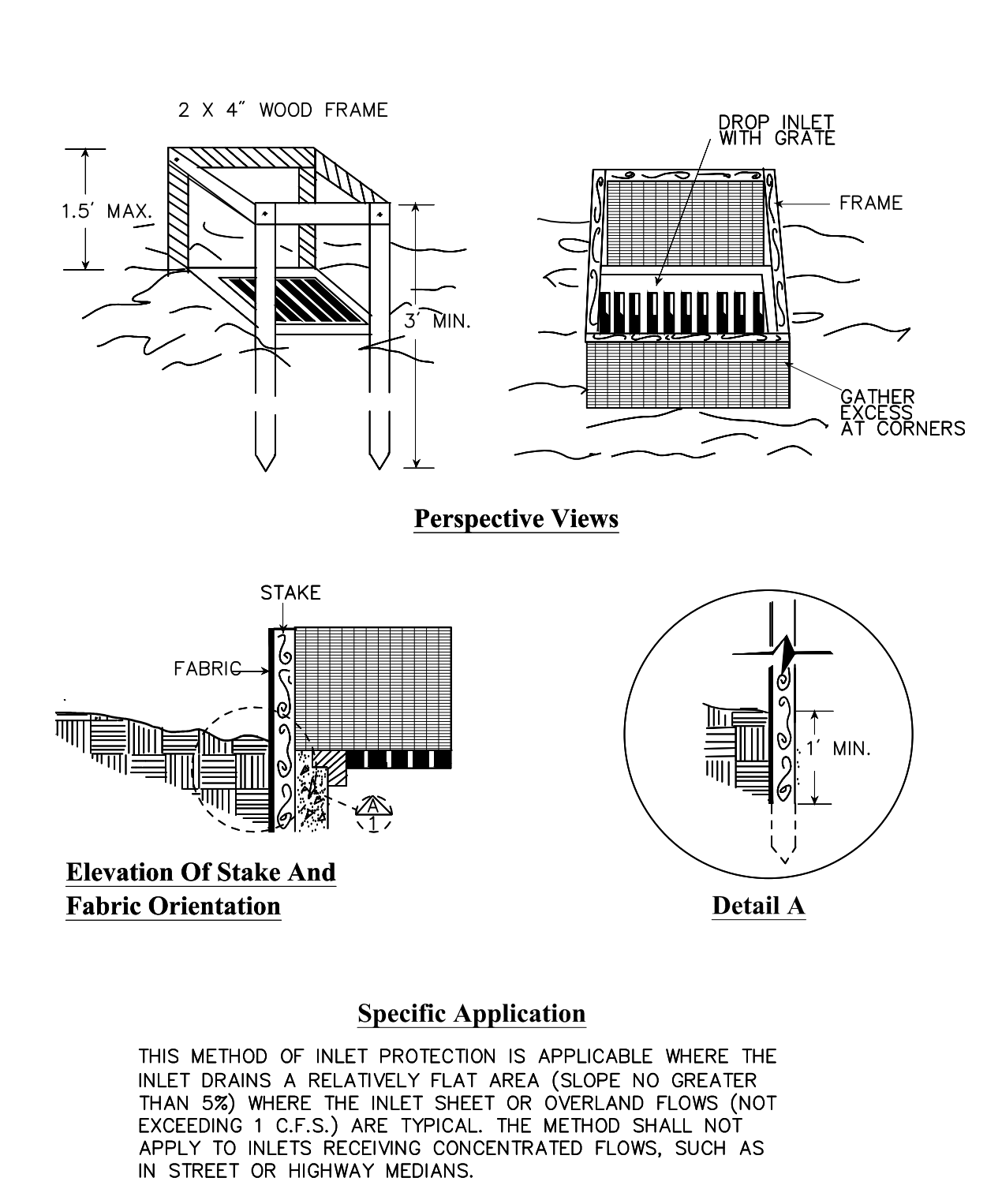
N.T.S. Source: Virginia Erosion And Sediment Control Handbook PL 3.32-E

**Construction Of A Silt Fence (With Wire Support)** 6/08

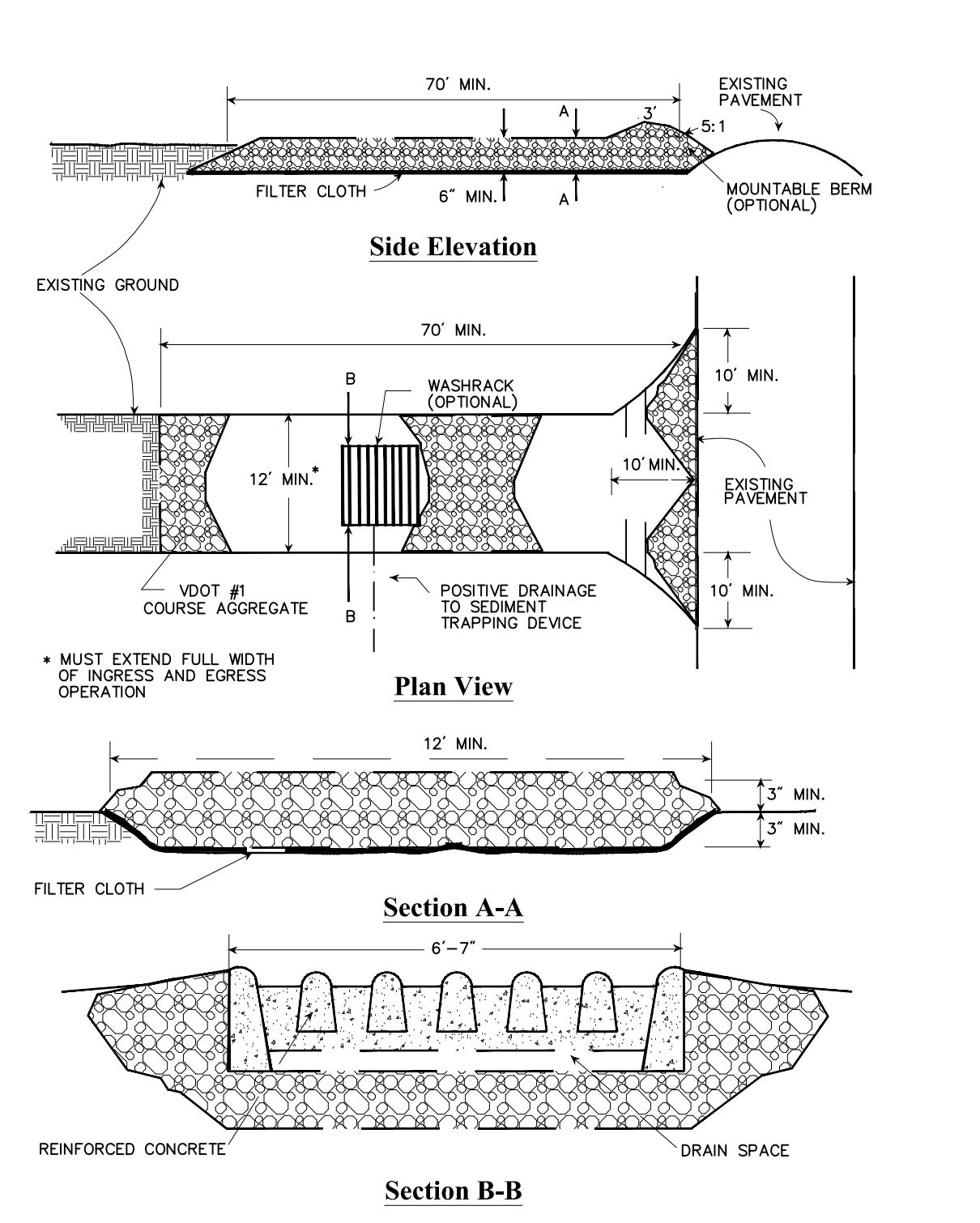


**Construction Of A Silt Fence (With Wire Support)** 6/08  
N.T.S. Source: Virginia Erosion And Sediment Control Handbook Plate 3.05-2

**Construction Of A Silt Fence (Without Wire Support)** 6/08

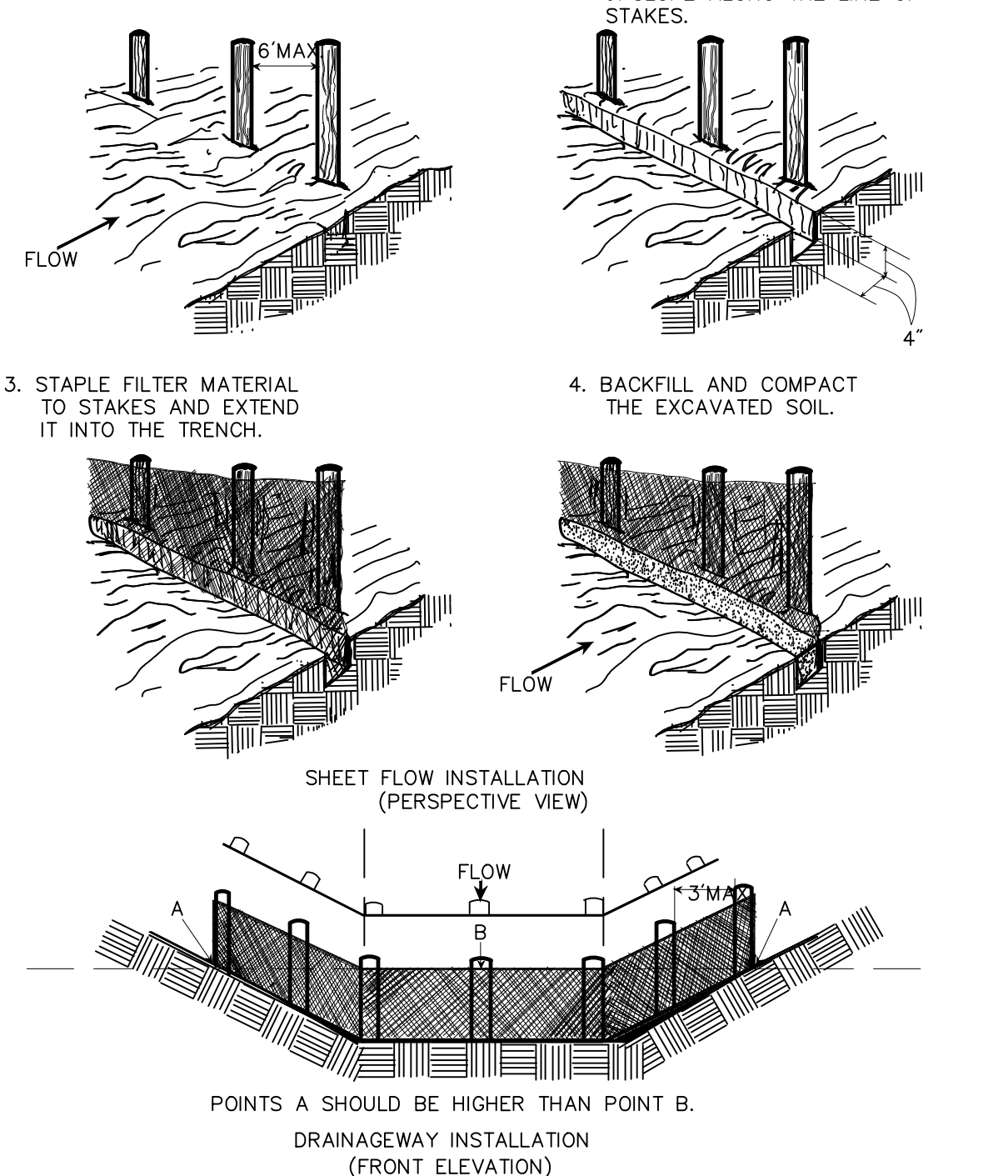


**Construction Of A Silt Fence (Without Wire Support)** 6/08  
N.T.S. Source: Virginia Erosion And Sediment Control Handbook Plate 3.05-2



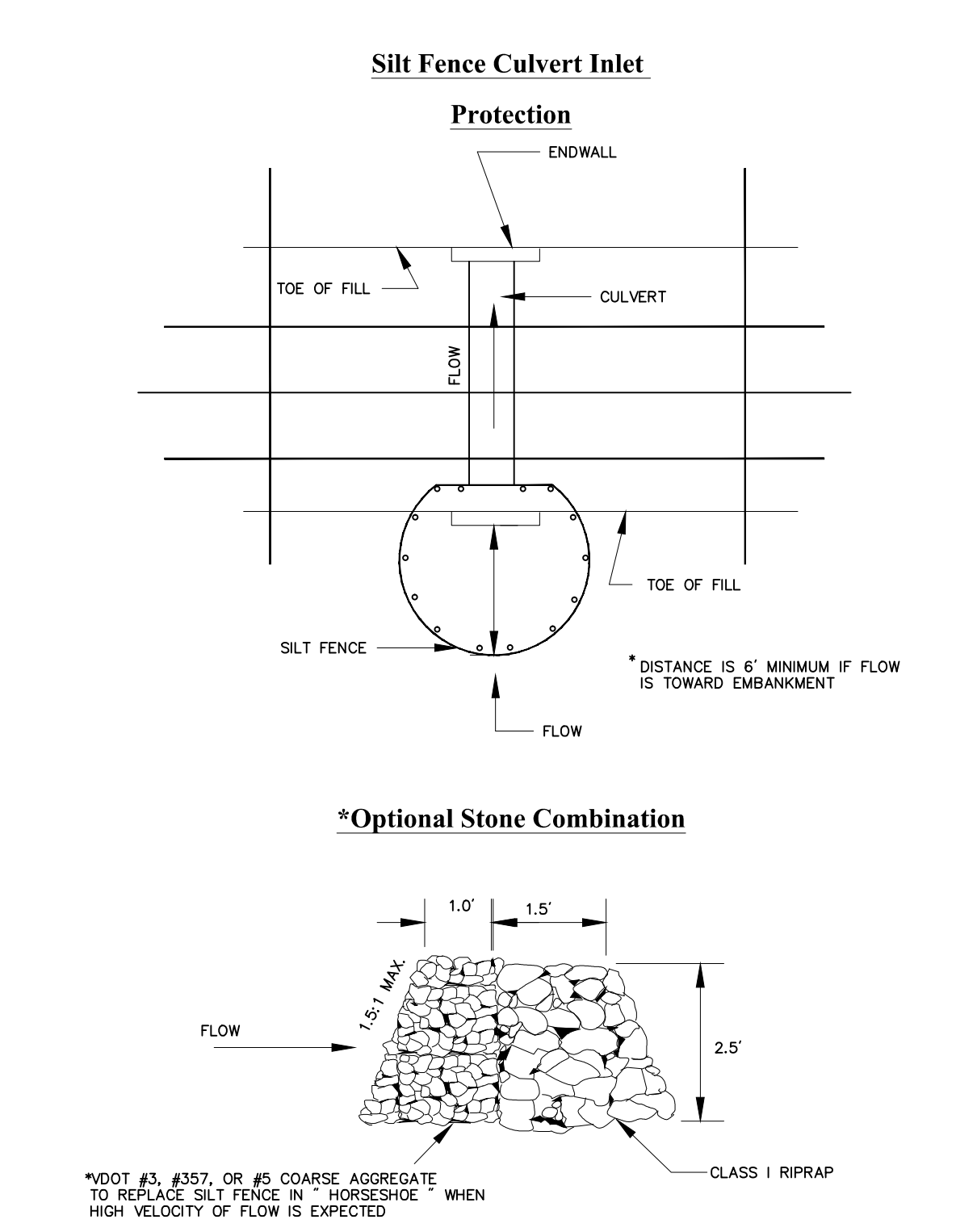
**Stone Construction Entrance** 6/08  
N.T.S. Source: Virginia Erosion And Sediment Control Handbook Plate 3.02-1

**Silt Fence Culvert Inlet Protection** 6/08



**Silt Fence Culvert Inlet Protection** 6/08  
N.T.S. Source: Virginia Erosion And Sediment Control Handbook Plate 3.08-1

**Silt Fence Culvert Inlet Protection** 6/08



**Silt Fence Culvert Inlet Protection** 6/08  
N.T.S. Source: Virginia Erosion And Sediment Control Handbook Plate 3.08-1

**PROJECT INFORMATION**

Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
RICHMOND, VIRGINIA

**CITY OF RICHMOND**  
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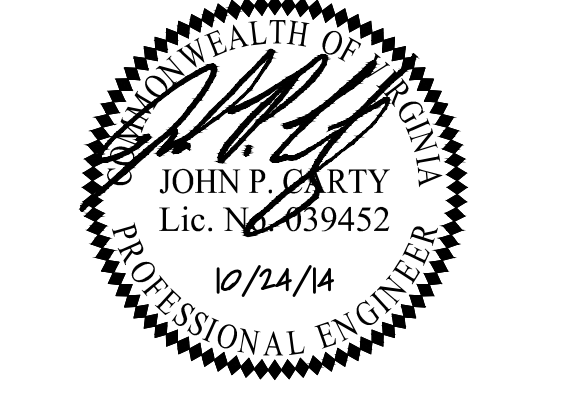
**Electrical Engineering HCYU Building Engineered Solutions**  
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**ISSUE**

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 02-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

**KEY MAP**

**SHEET INFORMATION**

Drawn No.: RVA 1301  
Drawn By: CAC  
Checked By: JPC  
Date: 10/03/2014

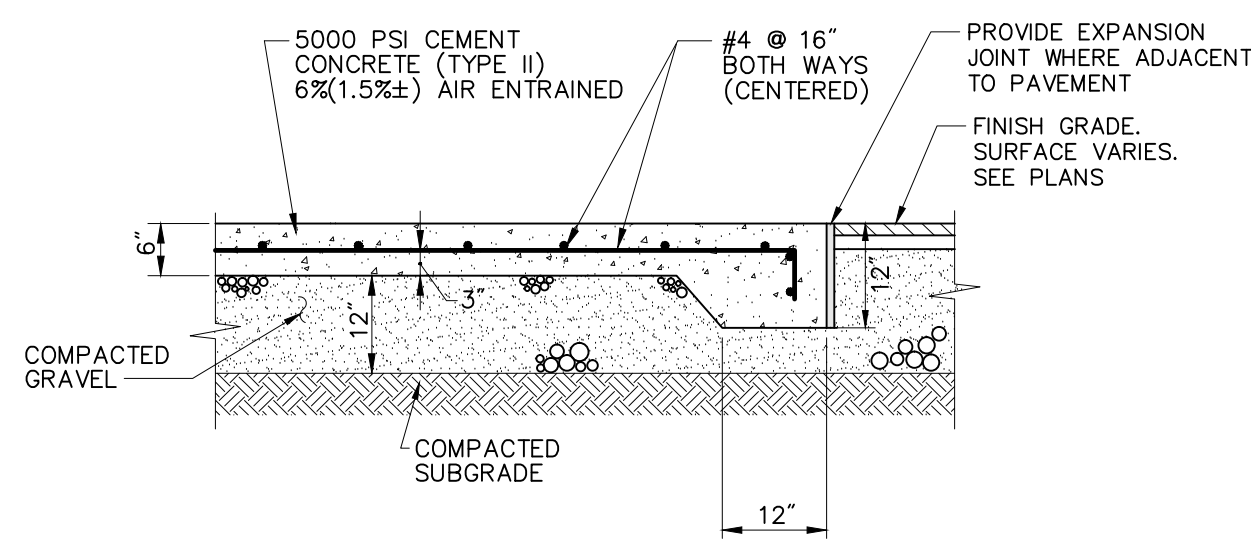
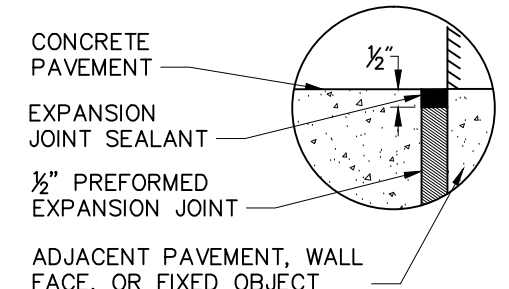
**SHEET TITLE**

**CIVIL DETAILS - EROSION CONTROL**

**SHEET NO.**

**C-505**

**Expansion Joint Detail**

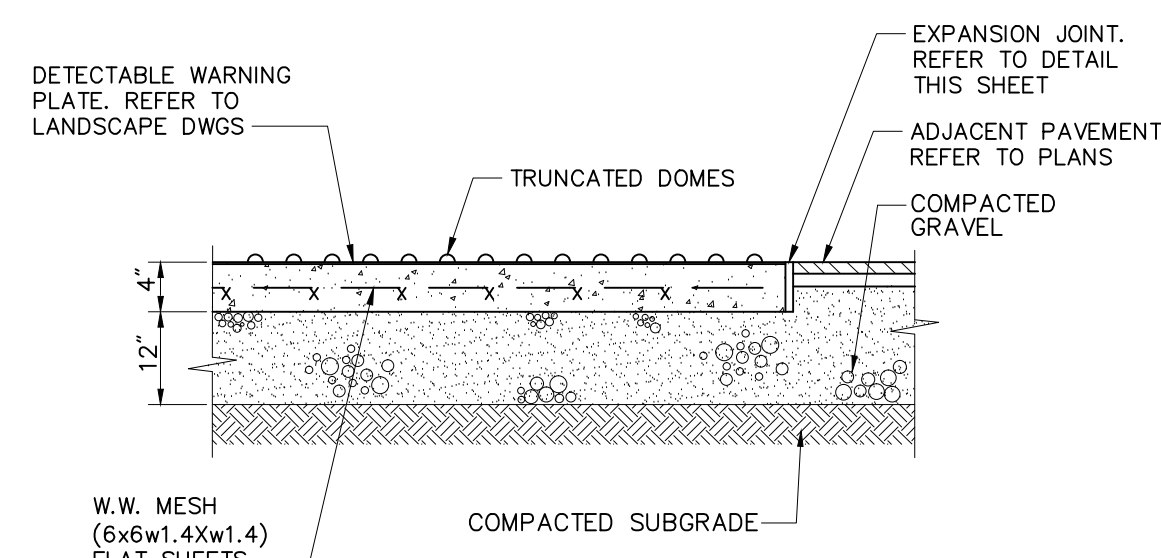


**Notes:**

1. SIZE OF PAD TO BE AS INDICATED ON LANDSCAPE PLANS.
2. CONSTRUCTION JOINTS SHALL BE SAW CUT AND SPACED NO MORE THAN 30 FEET ON CENTER AND SHALL BE EQUALLY SPACED OVER THE LENGTH AND WIDTH OF THE PAD.
3. FINISH TO BE MEDIUM BROOM SWEEP

**Reinforced Concrete Slab** 4/7/11

N.T.S. Source: VHB REV LD\_710

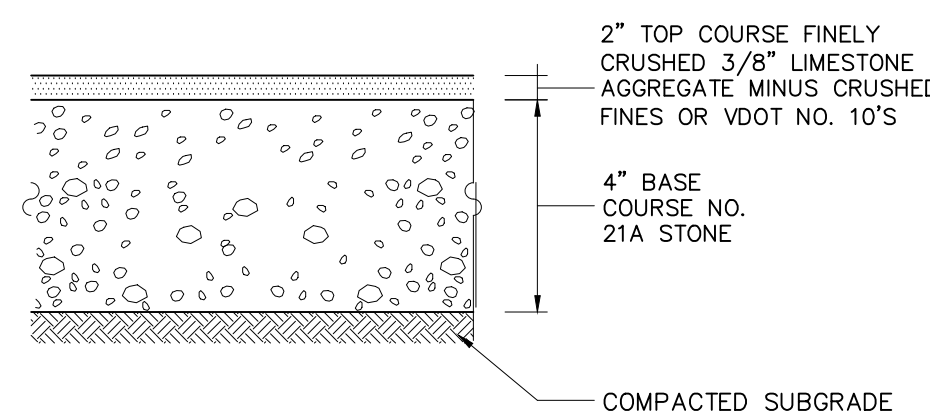


**Notes:**

1. DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES.
2. CONCRETE SHALL HAVE MINIMUM COMPRESSIVE STRENGTH 5000 PSI, 6% (1.5%) AIR ENTRAINMENT TYPE II CEMENT.

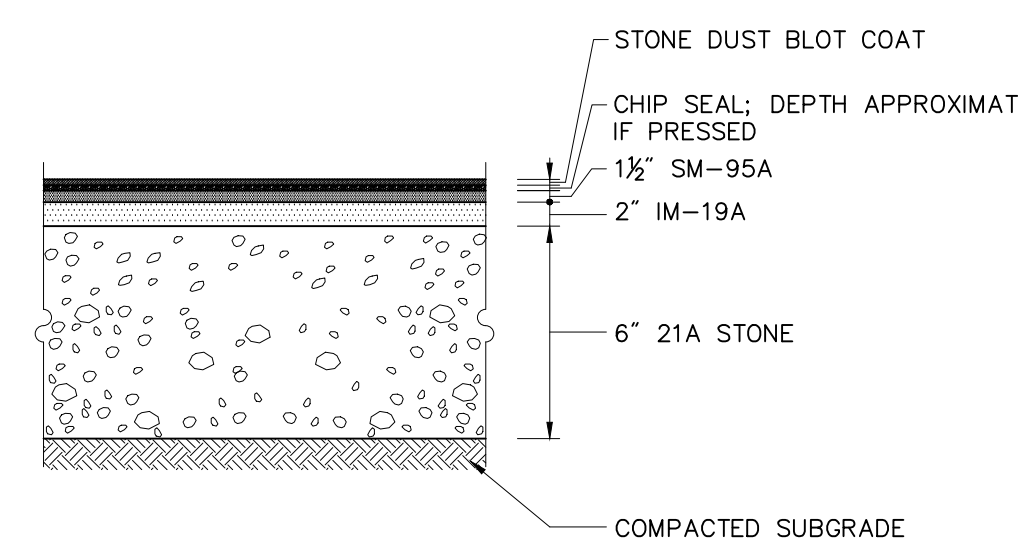
**Detectable Warning Strip** 7/7/13

N.T.S. Source: VHB REV LD\_442

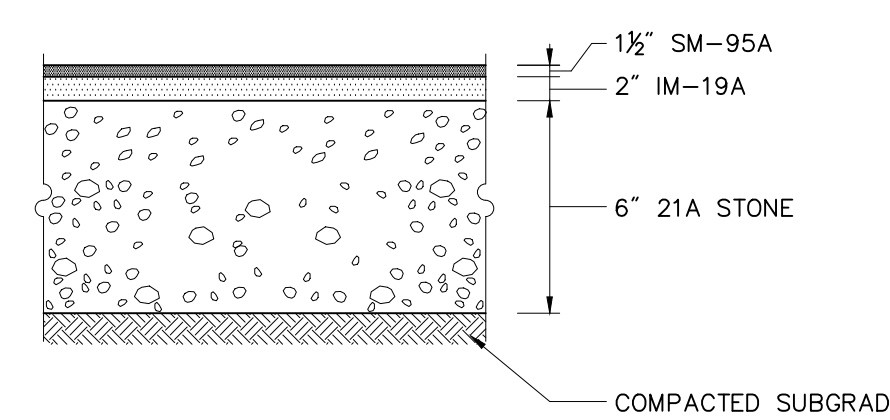


**Crushed Aggregate** 6/208

N.T.S. Source: VHB LD\_170



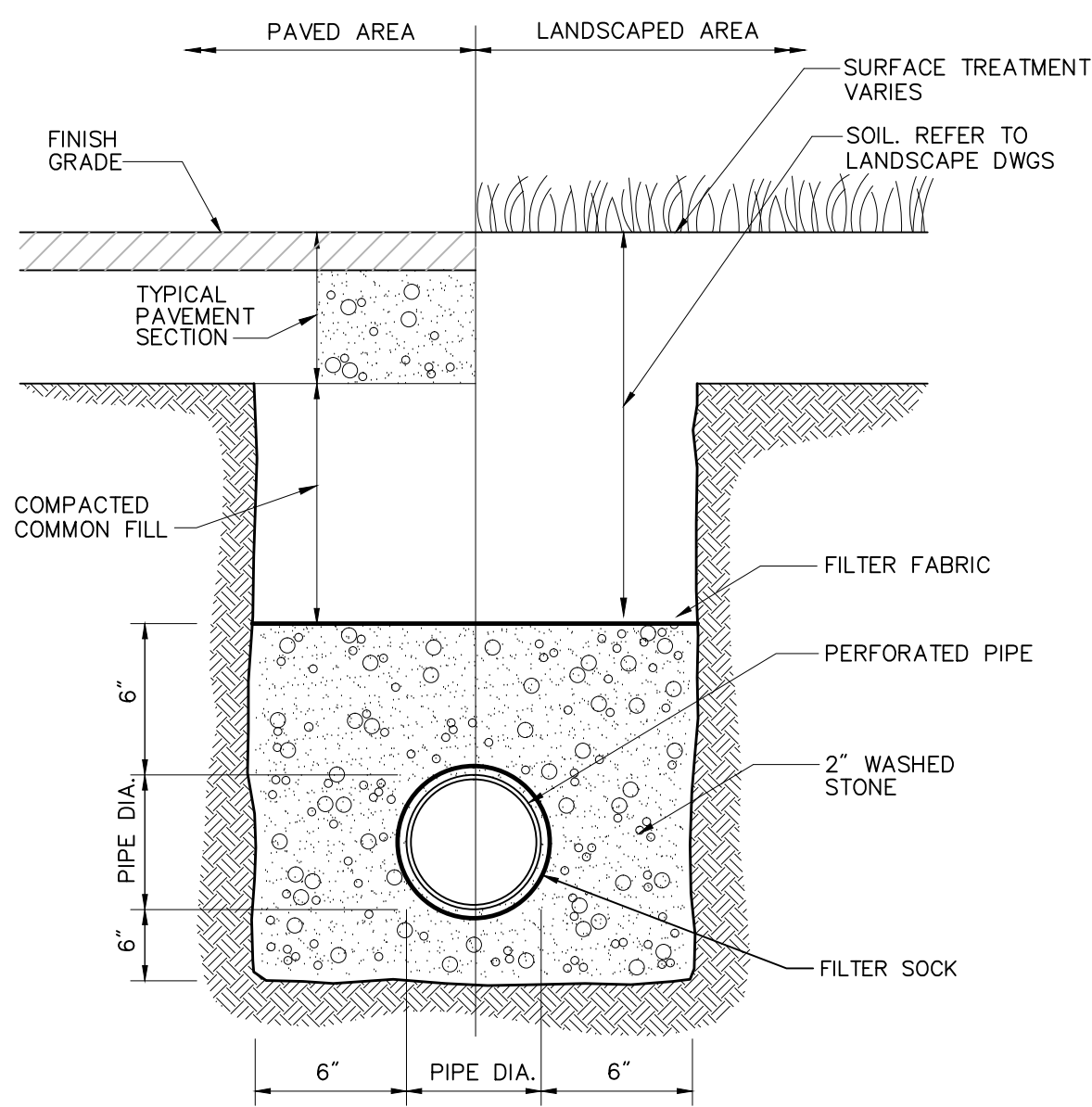
**Type 4 - Warm-Mix Pavement Section with Chip Seal**



**Type 1 - Warm-Mix Pavement Section**

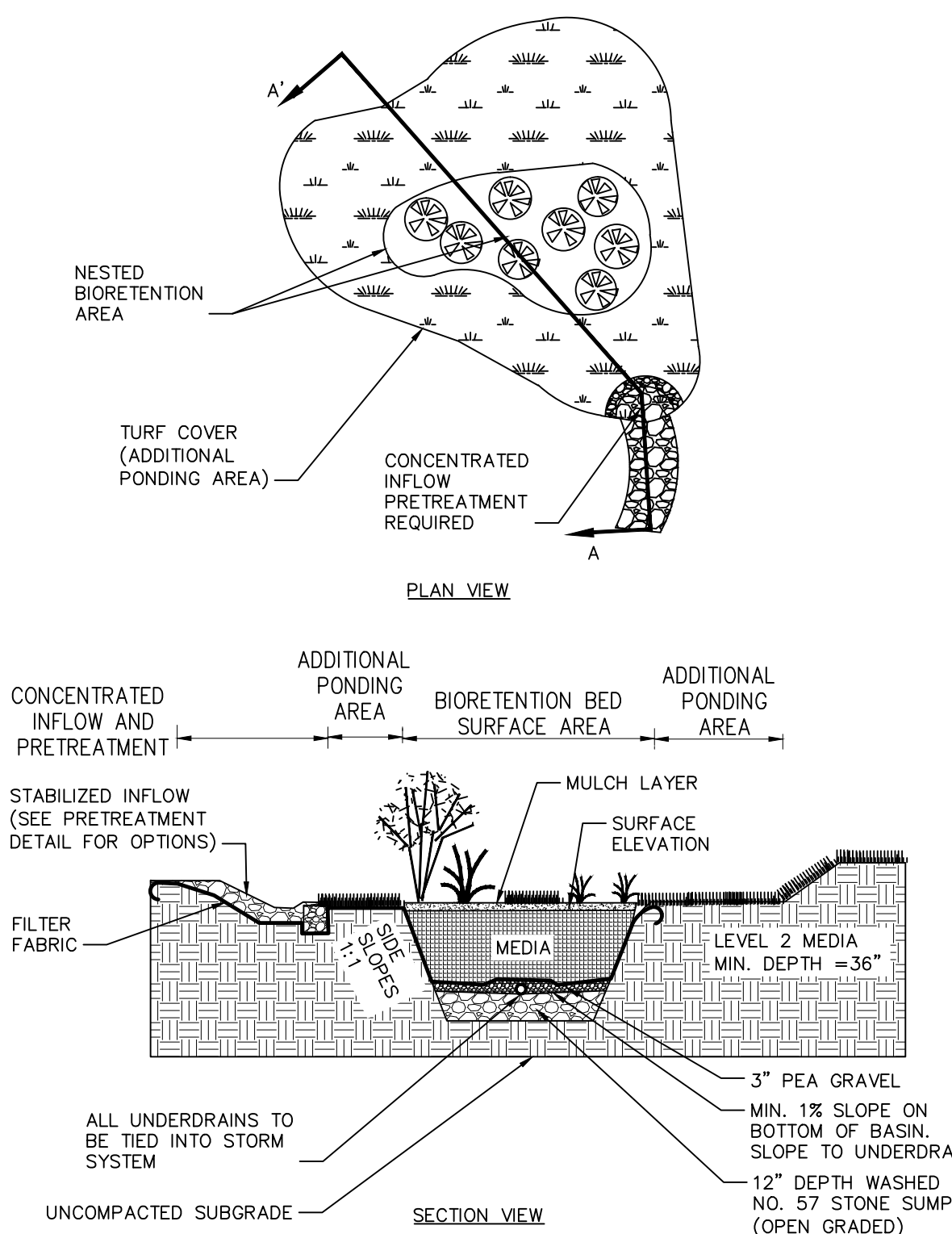
**Bituminous Concrete Pavement Section** 12/7/11

N.T.S. Source: VHB REV LD\_430



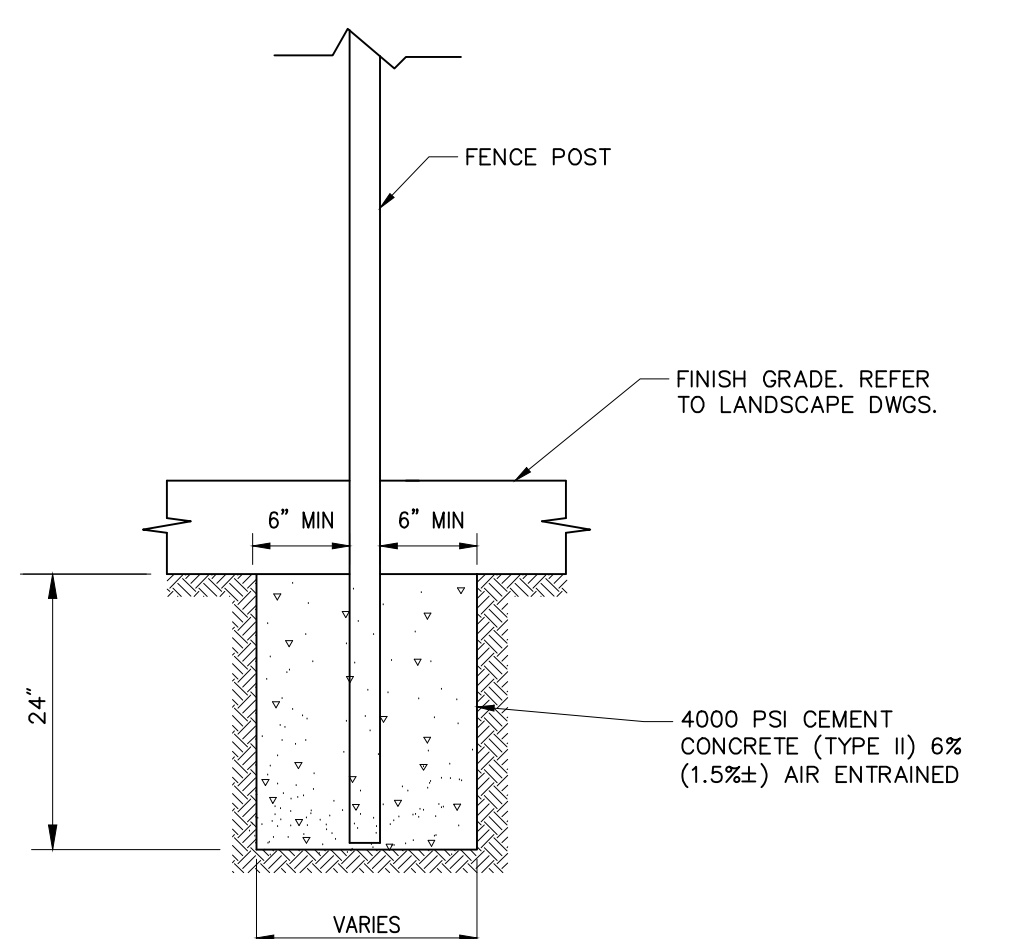
**Subdrainage Trench with Underdrain (UD)** 6/208

N.T.S. Source: VHB REV LD\_184



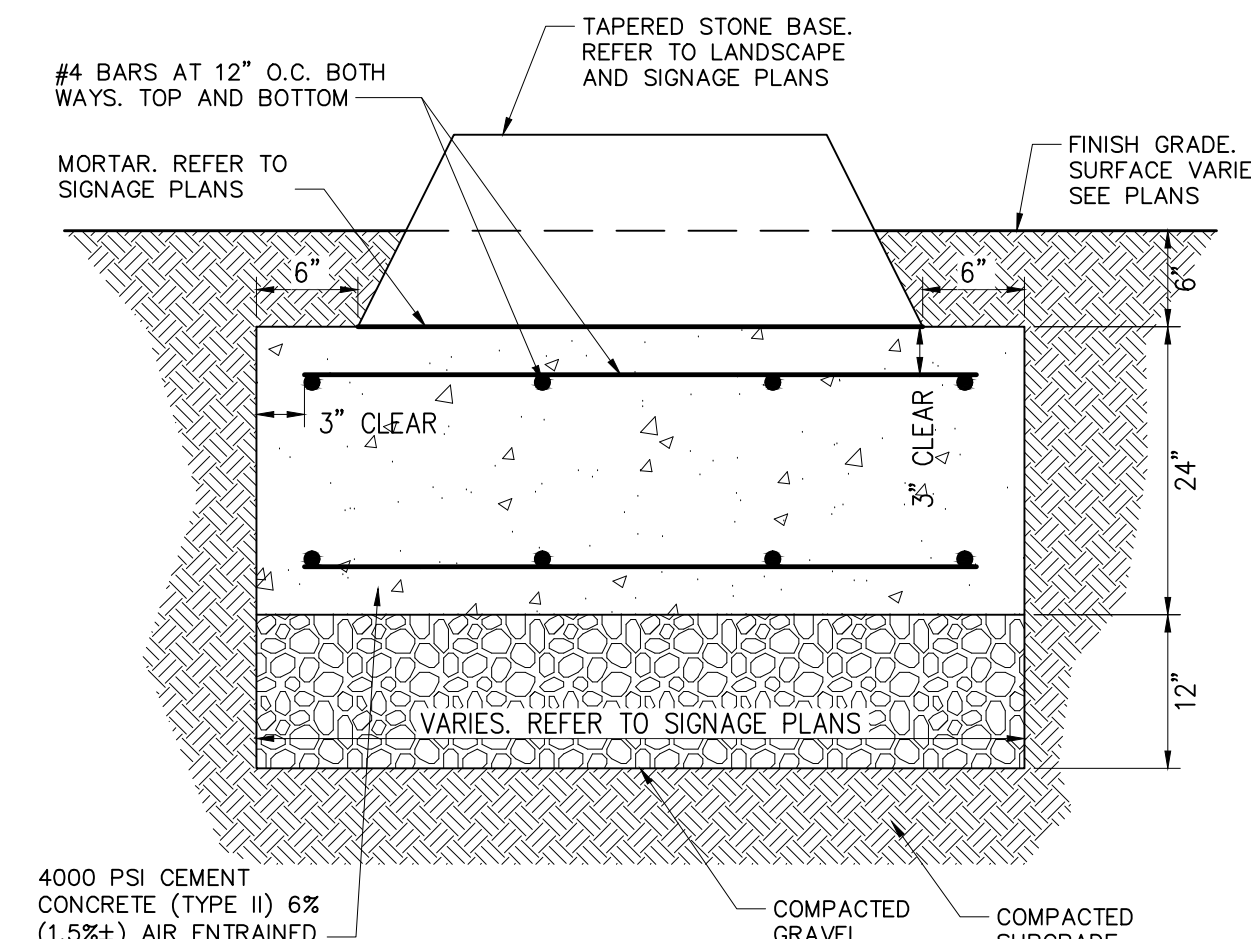
**Bioretention with Additional Surface Ponding** 3/7/11

N.T.S. Source: VA DEQ Stormwater Design Specification No. 9 Fig. 9.5



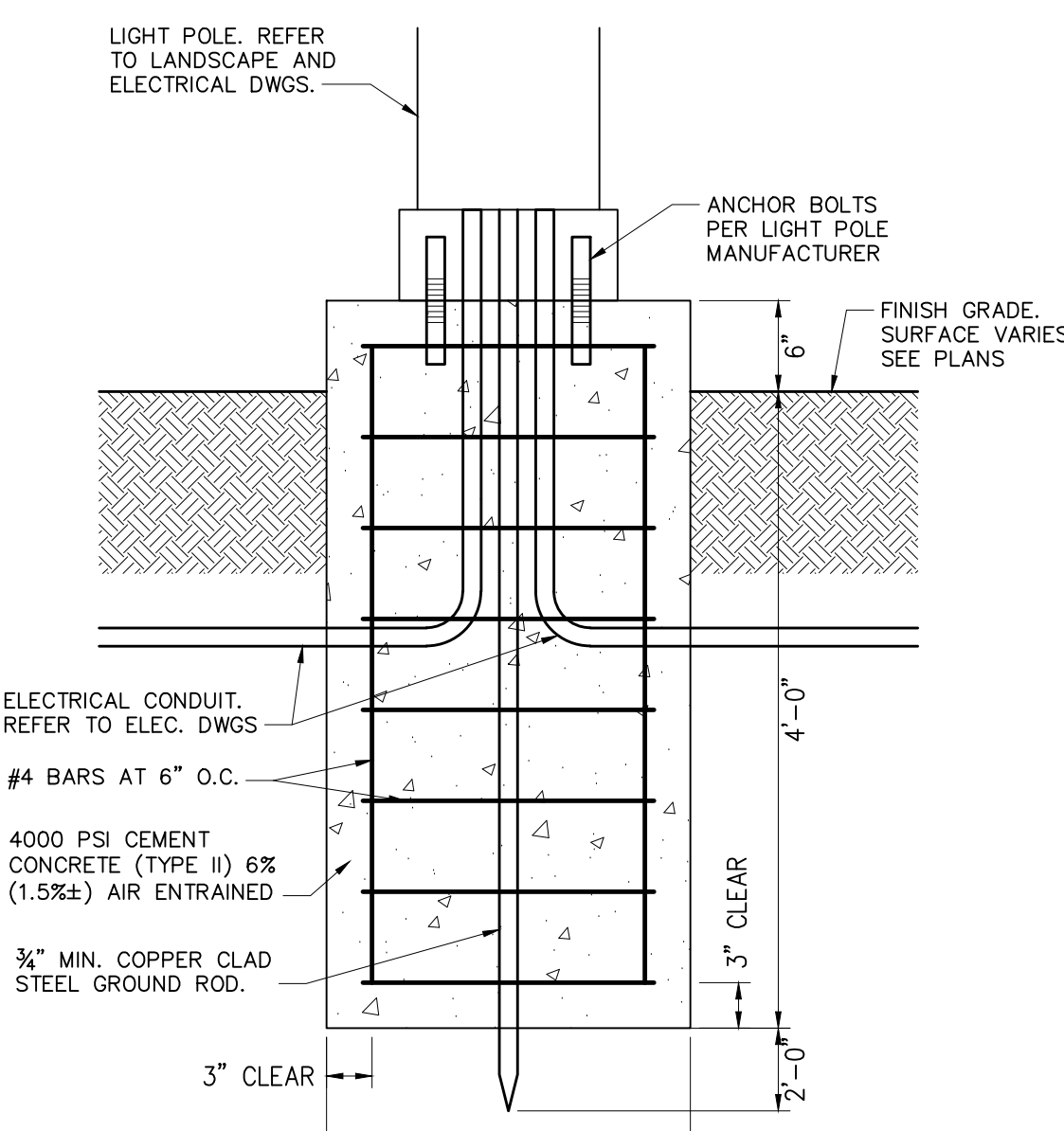
**Fence Post Foundation** 6/208

N.T.S. Source: VHB LD\_170



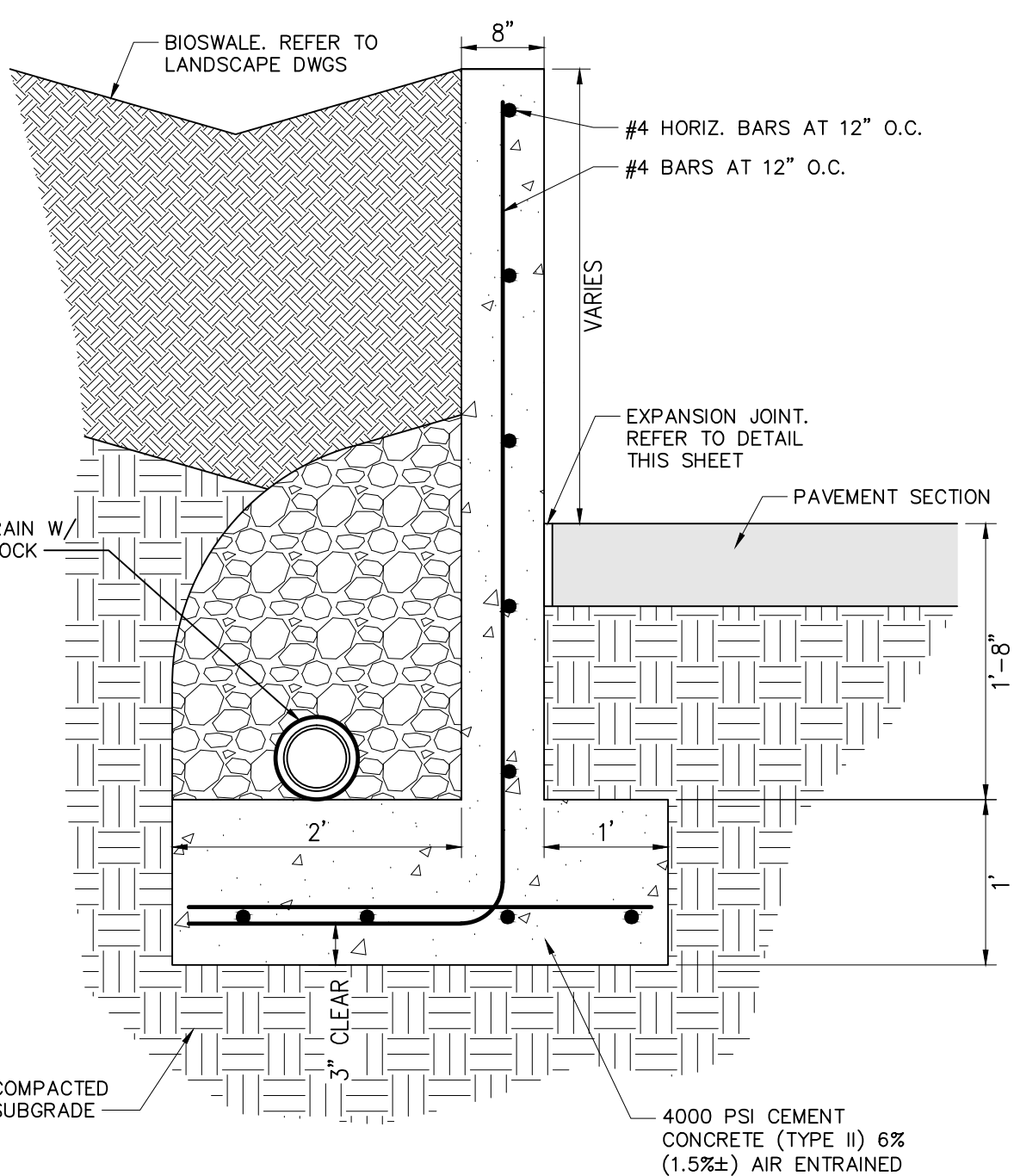
**Concrete Footer for Signage** 6/208

N.T.S. Source: VHB LD\_170



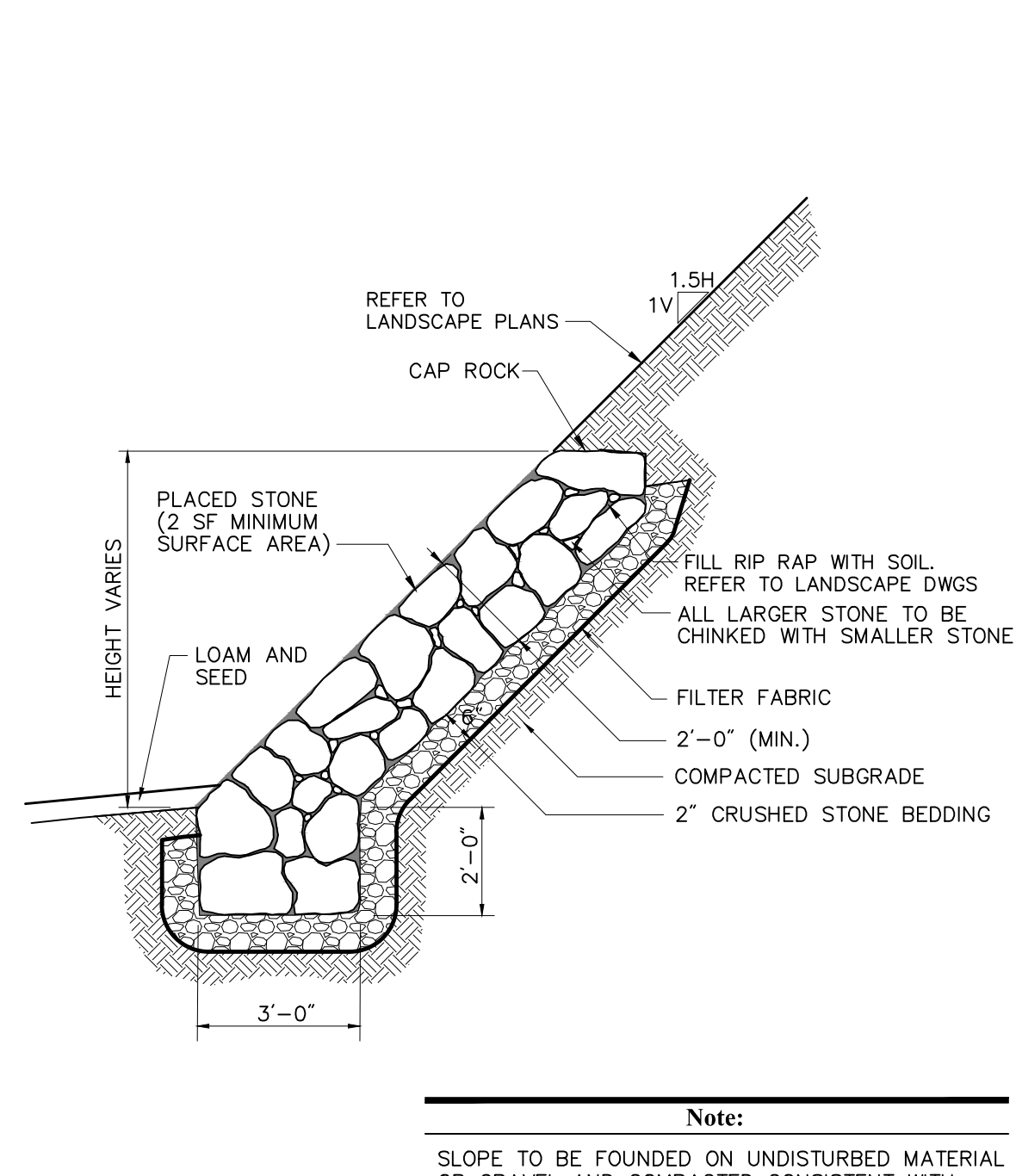
**Light Pole Foundation** 6/208

N.T.S. Source: VHB LD\_170



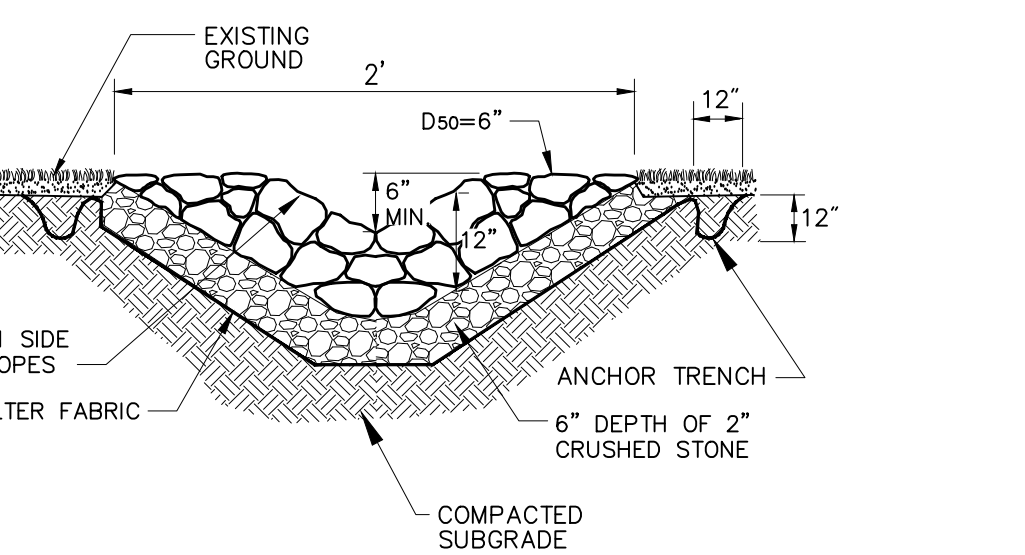
**Retaining Wall** 8/7/11

N.T.S. Source: VHB REV LD\_260



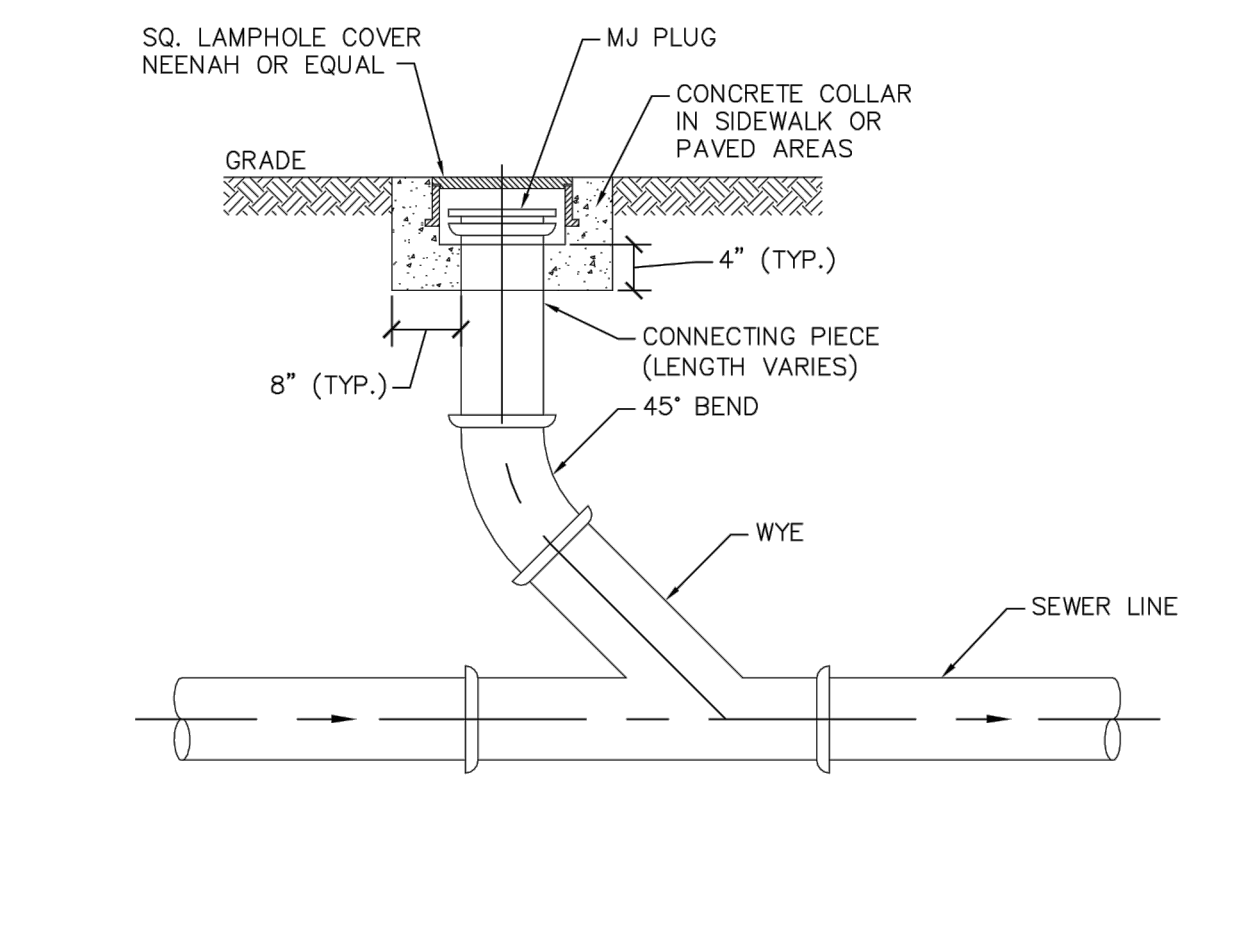
**Placed Stone Slope** 8/7/11

N.T.S. Source: VHB REV LD\_260



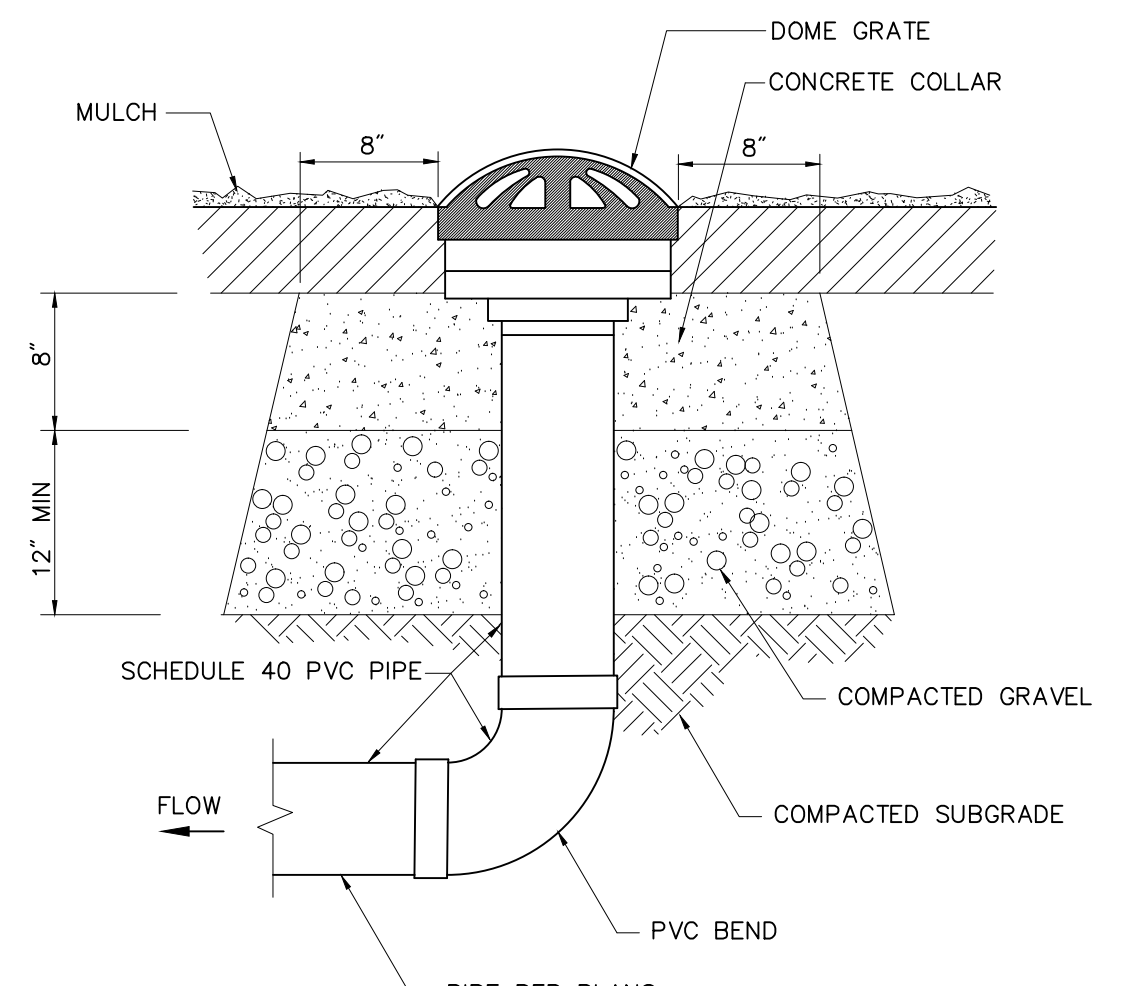
**Riprap Channel** 6/208

N.T.S. Source: VHB REV LD\_170



**Cleanout** 2/709

N.T.S. Source: City of Richmond DPU P-7



**Yard Drain (YDI)** 6/208

N.T.S. Source: VHB REV LD\_193

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**KEY MAP**

**SHEET INFORMATION**

Project No.: RVA 1301  
 Drawn By: CAC  
 Checked By: JPC  
 Date: 10/03/2014

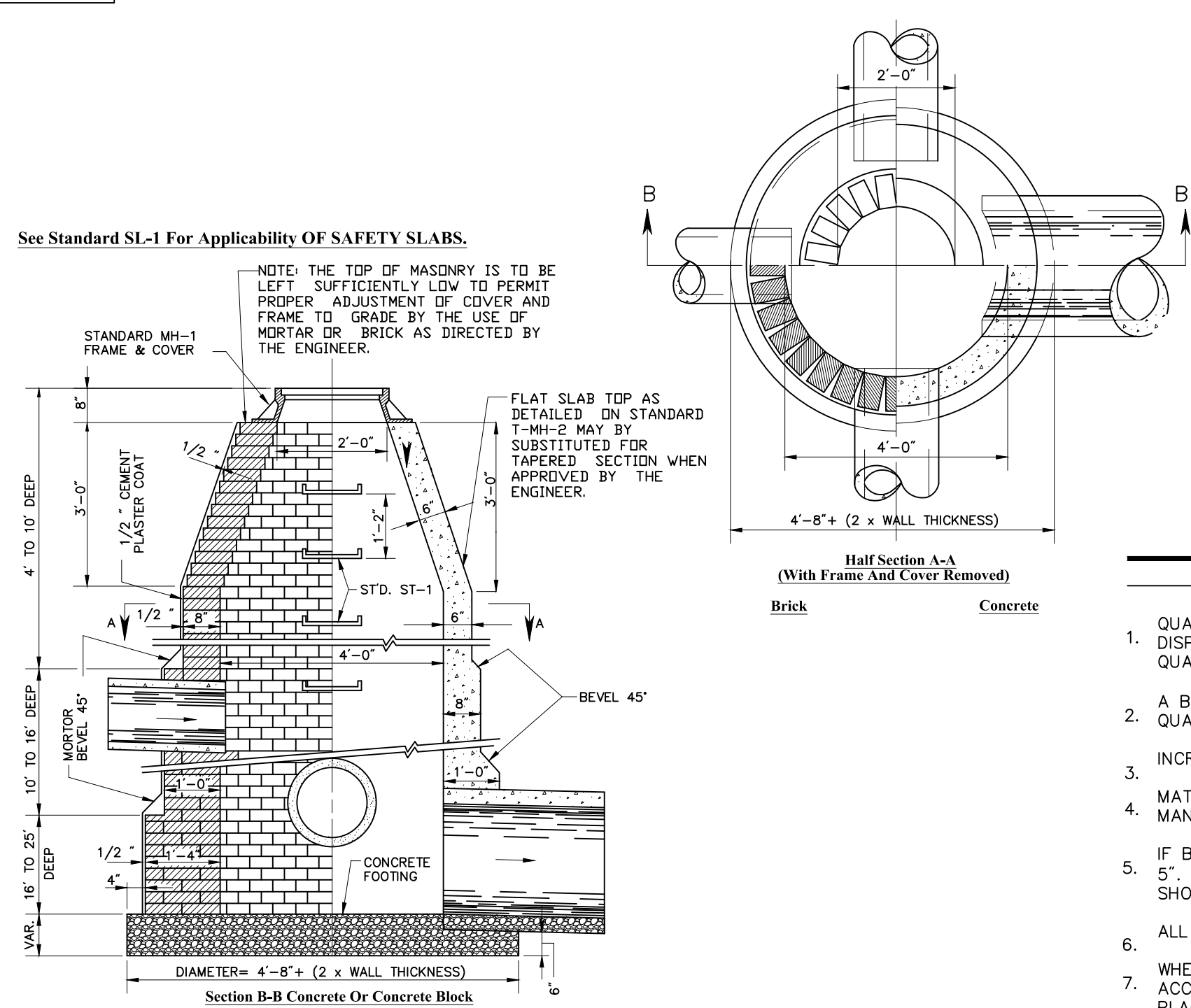
**SHEET TITLE**

**CIVIL DETAILS - STORMWATER & UTILITY**

**SHEET NO.**

**C-510**

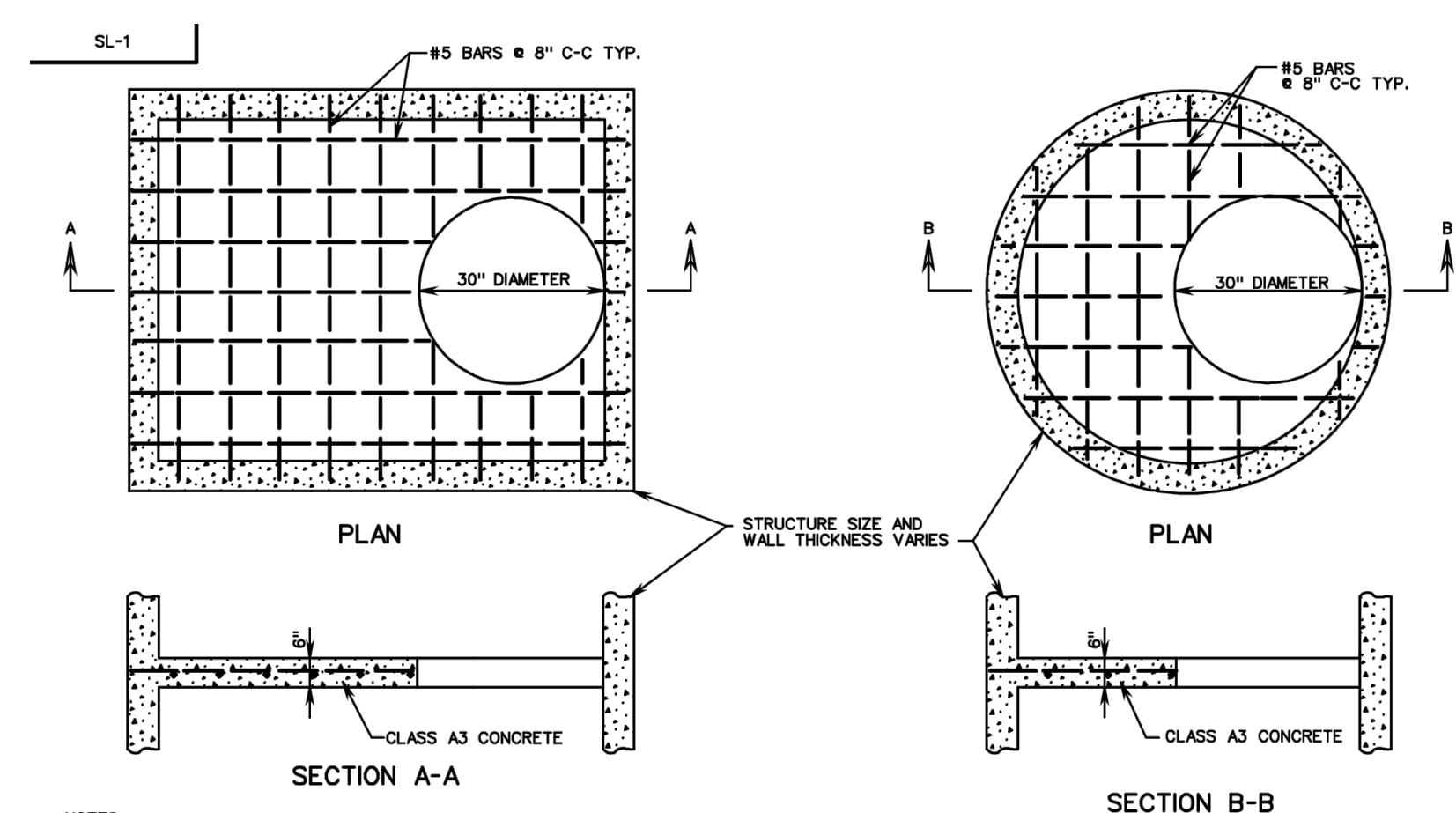
**MH-1**



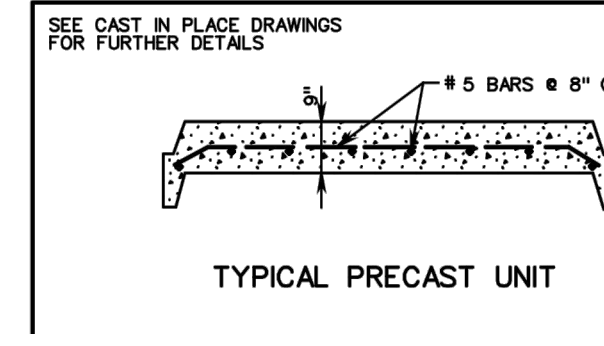
**TABLE OF QUANTITIES**

| DEPTH FEET | BRICK THOUSANDS | MANHOLE CONCRETE CU. YARDS | CONCRETE MANHOLE CONCRETE CU. YARDS |
|------------|-----------------|----------------------------|-------------------------------------|
| 4          | 0.5             | 0.785                      | 1.437                               |
| 5          | 0.7             | 0.785                      | 1.699                               |
| 6          | 0.9             | 0.785                      | 1.961                               |
| 7          | 1.0             | 0.785                      | 2.223                               |
| 8          | 1.2             | 0.785                      | 2.485                               |
| 9          | 1.4             | 0.785                      | 2.747                               |
| 10         | 1.6             | 0.785                      | 3.009                               |
| 11         | 1.9             | 0.970                      | 3.455                               |
| 12         | 2.2             | 0.970                      | 3.817                               |
| 13         | 2.5             | 0.970                      | 4.179                               |
| 14         | 2.8             | 0.970                      | 4.541                               |
| 15         | 3.1             | 0.970                      | 4.903                               |
| 16         | 3.4             | 0.970                      | 5.265                               |
| 17         | 4.0             | 1.173                      | 6.032                               |
| INCREMENT  | 0.45            | -                          | 0.582                               |

- Notes:**
- QUANTITIES SHOWN ARE FOR MANHOLE WITHOUT PIPES. THE AMOUNT DISPLACED BY PIPES MUST BE DEDUCTED TO OBTAIN TRUE QUANTITIES.
  - A BASE THICKNESS OF 9" WAS USED IN COMPUTING CONCRETE QUANTITIES.
  - INCREMENTS TO BE ADDED FOR EACH ADDITIONAL FOOT OF DEPTH.
  - MATERIALS MAY BE BRICK, CONCRETE OR APPROVED CONCRETE MANHOLE BLOCK.
  - IF BLOCKS ARE USED THE MINIMUM THICKNESS OF SAME IS TO BE 5". OTHER THICKNESSES ARE TO CONFORM TO WALL THICKNESS SHOWN FOR CONCRETE.
  - ALL CONCRETE TO BE CLASS A3.
  - WHEN SPECIFIED ON PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.

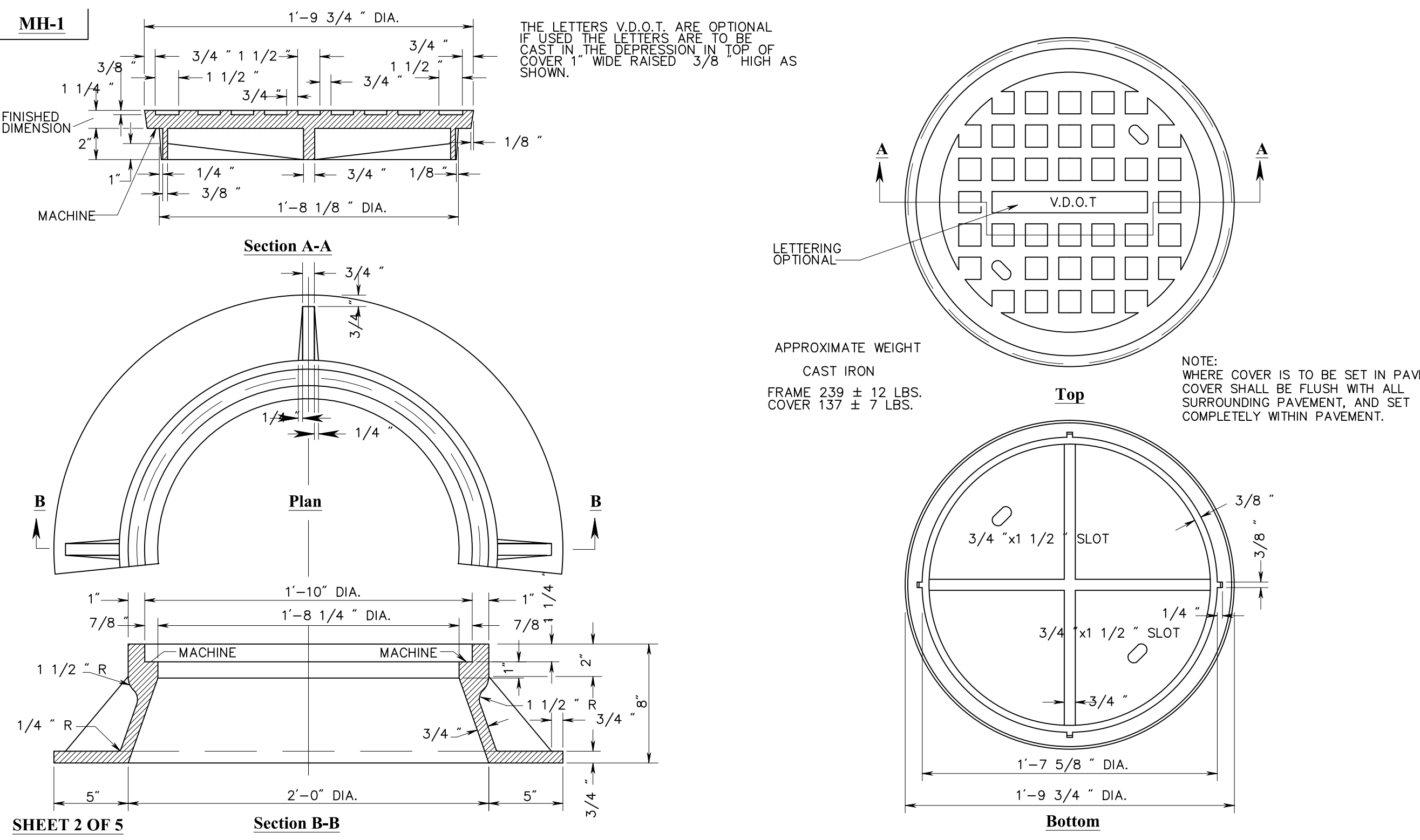


- NOTES:**
- THE STANDARD SAFETY SLAB (SL-1) IS TO BE USED ONLY WHEN SPECIFIED IN THE PLANS OR THE DRAINAGE SUMMARY SHEET. INDICATE THE DRAINAGE DESCRIPTION FOR MANHOLES.
  - ADDITIONAL SAFETY SLABS SHALL BE 6" TO 8" THICK PRECAST CONCRETE TO BE 14' MINIMUM REINFORCING.
  - ACCESS OPENINGS ARE TO BE STAGGERED FROM ONE SIDE OF STRUCTURE TO THE OTHER WHERE APPLICABLE. STEPS ARE TO BE STAGGERED ACCORDINGLY.
  - SAFETY SLAB MAY BE CAST-IN-PLACE OR PRECAST. CAST-IN-PLACE CONCRETE TO BE CLASS A3 (3000) AND PRECAST CONCRETE TO BE CLASS A3 (3000).
  - ACCESS OPENINGS MAY BE 30" DIAMETER OR 30" SQUARE. WHEN STRUCTURE WIDTH IS LESS THAN 30" THE ACCESS OPENING SHALL BE RECTANGULAR (STRUCTURE WIDTH BY 30" LONG).



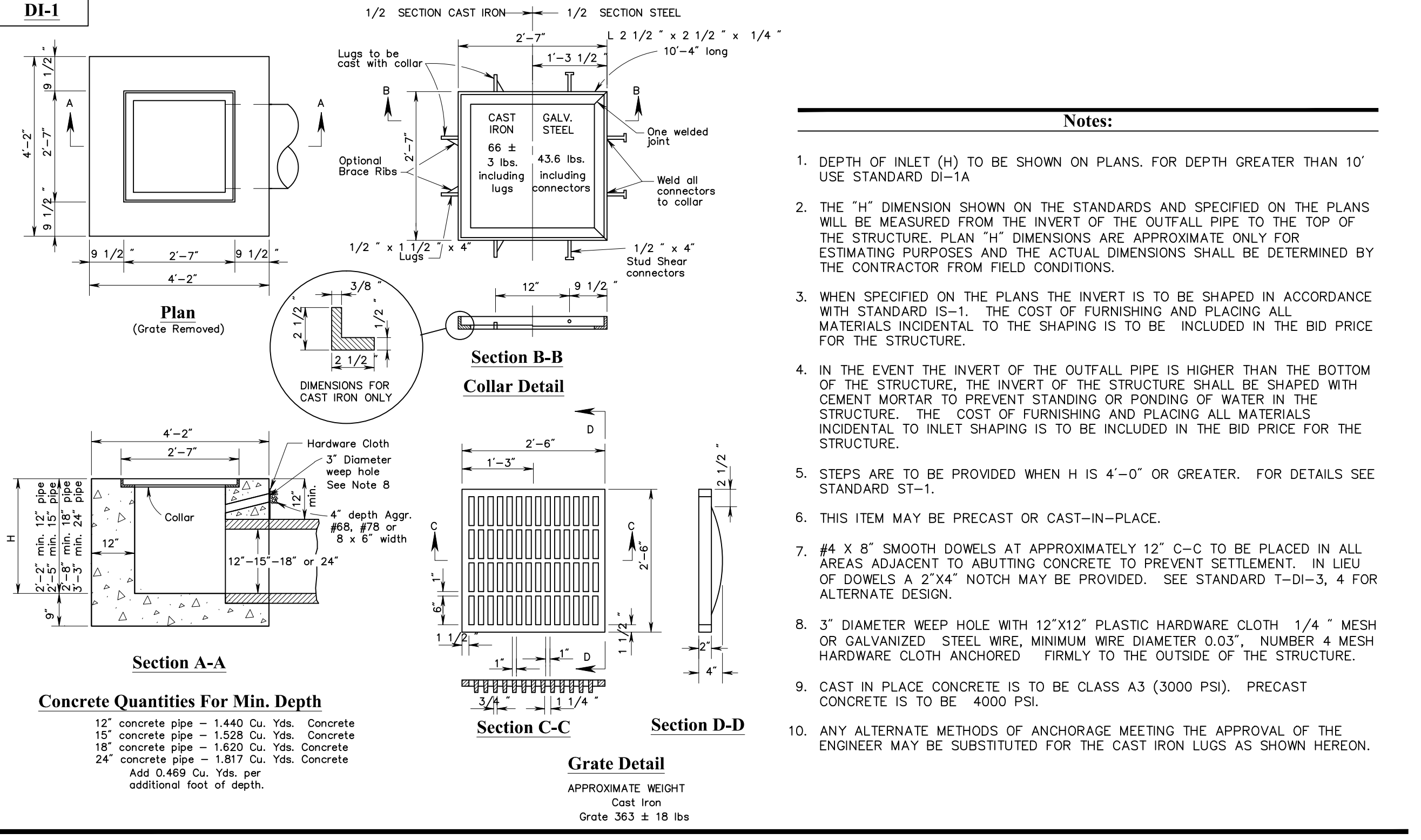
**SHEET 1 OF 5**  
**Manhole For 12" - 48" Pipe Culverts**

N.T.S. Source: VDOT 6/08 106\_01



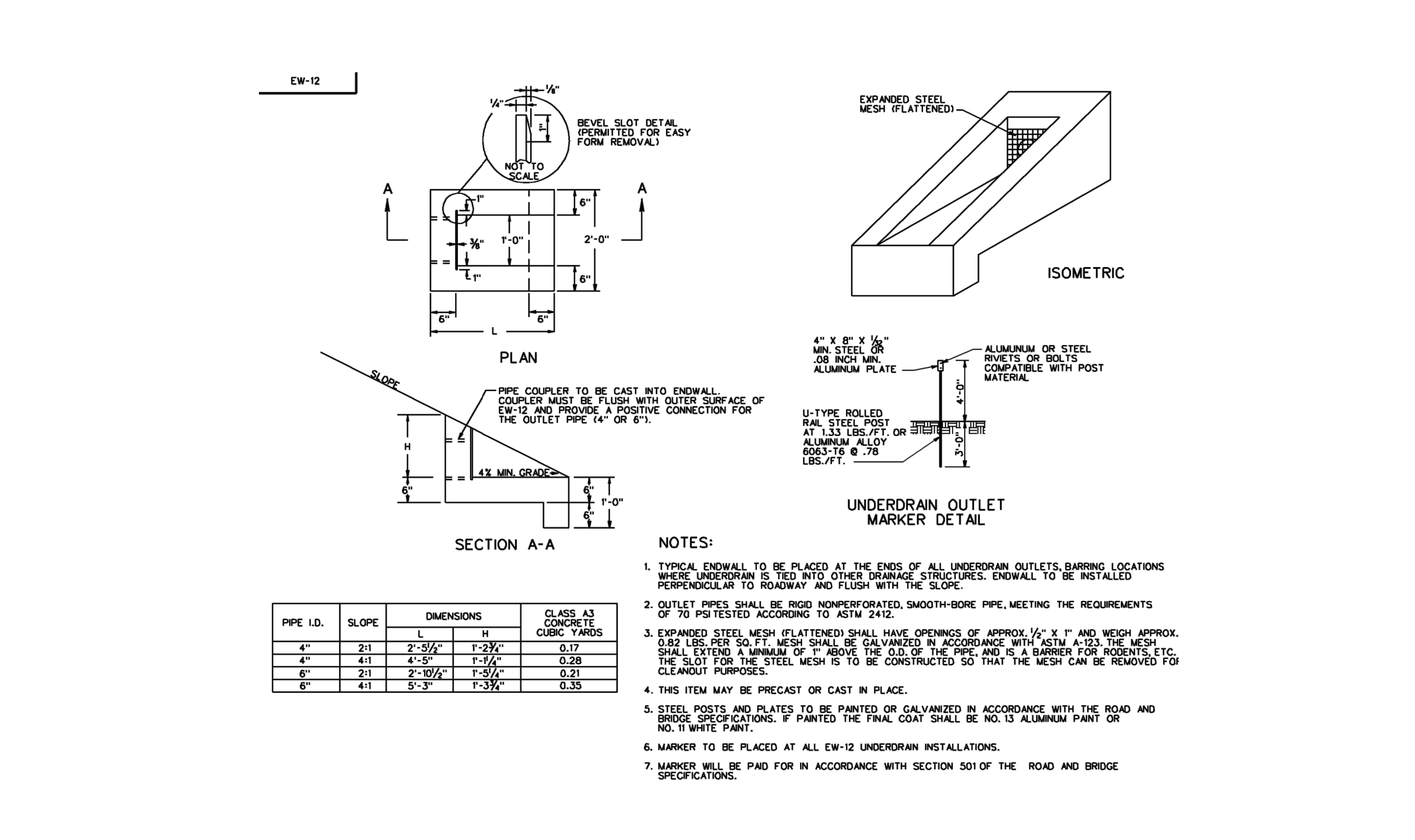
**SHEET 2 OF 5**  
**Standard Manhole Frame And Cover**

N.T.S. Source: VDOT 9/02 106\_02



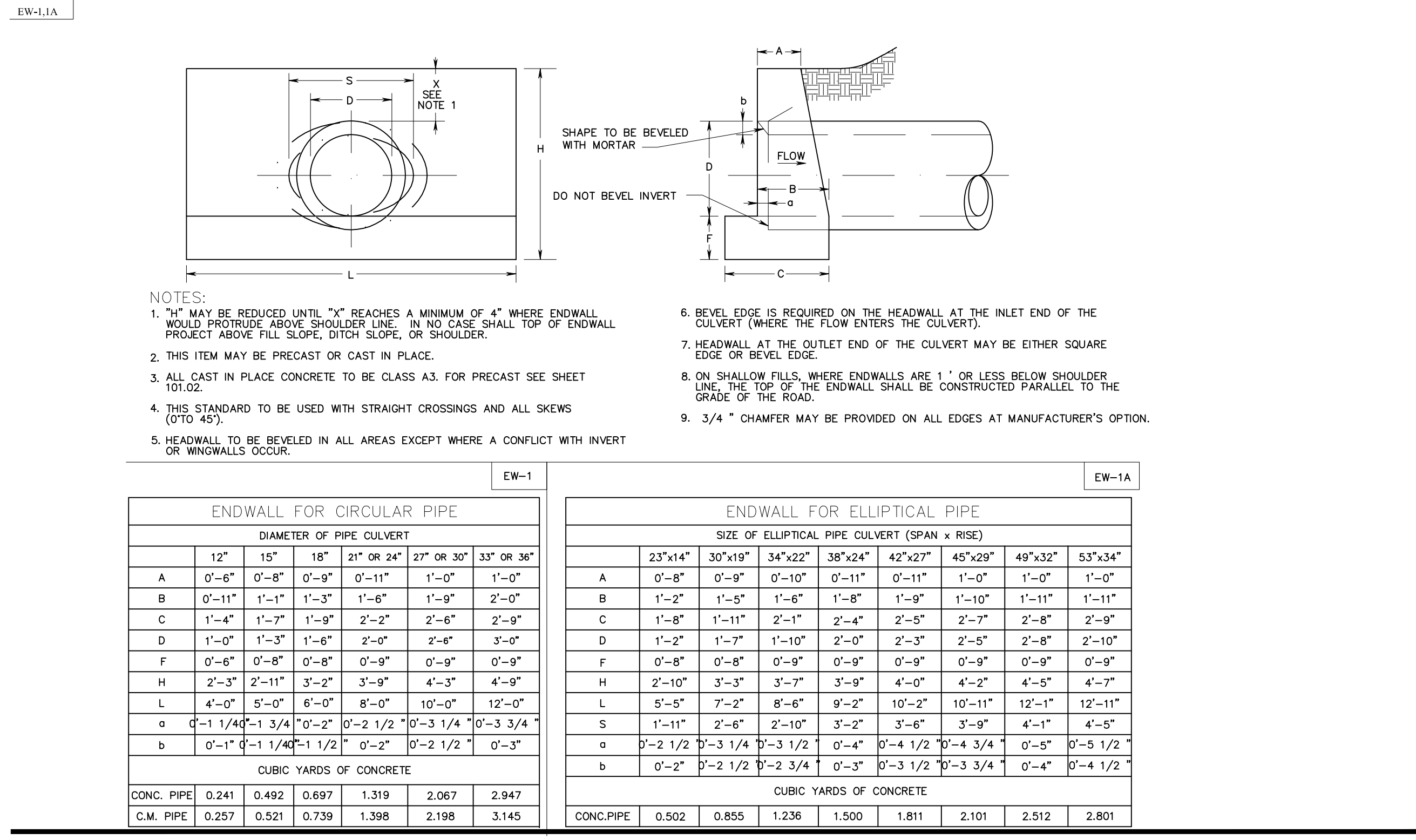
**Typical Concrete Safety Slab for Drop Inlets, Manholes and Junction Boxes**

N.T.S. Source: VDOT 12/08 106.14



**Standard Endwall For Pipe Underdrain**

N.T.S. Source: VDOT 4/709 101.32



**PROJECT INFORMATION**

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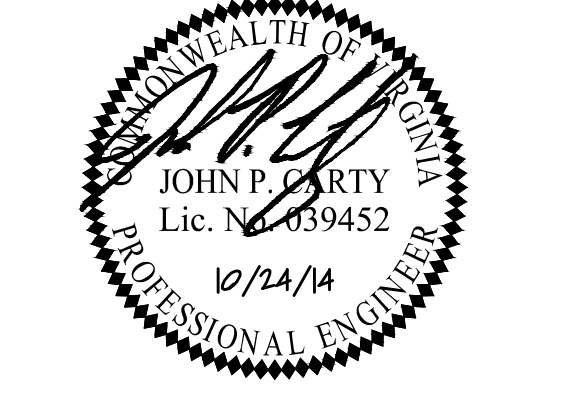
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**KEY MAP**

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Drawn By: CAC  
Checked By: JPC  
Date: 10/03/2014

**SHEET TITLE**

**CIVIL DETAILS - STORMWATER & UTILITY**

**SHEET NO.**

**C-511**





| STORM SEWER DESIGN<br>10 YEAR FREQUENCY |          |            |      |          |        |              |                  |               |      |              |              |               |        |               | Project:       | Riverfront BIDW   |                     |                  |
|---|----------|------------|------|----------|--------|--------------|------------------|---------------|------|--------------|--------------|---------------|--------|---------------|----------------|-------------------|---------------------|------------------|
|   |          |            |      |          |        |              |                  |               |      |              |              |               |        |               | Job#:          | 33812             |                     |                  |
|   |          |            |      |          |        |              |                  |               |      |              |              |               |        |               | Date:          | October 7, 2014   |                     |                  |
|   |          |            |      |          |        |              |                  |               |      |              |              |               |        |               | By:            | Becki Temkin      |                     |                  |
| FROM POINT                              | TO POINT | DA (ACRES) | C    | CA INCR. | ACCUM. | TC (MINUTES) | RAINFALL (IN/HR) | RUN-OFF (CFS) | LINE | INVERT UPPER | INVERT LOWER | LENGTH (FEET) | SLOPE  | DIAM (INCHES) | CAPACITY (CFS) | VELOCITY (F.P.S.) | FLOW TIME (MINUTES) | PERCENT CAPACITY |
| 401                                     | 400      | 0.85       | 0.45 | 0.39     | 0.39   | 5.00         | 7.07             | 2.73          | 401  | 40.46        | 40.15        | 55.00         | 0.56%  | 15            | 4.85           | 4.06              | 0.23                | 0.56             |
| 308                                     | 307      | 0.32       | 0.47 | 0.15     | 0.15   | 5.00         | 7.07             | 1.05          | 308  | 64.00        | 59.50        | 46.00         | 9.76%  | 8             | 3.77           | 9.29              | 0.08                | 0.28             |
| 307                                     | 306      | 0.06       | 0.51 | 0.03     | 0.18   | 5.08         | 7.04             | 1.24          | 307  | 59.00        | 57.65        | 100.00        | 1.35%  | 12            | 4.14           | 4.63              | 0.36                | 0.30             |
| 306                                     | 305      | 0.12       | 0.39 | 0.05     | 0.22   | 5.44         | 6.92             | 1.55          | 306  | 57.55        | 54.29        | 84.00         | 3.90%  | 12            | 7.03           | 7.18              | 0.20                | 0.22             |
| 305                                     | 304      | 0.00       | 0.00 | 0.00     | 0.22   | 5.64         | 6.85             | 1.54          | 305  | 54.29        | 51.06        | 83.00         | 3.90%  | 12            | 7.03           | 7.15              | 0.19                | 0.22             |
| 304                                     | 303      | 0.00       | 0.00 | 0.00     | 0.22   | 5.83         | 6.79             | 1.52          | 304  | 51.06        | 48.85        | 56.80         | 3.90%  | 12            | 7.04           | 7.14              | 0.13                | 0.22             |
| 303                                     | 301      | 0.00       | 0.00 | 0.00     | 0.22   | 5.98         | 6.75             | 1.51          | 303  | 48.85        | 47.94        | 18.00         | 5.08%  | 12            | 8.03           | 7.81              | 0.04                | 0.19             |
| 302                                     | 301      | 0.61       | 0.40 | 0.24     | 0.24   | 5.00         | 7.07             | 1.72          | 302  | 48.00        | 47.51        | 13.83         | 3.54%  | 12            | 6.70           | 7.16              | 0.03                | 0.26             |
| 301                                     | 300A     | 0.00       | 0.00 | 0.00     | 0.47   | 6.00         | 6.74             | 3.15          | 301  | 47.51        | 46.18        | 29.59         | 4.50%  | 12            | 7.55           | 9.33              | 0.05                | 0.42             |
| 300A                                    | 300      | 0.00       | 0.00 | 0.00     | 0.47   | 6.05         | 6.72             | 3.14          | 300A | 46.18        | 45.20        | 21.80         | 4.50%  | 12            | 7.55           | 9.32              | 0.04                | 0.42             |
| EX-7                                    | EX-2     | 0.10       | 0.42 | 0.04     | 1.18   | 5.00         | 7.07             | 8.36          | EX-7 | 52.31        | 42.29        | 65.18         | 15.37% | 24            | 88.65          | 17.51             | 0.06                | 0.09             |
| 100                                     | EX-1     | 0.29       | 0.38 | 0.11     | 0.11   | 5.00         | 7.07             | 0.77          | 100  | 43.03        | 42.93        | 17.00         | 0.52%  | 15            | 4.66           | 2.79              | 0.10                | 0.17             |
| EX-1                                    | EX-2     | 0.00       | 0.00 | 0.00     | 0.11   | 5.10         | 7.04             | 0.77          | EX-1 | 42.93        | 42.30        | 17.71         | 3.56%  | 15            | 12.18          | 5.45              | 0.05                | 0.06             |
| EX-2                                    | EX-3     | 0.00       | 0.00 | 0.00     | 1.29   | 5.16         | 7.02             | 9.06          | EX-2 | 42.27        | 40.95        | 89.62         | 1.47%  | 24            | 27.44          | 7.90              | 0.19                | 0.33             |
| EX-3                                    | EX-4     | 0.00       | 0.00 | 0.00     | 1.29   | 5.34         | 6.95             | 8.98          | EX-3 | 40.88        | 39.68        | 200.65        | 0.80%  | 24            | 17.49          | 5.64              | 0.59                | 0.51             |
| EX-4                                    | 200      | 0.00       | 0.00 | 0.00     | 1.29   | 5.94         | 6.76             | 8.72          | EX-4 | 39.68        | 39.38        | 57.50         | 0.52%  | 24            | 16.33          | 5.30              | 0.18                | 0.53             |
| 203                                     | 201      | 0.36       | 0.56 | 0.20     | 0.67   | 6.05         | 6.72             | 4.50          | 203  | 40.48        | 40.31        | 31.64         | 0.54%  | 18            | 7.70           | 4.51              | 0.12                | 0.58             |
| EX-5                                    | 600      | 0.03       | 0.90 | 0.03     | 0.03   | 5.00         | 7.07             | 0.18          | EX-5 | 42.91        | 42.00        | 71.00         | 1.29%  | 12            | 4.04           | 2.57              | 0.46                | 0.05             |
| 202                                     | 201      | 3.84       | 0.49 | 1.86     | 1.89   | 12.00        | 5.31             | 10.02         | 202  | 40.50        | 40.31        | 9.40          | 2.06%  | 18            | 15.07          | 9.03              | 0.02                | 0.67             |
| 201                                     | 200      | 0.00       | 0.00 | 0.00     | 2.56   | 12.02        | 5.30             | 13.57         | 201  | 39.81        | 39.38        | 40.10         | 1.07%  | 24            | 23.41          | 7.70              | 0.09                | 0.58             |
| 200                                     | 204      | 0.00       | 0.00 | 0.00     | 3.85   | 6.12         | 6.70             | 25.79         | 200  | 38.38        | 34.20        | 247.80        | 1.69%  | 30            | 53.25          | 11.01             | 0.38                | 0.48             |
| 501                                     | 500      | 0.77       | 0.36 | 0.28     | 0.28   | 5.00         | 7.07             | 1.98          | 501  | 37.93        | 32.75        | 43.18         | 12.00% | 8             | 4.18           | 12.08             | 0.06                | 0.47             |

**Storm Calculations** 10/2014

Virginia Runoff Reduction Method Worksheet

| Channel and Flood Protection | Impervious | Permeable | 2-Year Storm                     | 10-Year Storm                    |
|------------------------------|------------|-----------|----------------------------------|----------------------------------|
|                              | Area (ac)  | Area (ac) | Adjusted Q <sub>peak</sub> (cfs) | Adjusted Q <sub>peak</sub> (cfs) |
| Target Event (in)            | 0.00       | 0.00      | 3.30                             | 3.30                             |
| D.A. (in)                    | 0.00       | 0.00      | 0.00                             | 0.00                             |
| D.A. (in)                    | 0.00       | 0.00      | 0.00                             | 0.00                             |
| D.A. (in)                    | 0.00       | 0.00      | 0.00                             | 0.00                             |
| D.A. (in)                    | 0.00       | 0.00      | 0.00                             | 0.00                             |
| D.A. (in)                    | 0.00       | 0.00      | 0.00                             | 0.00                             |

**Channel Protection Summary**

For 1-Year and 2-Year Compliance, use the Energy Balance Equation:  
 $Q_{out} + W_{loss} = I.F. + Q_{in} + W_{gain}$   
 Improvement Factor = 0.8 for drainage areas greater than 1 acre  
 For 10-Year Compliance:  
 $Q_{out} \leq Q_{in}$

| Pre-Development Discharges |                  |               |                                   |                                      |
|----------------------------|------------------|---------------|-----------------------------------|--------------------------------------|
| Drainage Outfall           | Inflow Area (ac) | Return Period | Peak Flow Q <sub>peak</sub> (cfs) | Total Volume V <sub>total</sub> (cf) |
| Site                       | 4.78             | 1-Year        | 3.0                               | 17,877                               |
|                            |                  | 2-Year        | 3.5                               | 23,832                               |
|                            |                  | 10-Year       | 5.7                               | 53,392                               |
|                            |                  | 100-Year      | 7.9                               | 85,812                               |

**Chesapeake Bay**

| Post-Development Discharges |                  |               |                                   |                                      |
|-----------------------------|------------------|---------------|-----------------------------------|--------------------------------------|
| Drainage Outfall            | Inflow Area (ac) | Return Period | Peak Flow Q <sub>peak</sub> (cfs) | Total Volume V <sub>total</sub> (cf) |
| Site                        | 4.78             | 1-Year        | 3.0                               | 11,493                               |
|                             |                  | 2-Year        | 3.5                               | 15,335                               |
|                             |                  | 10-Year       | 5.7                               | 46,472                               |
|                             |                  | 100-Year      | 7.9                               | 78,546                               |

**Channel Protection Summary** 10/2014

**Computations**

Project: BIDW - Riverfront Project 33812.00  
 Location: Sheet 1 of 2  
 Calculated by: RJC Date: 5/27/2014  
 Checked by: Date:  
 Title: BIoretention Calculations

**DRAINAGE AREA A (WEST)**

Cont. Drainage Area = 0.83

| Use        | D Slope | A Slope | Total | D <sub>adj</sub> | A <sub>adj</sub> |
|------------|---------|---------|-------|------------------|------------------|
| FOREST     | 0.50    | 0.10    | 0.40  | 0.05             | 0.02             |
| TURF       | 0.10    | 0.12    | 0.22  | 0.25             | 0.15             |
| IMPERVIOUS | 0.10    | 0.11    | 0.21  | 0.25             | 0.15             |

$$R_v = [(0.10)(0.02) + (0.4)(0.15) + (0.1)(0.25)] + [(0.30)(0.05) + (0.10)(0.25)] = 0.10$$

$$R_v = 0.312$$

**BIoretention BASIN-LEVEL 2**

$$T_v = (1/2)(R_v)(L)(W) = (1/2)(0.312)(4)(36) = 9.42 \text{ CF}$$

$$SA = \frac{T_v}{\text{Storage Depth}}$$

Storage Depth = 6" ponding + void ratio soil + void ratio stone = 1.45'

$$SA = \frac{(9.42)(12)}{1.45} = 77.2 \text{ SF}$$

**Computations**

Project: BIDW - Riverfront Project 33812.00  
 Location: Sheet 2 of 2  
 Calculated by: RJC Date: 5/27/2014  
 Checked by: Date:  
 Title: BIoretention Calculations

**DRAINAGE AREA B (EAST)**

Cont. Drainage Area = 1.88

| Use        | D Slope | A Slope | Total | D <sub>adj</sub> | A <sub>adj</sub> |
|------------|---------|---------|-------|------------------|------------------|
| FOREST     | 0.85    | 0.02    | 0.57  | 0.05             | 0.02             |
| TURF       | 0.45    | 0.19    | 0.31  | 0.25             | 0.15             |
| IMPERVIOUS | 0.22    | 0.19    | 0.31  | 0.25             | 0.15             |

$$R_v = [(0.55)(0.02) + (0.45)(0.25) + (0.22)(0.47)] + [(0.2)(0.02) + (0.05)(0.15) + (0.1)(0.45)] = 0.14$$

$$R_v = 0.349 + 0.109 = 0.458$$

$$R_v = 0.127$$

**BIoretention BASIN-LEVEL 2**

$$T_v = (1/2)(R_v)(L)(W) = (1/2)(0.127)(1)(48) = 3.05 \text{ CF}$$

$$SA = \frac{T_v}{\text{Storage Depth}}$$

Storage Depth = 6" + (3/4)"(0.25) + (12)"(0.40) = 1.45'

$$SA = \frac{(3.05)(12)}{1.45} = 25.5 \text{ SF}$$

**Runoff Reduction Spreadsheet Summary** 10/2014

| Site | Pre-Dev Q <sub>peak</sub> (cfs) | Post-Dev Q <sub>peak</sub> (cfs) | Reduction (%) |
|------|---------------------------------|----------------------------------|---------------|
| Site | 3.0                             | 1.1                              | 63%           |

**Bioretention Sizing Calculations**

| Basin   | Area (SF) | Volume (CF) | Storage Depth (ft) |
|---------|-----------|-------------|--------------------|
| Basin 1 | 77.2      | 9.42        | 0.12               |
| Basin 2 | 25.5      | 3.05        | 0.12               |

| 10 YEAR RETURN FREQUENCY<br>HYDRAULIC GRADE LINE CALCULATIONS |                           |                |                |                |                           |                |                |                |                |                |                 |                    |                |       | PROJECT:       | Riverfront BIDW |                   |                   |      |       |       |       |
|---|---------------------------|----------------|----------------|----------------|---------------------------|----------------|----------------|----------------|----------------|----------------|-----------------|--------------------|----------------|-------|----------------|-----------------|-------------------|-------------------|------|-------|-------|-------|
|   |                           |                |                |                |                           |                |                |                |                |                |                 |                    |                |       | PROJECT NO.:   | 33812.00        |                   |                   |      |       |       |       |
|   |                           |                |                |                |                           |                |                |                |                |                |                 |                    |                |       | CREATED BY:    | Becki Temkin    |                   |                   |      |       |       |       |
|   |                           |                |                |                |                           |                |                |                |                |                |                 |                    |                |       | DATE:          | October 7, 2014 |                   |                   |      |       |       |       |
| STATION   | INLET WATER SURFACE ELEV. | Q TO DS        | Q TO US        | JUNCTION LOSS  | FINAL WATER SURFACE ELEV. | RIM            |                |                |                |                |                 |                    |                |       |                |                 |                   |                   |      |       |       |       |
| ds  | us                        | D <sub>o</sub> | Q <sub>o</sub> | L <sub>o</sub> | S <sub>o</sub>            | H <sub>f</sub> | V <sub>o</sub> | H <sub>o</sub> | Q <sub>i</sub> | V <sub>i</sub> | Q <sub>VI</sub> | V <sub>P2/2g</sub> | H <sub>i</sub> | ANGLE | H <sub>a</sub> | H <sub>t</sub>  | 1.3H <sub>t</sub> | 0.5H <sub>t</sub> | H    | ELEV. | ELEV. |       |
| 200 EX4   | 36.20                     | 30"            | 25.79          | 247.80         | 0.40                      | 0.98           | 11.01          | 0.47           | 8.72           | 5.30           | 46.23           | 0.44               | 0.15           | 0     | 0.00           | 0.62            | 0.00              | 0.00              | 1.60 | 37.80 | 61.15 | 61.15 |
| 200 [201]   | 36.20                     | 30"            | 25.79          | 247.80         | 0.40                      | 0.98           | 11.01          | 0.47           | 13.56          | 7.70           | 104.41          | 0.92               | 0.32           | 77    | 0.59           | 1.39            | 0.00              | 0.00              | 2.38 | 38.56 | 61.15 | 61.15 |
| 201 [202]   | 40.98                     | 24"            | 13.56          | 40.10          | 0.36                      | 0.14           | 7.70           | 0.23           | 10.02          | 9.03           | 90.48           | 1.26               | 0.44           | 0     | 0.00           | 0.67            | 0.00              | 0.00              | 0.82 | 41.80 | 45.00 | 45.00 |
| 201 [203]   | 40.98                     | 24"            | 13.56          | 40.10          | 0.36                      | 0.14           | 7.70           | 0.23           | 4.49           | 4.50           | 20.23           | 0.32               | 0.11           | 76    | 0.20           | 0.54            | 0.00              | 0.00              | 0.69 | 41.67 | 45.00 | 45.00 |
| 202   | 41.80                     | 18"            | 10.02          | 9.40           | 0.91                      | 0.09           | 9.03           | 0.32           | 0.00           | 0.00           | 0.00            | 0.00               | 0.00           | 0     | 0.00           | 0.32            | 0.41              | 0.00              | 0.50 | 42.29 | 42.50 | 42.50 |
| 203   | 41.80                     | 18"            | 4.49           | 31.64          | 0.18                      | 0.06           | 4.50           | 0.08           | 0.00           | 0.00           | 0.00            | 0.00               | 0.00           | 0     | 0.00           | 0.08            | 0.10              | 0.00              | 0.16 | 41.96 | 46.50 | 46.50 |
| EX4   | 40.98                     | 24"            | 8.72           | 57.50          | 0.15                      | 0.09           | 5.30           | 0.11           | 8.98           | 5.64           | 50.62           | 0.49               | 0.17           | 0     | 0.00           | 0.28            | 0.00              | 0.00              | 0.37 | 41.35 | 58.26 | 58.26 |
| EX3   | 41.35                     | 24"            | 8.98           | 200.65         | 0.16                      | 0.32           | 5.64           | 0.12           | 9.06           | 7.90           | 71.58           | 0.97               | 0.34           | 18    | 0.13           | 0.59            | 0.00              | 0.00              | 0.91 | 42.26 | 53.00 | 53.00 |
| EX2 EX7   | 42.55                     | 24"            | 9.06           | 89.62          | 0.16                      | 0.14           | 7.90           | 0.24           | 8.36           | 17.51          | 146.45          | 4.78               | 1.67           | 11    | 0.35           | 2.26            | 2.94              | 0.00              | 3.08 | 45.63 | 50.04 | 50.04 |
| EX2 EX1   | 42.55                     | 24"            | 9.06           | 89.62          | 0.16                      | 0.14           | 7.90           | 0.24           | 0.77           | 5.45           | 4.18            | 0.46               | 0.16           | 11    | 0.03           | 0.44            | 0.57              | 0.00              | 0.71 | 43.26 | 50.04 | 50.04 |
| EX7   | 45.63                     | 24"            | 8.36           | 65.18          | 0.14                      | 0.09           | 17.51          | 1.19           | 0.77           | 5.45           | 4.18            | 0.46               | 0.16           | 0     | 0.00           | 1.35            | 1.76              | 0.00              | 1.85 | 47.48 | 54.31 | 54.31 |
| EX1   | 43.30                     | 15"            | 0.77           | 17.71          | 0.01                      | 0.00           | 5.45           | 0.12           | 0.77           | 2.79           | 2.15            | 0.12               | 0.04           | 0     | 0.00           | 0.16            | 0.00              | 0.00              | 0.16 | 43.46 | 49.32 | 49.32 |
| 100   | 43.93                     | 15"            | 0.77           | 17.00          | 0.01                      | 0.00           | 2.79           | 0.03           | 3.14           | 9.32           | 29.28           | 1.35               | 0.47           | 0     | 0.00           | 0.50            | 0.65              | 0.00              | 0.68 | 44.59 | 48.15 | 48.15 |
| 300A  | 46.00                     | 12"            | 3.14           | 21.80          | 0.78                      | 0.17           | 9.32           | 0.34           | 3.15           | 9.33           | 29.38           | 1.35               | 0.47           | 0     | 0.00           | 0.81            | 0.00              | 0.00              | 0.98 | 46.98 |       |       |

PROJECT INFORMATION

Richmond, Virginia Riverfront  
Improvements: Priority 1  
**T. TYLER  
POTTERFIELD  
MEMORIAL BRIDGE**  
RICHMOND, VIRGINIA

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SEAL/SIGNATURE

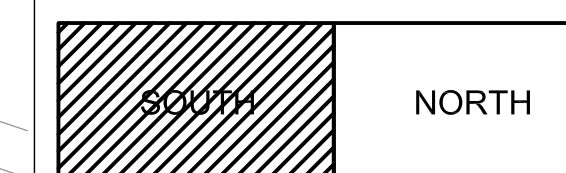


ISSUE

REVISIONS

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 03-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

KEY MAP



SHEET INFORMATION

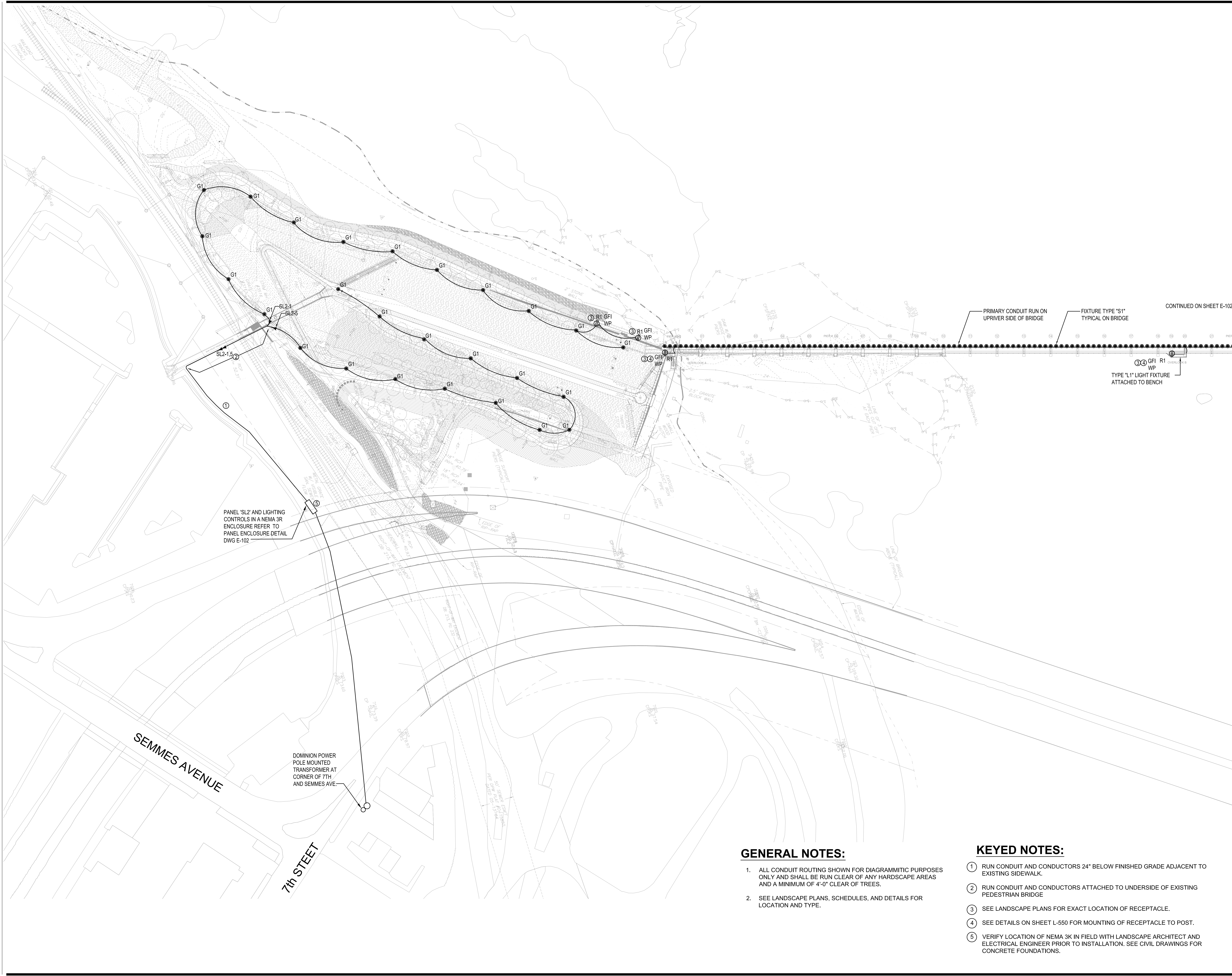
Project No.: RVA 1301  
Drawn By: JDT  
Checked By: KGD  
Date: 10/24/2014  
Scale: 1" = 50'-0"

SHEET TITLE

**ELECTRICAL  
SERVICE PLAN  
SOUTH**

SHEET NO.

**E-101**



PANEL 'SL2' AND LIGHTING  
CONTROLS IN A NEMA 3R  
ENCLOSURE REFER TO  
PANEL ENCLOSURE DETAIL  
DWG E-102

DOMINION POWER  
POLE MOUNTED  
TRANSFORMER AT  
CORNER OF 7TH  
AND SEMMES AVE.

PRIMARY CONDUIT RUN ON  
UPRIVER SIDE OF BRIDGE

FIXTURE TYPE 'S1'  
TYPICAL ON BRIDGE

CONTINUED ON SHEET E-102

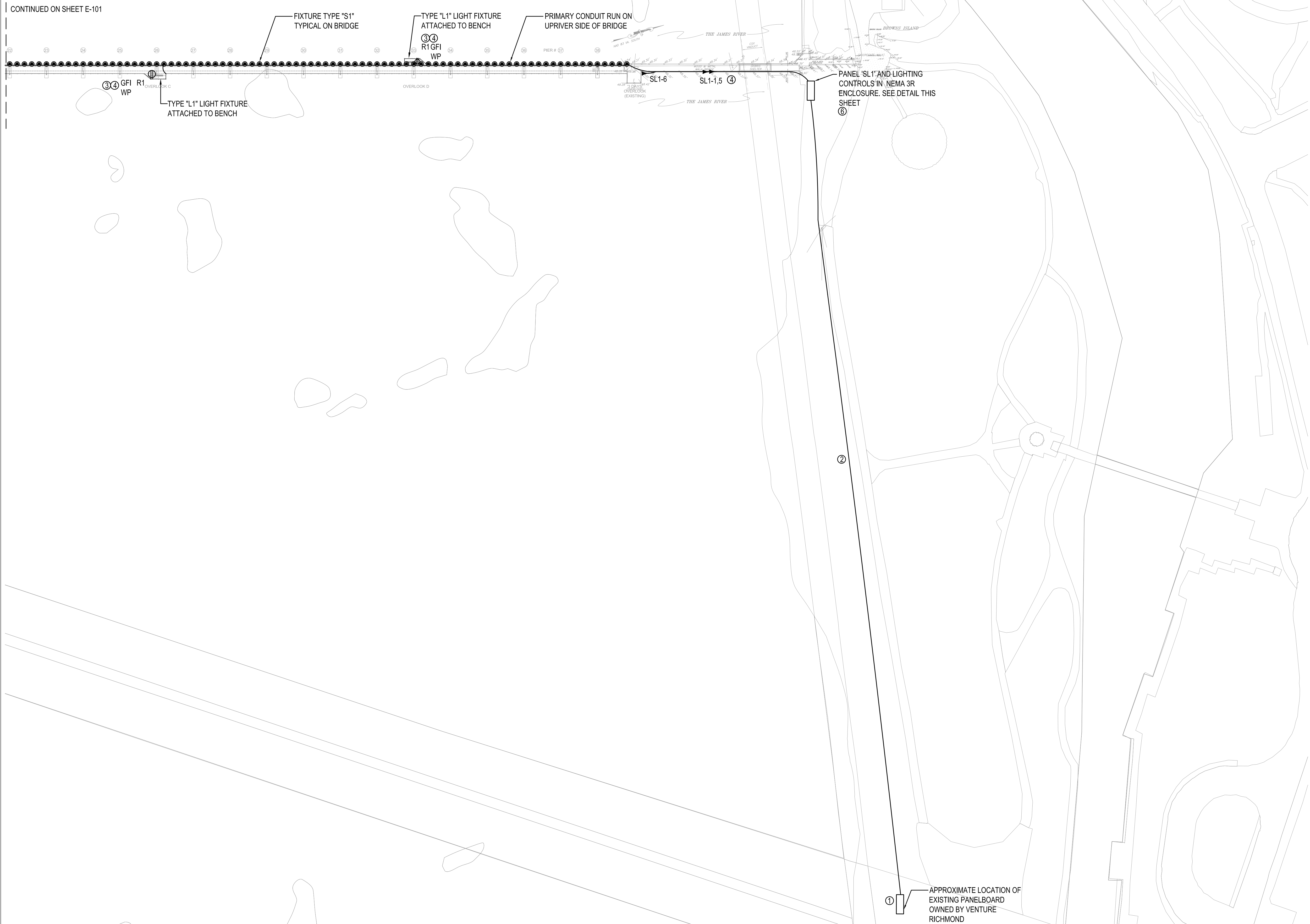
TYPE 'L1' LIGHT FIXTURE  
ATTACHED TO BENCH

**GENERAL NOTES:**

- ALL CONDUIT ROUTING SHOWN FOR DIAGRAMMATIC PURPOSES ONLY AND SHALL BE RUN CLEAR OF ANY HARDSCAPE AREAS AND A MINIMUM OF 4'-0" CLEAR OF TREES.
- SEE LANDSCAPE PLANS, SCHEDULES, AND DETAILS FOR LOCATION AND TYPE.

**KEYED NOTES:**

- RUN CONDUIT AND CONDUCTORS 24" BELOW FINISHED GRADE ADJACENT TO EXISTING SIDEWALK.
- RUN CONDUIT AND CONDUCTORS ATTACHED TO UNDERSIDE OF EXISTING PEDESTRIAN BRIDGE
- SEE LANDSCAPE PLANS FOR EXACT LOCATION OF RECEPTACLE.
- SEE DETAILS ON SHEET L-550 FOR MOUNTING OF RECEPTACLE TO POST.
- VERIFY LOCATION OF NEMA 3K IN FIELD WITH LANDSCAPE ARCHITECT AND ELECTRICAL ENGINEER PRIOR TO INSTALLATION. SEE CIVIL DRAWINGS FOR CONCRETE FOUNDATIONS.



**GENERAL NOTES:**

1. ALL CONDUIT ROUTING SHOWN FOR DIAGRAMMATIC PURPOSES ONLY AND SHALL BE RUN CLEAR OF ANY HARDSCAPE AREAS AND A MINIMUM OF 4'-0" CLEAR OF TREES.
2. SEE LANDSCAPE PLANS, SCHEDULES, AND DETAILS FOR LOCATION AND TYPE.

**KEYED NOTES:**

- 1 PROVIDE (1) ONE 40A-2P IN EXISTING PANEL SPACE #7. THE EXISTING PANEL IS A SQUARE D I-LINE PANEL, 208Y/120V, 3-PHASE 4-WIRE. PROVIDE ENERGY METER; EMDON CATALOG # E10-320850-JKIT OR EQUAL, TO RECORD USAGE OF NEW CIRCUIT. COORDINATE ALL WORK ASSOCIATED WITH THIS PANEL WITH VENTURE RICHMOND.
- 2 PROVIDE 3# 3/0 AND 1# 10 GND IN 1-1/2" PVC CONDUIT BURIED 24" BELOW FINISHED GRADE ADJACENT TO EXISTING SIDEWALK.
- 3 SEE LANDSCAPE PLANS FOR EXACT LOCATION OF RECEPTACLES.
- 4 RUN CONDUIT AND CONDUCTORS ATTACHED TO UNDERSIDE OF EXISTING PEDESTRIAN BRIDGE. SEE DETAILS ON SHEET E-501 AND E-502.
- 5 SEE DETAILS ON SHEET L-550 FOR MOUNTING OF RECEPTACLE TO POST.
- 6 VERIFY LOCATION OF NEMA 3K IN FIELD WITH LANDSCAPE ARCHITECT AND ELECTRICAL ENGINEER PRIOR TO INSTALLATION. SEE CIVIL DRAWINGS FOR CONCRETE FOUNDATIONS.

**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
 RICHMOND, VIRGINIA

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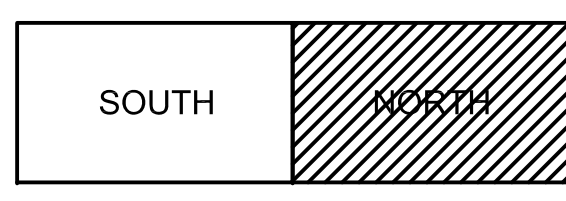


ISSUE

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 02-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

KEY MAP



**SHEET INFORMATION**

Project No.: RVA 1301  
 Drawn By: JDT  
 Checked By: KGD  
 Date: 10/24/2014  
 Scale: 1" = 50'-0"

SHEET TITLE

**ELECTRICAL SERVICE PLAN NORTH**

SHEET NO.

**E-102**

**PANELBOARD "SL1"**

LOCATION: BROWNS ISLAND  
 FED FROM: SERVICE RATED  
 COMMENTS:

MAIN: 60 AMPERE BREAKER  
 CABINET: NEMA 3R  
 SOLID NEUTRAL, GND BAR

SYSTEM: 120/240 VAC, 1PH3W, 60Hz  
 MIN SYM AIC: 10 KAIC  
 MOUNTING: SURFACE

| POLE NO. | CKT. NO. | TRIP AMPS | CIRCUIT DESCRIPTION     | KVA  | CONNECT AMPS | A    | C | KVA | CIRCUIT DESCRIPTION | TRIP AMPS | CKT. NO. | POLE NO. |
|----------|----------|-----------|-------------------------|------|--------------|------|---|-----|---------------------|-----------|----------|----------|
| 1        | 1        | 20        | BRIDGE STEP LIGHTS "S1" | 1.80 | 7.50         |      |   |     | SPACE               | -         | 2        | 2        |
| 3        |          |           | AND RECEPTACLES         |      |              | 7.50 |   |     | SPACE               | -         | 4        | 4        |
| 5        | 5        | 20        | BRIDGE STEP LIGHTS "S1" | 1.80 | 7.50         |      |   |     | SPACE               | -         | 6        | 6        |
| 7        |          |           | AND RECEPTACLES         |      |              | 7.50 |   |     | SPACE               | -         | 8        | 8        |
| 9        | 9        | 20        | SPARE                   |      | 0.00         |      |   |     | SPACE               | -         | 10       | 10       |
| 11       |          |           |                         |      | 0.00         |      |   |     | SPACE               | -         | 12       | 12       |

LEGEND:  
 AF+ARC FAULT INTERRUPTER PER PHASE AMPERES: 15.00 15.00 DEMAND PHASE AMPERES: 15.00 15.00  
 GF+GROUND FAULT INTERRUPTER TOTAL CONNECTED KVA: 3.6 TOTAL DEMAND KVA: 3.6

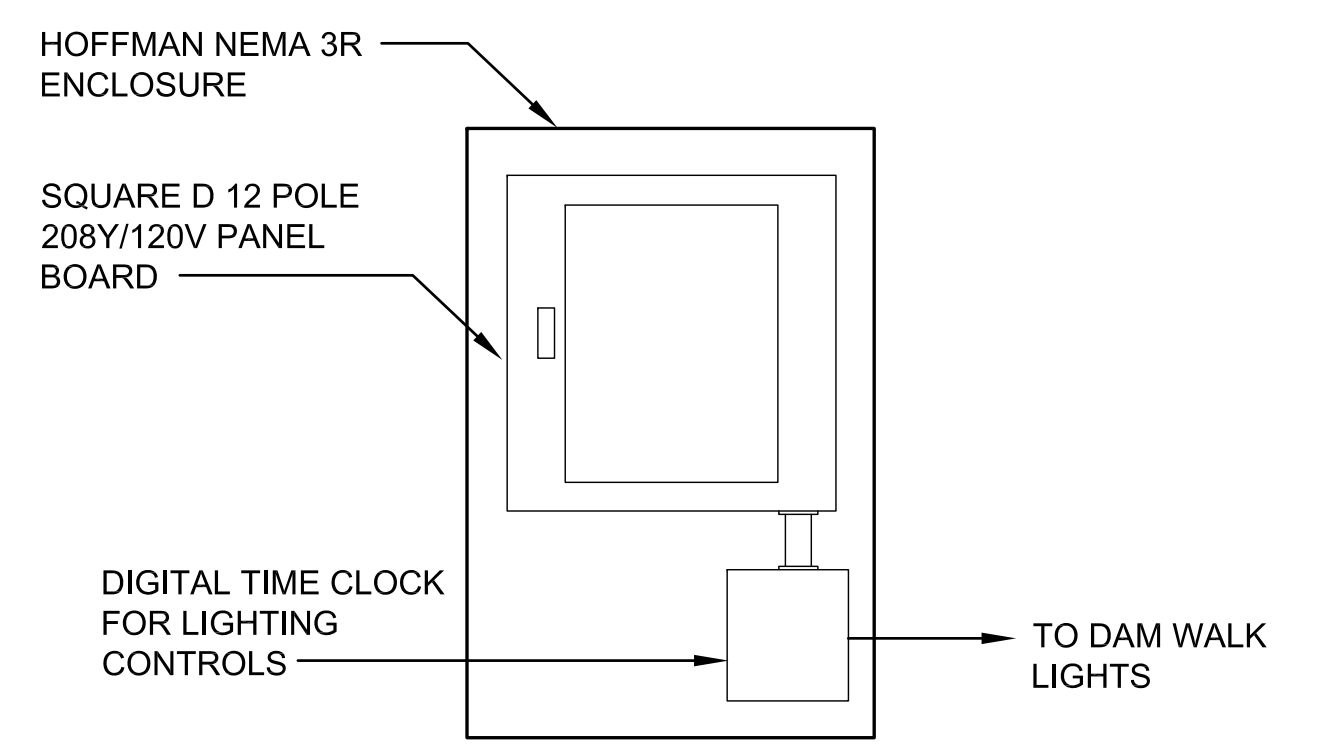
NOTES:

**LIGHTING FIXTURE SCHEDULE**

| FIXTURE TYPE | MANUFACTURER NAME | FIXTURE DESCRIPTION                             | CATALOG NUMBER               | LAMP TYPE   | LAMPS LUMENS | VOLTAGE | REMARKS                                 | WATTS   |
|--------------|-------------------|---|------------------------------|-------------|--------------|---------|---|---------|
| G1           | GARDCO            | ARCH. AREA W/ CUTOFF OPTICS III                 | P21-A1-1-3-55LA-VW-UNV-NP-LF | LED (3000K) | 4,500LM      | 240v    | POLE TRA-CB-16'-X-D1-NP-RECEPTACLE      | 55      |
| L1           | ACOLYTE           | LED TAPELIGHT W/FROSTED ACRYLIC LENS            | CH-AS2-LENGTHS PER PLANS-C   | LED (3000K) | 165LM/FT     | 240v    | RB-68-24-3.0-30; DRIVER DRV-W-24-150W   | 3.0W/LF |
| S1           | ACOLYTE           | LED TAPELIGHT W/FROSTED ACRYLIC LENS            | CH-W35-2-M                   | LED (3000K) | 165LM/FT     | 240v    | RB-68-24-3.0-30-2; DRIVER DRV-W-24-150W | 6       |
| R1           | THOMAS AND BETTS  | WEATHERPROOF WHILE-IN-USE OUTLET BOX/COVERPLATE | CKLSVU, OR EQUAL             |             |              | 120v    |   |         |

**LIGHTING FIXTURE SCHEDULE NOTES:**

1. LAMPS ARE SPECIFIED WITH SPECIFIC MANUF. CATALOG NUMBERS TO EXPRESS SPECIFIC QUALITIES OF THAT LAMP OR LAMPS THAT COINCIDE WITH THAT CATALOG NUMBER. WHEN NO LAMP MANUF. IS SUPPLIED, PHILIPS SHALL BE THE DEFAULT MANUF. OF CHOICE.
2. FIXTURE INPUT POWER IS THE ACTUAL MAXIMUM BALLAST, TRANSFORMER, OR DRIVER INPUT WATTAGE AS APPLICABLE. NOT THE LAMP WATTAGE. THE ENGINEER AND CONTRACTOR ARE RESPONSIBLE FOR CONFIRMING THESE VALUES.
3. UNSOLICITED FIXTURE SUBSTITUTIONS SHALL NOT BE CONSIDERED EXCEPT AT THE DIRECT REQUEST OF THE ARCHITECT OR OWNER. SOLICITED SUBSTITUTIONS (BY ARCHITECT, OWNER, OR LIGHTING DESIGNER) SHALL ONLY BE CONSIDERED IF:
  - (A) THEY HAVE BEEN SUBMITTED FOR PRE-APPROVAL BY THE LIGHTING DESIGNER.
  - (B) ARE ACCOMPANIED BY UNIT COST DATA (INCLUDING AND DISCLOSING ALL APPLICABLE MARKUPS).
  - (C) THE UNIT PRICES FOR ALL SPECIFIED ITEMS TO PROVIDE A BASIS OF COST COMPARISON.
  - (D) A WORKING SAMPLE OF THE SUBSTITUTION FIXTURE MUST BE PROVIDED TO LAMP PARTNERS INC. WITHIN 10 WORKING DAY UPON REQUEST.
  - (E) THE SUBMITTING AGENT MUST SUBMIT IN WRITING THE REASONS THAT THIS FIXTURE SHOULD BE CONSIDERED AN EQUAL. TO BE CONSIDERED, THE ACCEPTANCE OR REJECTION OF ANY FIXTURE SUBSTITUTION SHALL BE SOLE AND FEATURES. DETERMINATION OF THE SPECIFYING EXPERT AND BASED ON, BUT NOT LIMITED TO, OPTICAL PERFORMANCE, CONSTRUCTION QUALITY, AESTHETICS, SHAPE, SIZE, LAMPING, FUNCTIONALITY, ACCESSORIES, LEAD TIMES, COSTS.
4. EACH 2' FIXTURE SHALL BE PRE-ASSEMBLED IN THE FACTORY WITH A 16'- WIRE WHIP EXITING THE ENDCAP OF THE FIXTURE.
5. THIS FIXTURE HOUSING IS TO BE MOUNTED TO A VERTICAL SURFACE. NO SUSPENSION HARDWARE IS REQUIRED. EACH DRIVER IS INTENDED TO POWER FOUR (4) S1 FIXTURES.
6. TYPES L1 / S1 - IP68 RATED TAPELIGHT AND CONNECTORS; REMOTE, WET-LOCATION 24V DRIVER. WIDE BEAM ANGLE. 50,000-HR RATED LIFE. 5-YEAR MINIMUM WARRANTY.
7. TYPE G1 - 200,000+HR RATED LIFE. 5-YEAR MINIMUM WARRANTY. IES LM-79 AND LM-80 COMPLIANT. TAPERED 16' ROUND ALUMINUM



**PANELBOARD "SL1", "SL2" ENCLOSURE DETAIL**  
 NOT TO SCALE



PROJECT INFORMATION

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| 1   | SCHEMATIC DESIGN   | 02-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

KEY MAP

SHEET INFORMATION

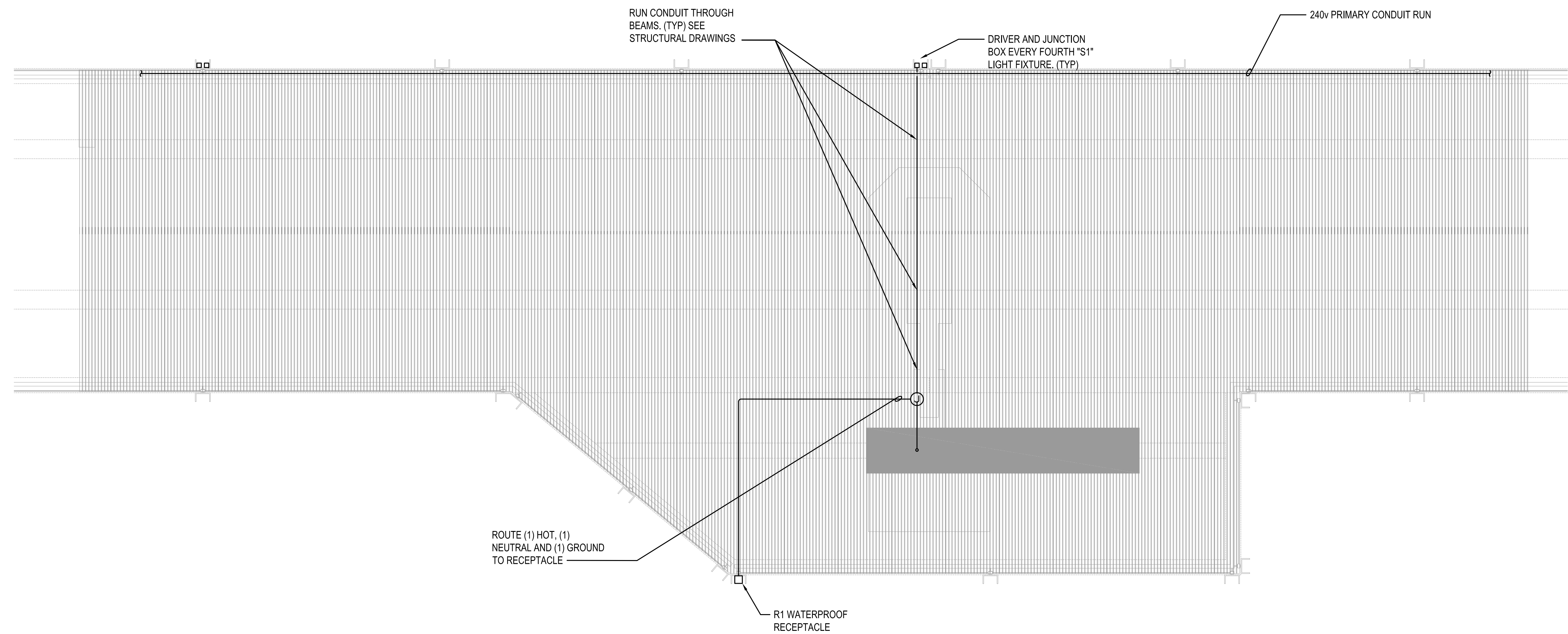
Project No.: RVA 1301  
Drawn By: JDT  
Checked By: KGD  
Date: 10/24/2014  
Scale: 1/2" = 1'-0"

SHEET TITLE

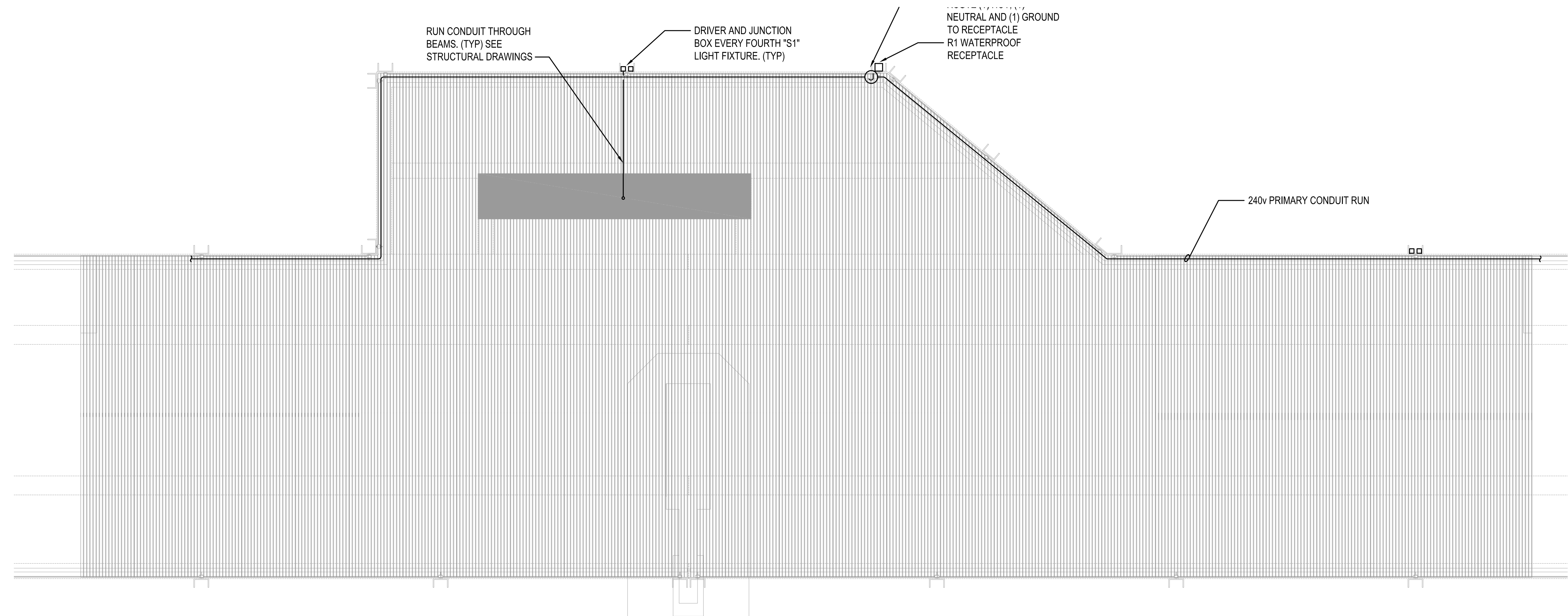
ELECTRICAL DETAILS

SHEET NO.

E-502



1 TYPICAL CONDUIT ROUTING DETAIL LIGHTING L1 AND RECEPTACLE R1 - OVERLOOKS A,B,C  
SCALE: 1/2"=1'-0"

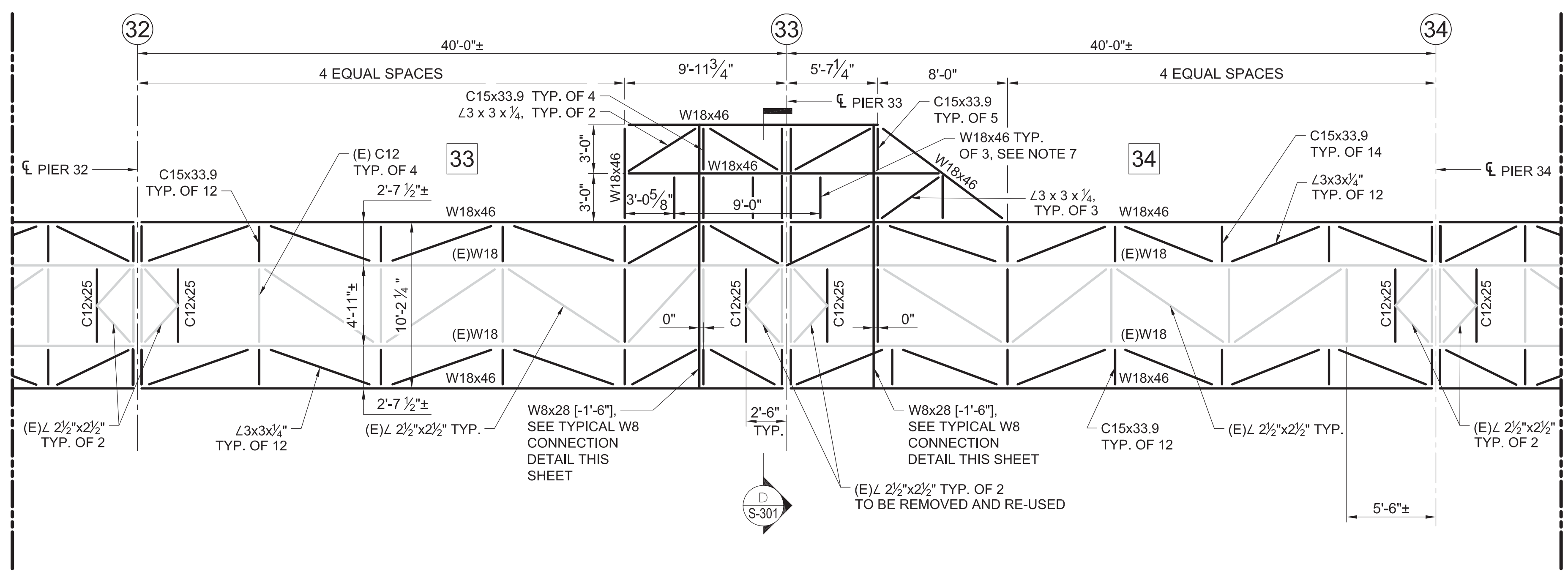


2 TYPICAL CONDUIT ROUTING DETAIL LIGHTING L1 AND RECEPTACLE R1 - OVERLOOK D  
SCALE: 1/2"=1'-0"

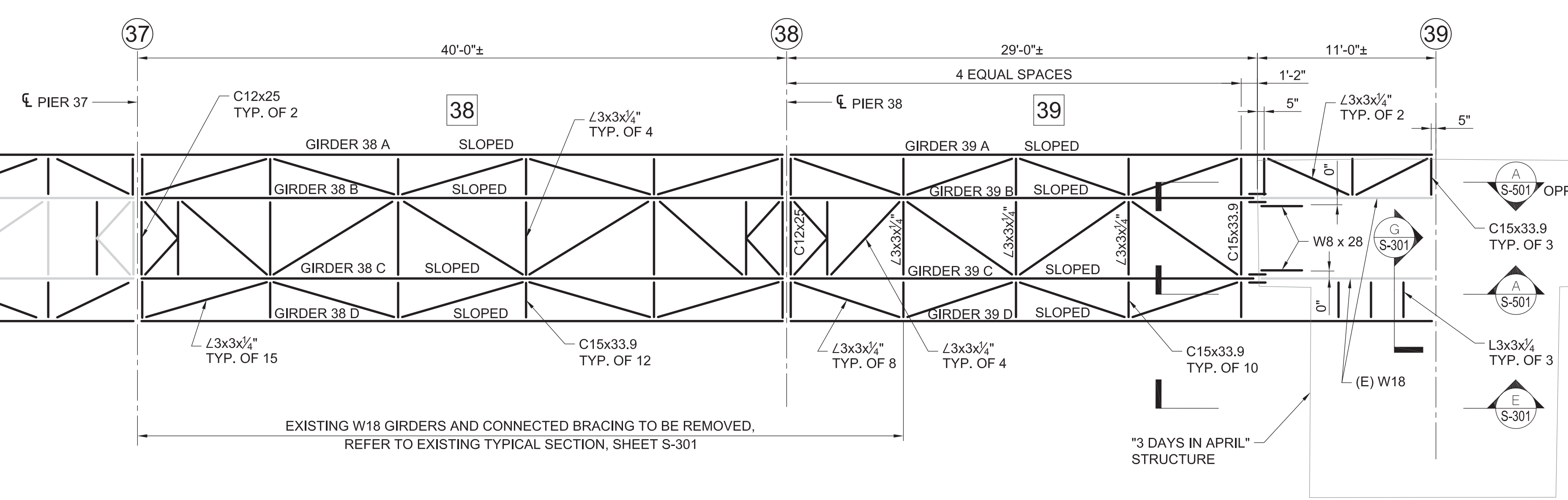
NOTE:  
1. REFER TO LANDSCAPE DRAWINGS AND DETAILS FOR ADDITIONAL LAYOUT INFORMATION.  
2. CONFIRM ALL PENETRATION W/ STRUCTURAL ENGINEER PRIOR TO INSTALLATION.





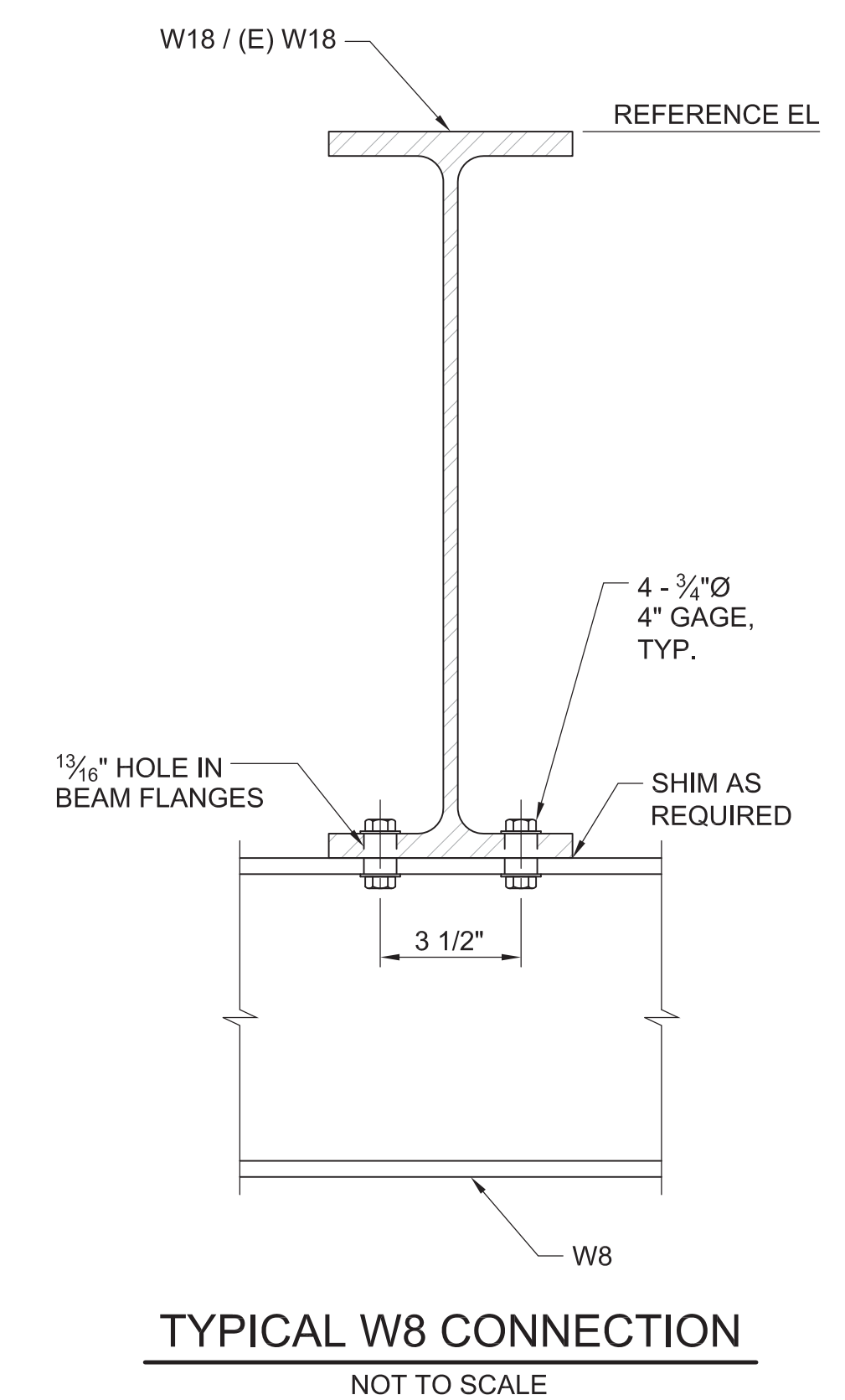


FRAMING PLAN - OVERLOOK D  
SCALE: 1" = 5'

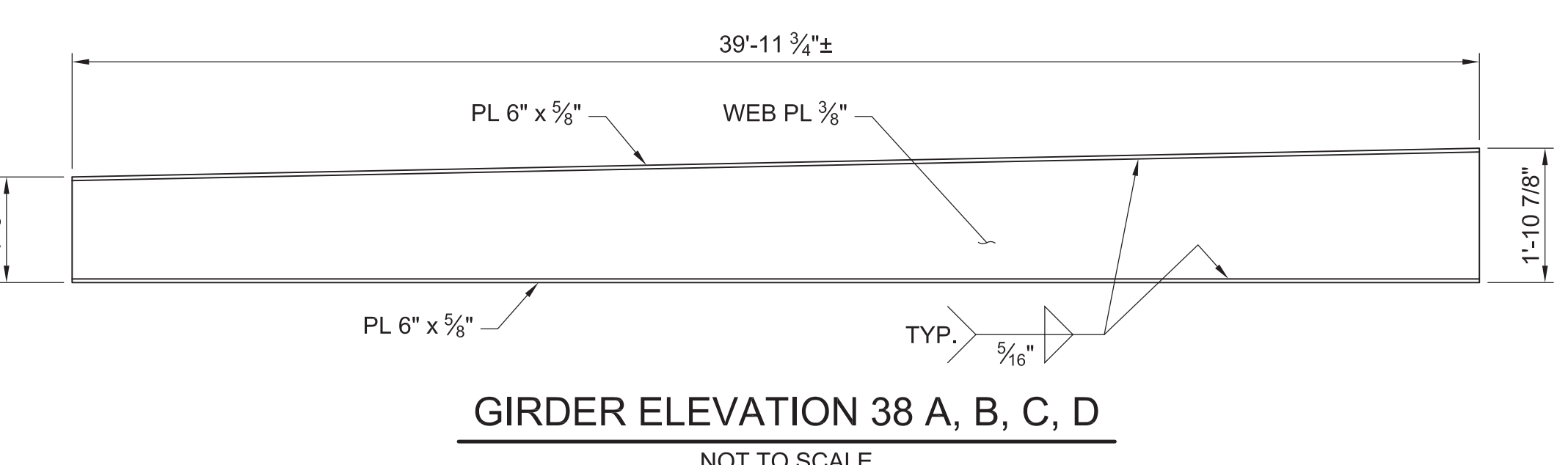


FRAMING PLAN - SPANS 38 & 39  
SCALE: 1" = 5'

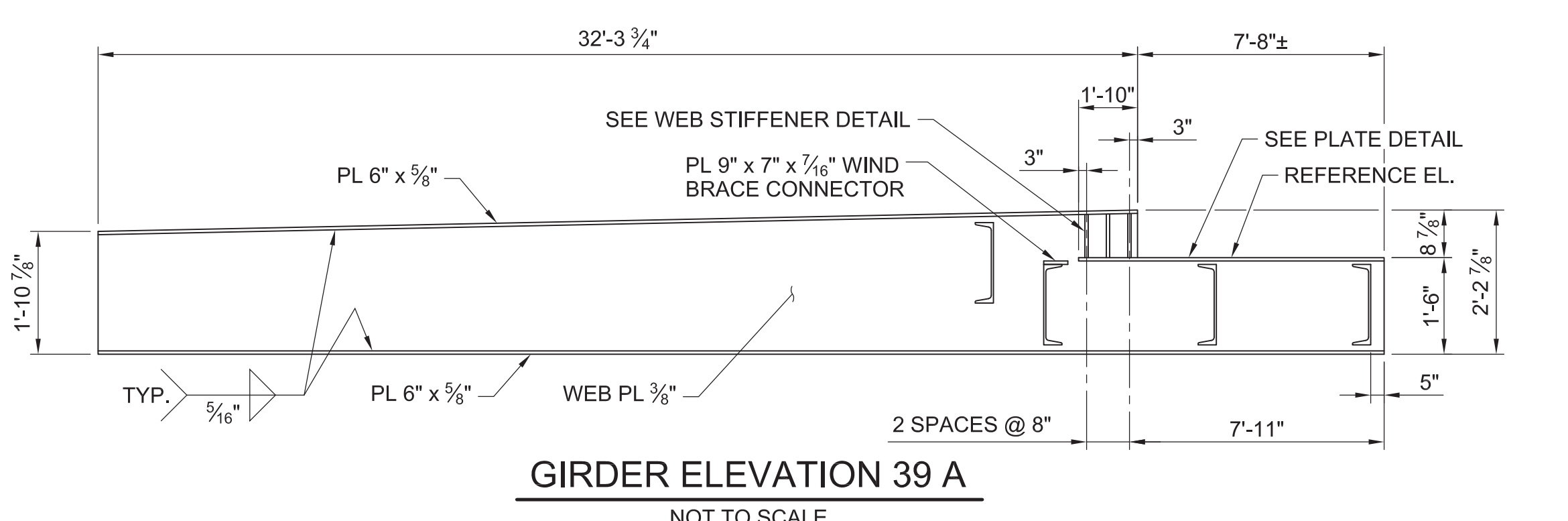
| GIRDER BEARING FIXITY DESIGNATION |           |           |      |           |       |
|-----------------------------------|-----------|-----------|------|-----------|-------|
| PIER                              | JOINT     |           | PIER | JOINT     |       |
|                                   | SOUTH     | NORTH     |      | SOUTH     | NORTH |
| S. ABUT.                          |           |           | 20   | EXPANSION | FIXED |
| 00                                | FIXED     | FIXED     | 21   | EXPANSION | FIXED |
| 01                                | EXPANSION | FIXED     | 22   | EXPANSION | FIXED |
| 02                                | EXPANSION | FIXED     | 23   | FIXED     | FIXED |
| 03                                | EXPANSION | FIXED     | 24   | EXPANSION | FIXED |
| 04                                | EXPANSION | FIXED     | 25   | FIXED     | FIXED |
| 05                                | EXPANSION | FIXED     | 26   | EXPANSION | FIXED |
| 06                                | EXPANSION | FIXED     | 27   | FIXED     | FIXED |
| 07                                | EXPANSION | FIXED     | 28   | EXPANSION | FIXED |
| 08                                | EXPANSION | FIXED     | 29   | FIXED     | FIXED |
| 09                                | EXPANSION | FIXED     | 30   | EXPANSION | FIXED |
| 10                                | EXPANSION | EXPANSION | 31   | FIXED     | FIXED |
| 11                                | FIXED     | FIXED     | 32   | EXPANSION | FIXED |
| 12                                | FIXED     | FIXED     | 33   | FIXED     | FIXED |
| 13                                | EXPANSION | FIXED     | 34   | EXPANSION | FIXED |
| 14                                | FIXED     | FIXED     | 35   | EXPANSION | FIXED |
| 15                                | EXPANSION | FIXED     | 36   | FIXED     | FIXED |
| 16                                | FIXED     | FIXED     | 37   | EXPANSION | FIXED |
| 17                                | EXPANSION | FIXED     | 38   | FIXED     | FIXED |
| 18                                | FIXED     | FIXED     | 39   | EXPANSION |       |
| 19                                |           |           |      | NO JOINT  |       |



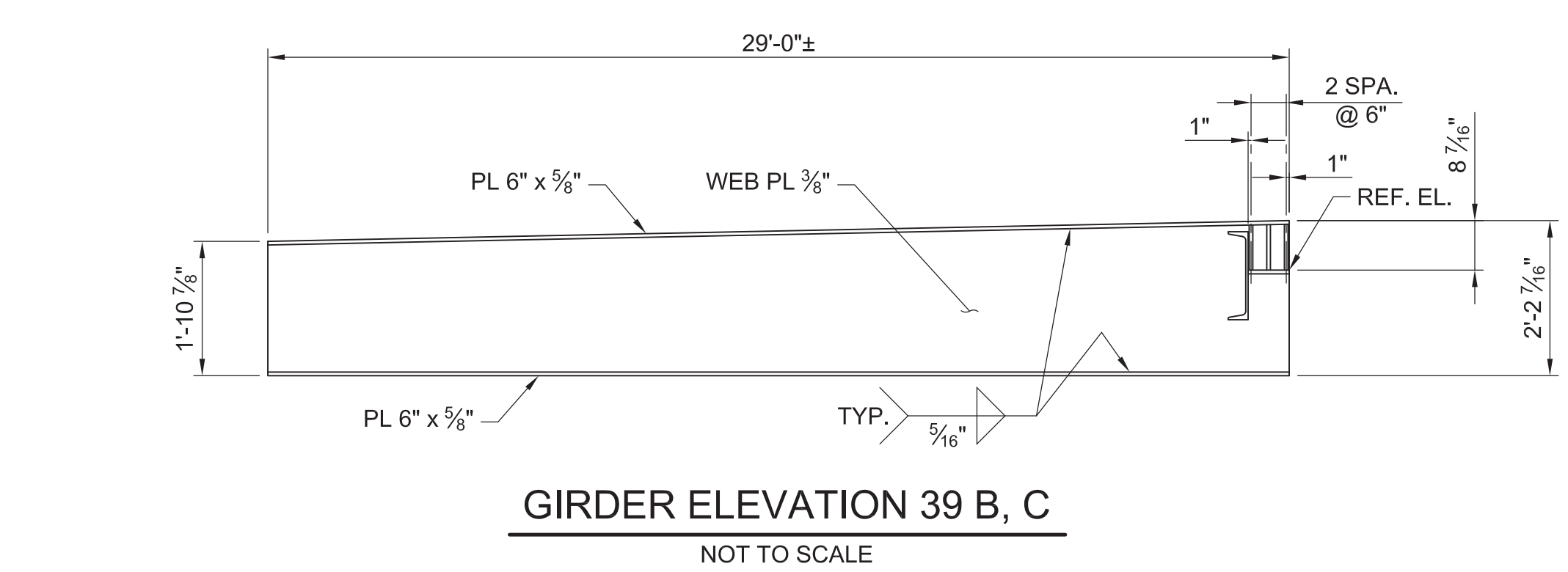
TYPICAL W8 CONNECTION  
NOT TO SCALE



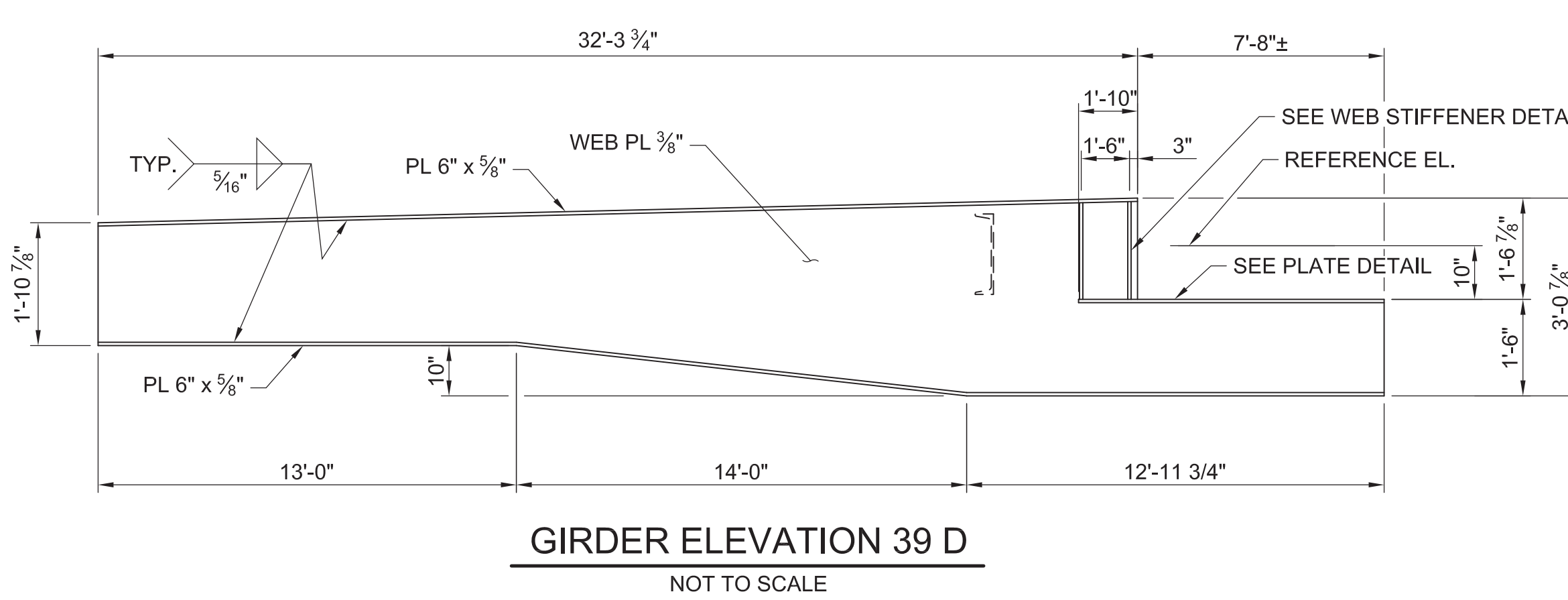
GIRDER ELEVATION 38 A, B, C, D  
NOT TO SCALE



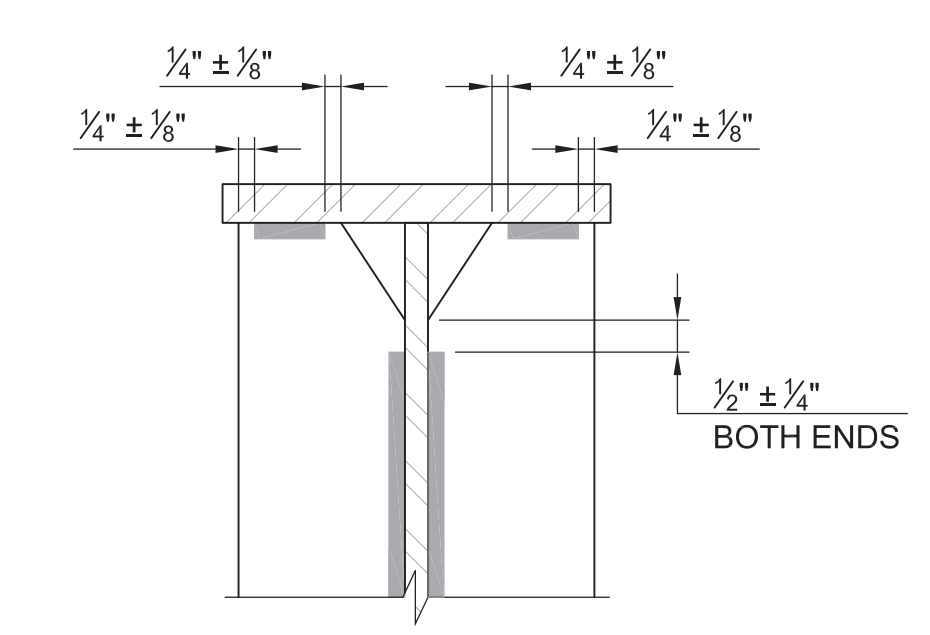
GIRDER ELEVATION 39 A  
NOT TO SCALE



GIRDER ELEVATION 39 B, C  
NOT TO SCALE



GIRDER ELEVATION 39 D  
NOT TO SCALE



01 DETAIL  
NOT TO SCALE

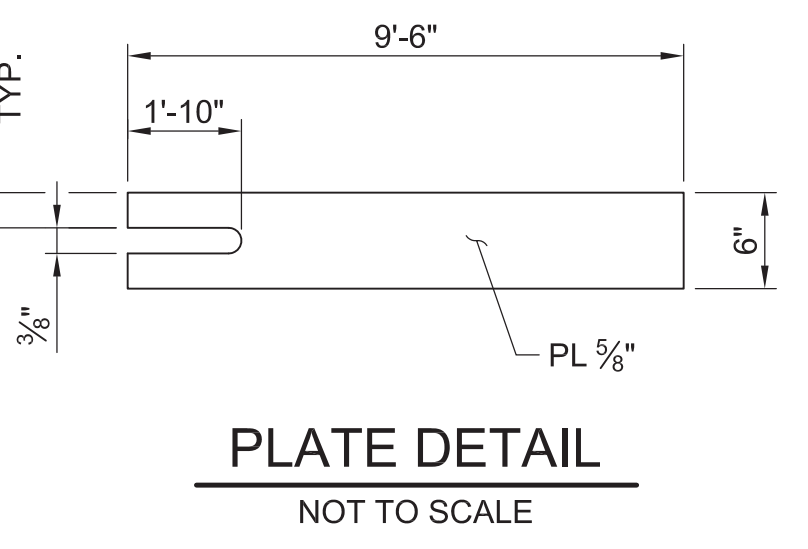
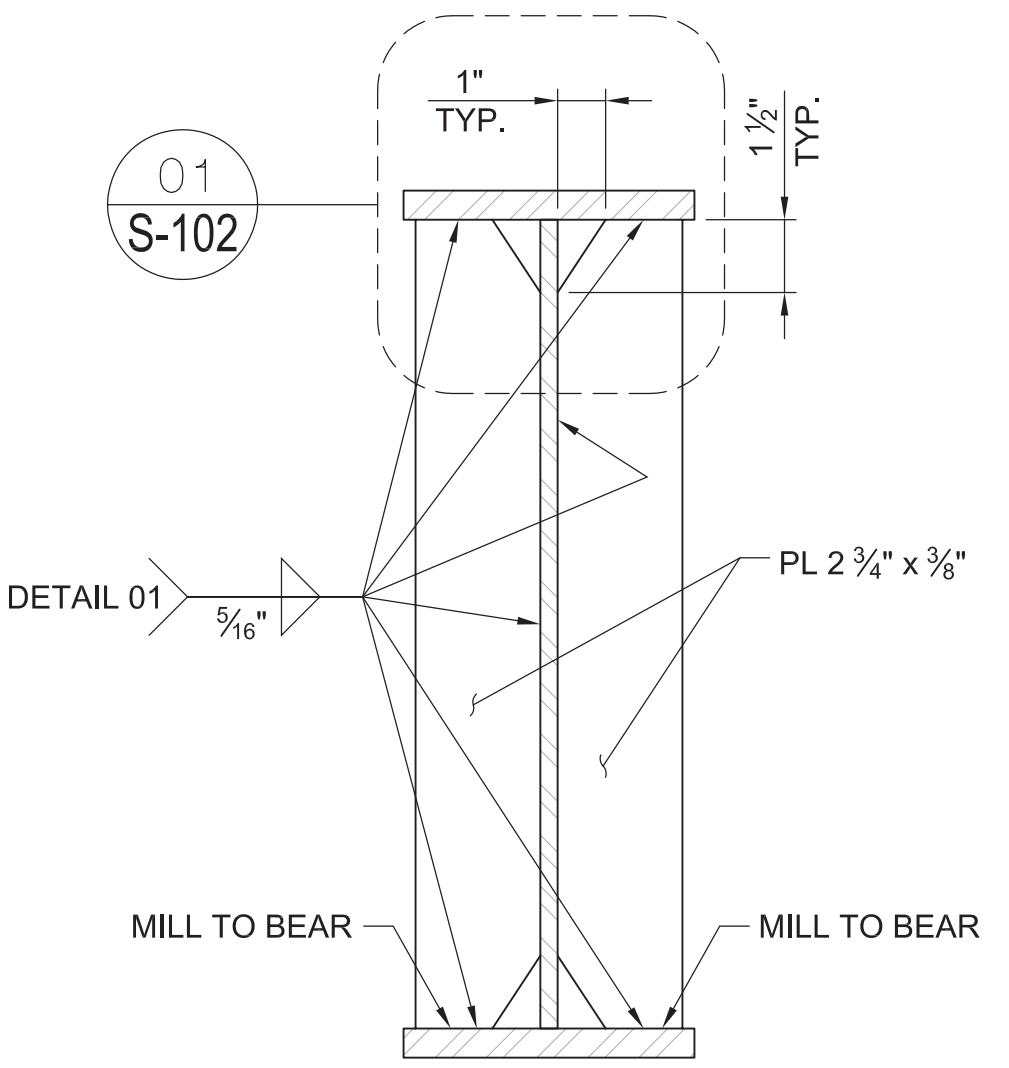


PLATE DETAIL  
NOT TO SCALE



WEB STIFFENER DETAIL  
NOT TO SCALE

SHEET NOTES

- THE STEEL SUPERSTRUCTURE GIRDERS SHALL BE ERRECTED PARALLEL TO THE EXISTING FRAMING.
- THE REFERENCE LINE FOR THE HORIZONTAL ALIGNMENT OF THE SUPERSTRUCTURE FRAMING SHALL BE THE WESTERN (UPRIVER) GIRDER OF THE "3-DAYS IN APRIL MEMORIAL" STRUCTURE. ALL DIMENSIONS SHALL BE ADJUSTED PER THIS REFERENCE.
- TOP OF STEEL IS REFERENCE FROM THE TOP OF EXISTING STEEL W18 GIRDERS, NOTED AS [± X'-XX"].
- REFER TO TABLE, SHEET S-101, FOR SPANS 0-10 APPROXIMATE SPAN LENGTHS.
- REFER TO GIRDER BEARING FIXITY TABLE THIS SHEET.
- REFER TO SHEET S-504 FOR TYPICAL GIRDER BEARING DETAILS.
- COORDINATE THE W18 LOCATIONS WITH THE BENCH LOCATION, REFER TO ARCHITECTURAL DRAWINGS, INSTALL THE 3-W18 BEAMS WITH TOP OF STEEL AT THE REFERENCE ELEVATION. COPE THE TOP FLANGE AND CONNECT USING DETAIL 06, SHEET S-501.

LEGEND

- (26) DENOTES PIER NUMBER
- (27) DENOTES SPAN NUMBER
- (E) DENOTES EXISTING FRAMING
- DENOTES EXISTING FRAMING
- DENOTES FIELD BOLTED SPLICE (REFER TO DETAIL ON SHEET S-501)

PROJECT INFORMATION

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|     | BID SET            | 10-24-2014 |

KEY MAP

SHEET INFORMATION

Project No.: RVA 1301  
Drawn By: NES  
Checked By: EPV  
Date: 10/24/2014  
Scale: AS SHOWN

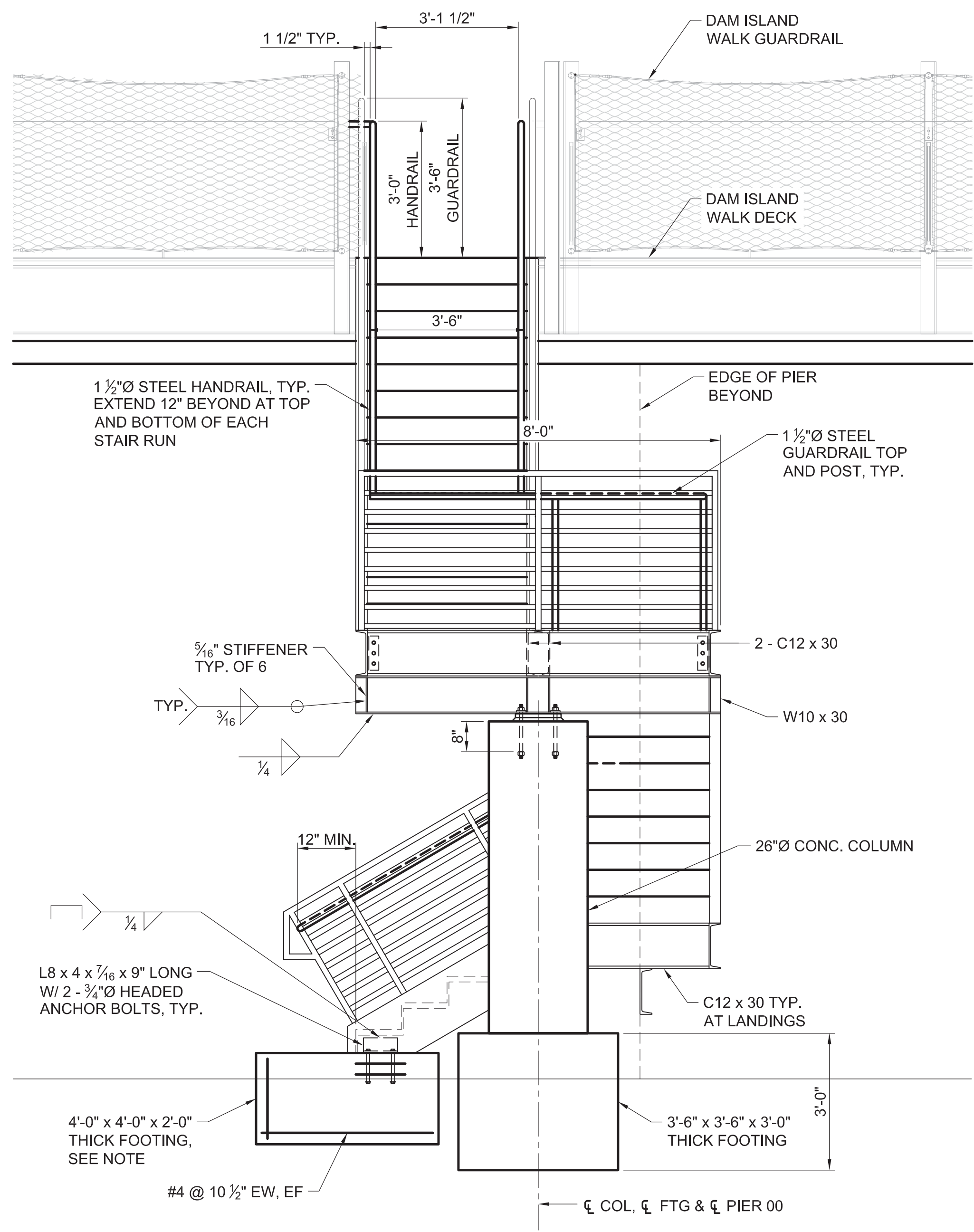
SHEET TITLE

STRUCTURAL FRAMING PLANS

SHEET NO.

**S-102**

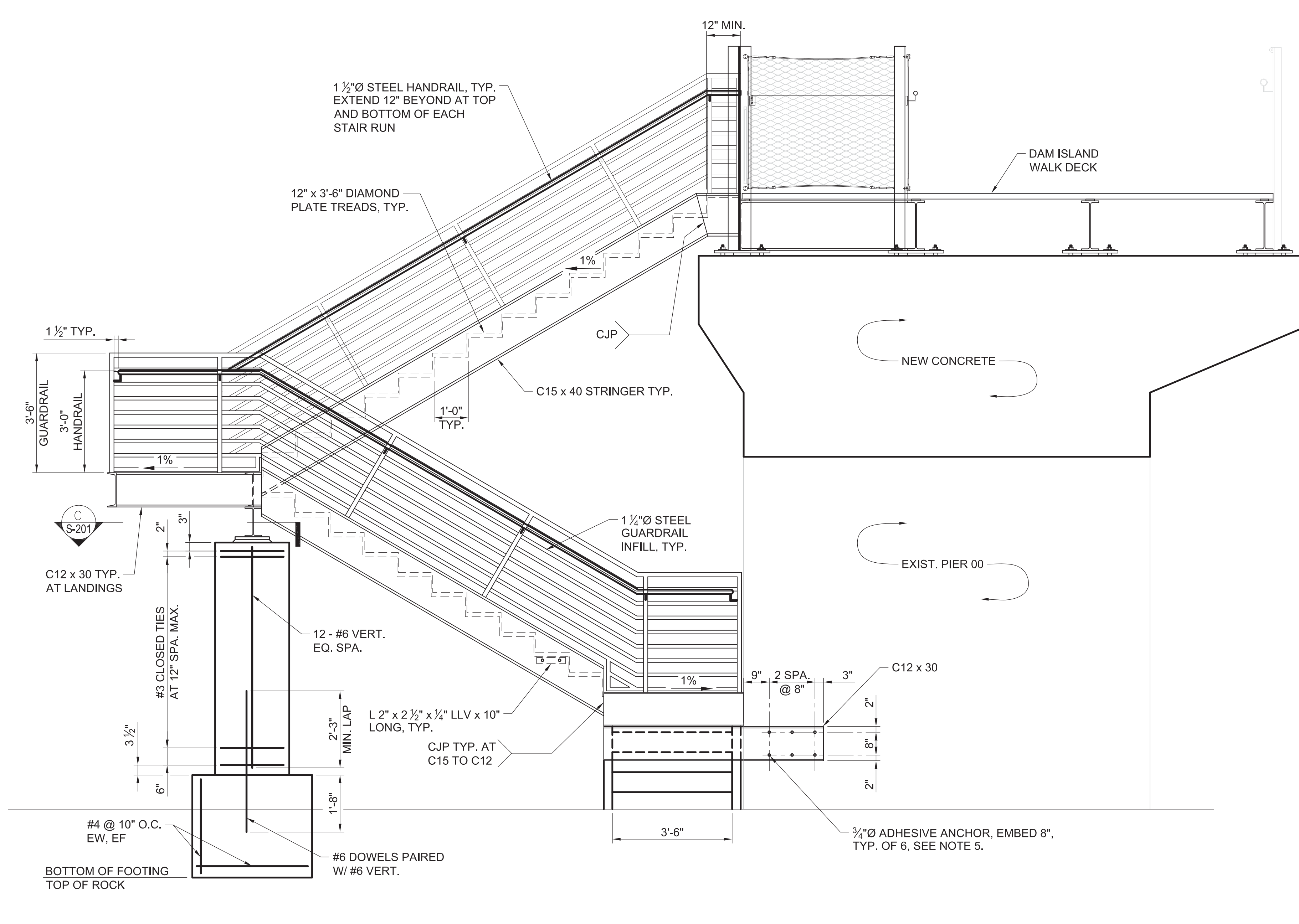




**A EAST ELEVATION OF STAIRS**

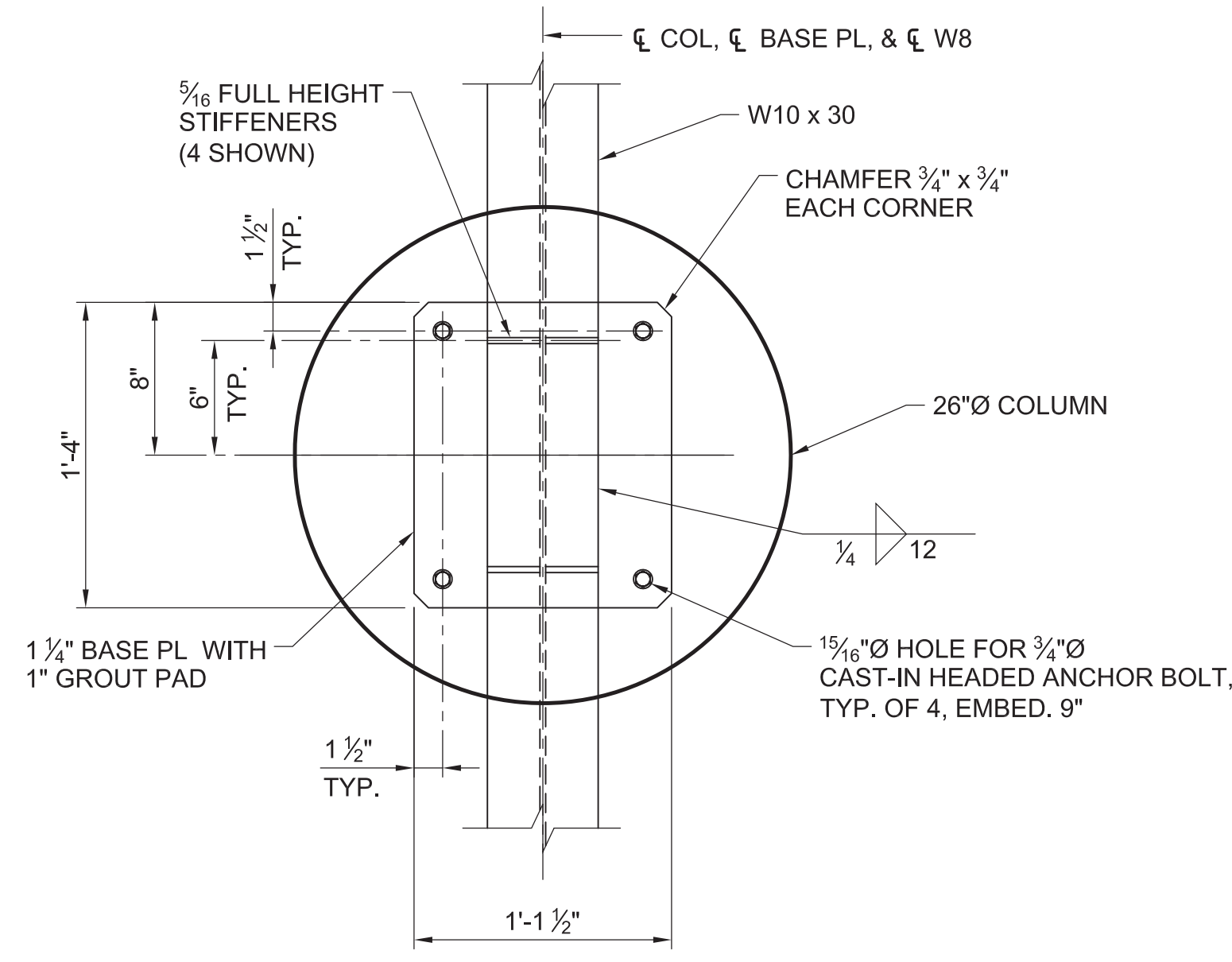
SCALE: 1/2" = 1'-0"

NOTE:  
REFER TO SECTION "A", SHEET S-203 FOR ANCHOR BOLT AND HAIRPIN DETAILS FOR LANDING ON GRADE.



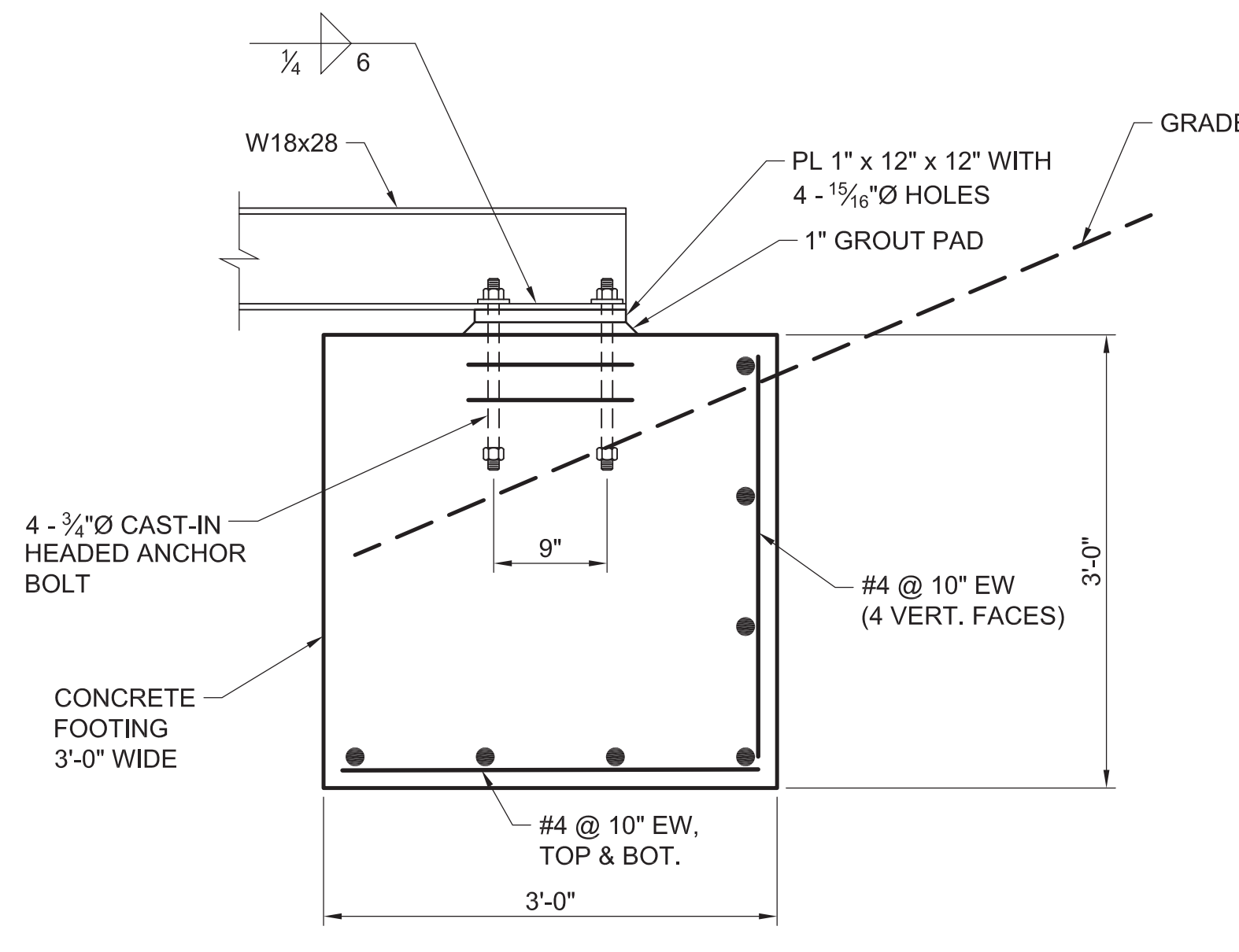
**B NORTH ELEVATION OF STAIRS**

SCALE: 1/2" = 1'-0"



**C BEAM BASE PLATE DETAIL**

SCALE: 1 1/2" = 1'-0"



**D OVERLOOK "A" LOWER LANDING DETAIL**

SCALE: 1" = 1'-0"

NOTES:  
1. TOP BARS NOT SHOWN FOR CLARITY.  
2. REFER TO SECTION "A", SHEET S-203 FOR ANCHOR BOLT AND HAIRPIN BAR DETAILS

**SHEET NOTES**

- REFER TO SPECIFICATIONS FOR STAIR LOADING REQUIREMENTS.
- REFER TO LANDSCAPE GRADING PLAN FOR TOP AND BOTTOM STAIR ELEVATIONS AND GRADING TO FOOTING AT BOTTOM OF STAIRS.
- ALL STRUCTURAL STEEL FRAMING FOR THE STAIRS SHALL BE A709, GRADE 50W WEATHERING STEEL.
- ALL HANDRAILS AND GUARDRAILS SHALL BE A53, GRADE B STEEL AND GALVANIZED.
- ADHESIVE ANCHOR RODS SHALL BE ASTM F593, CW2, GRADE 65, REFER TO THE SPECIFICATIONS FOR INSTALLATION AND ADHESIVE REQUIREMENTS.

**PROJECT INFORMATION**  
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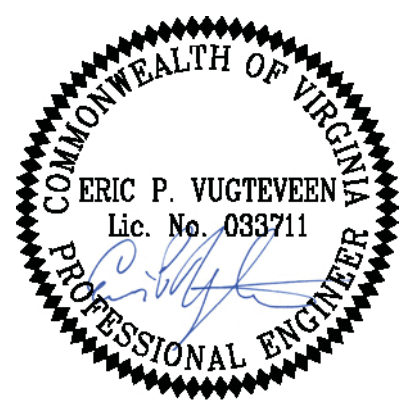
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| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

**KEY MAP**

**SHEET INFORMATION**

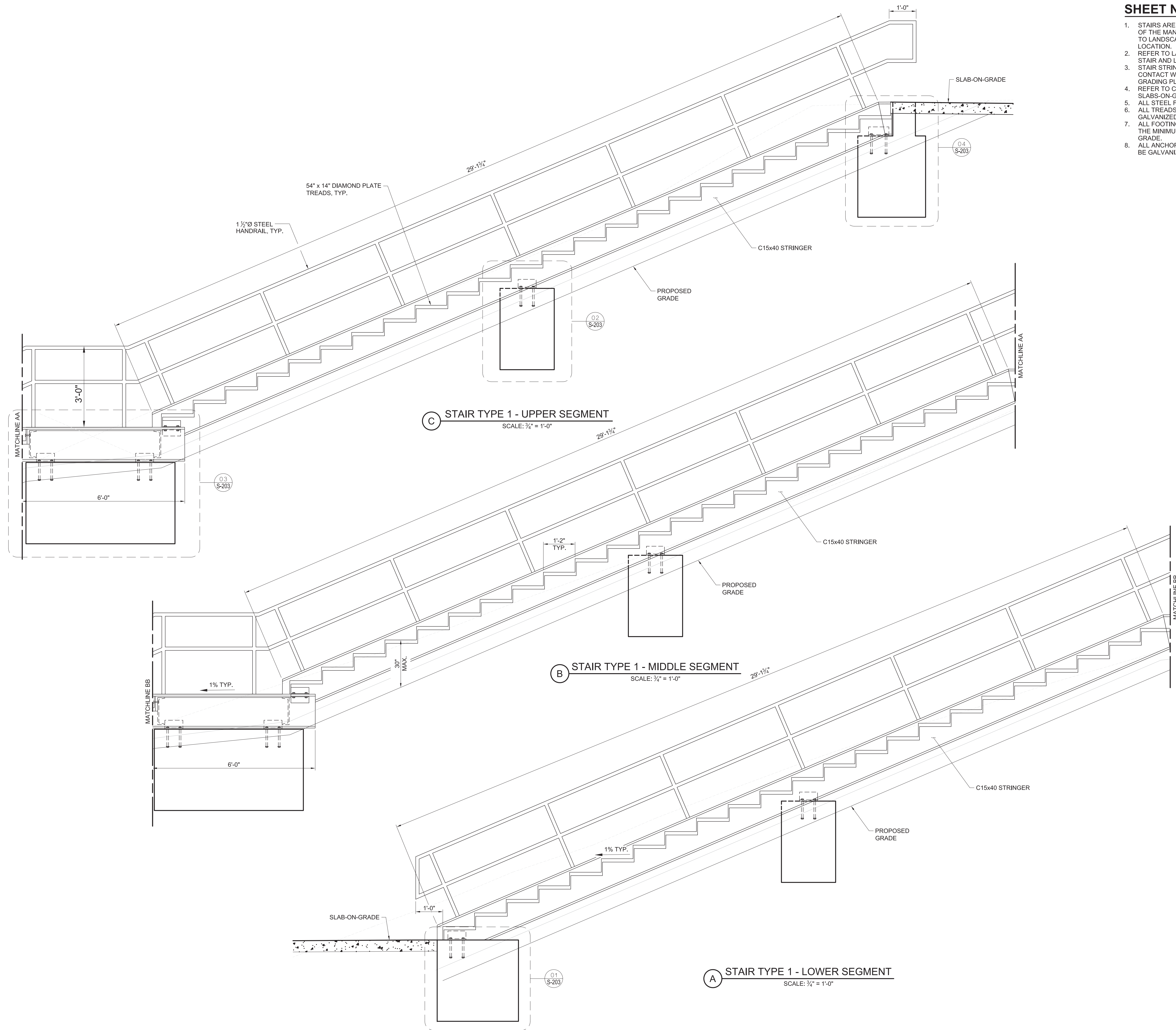
Project No.: RVA 1301  
Drawn By: TPA  
Checked By: EPV  
Date: 10/24/2014  
Scale: AS SHOWN

**SHEET TITLE**

**STRUCTURAL ELEVATIONS - OVERLOOK A & STAIR #2**

SHEET NO.

**S-201**



**SHEET NOTES**

1. STAIRS ARE LOCATED AT THE SOUTH END OF THE MANCHESTER EMBANKMENT. REFER TO LANDSCAPE PLANS FOR EXACT LOCATION.
2. REFER TO LANDSCAPE GRADING PLANS FOR STAIR AND LANDING ELEVATIONS.
3. STAIR STRINGERS SHALL NOT COME IN CONTACT WITH SOIL, COORDINATE WITH GRADING PLAN.
4. REFER TO CIVIL DRAWINGS FOR CONCRETE SLABS-ON-GRADE.
5. ALL STEEL FRAMING SHALL BE GALVANIZED.
6. ALL TREADS AND HANDRAILS SHALL BE GALVANIZED.
7. ALL FOOTINGS SHALL EXTEND 2'-0" BELOW THE MINIMUM ELEVATION OF THE ADJACENT GRADE.
8. ALL ANCHORS BOLTS SHALL BE F1554 AND BE GALVANIZED.

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**KEY MAP**

**SHEET INFORMATION**

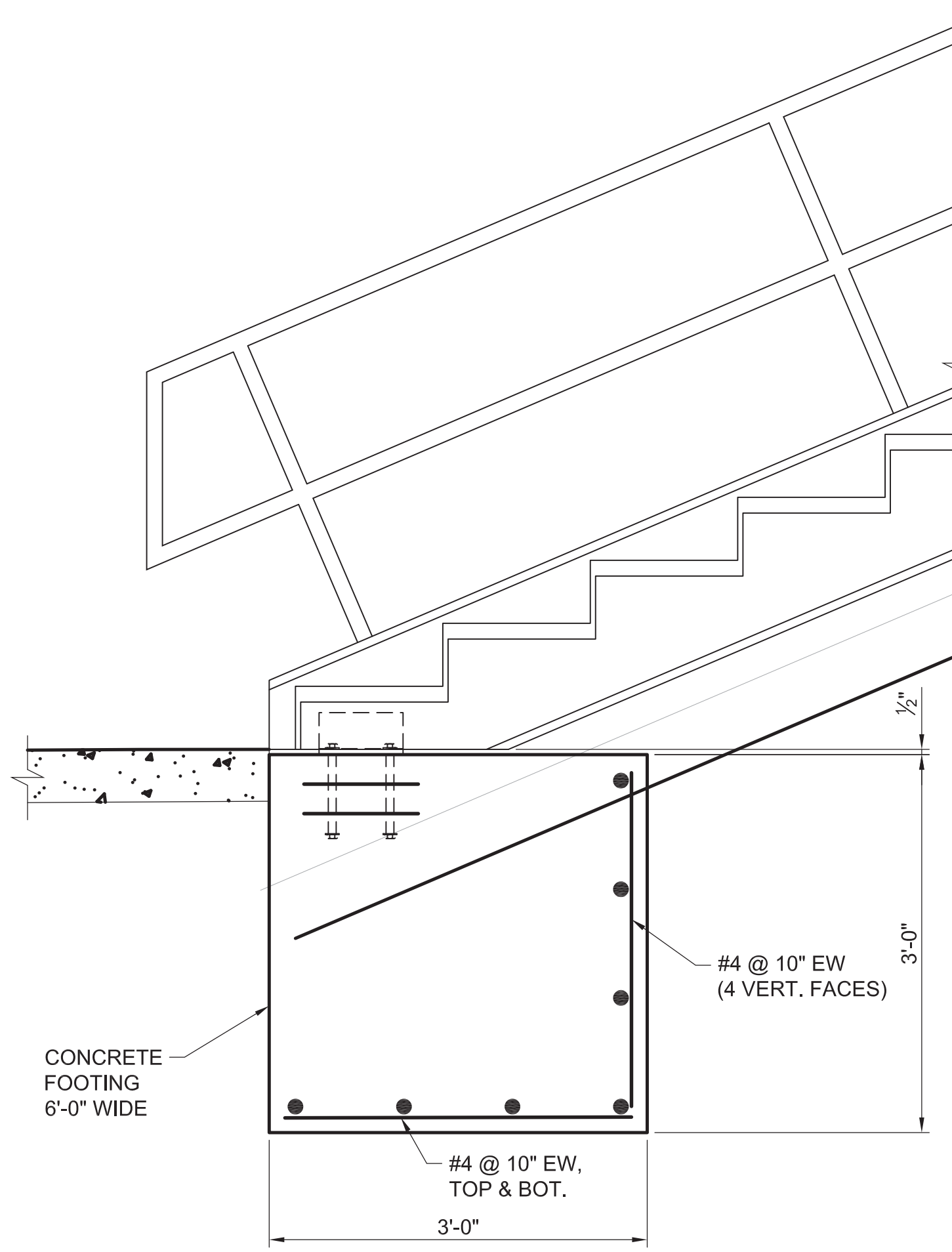
Project No.: RVA 1301  
 Drawn By: TPA  
 Checked By: EPV  
 Date: 10/24/2014  
 Scale: AS SHOWN

**SHEET TITLE**

**STRUCTURAL ELEVATIONS - STAIR #1**

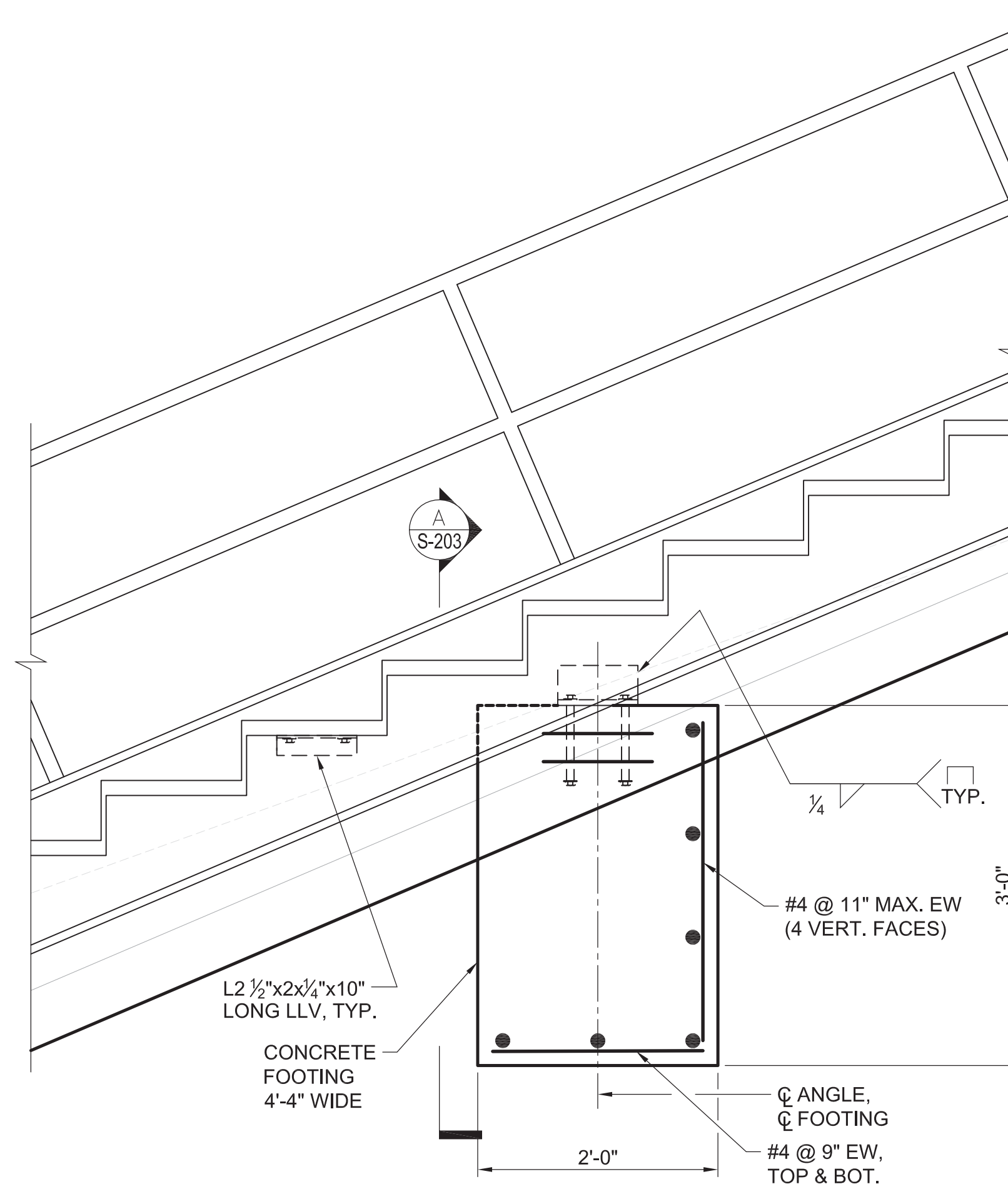
**SHEET NO.**

**S-202**



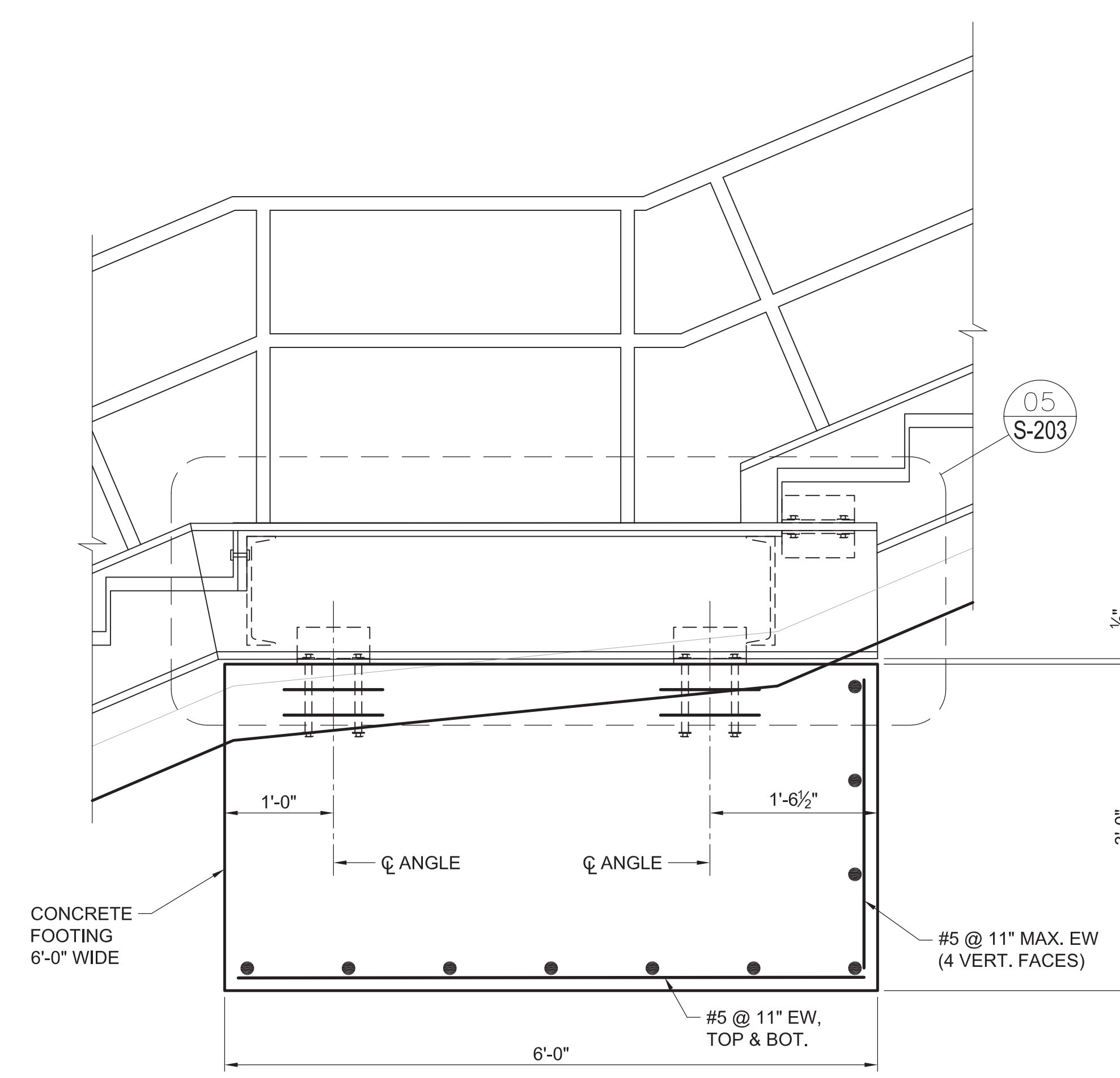
**01 LOWER LANDING DETAIL**  
SCALE: 1" = 1'-0"

NOTE:  
TOP BARS NOT SHOWN FOR CLARITY.



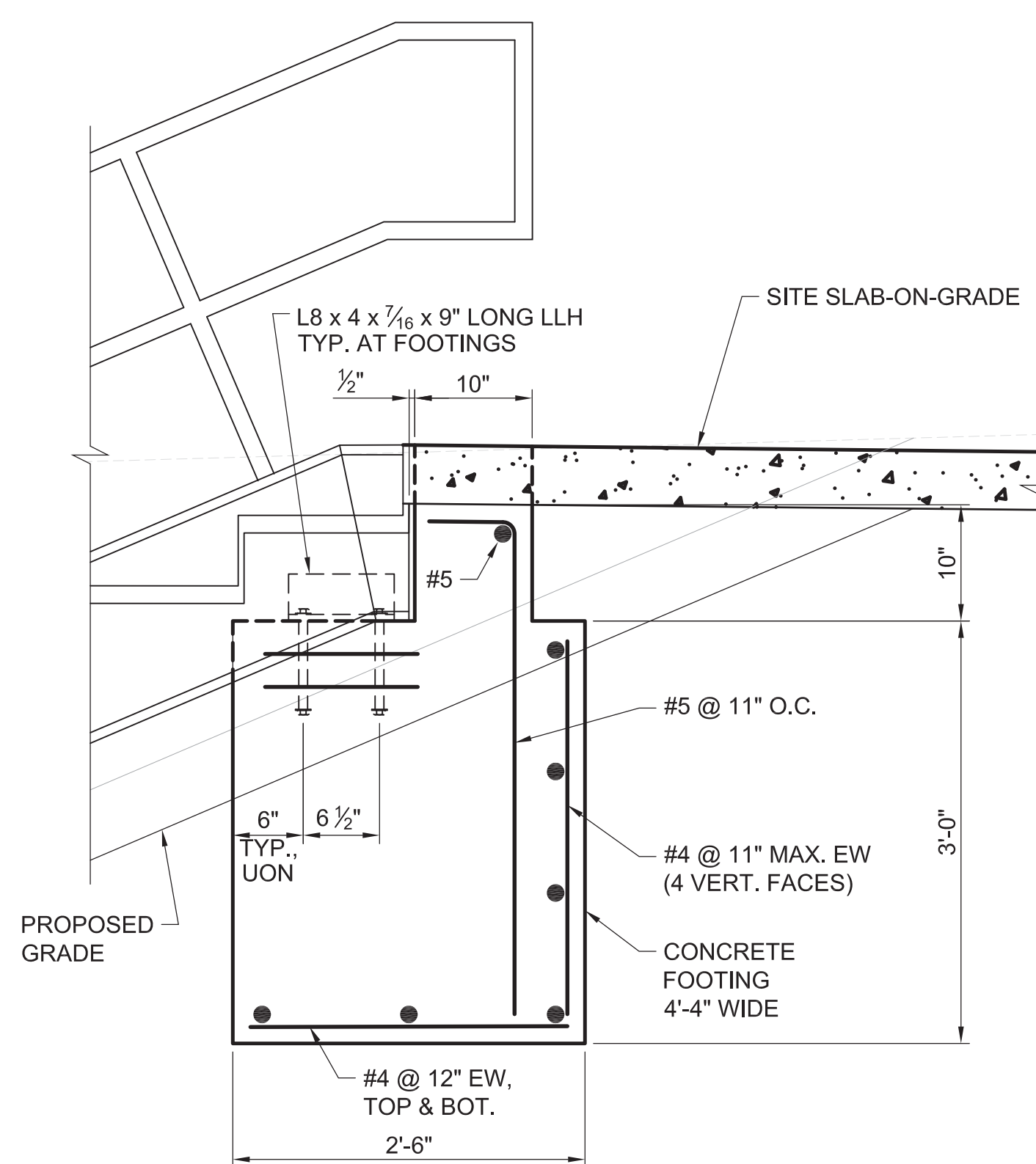
**02 STRINGER FOOTING DETAIL**  
SCALE: 1" = 1'-0"

NOTE:  
TOP BARS NOT SHOWN FOR CLARITY.



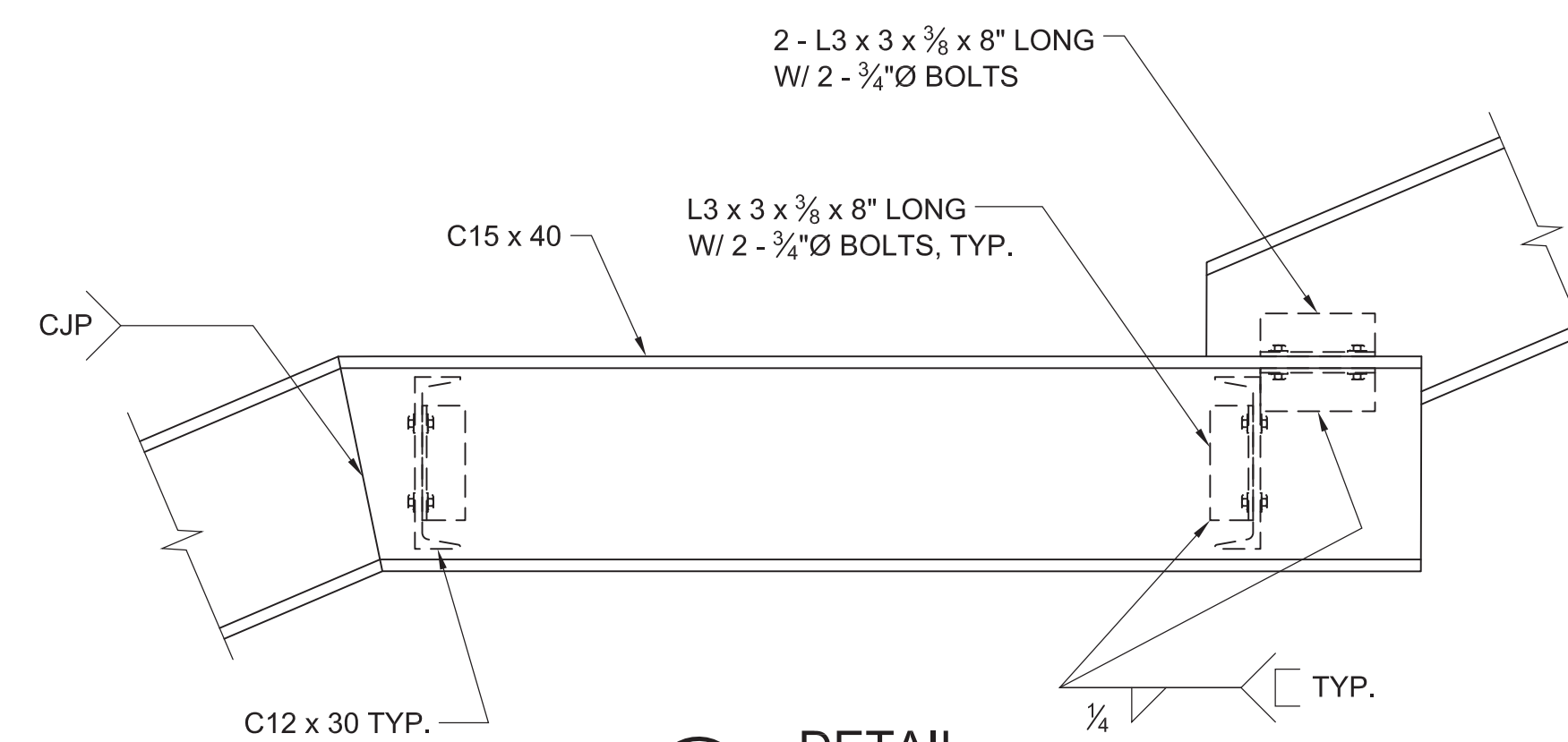
**03 INTERMEDIATE LANDING DETAIL**  
SCALE: 1" = 1'-0"

NOTE:  
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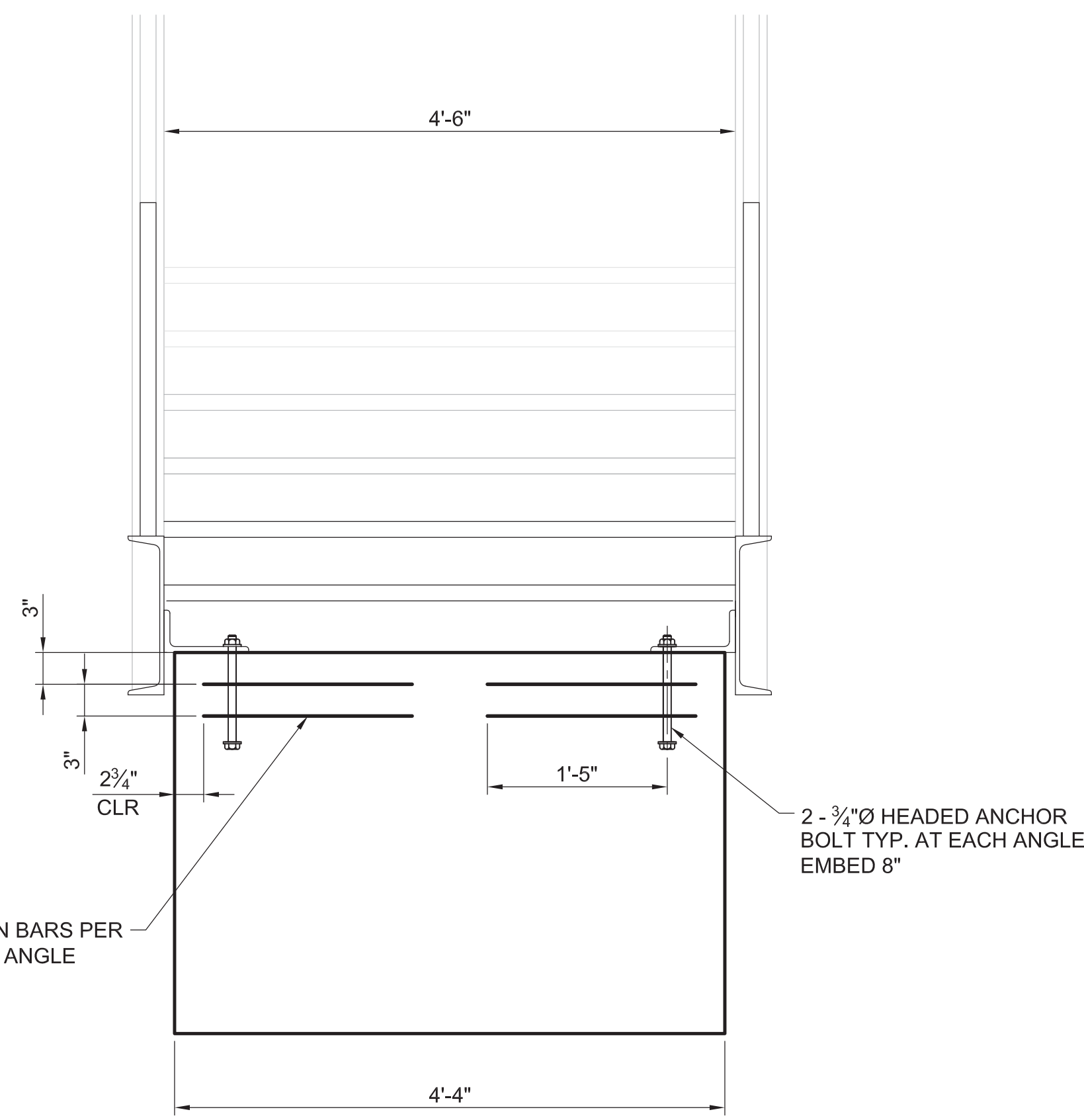


**04 UPPER LANDING FOOTING**  
SCALE: 1" = 1'-0"

NOTE:  
TOP BARS NOT SHOWN FOR CLARITY.



**05 DETAIL**  
SCALE: 1" = 1'-0"



**A STRINGER FOOTING SECTION**  
SCALE: 1" = 1'-0"

NOTE:  
REINFORCING OTHER THAN HAIRPIN BARS NOT SHOWN FOR CLARITY.

**SHEET NOTES**

- REFER TO CIVIL DRAWINGS FOR CONCRETE SLABS-ON-GRADE.
- REFER TO LANDSCAPE GRADING PLAN FOR STAIR LANDING ELEVATIONS AND GRADING TO FOOTING AT BASE OF STAIRS.
- ALL STEEL FRAMING, BOLTS AND ANCHOR BOLTS SHALL BE GALVANIZED.
- ALL FOOTINGS SHALL EXTEND 2'-0" MINIMUM BELOW THE MINIMUM ELEVATION OF THE ADJACENT GRADE.

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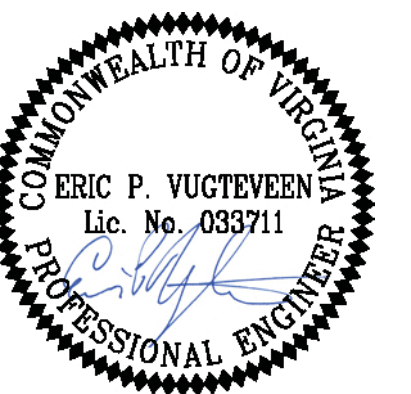
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**LEGEND**

- LLH LONG LEG HORIZONTAL  
LLV LONG LEG VERTICAL

SEAL/SIGNATURE



ISSUE

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 03-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

**KEY MAP**

**SHEET INFORMATION**

Project No.: RVA 1301  
Drawn By: TPA  
Checked By: EPV  
Date: 10/24/2014  
Scale: AS SHOWN

**SHEET TITLE**

**STRUCTURAL ELEVATIONS - STAIR #1**

SHEET NO.

**S-203**

**PROJECT INFORMATION**

Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
 RICHMOND, VIRGINIA

**CITY OF RICHMOND**  
 900 E. Broad St.  
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 www.richmondgov.com

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**Marine & Structural Engineering MOFFATT & NICHOL**  
 1100 Soulders Parkway, Suite 350  
 Richmond, VA 23225  
 www.moffattnichol.com

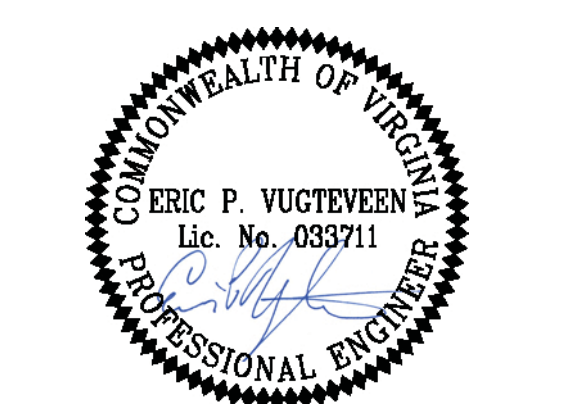
**Electrical Engineering HCYU Building Engineered Solutions**  
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 www.dmy-inc.com

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**ISSUE**

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 02-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

**KEY MAP**

**SHEET INFORMATION**  
 Project No.: RVA 1301  
 Drawn By: TPA  
 Checked By: EPV  
 Date: 10/24/2014  
 Scale: AS SHOWN

**SHEET TITLE**

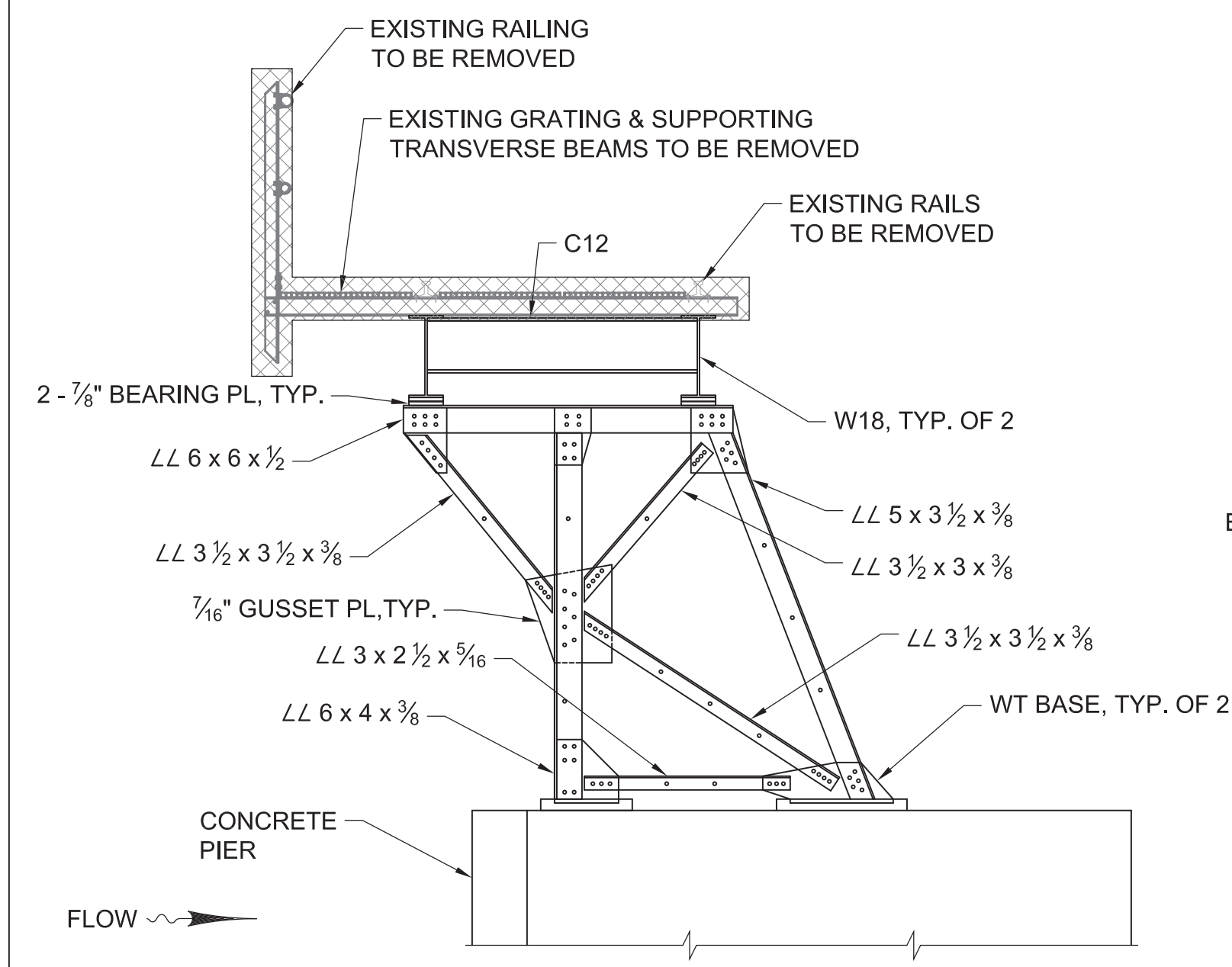
**STRUCTURAL SECTIONS - STEEL FRAMING**

**SHEET NO.**

**S-301**

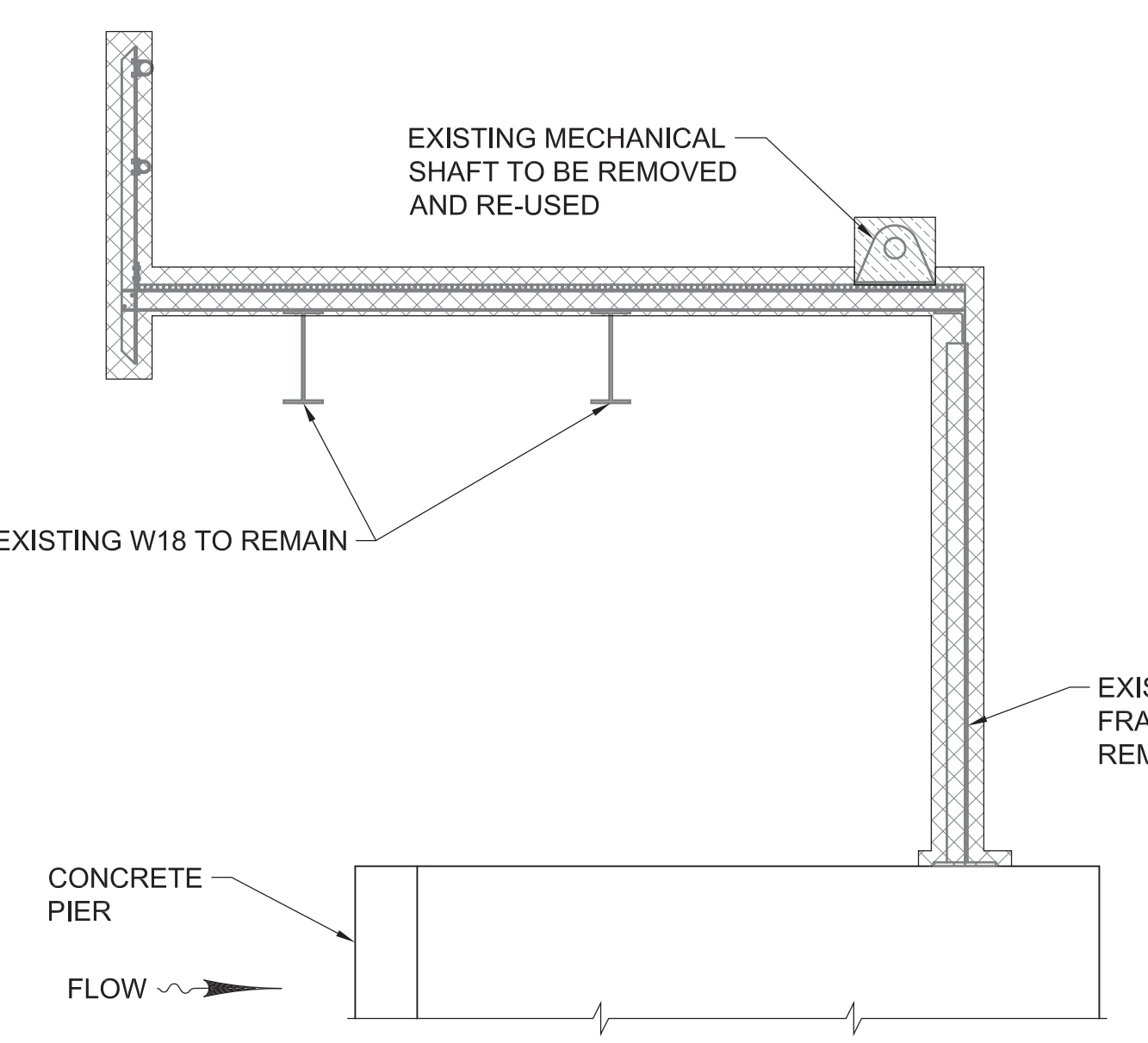
**SHEET NOTES**

- REFER TO ARCHITECTURAL DRAWINGS FOR THE EXTENT OF PARTIAL STRUCTURE DEMOLITION.

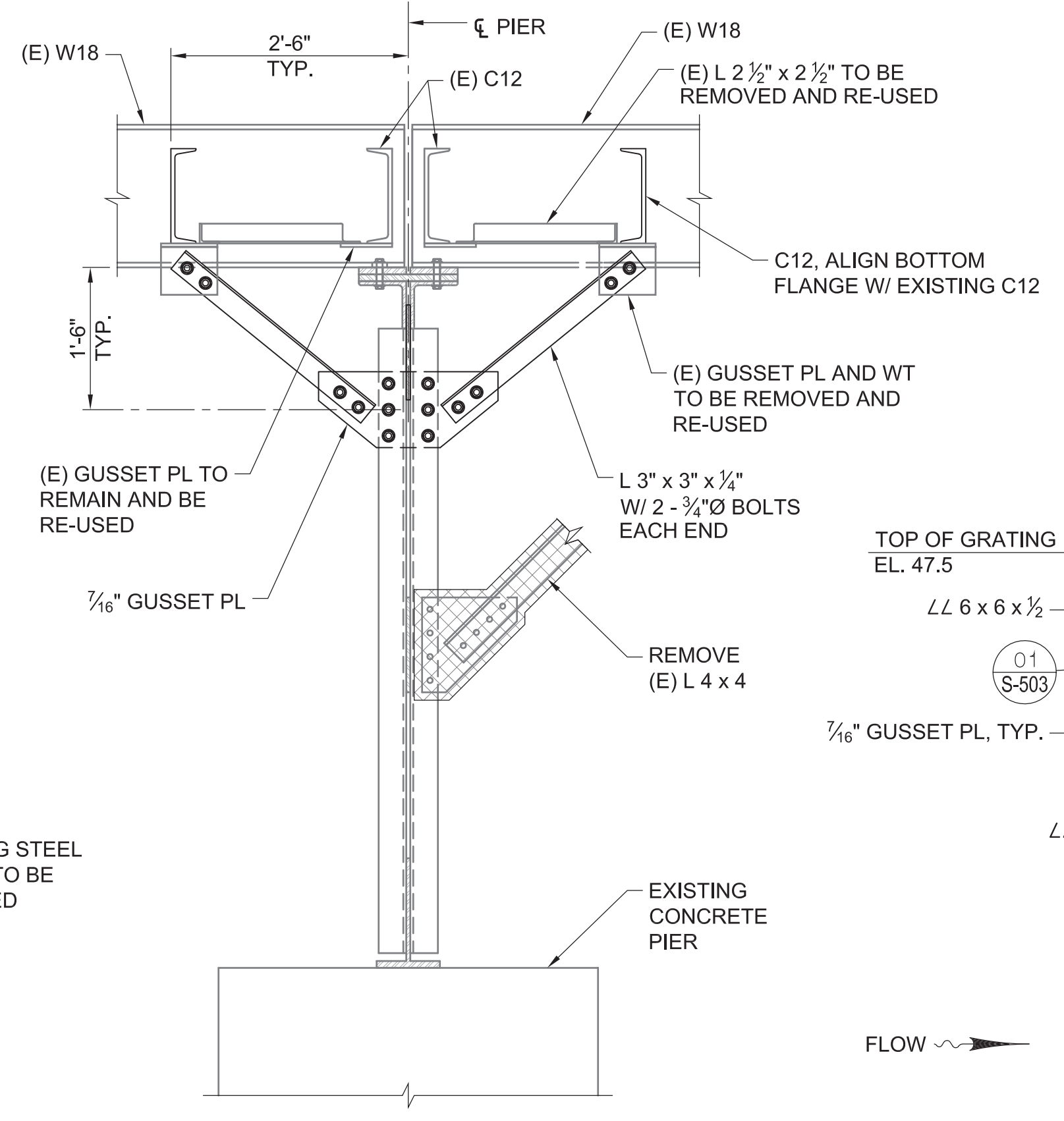


**EXISTING TYPICAL SECTION PIERS 11-38**  
 SCALE: 3/8" = 1'-0"

NOTE:  
 AT PIERS 37 AND 38 ALL STEEL FRAMING MEMBERS OF THE VERTICAL FRAMES ARE TO REMAIN.

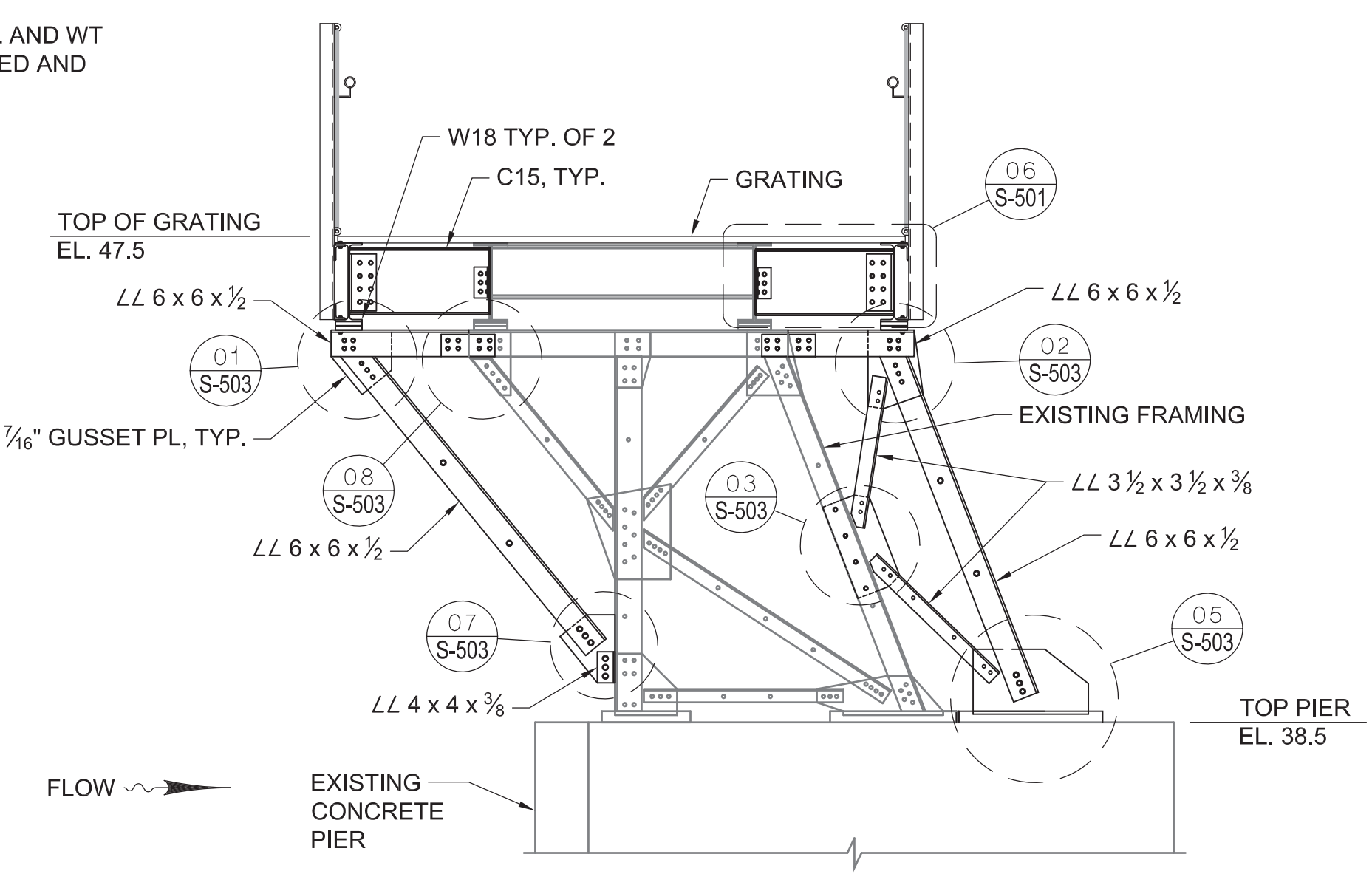


**EXISTING FRAMING - PIER 19**  
 SCALE: 3/8" = 1'-0"



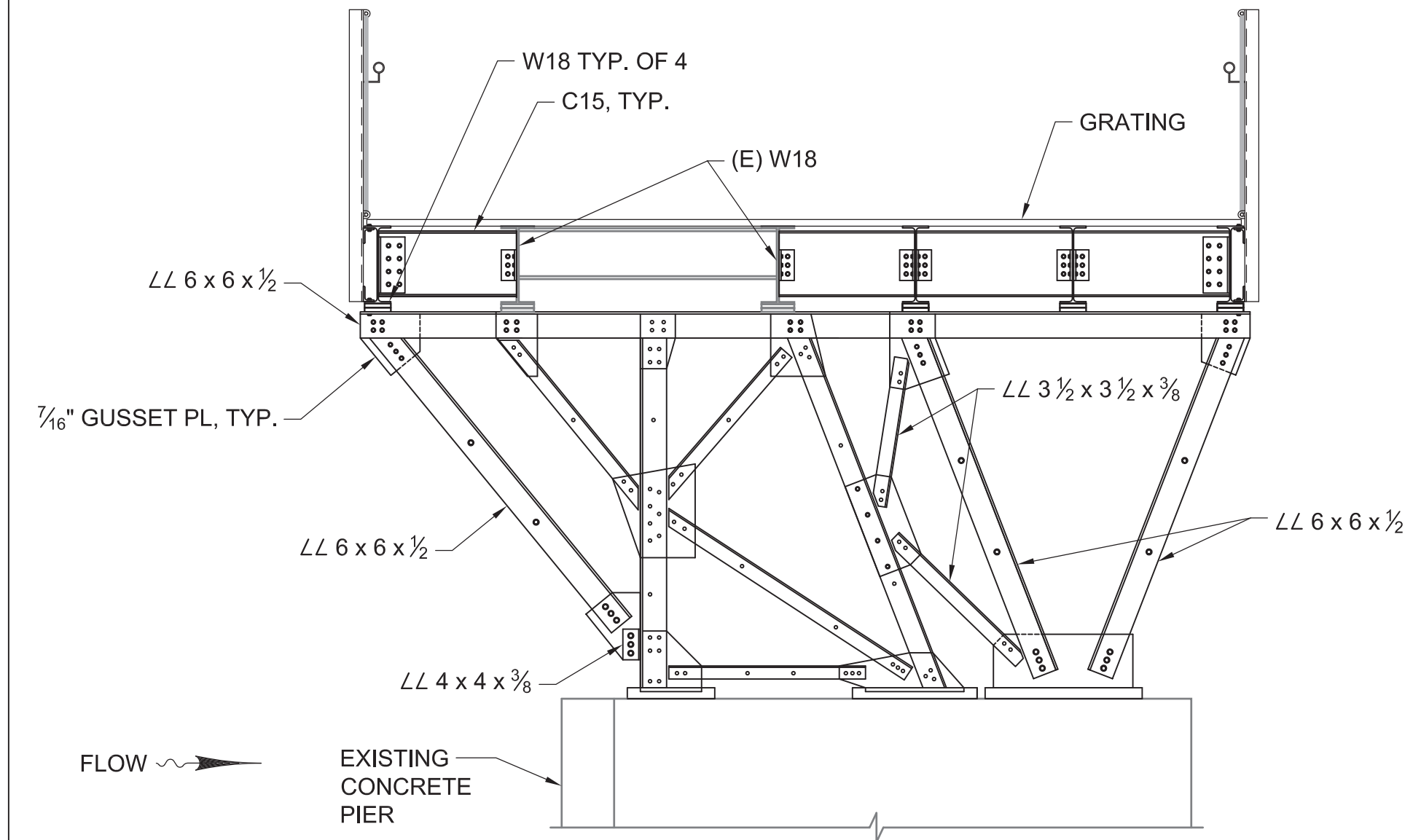
**TYPICAL LONGITUDINAL KICKER DETAIL**  
 SCALE: 3/4" = 1'-0"

NOTE:  
 1. NEW KICKER AND CONNECTION PLATES SHALL BE INSTALLED ON EACH STEEL TRUSS, ONE ON EACH SIDE OF TRUSS.



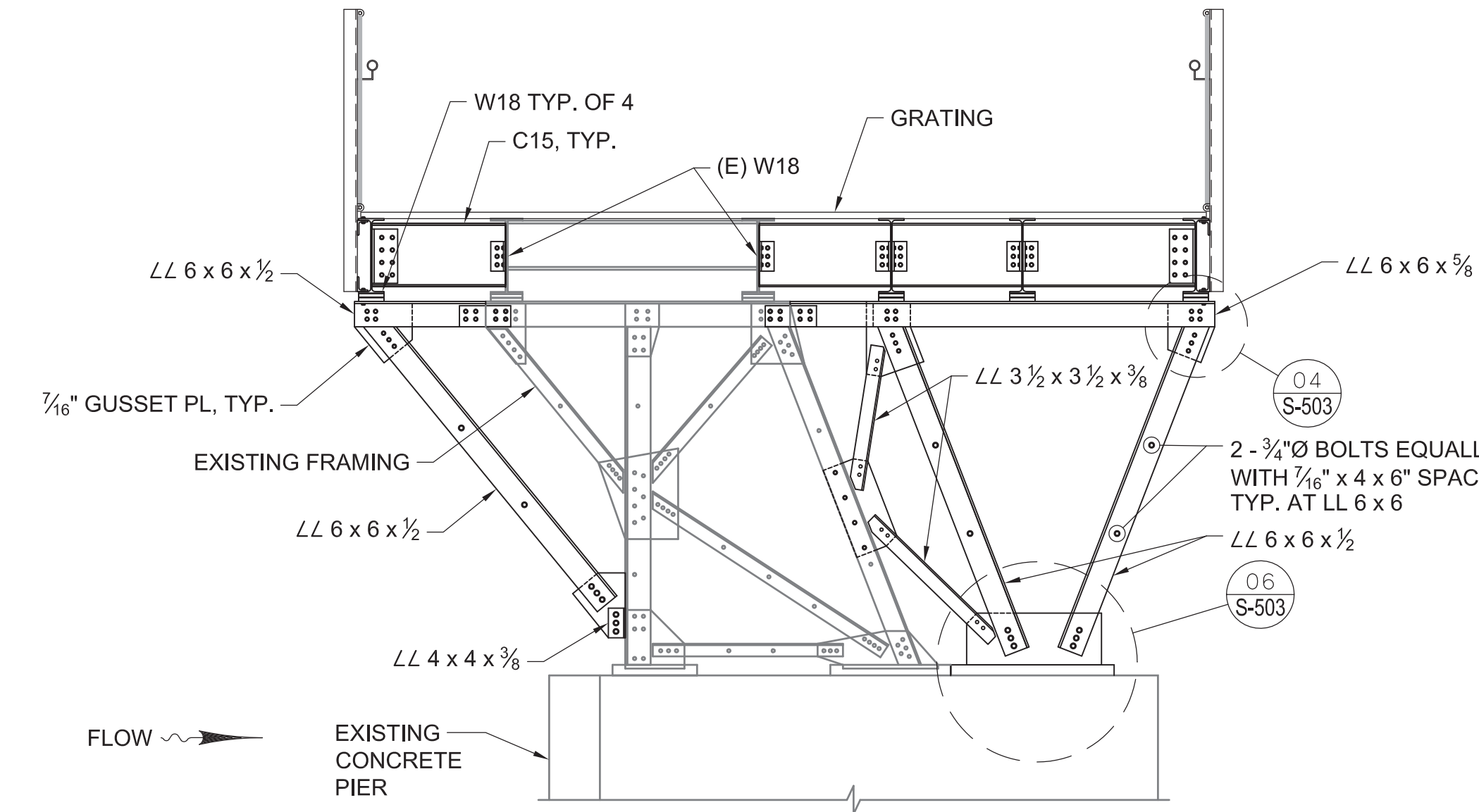
**SECTION AT PIERS 11- 18, 21-25, 27-32, 34-38**  
 SCALE: 3/8" = 1'-0"

NOTE:  
 THE UPRIVER AND DOWNRIVER L6x6 MEMBERS SHALL BE ERECTED PARALLEL TO THE ADJACENT EXISTING MEMBER, TYPICAL.



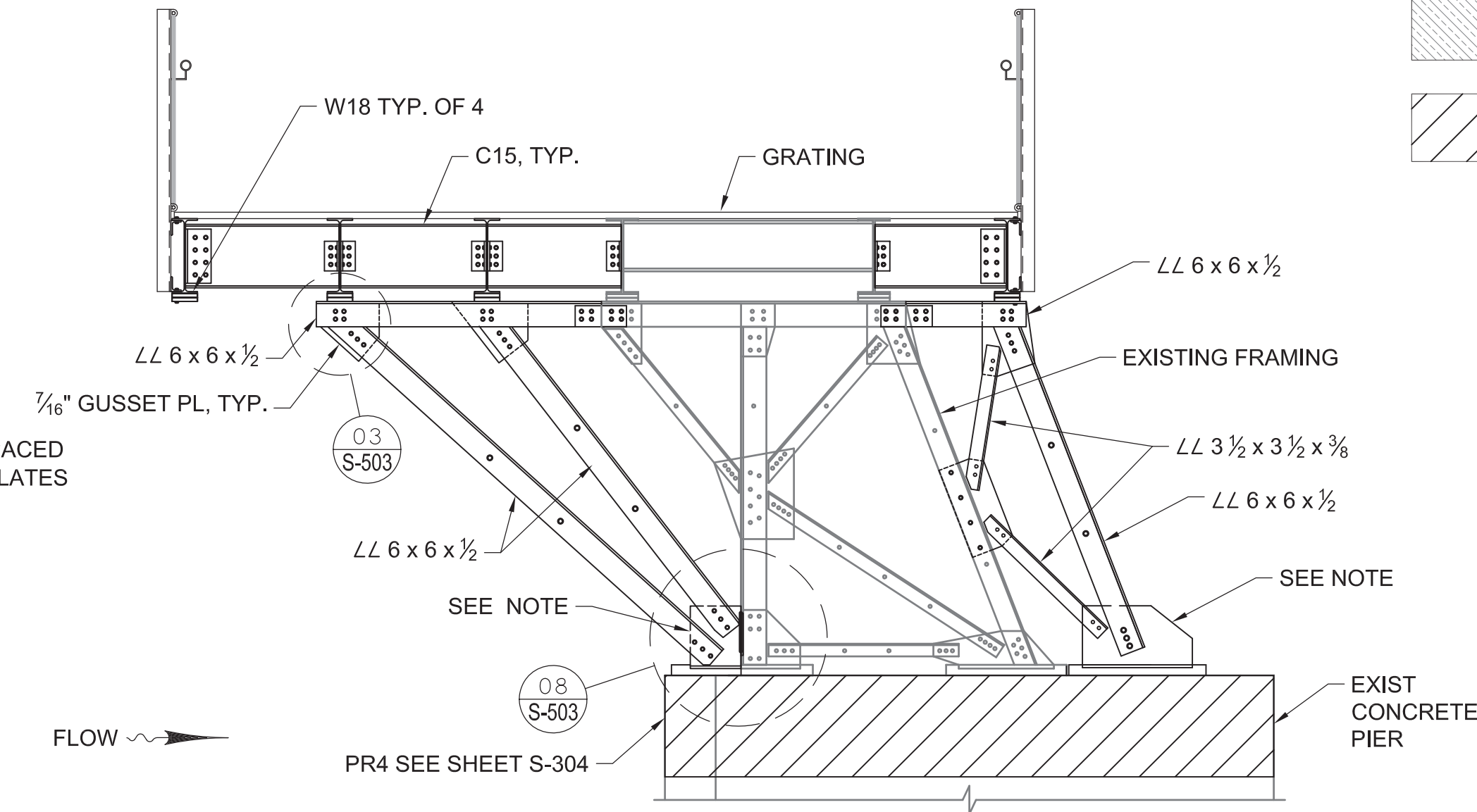
**SECTION AT PIER 19**  
 SCALE: 3/8" = 1'-0"

NOTES:  
 1. NO ADDITIONAL FRAMING, EQUIPMENT OR TOOLS SHALL BE PRESENT ON THE EXISTING W18 GIRDERS WHILE THE VERTICAL FRAME IS BEING INSTALLED.  
 2. INSTALL THE BASE PLATES CENTERED ON THE PIER WIDTH.  
 3. ERECT THE VERTICAL FRAME MEMBERS TO MATCH THE MEASUREMENTS, ANGLES AND ELEVATIONS OF LIKE FRAMES AT THE ADJACENT PIERS.  
 4. THE FRAME SHALL BE INSTALLED SUCH THAT THE ELEVATION OF THE TOP OF EXISTING W18 GIRDERS, ABOVE THE FRAME IS WITHIN ±1/2" OF THE ENDS OF THE GIRDERS.



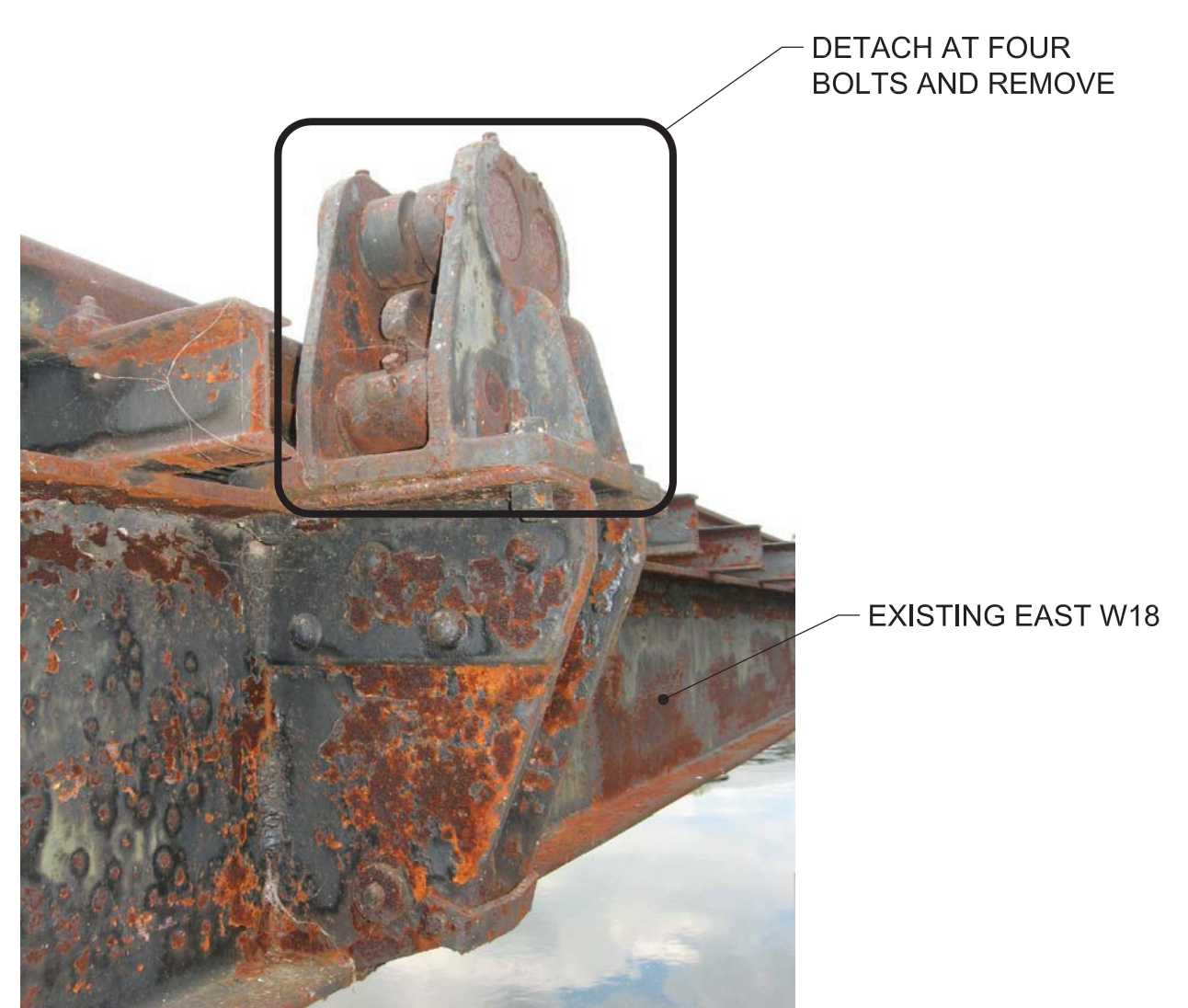
**SECTION AT PIERS 20, 26 OVERLOOK**  
 SCALE: 3/8" = 1'-0"

NOTE:  
 REFER TO SECTION "A" FOR TYPICAL CONNECTIONS NOT SHOWN.

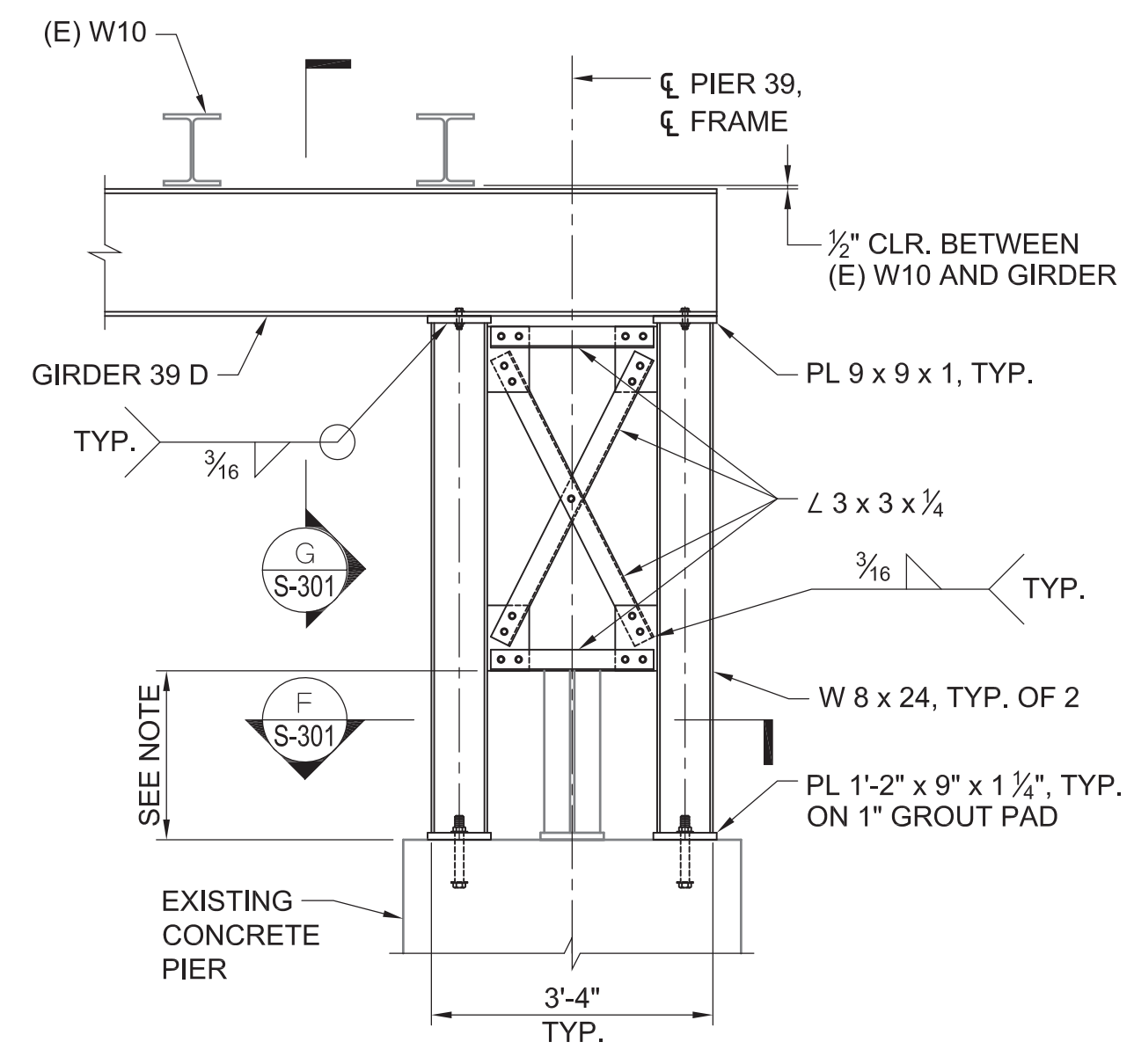


**SECTION AT PIER 33 OVERLOOK**  
 SCALE: 3/8" = 1'-0"

NOTES:  
 1. REFER TO SECTION "A" FOR TYPICAL CONNECTIONS NOT SHOWN.  
 2. BASE PLATES SHALL NOT BE INSTALLED PRIOR TO PIER REPAIR PR4 BEING COMPLETED AND WITHOUT SUFFICIENT TIME FOR THE REPAIR MATERIALS TO CURE.

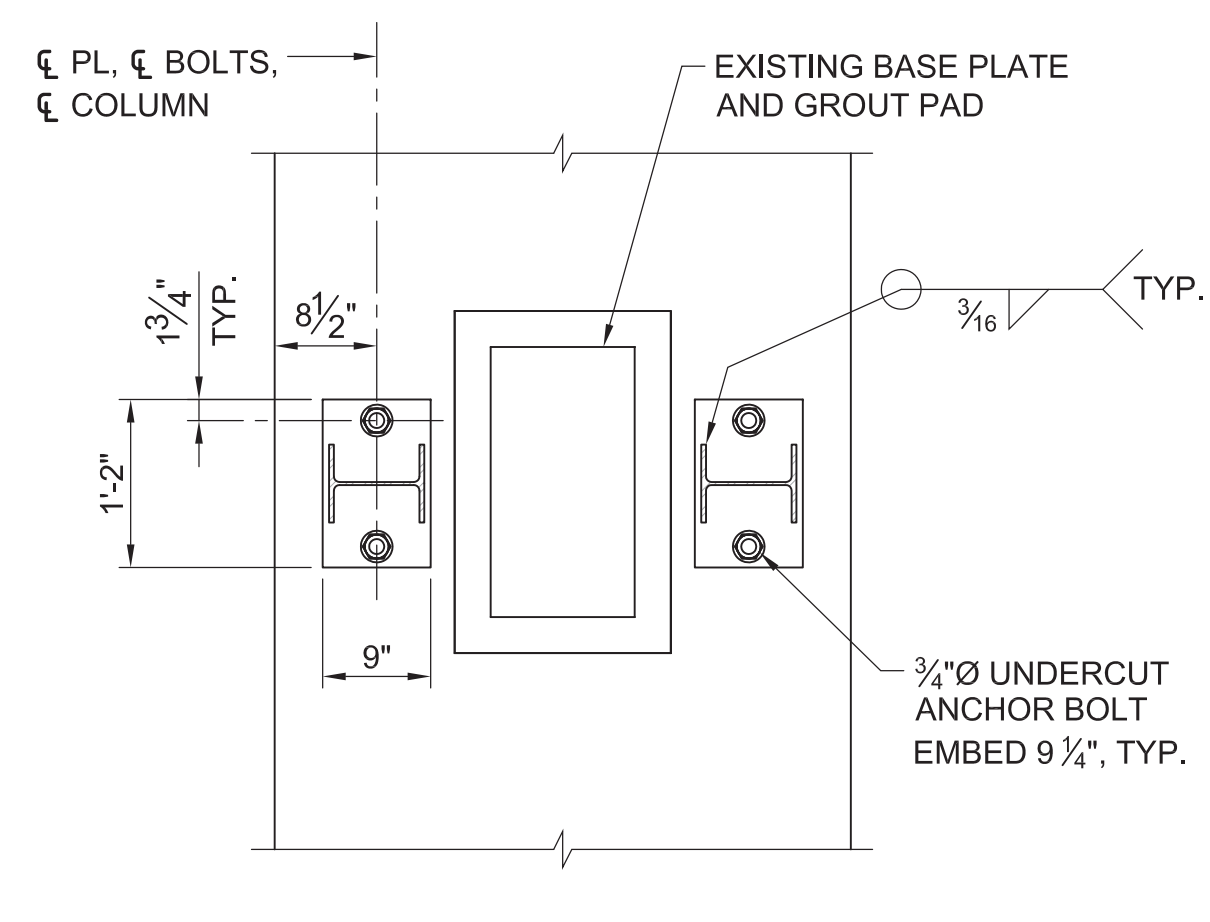


NOTE:  
 REMOVE BRACKETS SHOWN AT ALL LOCATIONS, APPROXIMATELY 50' ALONG THE EAST SIDE OF EXISTING FRAMING.

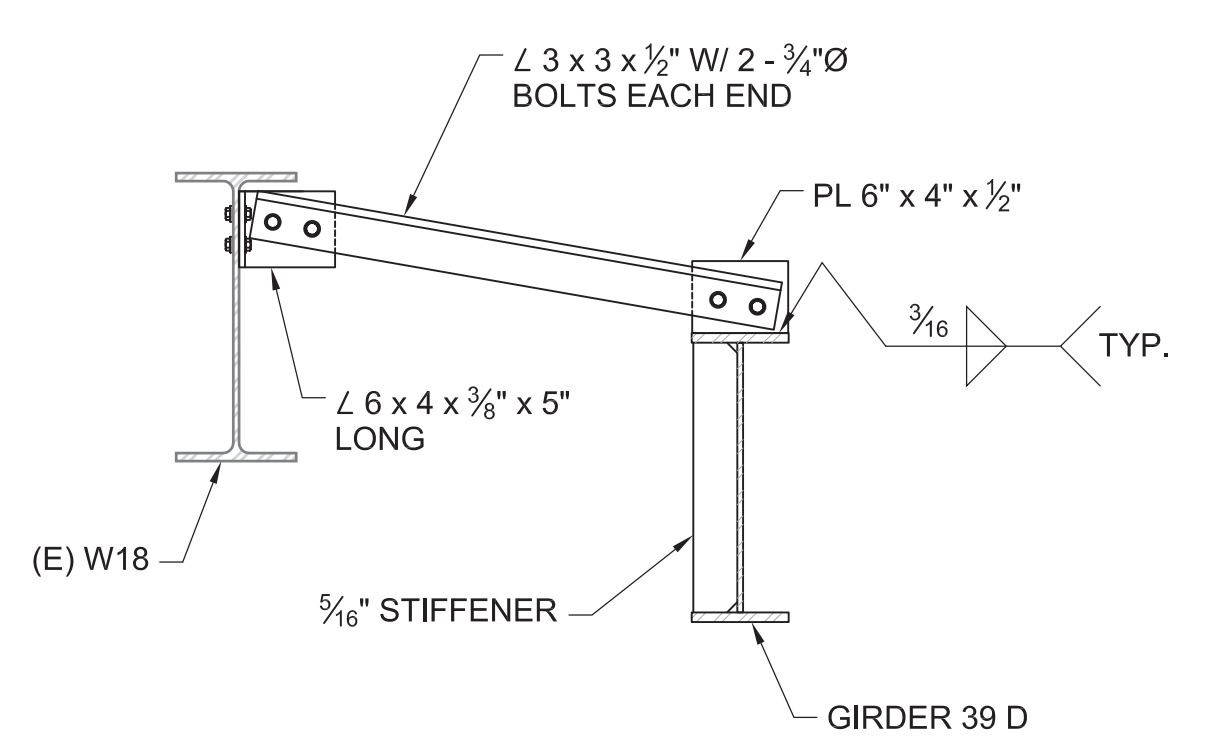


**FRAME ELEVATION**  
 SCALE: 1/2" = 1'-0"

NOTES:  
 CONTRACTOR TO COORDINATE THE LOCATION OF THE LOWER, HORIZONTAL L 3 x 3 WITH THE EXISTING FRAME.



**COLUMN BASE PLATE DETAIL**  
 SCALE: 3/4" = 1'-0"



**GIRDER 39 D BRACING**  
 SCALE: 1" = 1'-0"

## SHEET NOTES

- REFER TO SHEET S-504 FOR GIRDER BEARING DETAILS.
- REFER TO THE SPECIFICATIONS FOR THE DOWEL ADHESIVE REQUIREMENTS.

### PROJECT INFORMATION

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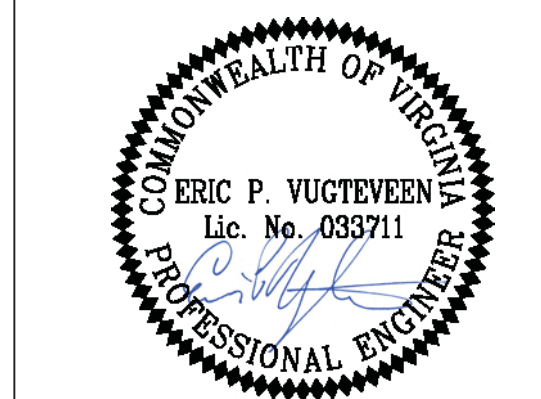
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### KEY MAP

### SHEET INFORMATION

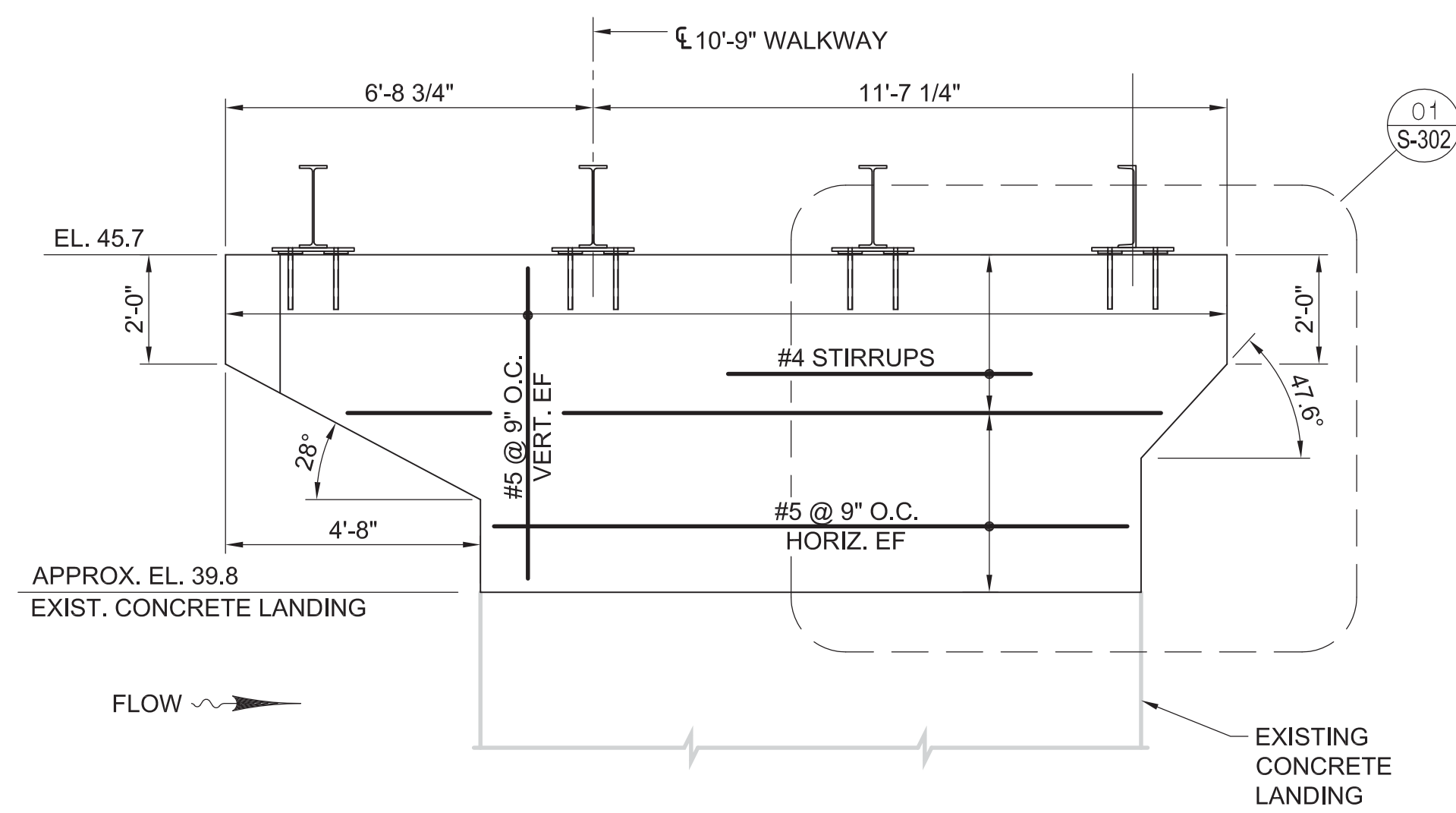
Project No.: RVA 1301  
 Drawn By: TPA  
 Checked By: EPV  
 Date: 10/24/2014  
 Scale: AS SHOWN

### SHEET TITLE

**STRUCTURAL SECTIONS & CONCRETE PIER REPAIRS**

SHEET NO.

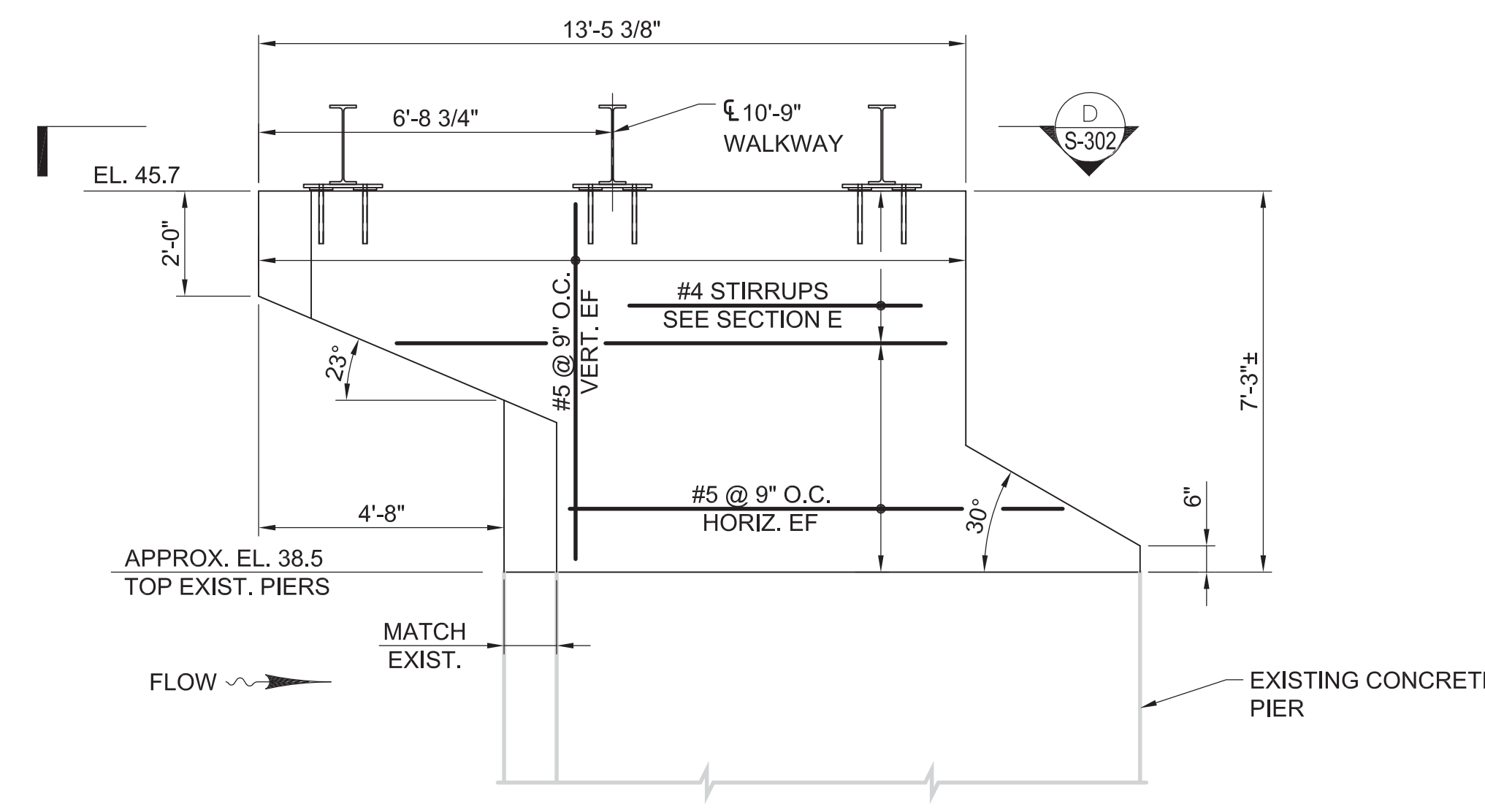
**S-302**



NOTE:  
 REFER TO SECTION "E" AND DETAIL "01" THIS SHEET FOR STIRRUP DETAILS.

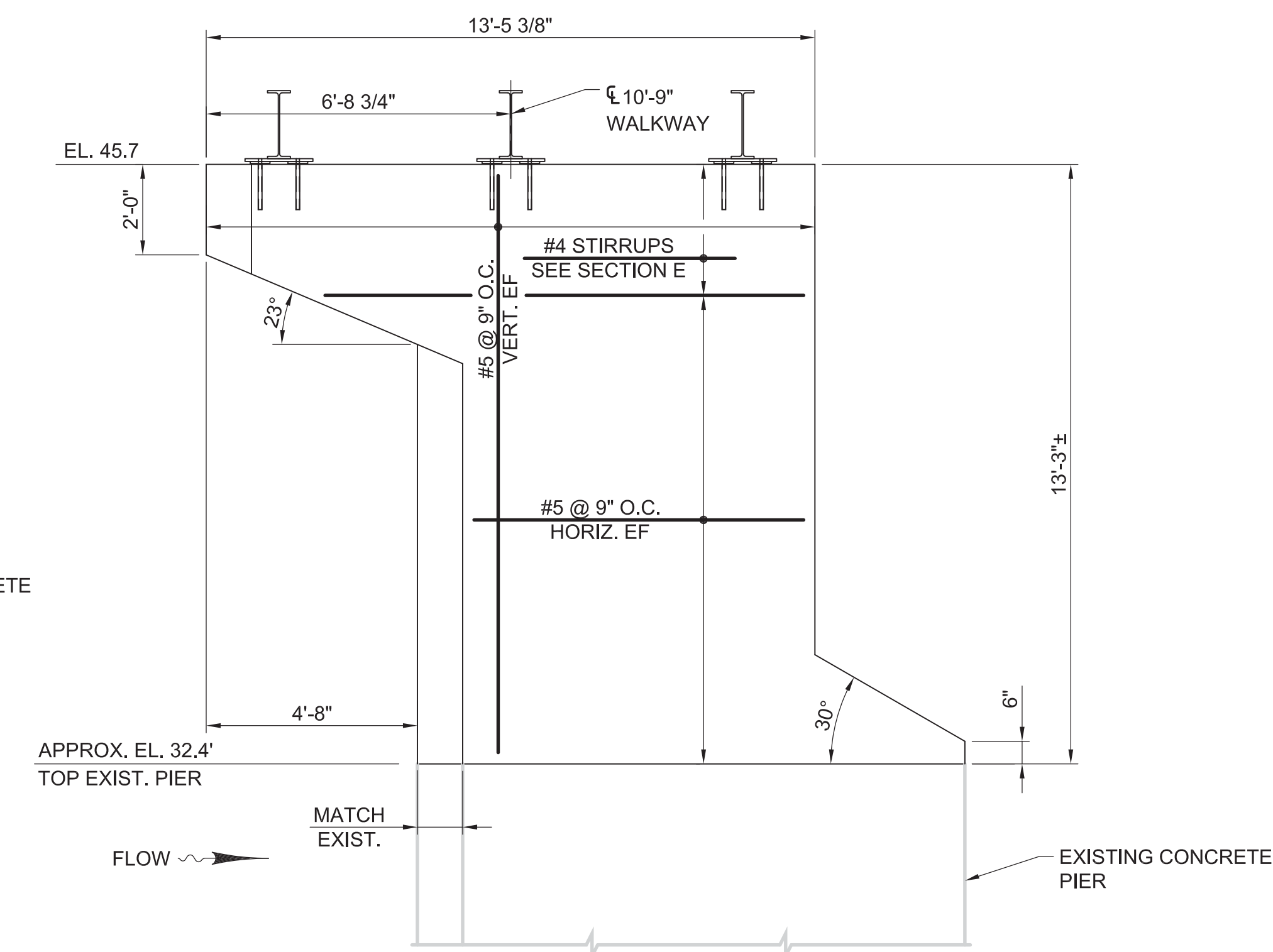
**A REINFORCED CONCRETE PIER ELEVATION - PIER 00**

SCALE: 3/8" = 1'-0"  
 (WALKWAY GRATING NOT SHOWN FOR CLARITY)



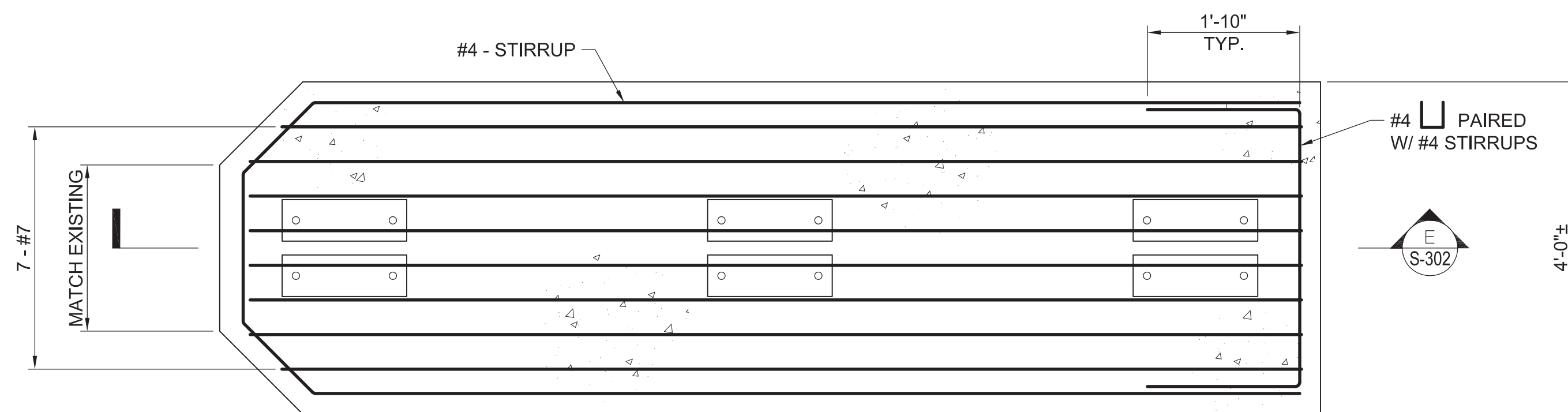
**B REINFORCED CONCRETE PIER ELEVATION PIER 01-02 AND 04-10**

SCALE: 3/8" = 1'-0"  
 (WALKWAY GRATING NOT SHOWN FOR CLARITY)



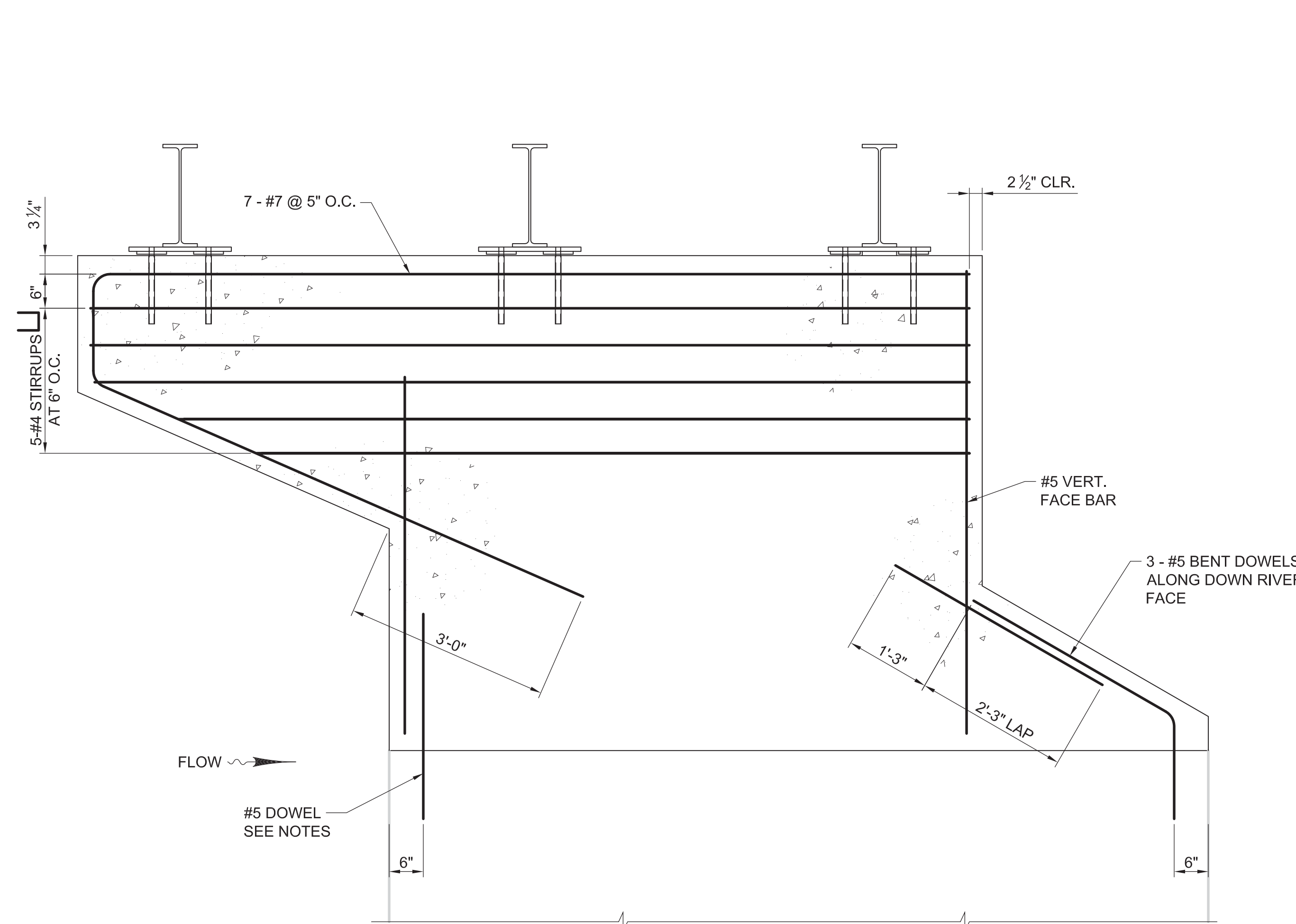
**C REINFORCED CONCRETE PIER ELEVATION - PIER 03**

SCALE: 3/8" = 1'-0"  
 (WALKWAY GRATING NOT SHOWN FOR CLARITY)



**D TYPICAL PIER REINFORCING PLAN**

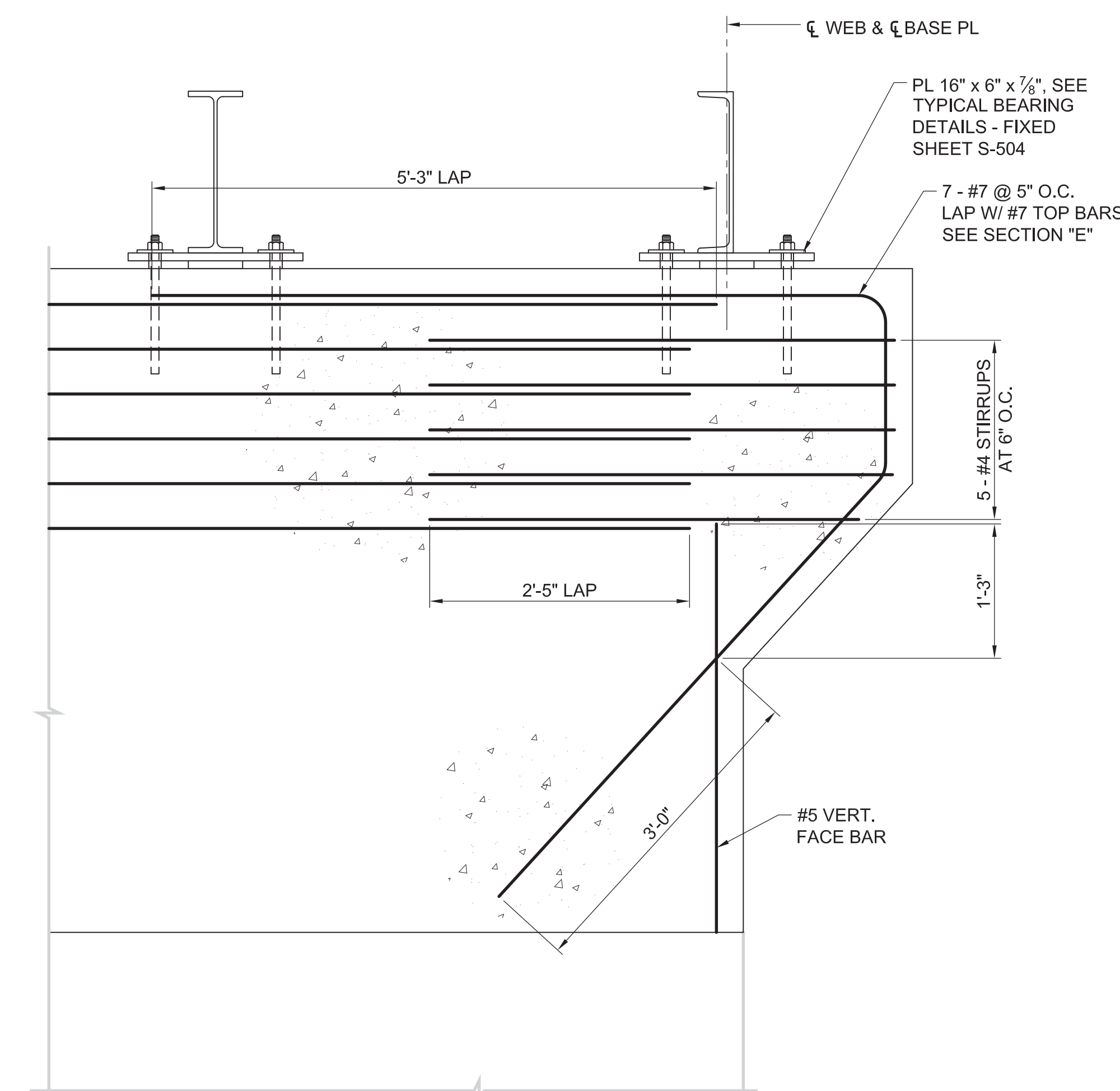
SCALE: 3/4" = 1'-0"



**E TYPICAL PIER REINFORCING SECTION**

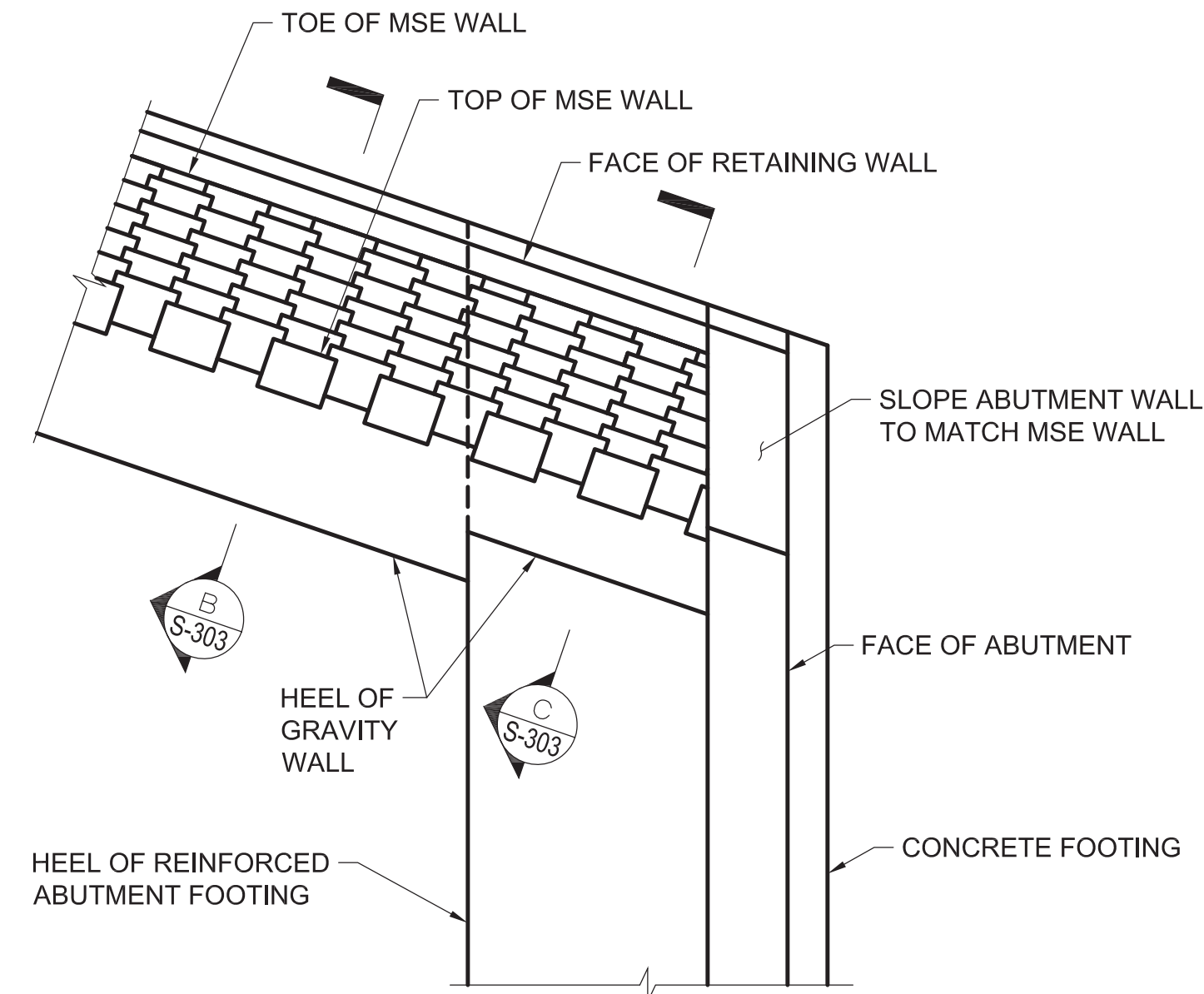
SCALE: 3/4" = 1'-0"

- NOTES:
- SPACE DOWELS AT 18" ON CENTER ALONG PERIMETER OF PIER AND NOT MORE THAN 6" AWAY FROM A VERTICAL BAR.
  - EMBED DOWELS 9" IN PIER WITH EPOXY ADHESIVE.

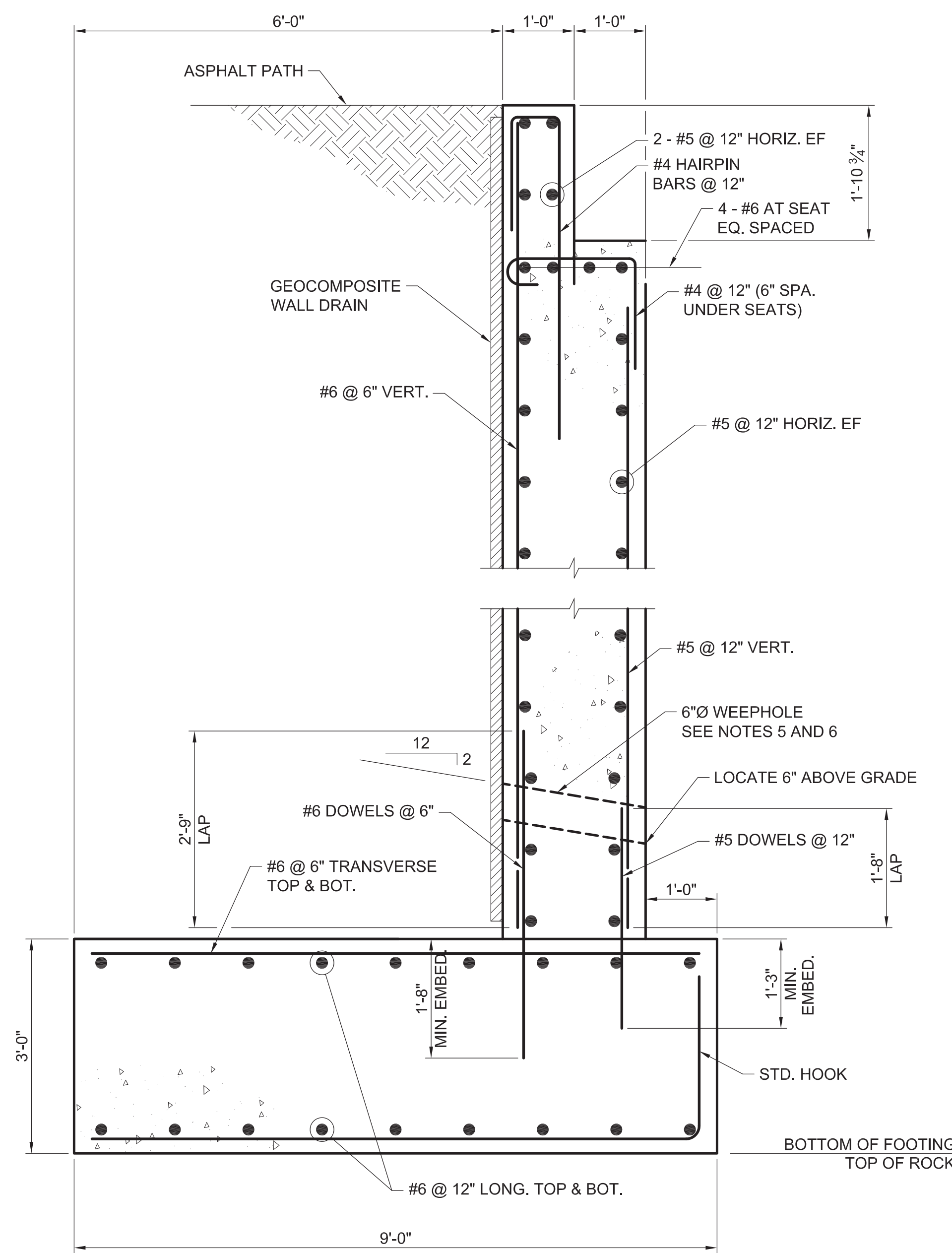


**01 PIER REINFORCING DETAIL**

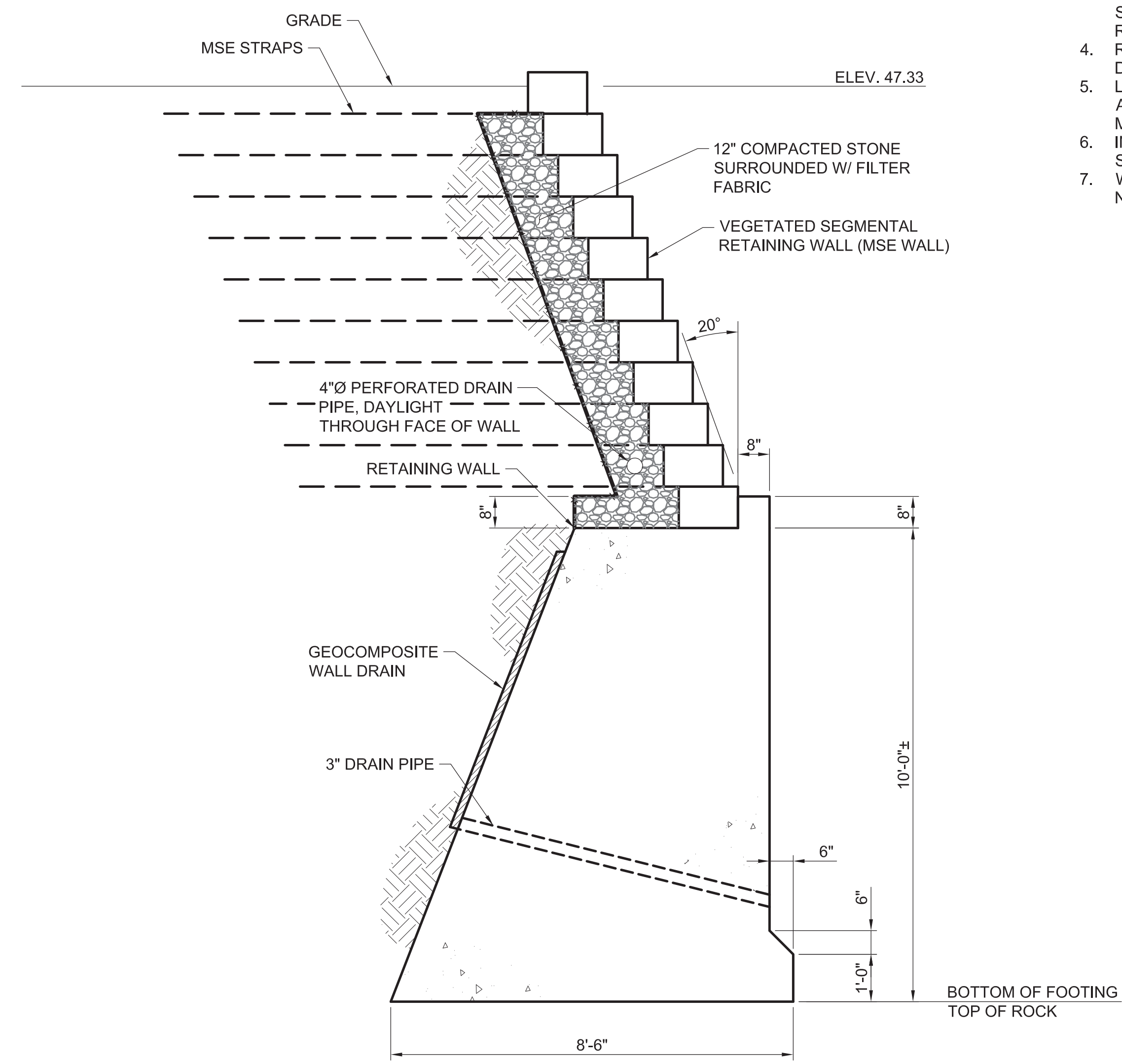
SCALE: 1" = 1'-0"  
 (SECTION AT PIER CENTERLINE)



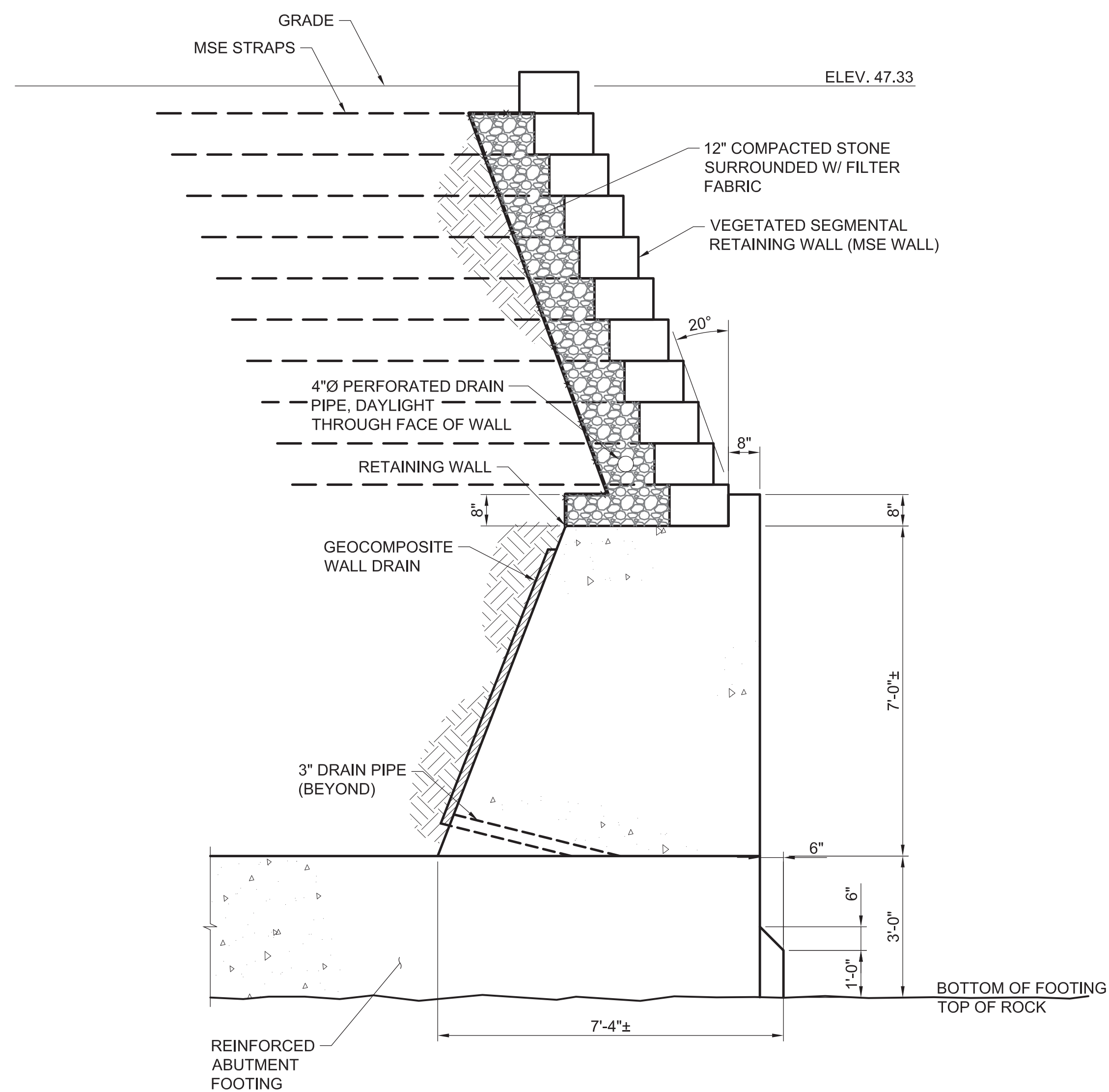
**01 PARTIAL PLAN**  
SCALE: 1/4" = 1'-0"



**A SOUTH ABUTMENT SECTION**  
SCALE: 3/8" = 1'-0"

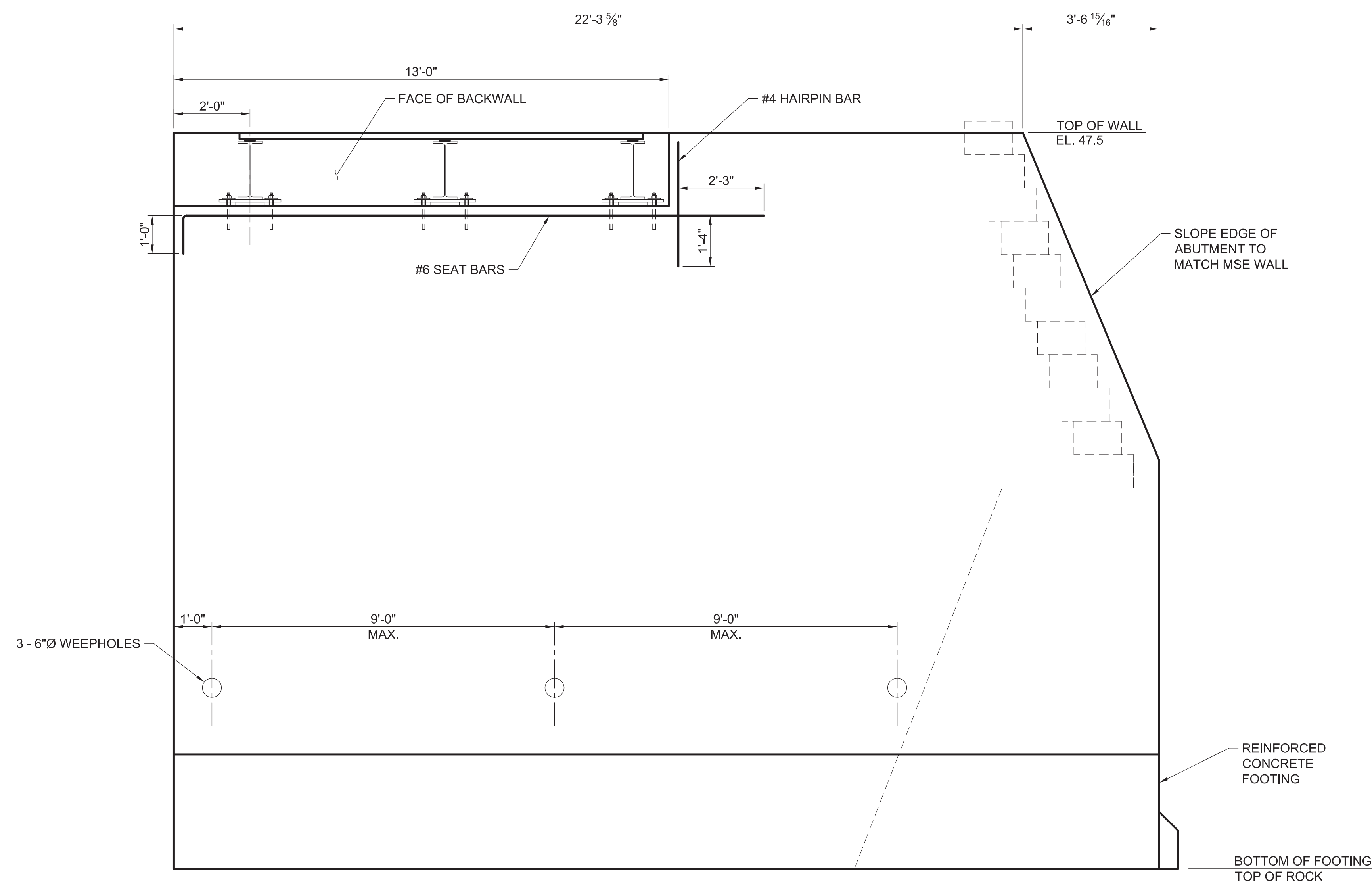


**B SECTION**  
SCALE: 1/2" = 1'-0"



**C SECTION**  
SCALE: 1/2" = 1'-0"

NOTE: ABUTMENT FOOTING REINFORCING NOT SHOWN FOR CLARITY



**D SOUTH ABUTMENT ELEVATION**  
SCALE: 1/2" = 1'-0"

NOTE: REFER TO SECTION "A" THIS SHEET FOR BALANCE OF REINFORCING INFORMATION

**SHEET NOTES**

- REFER TO LANDSCAPE GRADING PLANS FOR WALKWAY ELEVATIONS ON GRADE.
- BOTTOM OF ABUTMENT/TOP OF ROCK ELEVATION WAS ASSUMED AS 28.0- FEET. CONTRACTOR SHALL NOTIFY THE ENGINEER IF THE TOP OF ROCK ELEVATION VARIES BY MORE THAN 6-INCHES.
- UNLESS OTHERWISE NOTED, LAP SPLICES SHALL BE CLASS B FOR HORIZONTAL REINFORCING.
- REFER TO SHEET S-504 FOR GIRDER BEARING DETAILS.
- LOCATE WEEPHOLES 1-FOOT FROM END OF ABUTMENT AND SPACED AT 9-FOOT MAXIMUM, HORIZONTALLY.
- INVERT OF WEEPHOLES AND DRAIN PIPES SHALL BE 6-INCHES ABOVE GRADE. WEEPHOLES SHALL BE FORMED FROM NON-RIGID TUBING.

**PROJECT INFORMATION**

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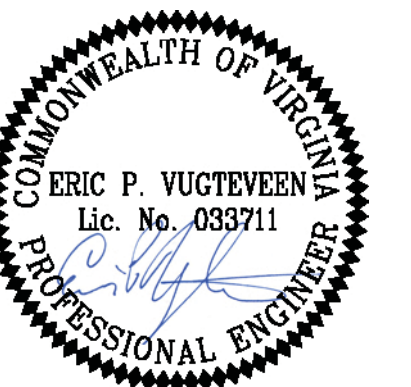
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**KEY MAP**

**SHEET INFORMATION**

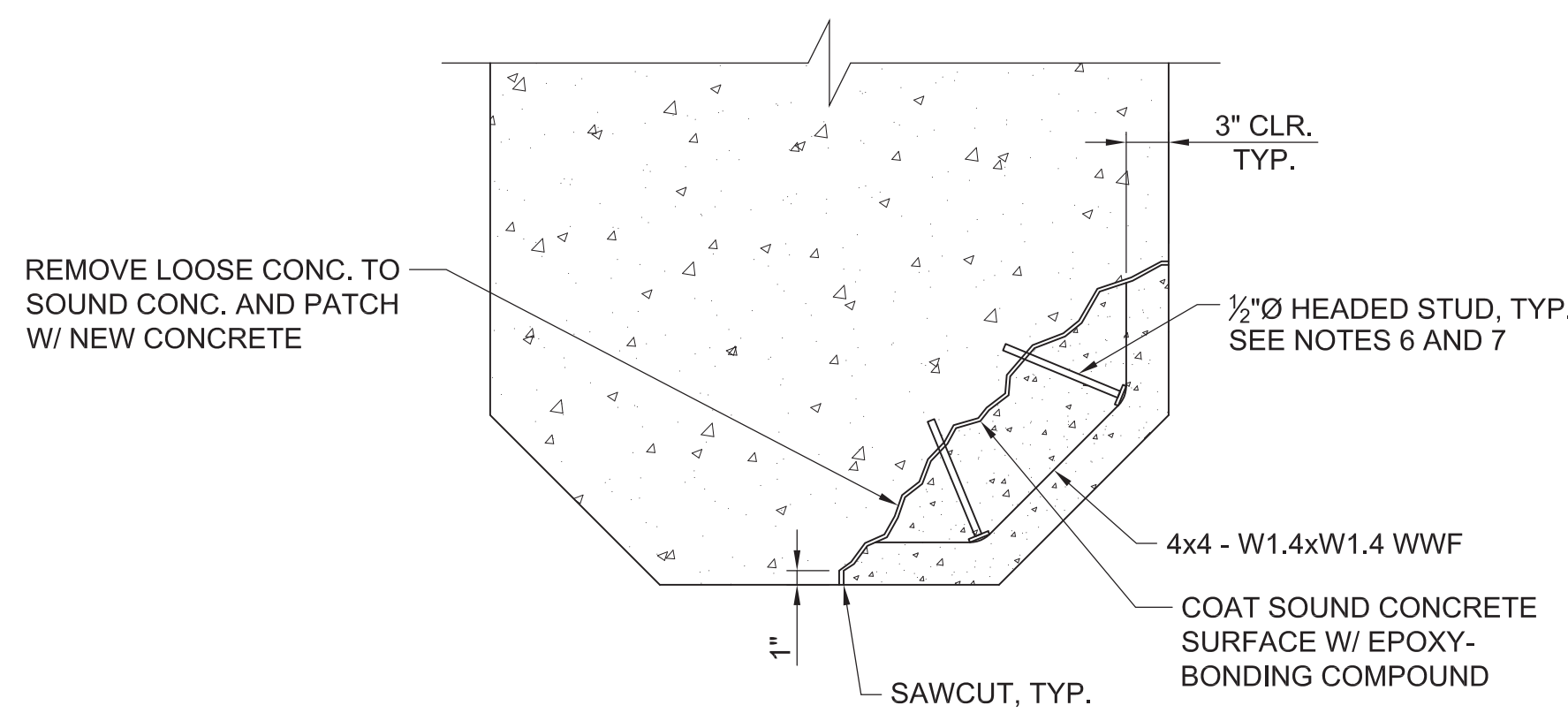
Project No.: RVA 1301  
Drawn By: TPA  
Checked By: EPV  
Date: 10/24/2014  
Scale: AS SHOWN

**SHEET TITLE**

**STRUCTURAL SECTIONS - CONCRETE**

SHEET NO.

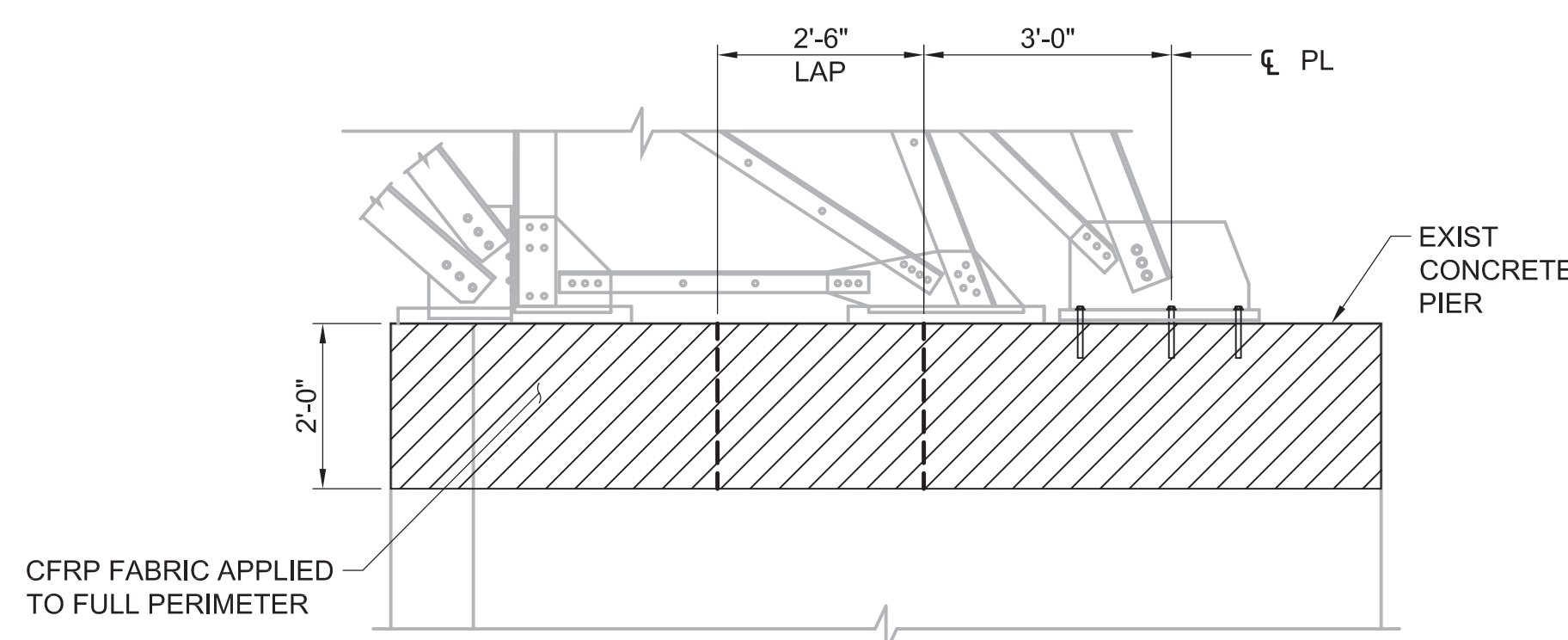
**S-303**



**PR3: TYPICAL PIER SPALL REPAIR**

SCALE: 1" = 1'-0"

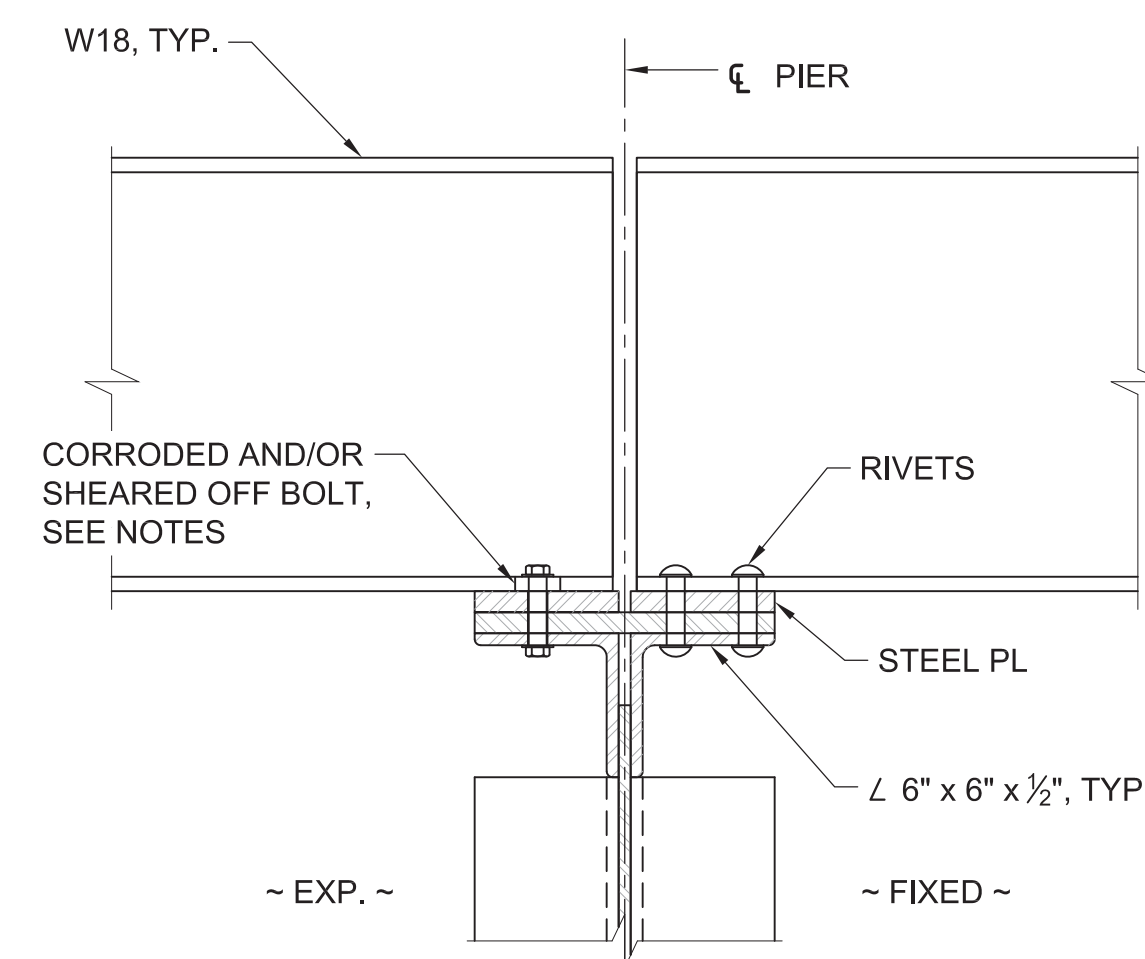
NOTE:  
REFER TO TYPICAL REPAIR AREA LAYOUT DETAIL THIS SHEET FOR REPAIR AREA GEOMETRY.



**PR4: CFRP PIER REPAIR - PIER 33**

SCALE: 1/2" = 1'-0"

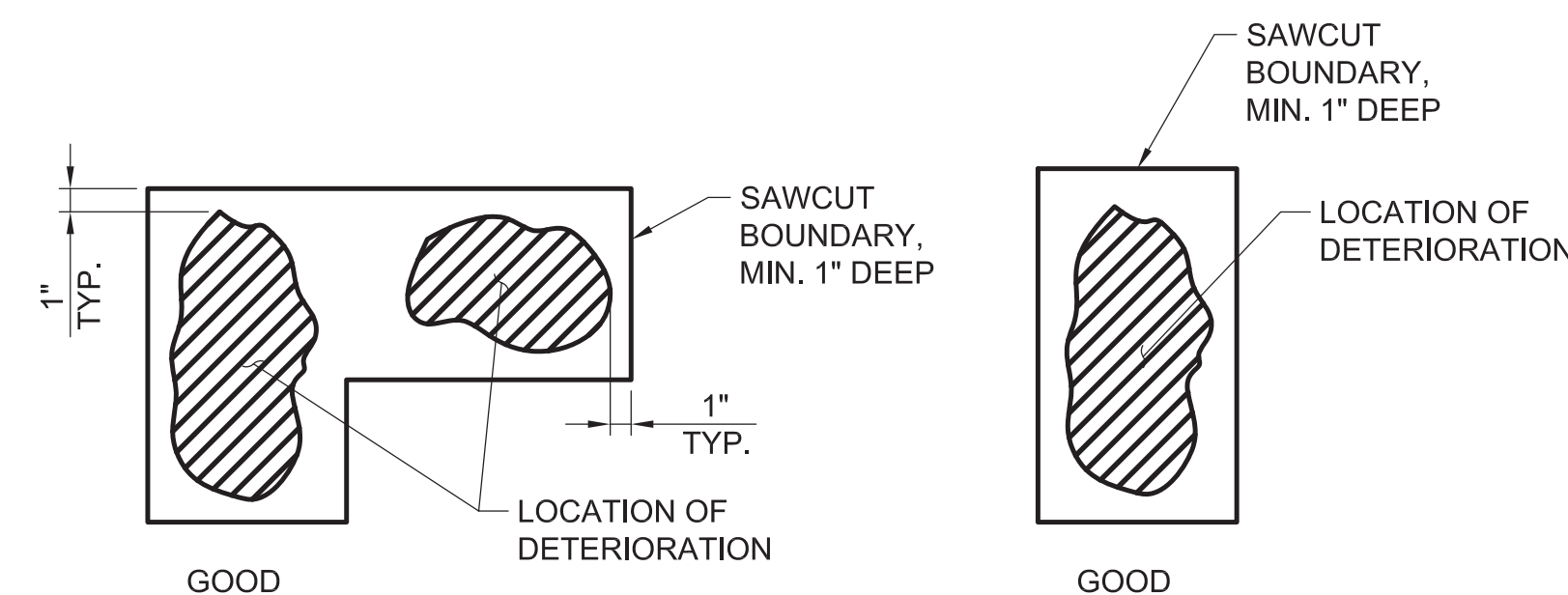
NOTES:  
1. STEEL FRAMING IS SHOWN AS IS FOR CLARITY.  
2. REFER TO THE SPECIFICATIONS FOR INSTALLATION OF AND MATERIAL REQUIREMENTS FOR THE CFRP.



**SR1: BOLT REPLACEMENT DETAIL AT EXISTING GIRDER BEARING**

SCALE: 1 1/2" = 1'-0"

NOTES:  
1. REMOVE ALL SHEARED, FRACTURED AND CORRODED BOLTS AND REPLACE WITH A325 BOLTS OF THE SAME DIAMETER (APPROXIMATELY 3).  
2. THE DEGREE OF BOLT CORROSION THAT WARRANTS REPLACEMENT SHALL BE DETERMINED BY THE ENGINEER.  
3. THE CONTRACTOR SHALL ENSURE ALL EXISTING BOLTS ARE SNUG TIGHT AND REPLACE MISSING BOLTS, NUTS AND WASHERS AS DIRECTED BY THE ENGINEER.  
4. THE CONTRACTOR SHALL INSPECT ALL EXISTING CONNECTIONS AND IDENTIFY BOLTS AND RIVETS TO BE REPLACED WITH BOLTS AS DIRECTED BY THE ENGINEER.

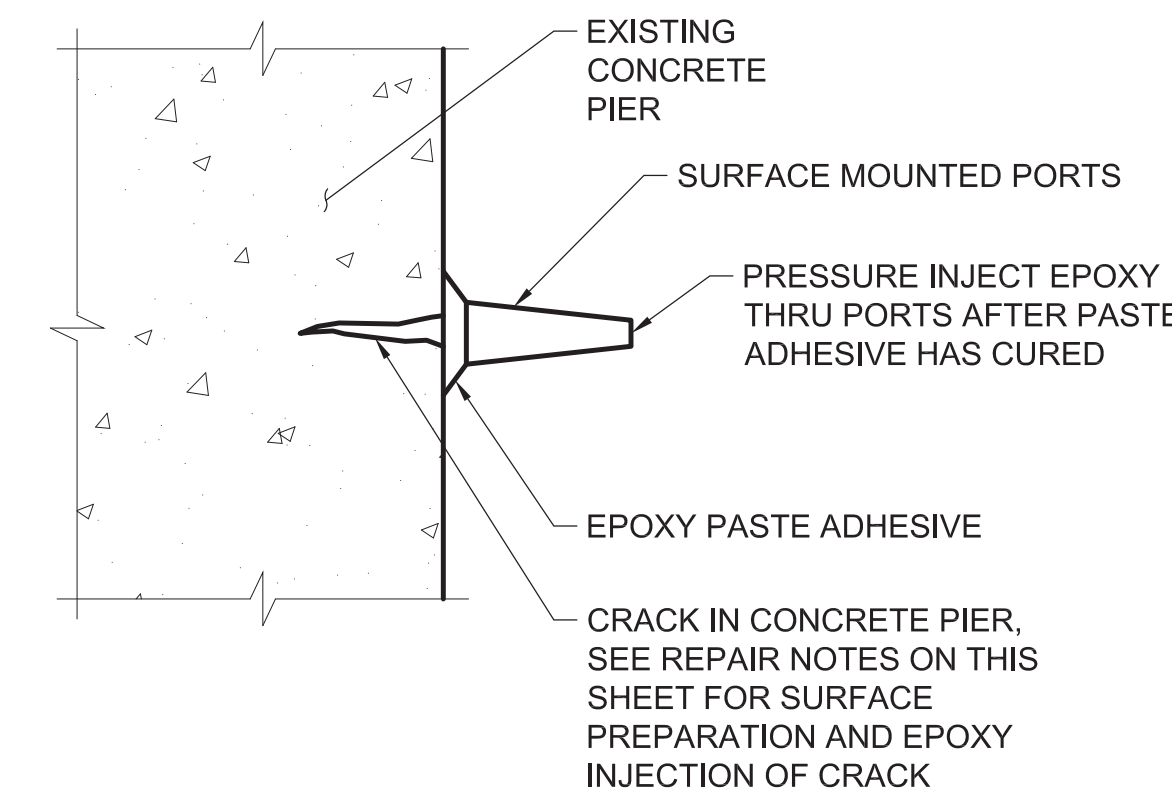


**TYPICAL REPAIR AREA LAYOUT**

SCALE: 1 1/2" = 1'-0"

| Concrete Pier Repairs |                       |                 |    |           |                 |
|-----------------------|-----------------------|-----------------|----|-----------|-----------------|
| Pier                  | Face                  | Max. Depth (ft) | SF | Linear Ft | Description     |
| 04                    | NE cmr                | 1               | 1  |           | Lg corner spall |
| 07                    | Nose & S-Face         | -               | -  |           | crack injection |
| 09                    | All around            | -               | -  | 31        | crack injection |
| 13                    | N-Face, S-Face & Nose | 0.5             | 90 |           | PR3             |
| 14                    | N-Face, S-Face & Nose | 0.5             | 90 |           | PR3             |
| 15                    | N-Face, S-Face & Nose | 0.75            | 80 |           | PR3             |
| *16                   | N-Face, S-Face & Nose | 1.5             | 45 |           | PR3             |
| 18                    | N-Face, S-Face & Nose | 1               | 50 |           | PR3             |
| 19                    | N-Face, S-Face & Nose | 1.25            | 60 |           | PR3             |
| 20                    | N-Face, S-Face & Nose | 1.25            | 60 |           | PR3             |
| 21                    | S-Face                | 0.5             | 45 |           | PR3             |
| 23                    | N-Face, S-Face & Nose | 0.75            | 35 |           | PR3             |
| 24                    | N-Face                | 0.75            | 20 |           | PR3             |
| 25                    | N-Face & Nose         | 1               | 45 |           | PR3             |
| 26                    | N-Face, S-Face & Nose | 1               | 35 |           | PR3             |
| 27                    | Nose                  | 1               | 35 |           | PR3             |
| 28                    | Nose                  | 0.75            | 30 |           | PR3             |
| 30                    | N-Face & Nose         | 1               | 60 |           | PR3             |
| 31                    | N-Face & Nose         | 0.75            | 50 |           | PR3             |
| 32                    | N-Face, S-Face & Nose | 0.75            | 40 |           | PR3             |
| 33                    | N-Face                | 0.75            | 65 |           | PR3, PR4        |
| 35                    | N-Face & Nose         | 0.75            | 30 |           | PR3             |
| 36                    | N-Face, S-Face & Nose | 0.75            | 60 |           | PR3             |

\* SEE NOTE 2

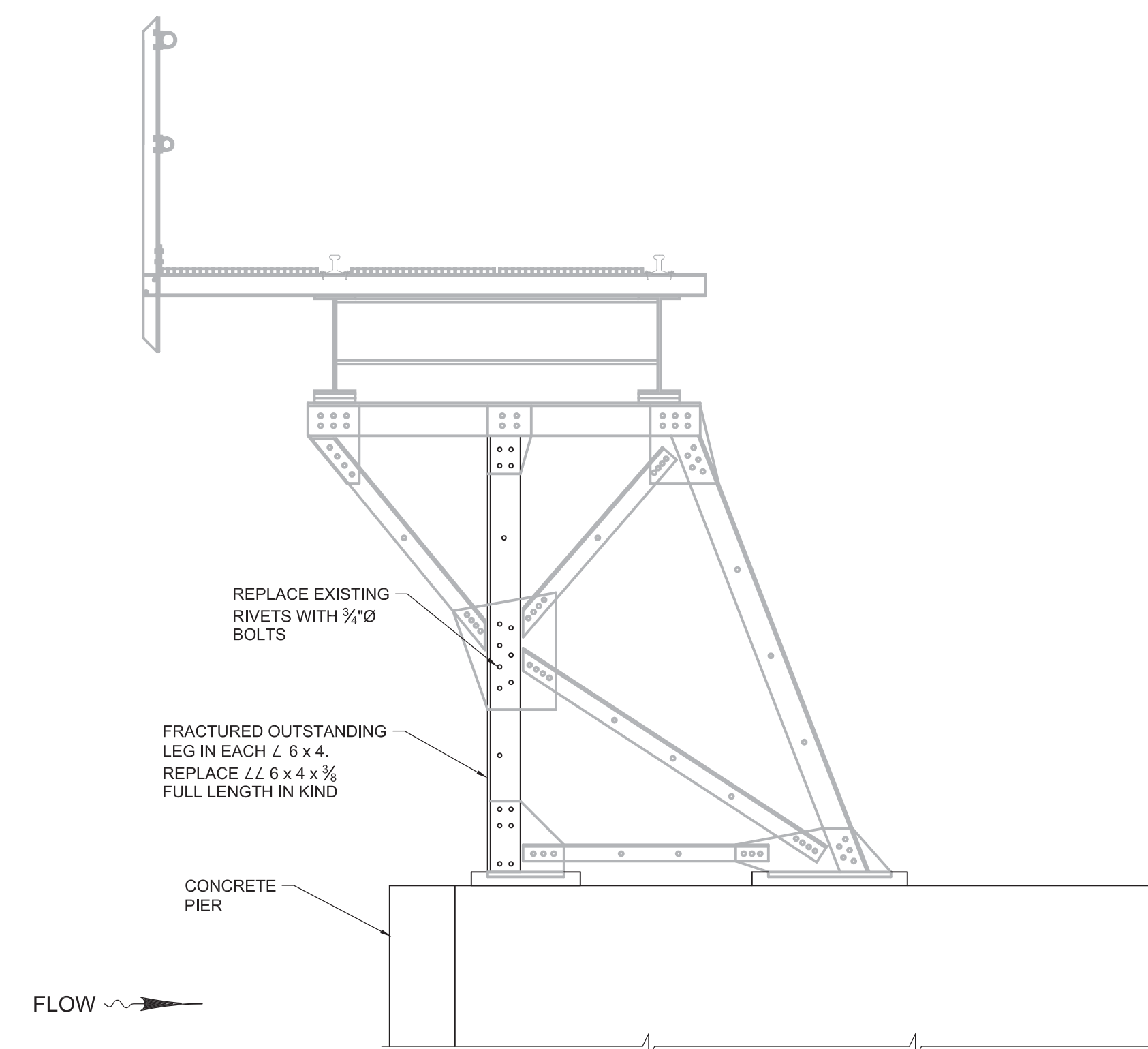


**TYPICAL EPOXY INJECTION CRACK REPAIR DETAIL**

SCALE: 1 1/2" = 1'-0"

NOTES:

- REMOVE ALL LOOSE AND SPALLING CONCRETE FROM THE CRACK. BLOW OUT ALL LOOSE DIRT AND OTHER DELETERIOUS MATERIAL WITH A STREAM OF OIL-FREE COMPRESSED AIR.
- FLUSH OUT THE CRACK WITH A JET OF POTABLE WATER AND ALLOW TO DRY THOROUGHLY.
- LOCATE SURFACE MOUNTED PORTS AT 8" CENTERS ALONG CRACK CENTERLINE IN PIER.
- COMPLETELY SEAL THE SURFACE OF THE CRACK AND PORTS WITH A HIGH MODULUS, HIGH-STRENGTH, STRUCTURAL EPOXY PASTE ADHESIVE (REFER TO THE SPECIFICATIONS FOR EPOXY REQUIREMENT). EPOXY SHALL EXTEND AT LEAST ONE INCH ON EACH SIDE OF CRACK. WAIT UNTIL MATERIAL HAS CURED BEFORE INJECTING THE CRACK.
- INJECT HIGH-MODULUS, LOW-VISCOSITY, HIGH-STRENGTH, EPOXY RESIN (SIKADUR 52 INJECTION RESIN AS MANUFACTURED BY SIKA CORPORATION OR APPROVED EQUAL) INTO LOWEST PORT USING A STANDARD HAND-CAULKING GUN OR PRESSURE POT. WHEN THE EPOXY REACHES THE LEVEL OF THE NEXT HIGHEST PORT, MOVE UP AND REPEAT THE ABOVE PROCEDURE AT EACH PORT ALONG THE CRACK UNTIL THE ENTIRE LENGTH OF CRACK IS SEALED. AT THE LAST PORT APPLY PRESSURE UNTIL REFUSAL.
- ALWAYS BEGIN PRESSURE INJECTION OF EPOXY RESIN AT THE LOWEST POINT OF A CRACK.
- AFTER THE EPOXY HAS CURED, REMOVE THE PORTS AND GRIND THE CONCRETE SURFACE SMOOTH TO REMOVE ALL SEALER AND OVERFLOWED EPOXY RESIN.
- ALL EPOXY REPAIR WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. DO NOT APPLY EPOXY AT TEMPERATURES BELOW 45 DEGREES F.



**PIER 11 STEEL REPAIR DETAIL**

SCALE: 3/4" = 1'-0"

**SHEET NOTES**

- ALL REPAIRS TO EXISTING CONCRETE PIERS AND STEEL FRAMING SHALL BE COMPLETED PRIOR TO INSTALLING NEW WORK ON THE EXISTING STRUCTURES.
- THE CONCRETE REPAIR AT PIER 16 SHALL BE PERFORMED FIRST. NO STEEL FRAMING SHALL BE INSTALLED ON PIER 16 PRIOR TO THIS REPAIR.
- THE CONTRACTOR SHALL PROVIDE ALL REQUIRED BRACING AND SHORING DURING THE REPAIR WORK TO MAINTAIN THE STABILITY OF THE STRUCTURE AND TO PREVENT UNSAFE CONDITIONS.
- CONCRETE REMOVAL FROM THE PIERS SHALL BE PERFORMED ON ONE SIDE AT A TIME FOR A GIVEN PIER. THE REPAIR AREA SHALL BE PATCHED BACK PRIOR TO PERFORMING CONCRETE REMOVAL ON THE OPPOSITE SIDE/NOSE OF THE SAME PIER IF REQUIRED.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF THE FOLLOWING CONDITIONS ARE ENCOUNTERED:
  - DEPTH OF CONCRETE REMOVAL REQUIRED EXCEEDS 1.5 FEET OF THE 4'-0" PIER WIDTH.
  - THE LENGTH OF CONCRETE REMOVAL REQUIRED EXCEEDS 4 FEET, MEASURED LATERALLY ALONG THE 12' PIER FACE.
- INSTALL HEADED STUDS WITH EPOXY ADHESIVE ON A 1-FOOT BY 1-FOOT GRID, PER THE SPECIFICATIONS. EMBED STUDS A MINIMUM OF 2-INCHES FOR SPALLS UP TO 10-INCHES DEEP. FOR SPALLS DEEPER THAN 10-INCHES, INSTALL #4 HOOKED BARS AND EMBED A MINIMUM OF 5-INCHES.
- TIE THE WELDED WIRE TO EACH HEADED STUD OR HOOKED BAR.

**LEGEND**

- N-FACE NORTH FACE
- S-FACE SOUTH FACE
- WWF WELDED WIRE FABRIC

**PROJECT INFORMATION**

Richmond, Virginia Riverfront Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
RICHMOND, VIRGINIA

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900 E. Broad St.  
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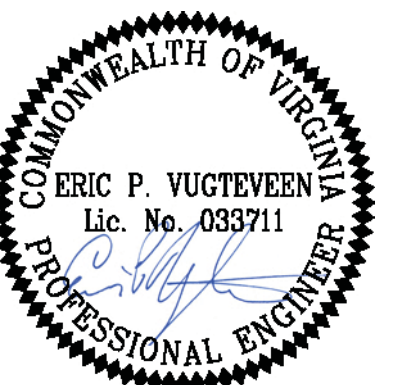
**Electrical Engineering**  
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ISSUE

REVISIONS

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 03-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

KEY MAP

SHEET INFORMATION

Project No.: RVA 1301  
Drawn By: TPA  
Checked By: EPV  
Date: 10/24/2014  
Scale: AS SHOWN

SHEET TITLE

**CONCRETE AND STEEL REPAIR DETAILS**

SHEET NO.

**S-304**





**SHEET NOTES**

- UNLESS OTHERWISE NOTED, STEEL ANGLES ARE DRAWN ALIGNED USING THE MEMBER'S CENTROID.
- UNLESS OTHERWISE NOTED, ALL BOLT HOLES FOR 3/4" Ø BOLTS SHALL BE THE STANDARD 13/16" Ø HOLE.

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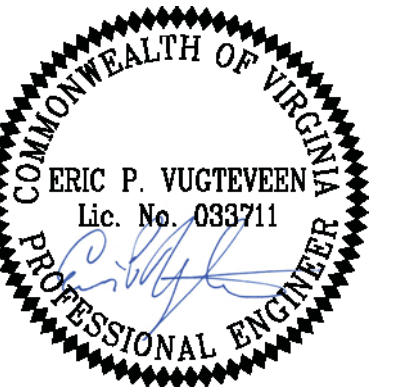
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**KEY MAP**

**SHEET INFORMATION**

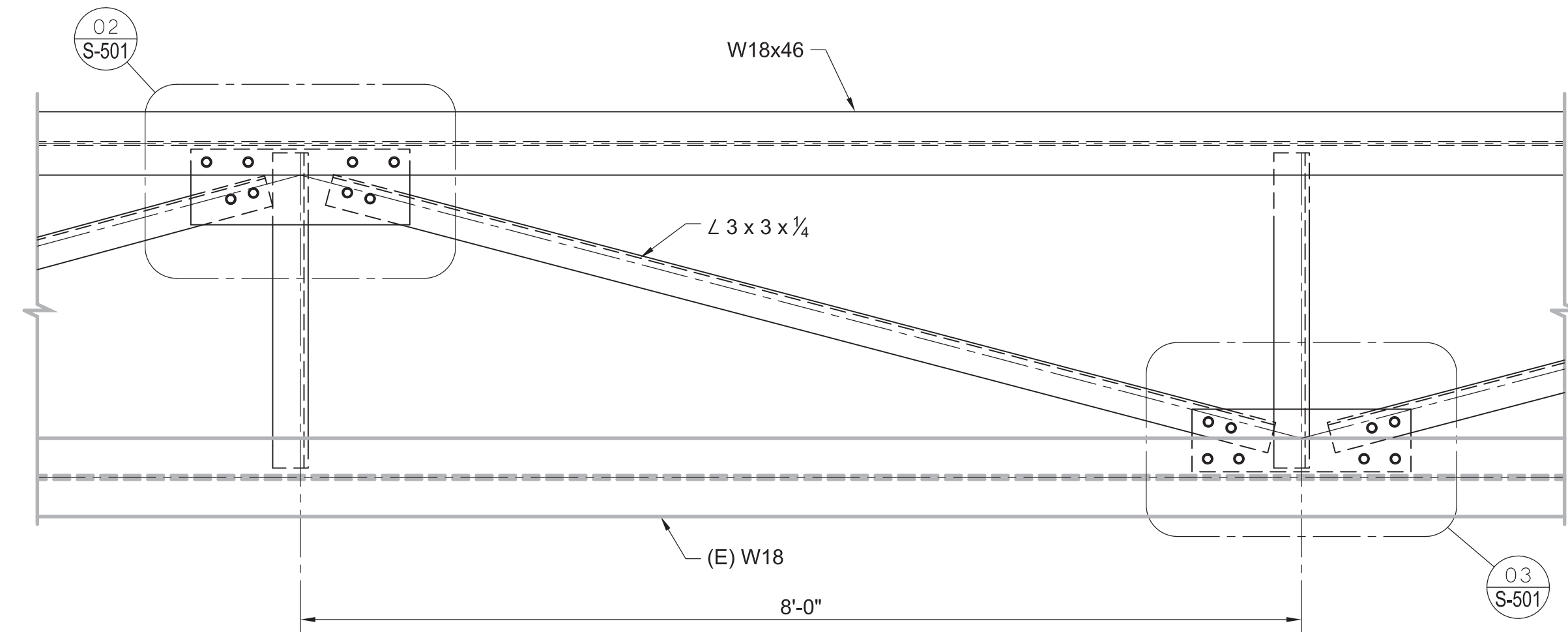
Project No.: RVA 1301  
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 Checked By: EPV  
 Date: 10/24/2014  
 Scale: AS SHOWN

**SHEET TITLE**

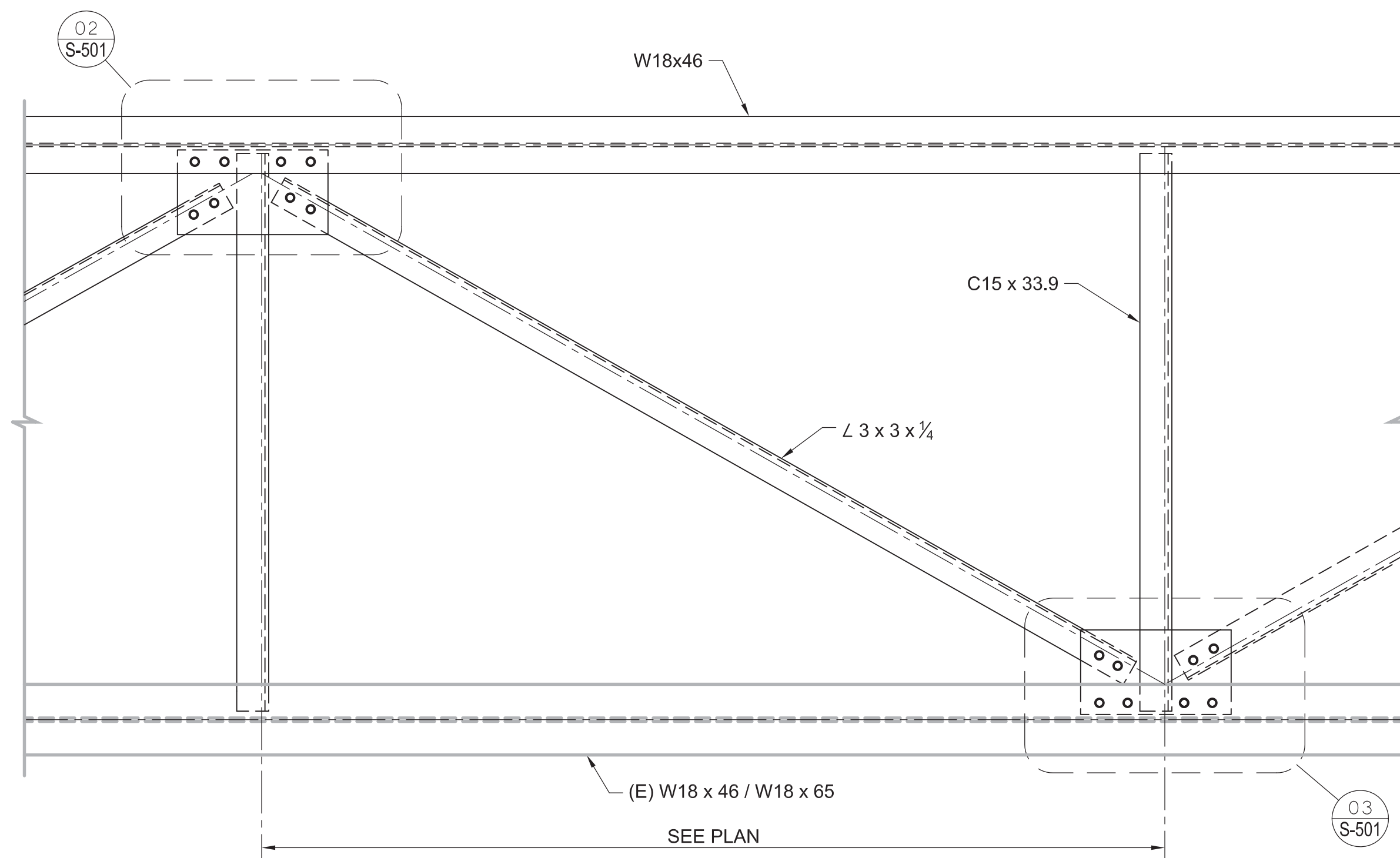
**STRUCTURAL DETAILS - STEEL**

SHEET NO.

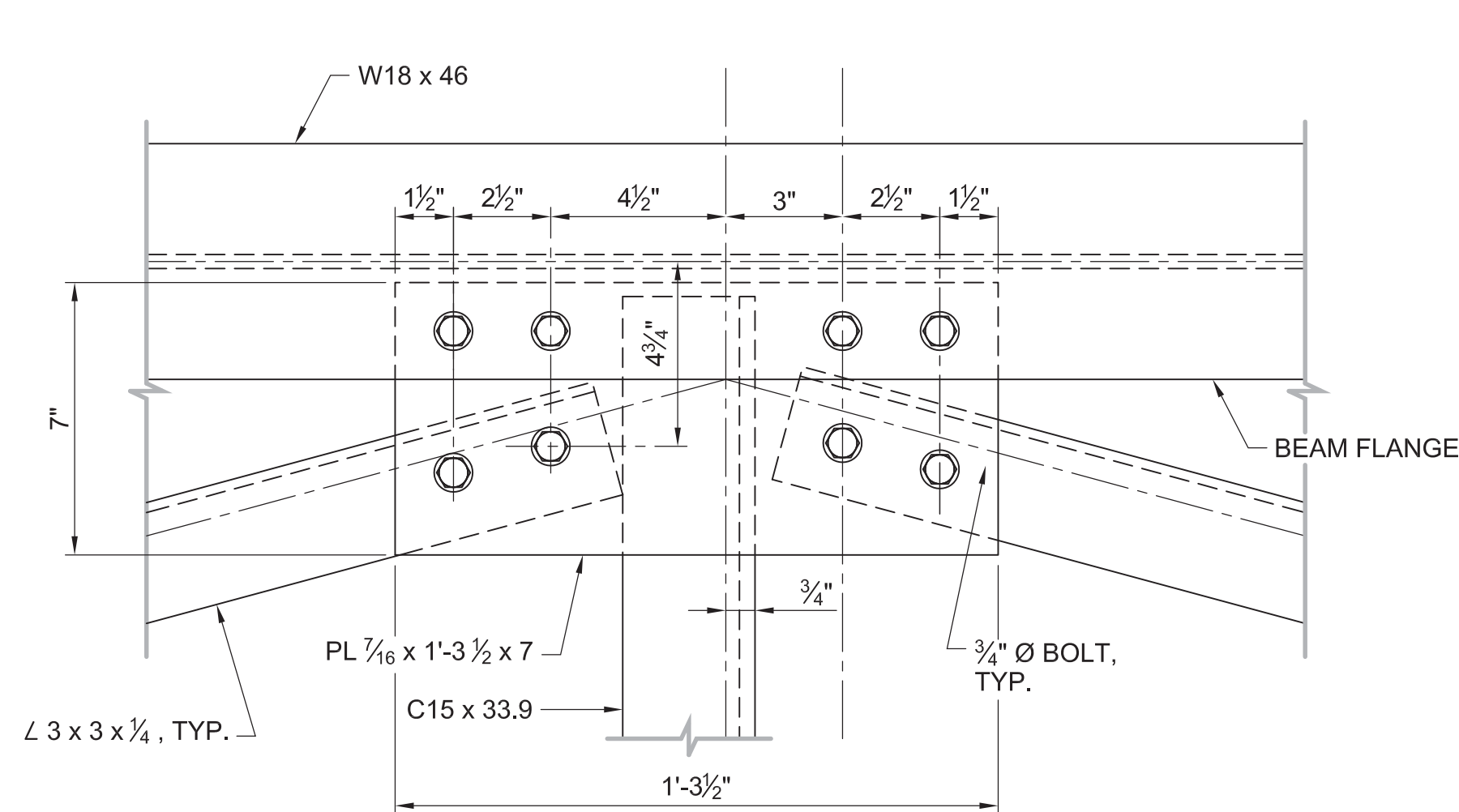
**S-501**



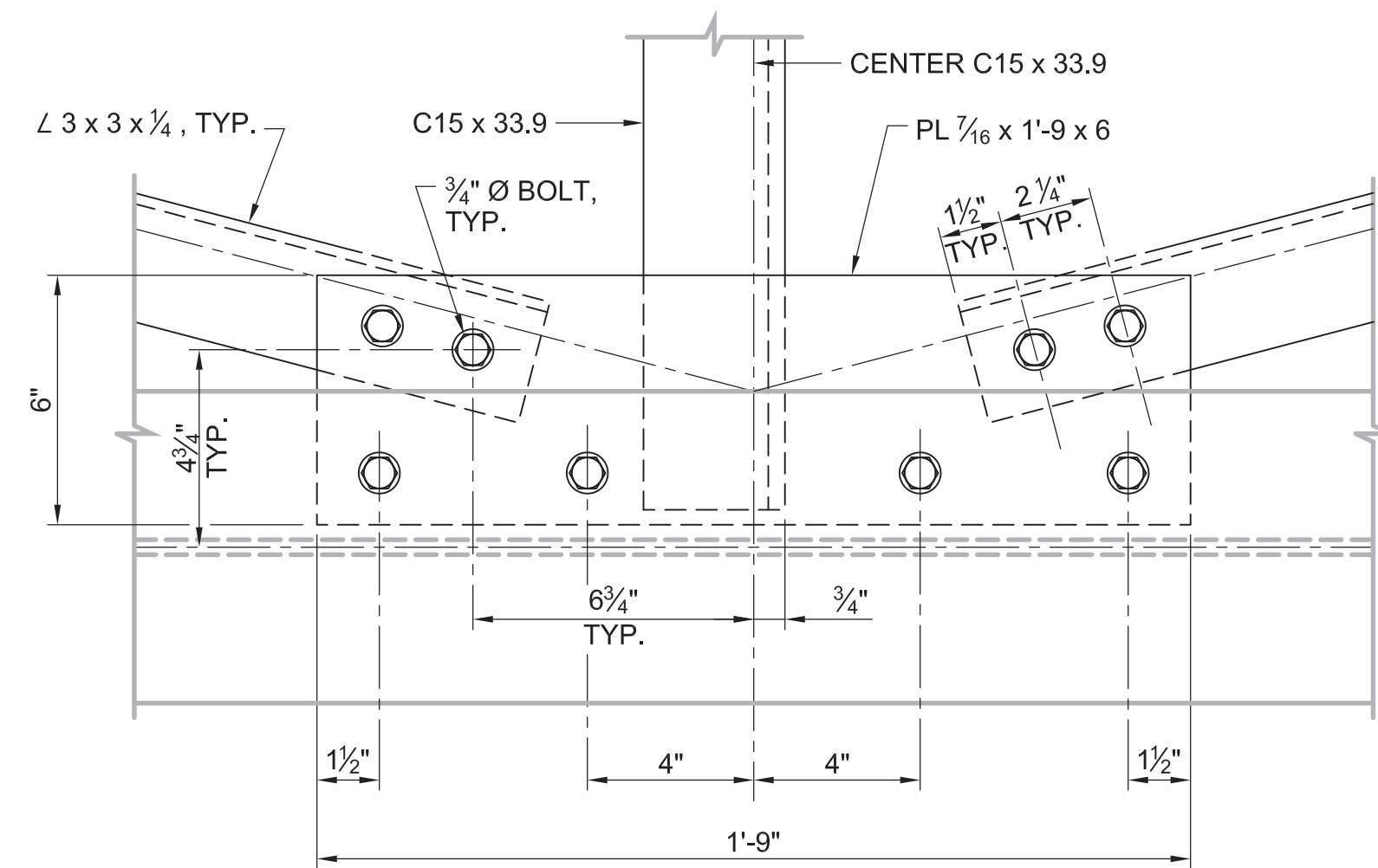
**01 TYPICAL WIND BRACE DETAIL - SPANS 11-39**  
 SCALE: 1" = 1'-0"



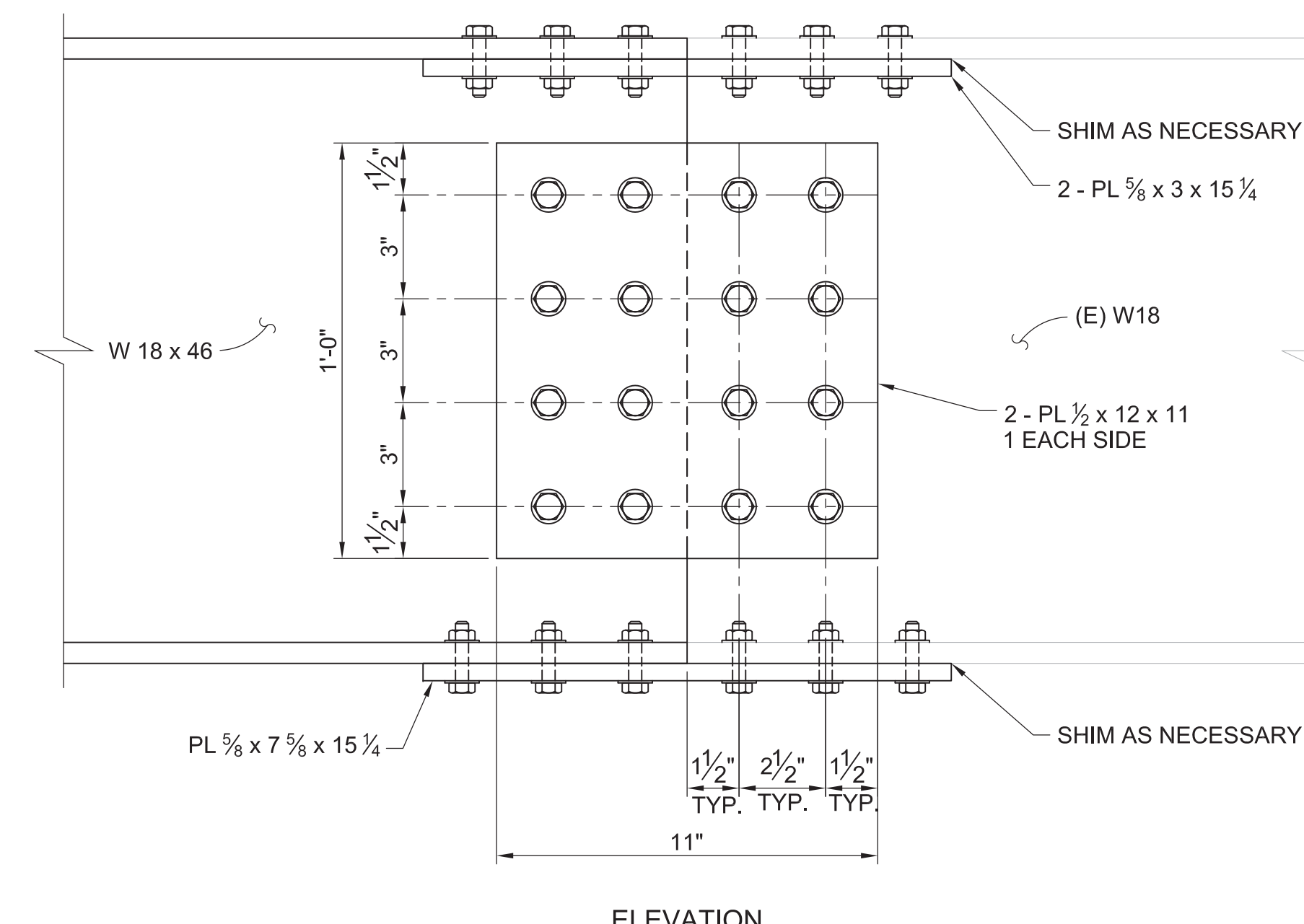
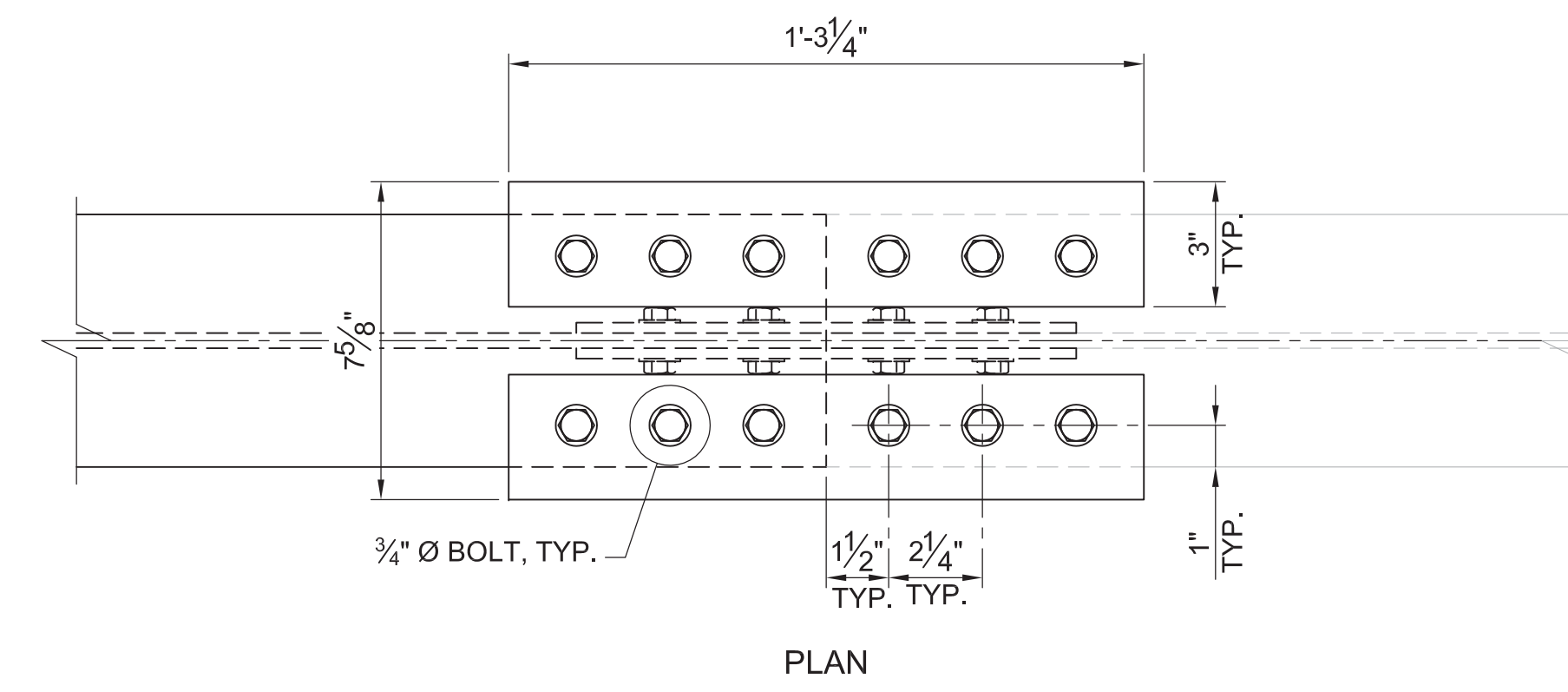
**04 TYPICAL WIND BRACE DETAIL - SPANS 0-10**  
 SCALE: 1" = 1'-0"



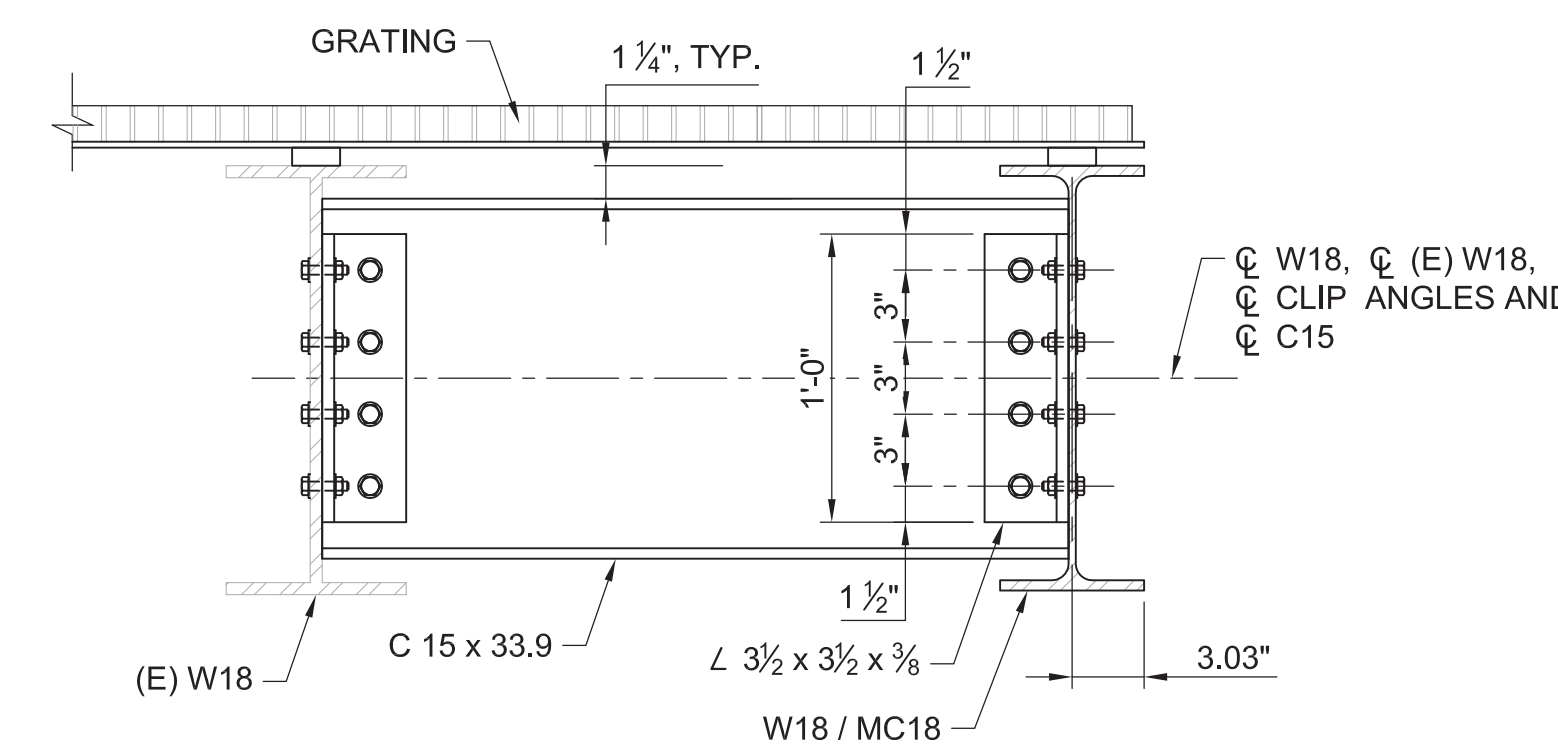
**02 CONNECTION DETAIL**  
 SCALE: 3" = 1'-0"



**03 CONNECTION DETAIL**  
 SCALE: 3" = 1'-0"

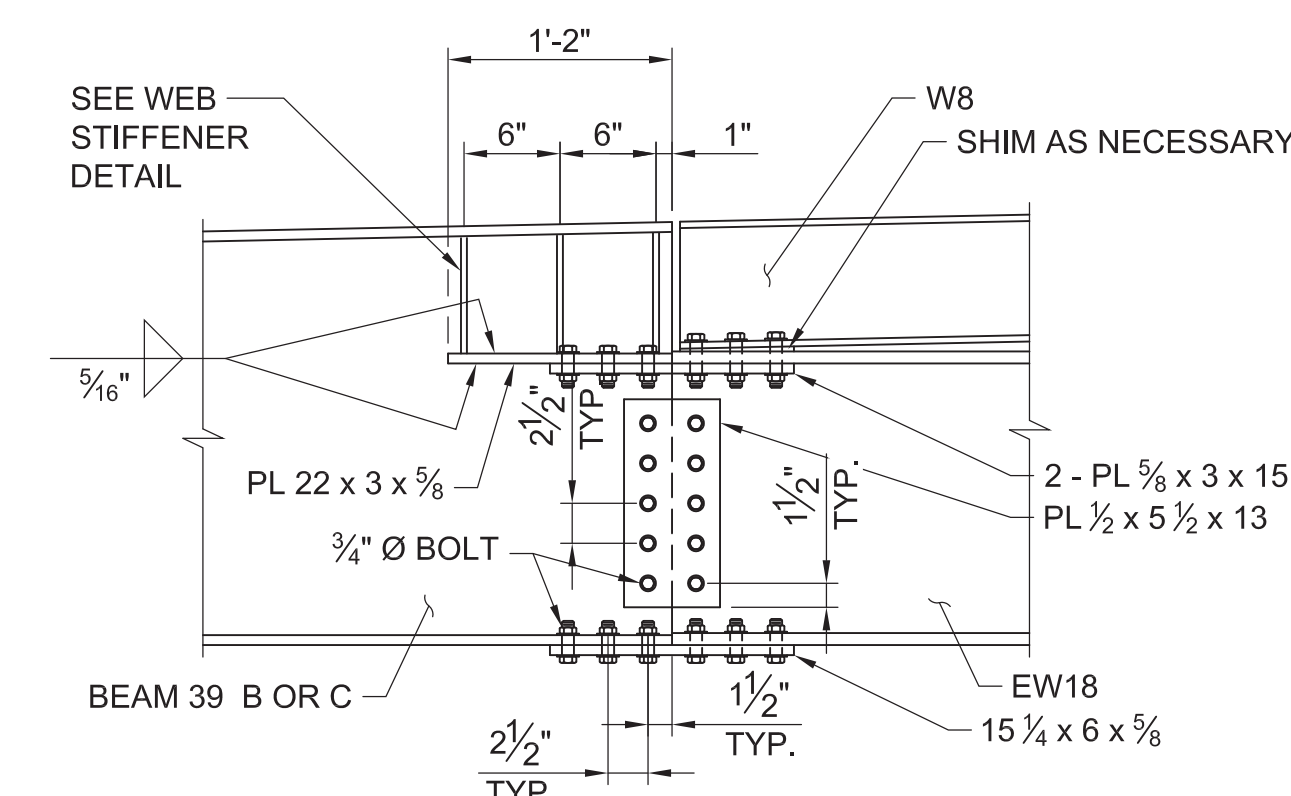


**GIRDER SPLICE - SPAN 11**  
 SCALE: 3" = 1'-0"



**06 CROSS FRAME TYPICAL**  
 SCALE: 1 1/2" = 1'-0"

NOTE: CONTRACTOR TO COORDINATE BOLT HOLES WITH HOLES FOR EXISTING RIVETS.



**A GIRDER SPLICE - SPAN 39**  
 NOT TO SCALE

**PROJECT INFORMATION**

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**KEY MAP**

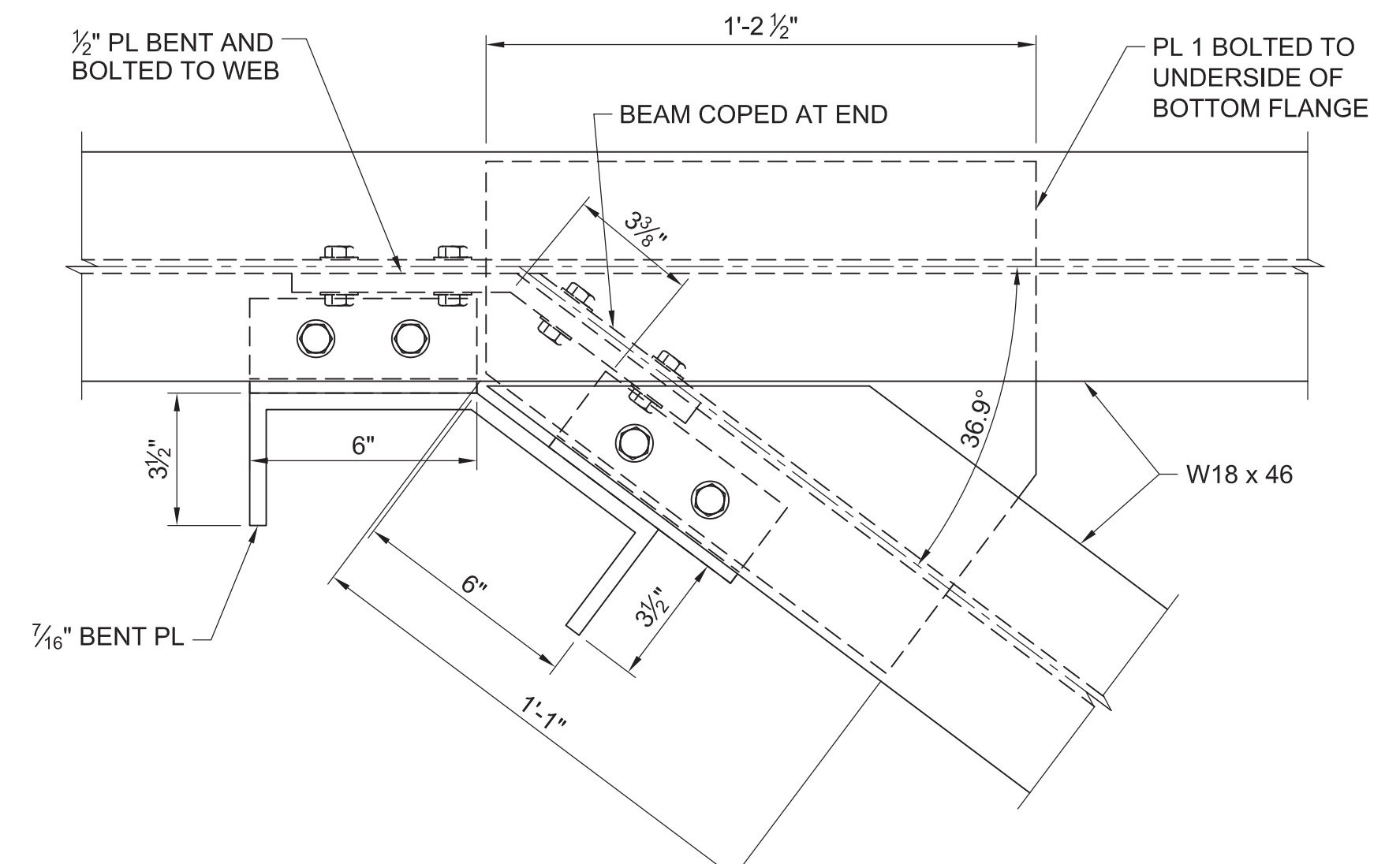
**SHEET INFORMATION**  
 Project No.: RVA 1301  
 Drawn By: TPA  
 Checked By: EPV  
 Date: 10/24/2014  
 Scale: AS SHOWN

**SHEET TITLE**

**STRUCTURAL**  
**DETAILS - STEEL**

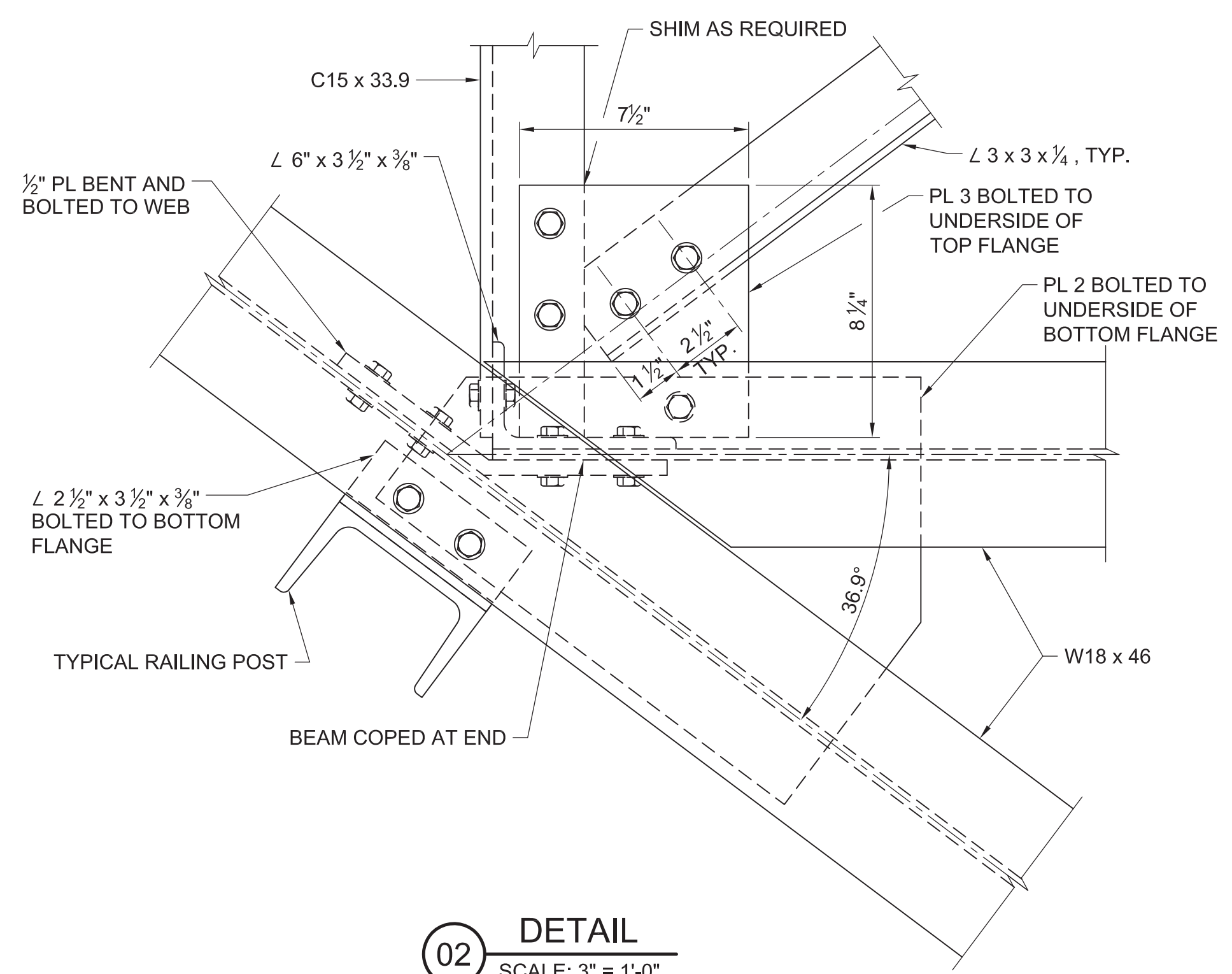
**SHEET NO.**

**S-502**



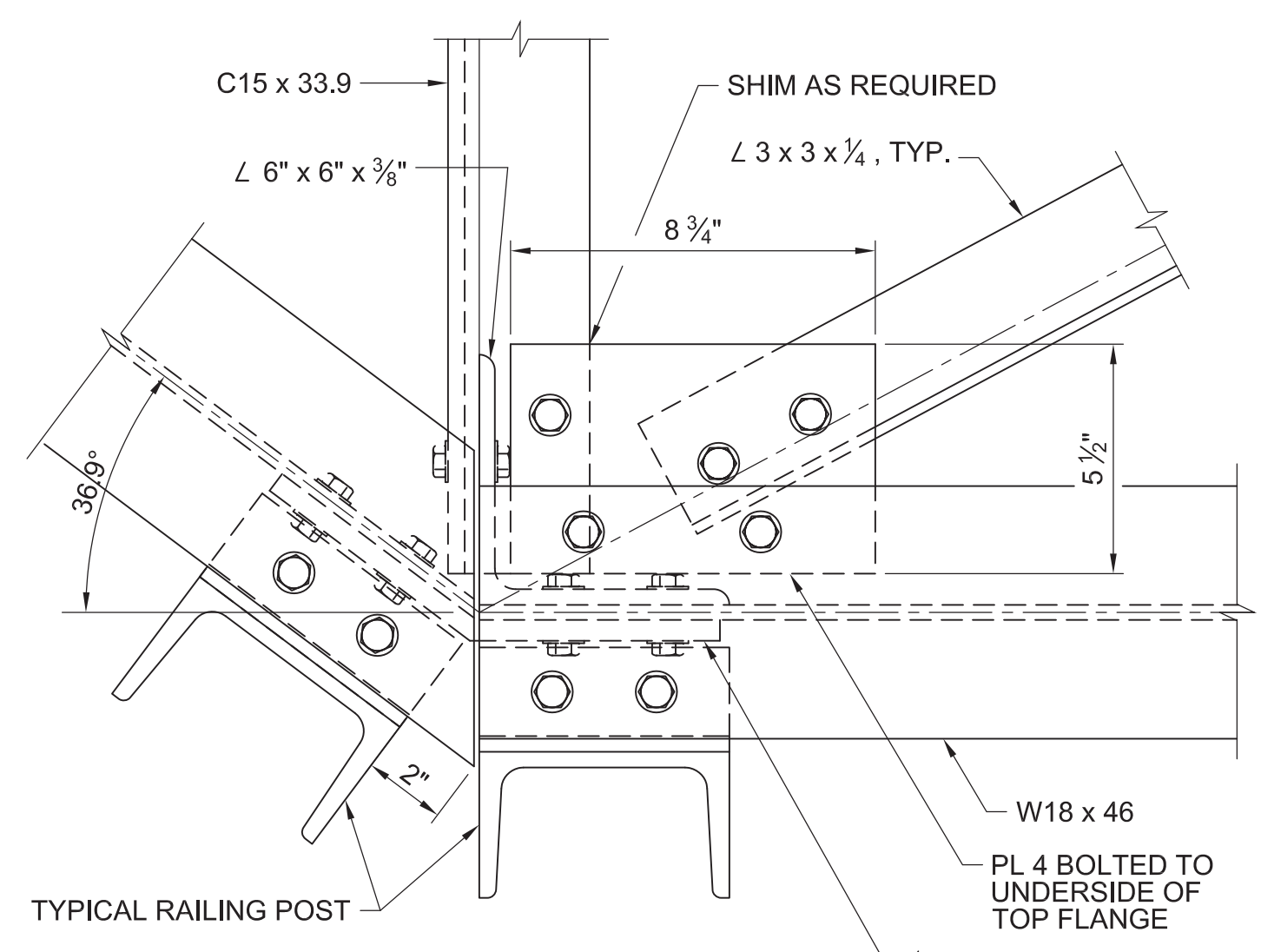
**01 DETAIL**  
 SCALE: 3" = 1'-0"

- NOTES:  
 1. MC18 x42.7 AND  $\angle 3 \times 3 \times 3/4$ " NOT SHOWN FOR CLARITY  
 2. BOLTS IN BOTTOM FLANGE PLATE NOT SHOWN FOR CLARITY.

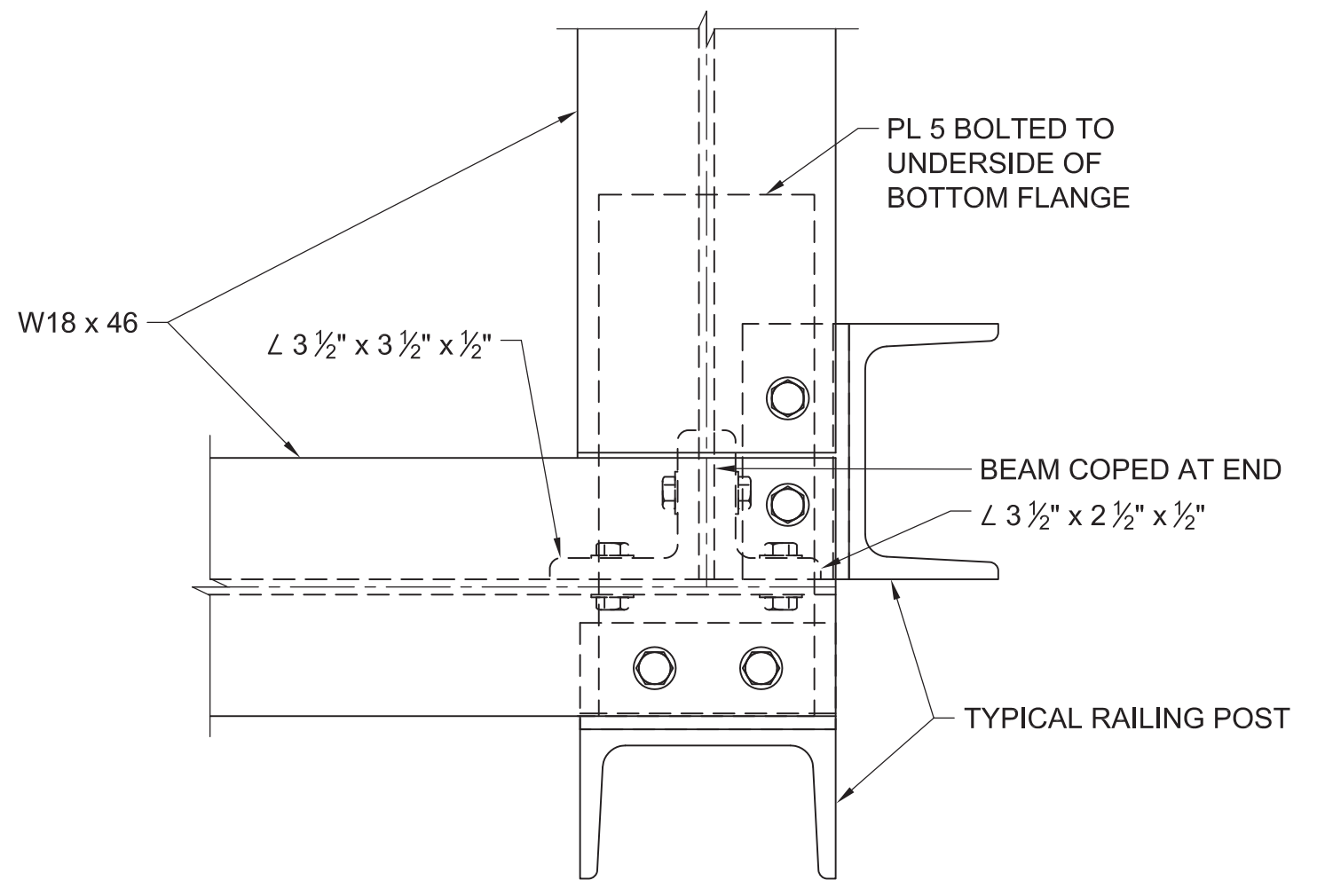


**02 DETAIL**  
 SCALE: 3" = 1'-0"

- NOTES:  
 1. BOLTS IN BOTTOM FLANGE PLATE NOT SHOWN FOR CLARITY.

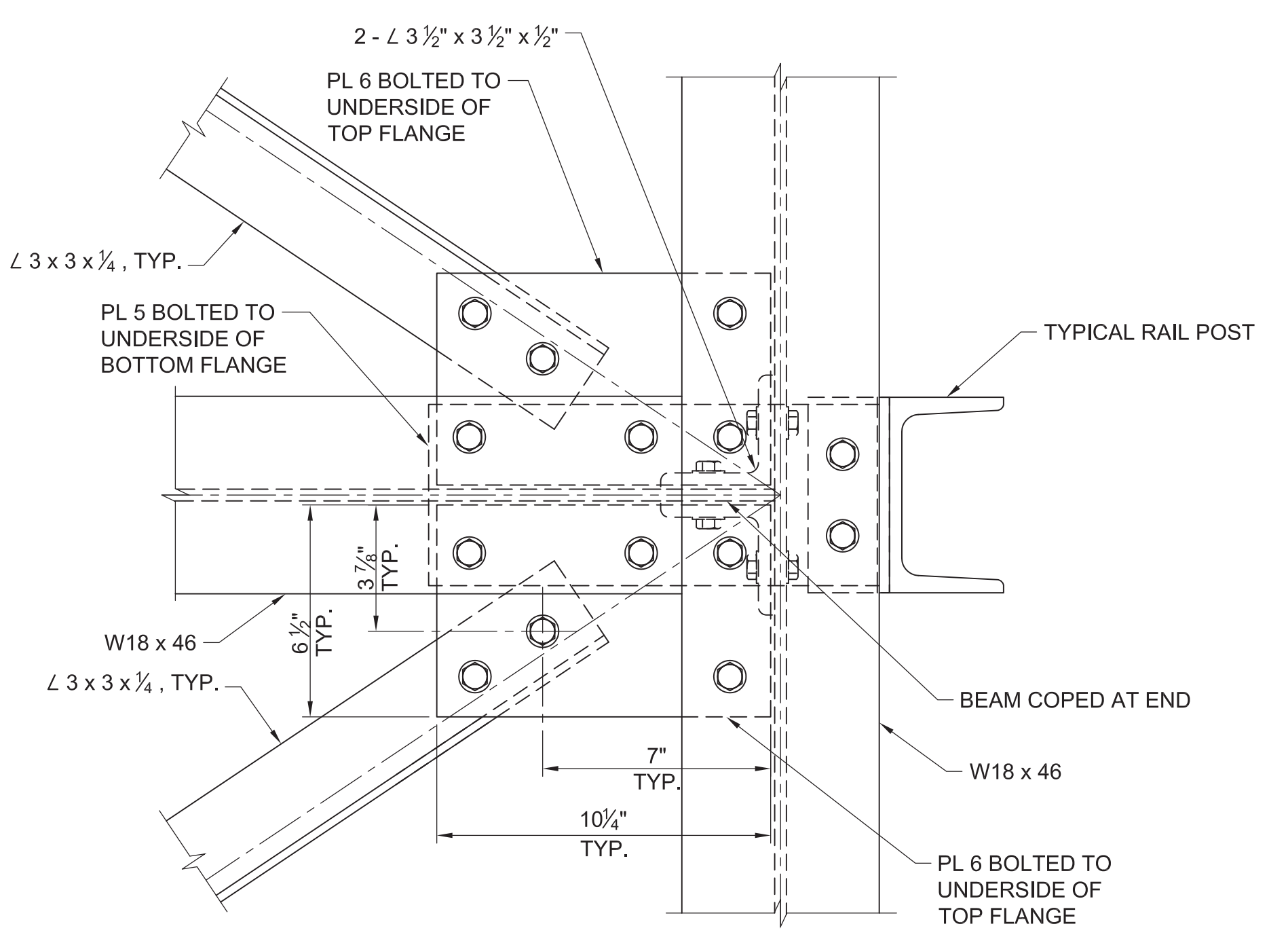


**03 DETAIL**  
 SCALE: 3" = 1'-0"



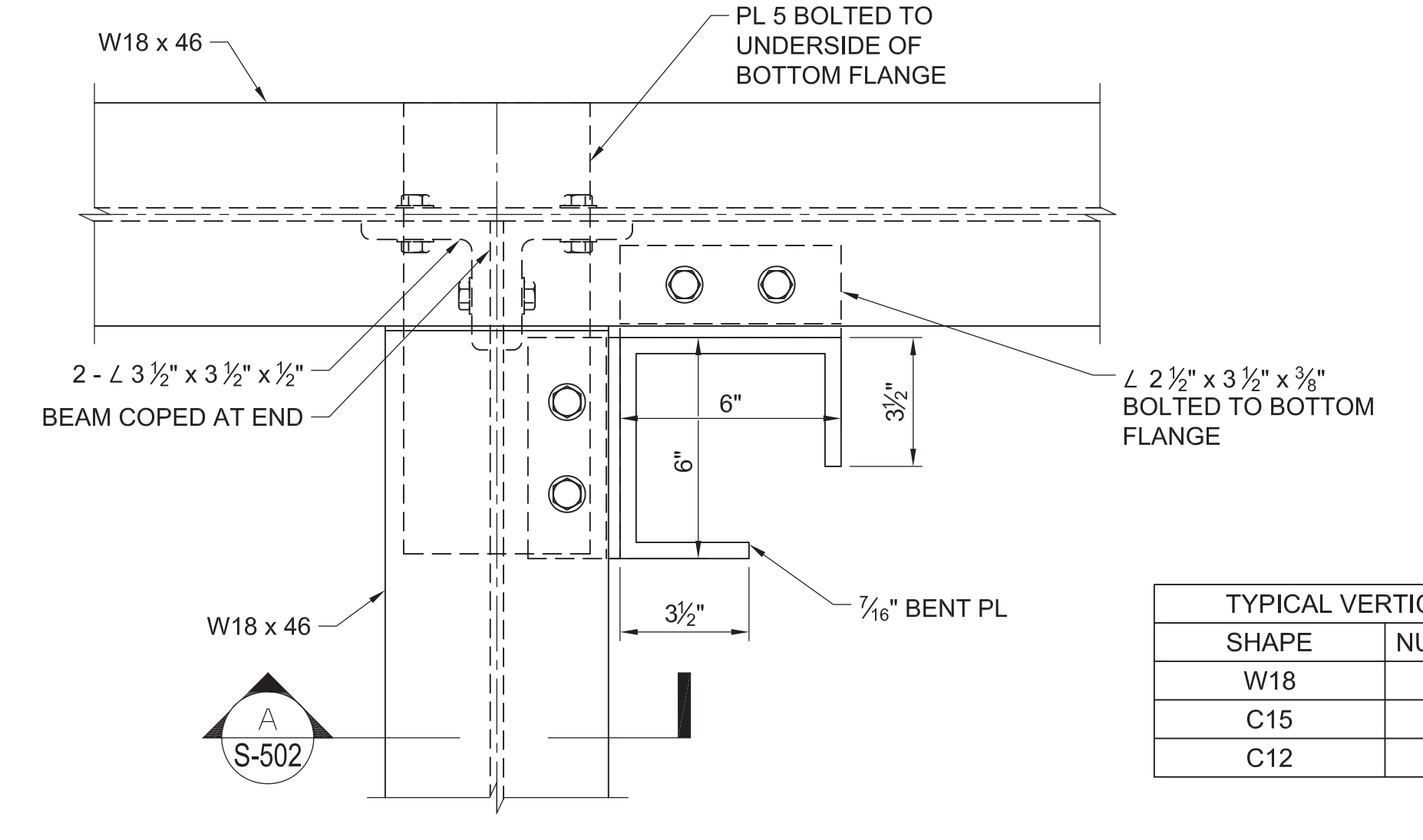
**04 DETAIL**  
 SCALE: 3" = 1'-0"

- NOTES:  
 1. BOLTS IN BOTTOM FLANGE PLATE NOT SHOWN FOR CLARITY.



**05 DETAIL**  
 SCALE: 3" = 1'-0"

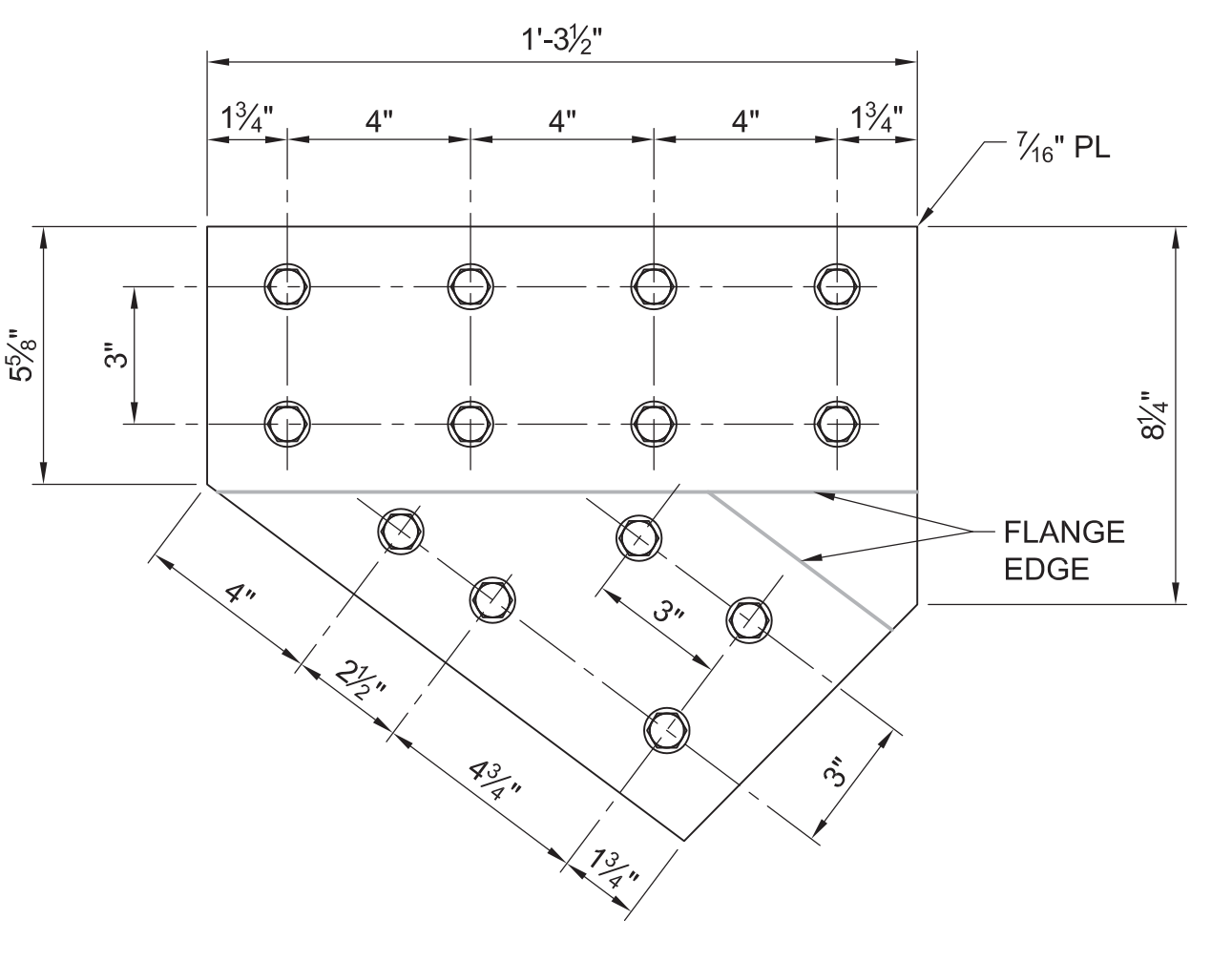
- NOTES:  
 1. BOLTS IN BOTTOM FLANGE PLATE NOT SHOWN FOR CLARITY.



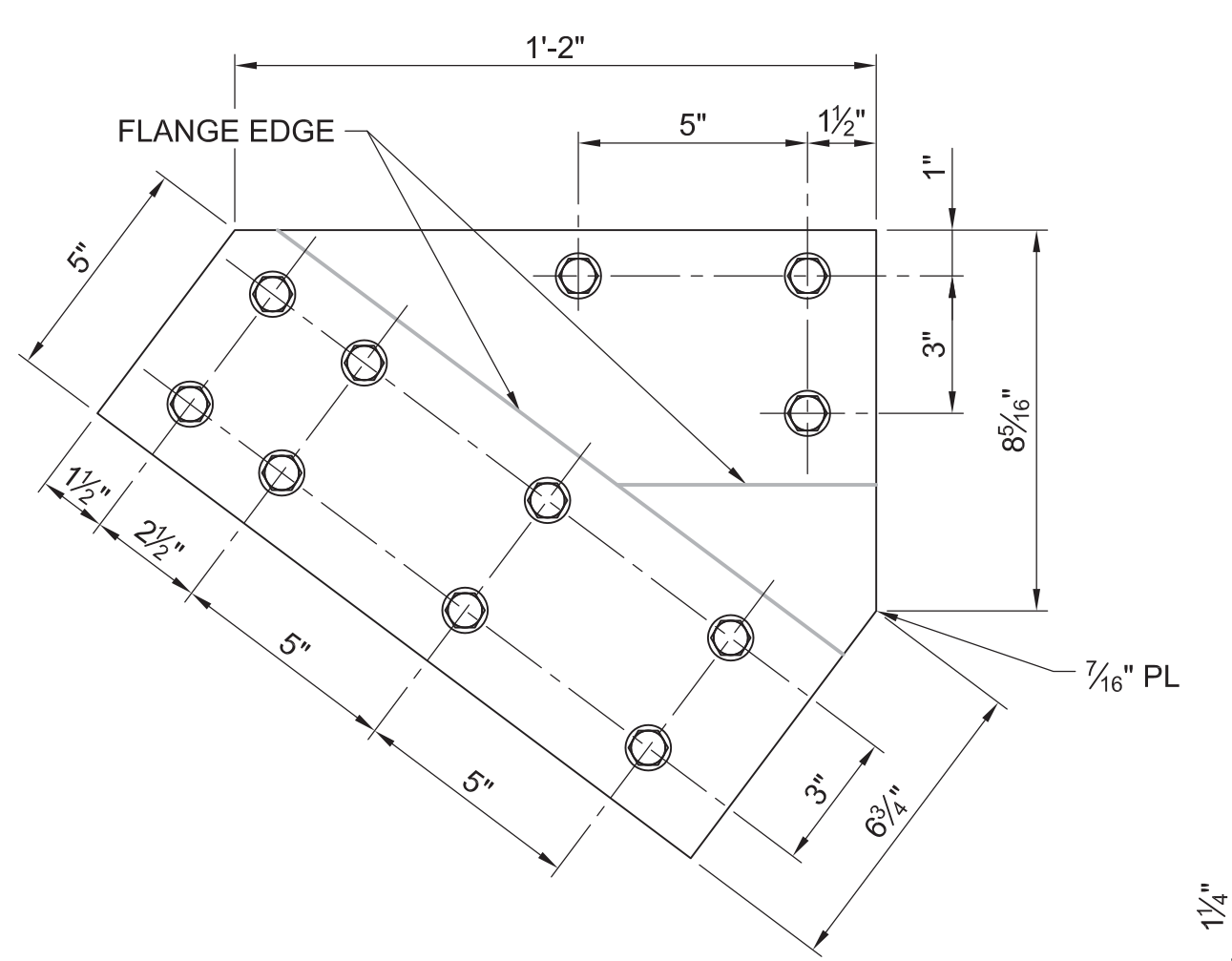
**06 DETAIL**  
 SCALE: 3" = 1'-0"

- NOTES:  
 1. MC18 x42.7 AND  $\angle 3 \times 3 \times 3/4$ " NOT SHOWN FOR CLARITY  
 2. BOLTS IN BOTTOM FLANGE PLATE NOT SHOWN FOR CLARITY.

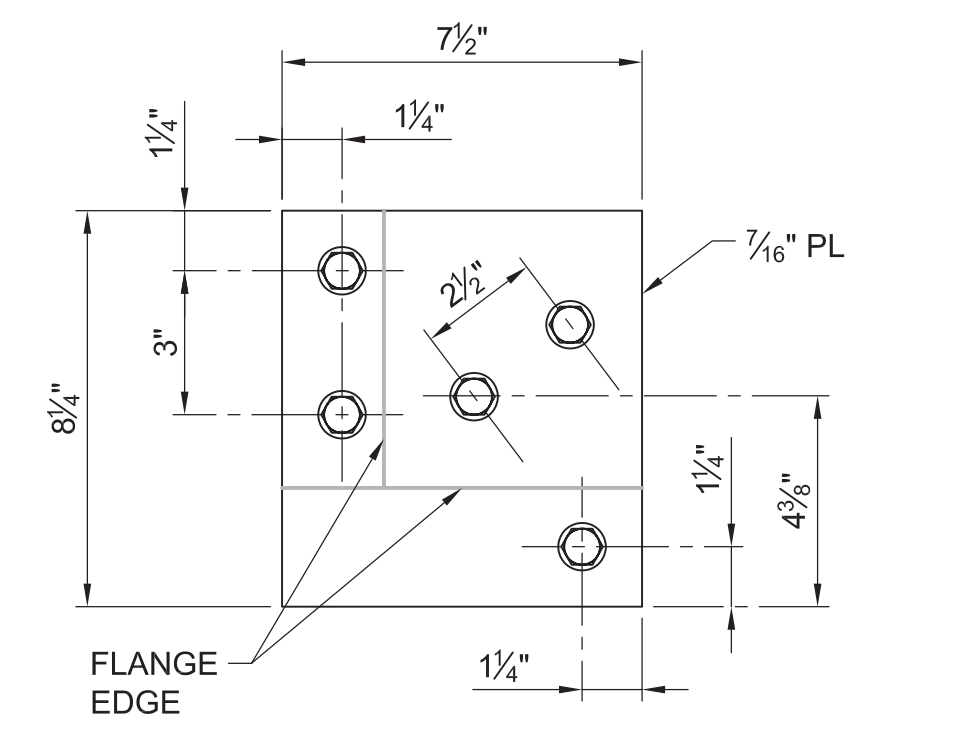
| TYPICAL VERTICAL CONNECTION DETAIL |                           |
|------------------------------------|---------------------------|
| SHAPE                              | NUMBER BOLTS/VERTICAL ROW |
| W18                                | 4                         |
| C15                                | 4                         |
| C12                                | 3                         |



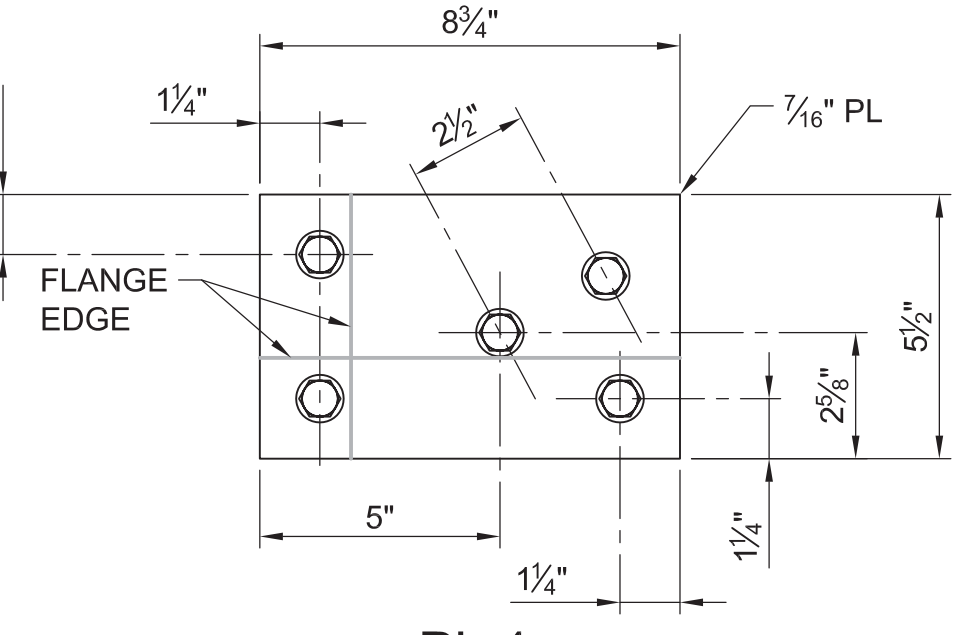
**07 PL 1**  
 SCALE: 3" = 1'-0"



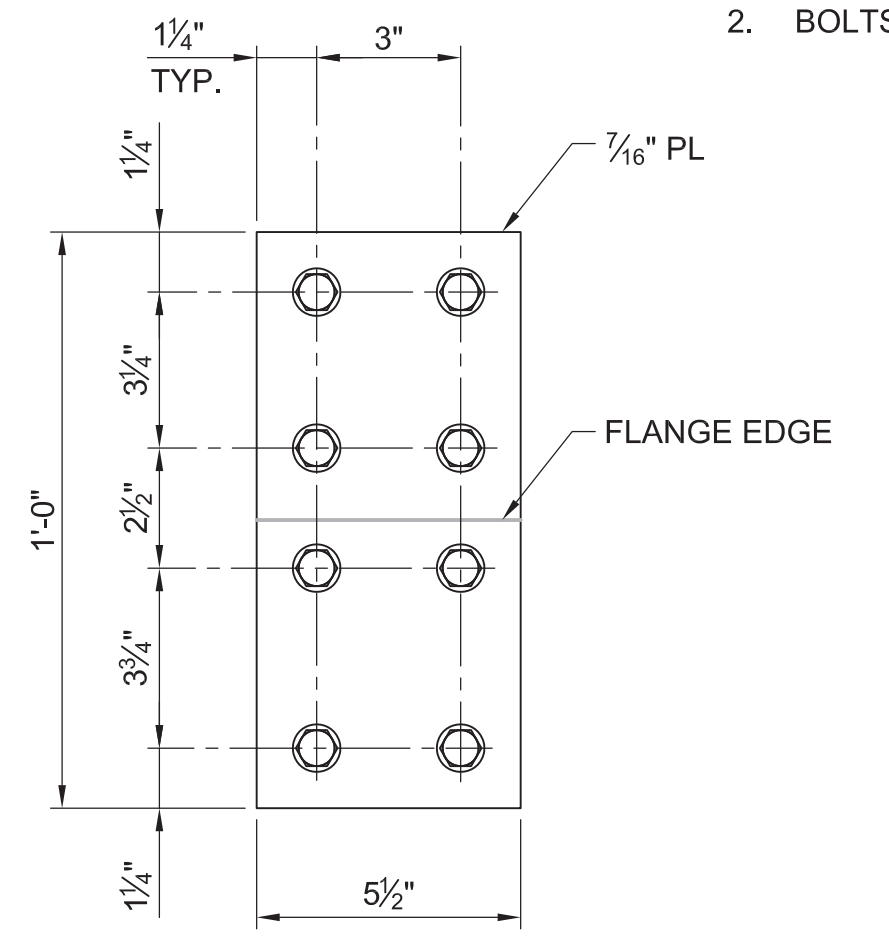
**08 PL 2**  
 SCALE: 3" = 1'-0"



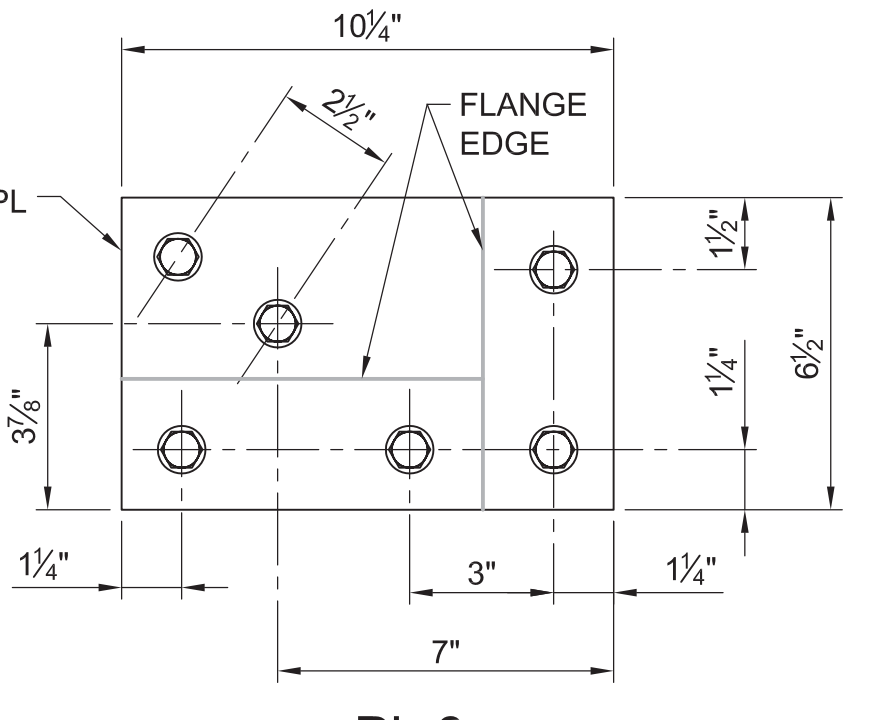
**09 PL 3**  
 SCALE: 3" = 1'-0"



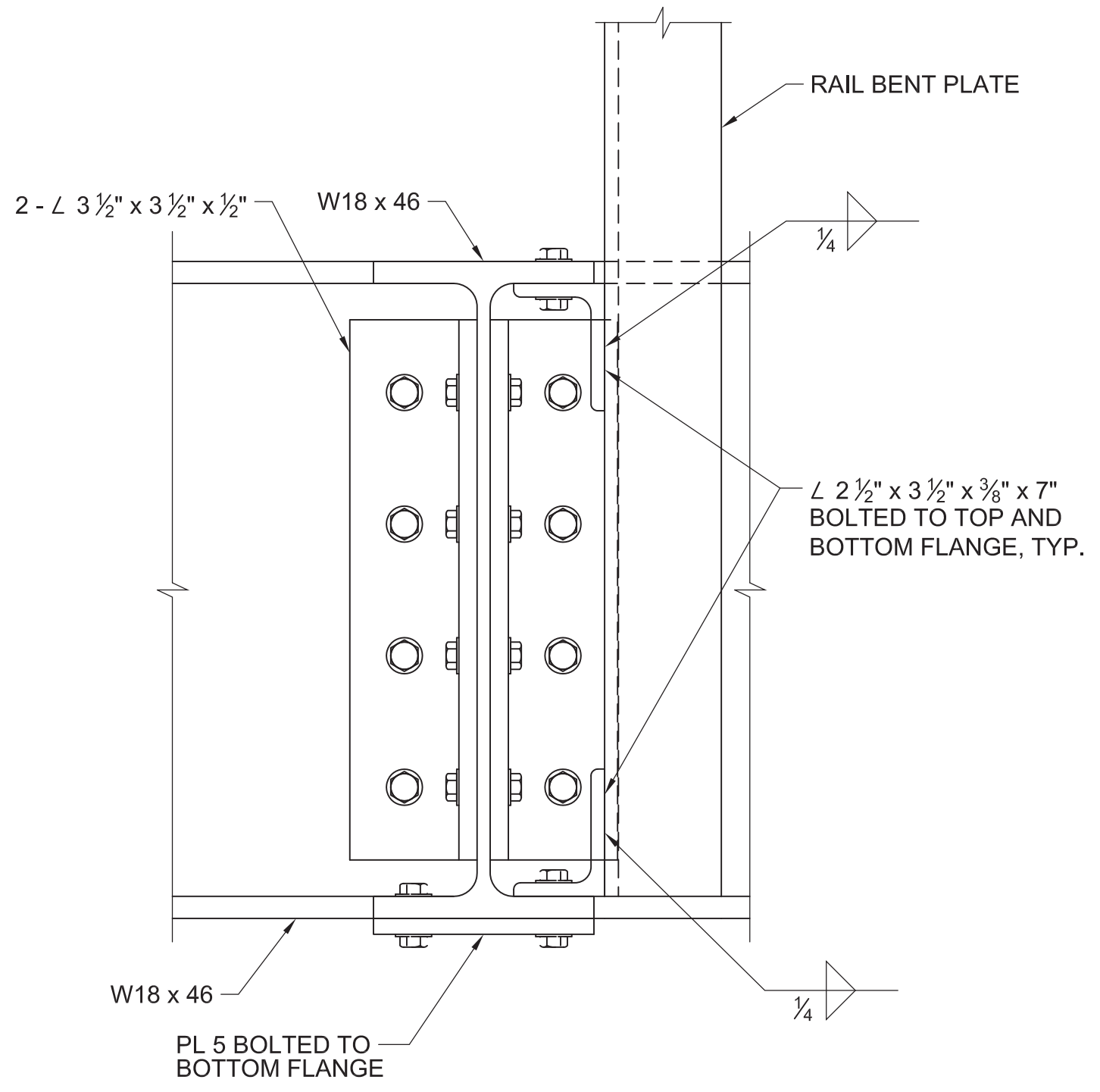
**10 PL 4**  
 SCALE: 3" = 1'-0"



**11 PL 5**  
 SCALE: 3" = 1'-0"

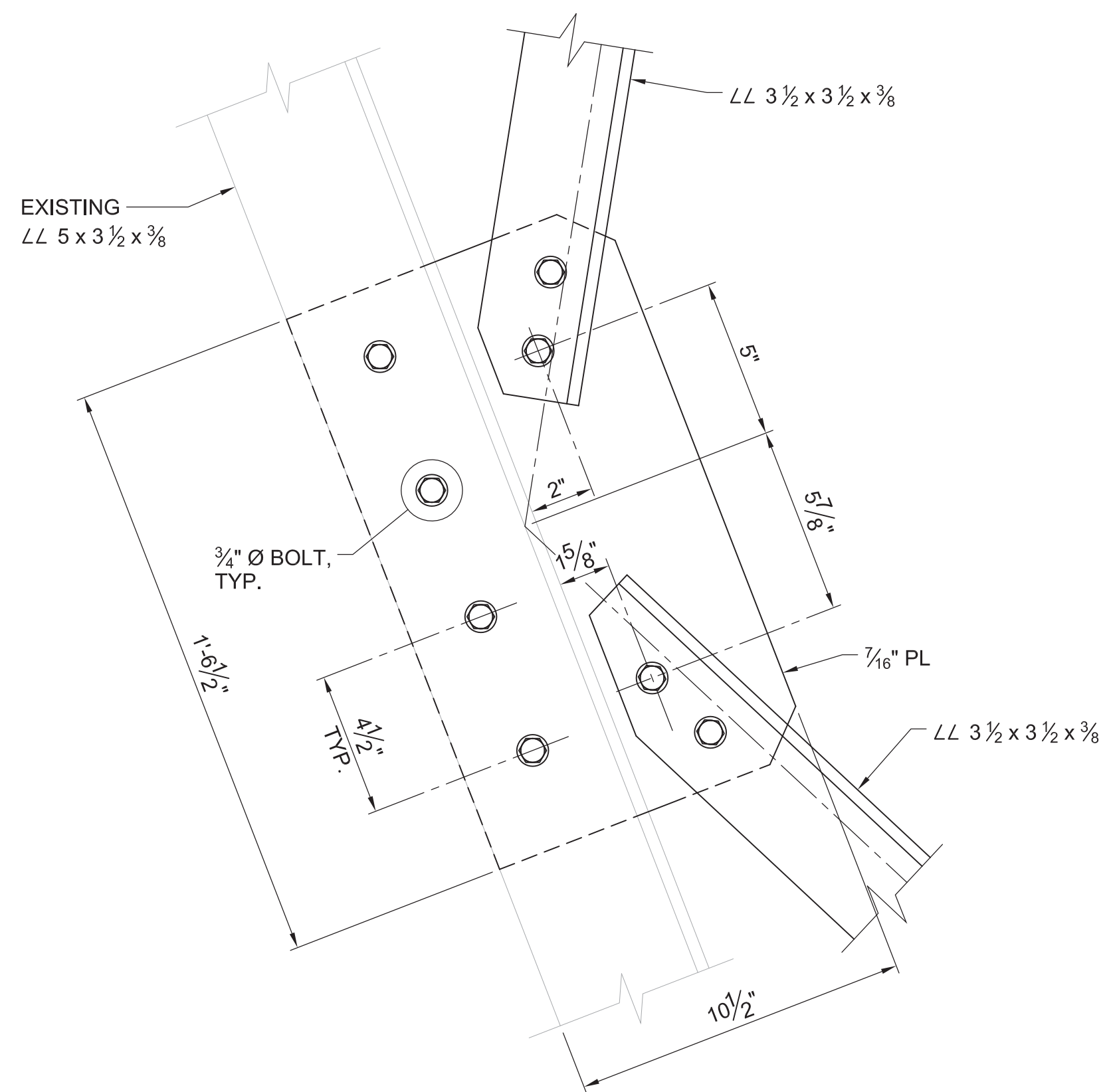


**12 PL 6**  
 SCALE: 3" = 1'-0"

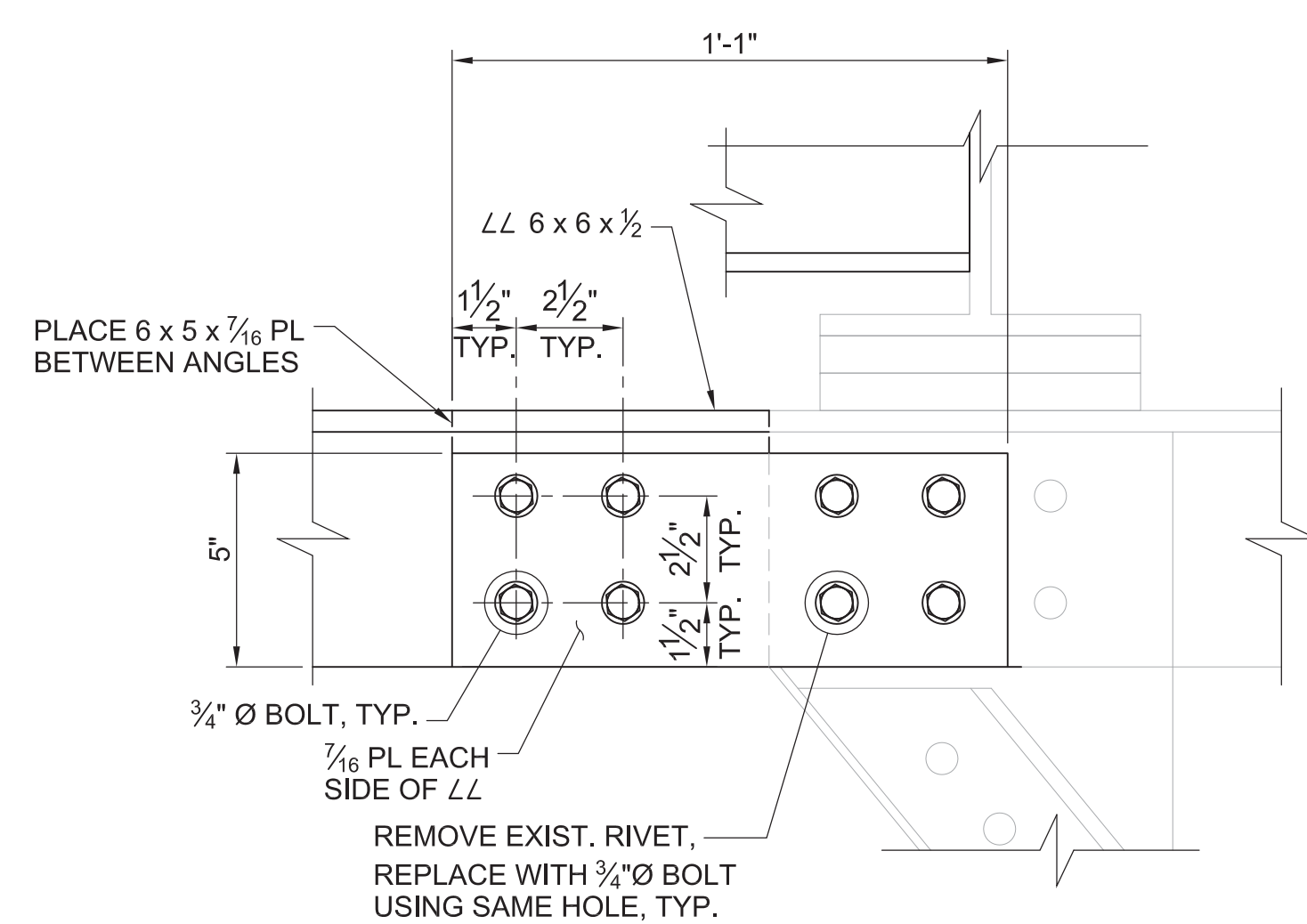


**A SECTION**  
 SCALE: 3" = 1'-0"

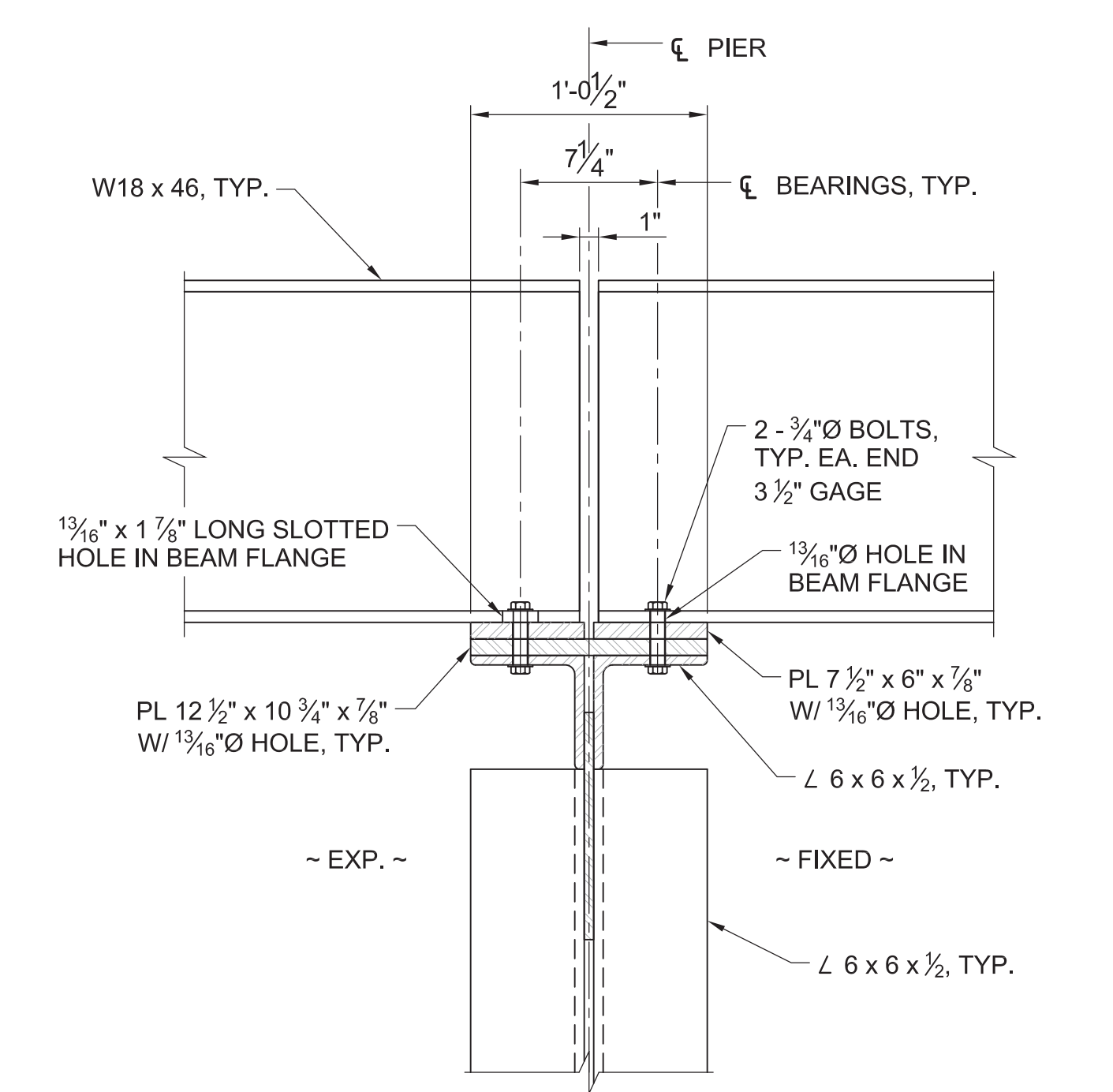




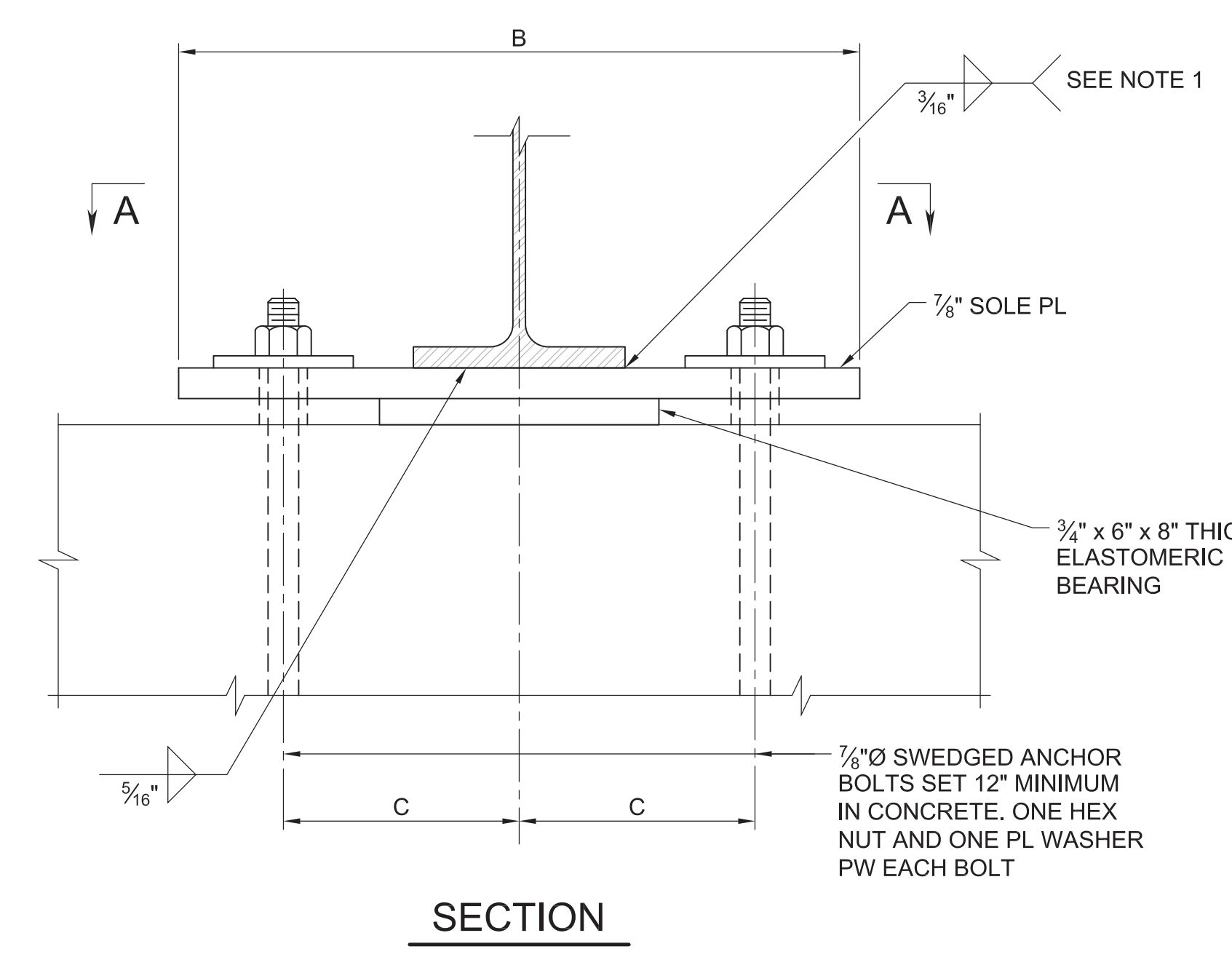
**01 CONNECTION DETAIL**  
SCALE: 3" = 1'-0"



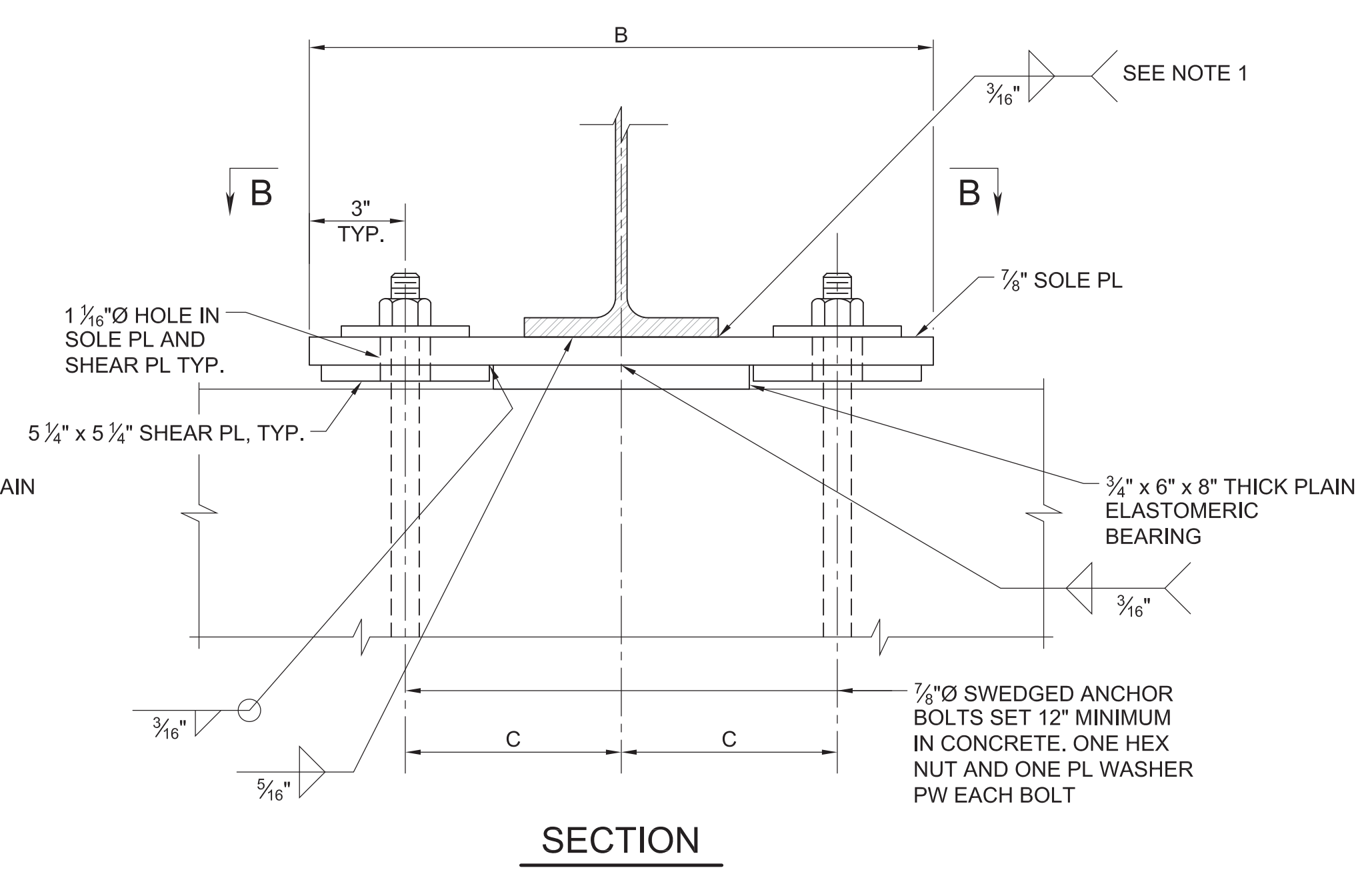
**02 CONNECTION DETAIL**  
SCALE: 3" = 1'-0"



**TYPICAL GIRDER BEARING ON STEEL TRUSS DETAIL**  
SCALE: 1 1/2" = 1'-0"

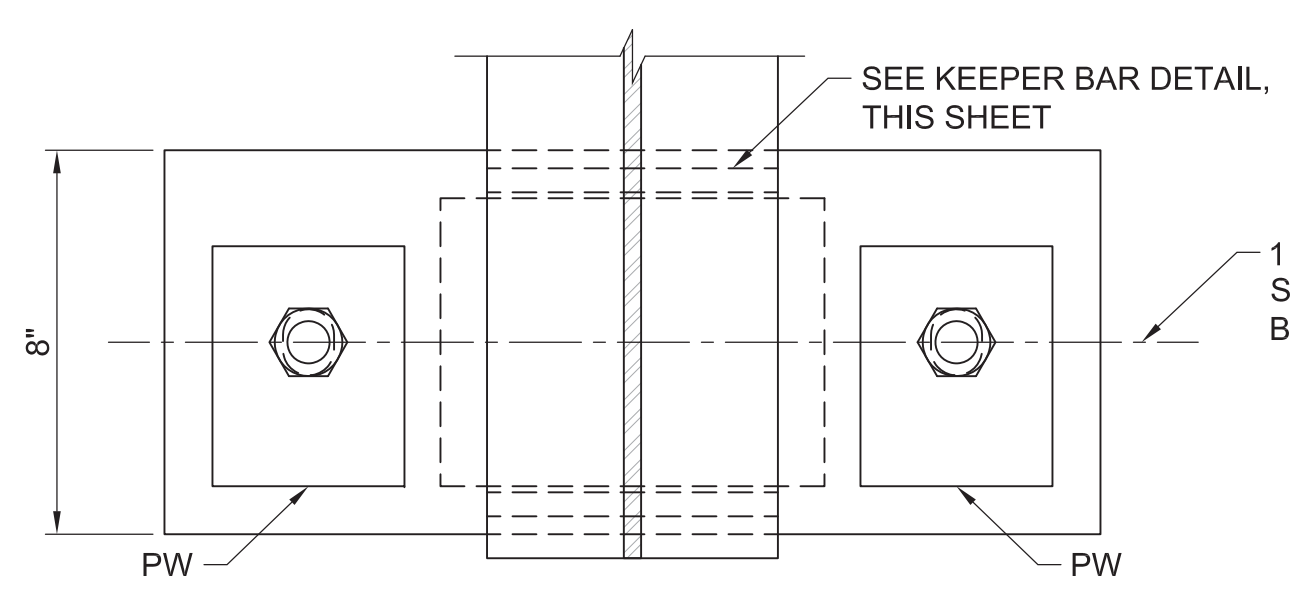


**SECTION**

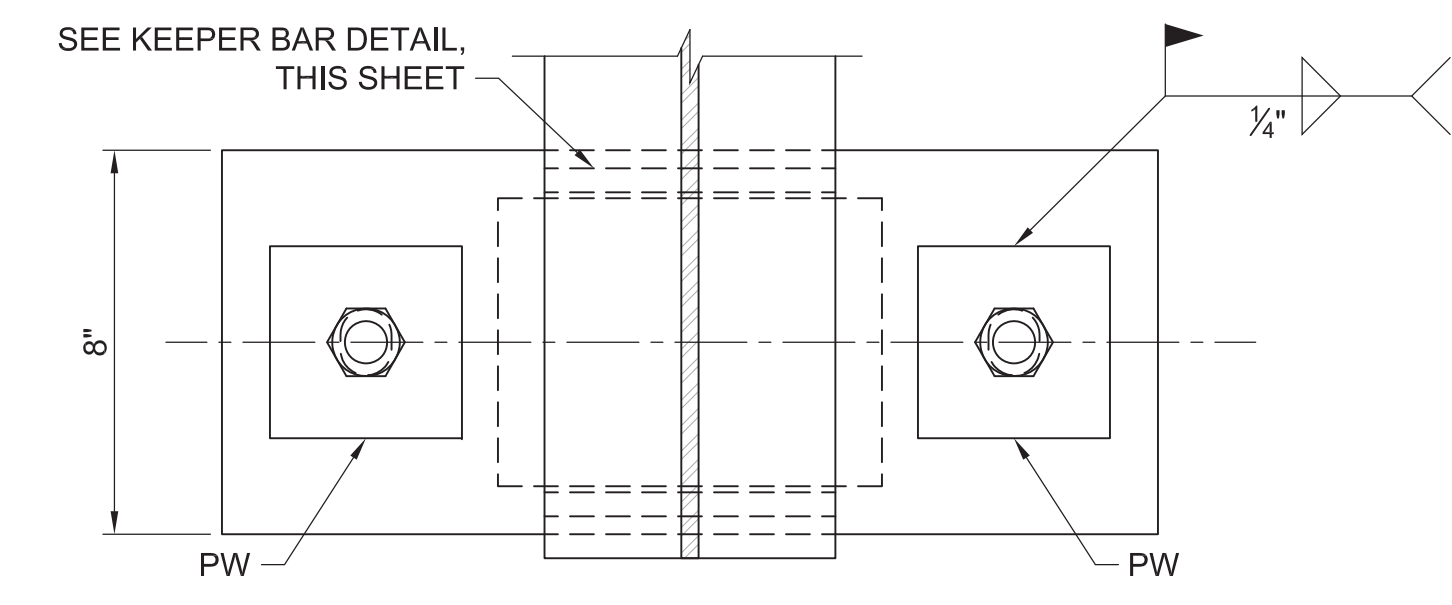


**SECTION**

| BEAM        | B   | C  |
|-------------|-----|----|
| MC18 x 42.7 | 22" | 8" |
| W18 x 46    | 22" | 8" |
| W18 x 65    | 22" | 8" |

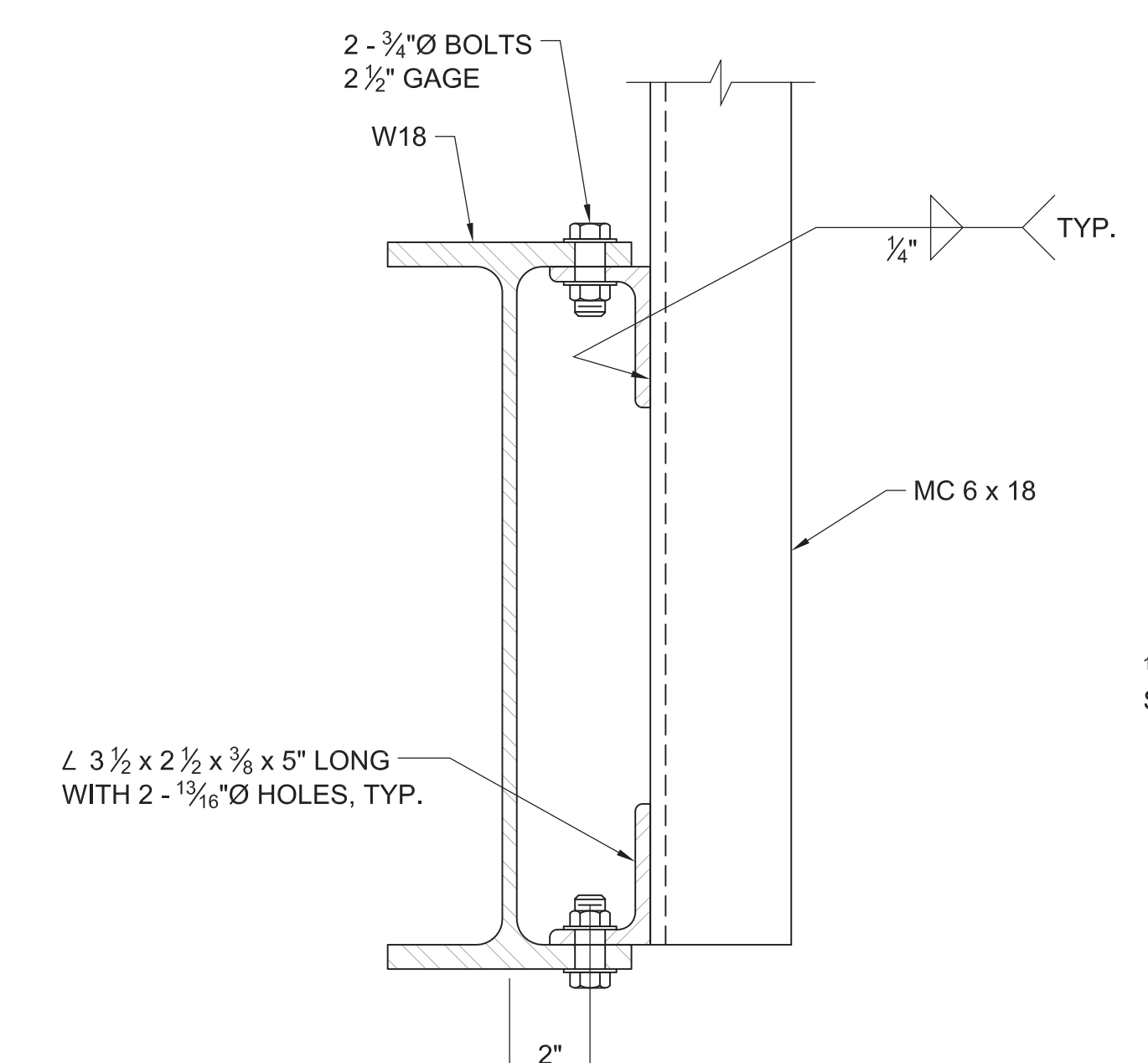


**SECTION A-A**  
**EXPANSION**

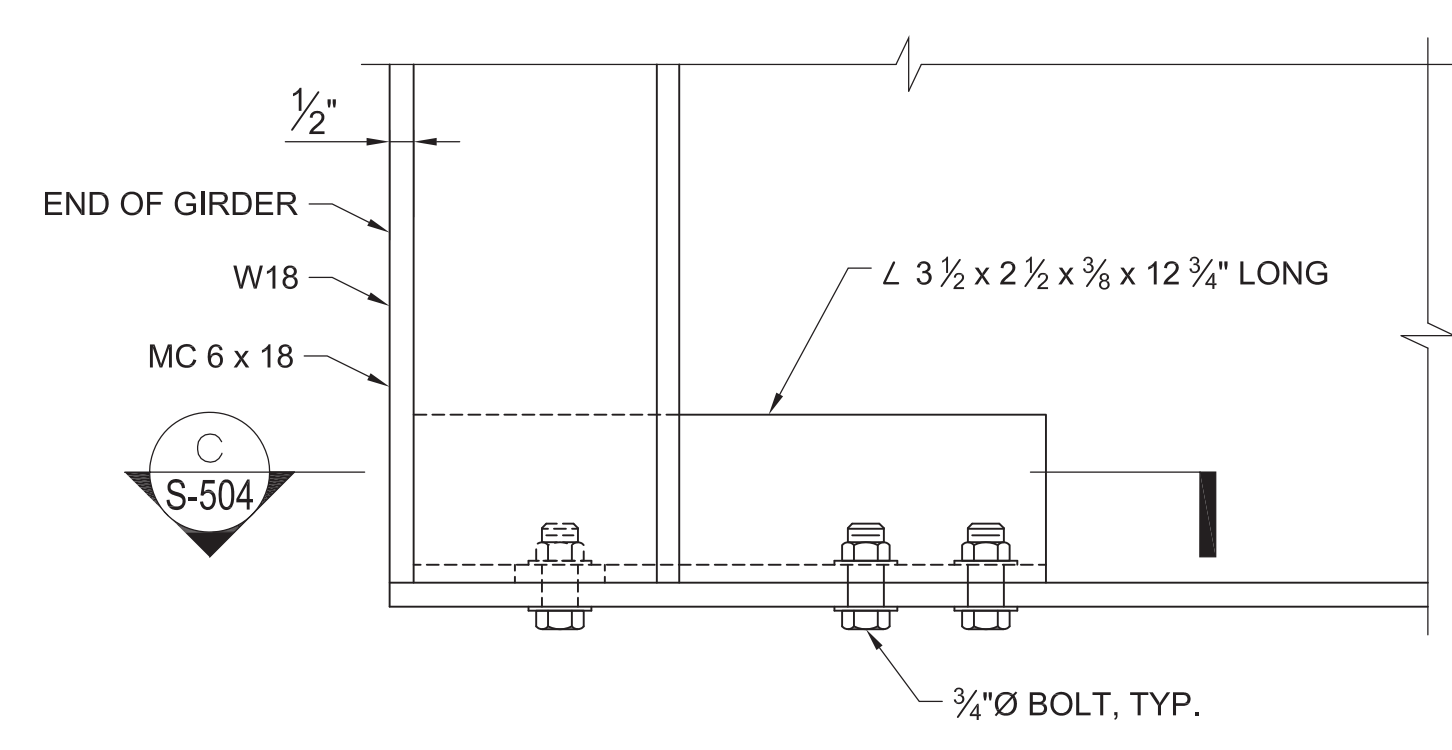


**SECTION B-B**  
**FIXED**

**TYPICAL GIRDER BEARING DETAILS - ON CONCRETE**  
SCALE: 3" = 1'-0"

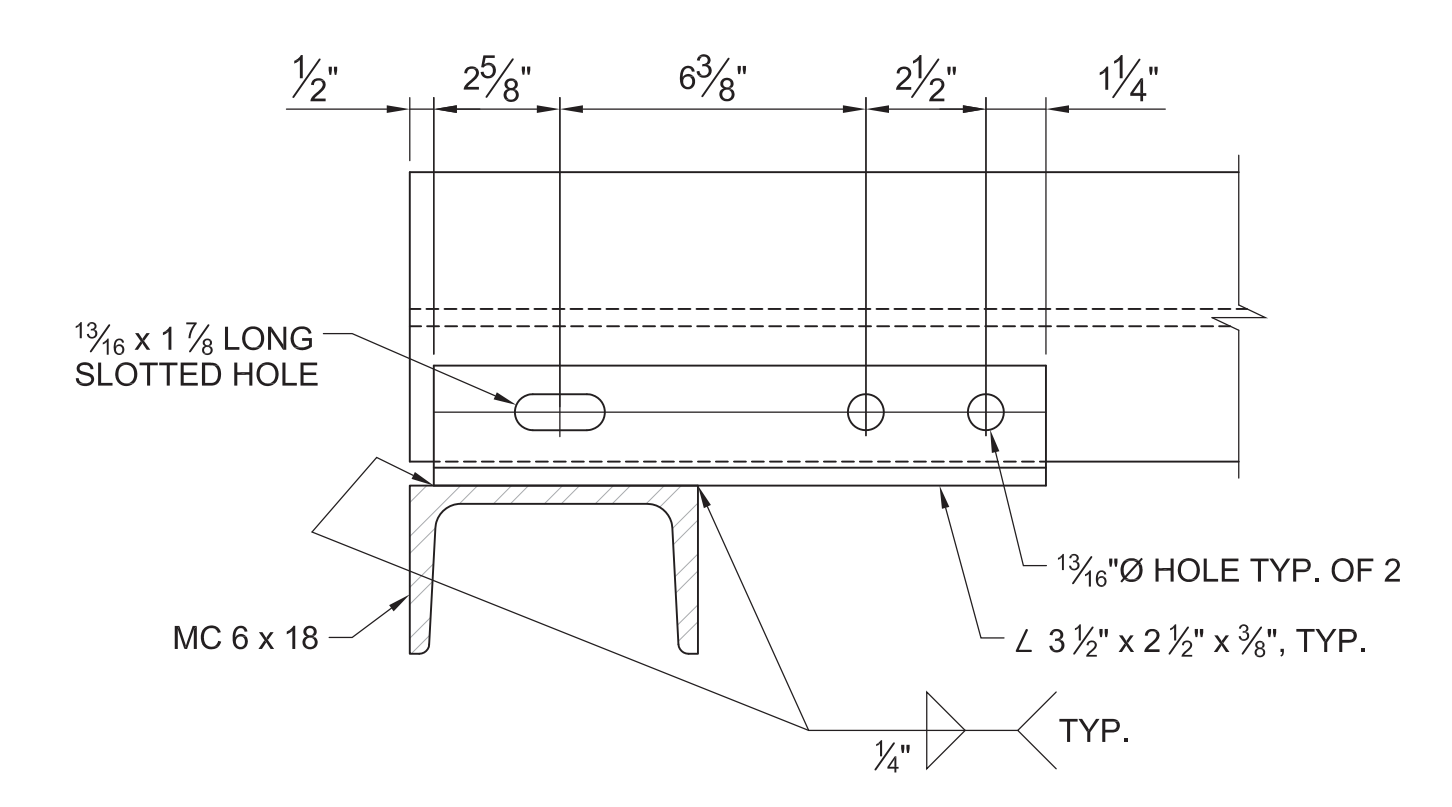


**TYPICAL INTERIOR RAIL POST**  
SCALE: 3" = 1'-0"

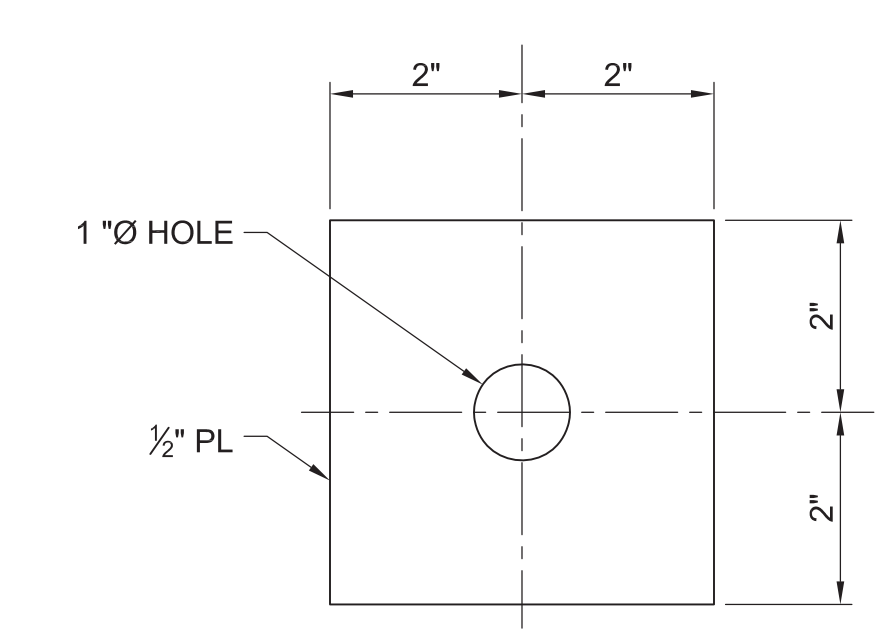


**TYPICAL RAIL END POST**  
SCALE: 3" = 1'-0"

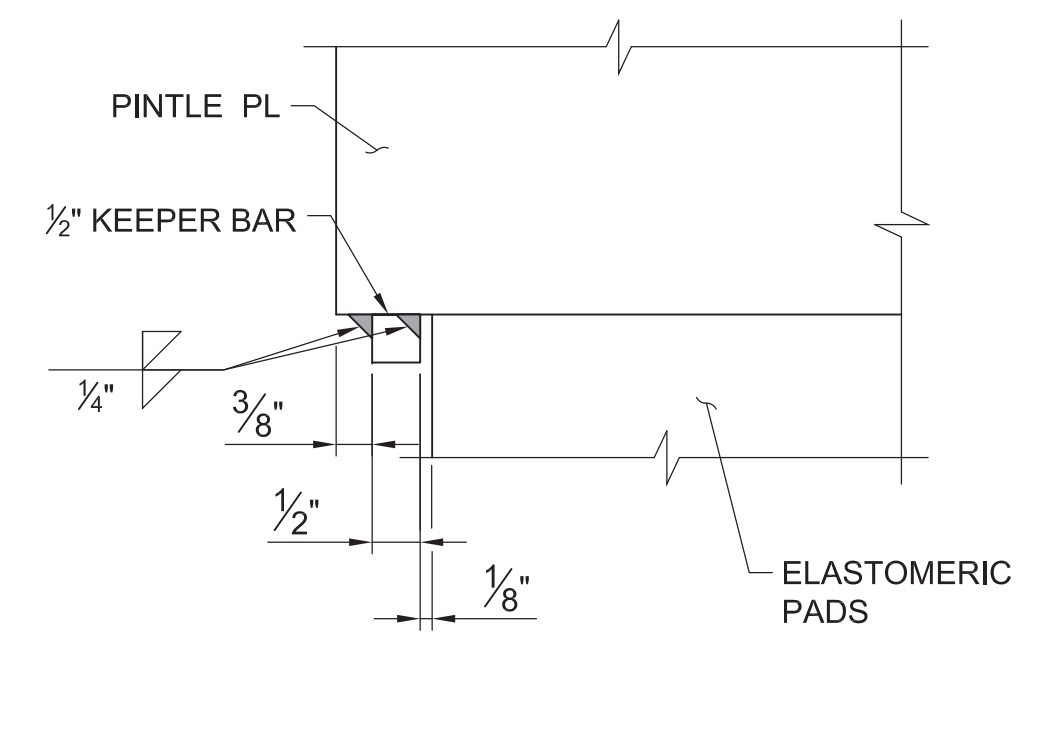
NOTE: CLIP ANGLE AT TOP NOT SHOWN, SAME AS INTERIOR RAIL.



**VIEW**  
SCALE: 3" = 1'-0"



**WASHER PW**  
SCALE: 6" = 1'-0"



**KEEPER BAR DETAIL**  
SCALE: 6" = 1'-0"

**SHEET NOTES**

- WELD SHALL TERMINATE 1/4" FROM EDGE OF SOLE PLATE.
- ELASTOMER SHALL HAVE A "SHORE A" HARDNESS OF 70 FOR PLAIN ELASTOMERIC PADS.

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KEY MAP

SHEET INFORMATION

Project No.: RVA 1301  
Drawn By: NES  
Checked By: EPV  
Date: 10/24/2014  
Scale: AS SHOWN

SHEET TITLE

**STRUCTURAL - STEEL DETAILS**

SHEET NO.

**S-504**



**SIGNAGE**

SYMBOL/  
ABBREVIATION

ELEMENT

MATERIAL / PROFILE  
ASSEMBLY SUMMARY  
REFER TO SPECIFICATION & DETAILS  
FOR COMPLETE DESCRIPTION

PRODUCTS /  
MANUFACTURER  
OR APPROVED EQUAL, REFER TO  
SPECIFICATION

MOCK UP

ID-1 PEDESTRIAN DAM  
GATE ID SIGN

DIMENSIONAL CHARACTERS CUT FROM 3/4" PLATE ALUMINUM WITH SQUARE-CUT, SMOOTH, EASED EDGES, VERTICAL BRUSHED FINISH, AND A CLEAR ACRYLIC POLYURETHANE TOP COAT FINISH. ARMATURE RAILS — ALUMINUM SQUARE TUBE SIGN ARMATURE WITH SATIN BLACK POWDER COAT FINISH. MOUNT ARMATURE RAIL / DIMENSIONAL CHARACTER ASSEMBLY TO EXISTING HISTORIC DAM GATE USING TAMPERPROOF STAINLESS STEEL FASTENERS.

STONE BASE SUPPLIER:  
GRANITE WORLD LLC  
1717 CALHOUN FALLS HIGHWAY  
ELBERTON, GA 30635  
706-988-9671

PROVIDE FULL SIZE SAMPLE OF ONE DIMENSIONAL CHARACTER (CAP LETTER), 12" SECTION OF ARMATURE RAIL, AND MOUNTING HARDWARE — ALL WITH SPECIFIED FINISHES.

OR-1 PEDESTRIAN  
TRAILHEAD KIOSK

PAINTED ALUMINUM BOX AND ARMATURE CONSTRUCTION WITH SMOOTH, STRAIGHT EDGES, UNIFORM SURFACES AND ADEQUATE SUPPORT ASSEMBLIES. KIOSK CONTAINS TWO REMOVABLE PORCELAIN ENAMEL GRAPHIC PANELS. KIOSK ALSO FEATURES CUT VINYL GRAPHICS. THE INTERNAL KIOSK STRUCTURE IS MOUNTED TO THE GRANITE BASE USING A STEEL MOUNTING BRACKET. STONE BASE TO BE GEORGIA GREY GRANITE.

PORCELAIN ENAMEL SUPPLIER:  
WINDSOR FIREFORM  
3401 MOTTMAN ROAD SW  
TURNWATER, WA 98512  
360-786-8200  
WWW.WINSORFIREFORM.COM  
OR  
KVO INDUSTRIES, INC.  
1825 EMPIRE INDUSTRIAL COURT, SUITE A  
SANTA ROSA, CA 95403  
707-573-6868  
WWW.KVOINDUSTRIES.COM

PROVIDE 12" X 12" MATERIAL SAMPLES AND FINISHES FOR: PAINT COLORS, CUT VINYL GRAPHICS, GRANITE BASES, AND PORCELAIN ENAMEL PANELS. PROVIDE STANDARD SIZE COLOR PROOFS OF ALL GRAPHICS PRIOR TO PRODUCTION.

REG-1 REGULATORY SIGN

PAINTED ALUMINUM BOX AND ARMATURE CONSTRUCTION WITH SMOOTH, STRAIGHT EDGES, UNIFORM SURFACES AND ADEQUATE SUPPORT ASSEMBLIES. KIOSK CONTAINS TWO REMOVABLE PORCELAIN ENAMEL GRAPHIC PANELS. KIOSK ALSO FEATURES CUT VINYL GRAPHICS. THE INTERNAL KIOSK STRUCTURE IS MOUNTED TO THE GRANITE BASE USING A STEEL MOUNTING BRACKET. STONE BASE TO BE GEORGIA GREY GRANITE.

SEE OR-1 ABOVE

PROVIDE 12" X 12" MATERIAL SAMPLES AND FINISHES FOR: PAINT COLORS, CUT VINYL GRAPHICS, GRANITE BASES, AND PORCELAIN ENAMEL PANELS. PROVIDE STANDARD SIZE COLOR PROOFS OF ALL GRAPHICS PRIOR TO PRODUCTION.

REG-2 REGULATORY SIGN,  
POLE MOUNTED

SINGLE ALUMINUM SIGN PANEL CONSTRUCTION WITH PRESSURE SENSITIVE CUT-VINYL OR DIGITAL PRINT GRAPHICS. PAINT ALL VISIBLE SURFACES OF THE PANEL WITH APPROPRIATE PRIMER AND GLOSS ACRYLIC POLYURETHANE TOPCOAT. MATTHEWS PAINT OR EQUIVALENT. MOUNT TO EXISTING LIGHT POSTS WITH STOCK BRACKETS AND SS STRAPS.

FLARED-LEG SS BRACKET WITH SS BOLT / WASHER AND SIGN MOUNTING STRAPPING SUPPLIER  
THE TRAFFIC SIGN STORE  
WWW.STORE.TRAFFICSTORE.COM  
OR  
MUNICIPAL SUPPLY & SIGN CO.  
WWW.MUNICIPALSIGNS.COM

PROVIDE 12" X 12" MATERIAL SAMPLES AND FINISHES FOR: PAINT COLORS AND CUT VINYL GRAPHICS.

DIR-1 PEDESTRIAN  
DIRECTIONAL SIGN,  
POLE MOUNTED

SINGLE ALUMINUM SIGN PANEL CONSTRUCTION WITH PRESSURE SENSITIVE CUT-VINYL OR DIGITAL PRINT GRAPHICS. PAINT ALL VISIBLE SURFACES OF THE PANEL WITH APPROPRIATE PRIMER AND GLOSS ACRYLIC POLYURETHANE TOPCOAT. MATTHEWS PAINT OR EQUIVALENT. MOUNT TO EXISTING LIGHT POSTS WITH STOCK BRACKETS AND SS STRAPS.

FLARED-LEG SS BRACKET WITH SS BOLT / WASHER AND SIGN MOUNTING STRAPPING SUPPLIER  
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WWW.STORE.TRAFFICSTORE.COM  
OR  
MUNICIPAL SUPPLY & SIGN CO.  
WWW.MUNICIPALSIGNS.COM

PROVIDE 12" X 12" MATERIAL SAMPLES AND FINISHES FOR: PAINT COLORS AND CUT VINYL GRAPHICS.

DIR-2 PEDESTRIAN  
DIRECTIONAL SIGN,  
MONUMENT STYLE

PAINTED ALUMINUM BOX AND ARMATURE CONSTRUCTION WITH SMOOTH, STRAIGHT EDGES, UNIFORM SURFACES AND ADEQUATE SUPPORT ASSEMBLIES. KIOSK FEATURES CUT VINYL GRAPHICS. THE INTERNAL KIOSK STRUCTURE IS MOUNTED TO THE GRANITE BASE USING A STEEL MOUNTING BRACKET. STONE BASE TO BE GEORGIA GREY GRANITE.

SEE OR-1 ABOVE

PROVIDE 12" X 12" MATERIAL SAMPLES AND FINISHES FOR: PAINT COLORS, CUT VINYL GRAPHICS, AND GRANITE BASES. PROVIDE STANDARD SIZE COLOR PROOFS OF ALL GRAPHICS PRIOR TO PRODUCTION.

INT-1 PEDESTRIAN  
INTERPRETIVE,  
RAILING MOUNTED

STEEL ANGLE FRAME WITH MITERED CORNERS TO HAVE SATIN POWER COAT FINISH. COLOR TBD. DRILL WEEP HOLES IN BOTTOM RAIL OF FRAME FOR DRAINAGE. PORCELAIN ENAMEL PANELS TO HAVE 1" FLANGES TO CREATE A PAN-SHAPED PIECE. MOUNT PORCELAIN ENAMEL PANEL TO PVC SUBSTRATE PANEL. CUSTOM 1/4" STEEL MOUNTING BRACKETS WITH SATIN POWER COAT FINISH ARE FASTENED TO THE SIDES OF THE GRAPHIC PANEL FRAME AND THE BRIDGE POSTS. ALL FASTENERS TO BE STAINLESS STEEL.

PORCELAIN ENAMEL SUPPLIER:  
WINDSOR FIREFORM  
3401 MOTTMAN ROAD SW  
TURNWATER, WA 98512  
360-786-8200  
WWW.WINSORFIREFORM.COM  
OR  
KVO INDUSTRIES, INC.  
1825 EMPIRE INDUSTRIAL COURT, SUITE A  
SANTA ROSA, CA 95403  
707-573-6868  
WWW.KVOINDUSTRIES.COM

PROVIDE 12" X 12" MATERIAL SAMPLES AND FINISHES FOR POWDER COAT COLORS AND PORCELAIN ENAMEL PANELS. PROVIDE STANDARD SIZE COLOR PROOFS OF ALL GRAPHICS PRIOR TO PRODUCTION.

**PROJECT INFORMATION**

Richmond, Virginia Riverfront

Improvements: Priority 1

**T. TYLER  
POTTERFIELD  
MEMORIAL BRIDGE**

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**ISSUE**

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
|     | SCHEMATIC DESIGN   | 02-28-2014 |
|     | DESIGN DEVELOPMENT | 06-27-2014 |
|     | 85% CONSTRUCTION   | 10-03-2014 |
|     | BID SET            | 10-24-2014 |

**KEY MAP**



**SHEET INFORMATION**

Project No.: RVA 1301  
Drawn By: KEM  
Checked By: JCC  
Date: 10/22/2014  
Scale: N/A

**SHEET TITLE**

**SIGNAGE  
SCHEDULE**

**SHEET NO.**

**XS-010**

**PROJECT INFORMATION**

Richmond, Virginia Riverfront

Improvements: Priority 1

**T. TYLER  
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MEMORIAL BRIDGE**

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**SIGN NOTES**

1. ALL GRAPHICS (TEXT AND IMAGES)  
SHOWN IN THE CONSTRUCTION  
DRAWINGS ARE FOR REFERENCE ONLY.  
ALL GRAPHICS WILL BE FINALIZED AND  
RELEASED IN A SEPARATE PACKAGE.

**SEAL/SIGNATURE**

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|     | BID SET            | 10-24-2014 |

**KEY MAP**



**SHEET INFORMATION**

Project No.: RVA 1301  
Drawn By: KEM  
Checked By: JCC  
Date: 10/22/2014  
Scale: AS SHOWN

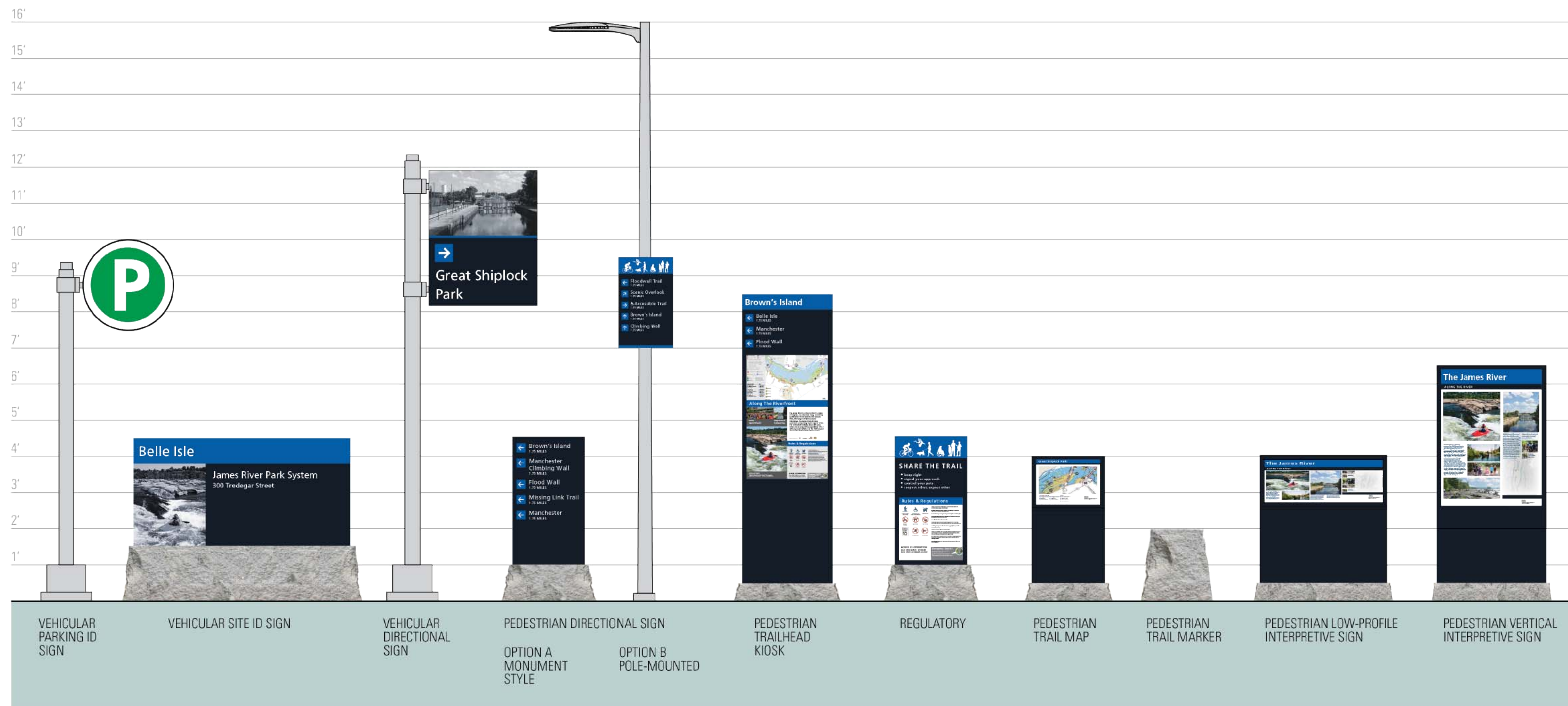
**SHEET TITLE**

**FAMILY OF  
SIGNS**

**SHEET NO.**

**XS-101**

**FAMILY OF SIGN TYPES — RICHMOND RIVERFRONT TRAIL SIGNS**



01 FAMILY OF SIGNS — ALL PHASES  
SCALE: 3/4" = 1'-0"

0' 1'









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2/11/2010

### SIGN TYPE

OR-1 — PEDESTRIAN TRAILHEAD KIOSK

### SIGN NOTES

1. PAINTED ALUMINUM BOX AND ARMATURE CONSTRUCTION WITH SMOOTH, STRAIGHT EDGES, UNIFORM SURFACES AND ADEQUATE SUPPORT ASSEMBLIES.
2. KIOSK CONTAINS TWO REMOVABLE FLAT 16 GAUGE (.060") LOW CARBON SHEET STEEL WITH REGULAR GLOSS SURFACE FINISH PORCELAIN ENAMEL GRAPHIC PANELS.
3. KIOSK ALSO FEATURES CUT VINYL GRAPHICS APPLIED TO THE ACRYLIC POLYURETHANE PAINT FINISH ON THE KIOSK.
4. THE INTERNAL KIOSK STRUCTURE IS MOUNTED TO THE GRANITE BASE USING A POWDER COATED STEEL MOUNTING BRACKET.
5. FINISH ALUMINUM WITH APPROPRIATE PRIMER WITH LOW VOC, UV RESISTANT, GLOSS ACRYLIC POLYURETHANE TOPCOAT. MATTHEWS PAINT OR EQUIVALENT.
6. STONE BASE TO BE GEORGIA GREY GRANITE WITH ROCKFACE (HEAVY RELIEF) SURFACE ON FOUR SIDES AND SAWN (SMOOTH) FINISH ON TOP AND BOTTOM.
7. ALL GRAPHICS (TEXT AND IMAGES) SHOWN IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. ALL GRAPHICS WILL BE FINALIZED AND RELEASED IN A SEPARATE PACKAGE. DESIGNER WILL PROVIDE ALL DIGITAL FILES REQUIRED FOR PRODUCTION OR PRINTING.
8. FINISH COLORS:  
F3 — MATCH PMS 2935C, GLOSS FINISH  
F5 — MATCH PMS 7547C, GLOSS FINISH  
F7 — MATCH PMS BRIGHT WHITE, GLOSS FINISH
9. FOR REINFORCED CONCRETE FOOTER SEE CIVIL DRAWINGS.
10. FOR LOCATION, SEE LANDSCAPE PLANS.

### PROJECT INFORMATION

Richmond, Virginia Riverfront

Improvements: Priority 1

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|     | BID SET            | 10-24-2014 |

### KEY MAP

### SHEET INFORMATION

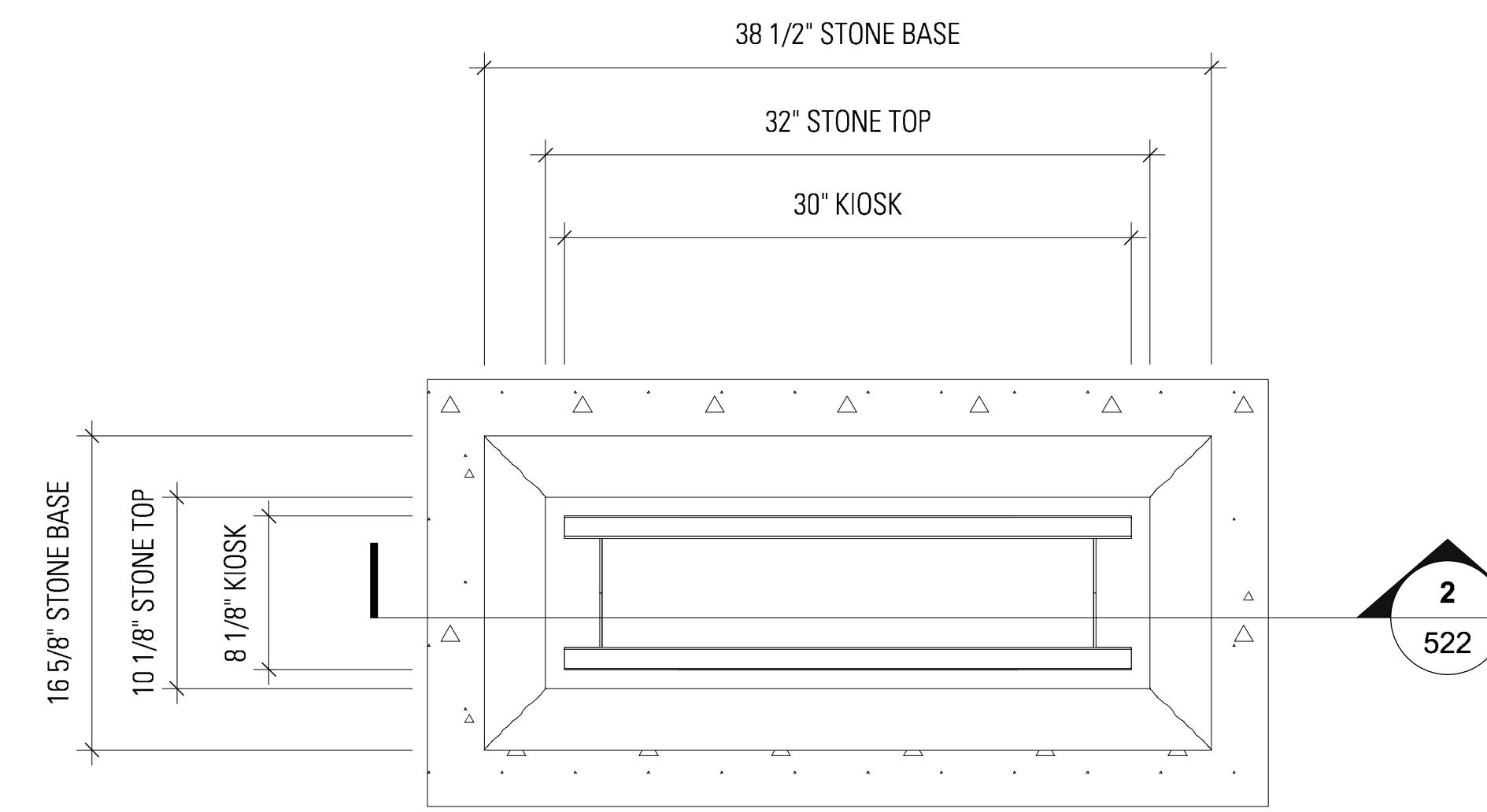
Project No.: RVA 1301  
Drawn By: KEM  
Checked By: JCC  
Date: 10/22/2014  
Scale: AS SHOWN

### SHEET TITLE

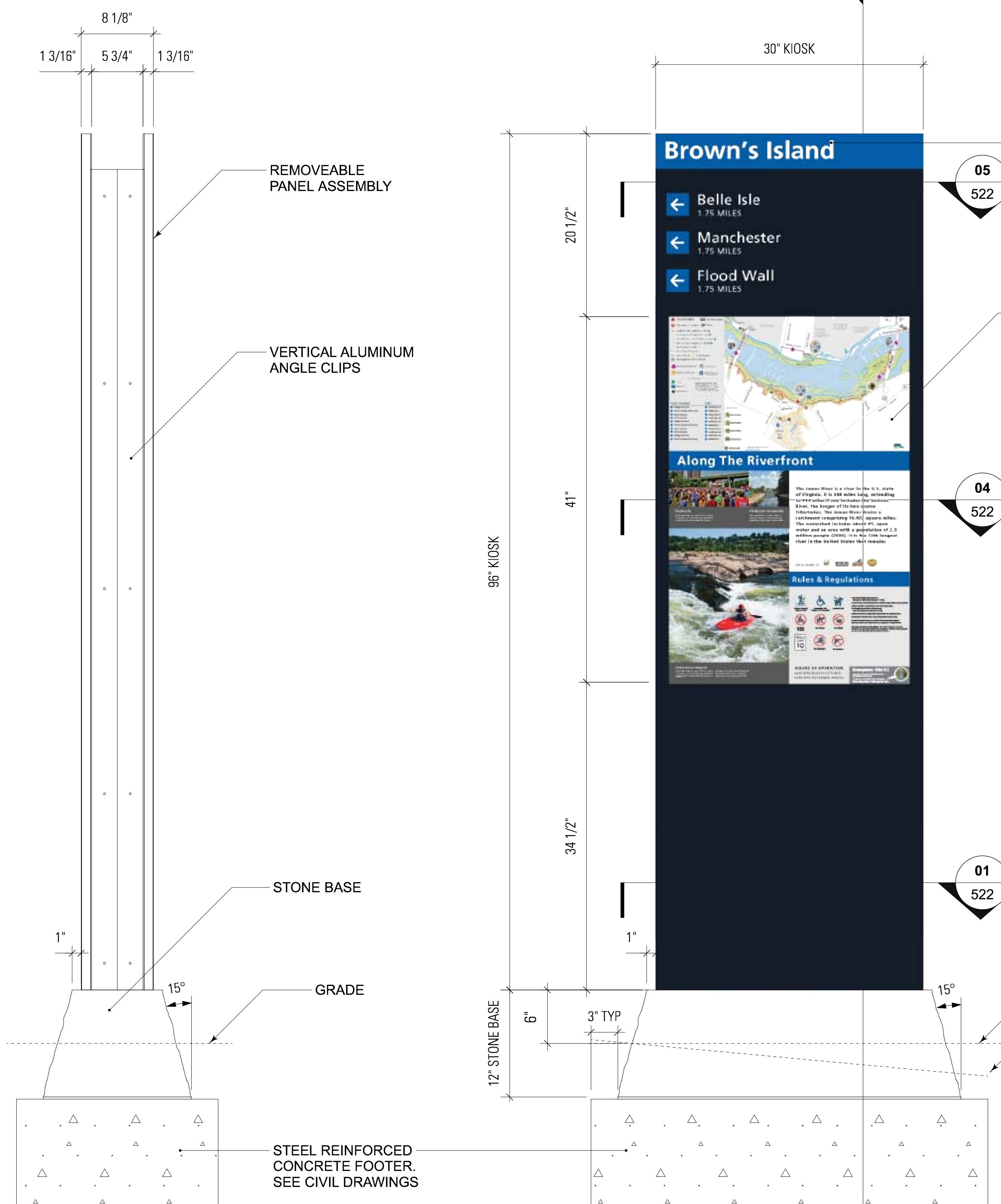
**DETAILS SIGNAGE—OR-1 PEDESTRIAN TRAILHEAD KIOSK**

### SHEET NO.

**XS-520**

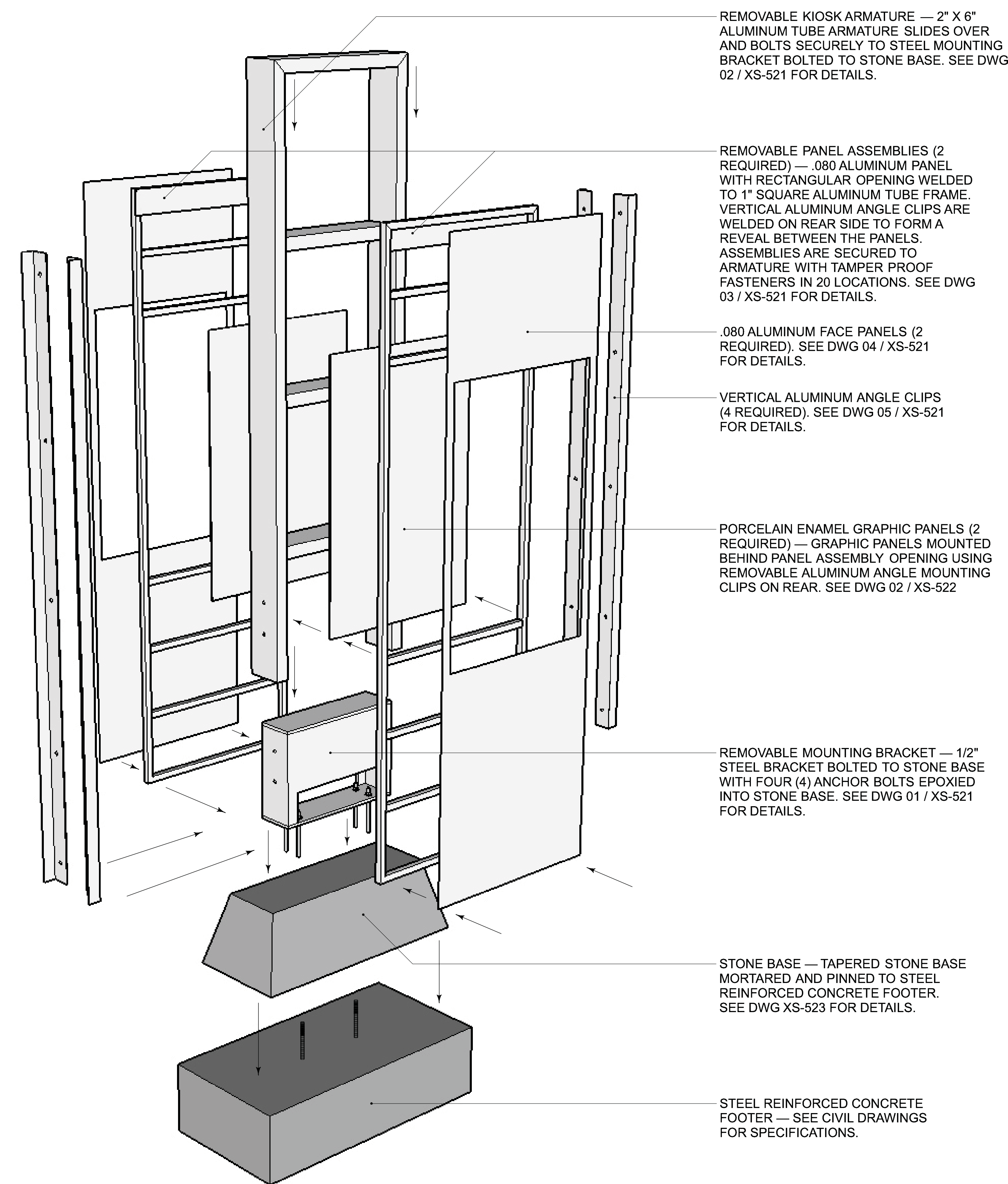


04 PLAN  
SCALE: 1-1/2" = 1'-0"



01 FRONT ELEVATION  
SCALE: 1-1/2" = 1'-0"

02 SIDE ELEVATION  
SCALE: 1-1/2" = 1'-0"



03 EXPLODED VIEW — OR-1 — PEDESTRIAN TRAILHEAD KIOSK  
NTS

REMOVABLE KIOSK ARMATURE — 2" X 6" ALUMINUM TUBE ARMATURE SLIDES OVER AND BOLTS SECURELY TO STEEL MOUNTING BRACKET BOLTED TO STONE BASE. SEE DWG 02 / XS-521 FOR DETAILS.

REMOVABLE PANEL ASSEMBLIES (2 REQUIRED) — .080 ALUMINUM PANEL WITH RECTANGULAR OPENING WELDED TO 1" SQUARE ALUMINUM TUBE FRAME. VERTICAL ALUMINUM ANGLE CLIPS ARE WELDED ON REAR SIDE TO FORM A REVEAL BETWEEN THE PANELS. ASSEMBLIES ARE SECURED TO ARMATURE WITH TAMPER PROOF FASTENERS IN 20 LOCATIONS. SEE DWG 03 / XS-521 FOR DETAILS.

.080 ALUMINUM FACE PANELS (2 REQUIRED). SEE DWG 04 / XS-521 FOR DETAILS.

VERTICAL ALUMINUM ANGLE CLIPS (4 REQUIRED). SEE DWG 05 / XS-521 FOR DETAILS.

PORCELAIN ENAMEL GRAPHIC PANELS (2 REQUIRED) — GRAPHIC PANELS MOUNTED BEHIND PANEL ASSEMBLY OPENING USING REMOVABLE ALUMINUM ANGLE MOUNTING CLIPS ON REAR. SEE DWG 02 / XS-522

REMOVABLE MOUNTING BRACKET — 1/2" STEEL BRACKET BOLTED TO STONE BASE WITH FOUR (4) ANCHOR BOLTS EPOXIED INTO STONE BASE. SEE DWG 01 / XS-521 FOR DETAILS.

STONE BASE — TAPERED STONE BASE MORTARED AND PINNED TO STEEL REINFORCED CONCRETE FOOTER. SEE DWG XS-523 FOR DETAILS.

STEEL REINFORCED CONCRETE FOOTER — SEE CIVIL DRAWINGS FOR SPECIFICATIONS.

REMOVEABLE PANEL ASSEMBLY

VERTICAL ALUMINUM ANGLE CLIPS

STONE BASE

GRADE

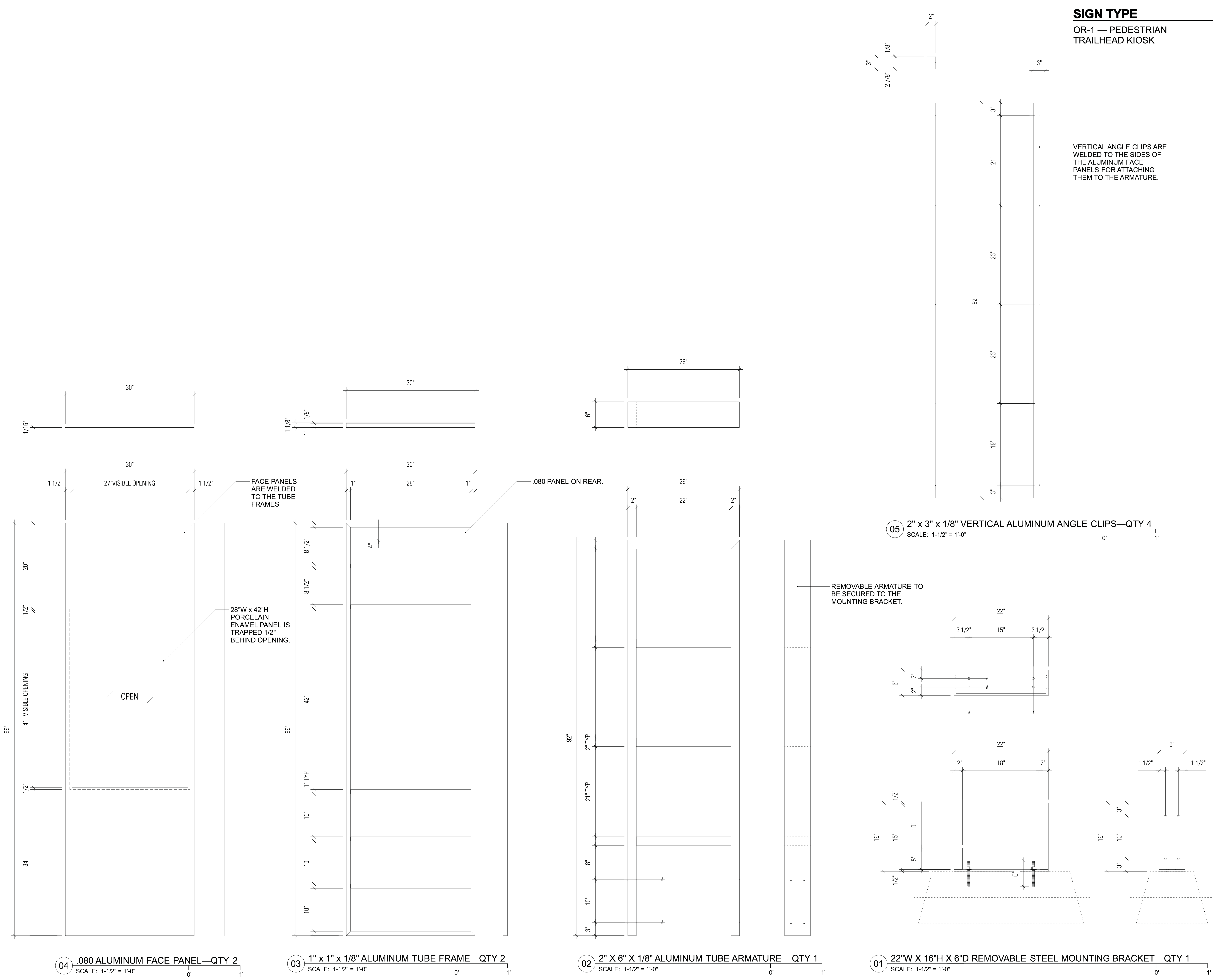
STEEL REINFORCED CONCRETE FOOTER. SEE CIVIL DRAWINGS

PAINTED .080 ALUMINUM PANEL WITH CUT VINYL GRAPHICS. SEE DWG 01 / XS-523 FOR GRAPHIC DETAILS

28"W x 42"H PORCELAIN ENAMEL PANEL. SEE DWG 01 / XS-523 FOR GRAPHIC DETAILS

IF GRADE IS SLOPED MAINTAIN 6" ON THE HIGH SIDE AND REGRADE IF FOUNDATION IS EXPOSED ON THE LOW SIDE.

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**SIGN TYPE**

OR-1 — PEDESTRIAN TRAILHEAD KIOSK

**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront  
 Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
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| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

**KEY MAP**

**SHEET INFORMATION**

Project No.: RVA 1301  
 Drawn By: KEM  
 Checked By: JCC  
 Date: 10/22/2014  
 Scale: AS SHOWN

**SHEET TITLE**

**DETAILS SIGNAGE—OR-1 PEDESTRIAN TRAILHEAD KIOSK**

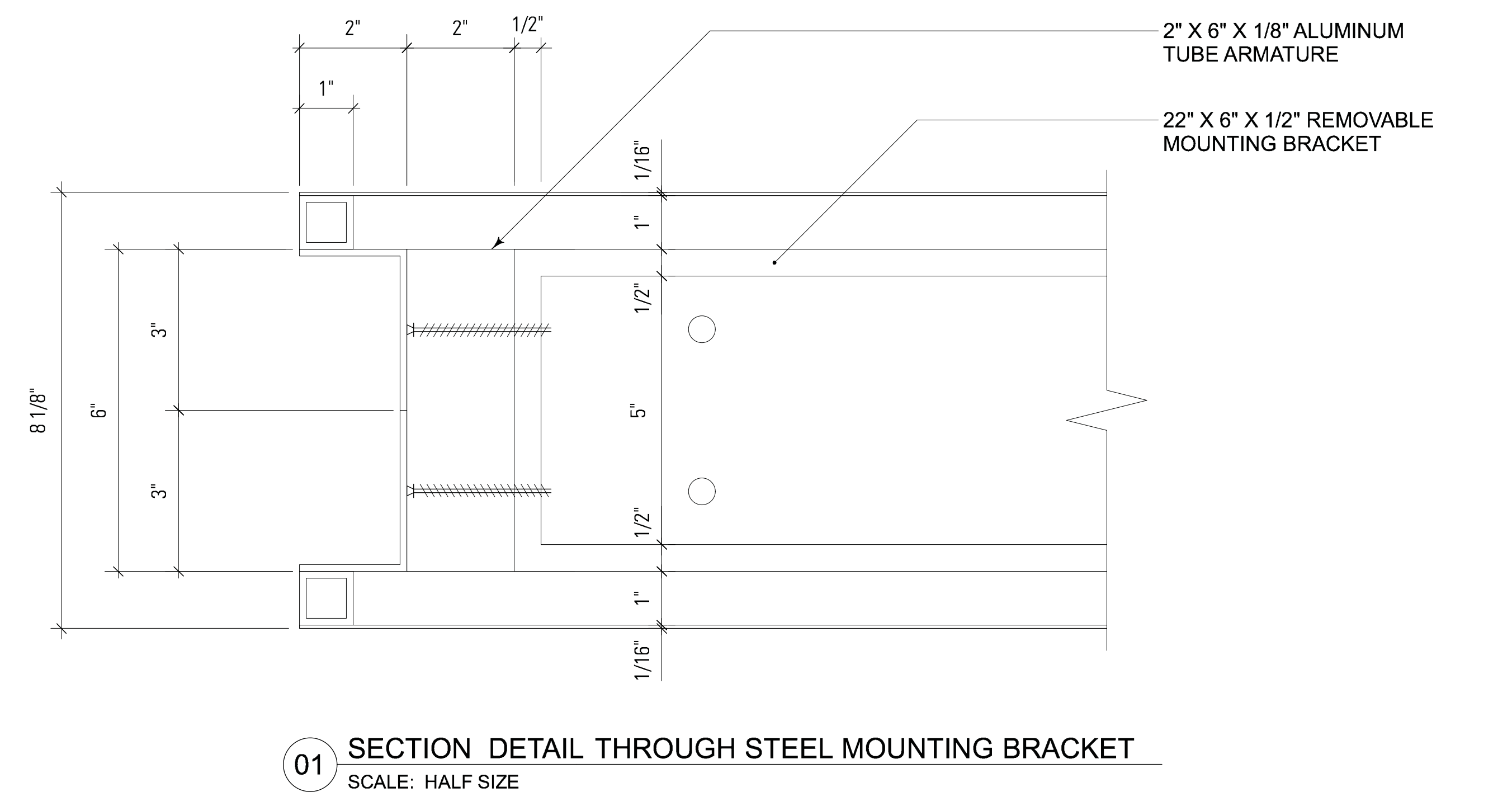
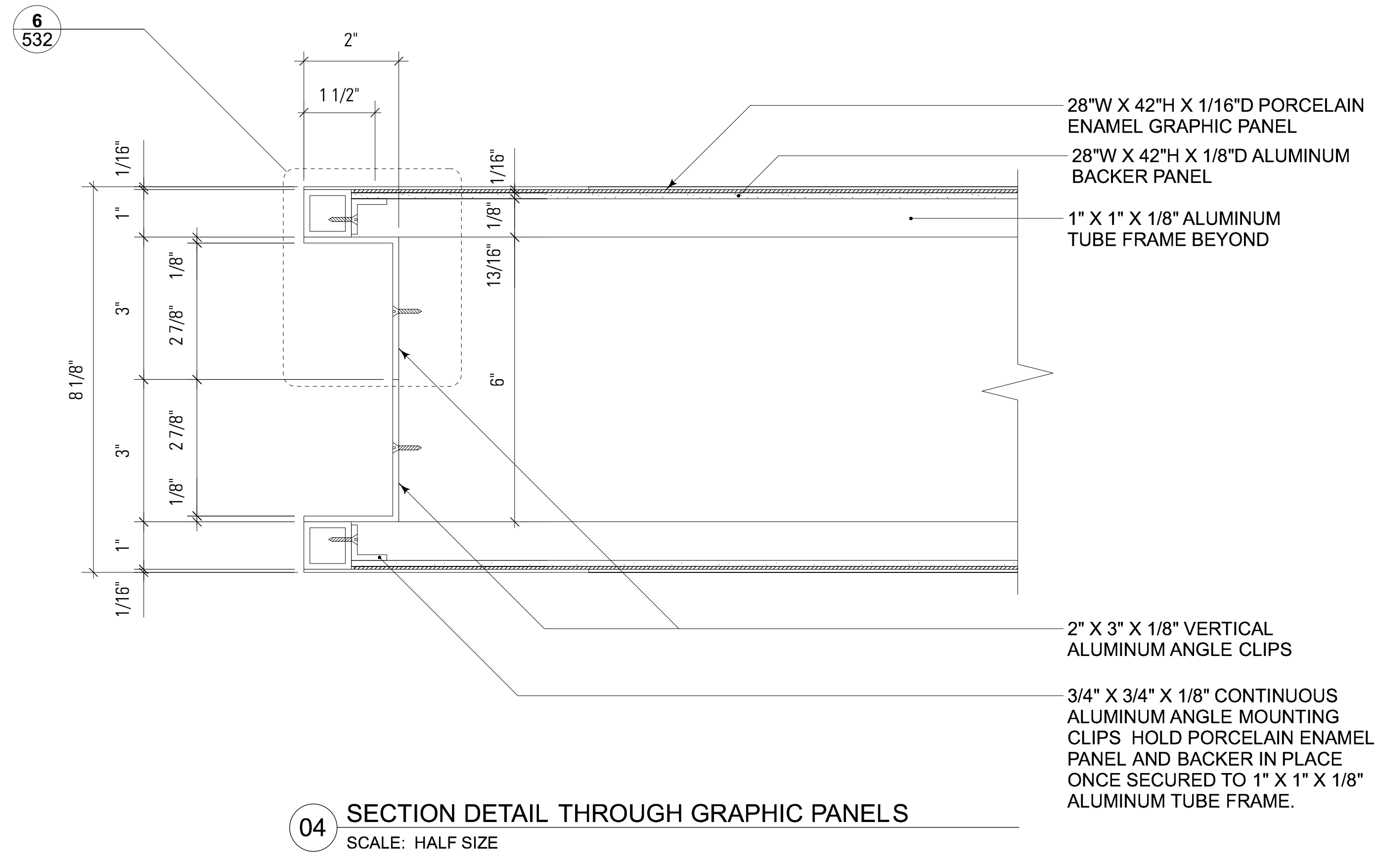
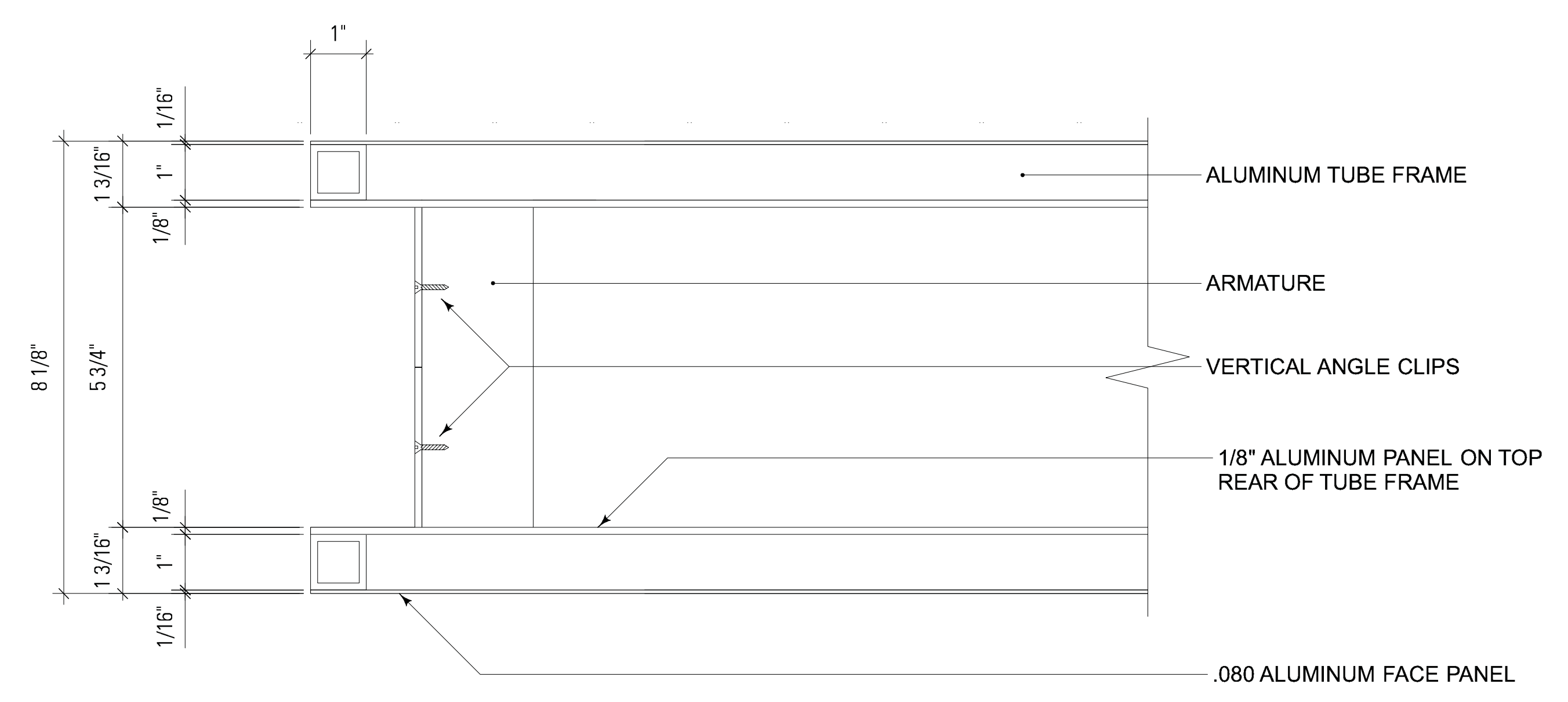
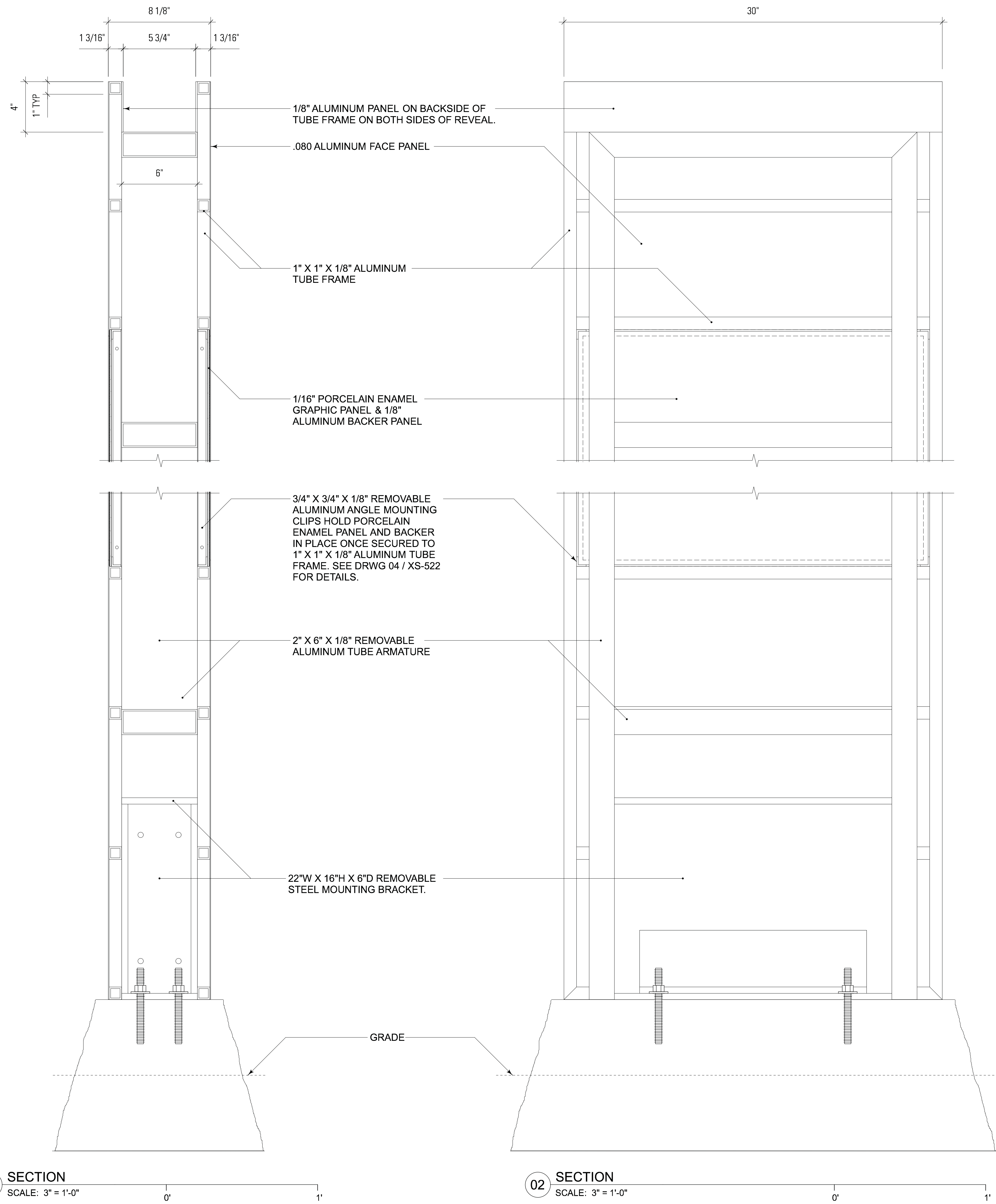
SHEET NO.

**XS-521**

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2/1/2010



**SIGN TYPE**

OR-1 — PEDESTRIAN TRAILHEAD KIOSK

**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront  
 Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
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KEY MAP

**SHEET INFORMATION**  
 Project No.: RVA 1301  
 Drawn By: KEM  
 Checked By: JCC  
 Date: 10/22/2014  
 Scale: AS SHOWN

SHEET TITLE

**DETAILS SIGNAGE—OR-1 PEDESTRIAN TRAILHEAD KIOSK**

SHEET NO.

**XS-522**



### SIGN TYPE

OR-1 — PEDESTRIAN  
TRAILHEAD KIOSK

### SIGN NOTES

1. MATERIAL: GRANITE — GEORGIA GREY
2. SHAPE: THE FOUR SIDES OF THE RECTANGULAR STONE SLOPE APPROXIMATELY 15 DEGREES
3. HEIGHT OF STONE: 12"H
4. DIMENSIONS AT TOP OF STONE: 32" W x 10-3/32" D
5. DIMENSIONS AT BOTTOM OF STONE: 38-1/2" W x 16-5/8" D
6. SURFACE FINISH: ROCKFACE (HEAVY RELIEF) OF THE FOUR SIDES AND SAWN (SMOOTH) ON THE TOP & BOTTOM
7. MILLING: DRILL DOWEL HOLES TOP & BOTTOM AS SPECIFIED BY SIGN FABRICATOR
8. RECOMMENDED SUPPLIER:  
GRANITE WORLD LLC  
1717 CALHOUN FALLS HIGHWAY  
ELBERTON, GA 30635  
706-988-9671
9. FOR REINFORCED CONCRETE FOOTER SEE CIVIL DRAWINGS.

### PROJECT INFORMATION

Richmond, Virginia Riverfront

Improvements: Priority 1

### T. TYLER POTTERFIELD MEMORIAL BRIDGE

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### KEY MAP



### SHEET INFORMATION

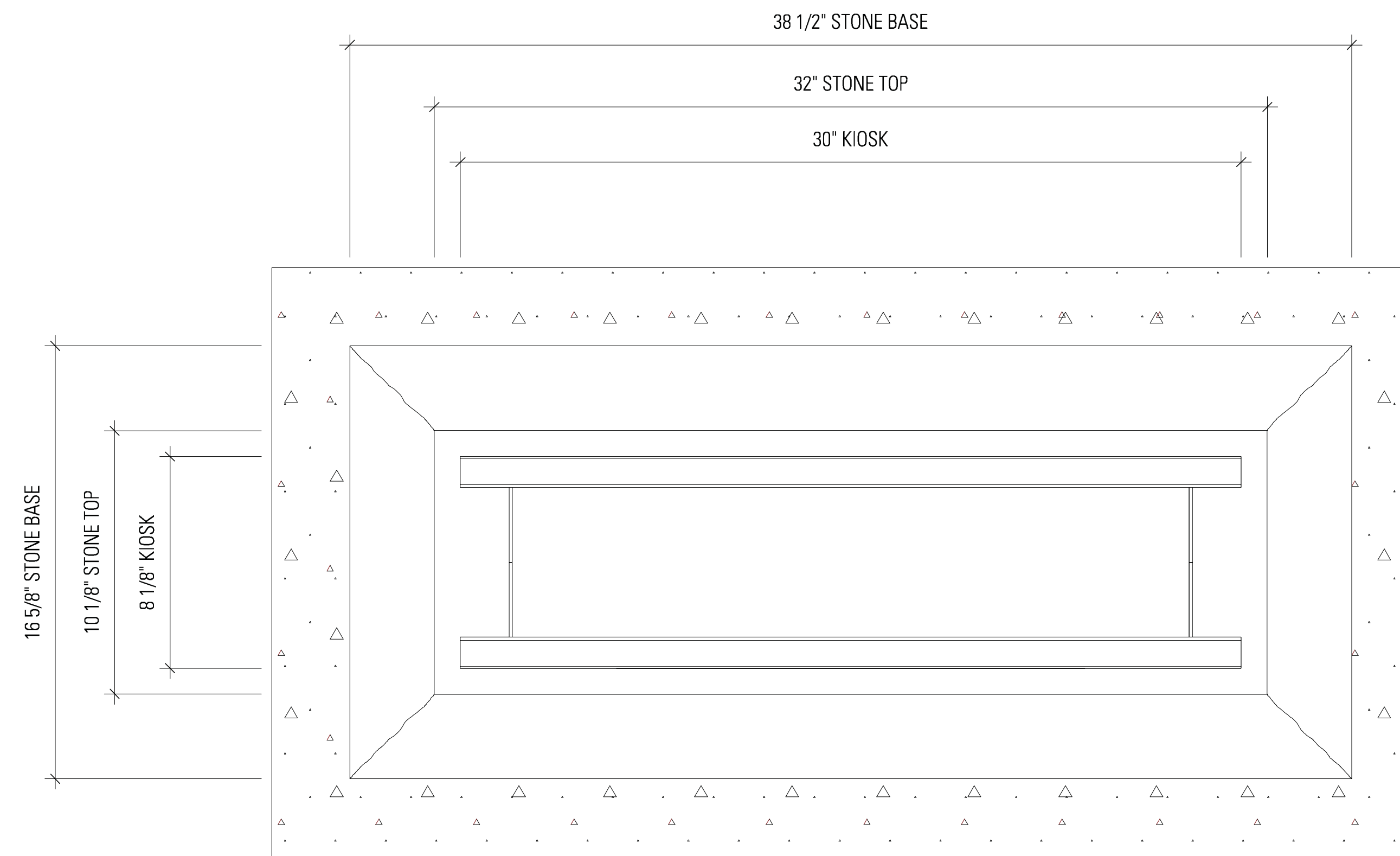
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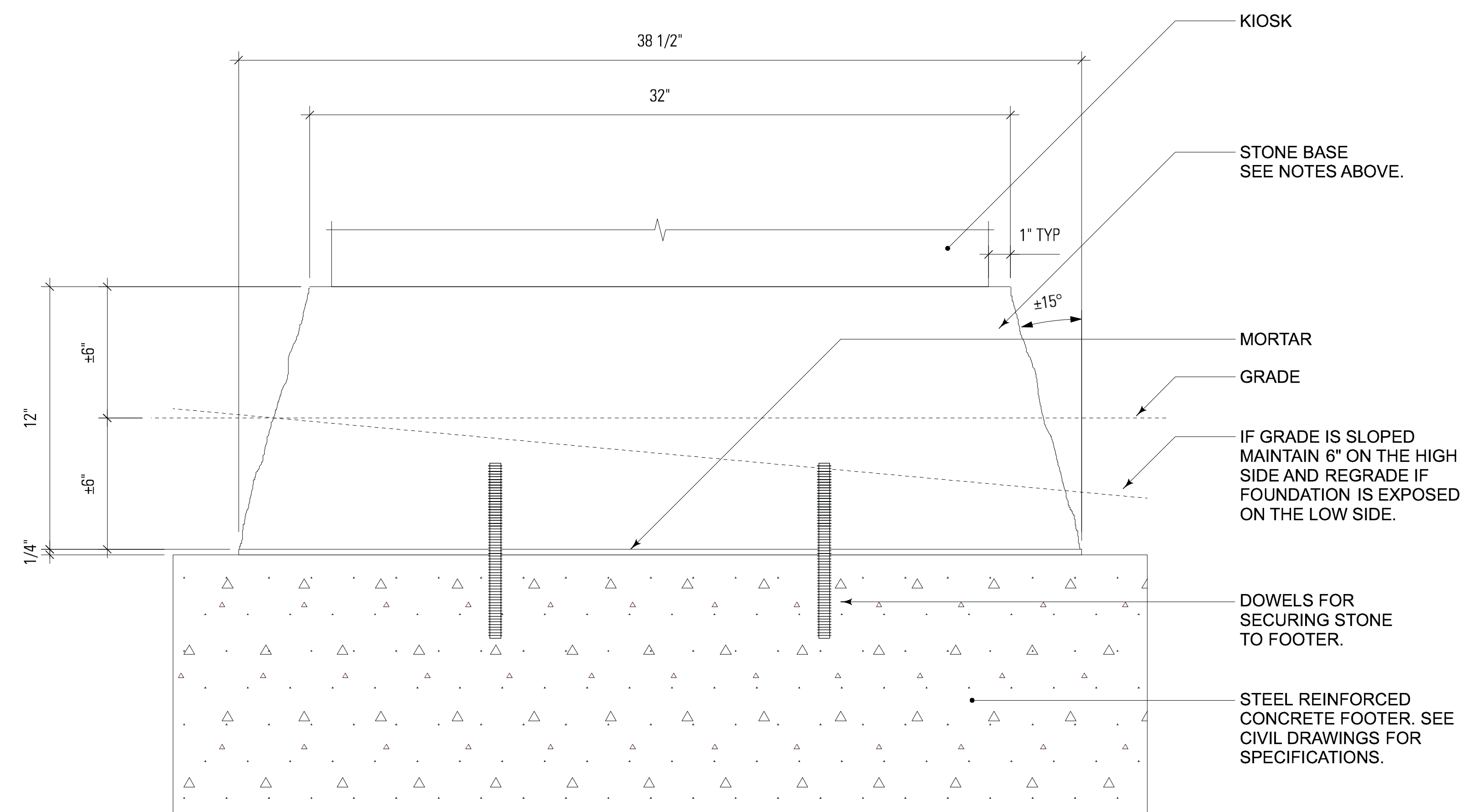
**DETAILS SIGNAGE—  
OR-1 PEDESTRIAN  
TRAILHEAD KIOSK**

### SHEET NO.

**XS-524**



**02 PLAN — STONE BASE & FOOTER**  
SCALE: 3" = 1'-0"



**01 ELEVATION — STONE BASE & FOOTER**  
SCALE: 3" = 1'-0"

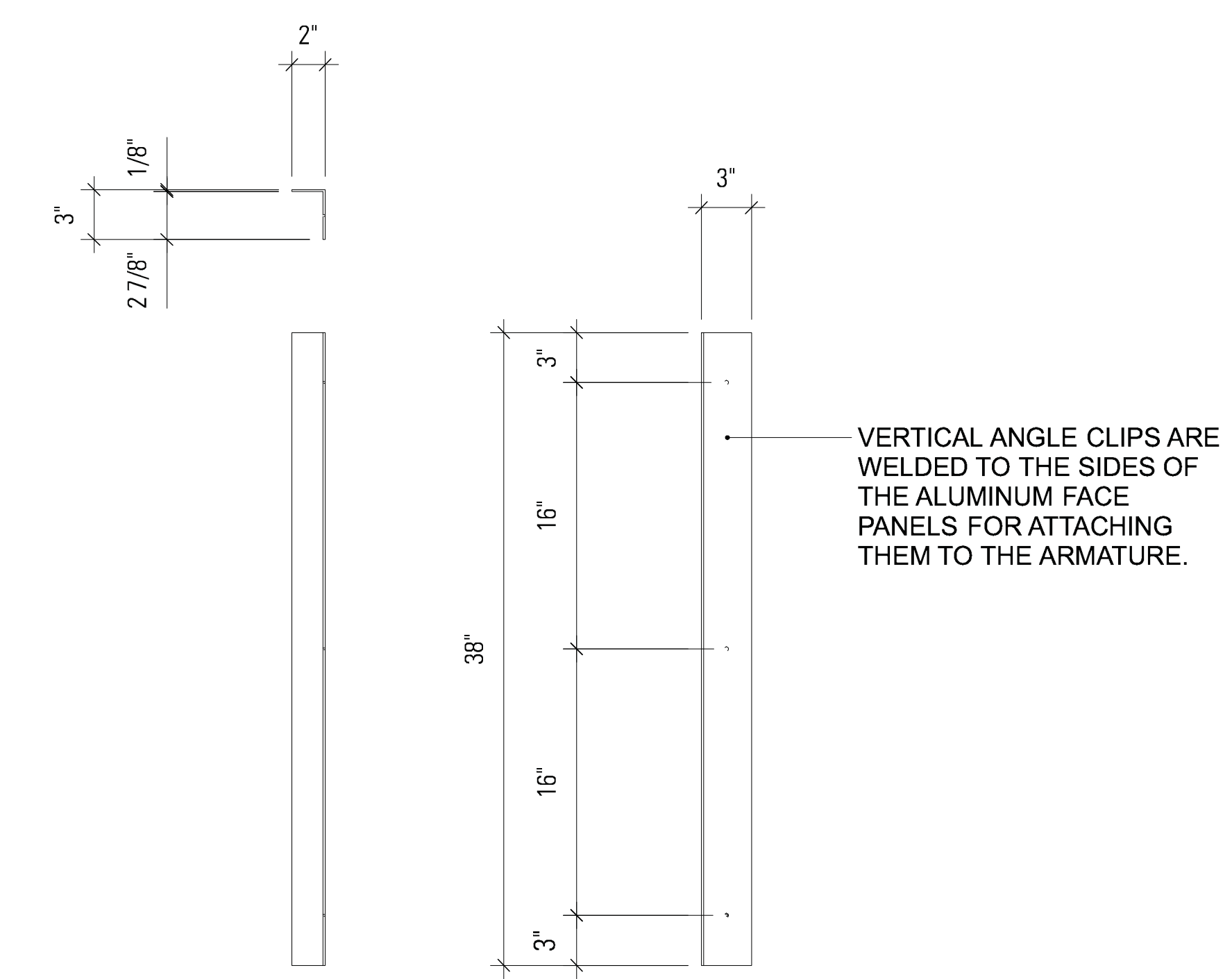




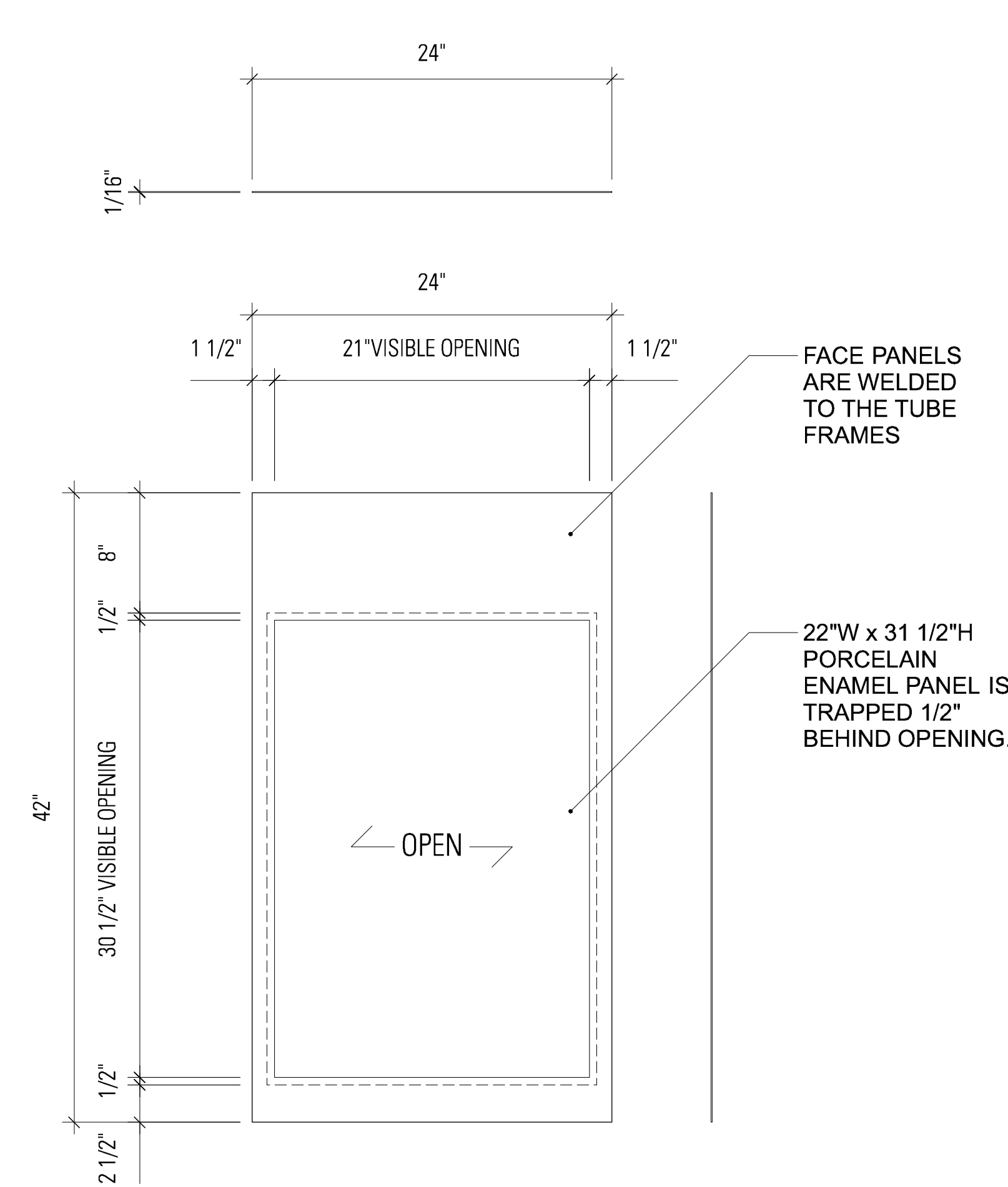
**SIGN TYPE**

REG-1 — REGULATORY SIGN

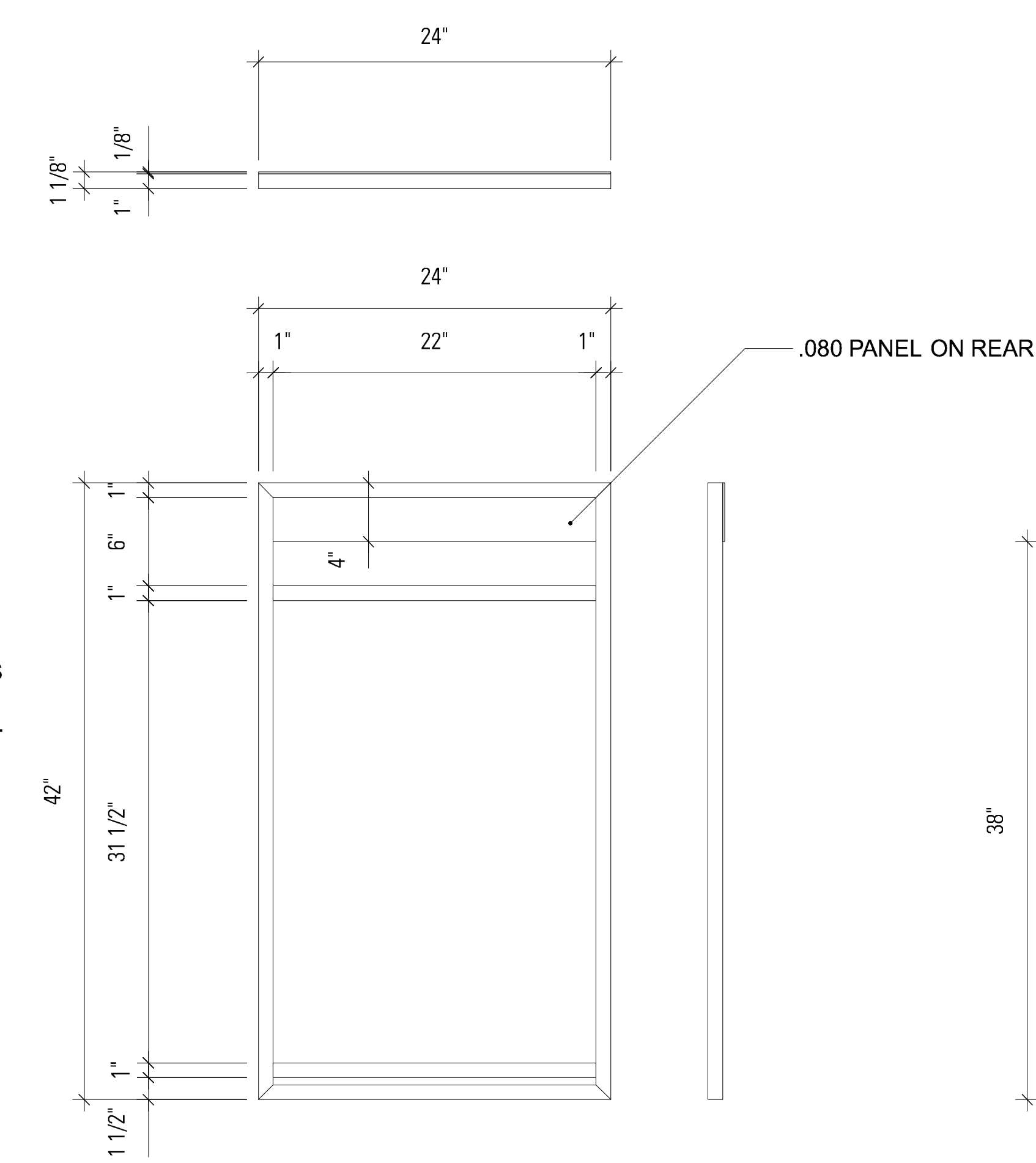
**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront  
 Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
 RICHMOND, VIRGINIA  
 CITY OF RICHMOND  
 900 E. Broad St.  
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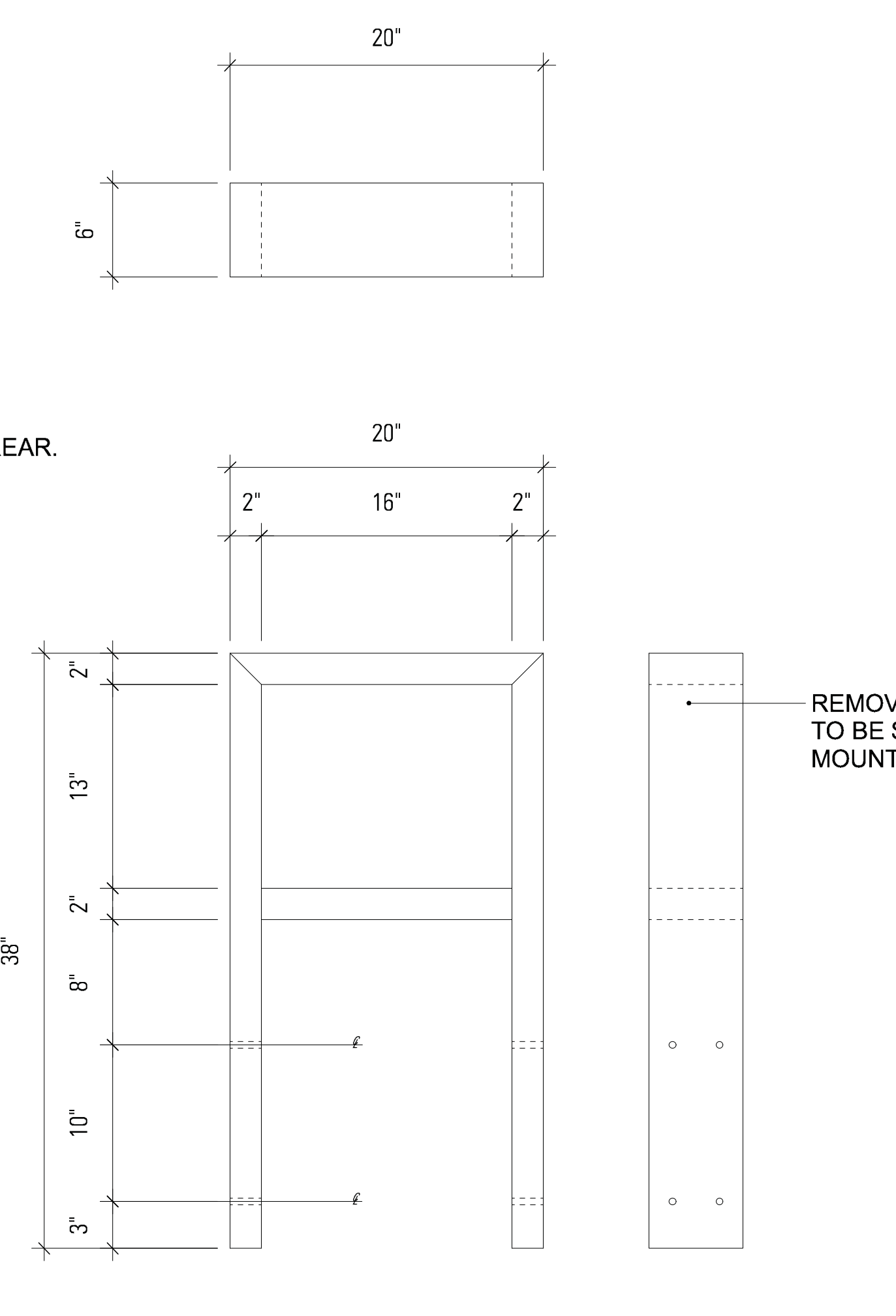
**05** 2" x 3" x 1/8" VERTICAL ALUMINUM ANGLE CLIPS—QTY 4  
 SCALE: 1-1/2" = 1'-0"



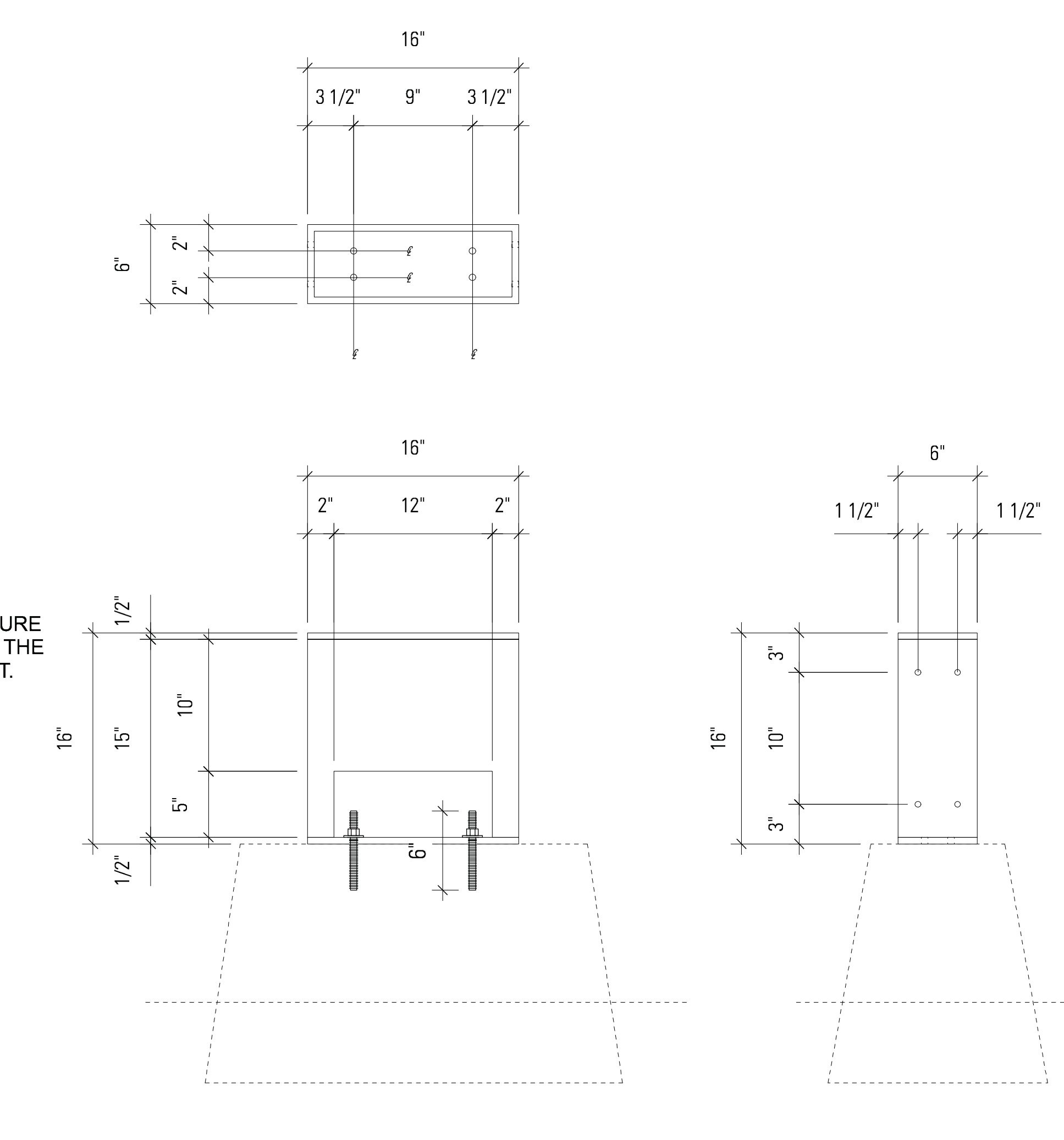
**04** .080 ALUMINUM FACE PANEL—QTY 2  
 SCALE: 1-1/2" = 1'-0"



**03** 1" x 1" x 1/8" ALUMINUM TUBE FRAME—QTY 2  
 SCALE: 1-1/2" = 1'-0"



**02** 2" X 6" X 1/8" ALUMINUM TUBE ARMATURE—QTY 1  
 SCALE: 1-1/2" = 1'-0"



**01** 16"W X 16"H X 6"D REMOVABLE STEEL MOUNTING BRACKET—QTY 1  
 SCALE: 1-1/2" = 1'-0"

**SEAL/SIGNATURE**

**ISSUE**

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 1   | SCHEMATIC DESIGN   | 02-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

**KEY MAP**

**SHEET INFORMATION**

Project No.: RVA 1301  
 Drawn By: KEM  
 Checked By: JCC  
 Date: 10/22/2014  
 Scale: AS SHOWN

**SHEET TITLE**

**DETAILS SIGNAGE—  
 REG-1 PEDESTRIAN  
 REGULATORY SIGN**

**SHEET NO.**

**XS-531**

**PROJECT INFORMATION**  
 Richmond, Virginia Riverfront  
 Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
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**SEAL/SIGNATURE**

**ISSUE**

**REVISIONS**

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| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

**KEY MAP**

**SHEET INFORMATION**

Project No.: RVA 1301  
 Drawn By: KEM  
 Checked By: JCC  
 Date: 10/22/2014  
 Scale: AS SHOWN

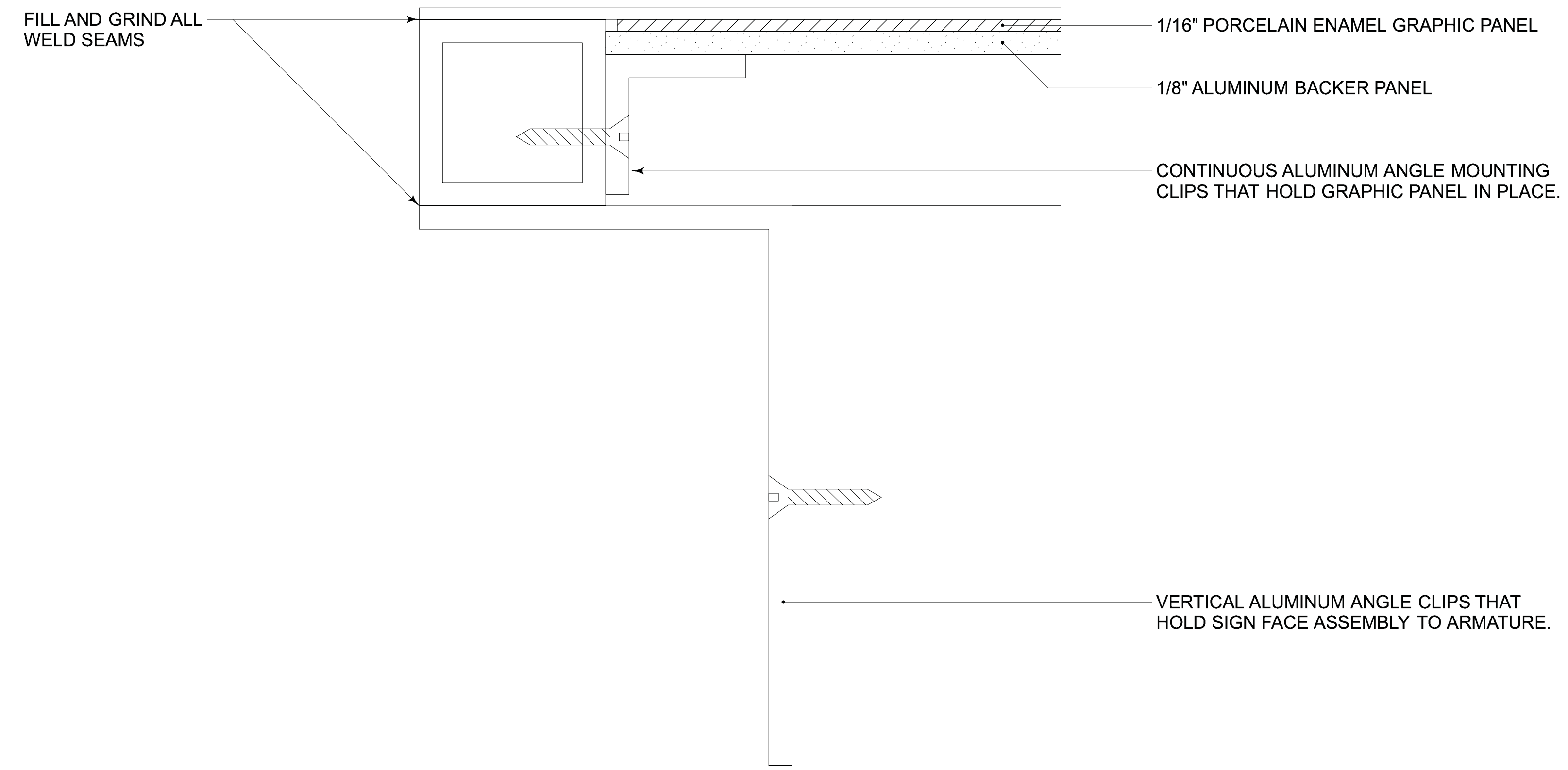
**SHEET TITLE**

**DETAILS SIGNAGE—  
 REG-1 PEDESTRIAN  
 REGULATORY SIGN**

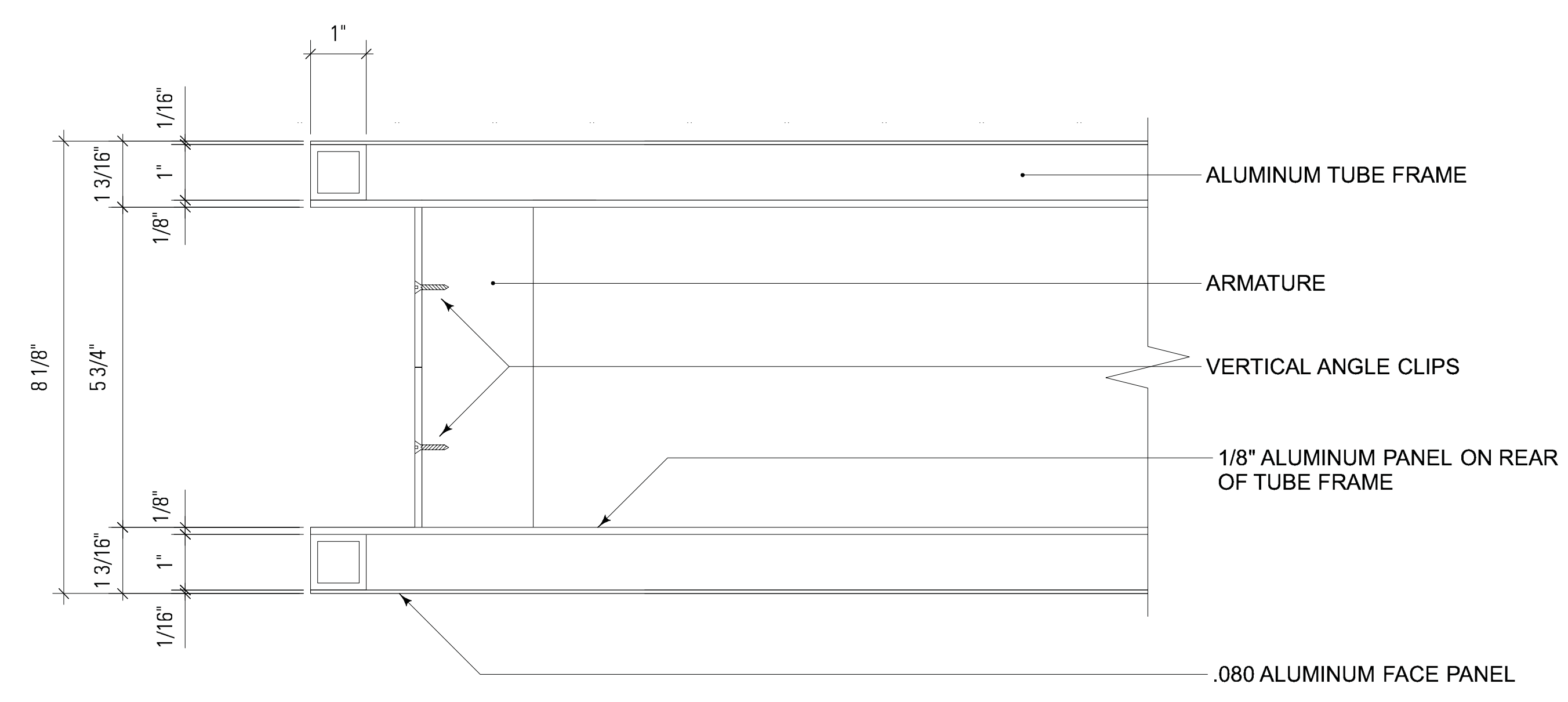
**SHEET NO.**

**XS-532**

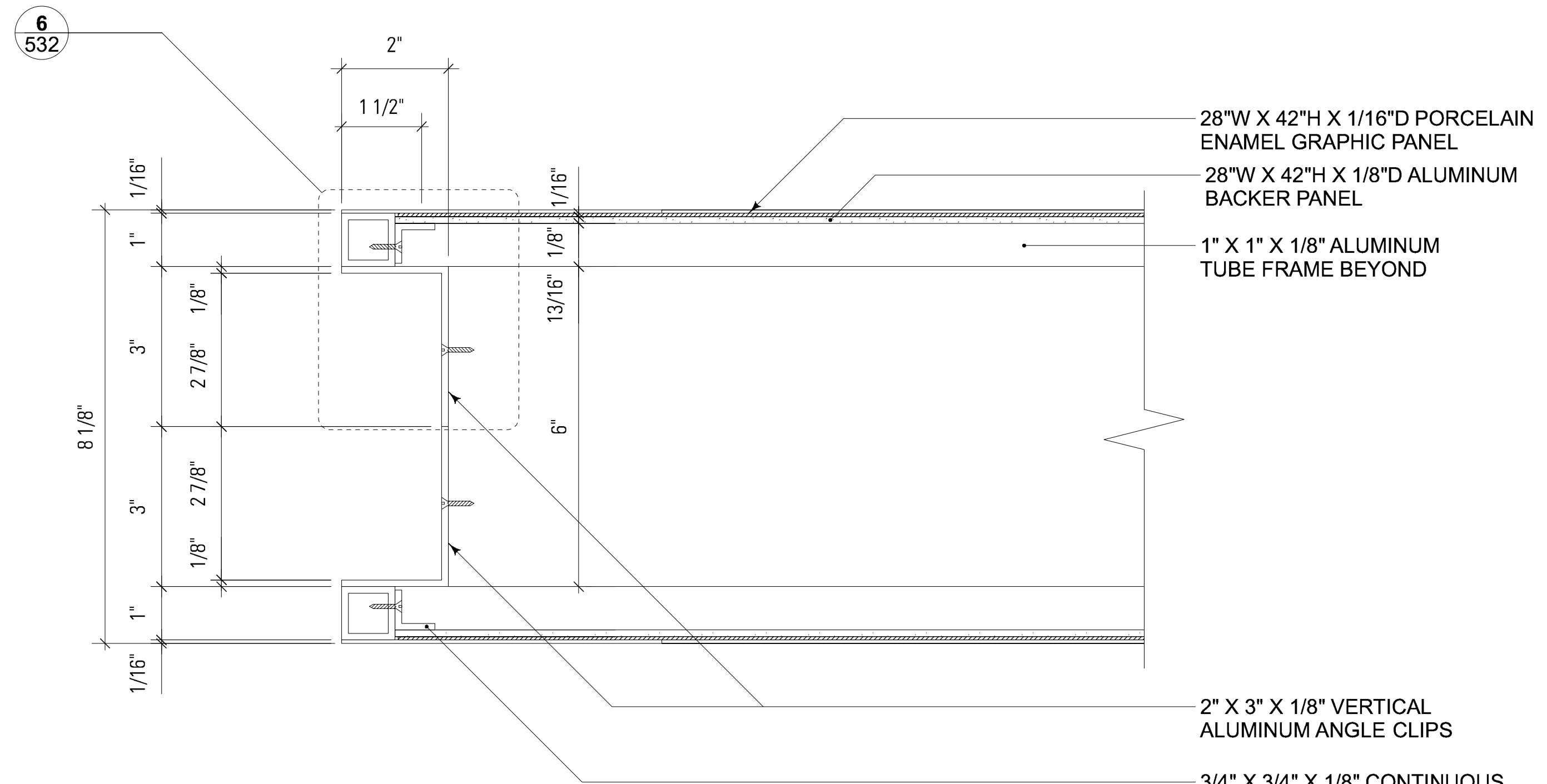
**SIGN TYPE**  
 REG-1 — REGULATORY SIGN



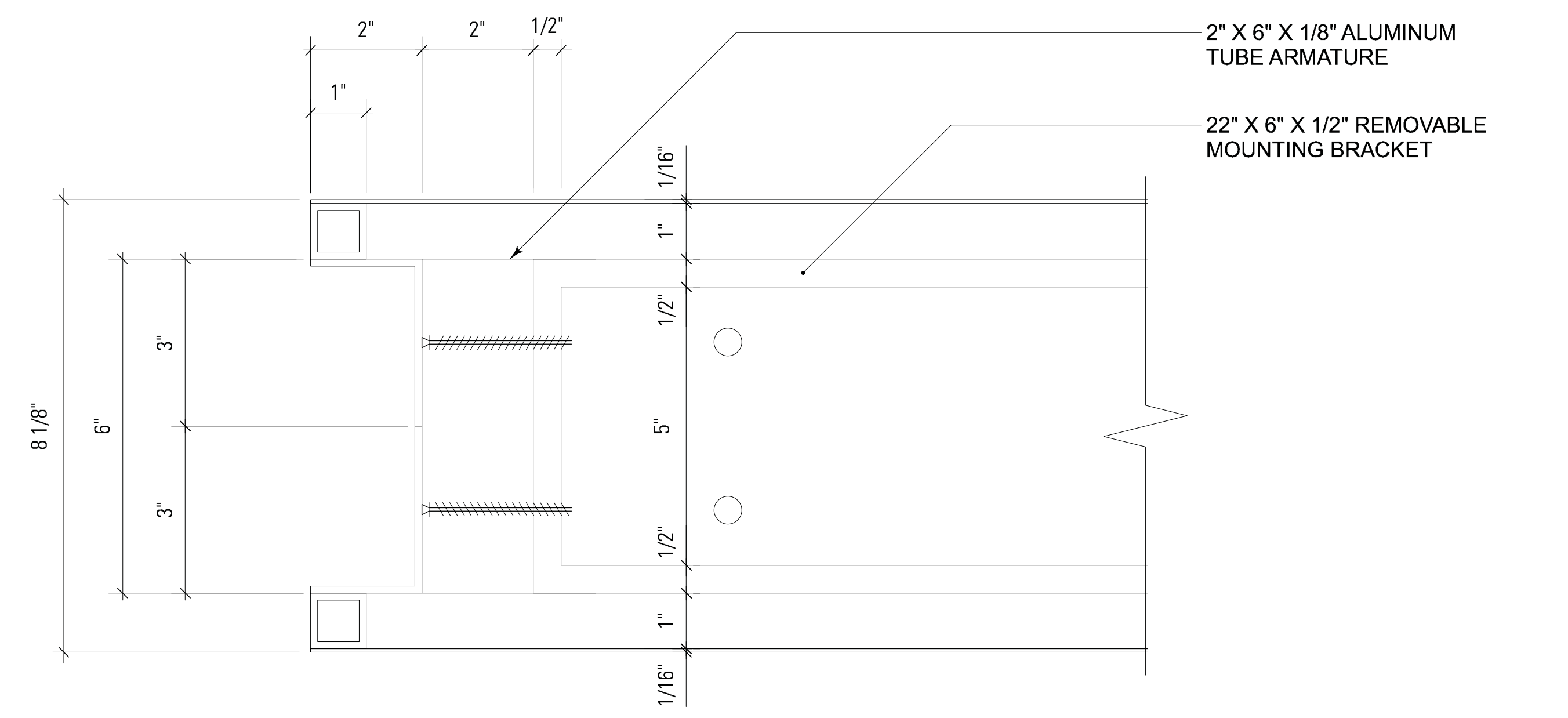
**06 SECTION DETAIL OF REMOVABLE PANEL ASSEMBLY**  
 SCALE: 2X FULL SIZE



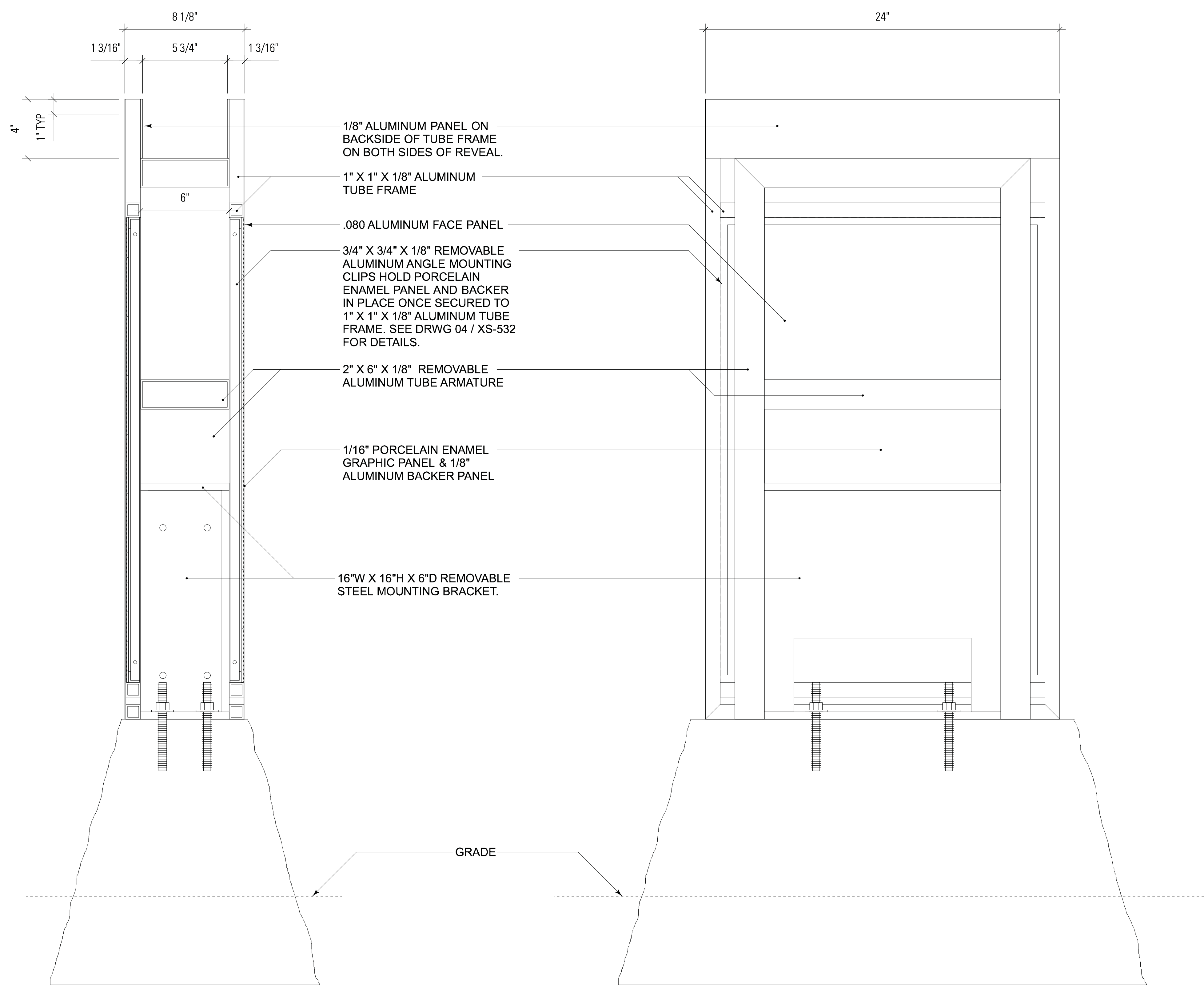
**05 SECTION DETAIL THROUGH TOP**  
 SCALE: HALF SIZE



**04 SECTION DETAIL THROUGH GRAPHIC PANELS**  
 SCALE: HALF SIZE

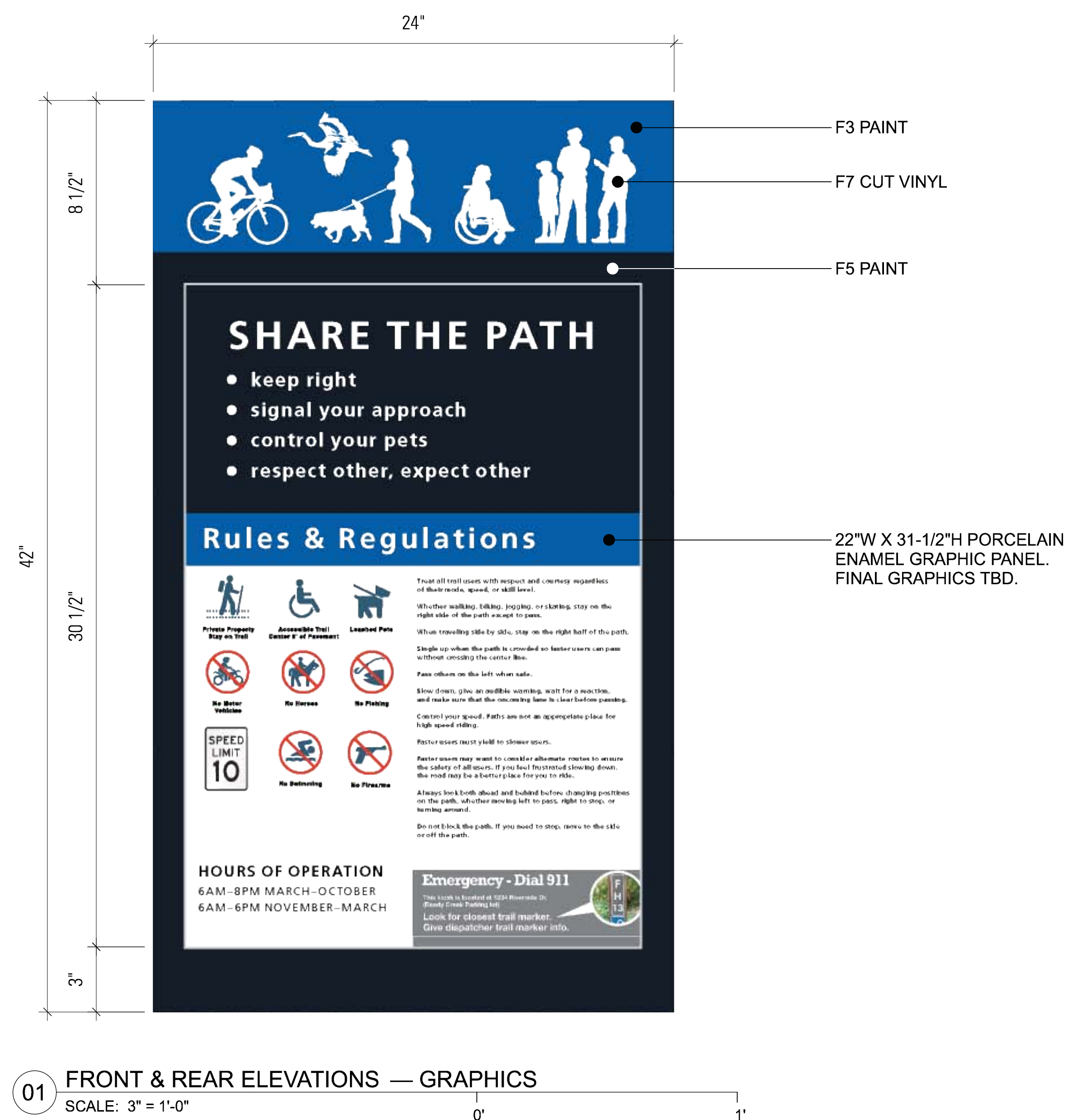
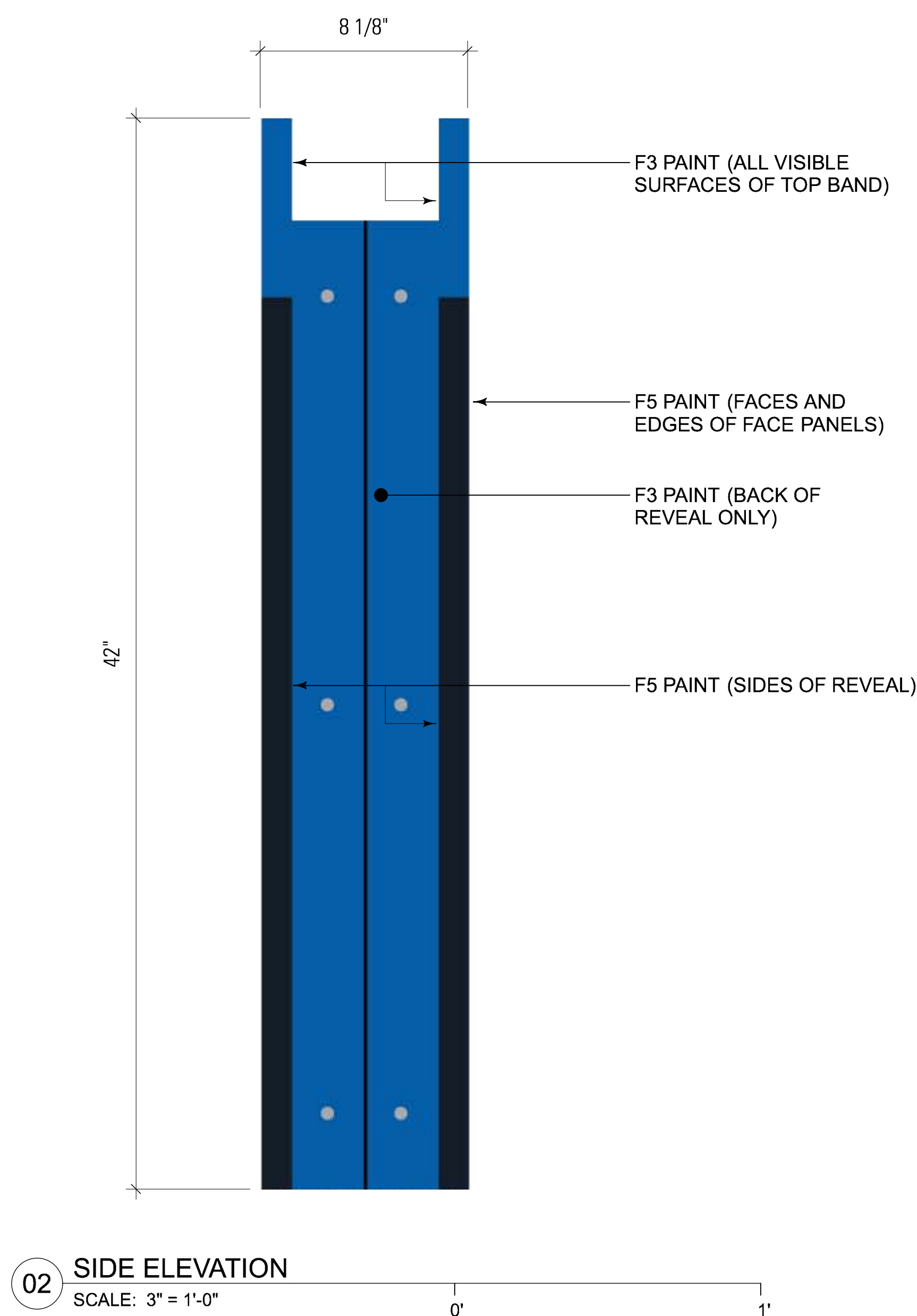


**01 SECTION DETAIL THROUGH STEEL MOUNTING BRACKET**  
 SCALE: HALF SIZE



**03 SECTION**  
 SCALE: 3" = 1'-0"

**02 SECTION**  
 SCALE: 3" = 1'-0"



**SIGN TYPE**

REG-1 — REGULATORY SIGN

**SIGN NOTES**

1. PAINTED ALUMINUM BOX AND ARMATURE CONSTRUCTION WITH SMOOTH, STRAIGHT EDGES, UNIFORM SURFACES AND ADEQUATE SUPPORT ASSEMBLIES.
2. KIOSK CONTAINS TWO REMOVABLE FLAT 16 GAUGE (.060") LOW CARBON SHEET STEEL WITH REGULAR GLOSS SURFACE FINISH PORCELAIN ENAMEL GRAPHIC PANELS.
3. KIOSK ALSO FEATURES CUT VINYL GRAPHICS APPLIED TO THE ACRYLIC POLYURETHANE PAINT FINISH ON THE KIOSK.
4. THE INTERNAL KIOSK STRUCTURE IS MOUNTED TO THE GRANITE BASE USING A POWDER COATED STEEL MOUNTING BRACKET.
5. FINISH ALUMINUM WITH APPROPRIATE PRIMER WITH LOW VOC, UV RESISTANT, GLOSS ACRYLIC POLYURETHANE TOPCOAT. MATTHEWS PAINT OR EQUIVALENT.
6. STONE BASE TO BE GEORGIA GREY GRANITE WITH ROCKFACE (HEAVY RELIEF) SURFACE ON FOUR SIDES AND SAWN (SMOOTH) FINISH ON TOP AND BOTTOM.
7. ALL GRAPHICS (TEXT AND IMAGES) SHOWN IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. ALL GRAPHICS WILL BE FINALIZED AND RELEASED IN A SEPARATE PACKAGE. DESIGNER WILL PROVIDE ALL DIGITAL FILES REQUIRED FOR PRODUCTION OR PRINTING.
8. FINISH COLORS:  
F3 — MATCH PMS 2935C, GLOSS FINISH  
F5 — MATCH PMS 7547C, GLOSS FINISH  
F7 — MATCH PMS BRIGHT WHITE, GLOSS FINISH

**PROJECT INFORMATION**

Richmond, Virginia Riverfront  
Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**

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**ISSUE**

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| NO. | DESCRIPTION        | DATE       |
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| 1   | SCHEMATIC DESIGN   | 02-28-2014 |
| 2   | DESIGN DEVELOPMENT | 06-27-2014 |
| 3   | 85% CONSTRUCTION   | 10-03-2014 |
| 4   | BID SET            | 10-24-2014 |

**KEY MAP**



**SHEET INFORMATION**

Project No.: RVA 1301  
Drawn By: KEM  
Checked By: JCC  
Date: 10/22/2014  
Scale: AS SHOWN

**SHEET TITLE**

**DETAILS SIGNAGE—  
REG-1 PEDESTRIAN  
REGULATORY SIGN**

**SHEET NO.**

**XS-533**

**SIGN TYPE**

REG-1 — REGULATORY SIGN

**SIGN NOTES**

1. MATERIAL: GRANITE — GEORGIA GREY
2. SHAPE: THE FOUR SIDES OF THE RECTANGULAR STONE SLOPE APPROXIMATELY 15 DEGREES
3. HEIGHT OF STONE: 18"H
4. DIMENSIONS AT TOP OF STONE: 26" W x 10-1/8" D
5. DIMENSIONS AT BOTTOM OF STONE: 35-3/4" W x 18-1/4" D
6. SURFACE FINISH: ROCKFACE (HEAVY RELIEF) OF THE FOUR SIDES AND SAWN (SMOOTH) ON THE TOP & BOTTOM
7. MILLING: DRILL DOWEL HOLES TOP & BOTTOM AS SPECIFIED BY SIGN FABRICATOR
8. RECOMMENDED SUPPLIER: GRANITE WORLD LLC 1717 CALHOUN FALLS HIGHWAY ELBERTON, GA 30635 706-988-9671
9. FOR REINFORCED CONCRETE FOOTER SEE CIVIL DRAWINGS.

**PROJECT INFORMATION**

Richmond, Virginia Riverfront

Improvements: Priority 1

**T. TYLER  
POTTERFIELD  
MEMORIAL BRIDGE**

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|     | BID SET            | 10-24-2014 |

**KEY MAP**



**SHEET INFORMATION**

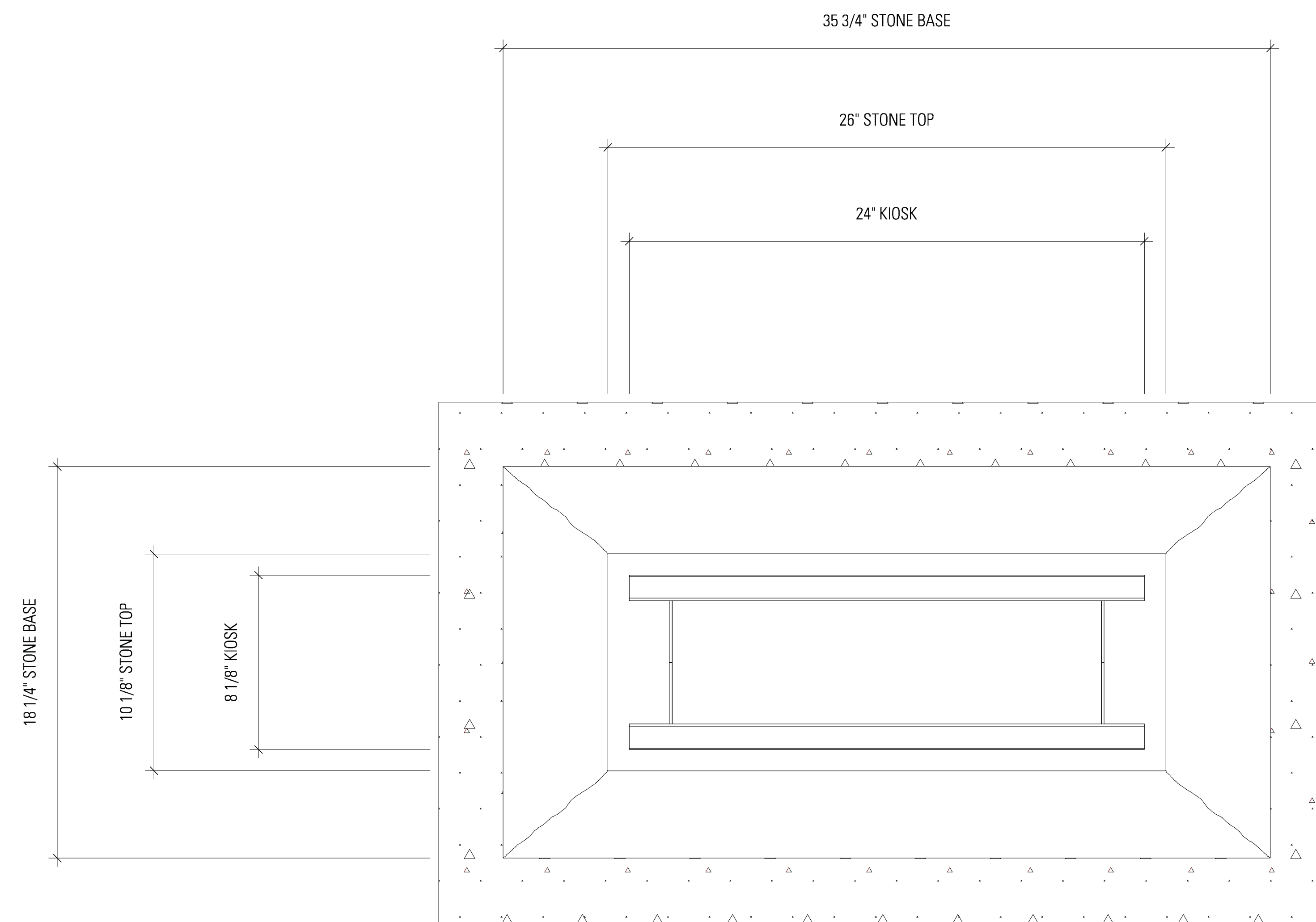
Project No.: RVA 1301  
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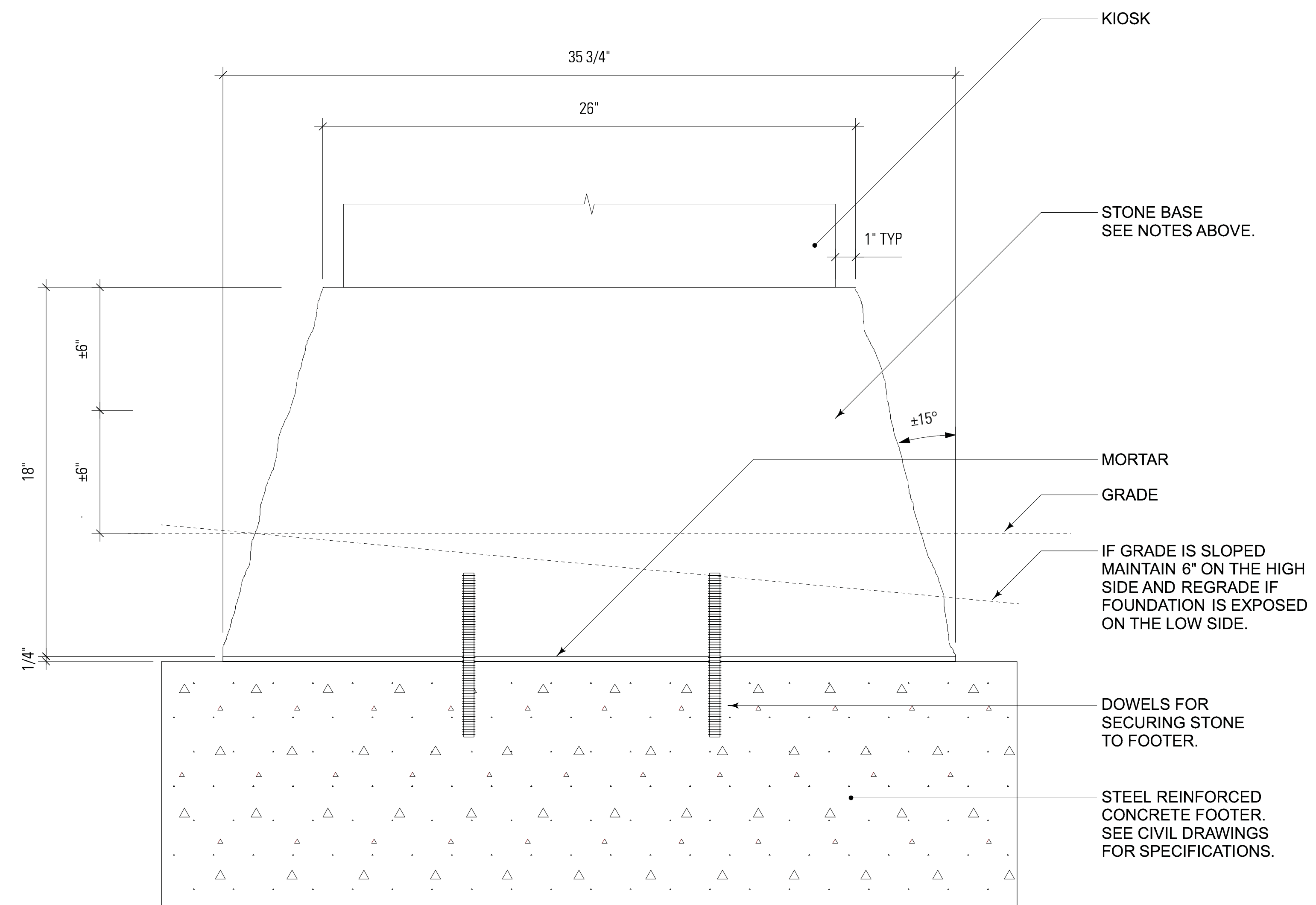
**DETAILS SIGNAGE—  
REG-1 PEDESTRIAN  
REGULATORY SIGN**

**SHEET NO.**

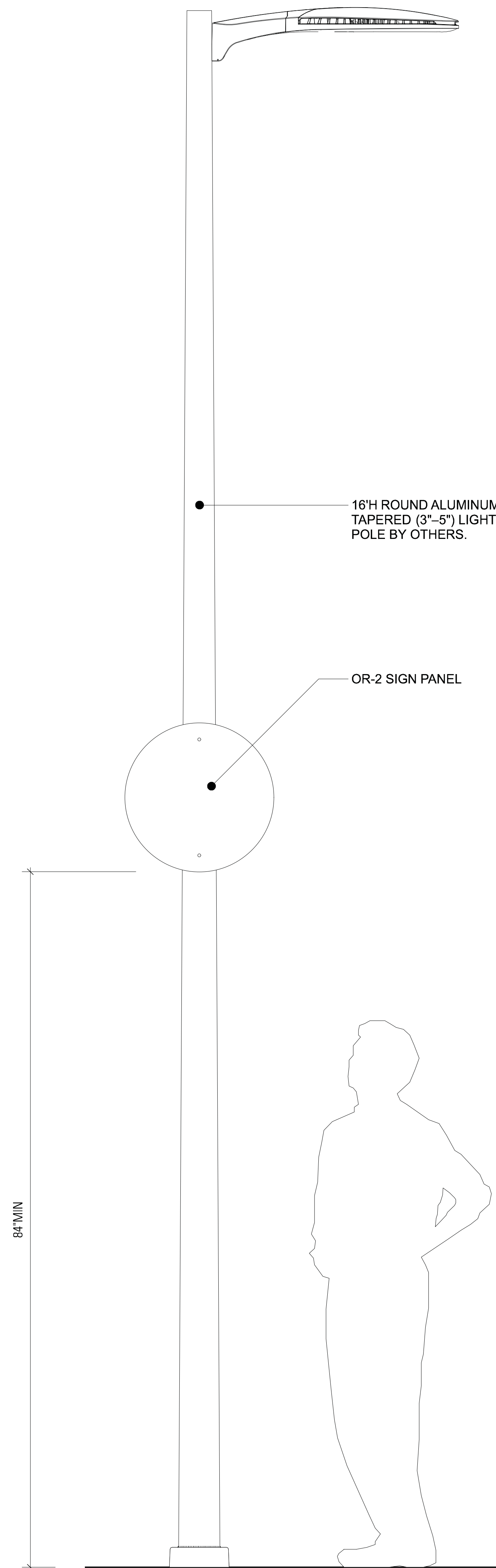
**XS-534**



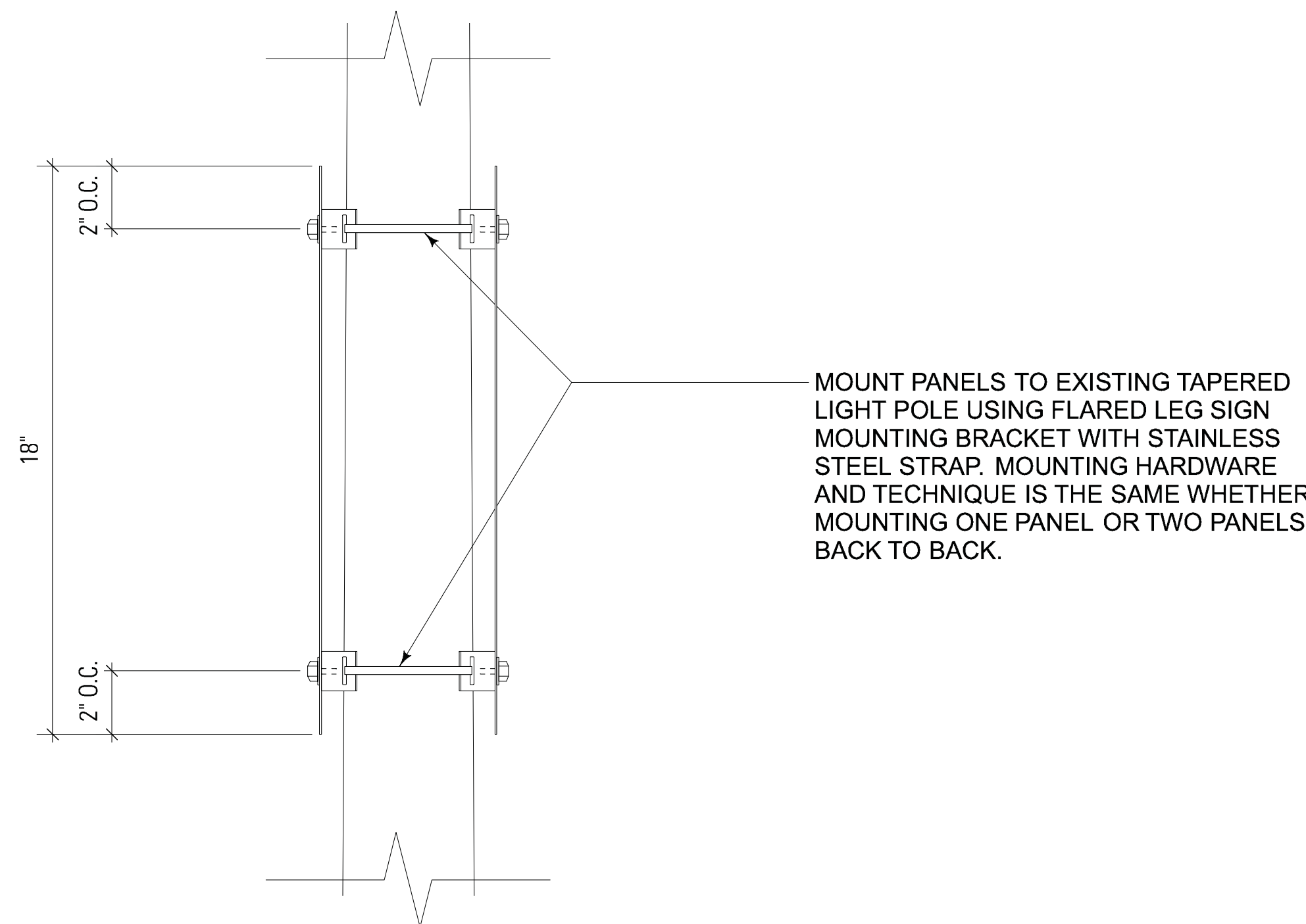
**02 PLAN — STONE BASE & FOOTER**  
SCALE: 3" = 1'-0"



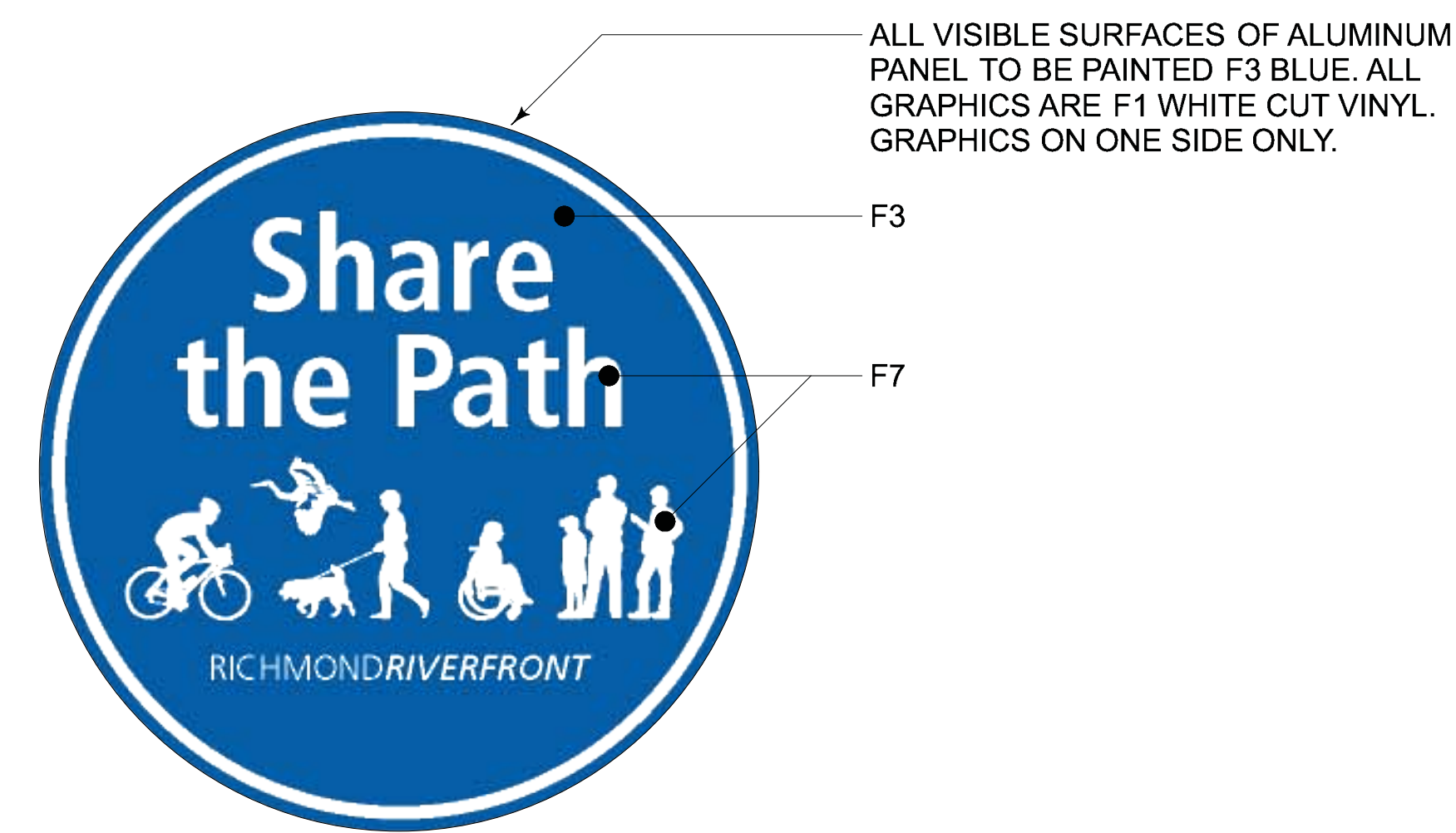
**01 ELEVATION — STONE BASE & FOOTER**  
SCALE: 3" = 1'-0"



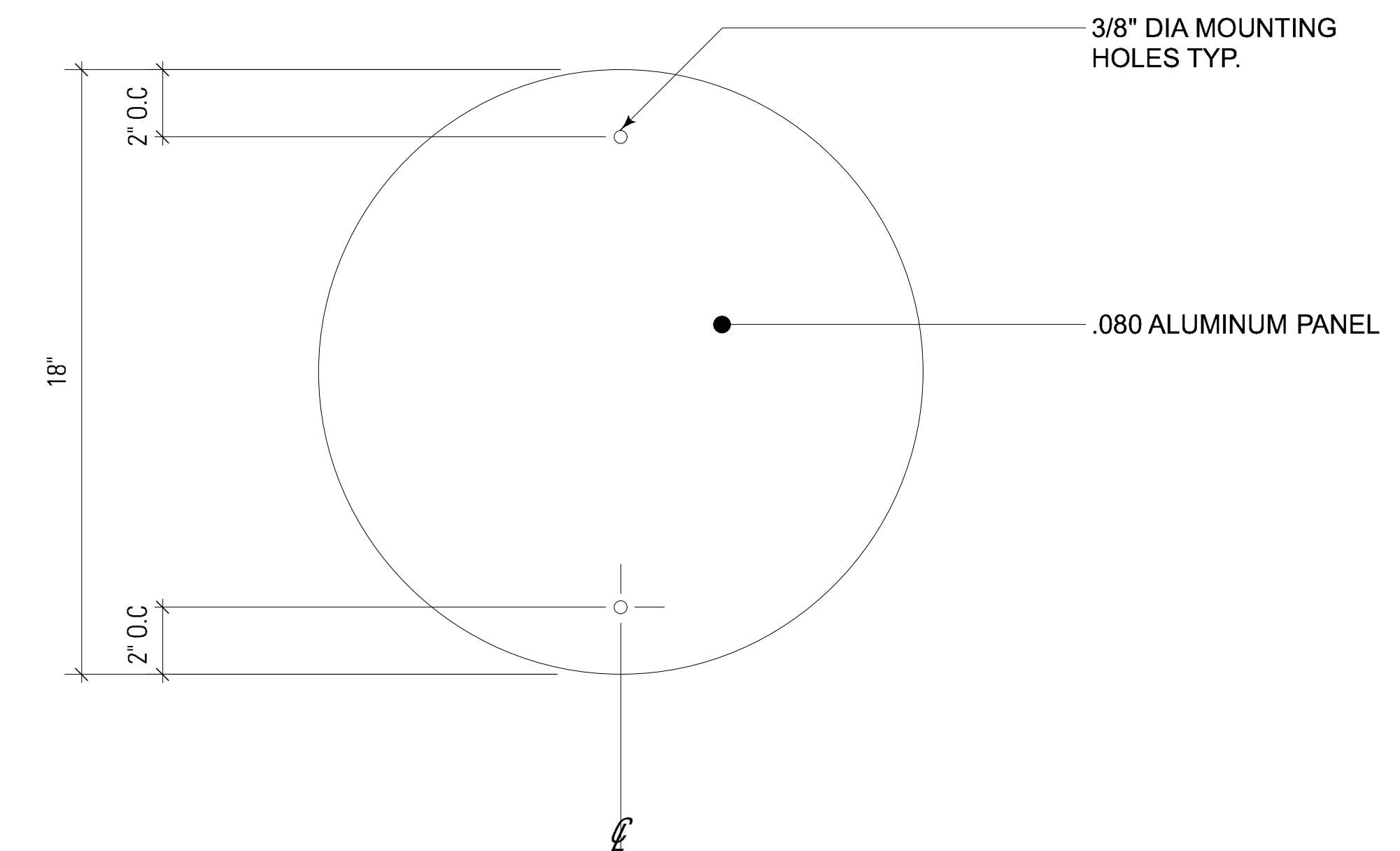
**03 MOUNTING HEIGHT — REG-2 — REGULATORY SIGN**  
SCALE: 1-1/2" = 1'-0"



**04 MOUNTING DETAIL — ONE-SIDED & TWO-SIDED**  
SCALE: 3" = 1'-0"



**02 SIGN GRAPHICS**  
SCALE: 3" = 1'-0"



**01 SIGN PANEL**  
SCALE: 3" = 1'-0"

**SIGN TYPE**

REG-2 — REGULATORY SIGN



**SIGN NOTES**

1. SINGLE ALUMINUM SIGN PANEL CONSTRUCTION WITH PRESSURE SENSITIVE CUT-VINYL OR DIGITAL PRINT GRAPHICS APPLIED TO THE ACRYLIC POLYURETHANE PAINT FINISH.
2. PAINT ALL VISIBLE SURFACES OF THE PANEL (FRONT, BACK, AND EDGES) WITH APPROPRIATE PRIMER WITH LOW VOC, UV RESISTANT, GLOSS ACRYLIC POLYURETHANE TOPCOAT, MATTHEWS PAINT OR EQUIVALENT.
3. MOUNT TO EXISTING LAMP POSTS WITH STOCK BRACKETS AND SS STRAPS.
4. ALL GRAPHICS (TEXT AND IMAGES) SHOWN IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. ALL GRAPHICS WILL BE FINALIZED AND RELEASED IN A SEPARATE PACKAGE. DESIGNER WILL PROVIDE ALL DIGITAL FILES REQUIRED FOR PRODUCTION OR PRINTING.
5. FINISH COLORS:  
F3 — MATCH PMS 2935C, GLOSS FINISH  
F7 — MATHC PMS BRIGHT WHITE, GLOSS FINISH
6. MOUNT PANEL PERPENDICULAR TO ADJACENT PATH. FOR LOCATION, SEE LANDSCAPE PLANS.

**PROJECT INFORMATION**

Richmond, Virginia Riverfront  
Improvements: Priority 1  
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| 4   | BID SET            | 10-24-2014 |

**KEY MAP**



**SHEET INFORMATION**

Project No.: RVA 1301  
Drawn By: KEM  
Checked By: JCC  
Date: 10/22/2014  
Scale: AS SHOWN

**SHEET TITLE**

**DETAILS SIGNAGE—  
REG-2 PEDESTRIAN  
REGULATORY SIGN**

**SHEET NO.**

**XS-535**

**PROJECT INFORMATION**

Richmond, Virginia Riverfront

Improvements: Priority 1

**T. TYLER POTTERFIELD MEMORIAL BRIDGE**

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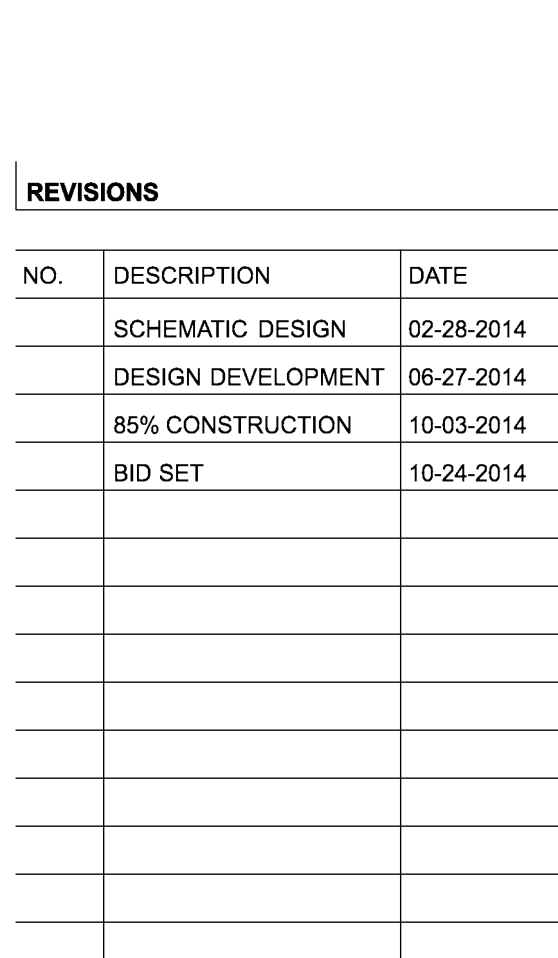
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**KEY MAP**



**SHEET INFORMATION**

Project No.: RVA 1301  
Drawn By: KEM  
Checked By: JCC  
Date: 10/22/2014  
Scale: AS SHOWN

**SHEET TITLE**

**DETAILS SIGNAGE—DIR-1 PEDESTRIAN DIRECTIONAL**

SHEET NO.

**XS-540**

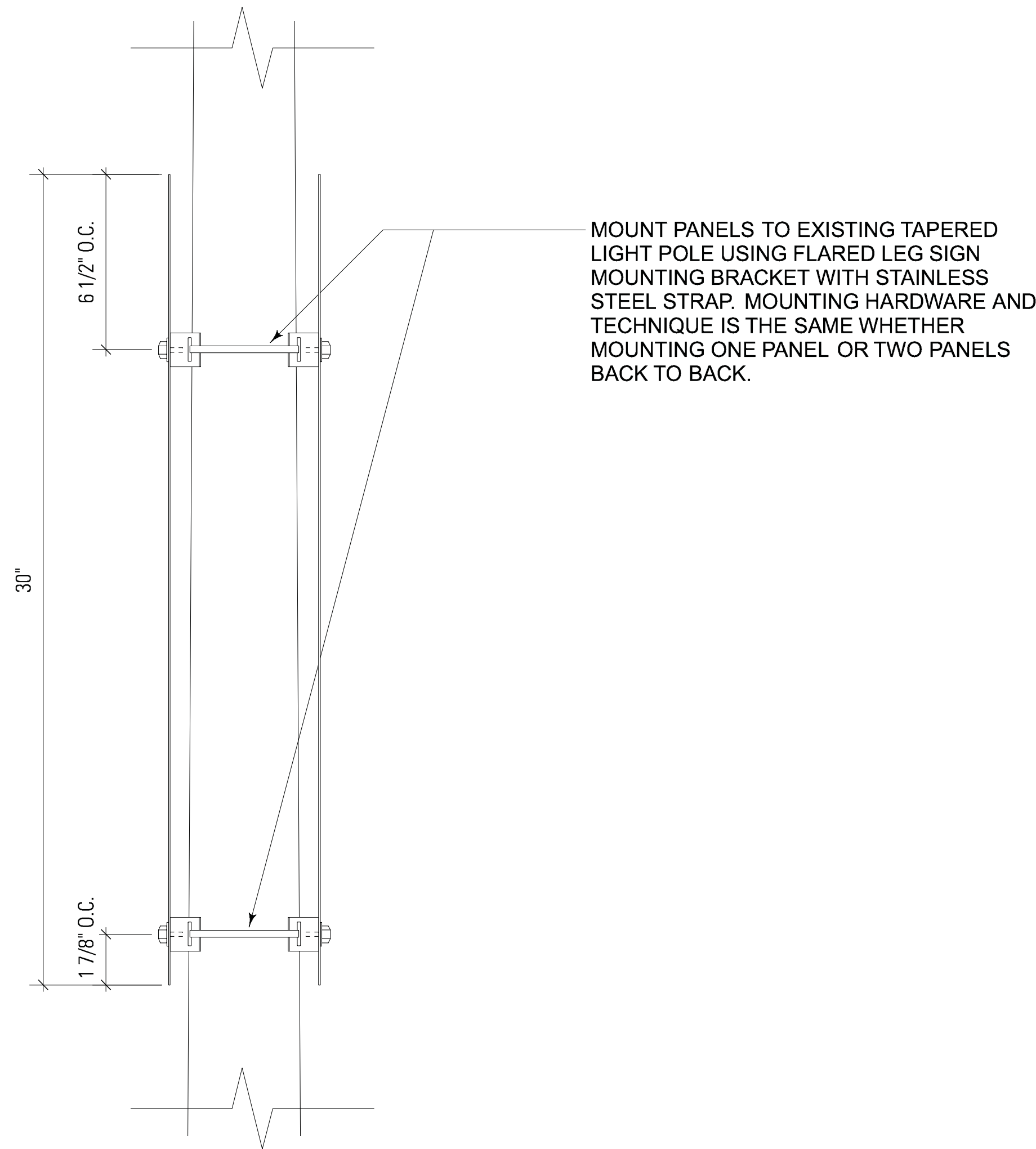
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DIR-1 — PEDESTRIAN DIRECTIONAL

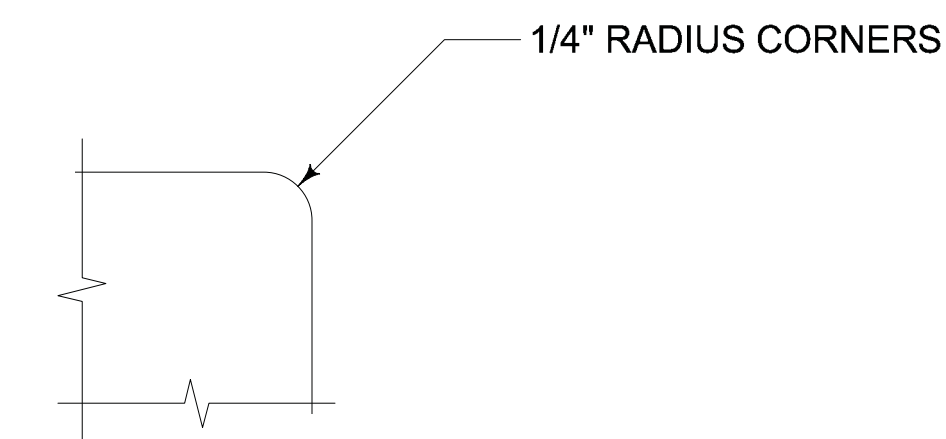


**SIGN NOTES**

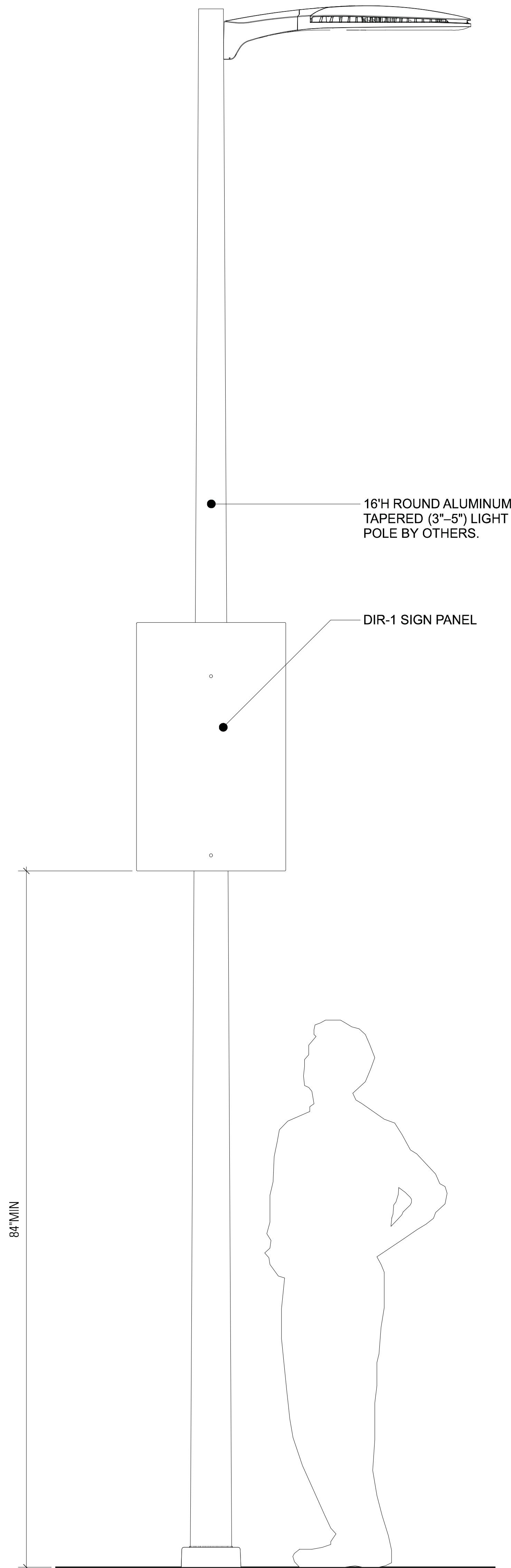
1. SINGLE ALUMINUM SIGN PANEL CONSTRUCTION WITH PRESSURE SENSITIVE CUT-VINYL OR DIGITAL PRINT GRAPHICS APPLIED TO THE ACRYLIC POLYURETHANE PAINT FINISH.
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F7 — MATHC PMS BRIGHT WHITE, GLOSS FINISH
6. MOUNT PANEL PERPENDICULAR TO ADJACENT PATH. FOR LOCATION, SEE LANDSCAPE PLANS.



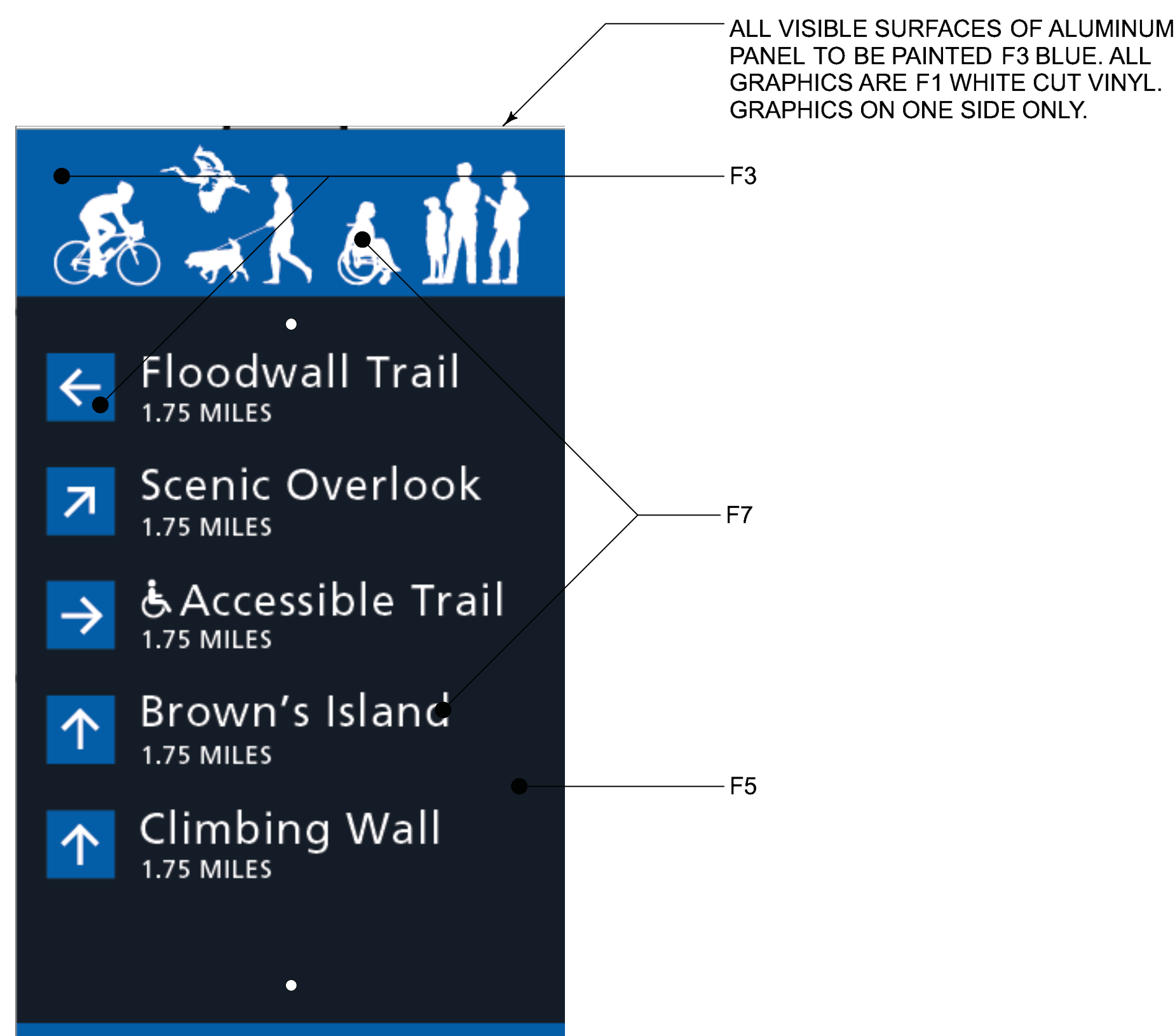
**05 MOUNTING DETAIL — ONE-SIDED & TWO-SIDED**  
SCALE: 3" = 1'-0"



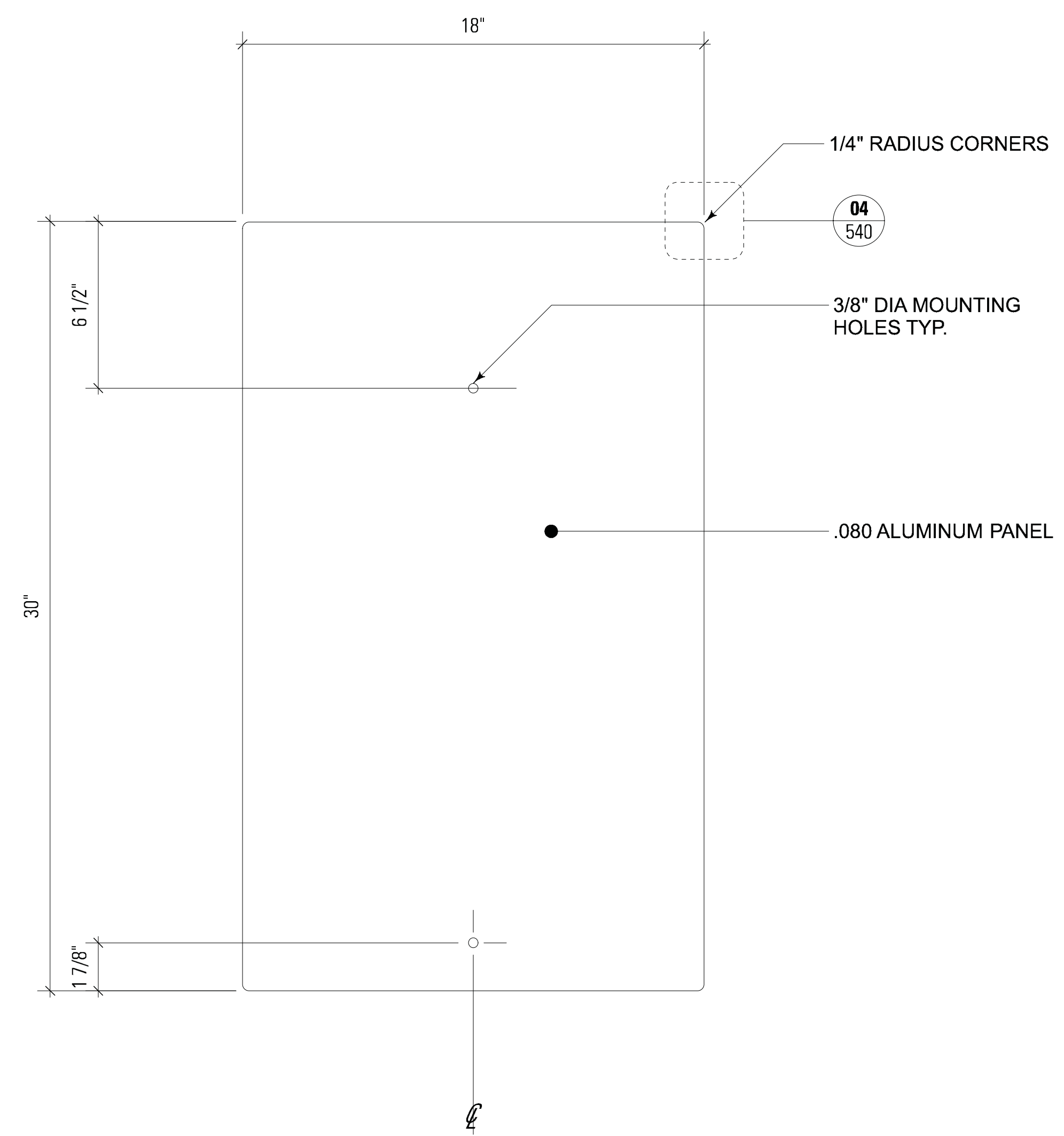
**04 SIGN PANEL CORNER DETAIL**  
FULL SCALE



**03 INSTALLATION GUIDE — DIR-1 — PEDESTRIAN DIRECTIONAL**  
SCALE: 1-1/2" = 1'-0"



**02 SIGN GRAPHICS**  
SCALE: 3" = 1'-0"



**01 SIGN PANEL**  
SCALE: 3" = 1'-0"

**SIGN TYPE**

DIR-2 — PEDESTRIAN  
DIRECTIONAL —  
MONUMENT STYLE

**SIGN NOTES**

1. PAINTED ALUMINUM BOX AND ARMATURE CONSTRUCTION WITH SMOOTH, STRAIGHT EDGES, UNIFORM SURFACES AND ADEQUATE SUPPORT ASSEMBLIES.
2. KIOSK FEATURES CUT VINYL GRAPHICS APPLIED TO THE ACRYLIC POLYURETHANE PAINT FINISH.
3. THE INTERNAL KIOSK STRUCTURE IS MOUNTED TO THE GRANITE BASE USING A POWDER COATED STEEL MOUNTING BRACKET.
4. FINISH ALUMINUM WITH APPROPRIATE PRIMER WITH LOW VOC, UV RESISTANT, GLOSS ACRYLIC POLYURETHANE TOPOCOAT. MATTHEWS PAINT OR EQUIVALENT.
5. STONE BASE TO BE GEORGIA GREY GRANITE WITH ROCKFACE (HEAVY RELIEF) SURFACE ON FOUR SIDES AND SAWN (SMOOTH) FINISH ON TOP AND BOTTOM.
6. ALL GRAPHICS (TEXT AND IMAGES) SHOWN IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. ALL GRAPHICS WILL BE FINALIZED AND RELEASED IN A SEPARATE PACKAGE. DESIGNER WILL PROVIDE ALL DIGITAL FILES REQUIRED FOR PRODUCTION OR PRINTING.
7. FINISH COLORS:  
F3 — MATCH PMS 2935C, GLOSS FINISH  
F5 — MATCH PMS 7547C, GLOSS FINISH  
F7 — MATCH PMS BRIGHT WHITE, GLOSS FINISH
8. FOR REINFORCED CONCRETE FOOTER SEE CIVIL DRAWINGS.
9. FOR LOCATION, SEE LANDSCAPE PLANS.

**PROJECT INFORMATION**

Richmond, Virginia Riverfront

Improvements: Priority 1

**T. TYLER  
POTTERFIELD  
MEMORIAL BRIDGE**

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**ISSUE**

**REVISIONS**

| NO. | DESCRIPTION        | DATE       |
|-----|--------------------|------------|
| 05  | SCHEMATIC DESIGN   | 02-28-2014 |
| 04  | DESIGN DEVELOPMENT | 06-27-2014 |
| 03  | 85% CONSTRUCTION   | 10-03-2014 |
| 02  | BID SET            | 10-24-2014 |

**KEY MAP**



**SHEET INFORMATION**

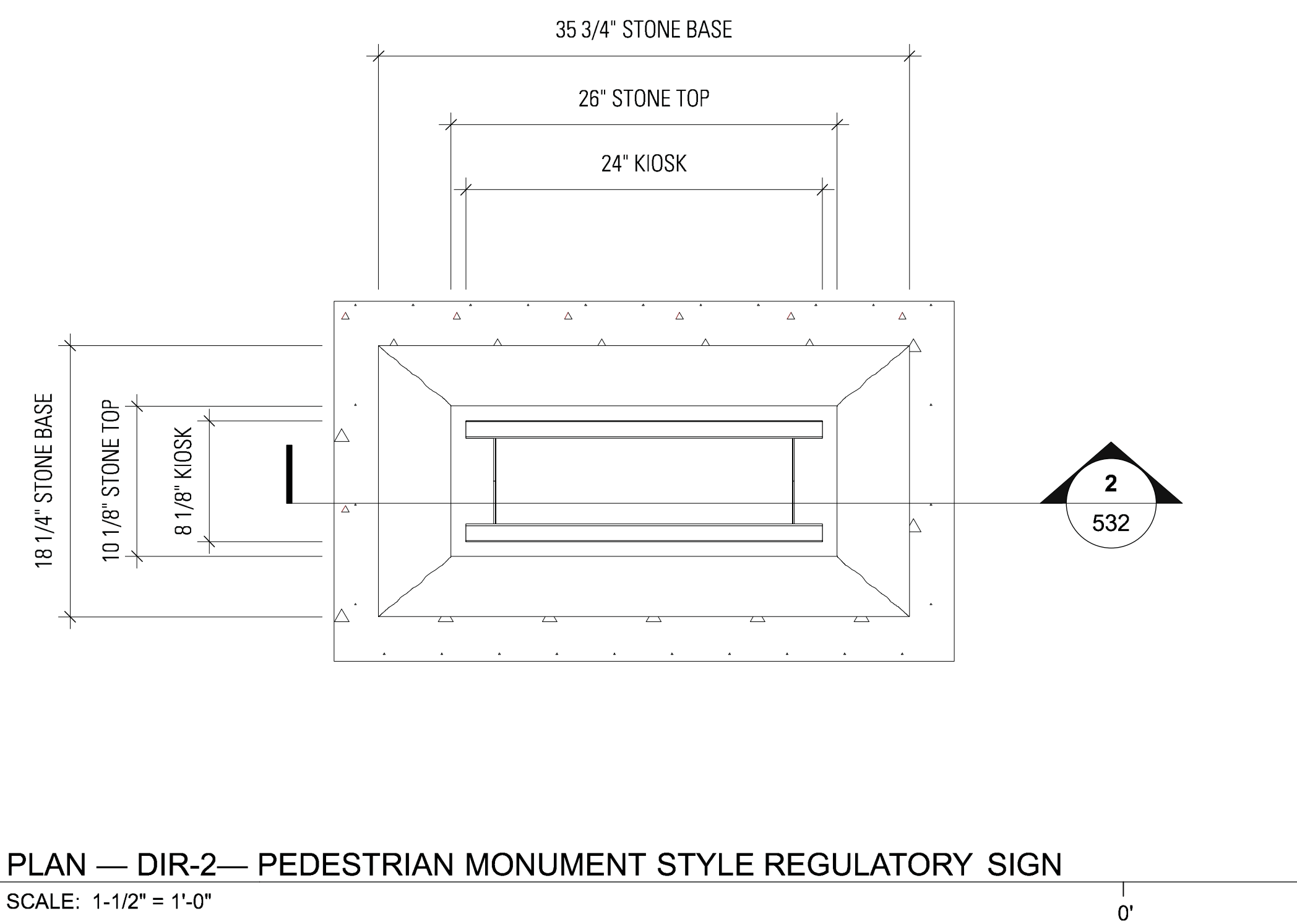
Project No.: RVA 1301  
Drawn By: KEM  
Checked By: JCC  
Date: 10/22/2014  
Scale: AS SHOWN

**SHEET TITLE**

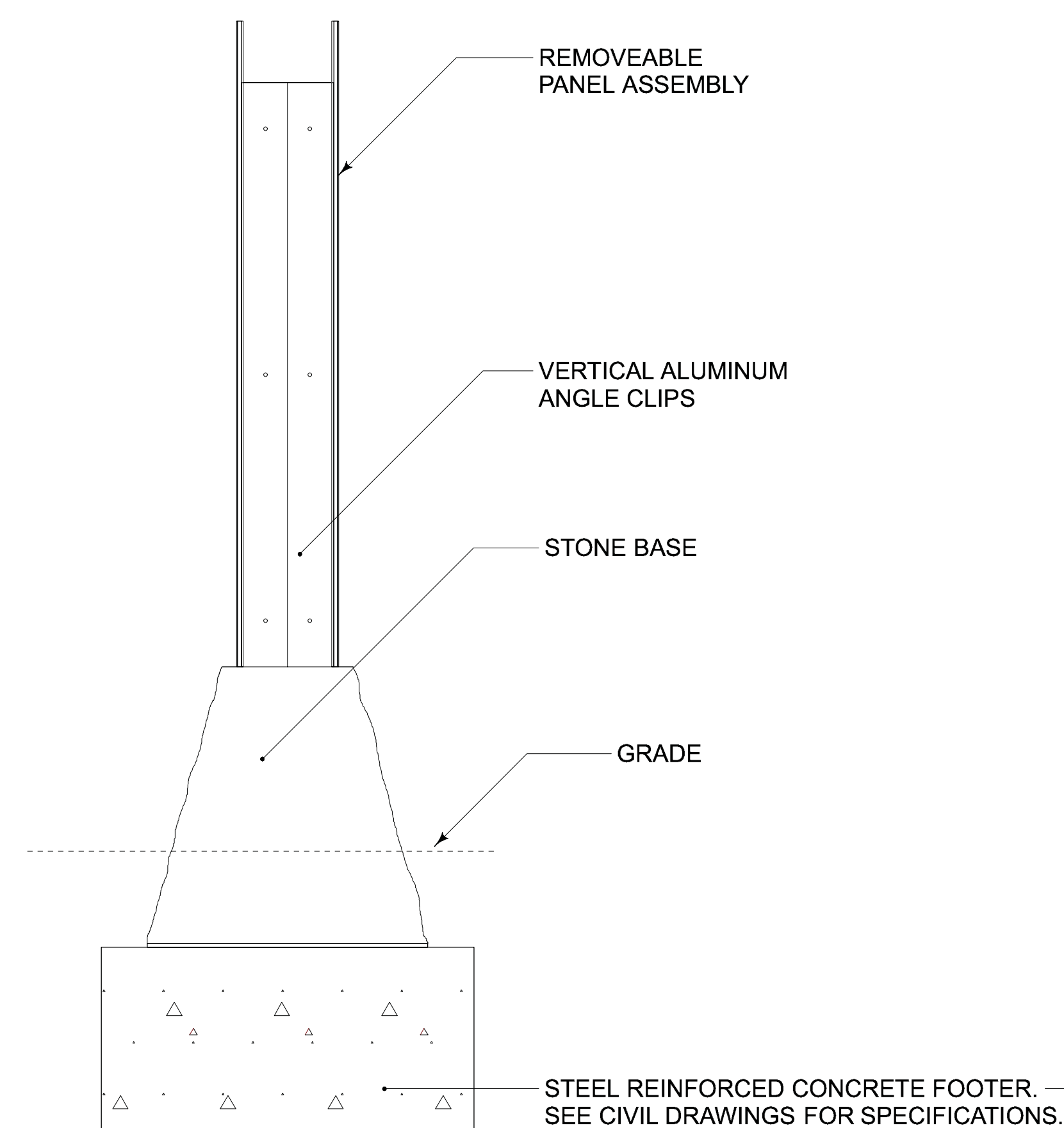
**DETAILS SIGNAGE—  
DIR-2 PEDESTRIAN  
DIRECTIONAL**

**SHEET NO.**

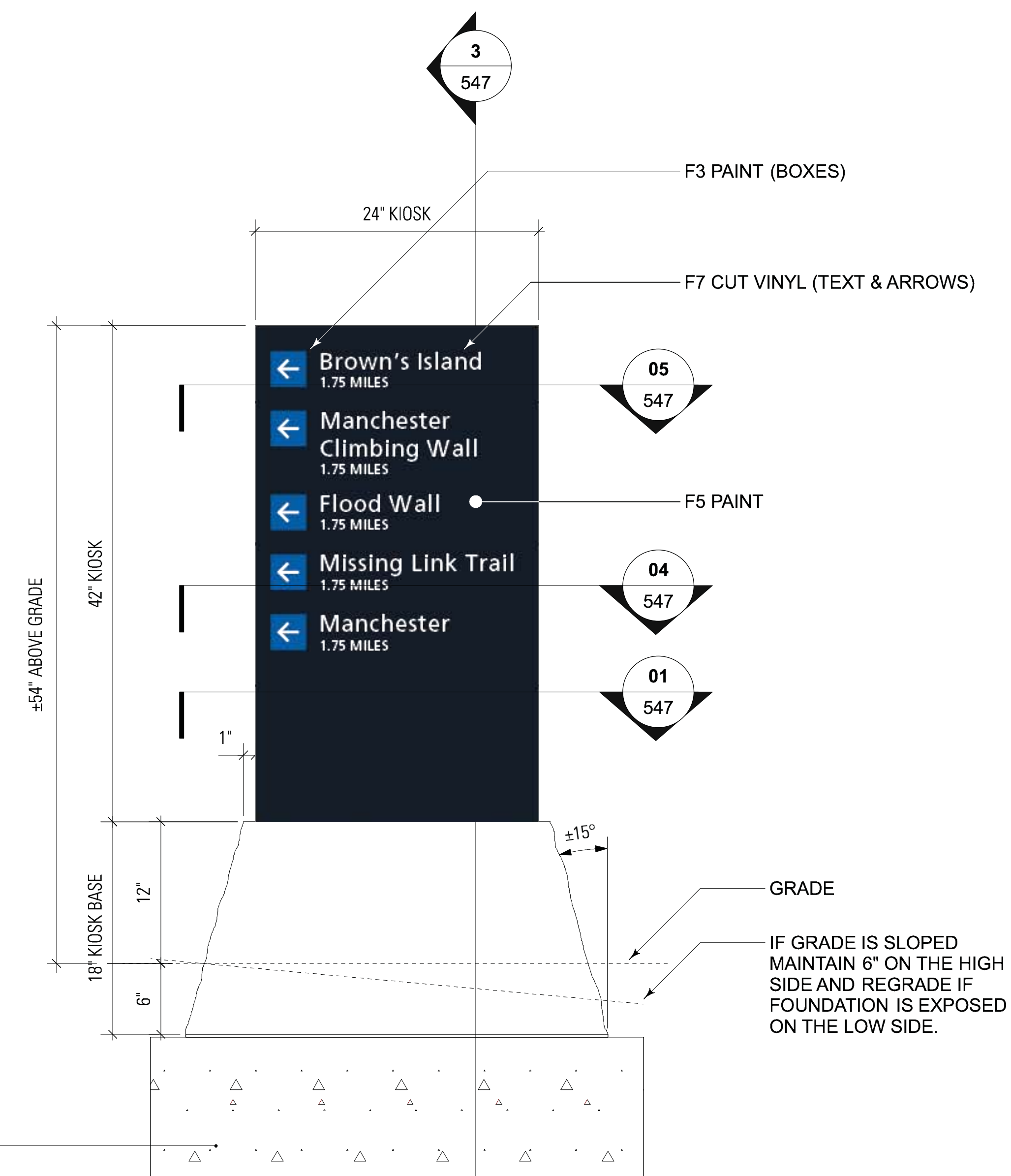
**XS-545**



**03 PLAN — DIR-2— PEDESTRIAN MONUMENT STYLE REGULATORY SIGN**  
SCALE: 1-1/2" = 1'-0"



**02 SIDE ELEVATION**  
SCALE: 1-1/2" = 1'-0"

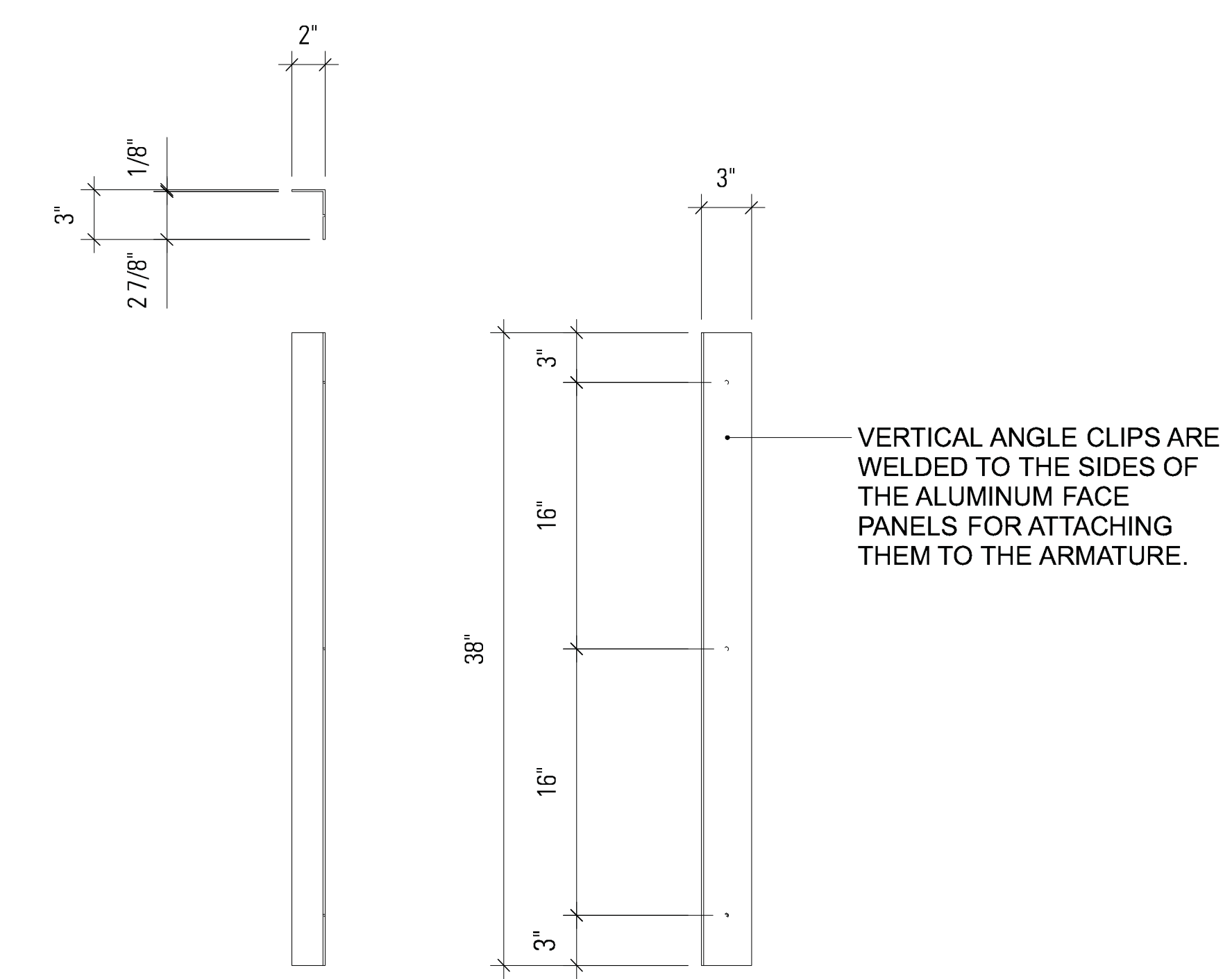


**01 FRONT ELEVATION**  
SCALE: 1-1/2" = 1'-0"

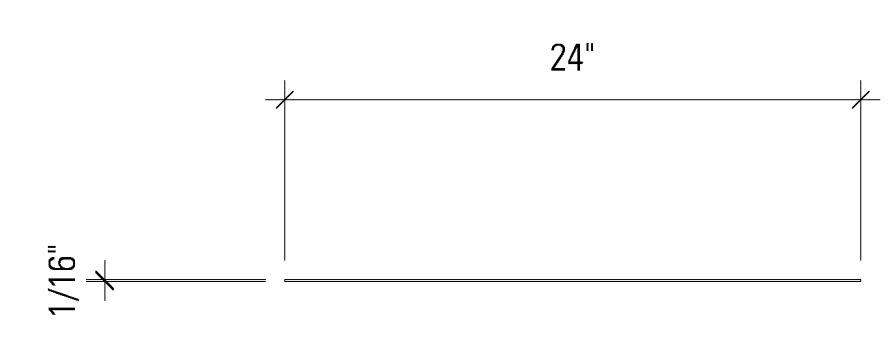
**SIGN TYPE**

DIR-2 — PEDESTRIAN  
DIRECTIONAL —  
MONUMENT STYLE

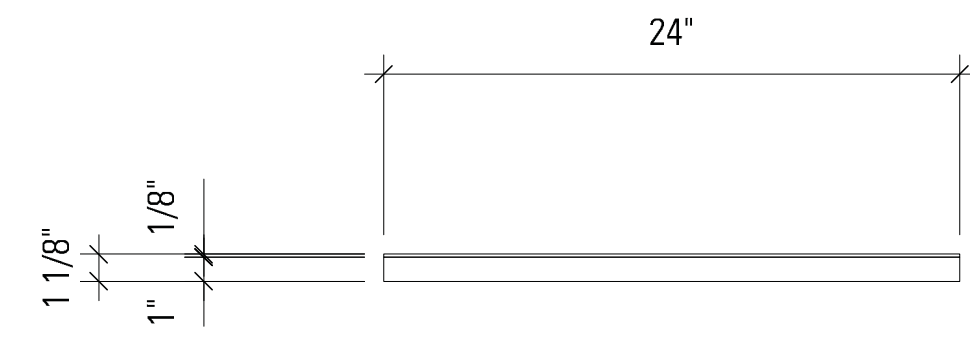
**PROJECT INFORMATION**  
Richmond, Virginia Riverfront  
Improvements: Priority 1  
**T. TYLER POTTERFIELD MEMORIAL BRIDGE**  
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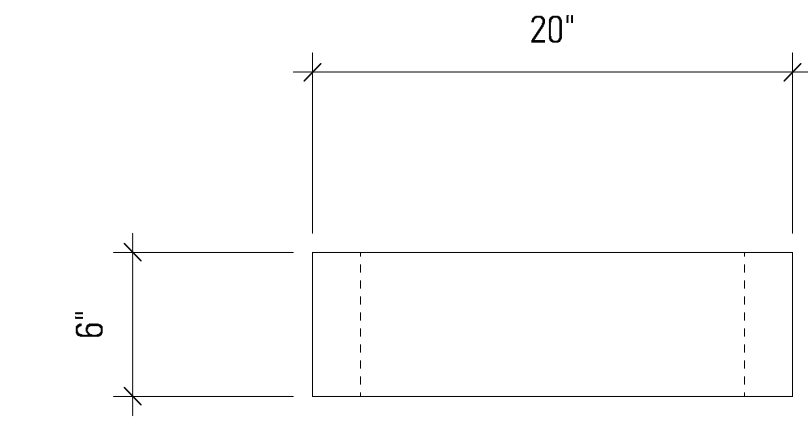
05 2" x 3" x 1/8" VERTICAL ALUMINUM ANGLE CLIPS—QTY 4  
SCALE: 1-1/2" = 1'-0"



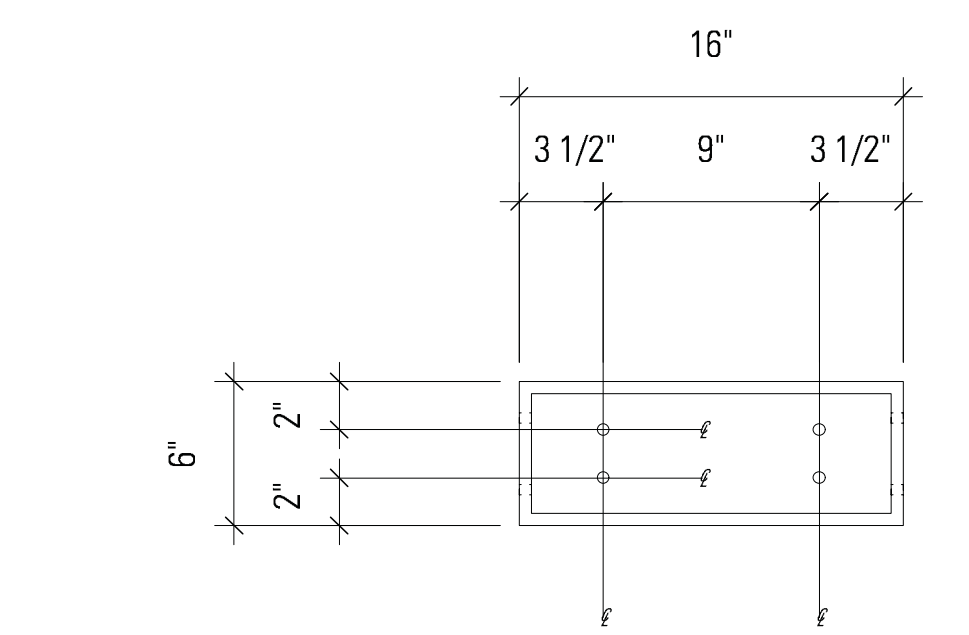
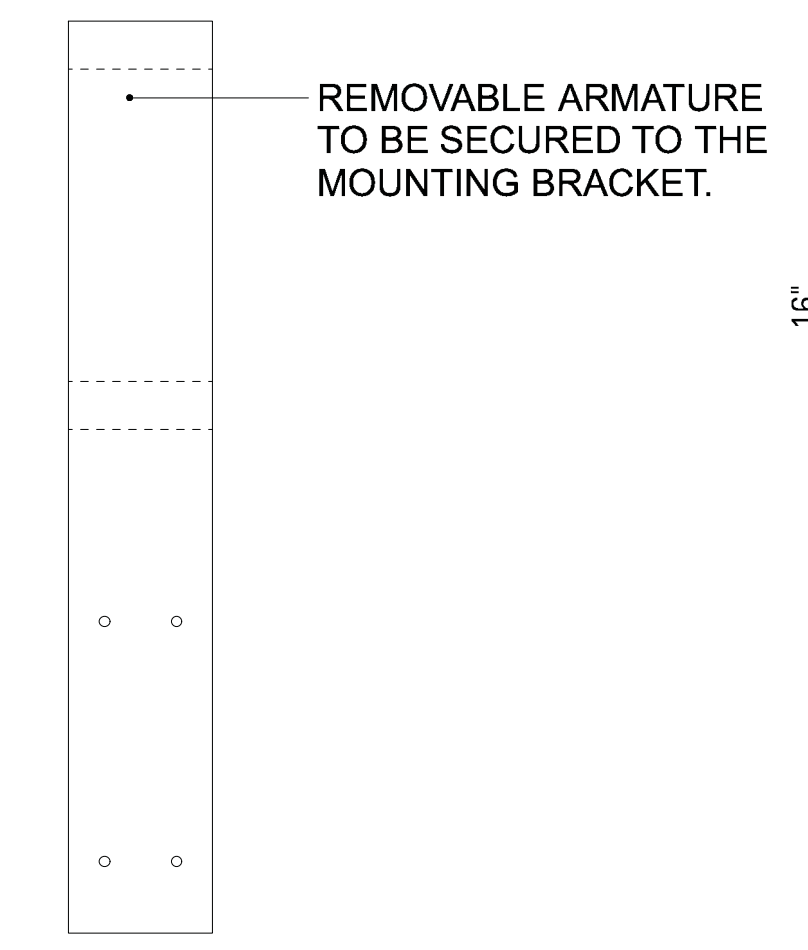
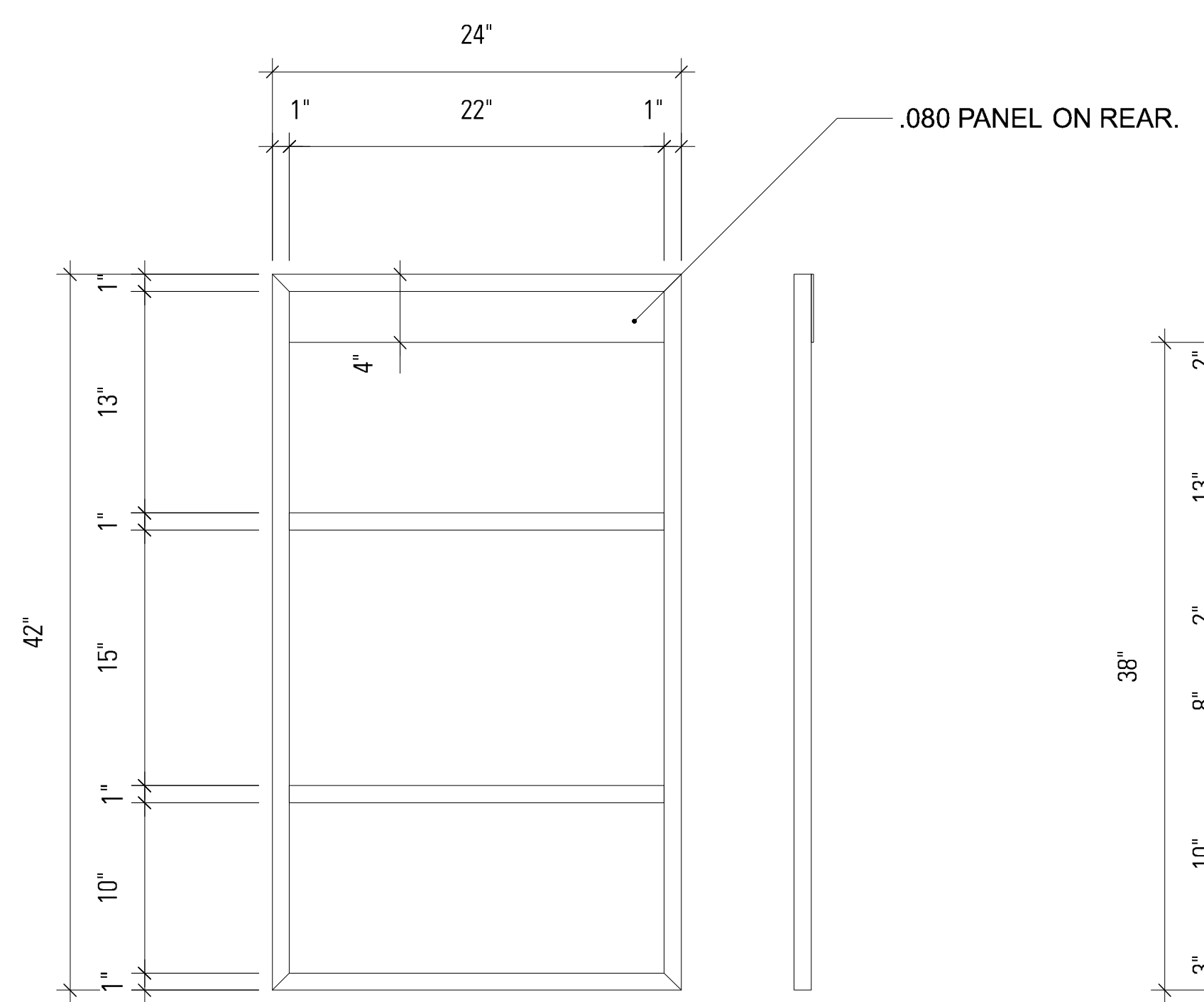
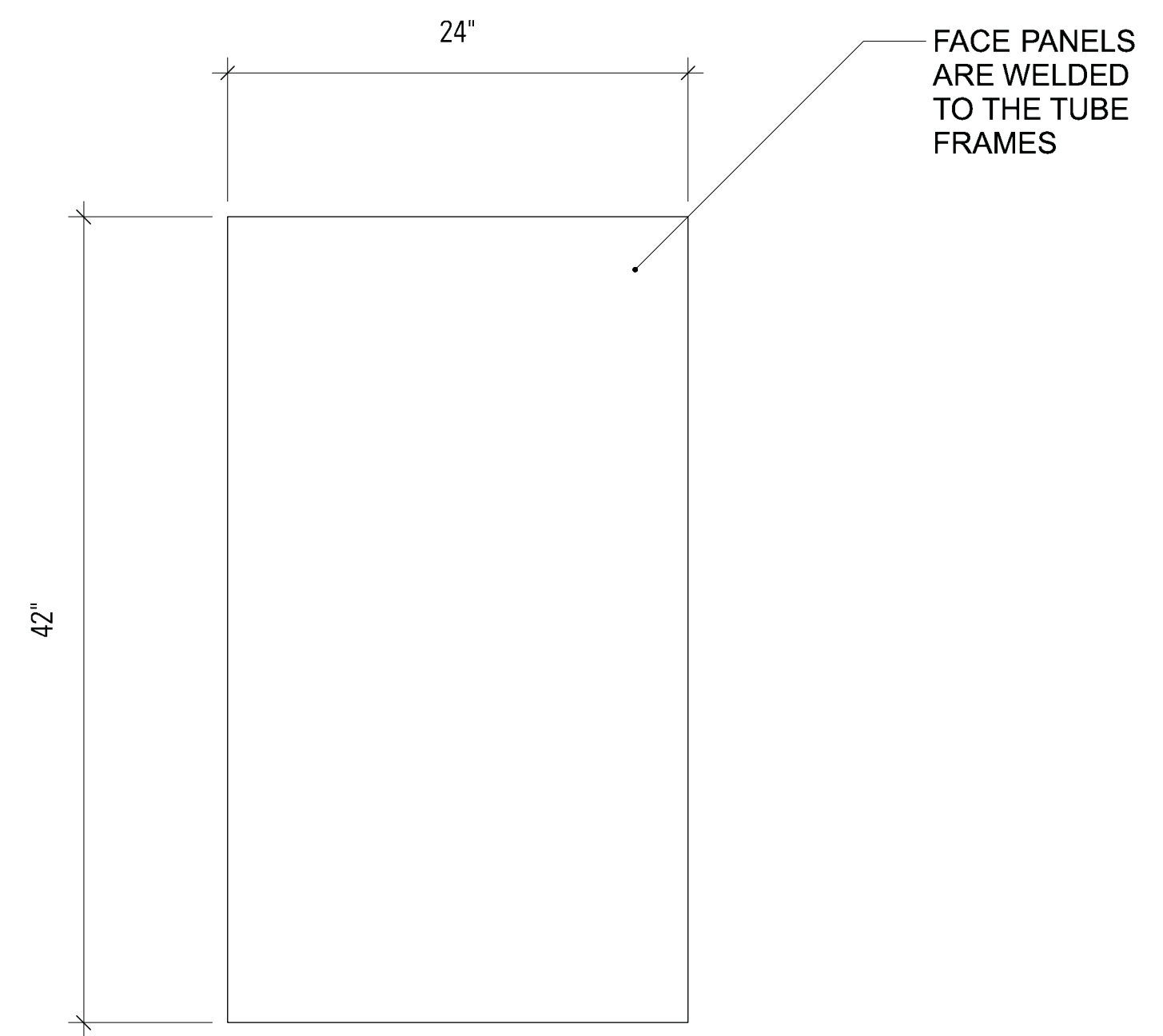
04 .080 ALUMINUM FACE PANEL—QTY 2  
SCALE: 1-1/2" = 1'-0"



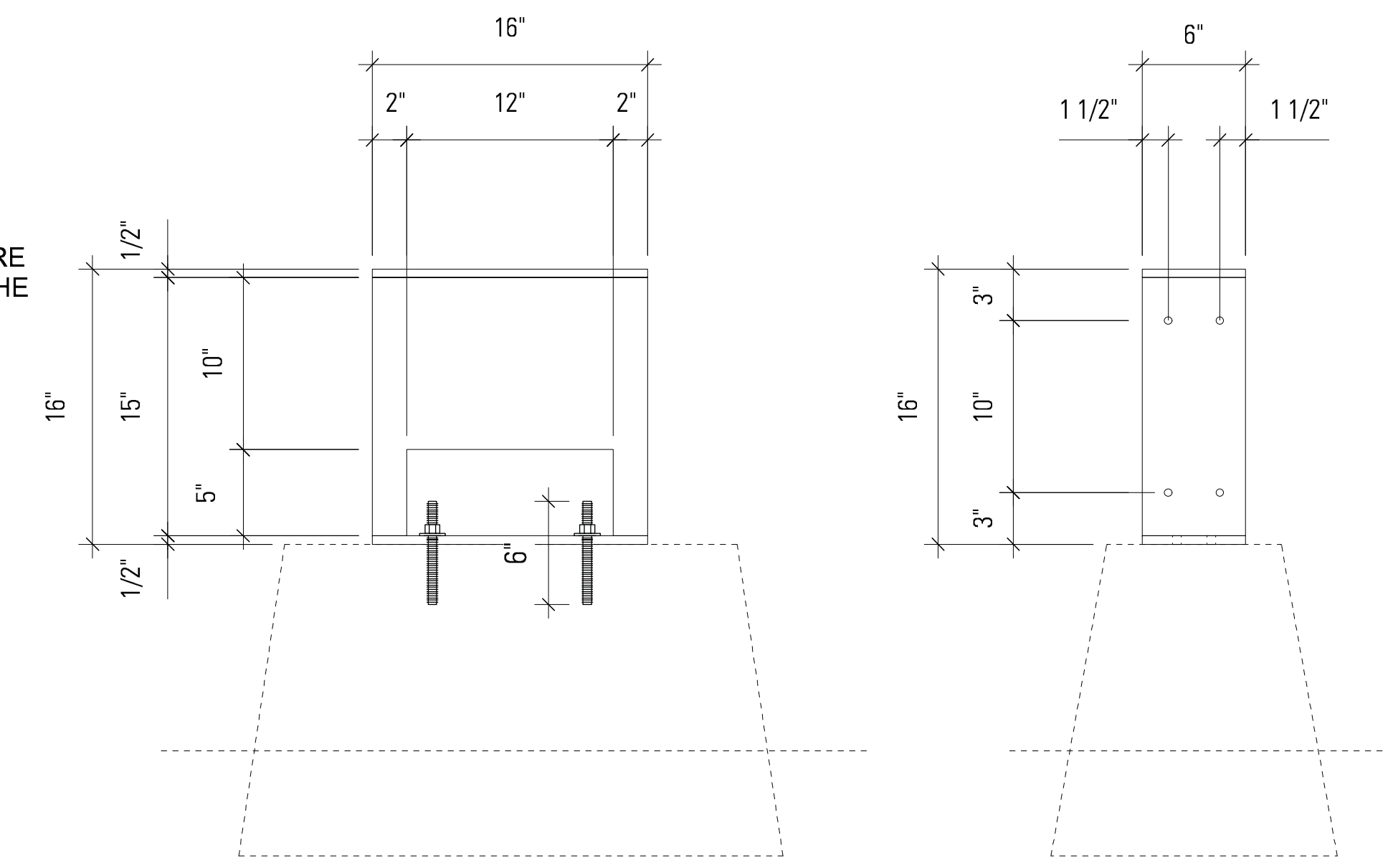
03 1" x 1" x 1/8" ALUMINUM TUBE FRAME—QTY 2  
SCALE: 1-1/2" = 1'-0"



02 2" X 6" X 1/8" ALUMINUM TUBE ARMATURE—QTY 1  
SCALE: 1-1/2" = 1'-0"



01 16"W X 16"H X 6"D REMOVABLE STEEL MOUNTING BRACKET—QTY 1  
SCALE: 1-1/2" = 1'-0"



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| 4   | BID SET            | 10-24-2014 |

**KEY MAP**

**SHEET INFORMATION**

Project No.: RVA 1301  
Drawn By: KEM  
Checked By: JCC  
Date: 10/22/2014  
Scale: AS SHOWN

**SHEET TITLE**

**DETAILS SIGNAGE—  
DIR-2 PEDESTRIAN  
DIRECTIONAL**

**SHEET NO.**

**XS-546**



**PROJECT INFORMATION**

Richmond, Virginia Riverfront

Improvements: Priority 1

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POTTERFIELD

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**KEY MAP**



**SHEET INFORMATION**

Project No.: RVA 1301

Drawn By: KEM

Checked By: JCC

Date: 10/22/2014

Scale: AS SHOWN

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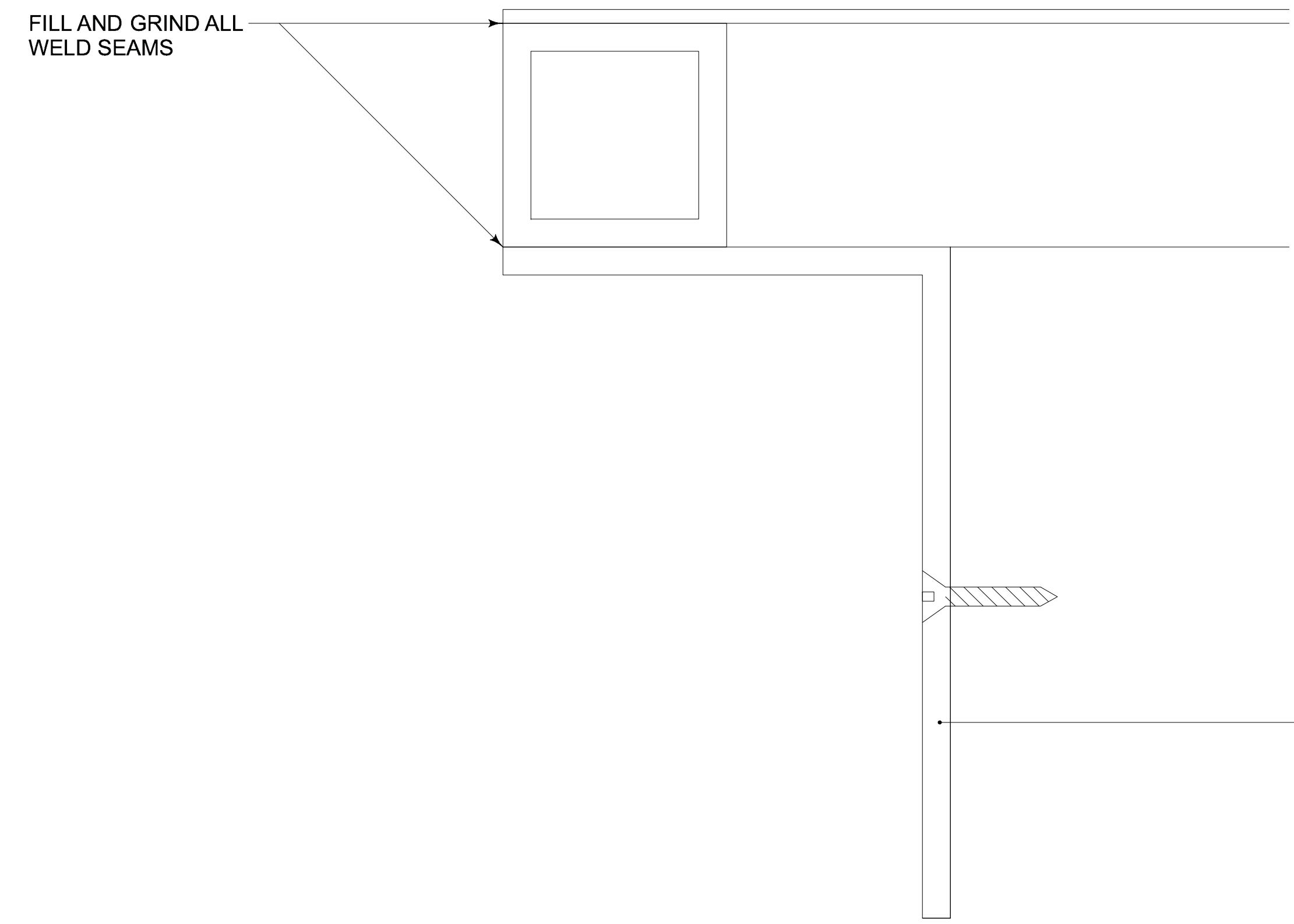
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DIR-2 PEDESTRIAN  
DIRECTIONAL**

SHEET NO.

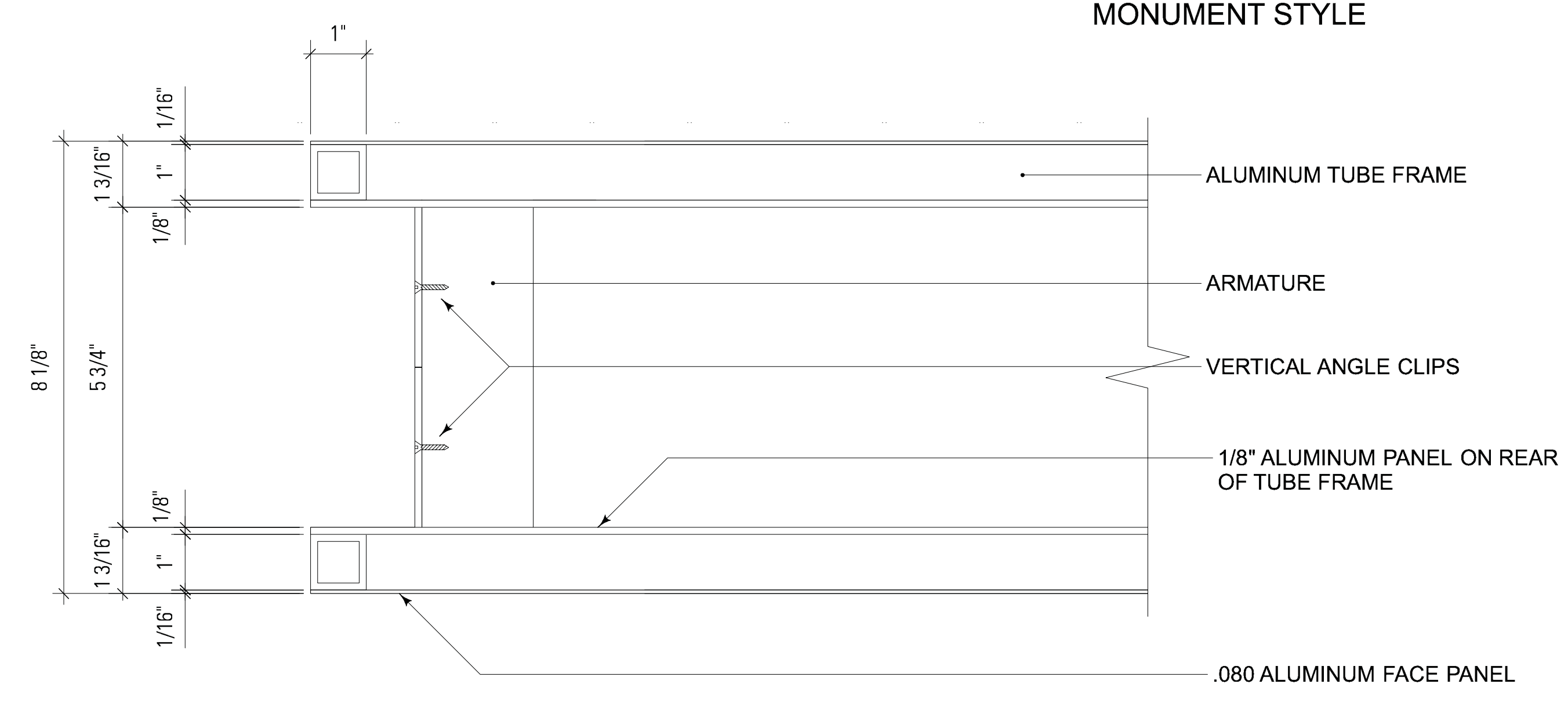
**XS-547**

**SIGN TYPE**

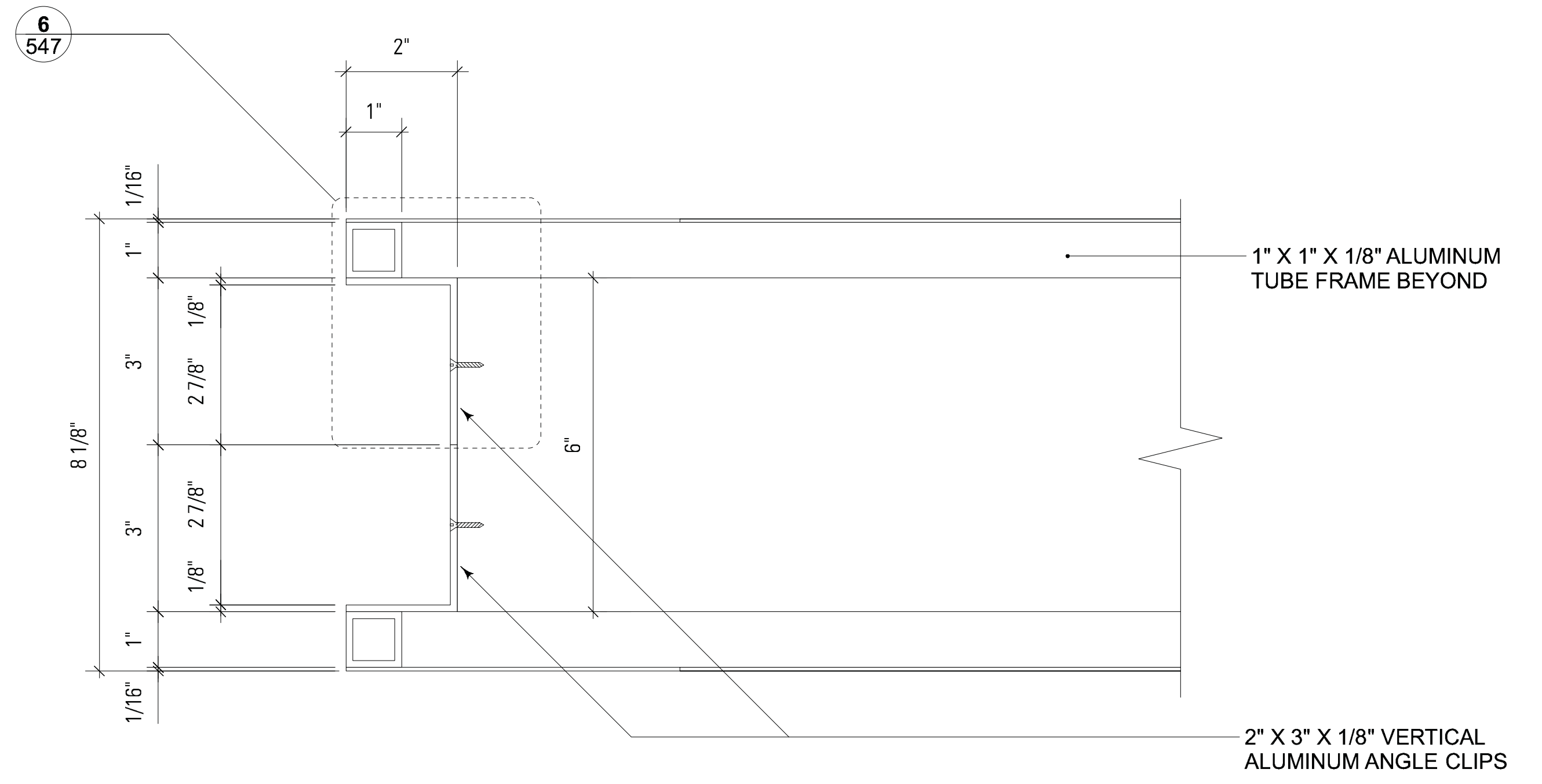
DIR-2 — PEDESTRIAN  
DIRECTIONAL —  
MONUMENT STYLE



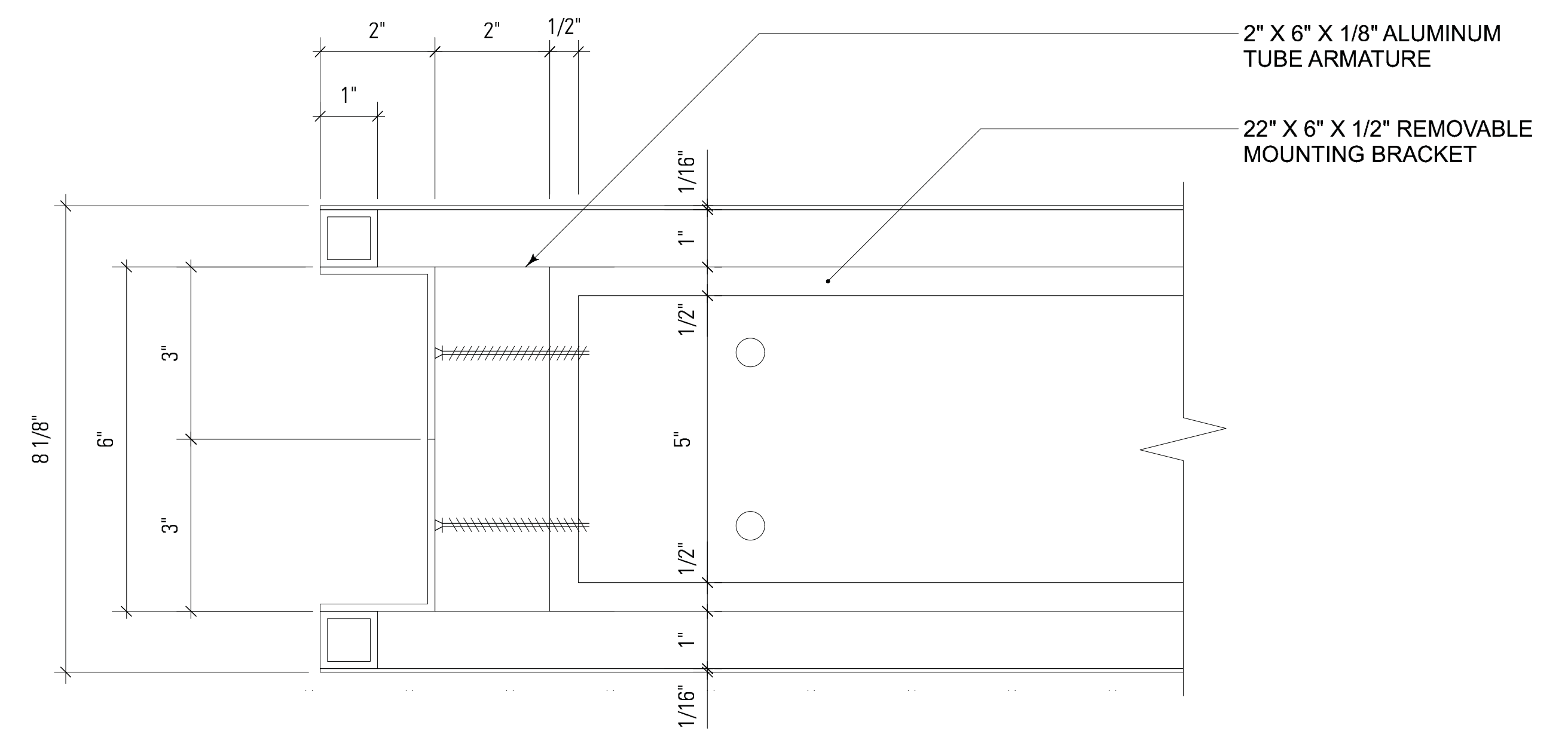
**06 SECTION DETAIL OF PANEL ASSEMBLY**  
SCALE: 2X FULL SIZE



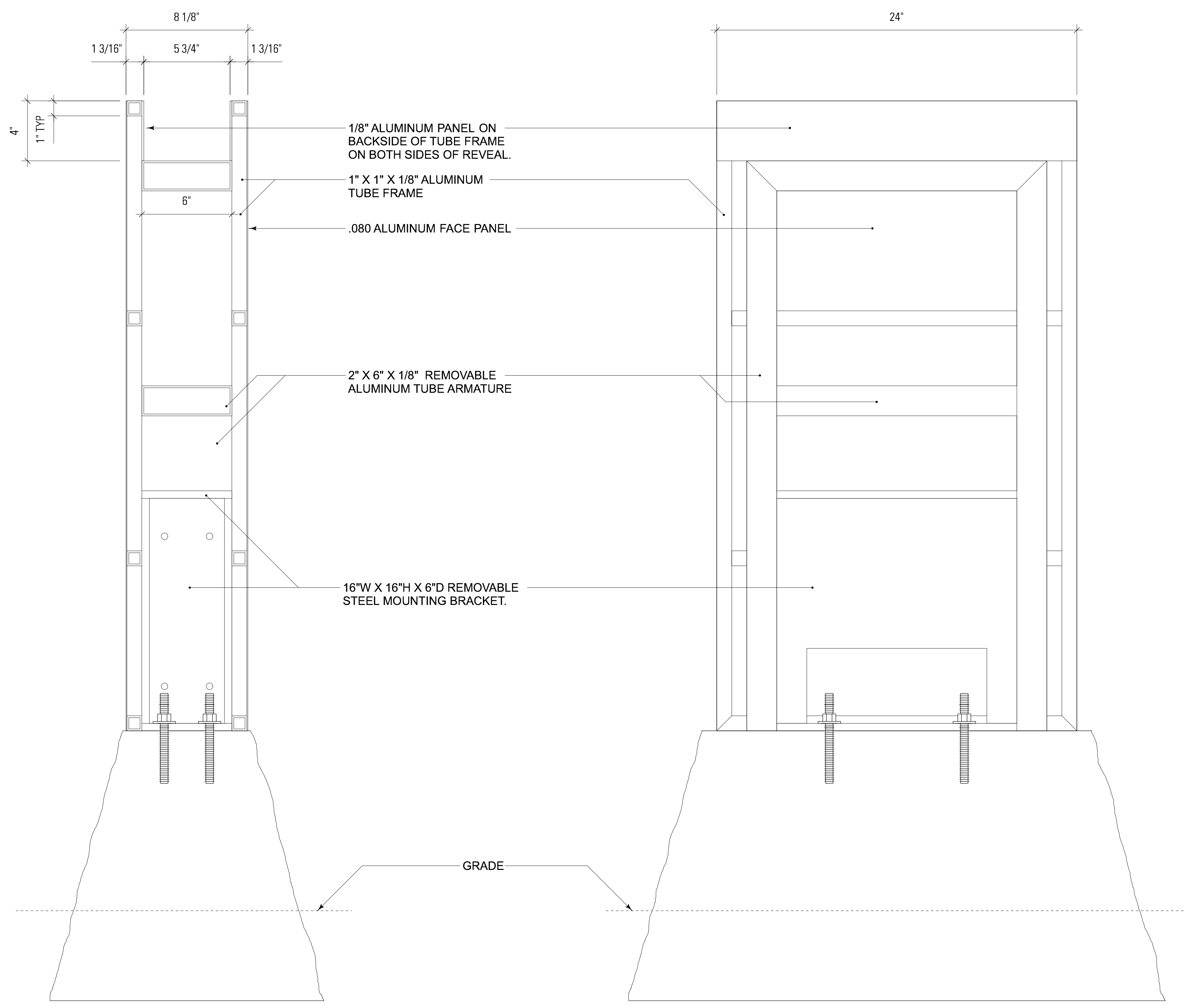
**05 SECTION DETAIL THROUGH TOP**  
SCALE: HALF SIZE



**04 SECTION DETAIL THROUGH MIDDLE**  
SCALE: HALF SIZE



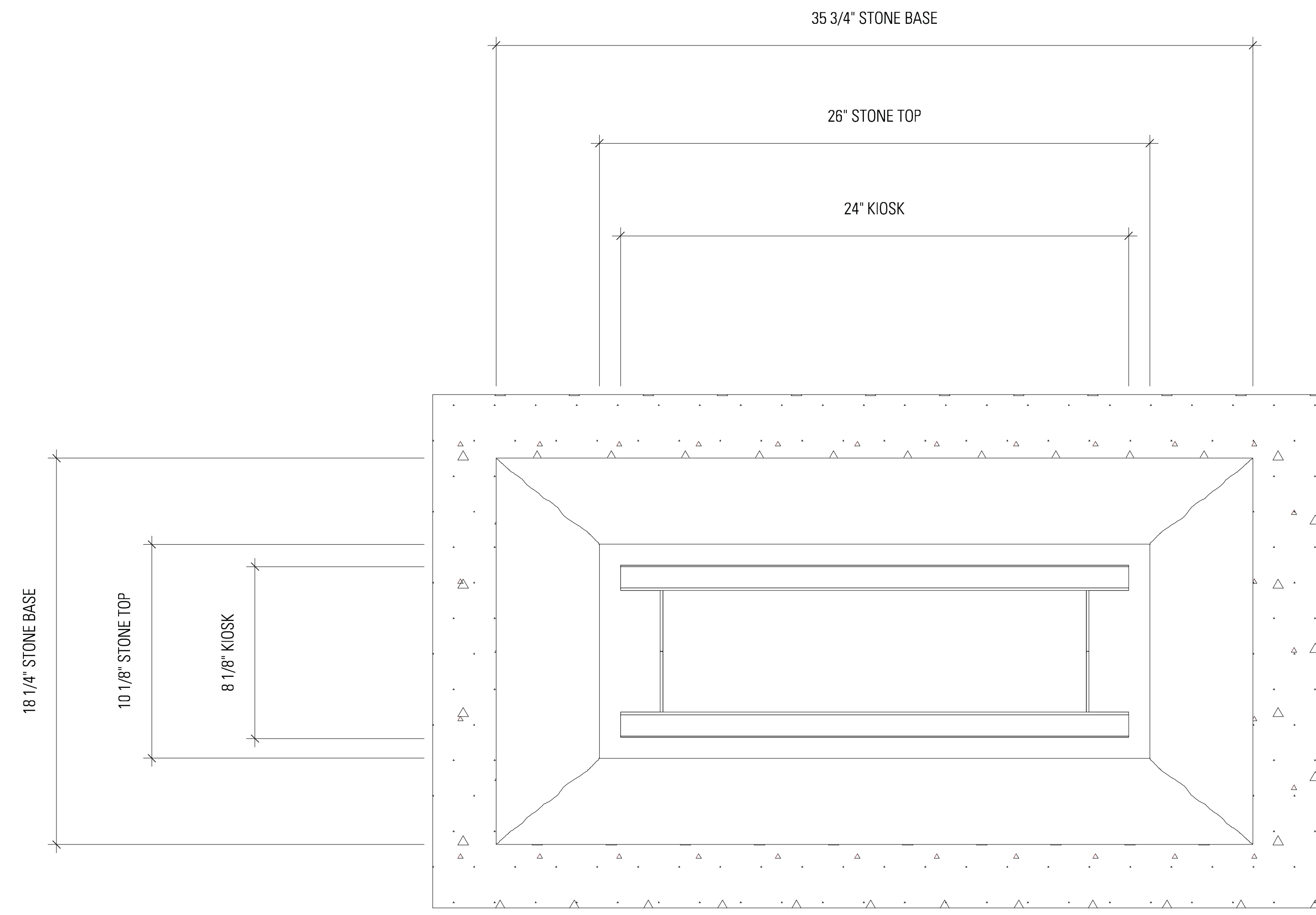
**01 SECTION DETAIL THROUGH STEEL MOUNTING BRACKET**  
SCALE: HALF SIZE



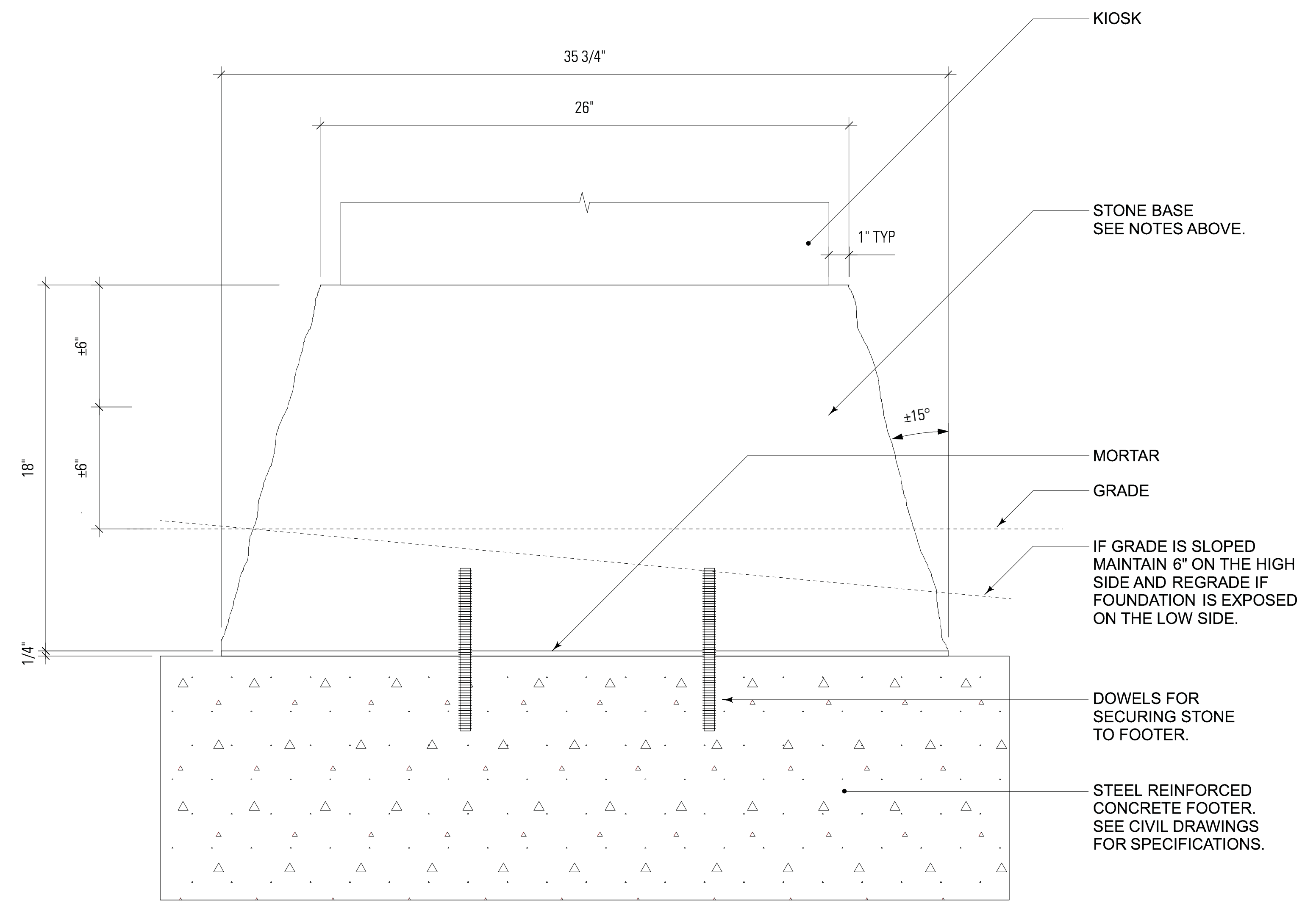
**03 SECTION**  
SCALE: 3" = 1'-0"

**02 SECTION**  
SCALE: 3" = 1'-0"





**02 PLAN — STONE BASE & FOOTER**  
SCALE: 3" = 1'-0"



**01 ELEVATION — STONE BASE & FOOTER**  
SCALE: 3" = 1'-0"

**SIGN TYPE**

DIR-2 — PEDESTRIAN  
DIRECTIONAL —  
MONUMENT STYLE

**SIGN NOTES**

1. MATERIAL: GRANITE — GEORGIA GREY
2. SHAPE: THE FOUR SIDES OF THE RECTANGULAR STONE SLOPE APPROXIMATELY 15 DEGREES
3. HEIGHT OF STONE: 18"H
4. DIMENSIONS AT TOP OF STONE: 26" W x 10-1/8" D
5. DIMENSIONS AT BOTTOM OF STONE: 35-3/4" W x 18-1/4" D
6. SURFACE FINISH: ROCKFACE (HEAVY RELIEF) OF THE FOUR SIDES AND SAWN (SMOOTH) ON THE TOP & BOTTOM
7. MILLING: DRILL DOWEL HOLES TOP & BOTTOM AS SPECIFIED BY SIGN FABRICATOR
8. RECOMMENDED SUPPLIER: GRANITE WORLD LLC 1717 CALHOUN FALLS HIGHWAY ELBERTON, GA 30635 706-988-9671
9. FOR REINFORCED CONCRETE FOOTER SEE CIVIL DRAWINGS.

**PROJECT INFORMATION**

Richmond, Virginia Riverfront  
Improvements: Priority 1  
**T. TYLER**  
**POTTERFIELD**  
**MEMORIAL BRIDGE**

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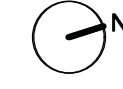
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**KEY MAP**



**SHEET INFORMATION**

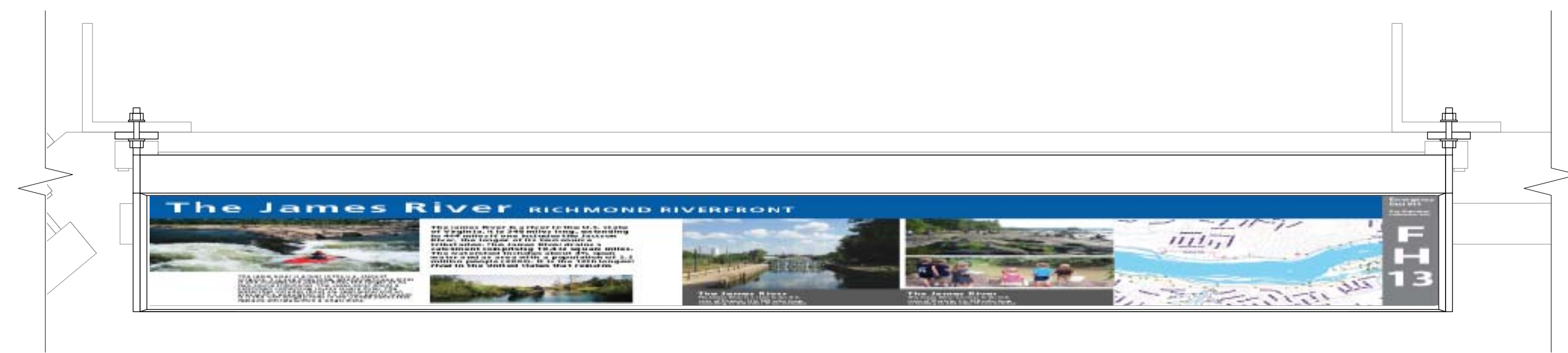
Project No.: RVA 1301  
Drawn By: KEM  
Checked By: JCC  
Date: 10/22/2014  
Scale: AS SHOWN

**SHEET TITLE**

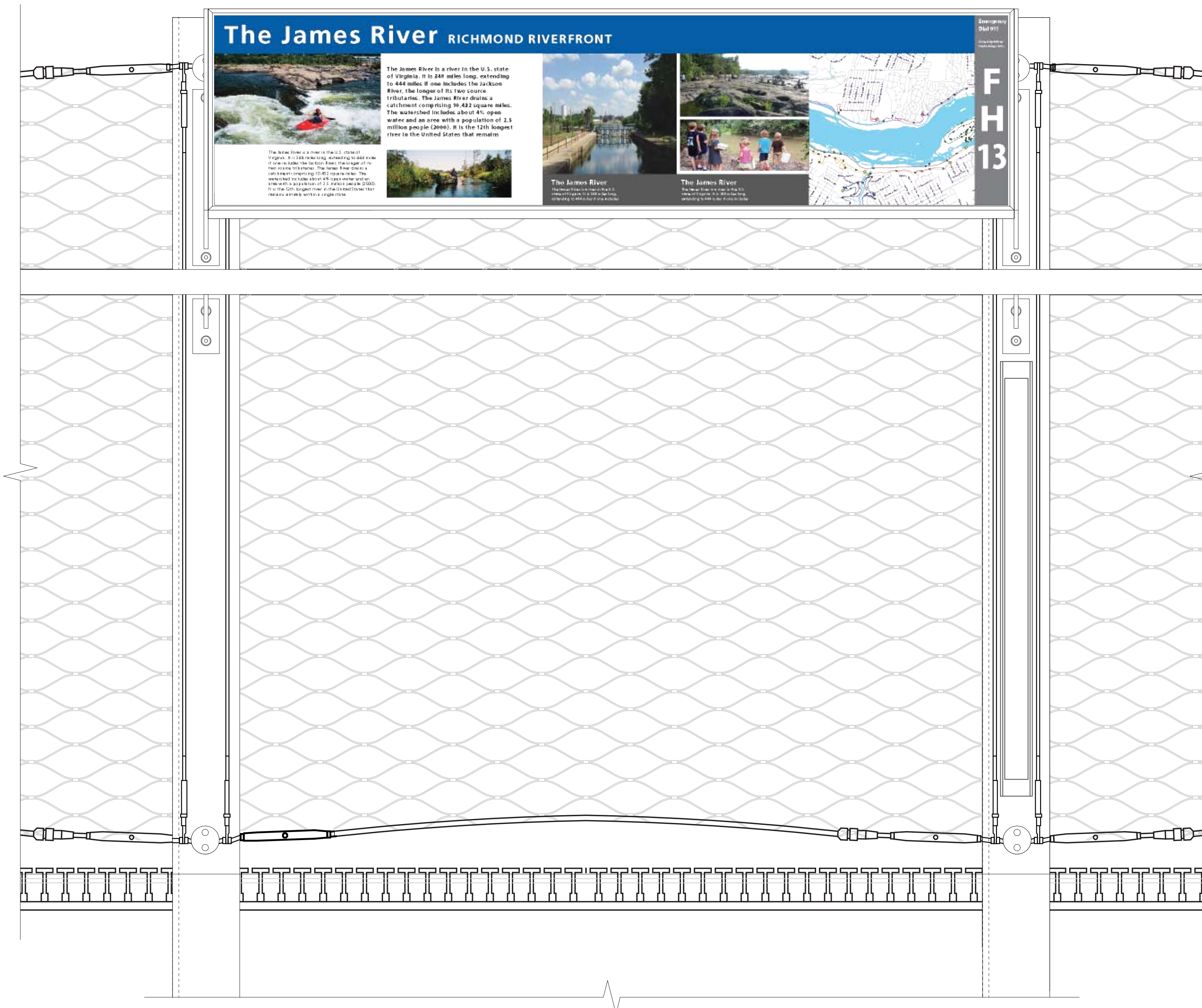
**DETAILS SIGNAGE—  
DIR-2 PEDESTRIAN  
DIRECTIONAL**

**SHEET NO.**

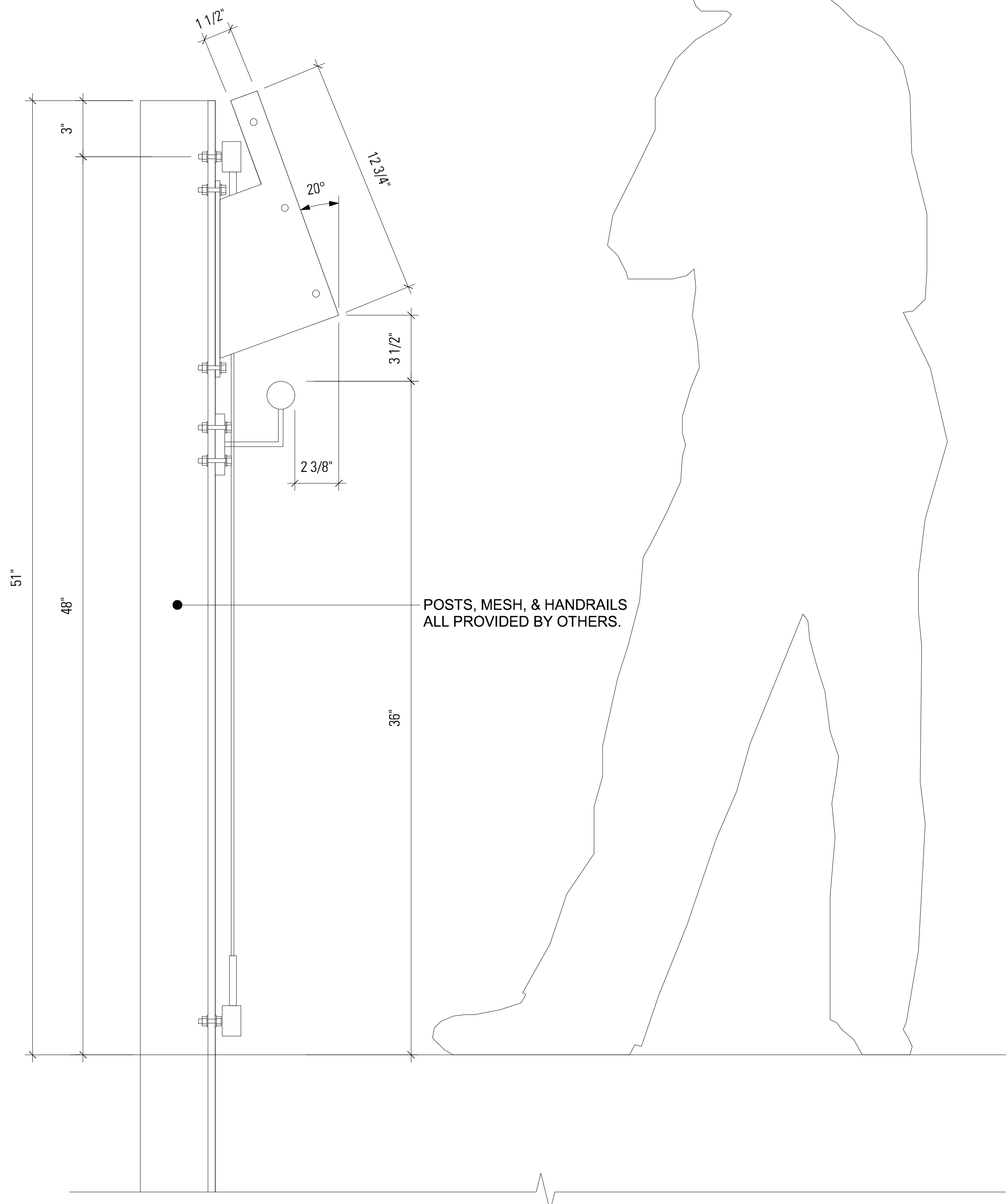
**XS-549**



03 PLAN  
SCALE: 3" = 1'-0"



02 FRONT ELEVATION  
SCALE: 3" = 1'-0"



01 SIDE ELEVATION  
SCALE: 3" = 1'-0"

**SIGN TYPE**

INT-1 — INTERPRETIVE  
RAIL

**SIGN NOTES**

1. FOR LOCATION, SEE LANDSCAPE PLANS.

**PROJECT INFORMATION**

Richmond, Virginia Riverfront

Improvements: Priority 1

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**KEY MAP**



**SHEET INFORMATION**

Project No.: RVA 1301  
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Checked By: JCC  
Date: 10/22/2014  
Scale: AS SHOWN

**SHEET TITLE**

**DETAILS SIGNAGE—  
INT-1 INTERPRETIVE  
RAIL**

**SHEET NO.**

**XS-550**



**SIGN TYPE**

INT-1 — INTERPRETIVE  
RAIL

**SIGN NOTES**

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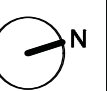
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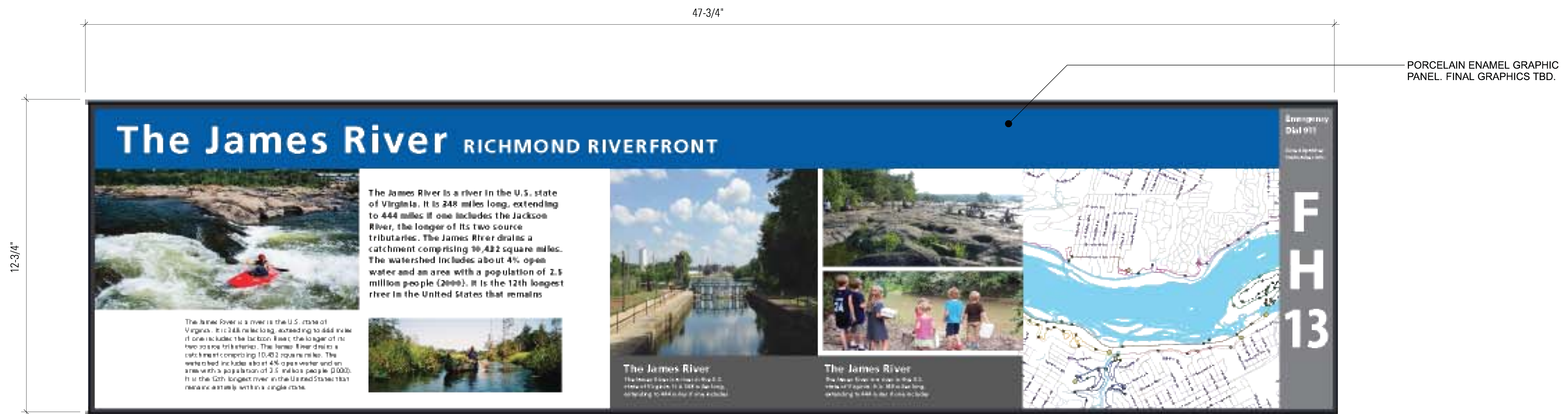
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Date: 10/22/2014  
Scale: AS SHOWN

**SHEET TITLE**

**DETAILS SIGNAGE—  
INT-1 INTERPRETIVE  
RAIL**

**SHEET NO.**

**XS-552**



01 INTERPRETIVE RAIL GRAPHICS  
SCALE: HALF SIZE