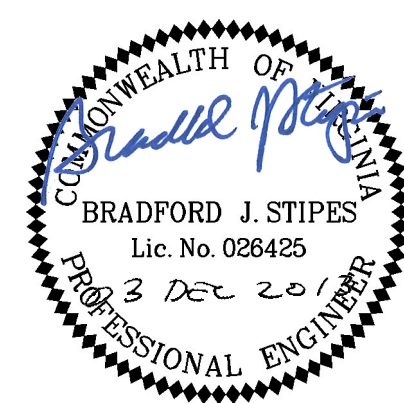


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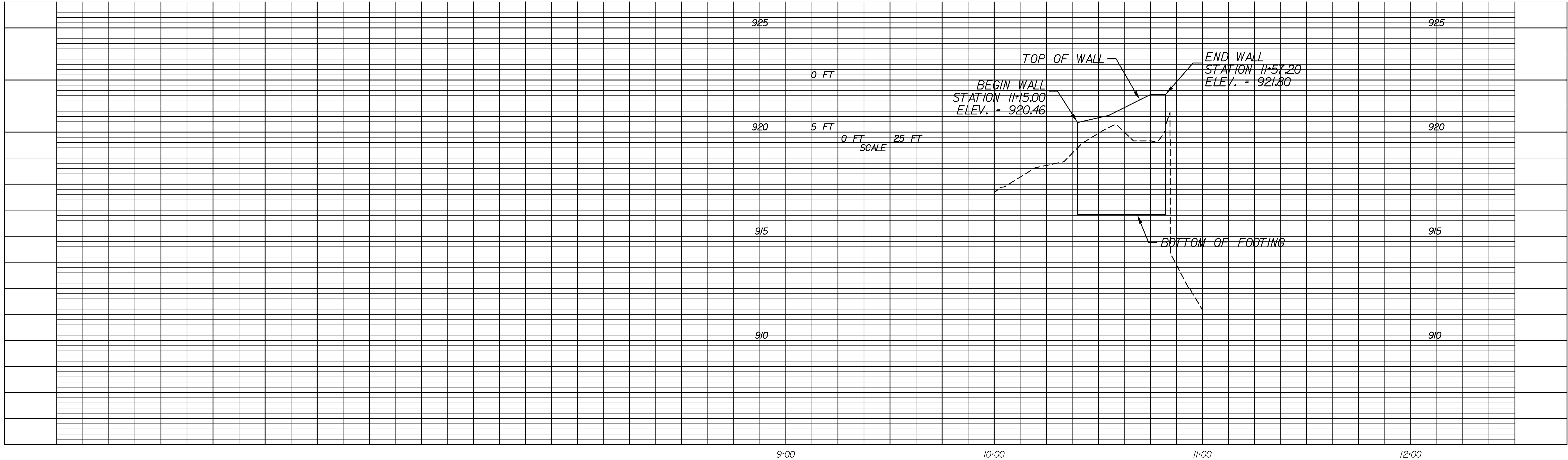
9TH STREET OVER ROANOKE RIVER
BRIDGE SUPERSTRUCTURE REPLACEMENT

PROFILE VIEW-BRIDGE

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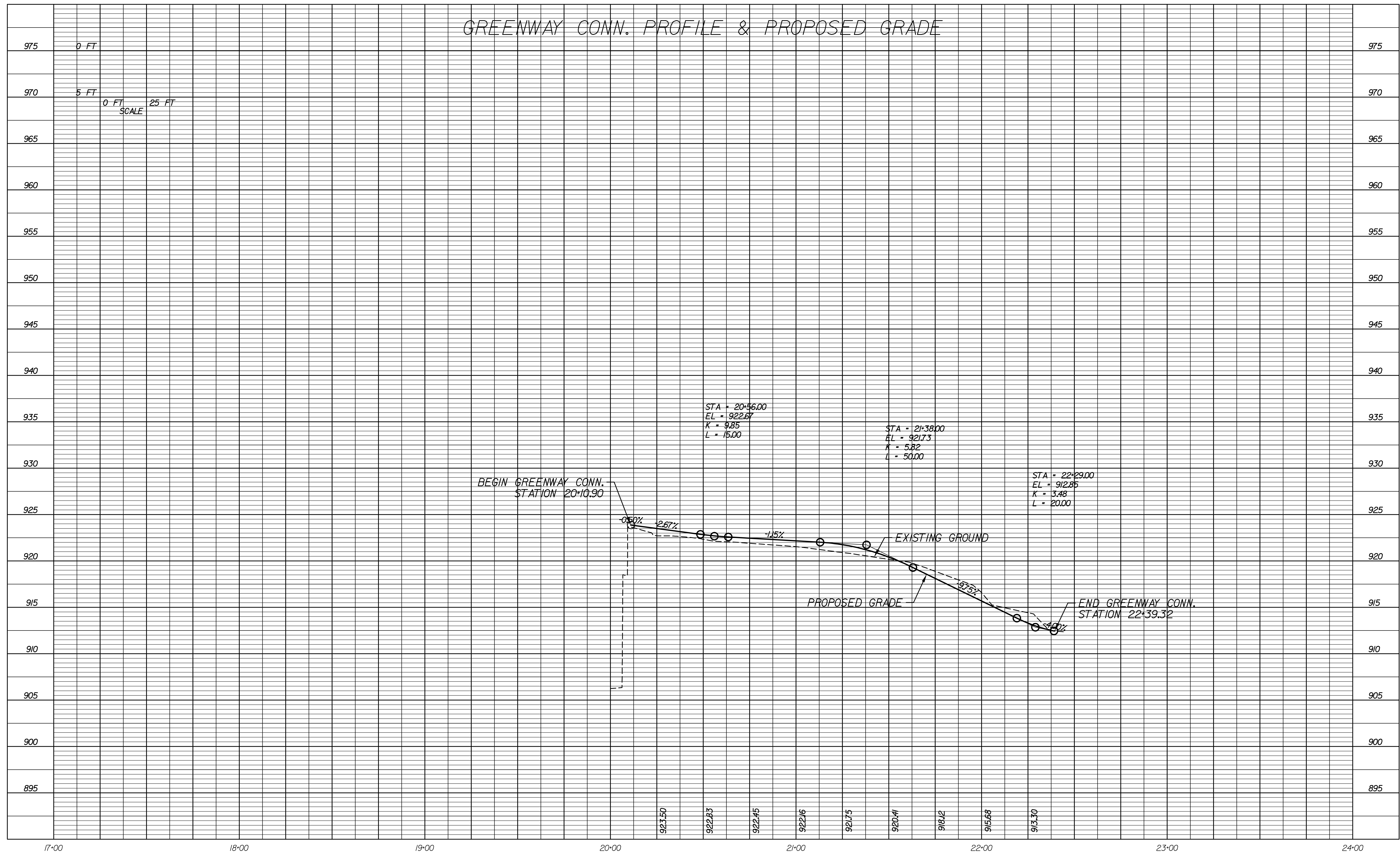
9TH STREET OVER ROANOKE RIVER
BRIDGE SUPERSTRUCTURE REPLACEMENT

RW-3 WALL PROFILE

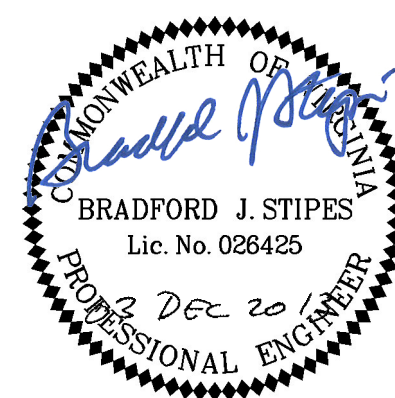
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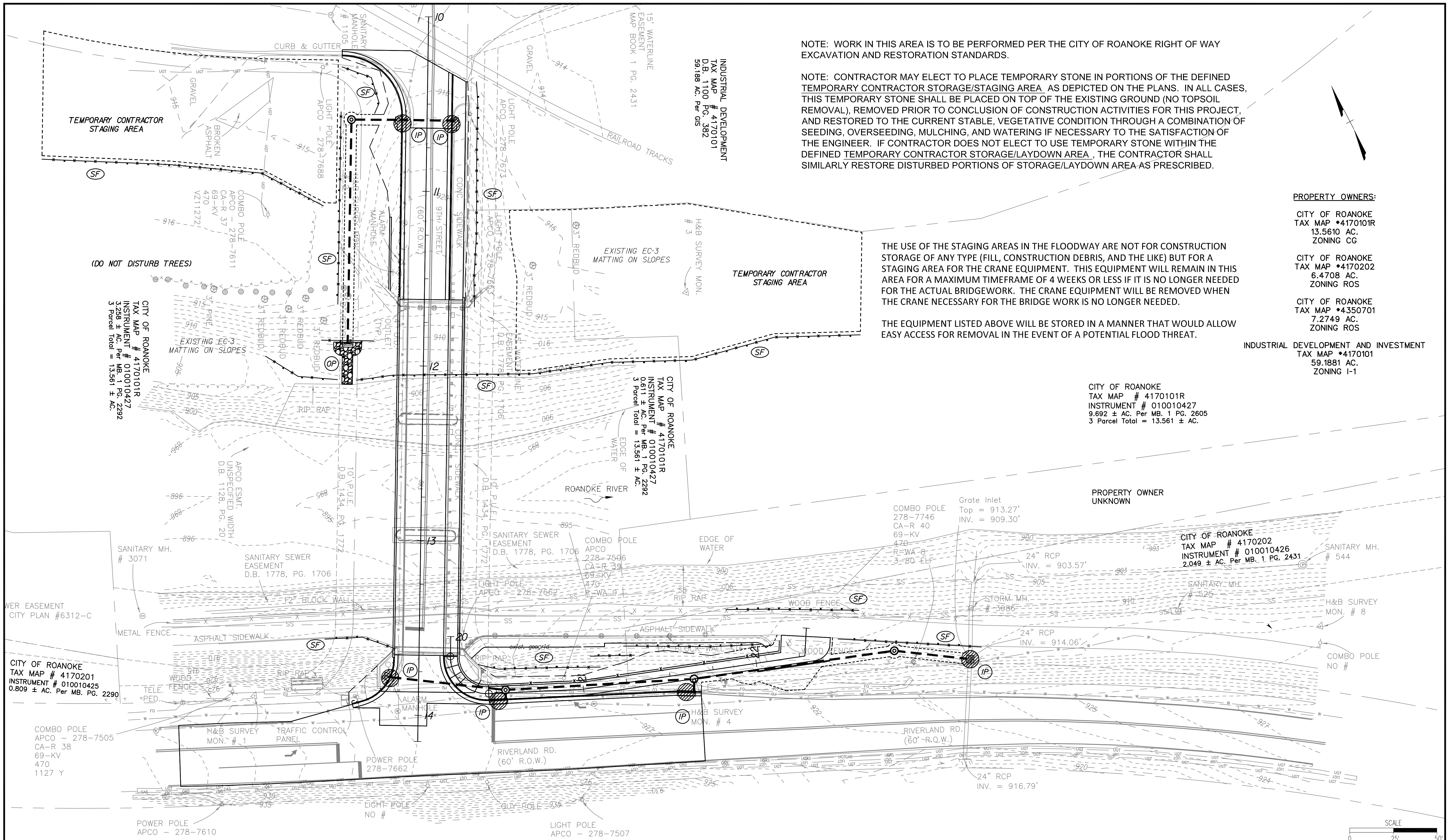
9TH STREET OVER ROANOKE RIVER
BRIDGE SUPERSTRUCTURE REPLACEMENT

PROFILE VIEW
GREENWAY CONNECTION

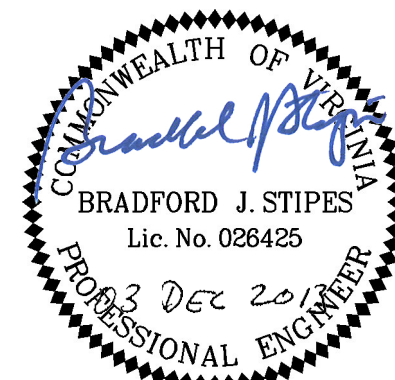
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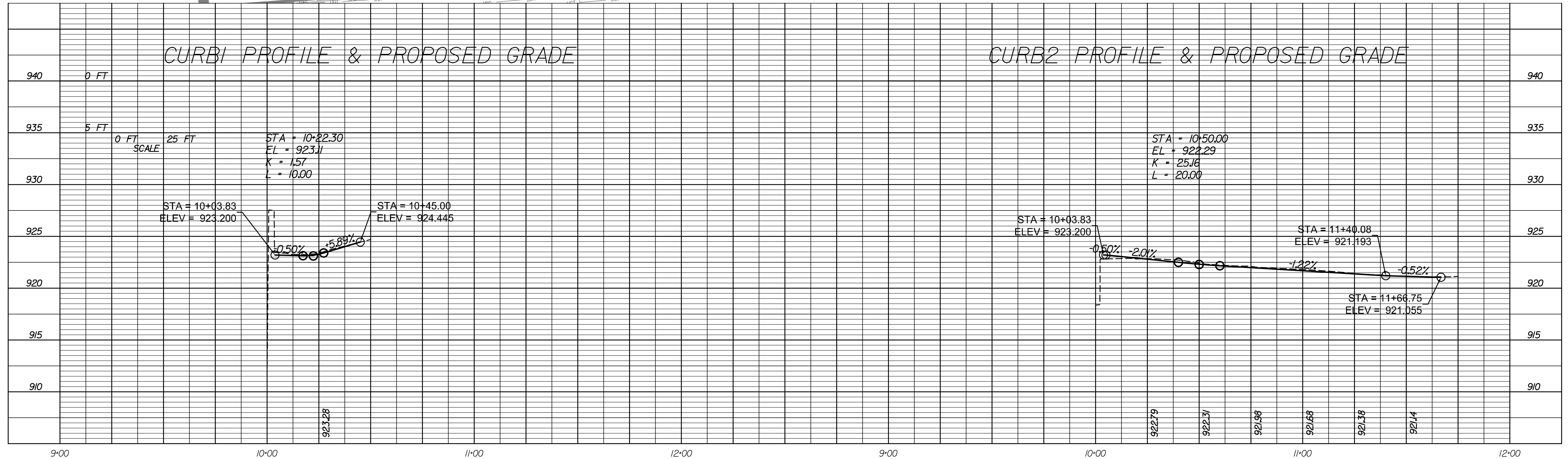
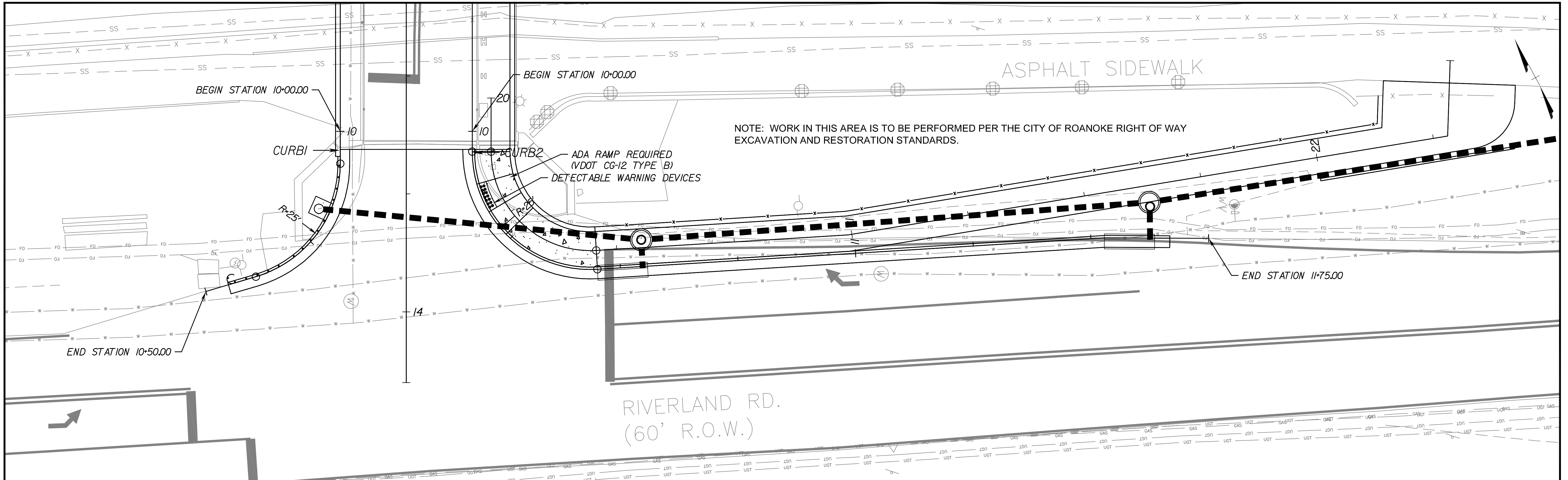
LEGEND

- OP DENOTES OUTLET PROTECTION
- IP DENOTES INLET PROTECTION
- SF DENOTES SILT FENCE

**9TH STREET OVER ROANOKE RIVER
BRIDGE SUPERSTRUCTURE REPLACEMENT**

E&SC PLAN VIEW

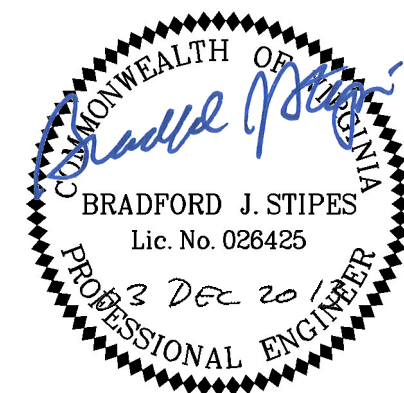
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9TH STREET OVER ROANOKE RIVER BRIDGE SUPERSTRUCTURE REPLACEMENT



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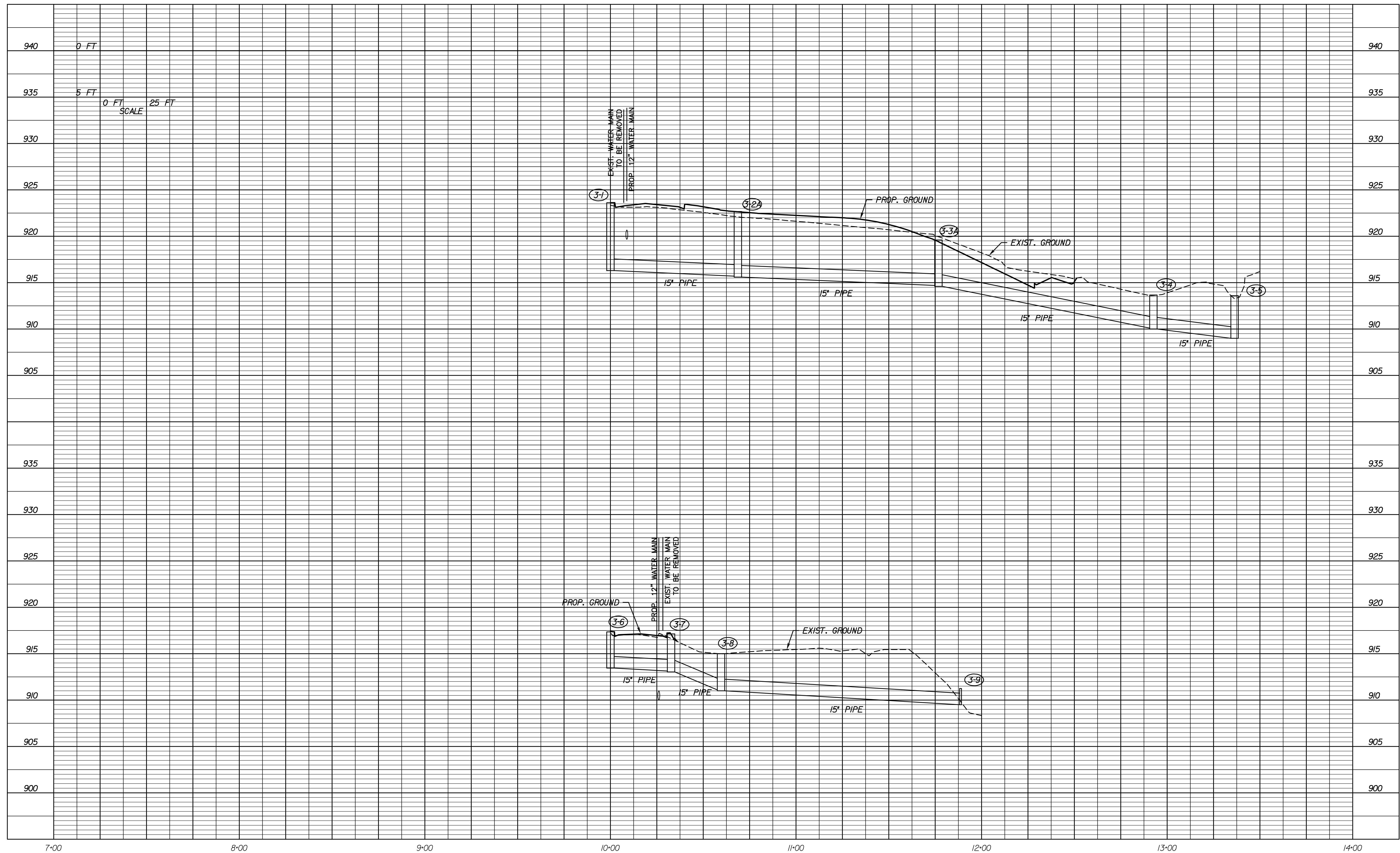
9TH STREET OVER ROANOKE RIVER
BRIDGE SUPERSTRUCTURE REPLACEMENT

CURB PROFILES

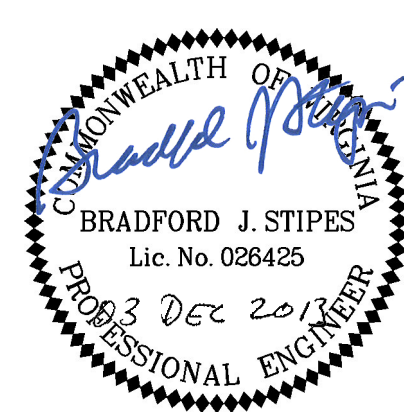
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9TH STREET OVER ROANOKE RIVER
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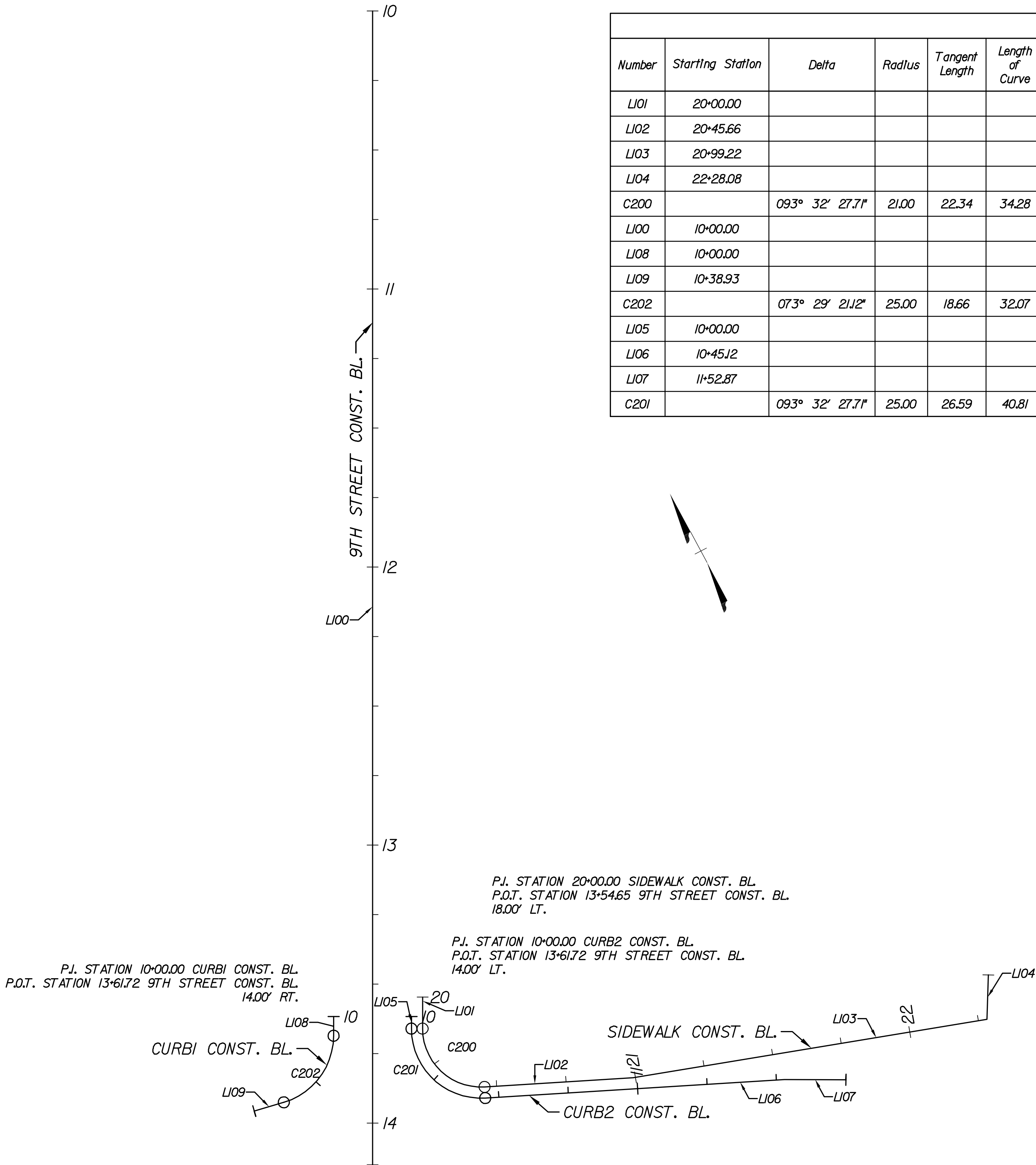
STORM DRAIN PROFILES

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DATE
DEC 2013

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C8

Number	Starting Station	Delta	Radius	Tangent Length	Length of Curve	Bearing	Northing	Easting	PC Station	PC Northing	PC Easting	PI Station	PI Northing	PI Easting	PT Station	PT Northing	PT Easting
L101	20+00.00					S28° 11' 50.49"W	3618668.9811	11068007.9048									
L102	20+45.66					S65° 20' 37.23"E	3618629.9470	11068012.2766									
L103	20+99.22					S71° 09' 54.33"E	3618607.6022	11068060.9555									
L104	22+28.08					N30° 10' 01.40"E	3618566.0012	11068182.9139									
C200		093° 32' 27.71"	21.00	22.34	34.28				20+11.38	3618658.9551	11068002.5294	20+33.72	3618639.2666	11067991.9737	20+45.66	3618629.9470	11068012.2766
L100	10+00.00					S28° 11' 50.49"W	3618990.0458	11068159.6153									
L108	10+00.00					S28° 11' 50.49"W	3618677.8696	11067976.3612									
L109	10+38.93					N78° 18' 48.39"W	3618659.1519	11067946.0215									
C202		073° 29' 21.12"	25.00	18.66	32.07				10+06.86	3618671.8208	11067973.1182	10+25.53	3618655.3713	11067964.2991	10+38.93	3618659.1519	11067946.0215
L105	10+00.00					S28° 11' 50.49"W	3618664.6393	11068001.0383									
L106	10+45.12					S65° 20' 37.23"E	3618626.3117	11068010.6079									
L107	11+52.87					S61° 31' 19.60"E	3618581.3630	11068108.5300									
C201		093° 32' 27.71"	25.00	26.59	40.81				10+04.31	3618660.8451	11067999.0041	10+30.90	3618637.4064	11067986.4378	10+45.12	3618626.3117	11068010.6079



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9TH STREET OVER ROANOKE RIVER
BRIDGE SUPERSTRUCTURE REPLACEMENT

ALIGNMENT DATA

Designed: A.J.K.	DATE	SHEET NUMBER
Drawn: R.D.W.	DEC 2013	C9
Checked: R.D.P.		

UNLESS OTHERWISE APPROVED OR DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL PLAN AND PROSECUTE THE WORK IN ACCORDANCE WITH THE TEMPORARY TRAFFIC CONTROL PLANS.

TRAFFIC CONTROL DEVICES AND SAFETY MEASURES SHALL COMPLY WITH THE:

- 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)
- 2011 VIRGINIA WORK AREA PROTECTION MANUAL (VWAPM)
- 2011 VIRGINIA SUPPLEMENT TO THE MUTCD

THE TRAFFIC CONTROL FEATURES SHOWN HERE DEPICT THE MAJOR TRAFFIC CONTROL ITEMS. DAILY CONTROL OF TRAFFIC INCLUDING THE PLACEMENT, MAINTENANCE AND REMOVAL OF TRAFFIC CONTROL DEVICES SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

IT IS NOT THE INTENT OF THESE PLANS TO ENUMERATE EVERY DETAIL WHICH MUST BE CONSIDERED IN CONSTRUCTION, BUT ONLY TO SHOW THE GENERAL HANDLING OF TRAFFIC. THE CONTRACTOR SHALL SUBMIT A DETAILED TRAFFIC CONTROL PLAN TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING CONSTRUCTION FOR MAINTENANCE OF TRAFFIC PLANS OTHER THAN THE APPROVED MAINTENANCE OF TRAFFIC PLANS.

ANY MAINTENANCE OF TRAFFIC PLANS SUBMITTED BY THE CONTRACTOR THAT DIFFER FROM THE APPROVED MAINTENANCE OF TRAFFIC PLANS MUST BE SUBMITTED WITH THE SAME LEVEL OF DETAIL AS THE APPROVED MAINTENANCE OF TRAFFIC PLANS.

THE CLEAR ZONE SHALL BE MAINTAINED FREE OF PARKED EQUIPMENT AND STORED MATERIALS OR OTHERWISE PROTECTED IN ACCORDANCE WITH THE VIRGINIA WORK AREA PROTECTION MANUAL.

ALL SIGNS, GROUP 2 CHANNELIZING DEVICES, AND ANY OTHER DEVICES USED IN THE CONSTRUCTION ZONE SHALL BE FURNISHED BY THE CONTRACTOR AND SHALL BE KEPT CLEAN AND PROPERLY ALIGNED AT ALL TIMES.

ALL AREAS EXCAVATED BELOW EXISTING PAVEMENT SURFACE AND WITHIN THE CLEAR ZONE AT THE CONCLUSION OF EACH WORKDAY, SHALL BE BACKFILLED TO FORM AN APPROXIMATE 6:1 WEDGE AGAINST THE EXISTING PAVEMENT SURFACE FOR THE SAFETY AND PROTECTION OF VEHICULAR TRAFFIC.

APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION.

CONTRACTOR SHALL COMPLETELY ERADICATE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE AREA TO BE MILLED/OVERLAID. CONTRACTOR SHALL COMPLETELY COVER CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE AREA TO BE MILLED/OVERLAID WITH TYPE E MARKINGS (BLACK REMOVABLE TAPE) UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

GREENWAY TO REMAIN OPEN DURING HOURS OF OPERATION WITH PROTECTION. SEE PROJECT SPECIFICATIONS IN PROJECT MANUAL.

CONTRACTOR SHALL NOTE THE POSSIBLE PRESENCE OF EXISTING UTILITIES ADJACENT TO EXISTING ROADWAYS. CONTRACTOR SHALL CONFIRM POST MOUNTING OF CONSTRUCTION SIGNS, INCLUSIVE OF DETOUR SIGNS DO NOT CONFLICT WITH EXISTING UTILITIES.

THE CONTRACTOR SHALL TEMPORARILY COVER ANY EXISTING SIGNS THAT ARE CONTRARY TO CONSTRUCTION SIGNS AND UNCOVER THEM WHEN THEY ARE NO LONGER CONTRARY TO CONSTRUCTION SIGNS OR AT THE COMPLETION OF THE PROJECT AS DIRECTED BY THE ENGINEER.

ADDITIONAL SIGNS AND BARRICADES MAY BE REQUIRED BY THE ENGINEER.

THE CONTRACTOR SHALL USE PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) TO INFORM THE PUBLIC OF THE BRIDGE CLOSURE ONE WEEK PRIOR TO CLOSURE. THE CONTRACTOR SHALL SUPPLY A TOTAL OF THREE (3) PCMS: ONE IN EACH DIRECTION ON RIVERLAND RD. AND ONE ON THE SB APPROACH TO THE BRIDGE ON 9TH STREET.

WORK ADJACENT TO RIVERLAND RD. SHOULD BE COMPLETED DURING RIGHT TURN LANE CLOSURE.

WORK THAT CANNOT BE COMPLETED WITH ONLY A TURN LANE CLOSURE (E.G. INTERSECTION PAVING, INSTALLATION OF LOOP DETECTORS, ETC.) SHALL BE COMPLETED WITH A FLAGGING OPERATION BETWEEN THE HOURS OF 9 A.M. AND 3 P.M. FLAGGING OPERATIONS SHALL BE IN ACCORDANCE WITH VWAPM TTC-23.0. DURATION OF FLAGGING OPERATIONS MUST BE APPROVED BY ENGINEER.

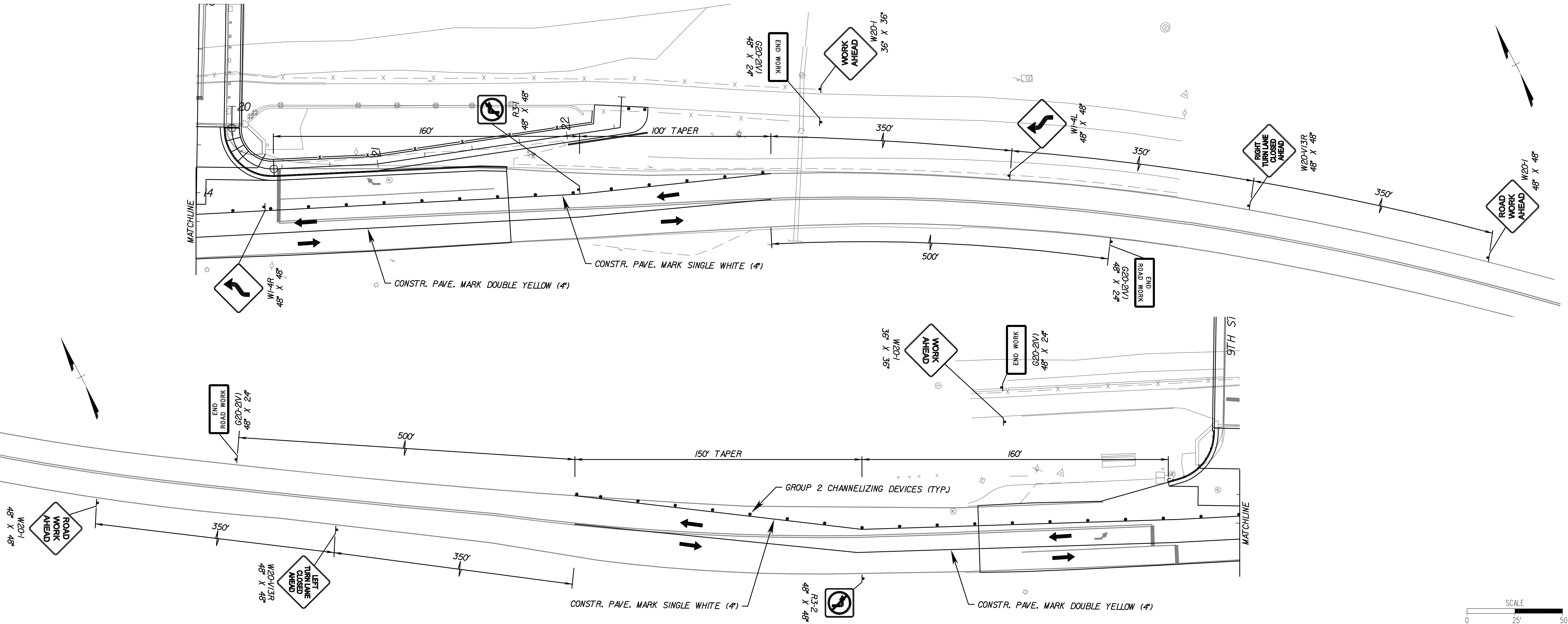
THE CONTRACTOR SHALL NOTIFY THE CITY TRANSPORTATION DIVISION, IN WRITING, 2 WEEKS PRIOR TO:

- BRIDGE CLOSURE AND DETOUR INSTALLATION (CITY TRANSPORTATION DIVISION WILL BE RESPONSIBLE FOR ANY ADJUSTMENTS TO TRAFFIC SIGNALS ALONG DETOUR ROUTE AND FOR SHUTTING OFF TRAFFIC SIGNAL AT 9TH STREET).
- COMPLETION OF BRIDGE CLOSURE AND DETOUR (CITY TRANSPORTATION DIVISION WILL BE RESPONSIBLE FOR ANY ADJUSTMENTS TO TRAFFIC SIGNALS ALONG DETOUR ROUTE, FOR BRINGING THE TRAFFIC SIGNAL AT 9TH STREET BACK ONLINE AND FOR ANY ADJUSTMENTS TO THE TRAFFIC SIGNAL AT 9TH STREET).

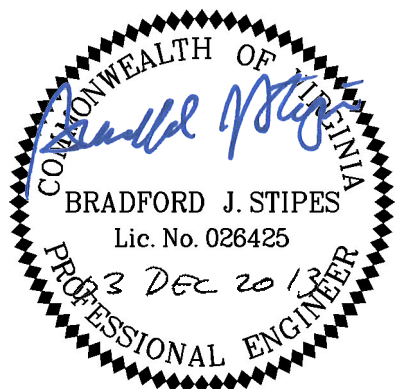
SEQUENCE OF CONSTRUCTION:

- INSTALL DETOUR SIGNAGE AS SHOWN ON DETOUR MAP.
- INSTALL TEMPORARY TRAFFIC CONTROL DEVICES AS SHOWN ON MAINTENANCE OF TRAFFIC PLAN, SHIFT TRAFFIC ON RIVERLAND ROAD AND CLOSE BRIDGE TO TRAFFIC.
- COVER TRAFFIC SIGNAL HEADS.
- AT THE COMPLETION OF BRIDGE CLOSURE, UNCOVER TRAFFIC SIGNAL HEADS.

NOTE: WORK IN THIS AREA IS TO BE PERFORMED PER THE CITY OF ROANOKE RIGHT OF WAY EXCAVATION AND RESTORATION STANDARDS.



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9TH STREET OVER ROANOKE RIVER
BRIDGE SUPERSTRUCTURE REPLACEMENT


MAINTENANCE OF TRAFFIC PLAN

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Checked: R.D.P.

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DEC 2013


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T1

- ①



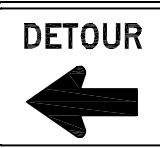
W20-2
48" X 48"
- ②

9th St




M4-VP1A
VAR. X 18"
M4-V1
60" X 48"
- ③

9th St




M4-VP1A
VAR. X 18"
M4-9L
60" X 48"
- ④

9th St




M4-VP1A
VAR. X 18"
M4-9R
60" X 48"
- ⑤

9th St




M4-VP1A
VAR. X 18"
M4-V2L
60" X 48"
- ⑥


9th St




M4-VP1A
VAR. X 18"
M4-V2R
60" X 48"
- ⑦

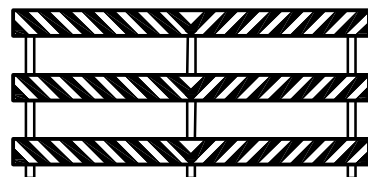


M4-8A
24" X 18"
- ⑧




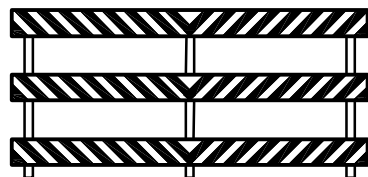
W20-1
48" X 48"
- ⑨



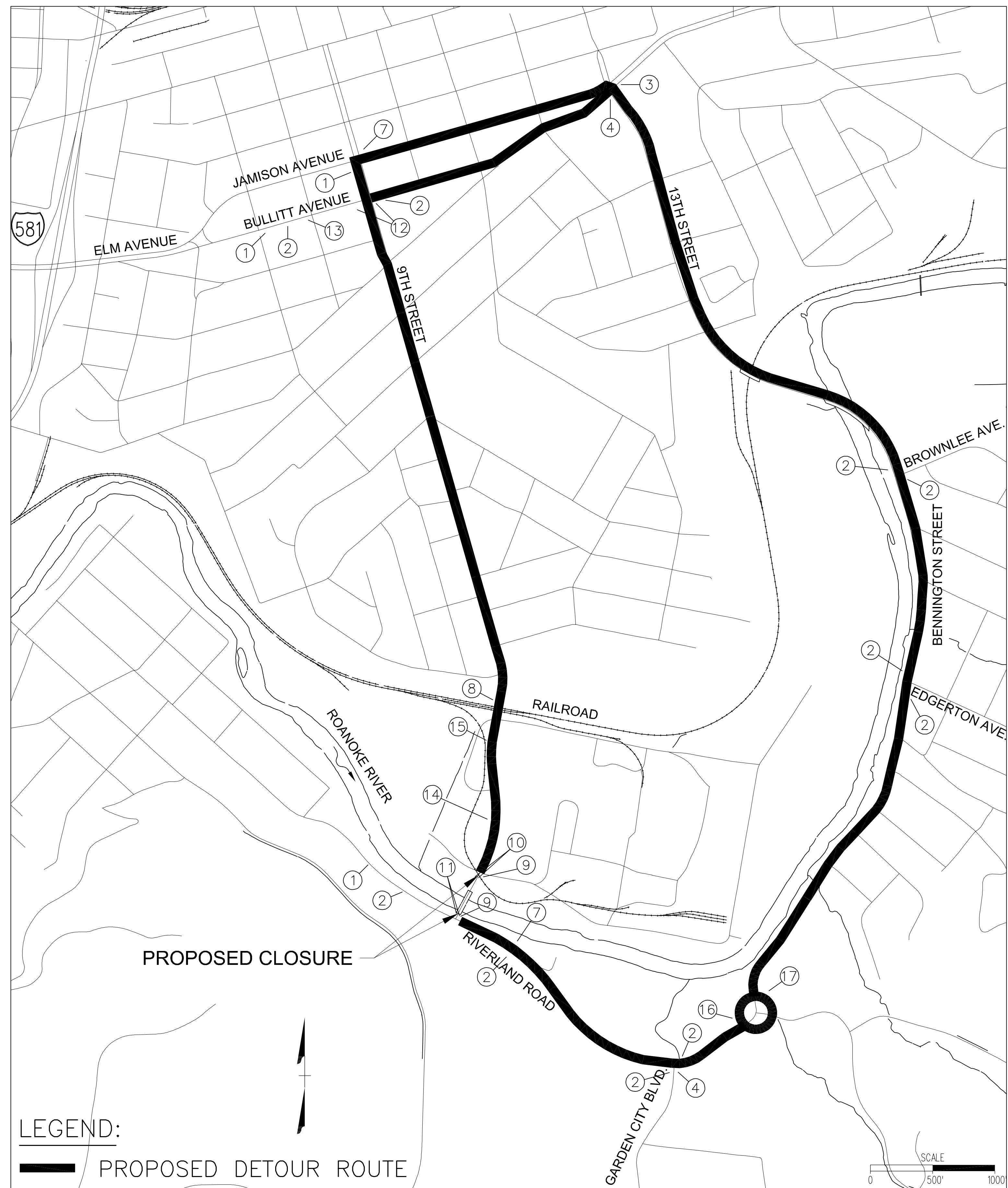


R9-9
30 X 18
- ⑩







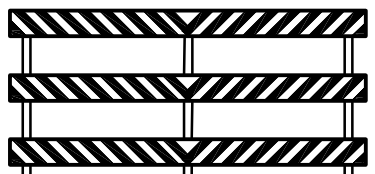
R11-2
48" X 30"



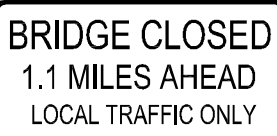
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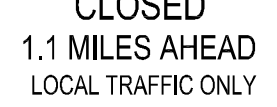
R11-2
48" X 30"
M4-10R
48" X 18"
- ⑫

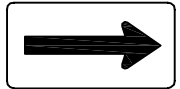





R11-3B
60" X 30"
M4-10L
48" X 18"
- ⑬

9th St






M4-VPIA
VAR. X 18"
R11-3B
60" X 30"
W16-5P1R
24" X 18"
- ⑭




W20-3
48" X 48"
- ⑮




W20-3
48" X 48"
- ⑯

9th St




TO




M4-VPIA
VAR. X 18"
M4-8
30" X 15"
M4-5
24" X 12"
M4-VPIA
VAR. X 18"
M6-2
21" X 15"
- ⑰

9th St



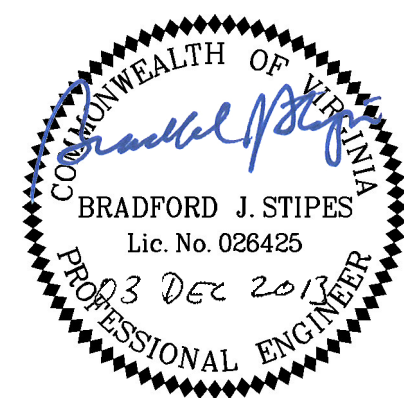
TO



M4-VPIA
VAR. X 18"
M4-8
30" X 15"
M4-5
24" X 12"
M4-VPIA
VAR. X 18"
M6-2
21" X 15"



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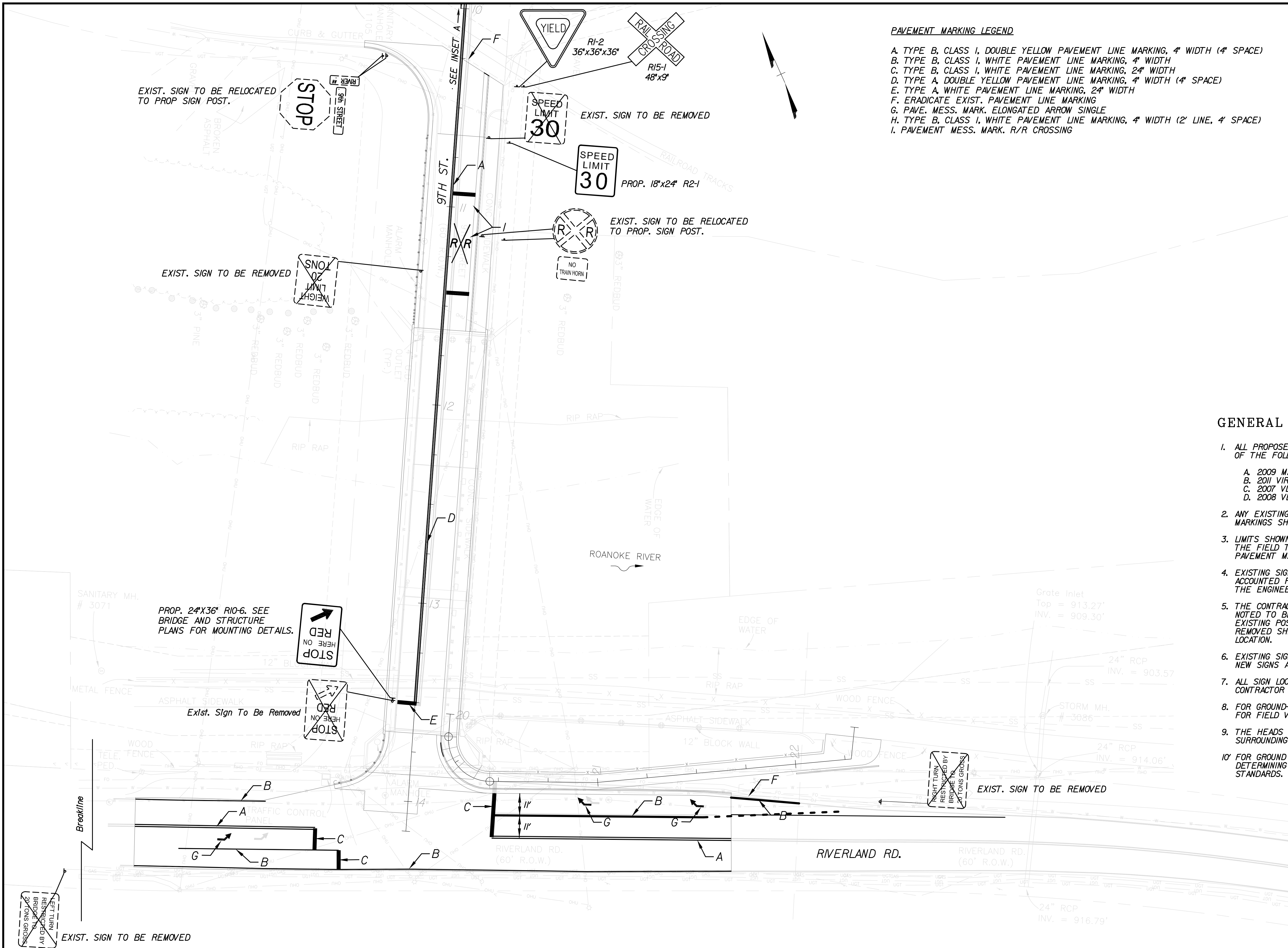


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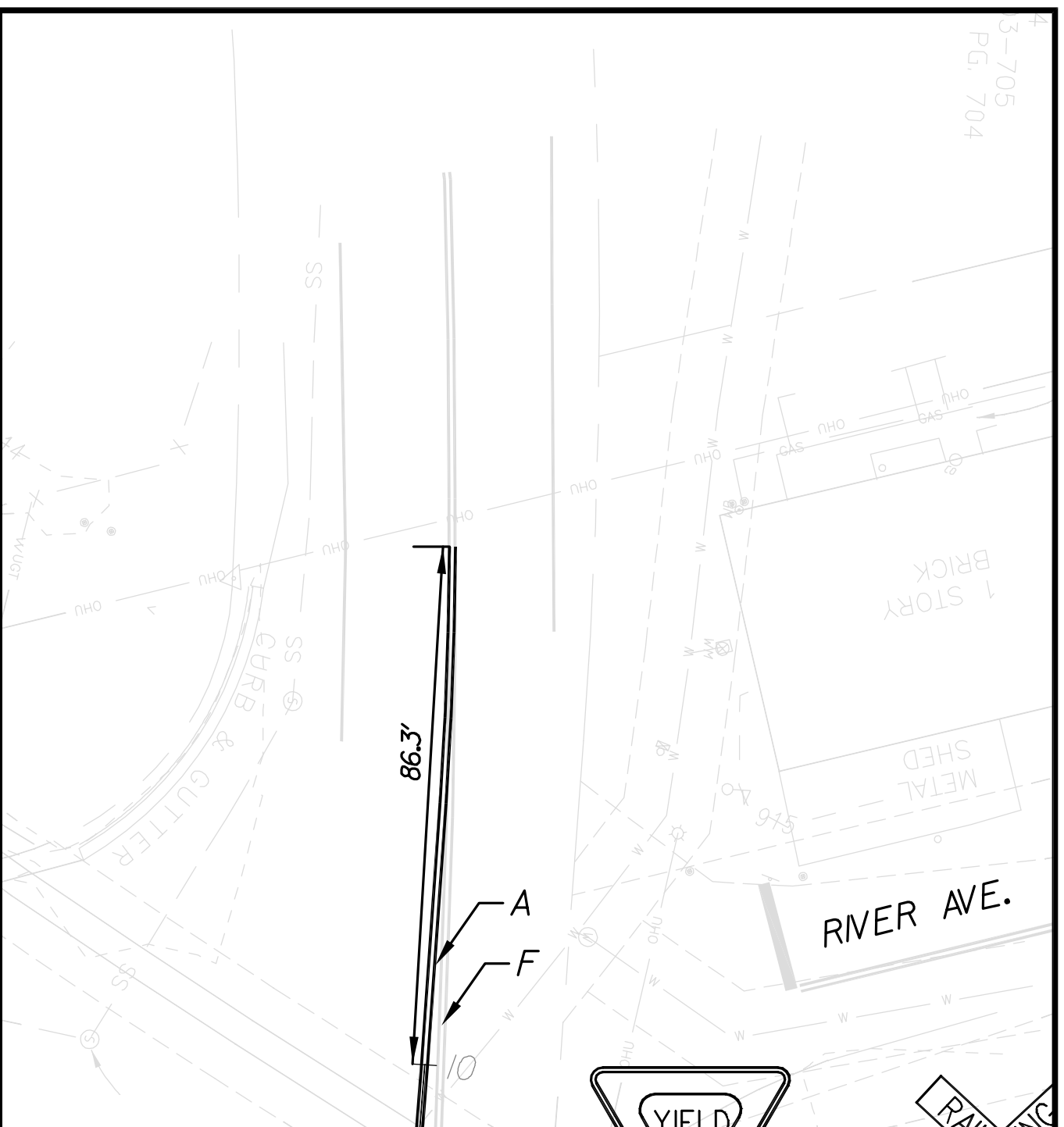
9TH STREET OVER ROANOKE RIVER
BRIDGE SUPERSTRUCTURE REPLACEMENT

DETOUR MAP

Designed: A.J.K.	DATE	SHEET NUMBER
Drawn: R.D.W.	DEC 2013	T2
Checked: R.D.P.		



- PAVEMENT MARKING LEGEND**
- A. TYPE B, CLASS I, DOUBLE YELLOW PAVEMENT LINE MARKING, 4" WIDTH (4" SPACE)
 - B. TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 4" WIDTH
 - C. TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 24" WIDTH
 - D. TYPE A, DOUBLE YELLOW PAVEMENT LINE MARKING, 4" WIDTH (4" SPACE)
 - E. TYPE A, WHITE PAVEMENT LINE MARKING, 24" WIDTH
 - F. ERADICATE EXIST. PAVEMENT LINE MARKING
 - G. PAVE. MESS. MARK. ELONGATED ARROW SINGLE
 - H. TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 4" WIDTH (2' LINE, 4" SPACE)
 - I. PAVEMENT MESS. MARK. R/R CROSSING



INSET A

GENERAL NOTES - SIGNING & PAVEMENT MARKINGS

1. ALL PROPOSED SIGNING AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH EACH OF THE FOLLOWING MANUALS, OR THE MOST RECENT REVISION THEREOF:
 - A. 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
 - B. 2011 VIRGINIA SUPPLEMENT TO THE MUTCD.
 - C. 2007 VDOT ROAD AND BRIDGE SPECIFICATIONS.
 - D. 2008 VDOT ROAD AND BRIDGE STANDARDS.
2. ANY EXISTING PAVEMENT MARKINGS THAT WILL CONFLICT WITH PROPOSED PAVEMENT MARKINGS SHALL BE COMPLETELY ERADICATED.
3. LIMITS SHOWN OF PROPOSED MARKINGS ARE APPROXIMATE AND SHALL BE MODIFIED IN THE FIELD TO ENSURE THAT PROPOSED PAVEMENT MARKINGS CONTINUE UNTIL EXISTING PAVEMENT MARKING CAN BE MATCHED.
4. EXISTING SIGNS WITHIN THE LIMITS OF THE CONTRACT THAT HAVE NOT BEEN ACCOUNTED FOR IN THE PLAN SHALL BE RELOCATED OR REMOVED AS DIRECTED BY THE ENGINEER.
5. THE CONTRACTOR SHALL REMOVE THE PANEL, POST AND FOUNDATION OF ALL SIGNS NOTED TO BE REMOVED. FOR SIGN PANELS TO BE RELOCATED ON NEW POSTS, THE EXISTING POST AND FOUNDATION SHALL BE REMOVED. ALL COMPONENTS THAT ARE REMOVED SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR AT AN OFF-SITE LOCATION.
6. EXISTING SIGN PANELS SCHEDULED TO BE REUSED/RELOCATED MAY BE REPLACED WITH NEW SIGNS AT THE DISCRETION OF THE PROJECT ENGINEER.
7. ALL SIGN LOCATIONS SHALL BE FIELD REVIEWED BY THE ENGINEER WITH THE CONTRACTOR PRIOR TO ANY WORK STARTING.
8. FOR GROUND-MOUNTED SIGN STRUCTURES THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING POST LENGTHS PRIOR TO ORDERING ANY MATERIALS.
9. THE HEADS OF ALUMINUM POP FASTENERS SHALL MATCH THE COLOR OF THE SURROUNDING AREA.
10. FOR GROUND MOUNTED SIGNS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE CORRECT POST SIZE IN ACCORDANCE WITH VDOT ROAD AND BRIDGE STANDARDS.



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**9TH STREET OVER ROANOKE RIVER
BRIDGE SUPERSTRUCTURE REPLACEMENT**

**SIGNING & PAVEMENT
MARKING PLAN**

Designed:	DATE	SHEET NUMBER
Drawn:	DEC 2013	T3
Checked:		

9TH STREET OVER ROANOKE RIVER BRIDGE SUPERSTRUCTURE REPLACEMENT

SIGNAL NOTES

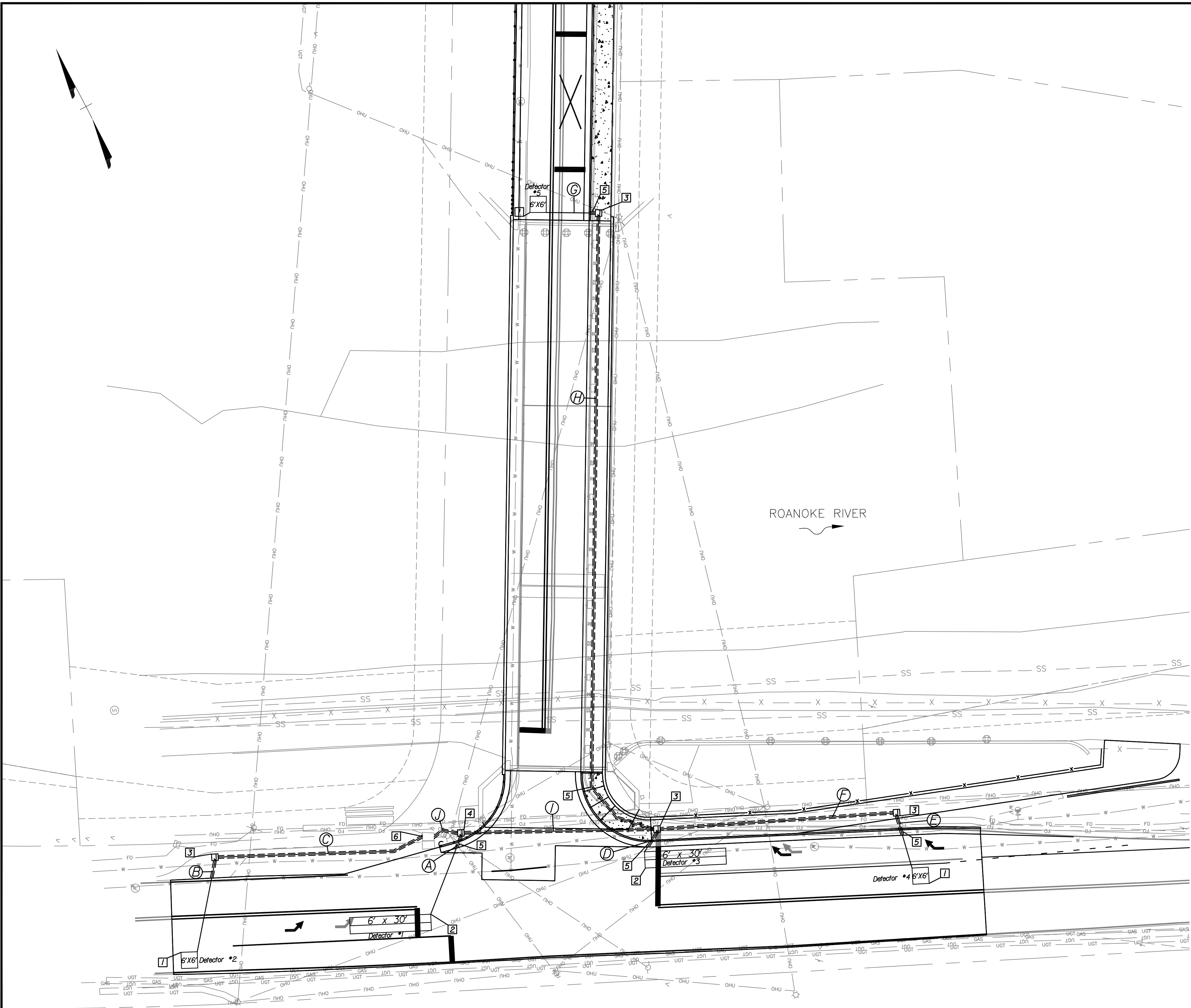
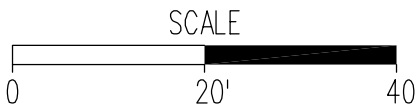
1. All work shall be in accordance with the current edition of the Manual on Uniform Traffic Control Devices (MUTCD), the current edition of the Virginia Supplement to the MUTCD, the current edition of the VDOT Road and Bridge Specifications and the VDOT Road and Bridge Standards, and all City of Roanoke special provisions in effect at the time the signal plan is approved.
2. Utilities shown on the plans are not guaranteed to be complete or accurate. The Contractor shall be responsible for ensuring that all utilities within the project limits are identified and located before beginning work. The Contractor shall contact "Miss Utility of Virginia" at 1-800-552-7001 48 hours prior to any construction activities.
3. The Contractor shall be responsible for maintaining electrical service to the controller at all times the signal is in operation. The Contractor shall be responsible for coordinating all activities with the local utility company providing electrical service to the traffic signal.
4. The Contractor shall coordinate construction activities with the City Traffic Signal Contact, Bob Swain, at 1-540-537-8496.
5. The Contractor shall repair any damage to existing traffic signal equipment caused by construction activities.
6. Contractor shall follow the Virginia Work Area Protection Manual and the Maintenance of Traffic Plan, for work activities that require temporary lane closures within the Right-of-Way for the purpose of traffic signal modification work.

CABLE & CONDUIT RUN DETAILS

- Ⓐ 1 - 1" Conduit
1 - 14-2 Shielded Conductor Cable for Loop Detector *1
- Ⓑ 1 - 1" Conduit
1 - 14-2 Shielded Conductor Cable for Loop Detector *2
- Ⓒ 1 - 1" Conduit
1 - 14-2 Shielded Conductor Cable for Loop Detector *2
- Ⓓ 1 - 1" Conduit
1 - 14-2 Shielded Conductor Cable for Loop Detector *3
- Ⓔ 1 - 1" Conduit
1 - 14-2 Shielded Conductor Cable for Loop Detector *4
- Ⓕ 1 - 1" Conduit
1 - 14-2 Shielded Conductor Cable for Loop Detector *4
- Ⓖ 1 - 1" Conduit
1 - 14-2 Shielded Conductor Cable for Loop Detector *5
- Ⓗ 2 - 3" Conduits (One Spare) In Sidewalk
1 - 14-2 Shielded Conductor Cable for Loop Detector *5
- Ⓘ 1 - 3" Trenched Conduit
3 - 14-2 Shielded Conductor Cable for Loop Detectors *3, *4, *5
- ⓫ 1 - 4" Conduit
4 - 14-2 Shielded Conductor Cable for Loop Detectors *1, *3, *4, *5

CONSTRUCTION NOTES

- 1 Install VDOT Std TD-IB Loop Detector
- 2 Install VDOT Std TD-IC Loop Detector
- 3 Install VDOT Std JB-S1
- 4 Install VDOT Std JB-S2
- 5 Install conduit for loop detection when constructing sidewalk & curb
- 6 City to make conduit connections to controller cabinet. Contractor shall not make modifications to cabinet.



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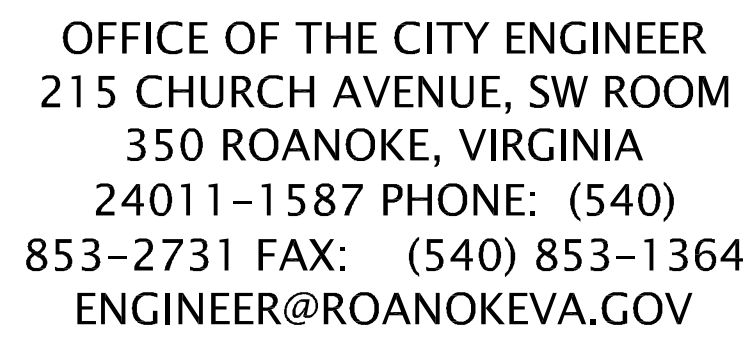


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9TH STREET OVER ROANOKE RIVER
BRIDGE SUPERSTRUCTURE REPLACEMENT

SIGNAL CABLE & LOOP PLAN

Designed: J.P.H.	DATE	SHEET NUMBER
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Designed: P.J.M.	DATE	SHEET NUMBER
Drawn: R.D.W.	DEC 2013	U1
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GENERAL NOTES

1. WATER MAIN MATERIALS, INSTALLATION, AND TESTING SHALL BE IN ACCORDANCE WITH THE WESTERN VIRGINIA REGIONAL DESIGN AND CONSTRUCTION STANDARDS, LATEST EDITION, THE SUPPLEMENTAL SPECIFICATIONS INCLUDED HEREIN, THE DEPARTMENT OF TRANSPORTATION'S 2007 ROAD AND BRIDGE SPECIFICATIONS, THE 2008 ROAD AND BRIDGE STANDARDS, AND 2005 VIRGINIA WORK AREA PROTECTION MANUAL. IN CASE OF CONFLICT, THE MOST STRINGENT STANDARD SHALL APPLY.
2. THE CONTRACTOR SHALL NOTE THAT THE UTILITY PLAN SHEETS ARE FOR WATER RELOCATION AND ADJUSTMENT ONLY. THE CONTRACTOR SHALL REFER TO THE ROADWAY PLAN SHEETS FOR ROADWAY AND DRAINAGE DESIGN AND THE BRIDGE PLAN SHEETS FOR BRIDGE DESIGN.
3. THE CONTRACTOR SHALL NOTIFY THE WESTERN VIRGINIA WATER AUTHORITY (WVWA) INSPECTOR OR CALL (540) 853-5700 IN CASE OF EMERGENCIES RELATING TO UTILITIES OWNED BY THE WVWA.
4. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE EXCEPT AS SPECIFICALLY NOTED ON THE PLANS. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE WVWA AND AT NO EXPENSE TO WVWA AND THE OWNER. ANY DAMAGES OR UNSCHEDULED INTERRUPTION OF SERVICE SHALL BE REPORTED IMMEDIATELY TO THE WVWA INSPECTOR OR CALL (540) 853-5700.
5. THE LOCATIONS, DEPTHS AND SIZES OF EXISTING UTILITIES SHOWN ON THESE PLANS HAVE BEEN OBTAINED FROM AVAILABLE UTILITY RECORDS AND FIELD UTILITY SURVEYS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL FIELD VERIFY, WITH TEST HOLES, THE EXACT LOCATION, ELEVATION, TYPE, ROUNDNESS AND SIZE OF ALL EXISTING UNDERGROUND UTILITIES AT POINTS OF CONNECTION PRIOR TO ORDERING OF MATERIALS, EXCAVATION AND INSTALLATION FOR THIS PROJECT. ALL COSTS ASSOCIATED WITH ADDITIONAL UNDERGROUND UTILITY LOCATING SHALL BE INCLUDED IN THE APPROPRIATE PRICE BID.
6. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 811 TO REQUEST FIELD UTILITY LOCATIONS AT LEAST 72 HOURS BEFORE BEGINNING ANY EXCAVATION OR CONSTRUCTION SHOWN ON THESE PLANS.
7. THE SEQUENCE OF CONSTRUCTION SHALL BE DEVELOPED IN SUCH A MANNER THAT WATER SERVICE IS MAINTAINED TO THE MAXIMUM EXTENT POSSIBLE DURING CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT A PLAN OF OPERATIONS FOR CONSTRUCTING, EXCEPT FOR THE EXISTING 12-INCH DIAMETER WATER MAIN REMOVAL, THE WATER RELOCATION 14 DAYS PRIOR TO BEGINNING UTILITY CONSTRUCTION:
- A. THE CONTRACTOR'S SEQUENCE OF WATER MAIN CONSTRUCTION SHALL CONSIST OF A PRELIMINARY LIST OF DATES FOR WATER MAIN CONNECTIONS. ALL UTILITY FLUSHING AND CONNECTIONS OF THE MAIN SHALL OCCUR TUESDAY THROUGH THURSDAY, UNLESS OTHERWISE AUTHORIZED BY THE WVWA.
- B. PRIOR TO CUTTING INTO ANY WATER MAIN, THE CONTRACTOR SHALL HAVE ALL FITTINGS, VALVES AND PIPES AT THE SITE AND SHALL VERIFY, IN THE PRESENCE OF THE ENGINEER AND THE INSPECTOR, THROUGH FIELD MEASUREMENTS, THAT ALL PIPING, FITTINGS AND VALVES WILL ALIGN AND FIT PROPERLY WITH THE EXISTING FACILITIES. CONNECTION TO EXISTING LINES SHALL BE MADE ONLY AFTER THE PROPOSED LINE IS INSTALLED, TESTED AND APPROVED BY THE ENGINEER. CONNECTION TO EXISTING WATER MAINS SHALL OCCUR TUESDAY THROUGH THURSDAY, 9:00 AM TO 4:00 PM. ALL WORK MUST BE COMPLETED WITHIN THIS SPECIFIED TIME FRAME.
- C. CONTRACTOR SHALL PROVIDE 72 HOURS ADVANCE NOTICE TO THE WVWA PRIOR TO A REQUESTED WATER SYSTEM SHUT DOWN.
8. NO LATER THAN 30 DAYS AFTER THE NOTICE TO PROCEED, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, FOR REVIEW BY THE WVWA, A SCHEDULE OF OPERATIONS, AND PROPOSED METHODS AND TECHNIQUES.
9. PROCEDURE FOR ACCOMPLISHING EACH INSTALLATION SHALL BE THE CONTRACTOR'S RESPONSIBILITY. ALL MATERIALS, EQUIPMENT, LABOR APPURTENANCES (SHALL INCLUDE BUT NOT BE LIMITED TO: EXCAVATING, TESTING, DISINFECTING, BACKFILLING, COMPACTING, DEWATERING, DISPOSING OF SURPLUS AND UNSUITABLE MATERIAL, SHEETING AND SHORING, BEDDING MATERIAL, INSTALLING PIPE, AND CONNECTING TO EXISTING LINES) REQUIRED TO ACCOMPLISH INSTALLATIONS IN ACCORDANCE WITH SEQUENCE OF CONSTRUCTION SHALL BE INCLUDED IN THE BID PRICE FOR THE ASSOCIATED PAY ITEM OR SCHEDULE OF VALUES. AN ALTERNATE SEQUENCE MAY BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL.
10. DURING INSTALLATION OF NEW PIPES, THE CONTRACTOR SHALL DO WHAT IS NECESSARY TO PROTECT EXISTING UTILITIES, PIPELINES AND FACILITIES AGAINST DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES. CONTRACTORS SHALL PROVIDE ANY NEEDED TEMPORARY SUPPORTS REQUIRED TO INSTALL THE NEW UTILITIES WHILE MAINTAINING THE EXISTING UTILITIES AND FACILITIES IN OPERATION. TEMPORARY SUPPORT AND/OR FACILITIES, INCLUDING MATERIALS, LABOR AND EQUIPMENT NEEDED TO COMPLETE THE WORK AS DEFINED ON THE PLANS, ARE CONSIDERED INCIDENTAL TO CONSTRUCTION AT NO ADDITIONAL COST TO THE CONTRACT PRICE.
11. CONTRACTOR SHALL PERFORM UTILITY RELOCATION WORK CONCURRENT WITH ROADWAY AND BRIDGE CONSTRUCTION ACCORDING TO THE SEQUENCE OF CONSTRUCTION SHOWN ON THE STRUCTURAL DRAWINGS.

12. ALL ITEMS OF MATERIAL, LABOR, SUPPLIES OR EQUIPMENT THAT ARE NOT SPECIFICALLY ENUMERATED FOR PAYMENT AS SEPARATE ITEMS, BUT WHICH ARE REQUIRED TO COMPLETE THE WORK AS SHOWN ON THE DRAWINGS AND AS DESCRIBED IN THE SPECIFICATIONS ARE CONSIDERED SUBSIDIARY OBLIGATIONS OF THE CONTRACTOR. NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE FOR THEM.
13. THE CONTRACTOR SHALL MAINTAIN A SET OF RECORD DRAWINGS ON SITE TO BE SUBMITTED TO THE WVWA INSPECTOR PRIOR TO SUBSTANTIAL COMPLETION. THEY SHALL REFLECT THE AS-BUILT FIELD MEASUREMENTS (INVERTS, STATIONS, ETC.) FOR THE CONSTRUCTED WATER MAINS.
14. PLAN LOCATION AND DIMENSIONS SHALL BE ADHERED TO.
15. ALL PIPE ELEVATIONS SHOWN ARE INVERT UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS.
16. ITEMS DESIGNATED "T.B.R." AND/OR  ARE TO BE REMOVED. THE COST FOR THE REMOVAL OF EXISTING WATER MAIN AND UTILITIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR D. I. WATER MAIN.
17. ALL CONCRETE SHALL BE CLASS A3 IF CAST-IN-PLACE AND CLASS A4 IF PRECAST.
18. 1.5 FOOT MINIMUM VERTICAL SEPARATION IS REQUIRED BETWEEN WATER MAIN AND STORM SEWER CULVERTS. WHEN THE 1.5 FOOT MINIMUM SEPARATION CANNOT BE ACHIEVED AND WHERE FREEZING IS A POSSIBILITY, THE WATER MAIN SHALL BE ENCASED IN CONCRETE AND/OR INSULATED AS APPROVED BY THE WVWA. CONCRETE ENCASEMENT AND INSULATION SHALL EXTEND A MINIMUM OF 5 FEET BEYOND THE CENTERLINE OF THE CULVERT IN BOTH DIRECTIONS OR 5 FEET BEYOND ENDS OF CULVERT WHEN PARALLEL.
19. ALL WORK SHALL BE SUBJECT TO INSPECTION BY WVWA REPRESENTATIVES. WVWA REPRESENTATIVES SHALL BE ON-SITE FOR ALL WORK AFFECTING WVWA FACILITIES. THE CONTRACTOR SHALL NOTIFY THE WVWA INSPECTOR AT LEAST 72 HOURS PRIOR TO THE START OF ANY WATER UTILITY WORK. FAILURE TO COMPLY OR PROPERLY NOTIFY MAY RESULT IN ADDITIONAL WORK BY THE CONTRACTOR IN ORDER TO PERMIT THE NECESSARY INSPECTION AND/OR DISCONNECTION FROM THE SYSTEM.
20. SAW CUT ASPHALT (FULL DEPTH) SHALL BE REQUIRED WHEN TRENCHING IS WITHIN EXISTING OR PROPOSED ROADWAY.
21. TEMPORARY PAVEMENT PATCHES SHALL BE REPLACED WITH PERMANENT PAVEMENT PATCHES OR PROPOSED PAVEMENT STRUCTURE PRIOR TO FINAL PROJECT ACCEPTANCE. PERMANENT PAVEMENT PATCHES SHALL MATCH EXISTING ASPHALT DEPTH, INCLUDING 165 LBS/SY APPLICATION OF ASPHALT CONCRETE TYPE SM-9.5A.
22. THE CONSTRUCTION OF THE WATER MAIN AND APPURTENANCES SHALL BE PERFORMED BY A PUBLIC UTILITY PIPELINE CONTRACTOR WITH EXPERIENCE IN THE INSTALLATION, TESTING, AND DISINFECTION OF WATER MAINS AND SYSTEMS.

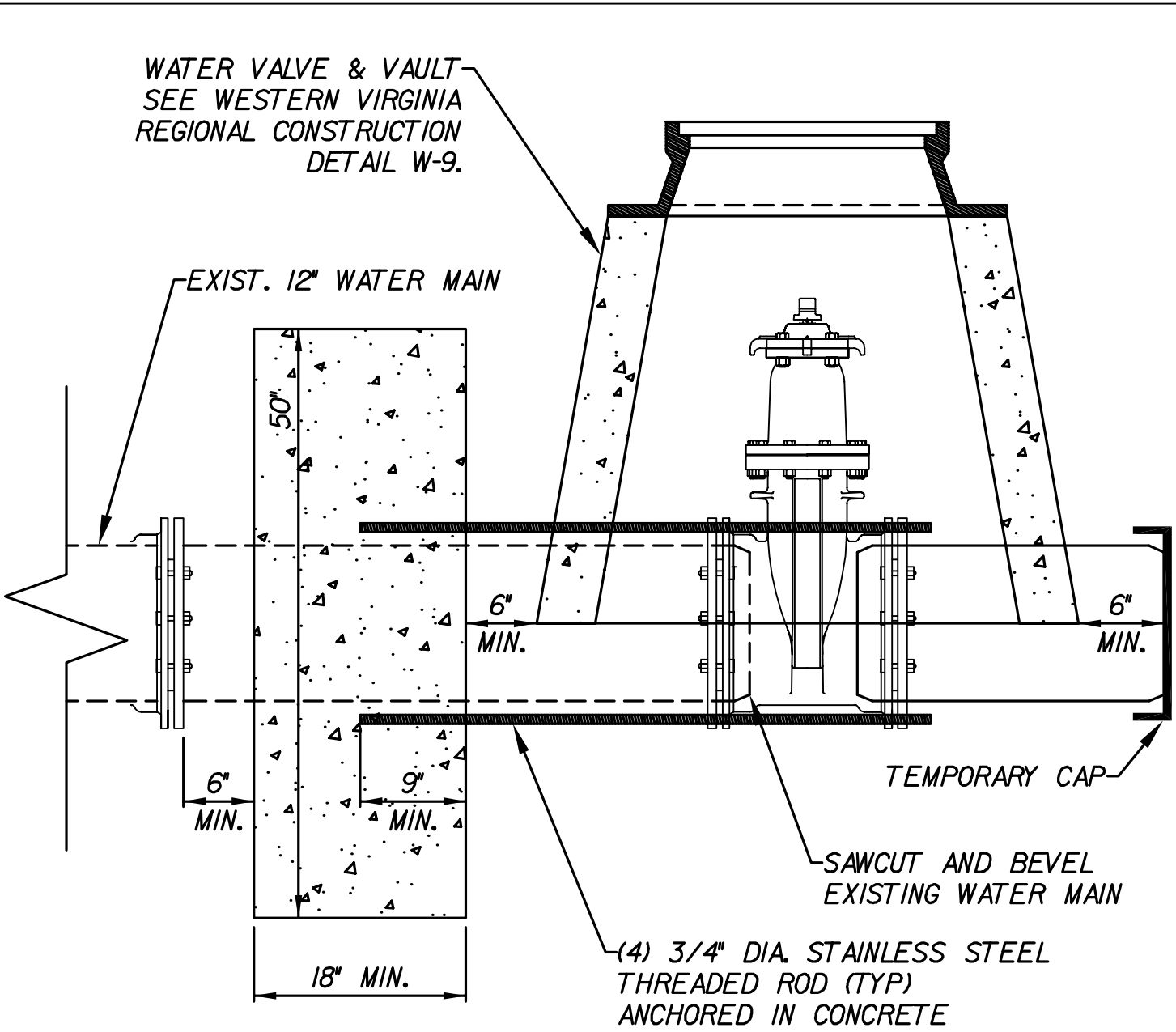
WATER CONSTRUCTION NOTES

1. NO VALVES OR OTHER CONTROLS ON THE EXISTING WATER SYSTEM SHALL BE OPERATED FOR ANY PURPOSE BY THE CONTRACTOR. WVWA WILL OPERATE ALL VALVES, HYDRANTS, BLOW-OFF'S, ETC. 72 HOURS ADVANCE NOTIFICATION TO THE WVWA INSPECTOR IS REQUIRED.
2. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE WVWA FIVE (5) WORKING DAYS PRIOR TO THE FOLLOWING EVENTS:
- A) COORDINATION MEETING FOR WATER MAIN CONNECTIONS.
- B) ALL WATER MAIN CONNECTIONS, INCLUDING REQUIRED VALVE OPENING AND CLOSING.
- C) TESTING, DISINFECTION, AND FLUSHING.
3. THE WVWA DOES NOT GUARANTEE A 100 PERCENT SHUTDOWN OF THE WATER DISTRIBUTION SYSTEM. THE CONTRACTOR SHALL ANTICIPATE CUT AND PLUG OPERATIONS UNDER PARTIAL PRESSURE.
4. THE COSTS FOR ALL PIPE FITTINGS, SLEEVES, RESTRAINED JOINT MECHANISMS, ETC., FOR WATER MAINS, WHEN NOT IDENTIFIED AS A SEPARATE PAY ITEM, ARE TO BE INCLUDED IN THE PRICE BID OR SCHEDULE OF VALUES FOR PROPOSED D. I. WATER MAIN.
5. THE COSTS FOR INSTALLING, OPERATING, AND REMOVING TEMPORARY PIPING REQUIRED TO MAINTAIN CONTINUOUS WATER SERVICE DURING WATER MAIN TIE-INS, SHALL BE INCLUDED IN THE PRICE BID FOR THE PROPOSED WATER MAIN.
6. THE CONTRACTOR SHALL NOT INSTALL WATER MAIN JOINTS BENEATH PROPOSED OR EXISTING UTILITIES OR PROPOSED STORM DRAINAGE. WHEN CROSSING UNDER THESE STRUCTURES, A FULL PIPE LENGTH OF WATER MAIN SHALL BE CENTERED ON THE CROSSING PIPE PLACING JOINTS THE MAXIMUM DISTANCE PRACTICABLE FROM THE CROSSING PIPE, UNLESS OTHERWISE SHOWN ON THE PLANS.
7. WATER MAIN PIPE SHALL BE LAID WITH BELL ENDS FACING THE DIRECTION OF LAYING. WHERE GRADE IS 10 PERCENT OR GREATER, PIPE SHALL BE LAID UPHILL WITH BELL ENDS UPGRADE.

8. ALL THRUST PROTECTION INSTALLED UNDER THIS CONTRACT SHALL BE PLACED BEFORE BACKFILLING OF THE TRENCH AND INSPECTED BY THE ENGINEER. TEMPORARY BUTTRESSING FOR TESTING SHALL BE PROVIDED BY THE CONTRACTOR.
9. ALL BENDS, VALVES, SLEEVES, PIPE, AND FITTINGS SHALL BE PROPERLY RESTRAINED - I.E. CONTRACTOR SHALL RESTRAIN EXISTING PIPING AT CONNECTIONS TO PROPOSED PIPING.
10. ALL PIPE, FITTINGS, VALVES, AND CONNECTORS SHALL BE INSTALLED WITH RESTRAINED JOINTS, AND THE COST SHALL BE INCLUDED IN THE PRICE BID FOR PROPOSED WATER MAIN.
11. CONNECTIONS: UNLESS OTHERWISE NOTED, CONNECTIONS TO EXISTING MAINS SHALL BE MADE USING M.J. SOLID SLEEVE FITTINGS. SLEEVES SHALL BE LONG PATTERN, SOLID TYPE MADE OF GRAY-IRON OR DUCTILE IRON WITH A MINIMUM PRESSURE RATING OF 350 PSI. SLEEVES SHALL HAVE MECHANICAL JOINT ENDS SUITABLE FOR USE WITH APPROVED RESTRAINING RETAINER GLANDS. SLEEVES SHALL BE MANUFACTURED BY THE DUCTILE IRON PIPE MANUFACTURER. THE CONTRACTOR IS REQUIRED TO VERIFY THE OUTSIDE DIAMETER OF THE EXISTING WATER MAINS AND COORDINATE REQUIRED MODIFICATIONS, IF ANY, TO THE SLEEVE AND GLAND (MACHINING AND OTHERWISE) WITH THE MANUFACTURER, AND INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.
12. ACCESS TO ALL PUBLIC FIRE HYDRANTS IN SERVICE WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. A MINIMUM CLEAR SPACE OF 3-FOOT RADIUS AROUND THE HYDRANTS SHALL BE KEPT CLEAR OF ALL SOIL, STONE, MATERIALS, EQUIPMENT AND OTHER OBSTRUCTIONS.
13. THE CONTRACTOR SHALL COORDINATE THE FILLING, TESTING, FLUSHING AND DISINFECTION OF WATER FACILITIES WITH THE WVWA. POTABLE WATER FOR FILLING AND TESTING OF THE NEW MAIN WILL BE PROVIDED BY THE WVWA. WATER WILL BE PROVIDED FROM THE EXISTING WATER SYSTEM. THE CONTRACTOR SHALL NOTIFY THE WVWA INSPECTOR 72 HOURS PRIOR TO VALVE OPERATIONS, CHANGE OVER, FILLING AND TESTING WATER MAIN, AND BACKFILLING PRE-ASSEMBLED FITTINGS.
14. ALL TESTING, FLUSHING AND DISINFECTION SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE WATER MAINS AND APPURTENANCES.
15. PRESSURE AND LEAKAGE TESTING (WATER MAINS AND ACCESSORIES) SHALL BE IN ACCORDANCE WITH AWWA C600 AND THE WESTERN VIRGINIA REGIONAL DESIGN AND CONSTRUCTION STANDARDS. TEST PRESSURE SHALL BE 200 PSI.
16. DISINFECTION AND TESTING OF WATER MAINS SHALL BE IN ACCORDANCE WITH AWWA C651-LATEST REVISION, AND THE WESTERN VIRGINIA REGIONAL DESIGN AND CONSTRUCTION STANDARDS.
17. FLUSHING OF WATER MAINS SHALL BE IN ACCORDANCE WITH AWWA C600.

WATER SUPPLEMENTAL SPECIFICATIONS

1. EXPANSION JOINTS
EXPANSION JOINTS SHALL BE INSTALLED IN THE LOCATIONS INDICATED ON THE DRAWINGS AND SHALL BE MANUFACTURED OF DUCTILE IRON CONFORMING TO THE MATERIAL PROPERTIES OF ANSI/AWWA C153/A21.53. ALL EXPANSION JOINTS SHALL BE CAPABLE OF EXPANDING OR CONTRACTING A MINIMUM OF 4 LINEAR INCHES. SEPARATION BEYOND THE MAXIMUM EXTENSION OF THE EXPANSION JOINT SHALL BE PREVENTED BY RESTRAINT INHERENT TO THE DESIGN OF THE EXPANSION JOINT. RESTRAINED MECHANICAL JOINTS OR FLANGED JOINTS WITH RESTRAINED MECHANICAL JOINT ADAPTERS SHALL BE PROVIDED. ALL INTERNAL SURFACES (WETTED PARTS) SHALL BE LINED WITH A MINIMUM OF 15 MILS OF FUSION BONDED EPOXY CONFORMING TO THE APPLICABLE REQUIREMENTS OF ANSI/AWWA C213. EXTERIOR SURFACES SHALL BE COATED WITH A MINIMUM OF 6 MILS OF FUSION BONDED EPOXY CONFORMING TO THE APPLICABLE REQUIREMENTS OF ANSI/AWWA C116/A21.16. SEALING GASKETS SHALL BE CONSTRUCTED OF EPDM. THE COATING AND GASKETS SHALL MEET ANSI/NSF-61. ALL EXPANSION JOINTS SHALL BE EX-TEND 200, AS MANUFACTURED BY EBAA IRON, INC., OR APPROVED EQUAL.
2. PIPE INSULATION
WATER MAIN EXPOSED TO THE ATMOSPHERE SHALL BE INSULATED WITH FOAMED IN-PLACE CLOSED CELL POLYURETHANE FOAM ENCASED WITH WHITE PVC JACKETING. JOINTS SHALL BE INSULATED IN-PLACE AFTER TESTING, AND SHALL BE SEALED AND JACKETED WITH THE SAME MATERIALS AS USED ON THE STRAIGHT LENGTHS OF PIPE AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. POLYURETHANE FOAM SHALL BE 2 INCHES THICK AND HAVE A MINIMUM DENSITY OF 2.0 PCF IN ACCORDANCE WITH ASTM D-1621, "K" FACTOR OF 0.14 BTU/HR SQ. FT. DEGREES F/IN. IN ACCORDANCE WITH ASTM C-177, AND A CLOSED CELL CONTENT BETWEEN 90-95% IN ACCORDANCE WITH ASTM D-2856. INSULATED PIPE SHALL BE PROVIDED WITH A MINIMUM 10 GAUGE STEEL WEAR PLATE PROTECTION SADDLE OF THE INSULATION AT EACH ROLLER SUPPORT.
3. PIPE BACKFILL
PROPOSED WATER MAIN INSTALLED BELOW GRADE SHALL BE INSTALLED IN ACCORDANCE WITH WESTERN VIRGINIA REGIONAL-CONSTRUCTION DETAIL G-12. BACKFILL MATERIAL SHALL BE VDOT 21A COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D698.

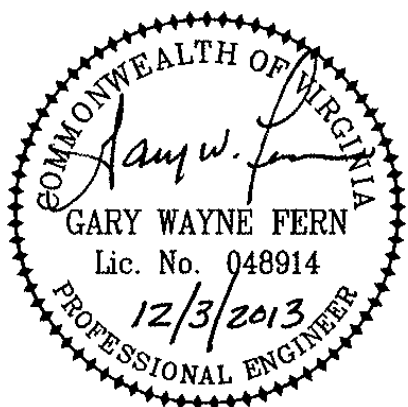


- NOTES
1. CONCRETE THRUST RESTRAINT SHALL BE 50" X 50" CENTERED AROUND EXISTING PIPE AND 18" THICK.
2. EMBED FOUR THREADED RODS A MINIMUM OF 9 INCHES INTO CURED 4000 PSI CONCRETE WITH HILTI HIT-HY 150 MAX SD INJECTABLE MORTAR, IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

VALVE CLOSURE RESTRAINT DETAIL
N.T.S.



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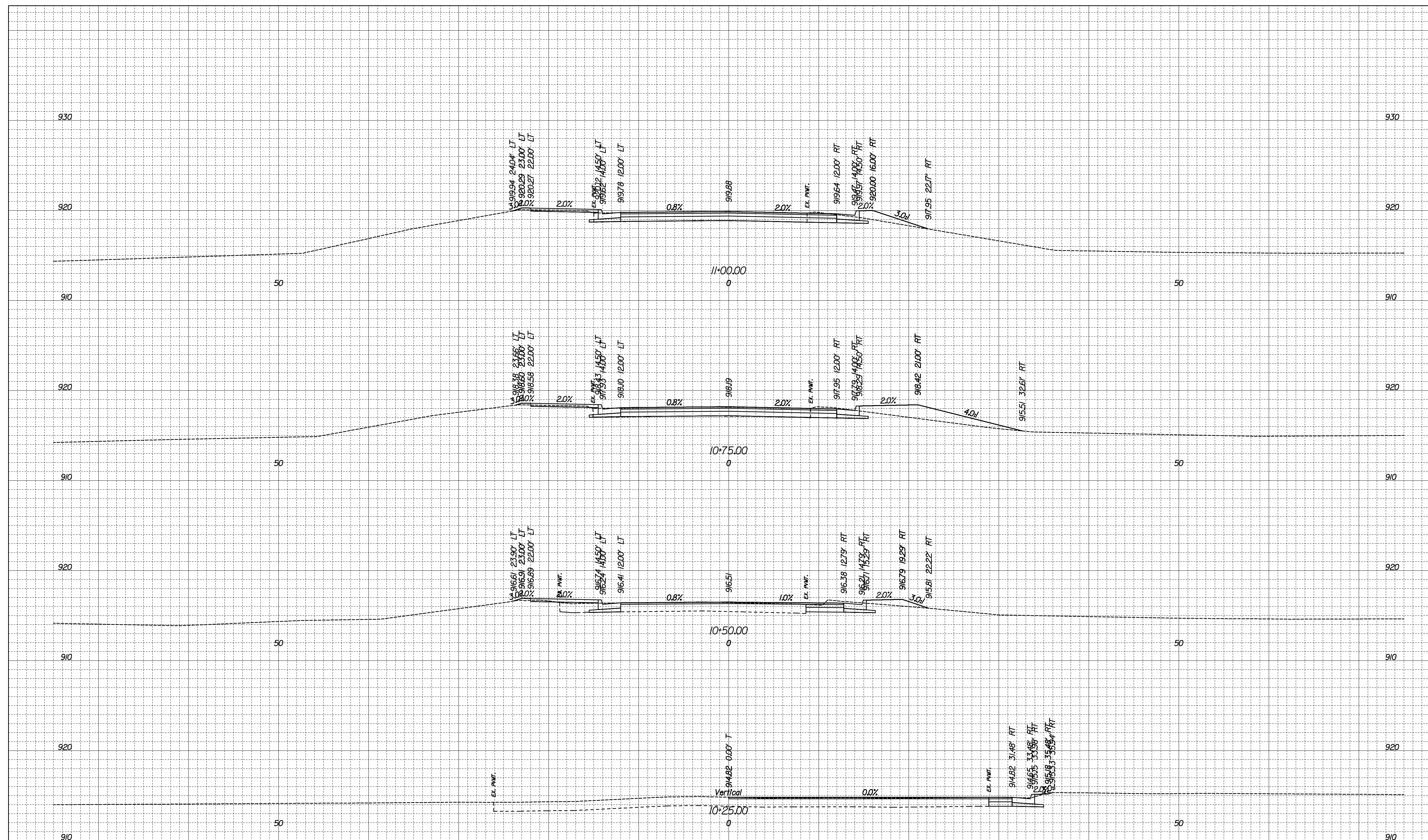
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9TH STREET OVER ROANOKE RIVER
BRIDGE SUPERSTRUCTURE REPLACEMENT

WATER MAIN NOTES
& DETAILS

Designed: P.J.M.	DATE	SHEET NUMBER
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9TH STREET OVER ROANOKE RIVER BRIDGE SUPERSTRUCTURE REPLACEMENT



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SCALE 1 IN. = 5 FT.

9TH STREET OVER ROANOKE RIVER
BRIDGE SUPERSTRUCTURE REPLACEMENT

CROSS SECTIONS

Designed: A.J.K.	DATE	SHEET NUMBER
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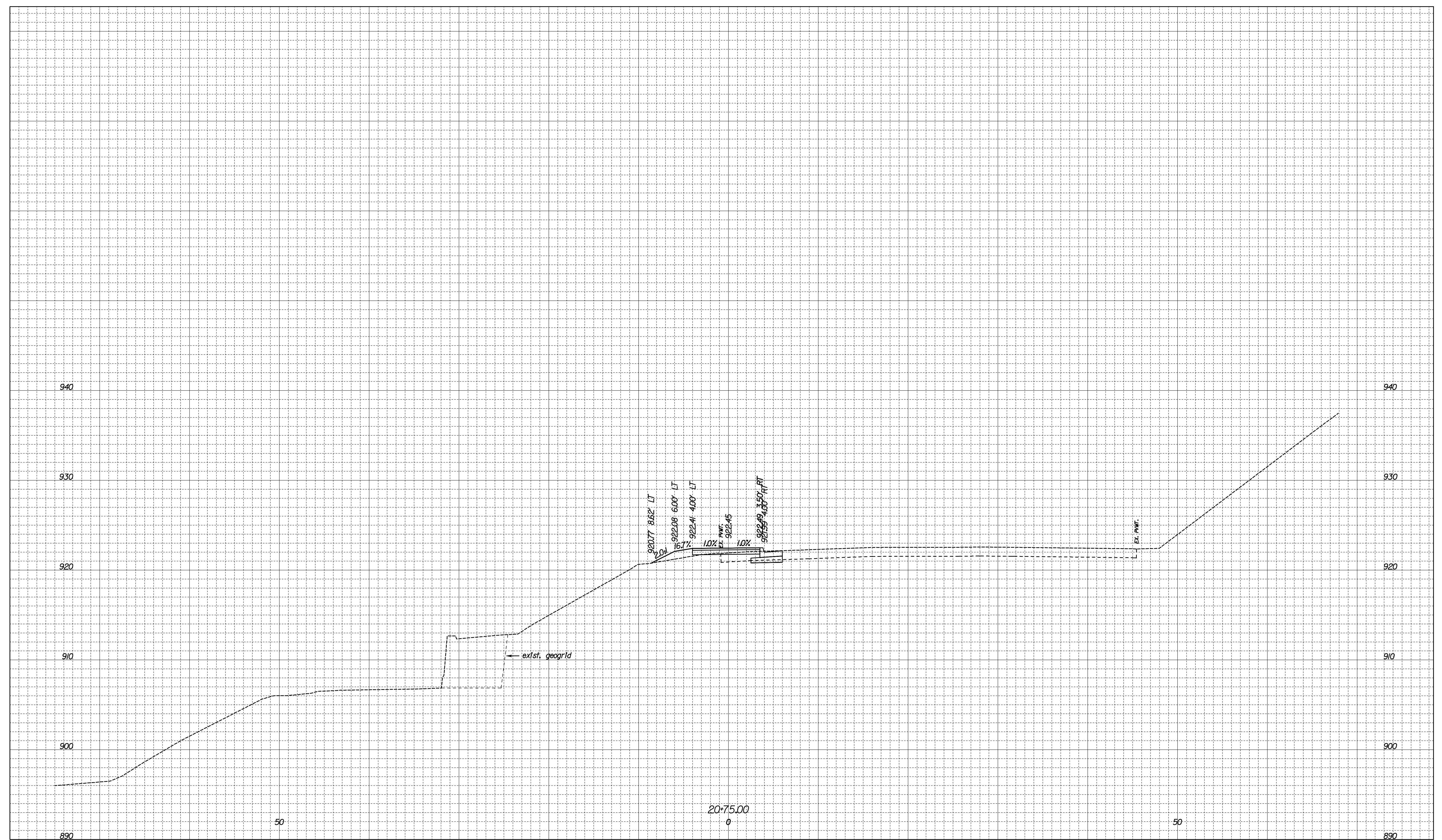
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9TH STREET OVER ROANOKE RIVER
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CROSS SECTIONS

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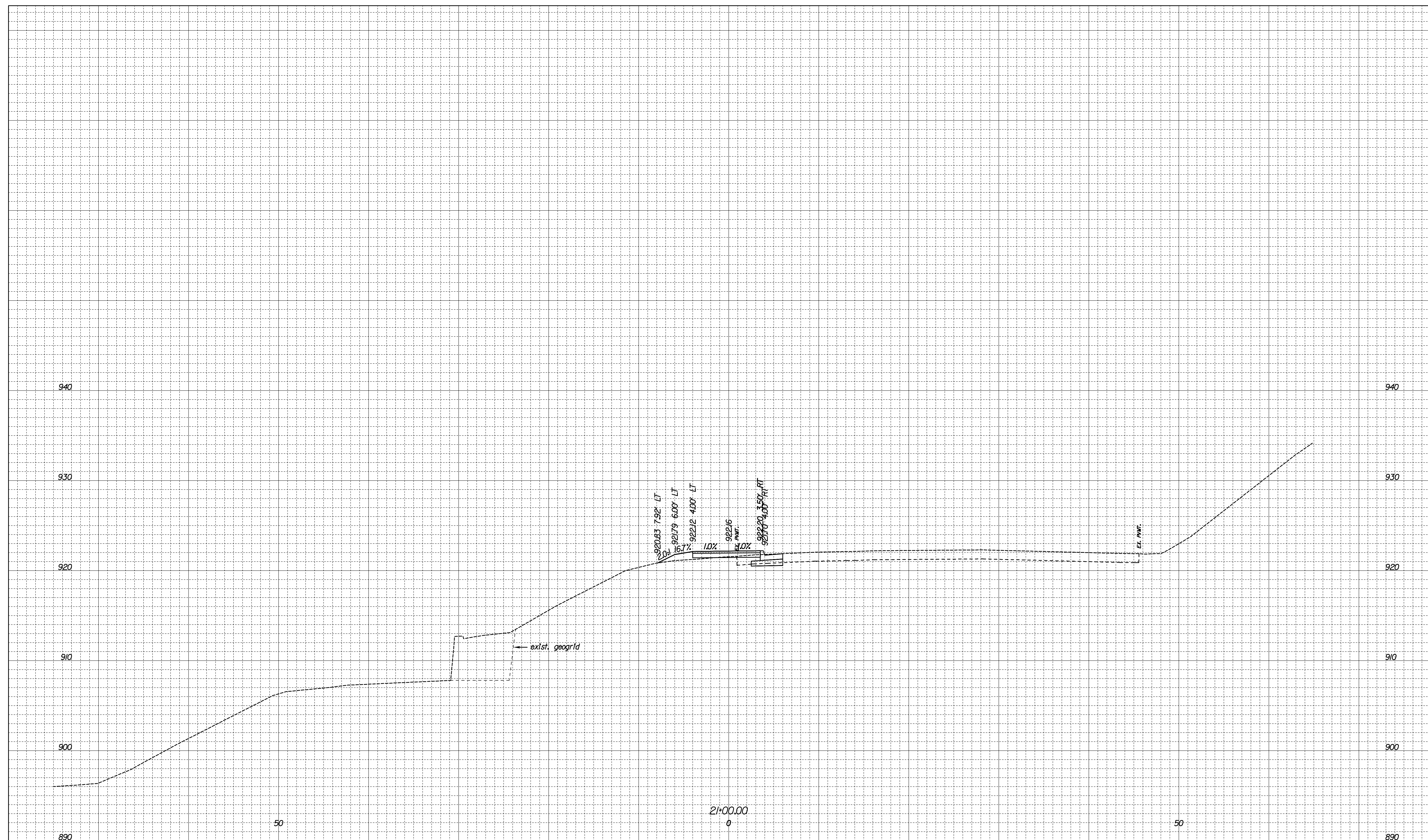
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BRIDGE SUPERSTRUCTURE REPLACEMENT

CROSS SECTIONS

Designed:	A.J.K.
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DATE
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SHEET NUMBER
XS4



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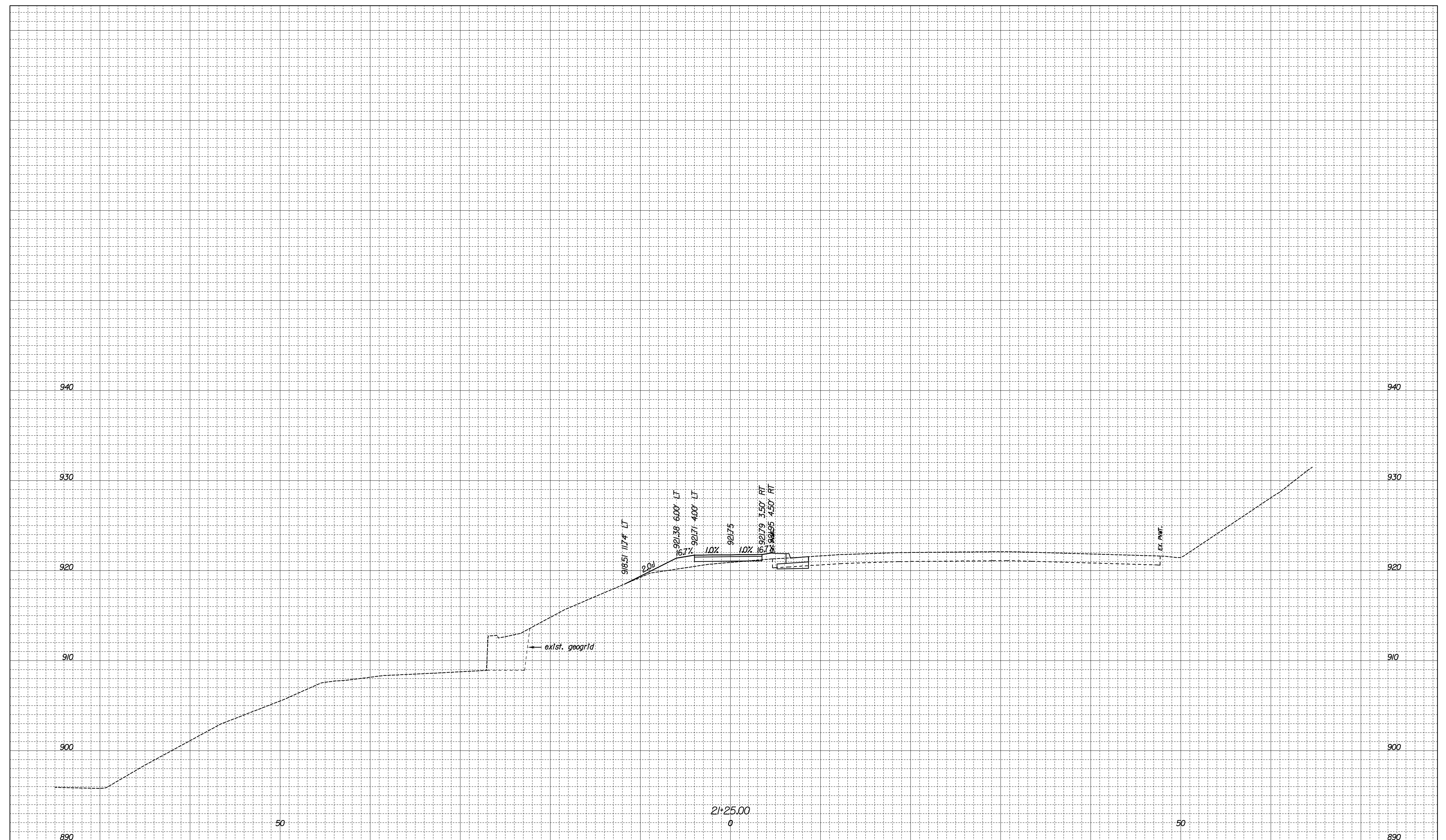
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9TH STREET OVER ROANOKE RIVER
BRIDGE SUPERSTRUCTURE REPLACEMENT

CROSS SECTIONS

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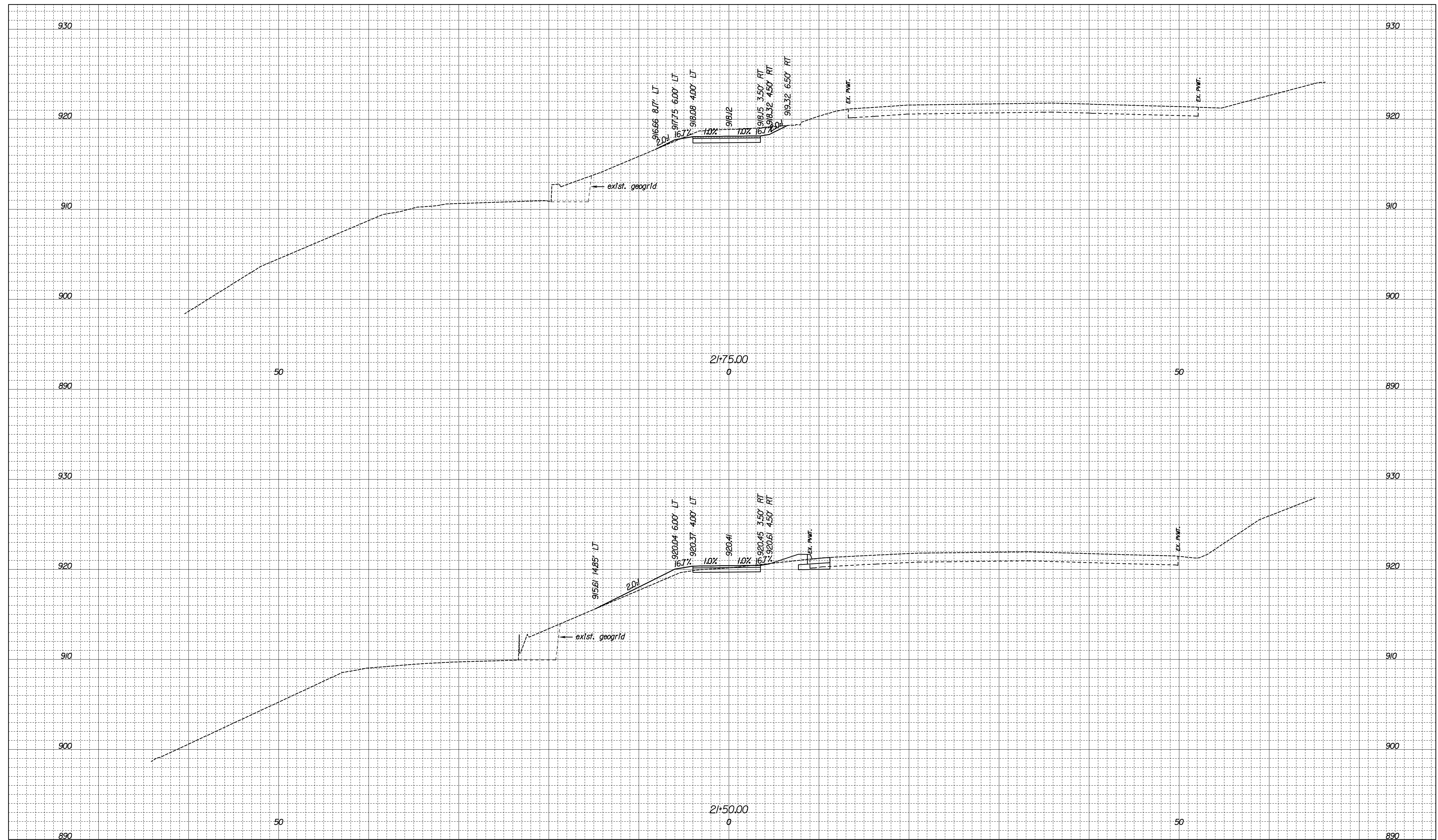
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CROSS SECTIONS

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XS6



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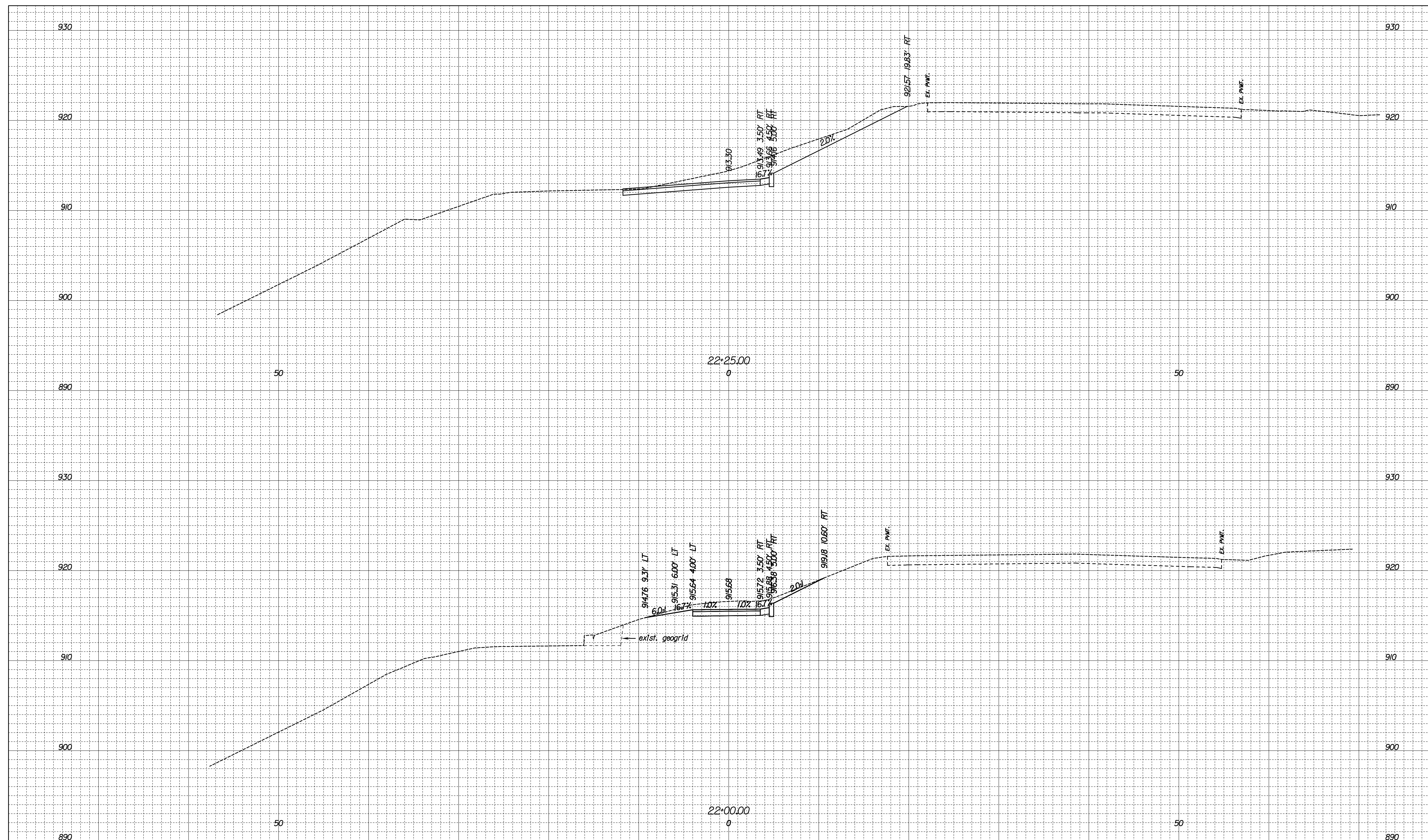
WR&A WHITMAN, REQUARDT
& ASSOCIATES, LLP
1700 KRAFT DRIVE, SUITE 1200
BLACKSBURG, VA 24060
9030 STONY POINT PARKWAY, SUITE 220
RICHMOND, VA 23235

SCALE 1 IN. = 5 FT.

9TH STREET OVER ROANOKE RIVER
BRIDGE SUPERSTRUCTURE REPLACEMENT

CROSS SECTIONS

Designed: A.J.K.	DATE	SHEET NUMBER
Drawn: R.D.W.	DEC 2013	XS7
Checked: R.D.P.		



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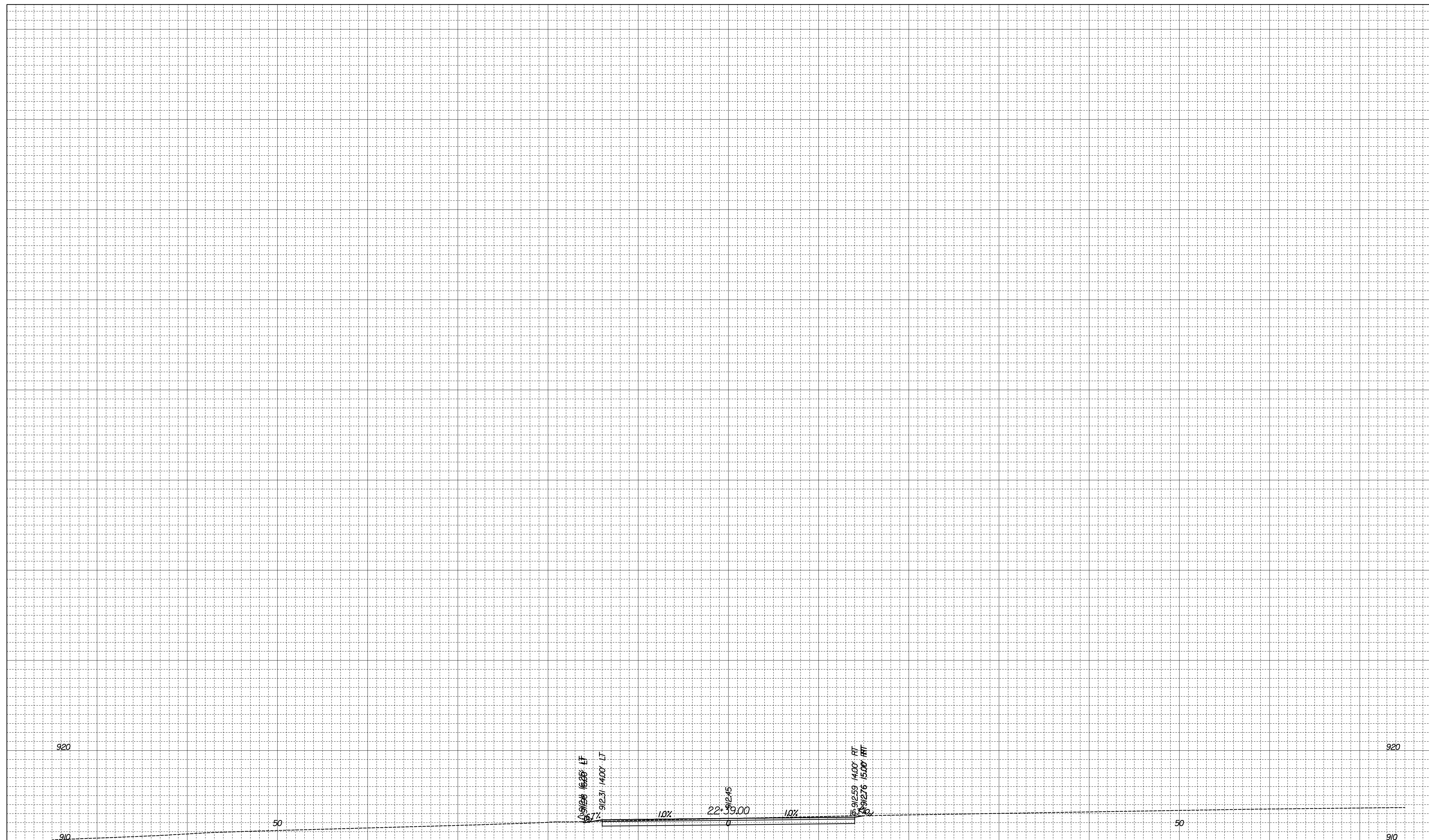
WR&A WHITMAN, REQUARDT
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RICHMOND, VA 23235

SCALE 1 IN. = 5 FT.

9TH STREET OVER ROANOKE RIVER
BRIDGE SUPERSTRUCTURE REPLACEMENT

CROSS SECTIONS

Designed: A.J.K.	DATE	SHEET NUMBER
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SCALE 1 IN. = 5 FT.

9TH STREET OVER ROANOKE RIVER
BRIDGE SUPERSTRUCTURE REPLACEMENT

CROSS SECTIONS

Designed: A.J.K.	DATE	SHEET NUMBER
Drawn: R.D.W.	DEC 2013	XS9
Checked: R.D.P.		