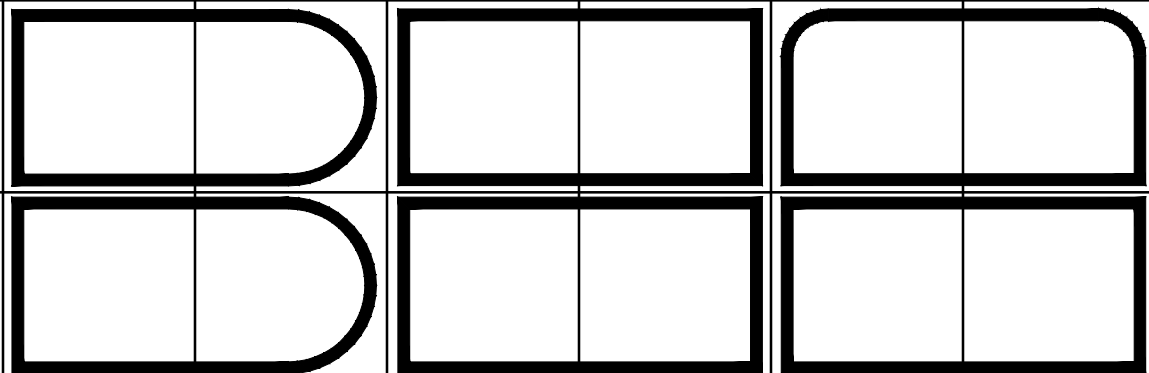


PROPOSED:
HUNTER VALLEY ROAD EXTENSION

W HUNTER VALLEY ROAD
BLOOMINGTON, IN. 47404
FROM W. STONE BRANCH ROAD TO
W. 8TH ST. AND W. ARLINGTON ROAD

UTILITY CONTACT INFORMATION		
<u>GAS</u> VECTREN 205 S. MADISON ST. BLOOMINGTON, IN 47401 DOUG ANDERSON (812)330-4009	<u>SEWER AND WATER</u> CITY OF BLOOMINGTON UTILITIES 600 E. MILLER DR. BLOOMINGTON, IN 47402 NANCY AXSOM (812)349-3689	<u>ELECTRIC</u> DUKE ENERGY 1619 W. DEFFENBAUGH ROAD KOKOMO, INDIANA 46902 JIM SHIELDS (317)375-2071
<u>TELEPHONE</u> AT&T P.O. BOX 56 BLOOMINGTON, IN 47402 BRENT McCABE (812)334-4521	<u>CABLE TELEVISION</u> COMCAST 2450 SOUTH HENDERSON STREET BLOOMINGTON, IN 47404 SCOTT TEMPLETON (812)355-7822	<u>UNDERGROUND UTILITY LOCATION</u> INDIANA UNDERGROUND PLANT PROTECTION 1-(800)382-5544



BYNUM FANYO & ASSOCIATES, INC.
528 North Walnut Street
Bloomington, Indiana 47404 (812) 332-8030

SHEET INDEX

SHEET NO.	SHEET NO.
C0 - C0(7)	HUNTER VALLEY ROAD GENERAL NOTES, DETAILS, & LEGENDS
C1 - C6	HUNTER VALLEY ROAD EXTENSION PLAN & PROFILE
C7 - C24	HUNTER VALLEY ROAD EXTENSION CROSS SECTIONS
C25 - C29	HUNTER VALLEY ROAD EXTENSION STORM WATER POLLUTION PREVENTION PLAN



VICINITY/LOCATION MAP
NOT TO SCALE



OWNER/DEVELOPER:
MONROE COUNTY
501 N MORTON ST. SUITE 224
BLOOMINGTON, IN. 47404

THE CURRENT EDITION OF THE INDIANA DEPARTMENT OF
TRANSPORATION, MANUAL ON UNIFORM TRAFFIC CONTROL
DEVICES & CITY OF BLOOMINGTON UTILITIES STANDARD
SPECIFICATIONS IS TO BE USED WITH THESE PLANS

Certified By:

01.04.23
JEFFREY S. FANYO, P.E.
IND. REG. NO. 18283

Revisions

HUNTER VALLEY ROAD EXTENSION
PROJECT NO. 402224

GENERAL NOTES

- 1. BOUNDARY AND TOPO BY BYNUM FANYO AND ASSOCIATES, 528 NORTH WALNUT STREET, BLOOMINGTON, INDIANA 47404. PHONE (812) 332-8030
- 2. DEVELOPER: CRIDER & CRIDER, INC.
- 3. PROJECT ADDRESS: W HUNTER VALLEY ROAD, BLOOMINGTON, INDIANA 47404
- 4. ALL WORK IS TO BE IN ACCORDANCE WITH ALL STATE AND LOCAL REGULATIONS.
- 5. ALL PERMITS ARE TO BE OBTAINED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
- 6. HYDRANT LOCATION SHALL BE APPROVED BY THE LOCAL FIRE MARSHALL.
- 7. EXISTING UTILITIES ON SITE SHALL BE RELOCATED AS REQUIRED. CONTRACTOR SHALL PAY ALL COSTS ASSOCIATED WITH RELOCATION.
- 8. SAFE, CLEARLY MARKED PEDESTRIAN AND VEHICULAR ACCESS TO ALL ADJACENT PROPERTIES MUST BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROCESS.

EXISTING LEGEND

EXISTING FENCE	— X — X — X —
EXISTING WATER LINE	— W —
EXISTING OVERHEAD UTILITY LINES	— OHU —
EXISTING UNDERGROUND ELECTRIC LINES	— UGE —
EXISTING UNDERGROUND TELEPHONE LINES	— UGT —
EXISTING UNDERGROUND FIBER OPTIC LINES	— FO —
EXISTING GAS LINE	— GAS —
EXISTING SANITARY FORCEMAIN	— FM —
EXISTING CONTOUR	--- XXX ---
FLOW LINE	—> —> —> —>
EXISTING SANITARY SEWER AND MANHOLE	— () —
EXISTING STORM SEWER AND INLET	— [] —
PROPERTY LINE	— - - - -

UTILITY LEGEND

PROPOSED PUBLIC WATER LINE MAIN: AWWA C900 PVC AND FITTINGS, REFER TO MECHANICAL JOINT RESTRAINT DETAIL AND PROFILE FOR THRUST RESTRAINT DESIGN REQUIREMENT. NOTE: PRIVATE WATER MAIN SHALL BE FULLY CONSTRUCTED AND TESTED AS SHOWN BEFORE CBU WILL RELEASE MASTER METERS FOR PRIVATE WATER TO BE IMPLEMENTED. CONTRACTOR TO COORDINATE WITH CBU. 48" COVER MIN.

PROPOSED FIRE HYDRANT, HYDRANTS FROM PUBLIC MAINS SHALL BE PAINTED "ALUMINIZED" PER CBU SPECIFICATION 4.4.4.4, REFER TO DETAIL

PROPOSED WATERLINE CAP AND VALVE

PROPOSED WATER VALVE PER CBU SPECIFICATIONS

PROPOSED PUBLIC 4" DR-11 HDPE FORCEMAIN PIPE. REFER TO PLAN AND "FORCEMAIN NOTES" FOR MORE INFORMATION ON FORCEMAIN SPECIFICATIONS REQUIRED. 48" COVER MIN.

NOTE: ALL WATER AND SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF BLOOMINGTON UTILITY SPECIFICATIONS.

GRADING/DRAINAGE LEGEND

EXISTING CONTOUR

PROPOSED CONTOUR

PROPOSED INTENDED FLOWLINE DIRECTION

PROPOSED SPOT GRADE ELEVATION

TC=PROPOSED TOP OF CURB ELEVATION
EP=PROPOSED EDGE OF PAVEMENT ELEVATION AT BOTTOM OF CURB

FINISH EDGE OF PAVEMENT AT GRADE

MATCH THE EXISTING'S CONDITIONS GRADES ELEVATION FOR BEST FIT OF PROPOSED GRADING ADJACENT TO THE EXISTING CONDITION. NOTIFY THE ENGINEER OF ANY DISCREPANCIES

PROPOSED STORM PIPE AND INLET/MANHOLE, REFER TO PLAN FOR INLET DESIGN AND DETAILS FOR BACKFILL SPECIFICATIONS AND INLET/MANHOLE SPECIFICATIONS PER CBU STANDARDS

PARKING AND PAVEMENT NOTES

- 1. ALL SIGNS, PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC DEVICES, 1988 EDITION AS AMENDED.
- 2. ALL PAVEMENT MARKINGS SHALL BE PAINTED WHITE ON ASPHALT PAVEMENT / YELLOW ON CONCRETE PAVEMENT AND SHALL BE FOUR (4) INCHES WIDE UNLESS INDICATED OTHERWISE.
- 3. ALL DIMENSIONS ARE TO EDGE OF PAVEMENT UNLESS INDICATED OTHERWISE. ALL CURB RADIUS ARE TO BE 5' UNLESS INDICATED OTHERWISE.
- 4. CONTRACTOR SHALL FURNISH AND INSTALL PAVEMENT MARKINGS AS SHOWN ON THE PLANS.
- 5. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL SIGNS, PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES WITH OTHER CONTRACTORS ON THE SITE.
- 6. JOINTS OR SCORE MARKS ARE TO BE SHARP AND CLEAN WITHOUT SHOWING EDGES OF JOINING TOOLS.
- 7. CONTRACTOR SHALL SAW-CUT TIE-INS AT EXISTING CURBS AS NECESSARY TO INSURE SMOOTH TRANSITIONS. CONTRACTOR SHALL SAW-CUT AND TRANSITION TO MEET EXISTING PAVEMENT AS NECESSARY AND AS DIRECTED BY INSPECTOR TO INSURE POSITIVE DRAINAGE. (TYPICAL AT ALL INTERSECTIONS).
- 8. CONTRACTOR SHALL COMPLY WITH ALL PERTINENT PROVISIONS OF THE "MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION" ISSUED BY A.C.C. OF AMERICA, INC. AND THE HEALTH AND SAFETY REGULATIONS FOR CONSTRUCTION ISSUED BY THE U.S. DEPARTMENT OF LABOR.

EROSION CONTROL LEGEND

EXISTING CONTOUR

PROPOSED CONTOUR

TEMPORARY SILTATION FENCE, REFER TO DETAIL

TREE PRESERVATION FENCING REQUIRED - TEMPORARY DURING CONSTRUCTION - REFER TO DETAILS ON SHEET C801

CONSTRUCTION LIMITS, DELINEATED BY PROPERTY LINE UNLESS OTHERWISE SPECIFIED

TEMPORARY MULCH SEEDING - REFER TO DETAILS

25' X 100' STONE PAD, 6" DEEP TO KEEP FROM TRACKING MUD OFF SITE - REFER TO DETAIL (TEMPORARY DURING CONSTRUCTION)

TEMPORARY CONCRETE WASHOUT AREA - REFER TO DETAIL

AEC PREMIER STRAW WATTLE SLOPE INTERRUPTION DEVICE OR APPROVED EQUAL - REFER TO DETAIL

D-50 RIP-RAP STORM OUTLET PROTECTION - REFER TO DETAIL AND PLAN FOR MIN. QUANTITY (PERMANENT)

TEMPORARY ROCK CHECK DAM - REFER TO DETAILS

GRAVEL CURB INLET PROTECTION (TEMPORARY) (TO BE USED ON ALL CURB INLETS)

GENERAL LEGEND

---	PROPERTY LINE
---	PROPERTY LINE
XXX/XXX	DEED BOOK AND PAGE
T.B.R.	TO BE REMOVED
T.R.U.	TO REMAIN UNDISTURBED
X' SBL	SETBACK LINE
♿	PROPOSED ACCESSIBLE PARKING SPACE
S.S.E.	SANITARY SEWER EASEMENT
G.E.	GAS EASEMENT
W.L.E.	WATER LINE EASEMENT
E.E.	ELECTRIC EASEMENT
D.E.	DRAINAGE EASEMENT
U.E.	UTILITY EASEMENT

GRADING NOTES

- 1. NEW FINISHED CONTOURS SHOWN ARE TOP OF FUTURE PAVING IN AREAS TO RECEIVE PAVEMENT AND TOP OF TOPSOIL IN AREAS TO BE SEEDD OR PLANTED.
- 2. AREAS OUTSIDE OF THE PARKING LOT PERIMETERS SHOWN TO BE SEEDD OR PLANTED SHALL RECEIVE 6" OF TOPSOIL. THIS TOPSOIL IS TO BE PLACED AND LEVELED BY THE CONTRACTOR.
- 3. CONTRACTOR SHALL NOTIFY AND COOPERATE WITH ALL UTILITY COMPANIES OR FIRMS HAVING FACILITIES ON OR ADJACENT TO THE SITE BEFORE DISTURBING, ALTERING, REMOVING, RELOCATING, ADJUSTING, OR CONNECTING TO SAID FACILITIES. CONTRACTOR SHALL PAY ALL COSTS IN CONNECTION WITH ALTERATION OF OR RELOCATION OF THE FACILITY.
- 4. ALL AREAS NOT COVERED BY BUILDING OR PAVING ARE TO BE VEGETATED (SEEDED OR PER LANDSCAPE PLAN).
- 5. UNUSABLE EXCAVATED MATERIALS AND ALL WASTE RESULTING FROM CLEARING AND GRUBBING SHALL BE DISPOSED OF OFF SITE BY CONTRACTOR.
- 6. ALL EXCAVATING IS UNCLASSIFIED AND SHALL INCLUDE ALL MATERIALS ENCOUNTERED.
- 7. BEFORE ANY MACHINE WORK IS DONE, CONTRACTOR SHALL STAKE OUT AND MARK THE ITEMS ESTABLISHED BY THE SITE PLAN. CONTROL POINTS SHALL BE PRESERVED AT ALL TIMES DURING THE COURSE OF CONSTRUCTION. THE LACK OF PROPER WORKING POINTS AND GRADE STAKES MAY REQUIRE CESSATION OF OPERATIONS UNTIL SUCH POINTS AND GRADES HAVE BEEN PLACED TO THE OWNER'S SATISFACTION.
- 8. CONTRACTOR SHALL COMPACT AND MAINTAIN A 30,000 SQ. FT. STONEBASE CONSTRUCTION LAYDOWN AREA W/ STONE ACCESS FROM THE CONSTRUCTION ENTRANCE AND STONE ACCESS TO THE BUILDING PAD.
- 9. THESE DOCUMENTS ARE SCHEMATIC IN NATURE AND CANNOT SHOW EVERY ITEM NEEDED FOR A COMPLETE OPERATIONAL STORM SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE OPERATING STORM SYSTEM.
- 10. ALL FILL SHALL BE FREE OF VEGETABLE MATTER, RUBBISH, LARGE ROCK, AND OTHER DELETERIOUS MATERIAL. THE FILL MATERIAL SHOULD BE PLACED IN LAYERS NOT TO EXCEED SIX (6) INCHES IN LOOSE THICKNESS AND SHOULD BE SPRINKLED WITH WATER AS REQUIRED TO SECURE SPECIFIED COMPACTION. EACH LAYER SHOULD BE UNIFORMLY COMPACTED BY MEANS OF SUITABLE EQUIPMENT AS DICTATED BY THE TYPE OF FILL MATERIAL. UNDER NO CIRCUMSTANCES SHOULD A BULLDOZER OR SIMILARLY TRACKED VEHICLE BE USED AS COMPACTING EQUIPMENT. MATERIAL CONTAINING AN EXCESS OF WATER SHOULD BE SPREAD AND DRIED TO A MOISTURE CONTENT THAT WILL PERMIT PROPER COMPACTION. ALL FILL SHOULD BE COMPACTED TO THE SPECIFIED PERCENTAGE OF THE MAXIMUM DENSITY OBTAINED IN ACCORDANCE WITH ASTM DENSITY TEST D-698 (95 PERCENT OF MAXIMUM DRY DENSITY). IF THE SPECIFIED COMPACTION LIMITS ARE NOT MET, SUCH AREAS SHOULD BE REWORKED AND RETESTED AS REQUIRED UNTIL THE SPECIFIED LIMITS ARE REACHED.

THE CURRENT EDITION OF THE INDIANA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS & THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES ARE TO BE USED WITH THESE PLANS



DIAL '811' BEFORE YOU DIG

PER INDIANA STATE LAW IC8-1-26. IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

NOTE: ONLY NOTES ON THIS SHEET MARKED WITH AN [X] APPLY TO THIS PROJECT.

NOTE TO CONTRACTOR

CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS & DEPTHS AND NOTIFY ENGINEER OF ANY INACCURACIES IN LOCATION OR ELEVATION OR ANY CONFLICTS PRIOR TO & AFTER ANY EXCAVATION. NO PAYMENT SHALL BE MADE TO CONTRACTOR FOR UTILITY DESTRUCTION OR UNDERGROUND CHANGES REQUIRED DUE TO CONFLICTING ELEVATIONS.

LANDSCAPE NOTES

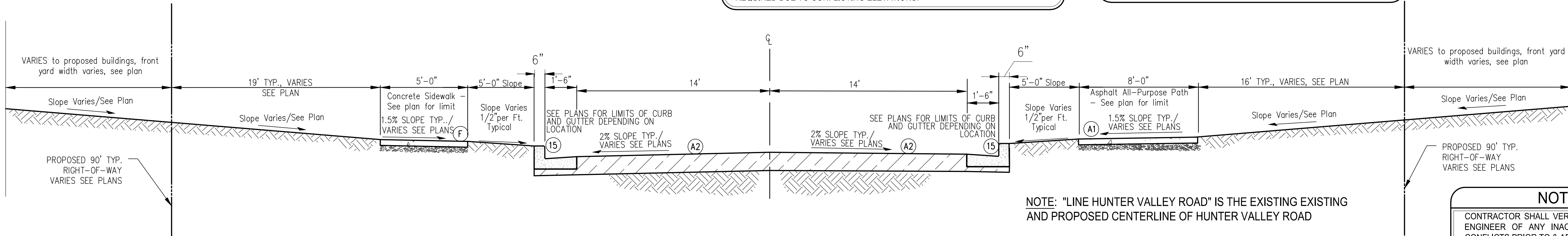
- 1. ALL PLANT MATERIAL SHALL ARRIVE ONSITE IN A HEALTHY, VIGOROUS CONDTION AND BE FREE OF PESTS AND DISEASE.
- 2. ALL PLANTS SHALL BE CONTAINER GROWN OR BALLED AND BURLAPPED AS INDICATED IN THE PLANT LIST.
- 3. ALL TREES SHALL BE STRAIGHT-TRUNKED, FULL HEADED AND MEET ALL REQUIREMENTS SPECIFIED.
- 4. ALL TREES SHALL BE GUYED OR STAKED PLUMB AS SHOWN IN THE DETAILS.
- 5. ALL PLANTING MASS BEDS SHALL BE SPADE CUT UNLESS SPECIFIED WITH A MOW STRIP OR OTHER INSTALL EDGING. TREES TO HAVE A 5' DIAMETER MULCH RING.
- 6. ALL PLANTING AREAS SHALL BE COMPLETELY MULCHED WHERE SPECIFIED.
- 7. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES AND SHALL AVOID DAMAGE TO ALL UTILITIES DURING THE COURSE OF THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY AND ALL DAMAGE TO UTILITIES, STRUCTURES, SITE APPURTENANCES, ETC. WHICH OCCURS AS A RESULT OF THE LANDSCAPE CONSTRUCTION. PLANTING LOCATIONS MAY REQUIRE ADJUSTMENTS IN FIELD TO AVOID OVERHEAD AND UNDERGROUND UTILITIES.
- 8. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES AND SPECIES SHOWN ON THESE PLANS BEFORE PRICING THE WORK.
- 9. THE CONTRACTOR IS RESPONSIBLE FOR FULLY MAINTAINING ALL PLANTING AND LAWN AREAS INCLUDING, BUT NOT LIMITED TO: WATERING, SPRAYING, MULCHING, PRUNING, FERTILIZING, ETC., UNTIL WORK IS ACCEPTED IN FULL BY THE OWNER.
- 10. THE CONTRACTOR SHALL COMPLETELY GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE (1) YEAR BEGINNING ON THE DATE OF TOTAL ACCEPTANCE. THE CONTRACTOR SHALL PROMPTLY MAKE ALL REPLACEMENTS BEFORE OR AT THE END OF THE GUARANTEE PERIOD.
- 11. THE OWNER SHALL APPROVE THE STAKING LOCATION OF ALL PLANT MATERIAL PRIOR TO INSTALLATION.
- 12. AFTER BEING DUG AT THE NURSERY SOURCE, ALL TREES IN LEAF SHALL BE ACCLIMATED FOR TWO (2) WEEKS UNDER A MIST OR DRIP IRRIGATION SYSTEM PRIOR TO INSTALLATION. WATER ALL SPECIMENS WITHIN 24 HOURS OF PLANTING.
- 13. ANY NEW OR TRANSPLANTED PLANT MATERIAL WHICH DIES, TURNS BROWN OR DEFLOLIATES PRIOR TO TOTAL ACCEPTANCE OF THE WORK SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH MATERIAL OF THE SAME SPECIES, QUANTITY AND SIZE TO MEET ALL PLANT LIST SPECIFICATIONS.
- 14. STANDARDS SET FORTH IN "AMERICAN STANDARD FOR NURSERY STOCK" REPRESENT GUIDELINE SPECIFICATIONS ONLY AND SHALL CONSTITUTE MINIMUM QUALITY REQUIREMENTS FOR PLANT MATERIAL.
- 15. ALL SHRUB, GROUNDCOVER, ANNUAL AND HERBACEOUS PERENNIAL PLANTING BEDS ARE TO BE COMPLETELY COVERED WITH HARDWOOD MULCH TO A MINIMUM DEPTH OF FOUR INCHES.
- 16. DURING THE GROWING SEASON ALL ANNUALS AND HERBACEOUS PERENNIALS SHALL REMAIN IN A HEALTHY CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
- 17. ALL PLANT MATERIAL QUANTITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETE COVERAGE OF ALL PLANTING BEDS AT SPACING SHOWN ON PLANS.
- 19. ALL DISTURBED AREAS NOT INCLUDED IN LANDSCAPE MULCH BEDS ARE TO BE DEBRIS-RAKED AND FINED-GRADED AS NEEDED, THEN MULCH SEEDD (OR SODDED, PER PLAN) AND WATERED UNTIL A HEALTHY STAND OF TURF IS ESTABLISHED.
- 20. ANY PLANT OR OTHER LANDSCAPE MATERIAL SUBSTITUTIONS INSTALLED WITHOUT DESIGNER AND/OR OWNER APPROVAL SHALL BE REPLACED AT CONTRACTOR'S EXPENSE. ALL PLANTS ARE SUBJECT TO THE APPROVAL OF THE OWNER BEFORE, DURING AND AFTER INSTALLATION.

SITE IMPROVEMENT LEGEND

- (A1) PROPOSED ROAD BITUMINOUS PAVING - REFER TO DETAIL
- (A1) PROPOSED ALL-PURPOSE PATH BITUMINOUS PAVING - REFER TO DETAIL
- (A2) PROPOSED HEAVY-DUTY ROAD BITUMINOUS PAVING - REFER TO DETAIL
- (C) PROPOSED CONCRETE PAVING - REFER TO DETAIL
- (C) PROPOSED GRAVEL PAVING - REFER TO DETAIL
- (B) PROPOSED PAVEMENT MILL AND OVERLAY. CONTRACTOR TO REFER TO PROFILE GRADE AND PROPOSED CONTOUR LINES FOR PROPOSED SURFACE ASPHALT CONSTRUCTION. 1 1/2" MILL MIN. AND 1 1/2" OVERLAY MIN. EXCESS MILL AND OVERLAY NECESSARY IN SOME LOCATIONS TO CONSTRUCT PROPOSED GRADE. CONTRACTOR SHALL CONSTRUCT PAVEMENT WITH 1% MIN. CROSS SLOPE TO ENSURE POSITIVE DRAINAGE AND NO PONDING. REFER TO PLANS FOR DETAILS.
- (F) PROPOSED CONCRETE PAVEMENT OR SIDEWALK. REFER TO PLAN FOR LOCATIONS AND REFER TO DETAIL.
- (26) PROPOSED PAVEMENT MARKING, THERMOPLASTIC, DOUBLE SOLID LINE, YELLOW, 2 - 4" WIDE LINES SPACED 4" WIDE (MARKING PER INDOT STANDARD 808.07 AND MUTCD PART 3 STANDARDS)
- (15) PROPOSED 6" MONOLITHIC CURB AND GUTTER - REFER TO DETAIL
- (R) PROPOSED INDOT SIDEWALK ACCESSIBLE RAMP WITH CAST IRON DETECTIBLE WARNING SURFACES - REFER TO DETAILS ON SHEET C0(3)
- (FE) PROPOSED VINYL COATED CHAIN-LINK FENCE - REFER TO DETAIL
- (OR) PROPOSED INDOT W-BEAM GUARDRAIL - REFER TO INDOT DESIGN MANUAL AND STANDARD DRAWINGS FOR CONSTRUCTION DETAILS AND SPECIFICATIONS
- SEE ARCHITECTURAL & STRUCTURAL DRAWINGS/SPECIFICATIONS FOR ALL SHADED AREAS

ON-SITE UTILITY NOTES

- 1. ALL WATER PIPE 6" AND LARGER SHALL BE PRESSURE CLASS 350 DIP WATER PIPE CONFORMING TO ALL STATE AND LOCAL STANDARDS.
- 2. WATER MAIN FITTINGS 6" AND LARGER SHALL BE DUCTILE IRON CONFORMING TO AWWA/ANSI STANDARD SPECIFICATIONS C153/A21.53, LATEST REVISION.
- 3. 2" WATER MAINS SHALL BE SDR-21 (PR200) AND 4" PIPE MAY BE EITHER SDR-21 (PR200) OR C900 (DR-14).
- 4. ALL WATER SERVICE LINES CONNECTING TO 2" PVC MAINS SHALL BE 1" TYPE "K" COPPER. ALL SERVICE LINES FROM MAIN TO METER SHALL BE TYPE "K" COPPER WITH FLARED ENDS.
- 5. MECHANICAL RESTRAINTS SHALL BE PROVIDED AT ALL WATER LINE BENDS, OFFSETS, TEES, PLUGS, ETC...
- 6. ALL WATER LINE GATE VALVES OTHER THAN AIR RELEASE VALVES AND TAPPING VALVES SHALL BE CAST IRON BODY, FULLY BRONZE MOUNTED, WITH RESILIENT SEAT AND NON-RISING STEM AND SHALL BE MANUFACTURED BY M & H VALVE COMPANY, DARLING VALVE AND MANUFACTURING COMPANY, KENNEDY VALVE COMPANY, OR MUELLER COMPANY.
- 7. FLUSH HYDRANTS SHALL BE PLACED AT THE ENDS OF ALL WATER MAINS AND AT ANY HIGH POINTS IN THE LINE.
- 8. AIR RELEASE VALVES SHALL BE PROVIDED AT ALL HIGH POINTS OF WATER MAINS AND SHALL BE VAL-MATIC BRAND AND SHALL INCORPORATE THE OPTIONAL VACUUM-CHECK FEATURE.
- 9. ALL FIRE HYDRANTS SHALL BE MANUFACTURED BY KENNEDY GUARDIAN OR MUELLER CENTURION.
- 10. ALL WATER MAINS SHALL BE HYDROSTATICALLY TESTED AND DISINFECTED BEFORE ACCEPTANCE. SEE SITE WORK SPECIFICATIONS.
- 11. WATER AND SANITARY SEWER MAINS SHALL HAVE A MINIMUM COVER OF 4'-0" ABOVE TOP OF PIPE.
- 12. ALL SPRINKLER, DOMESTIC, AND SANITARY LEADS TO THE BUILDING SHALL END AS SHOWN ON PLAN AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AT THE END (FOR OTHERS TO REMOVE AND EXTEND AS NECESSARY).
- 13. THE MINIMUM HORIZONTAL SEPARATION BETWEEN THE CLOSEST TWO POINTS OF THE WATER AND SEWER LINE IS TEN FEET (10'). THE MINIMUM VERTICAL SEPARATION BETWEEN THE CLOSEST TWO POINTS OF THE WATER AND SEWER LINE IS EIGHTEEN INCHES (18").
- 14. GRAVITY SANITARY SEWER PIPE 6" TO 15" SHALL BE CONSTRUCTED OF SDR-35 PVC.
- 15. THE UPSTREAM ENDS OF ALL SANITARY SEWER LATERALS SHALL BE CLEARLY MARKED WITH A 4x4 TREATED POST EXTENDING 3' BELOW GRADE AND 1' ABOVE GRADE.
- 16. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.
- 17. SEE SITE SPECIFICATIONS FOR BACKFILLING AND COMPACTION REQUIREMENTS.
- 18. SITE CONTRACTOR SHALL HAVE APPROVAL OF ALL GOVERNING AGENCIES HAVING JURISDICTION OVER THIS SYSTEM PRIOR TO INSTALLATION.
- 19. ALL WORK ON THIS PLAN SHALL BE DONE IN STRICT ACCORDANCE WITH SITE WORK SPECIFICATIONS.
- 20. ALL CATCH BASIN GRATE AND FRAMES ARE TO BE BY EAST JORDAN IRON WORKS.
- 21. LOCATIONS OF EXISTING BURIED UTILITY LINES SHOWN ON THE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AND ARE TO BE CONSIDERED APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS OF UTILITY LINES ADJACENT TO THE WORK AREA. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL UTILITY LINES DURING THE CONSTRUCTION PERIOD.
- 22. BUILDING CONTRACTOR SHALL PROVIDE & INSTALL A PERMANENT INDICATING VALVE 12" ABOVE THE FLOOR ON THE FIRE LINE AT THE TERMINATION POINT. THIS VALVE WILL BE USED TO HYDROSTATIC PRESSURE TEST AGAINST & WILL REMAIN AS PART OF THE SYSTEM ONCE ALL TESTING IS COMPLETED. THE FIRE LINE MAIN WILL NOT BE DISMANTLED FOR CONNECTION TO THE FIRE SUPPRESSION SYSTEM. SITE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE FIRE MAIN WITH THE BUILDING CONTRACTOR.
- 23. ALL PROJECTS WILL REQUIRE A PRE-CONSTRUCTION MEETING WITH THE CITY OF BLOOMINGTON UTILITIES PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR AND/OR DEVELOPER MUST CONTACT TOM AXSON AT (812)349-3633 TO SCHEDULE THE MEETING.
- 24. CONTRACTOR SHALL NOTIFY THE CITY OF BLOOMINGTON UTILITIES ENGINEERING DEPARTMENT ONE (1) WORKING DAY PRIOR TO CONSTRUCTION OF ANY WATER, STORM OR SANITARY SEWER UTILITY WORK. A CBU INSPECTOR MUST HAVE NOTICE SO WORK CAN BE INSPECTED, DOCUMENTED, AND PROPER AS-BUILT MADE. WHEN A CONTRACTOR WORKS WEEKENDS, A CBU DESIGNATED HOLIDAY, OR BEYOND NORMAL CBU WORK HOURS, THE CONTRACTOR WILL PAY FOR THE INSPECTOR'S OVERTIME. FOR CBU WORK HOURS AND HOLIDAY INFORMATION, PLEASE CONTACT THE CITY OF BLOOMINGTON UTILITIES ENGINEERING DEPARTMENT AT (812)349-3660.



NOTE: "LINE HUNTER VALLEY ROAD" IS THE EXISTING EXISTING AND PROPOSED CENTERLINE OF HUNTER VALLEY ROAD

NOTE TO CONTRACTOR

CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS & DEPTHS AND NOTIFY ENGINEER OF ANY INACCURACIES IN LOCATION OR ELEVATION OR ANY CONFLICTS PRIOR TO & AFTER ANY EXCAVATION. NO PAYMENT SHALL BE MADE TO CONTRACTOR FOR UTILITY DESTRUCTION OR UNDERGROUND CHANGES REQUIRED DUE TO CONFLICTING ELEVATIONS.

revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING
BYNUM FANYO & ASSOCIATES, INC.
528 north walnut street
(812) 332-8030

01.04.23

certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: GENERAL NOTES
& LEGENDS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C0
project no.: 402224

FORCE MAIN CONNECTION
EXISTING MANHOLE

SINGLE FLUSHING CONNECTION ON LPFM

environment | one DOUBLE FLUSHING CONNECTION ON LPFM

CITY OF BLOOMINGTON UTILITIES
**STANDARD SANITARY
MANHOLE**
CBU STANDARD DRAWING 1

GROUND FENCE AT CORNER POSTS

CHAIN LINK FENCE
NOT TO SCALE

9" CONCRETE PAVEMENT

(A2)	HEAVY DUTY BITUMIN ASPHALT PAVING
------	--------------------------------------

NOT TO SCALE

(A)	BITUMINOUS ASPHALT
-----	--------------------

CITY OF BLOOMINGTON UTIL
BEDDING AND BACKFILL
FOR FOR ALL RIGID P
CBU STANDARD DRAWING

LM000113 REV. -

CITY OF BLOOMINGTON UTILITIES
BEDDING AND BACKFILL DETAILS
FOR PVC & HDPE PIPE
CBU STANDARD DRAWING 11

A1 BITUMINOUS ALL-PURPOSE PATH

	BYNUM FANYO & ASSOCIATES, INC.
	BITUMINOUS PAVEMENT PATCH

F	CONCRETE
---	----------

BYNUM FANYO & ASSOCIATES, INC.
MECHANICAL JOINT RESTRAINT
REQUIREMENT FOR PVC WATER/FIRE

CITY OF BLOOMINGTON UTILITIES
STANDARD FIRE HYDRANT
& CONNECTION
CBU STANDARD DETAIL NUMBER 8


STANDARD AIR VALVE VAULT
12" OR SMALLER PIPE

You created this PDF from an application that is not licensed to print to novaPDF printer (<http://www.novapdf.com>)

revisions:

ARCHITECTURE	
CIVIL ENGINEERING	
PLANNING	

	CIVIL ENGINEERING						
	PLANNING						
	bloomington, indianapolis						
	(812) 339-2990 (Fax)						



BYNUM FANYO & ASSOCIATES, INC.

528 north walnut street
(812) 332-8030

01.04.23

certified by:

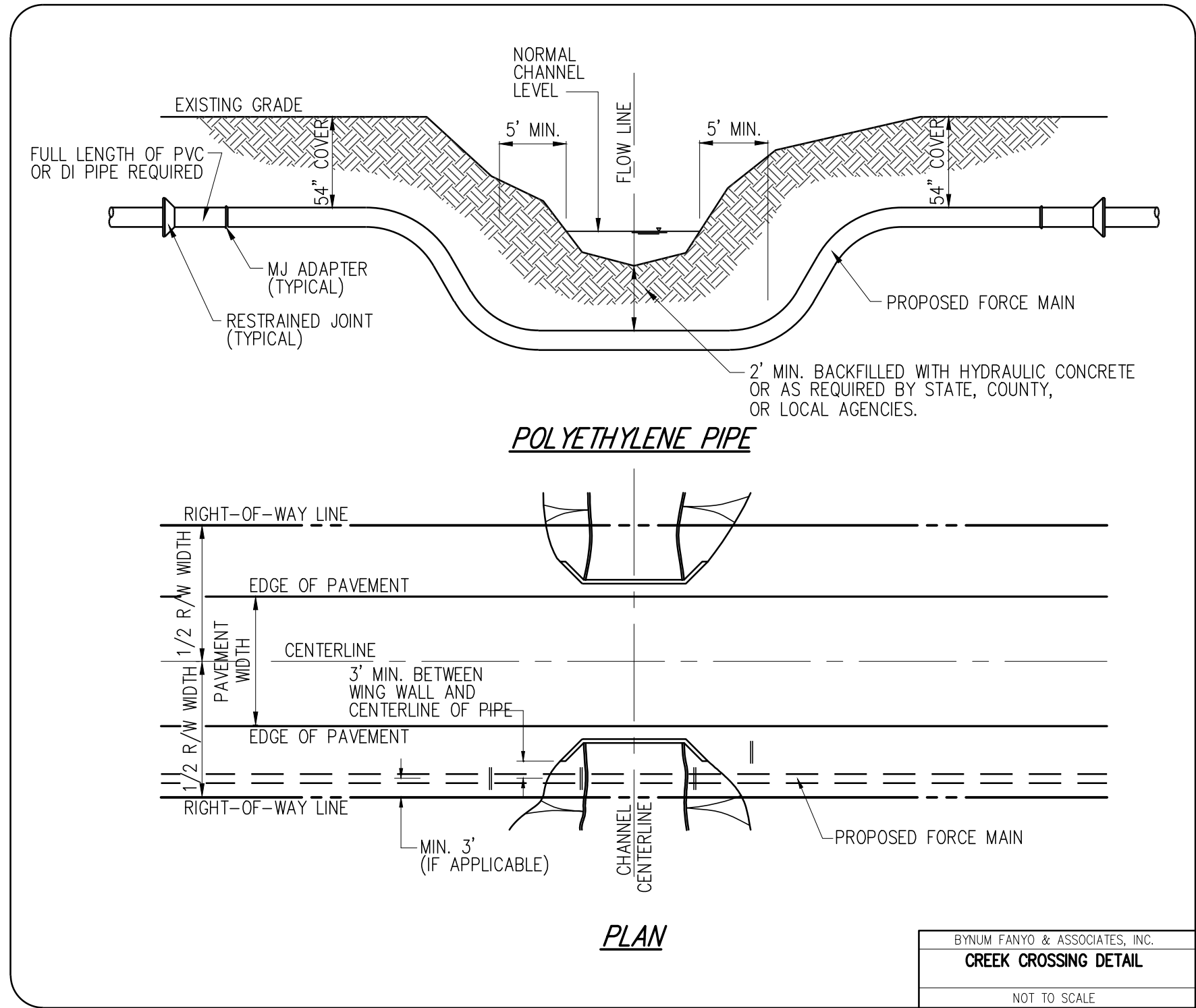
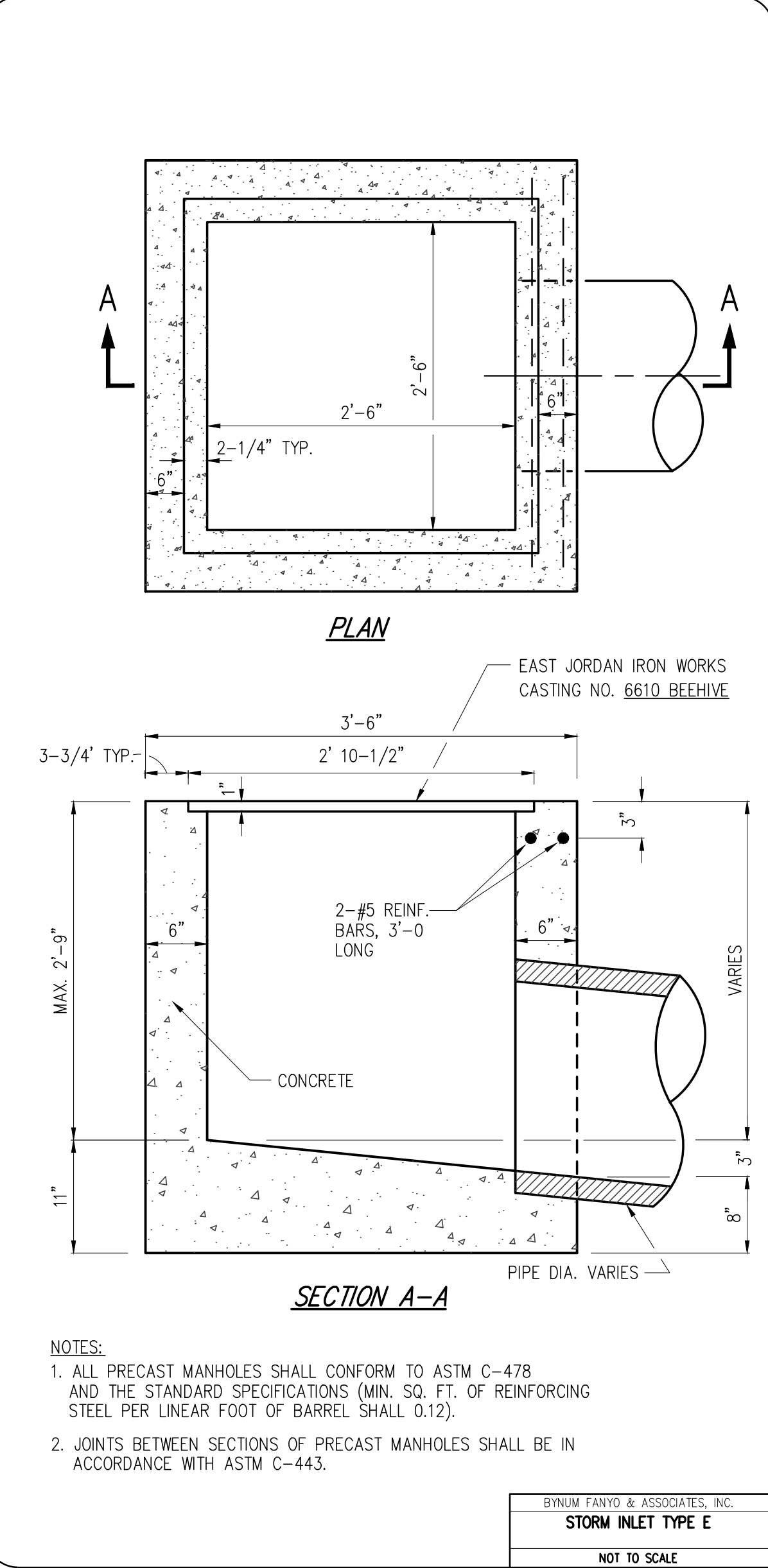
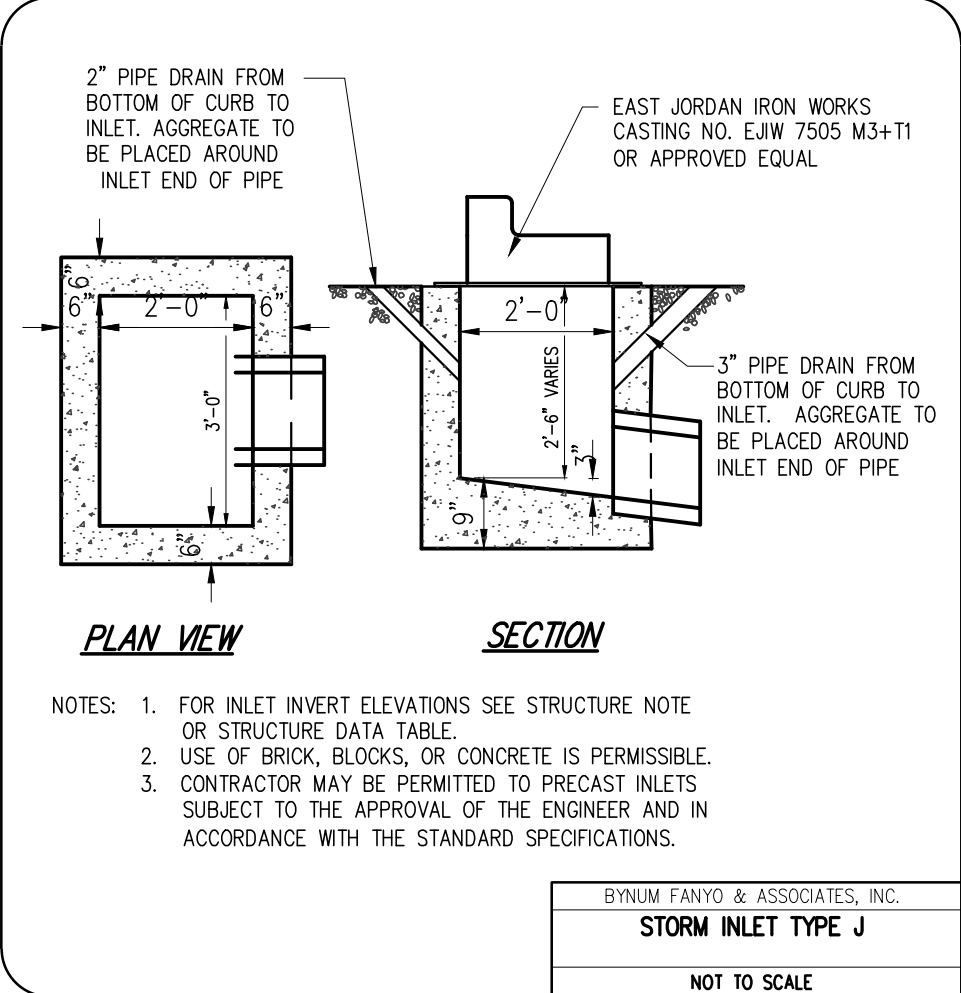
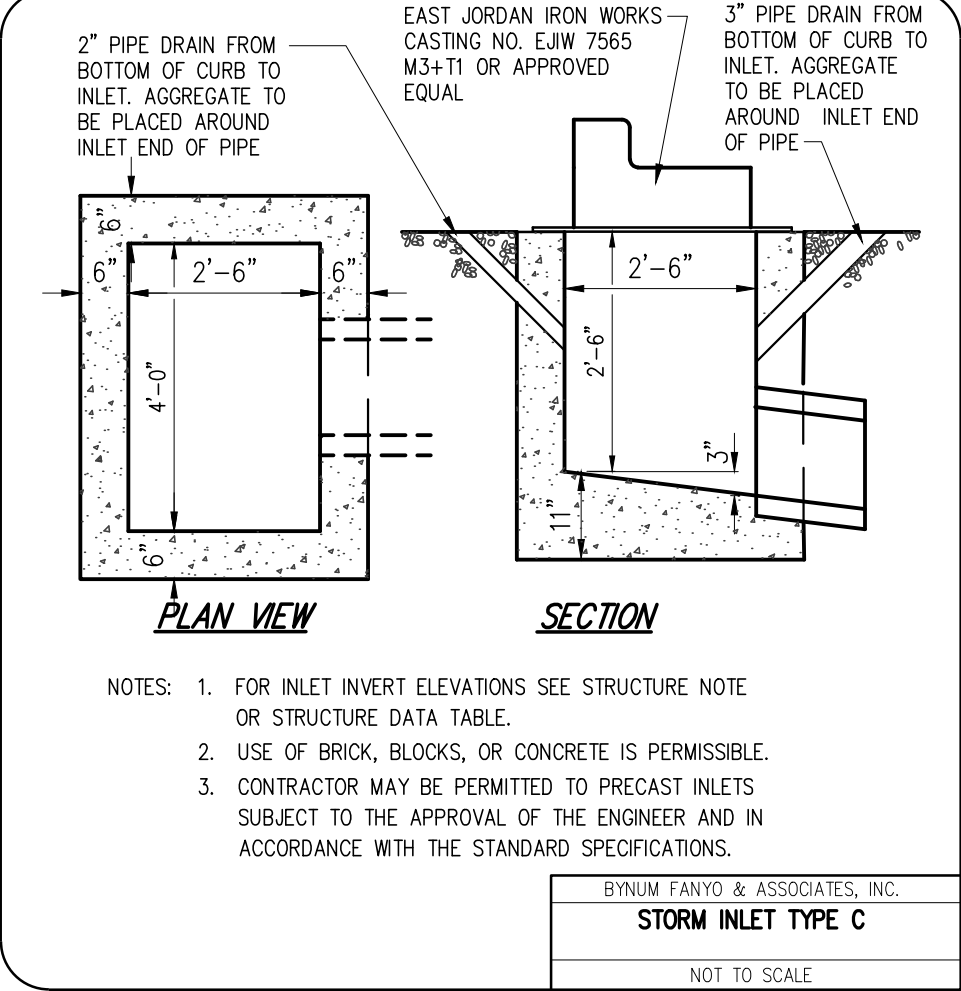
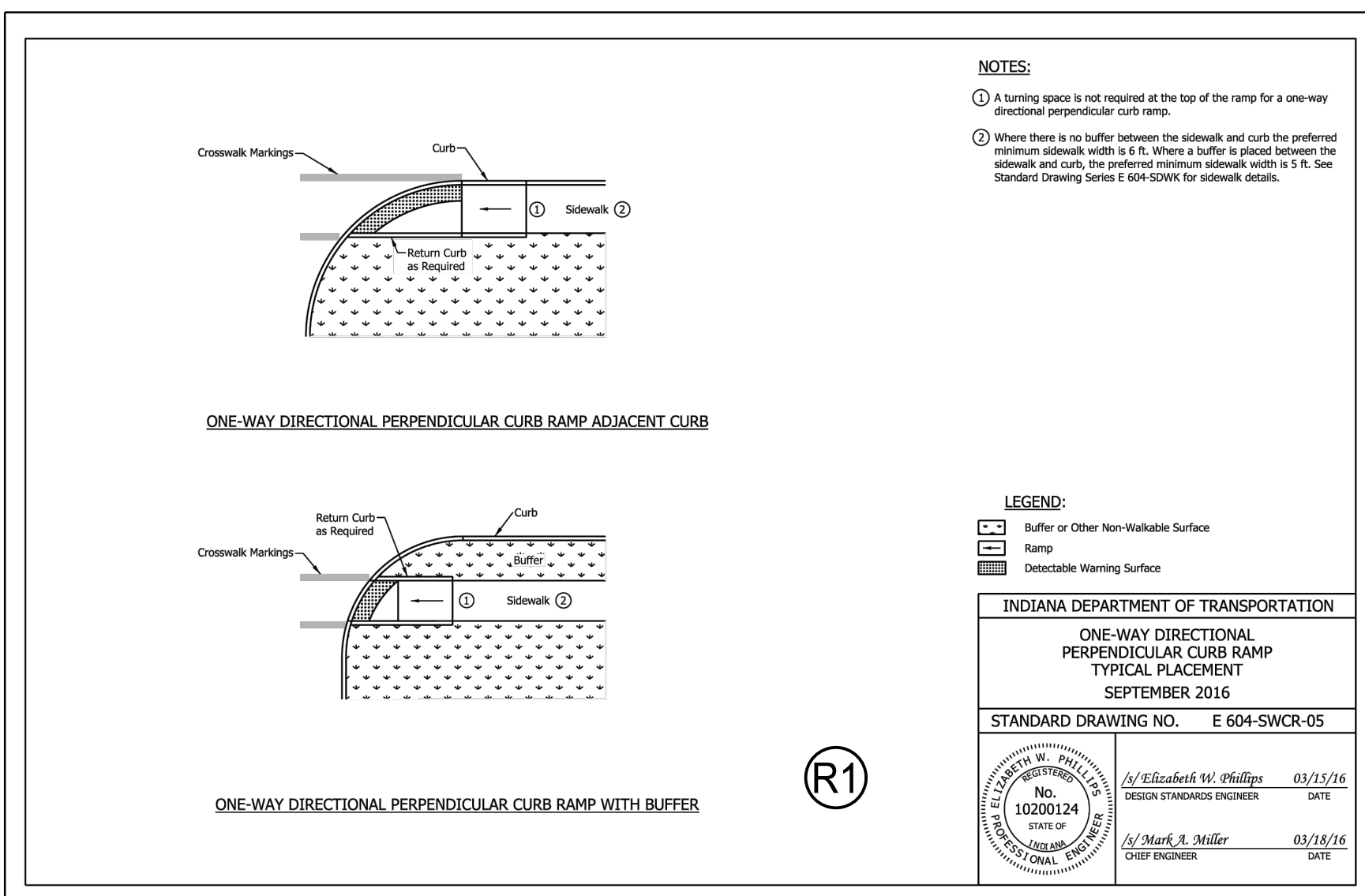
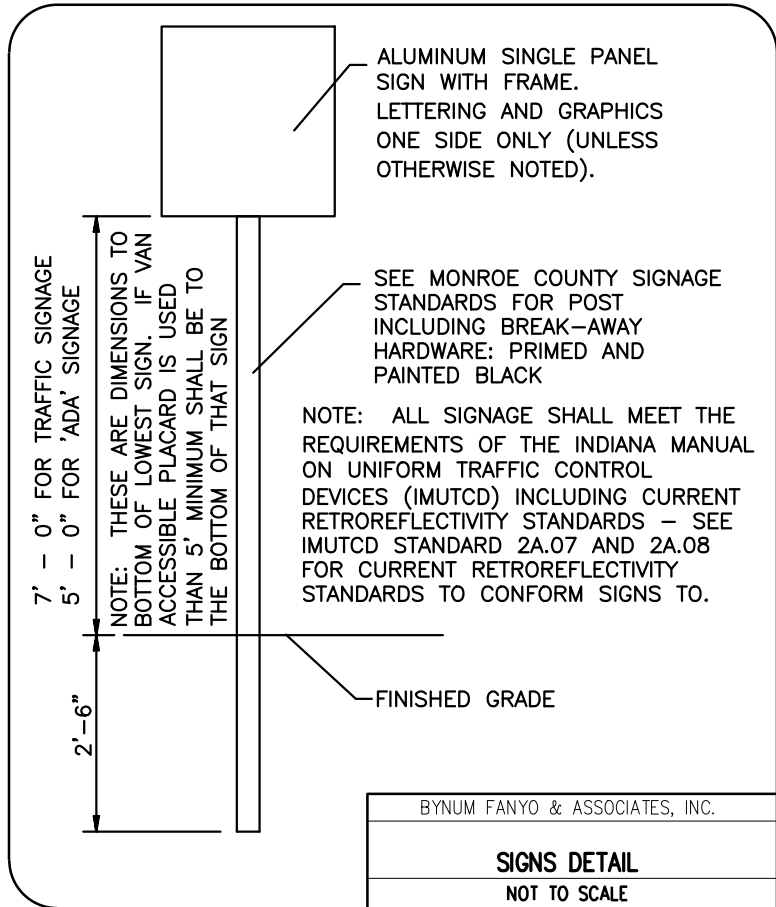
PROPOSED
HUNTER VALLEY ROAD EXTENSION
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON RD.

title: MISCELLANEOUS
DETAILS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C0 (2)
project no.: 402224

STORM STRUCTURE DATA TABLE											
STR. NO.	INLET / *CASTING	ROADWAY STATION	TOP OF CASTING @ FLOWLINE	PIPE LENGTH (FT)	PIPE SIZE (IN)	INVERT IN (NORTH)	INVERT IN (SOUTH)	INVERT IN (EAST)	INVERT IN (WEST)	INVERT OUT	COMMENTS
11	InDOT Type C / 7565	--	728.24	35	24	--	724.37	722.31	--	721.81	Dishcharge pipe shall daylight with metal end section and Rip-Rap at an elevation of 721.00. Refer to plan for location.
12	InDOT Type J / 7505	--	728.24	27	12	--	--	--	--	724.91	
13	Two (2) InDOT Type C / 7565	--	727.43	73	18	--	723.56	723.31	--	723.06	18" pipe between the inlets at an elevation of 723.06.
14	Two (2) InDOT Type C / 7565	--	727.43	27	12	--	--	--	--	724.10	12" pipe between the inlets at an elevation of 724.10.
15	InDOT Type J / 7505	--	729.35	118	15	--	725.48	724.90	--	724.65	
16	InDOT Type J / 7505	--	729.35	27	12	--	--	--	--	726.02	
17	InDOT Type J / 7505	--	747.68	272	12	--	743.81	743.81	--	740.75	
18	InDOT Type J / 7505	--	747.68	27	12	--	--	--	--	744.35	
19	InDOT Type J / 7505	--	770.63	279	12	--	766.76	--	--	766.76	
20	InDOT Type J / 7505	--	770.63	27	12	--	--	--	--	767.30	
21	InDOT Type J / 7505	--	731.27	19	12	--	727.73	--	--	727.73	Dishcharge pipe shall daylight with metal end section and Rip-Rap at an elevation of 727.00. Refer to plan for location.
22	InDOT Type J / 7505	--	731.27	27	12	--	--	--	--	728.27	
23	InDOT Type C / 7565	--	786.91	36	24	783.04	--	782.02	--	782.04	Dishcharge pipe shall daylight with metal end section and Rip-Rap at an elevation of 781.50. Refer to plan for location.
24	InDOT Type C / 7505	--	786.91	27	12	--	--	--	--	783.58	
25	InDOT Type C / 7565	--	789.09	171	24	784.25	--	--	--	783.75	
26	InDOT Type C / 7565	--	789.09	27	18	--	--	785.04	--	784.79	
27	InDOT Type C / 7565	--	794.94	173	15	--	--	790.00	--	790.00	
28	InDOT Type E / 6610 Beehive	--	798.00	78	15	--	--	795.00	--	794.75	
29	InDOT Type E / 6610 Beehive	--	803.50	83	12	--	800.86	--	--	800.86	
30	InDOT Type C / 7565	--	804.39	20	12	--	--	--	--	801.06	

* All castings are to be by East Jordan Co. NOTE: ALL STORM PIPE SHALL BE REINFORCED CONCRETE PIPE



revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

BYNUM FANYO & ASSOCIATES, INC.

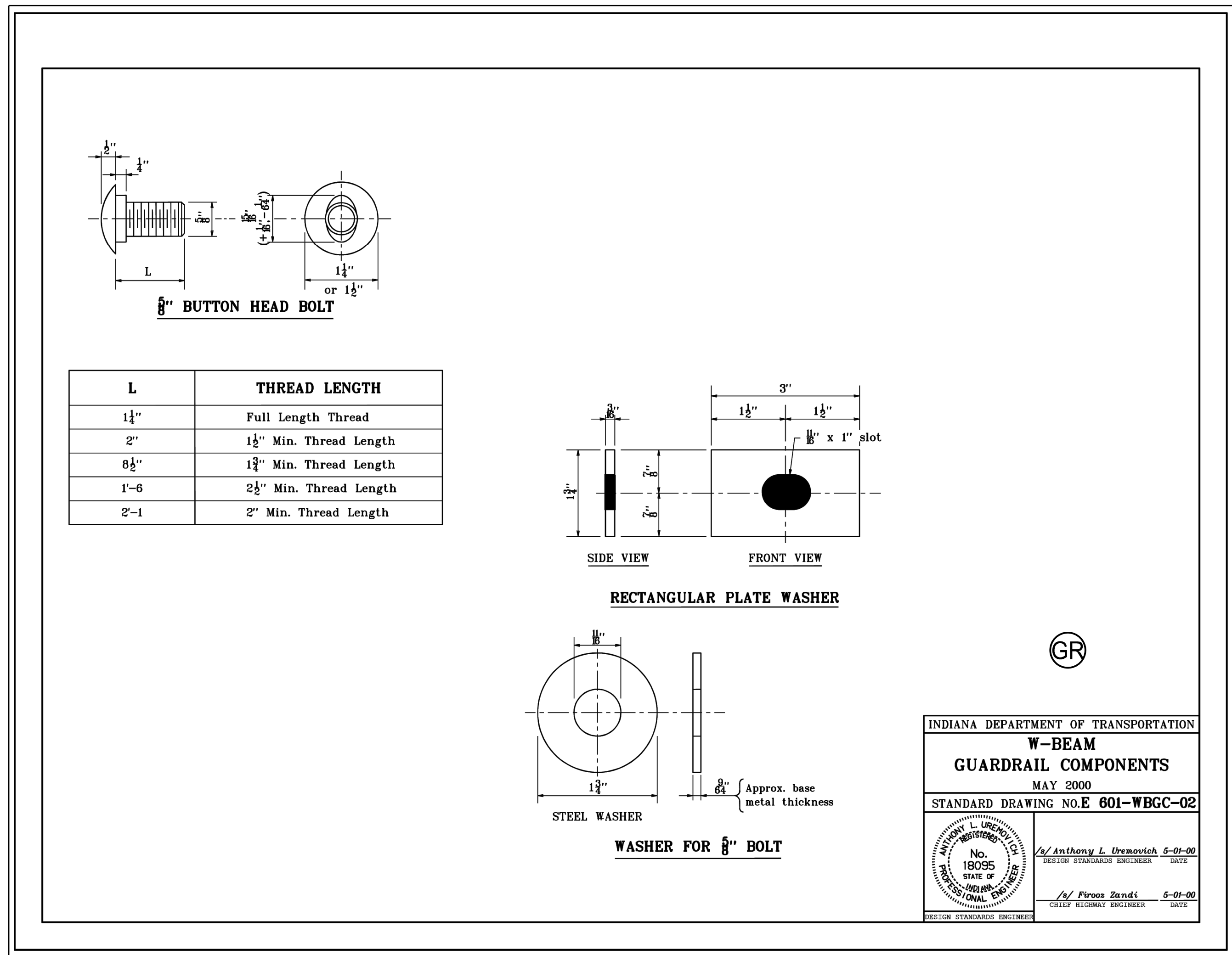
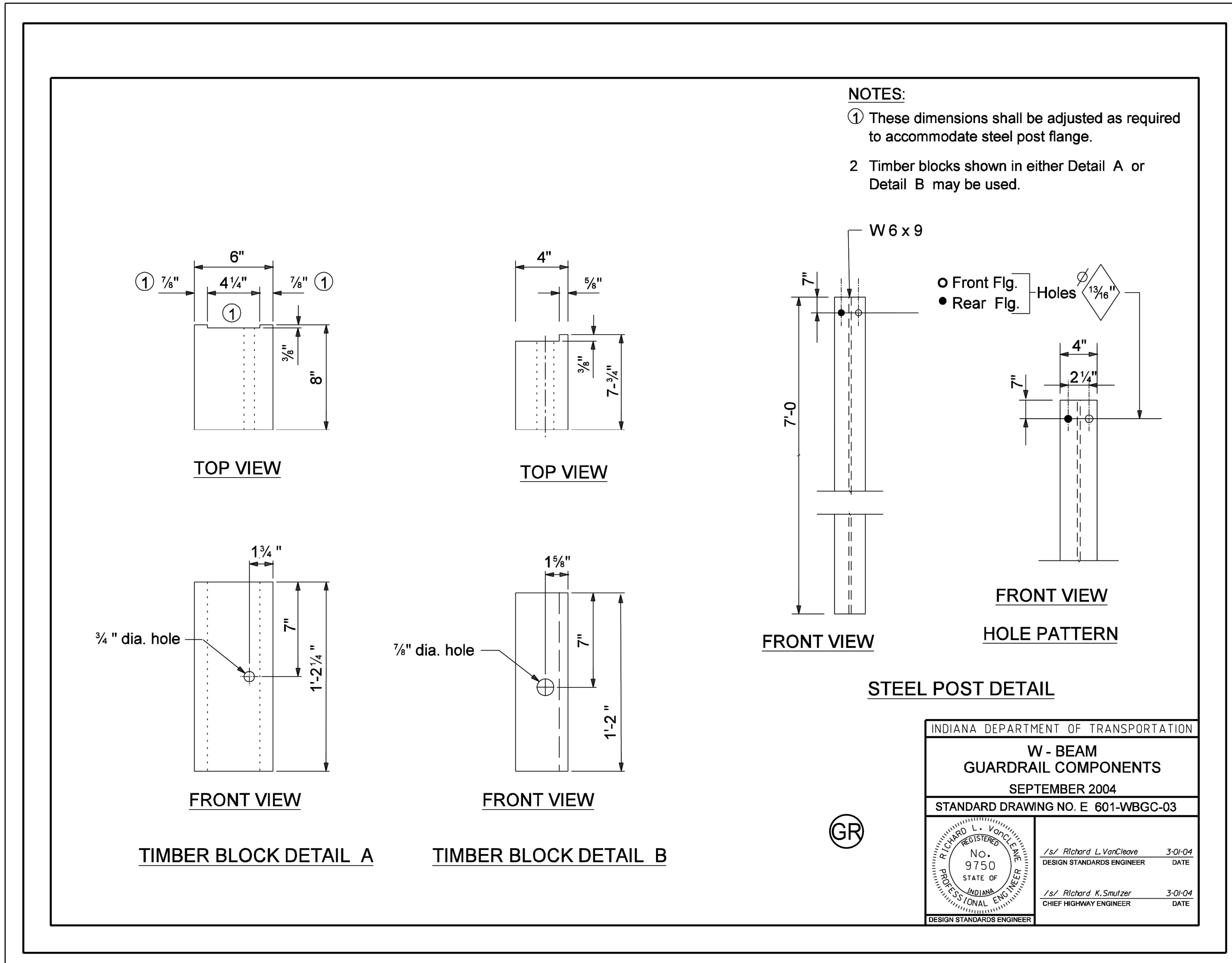
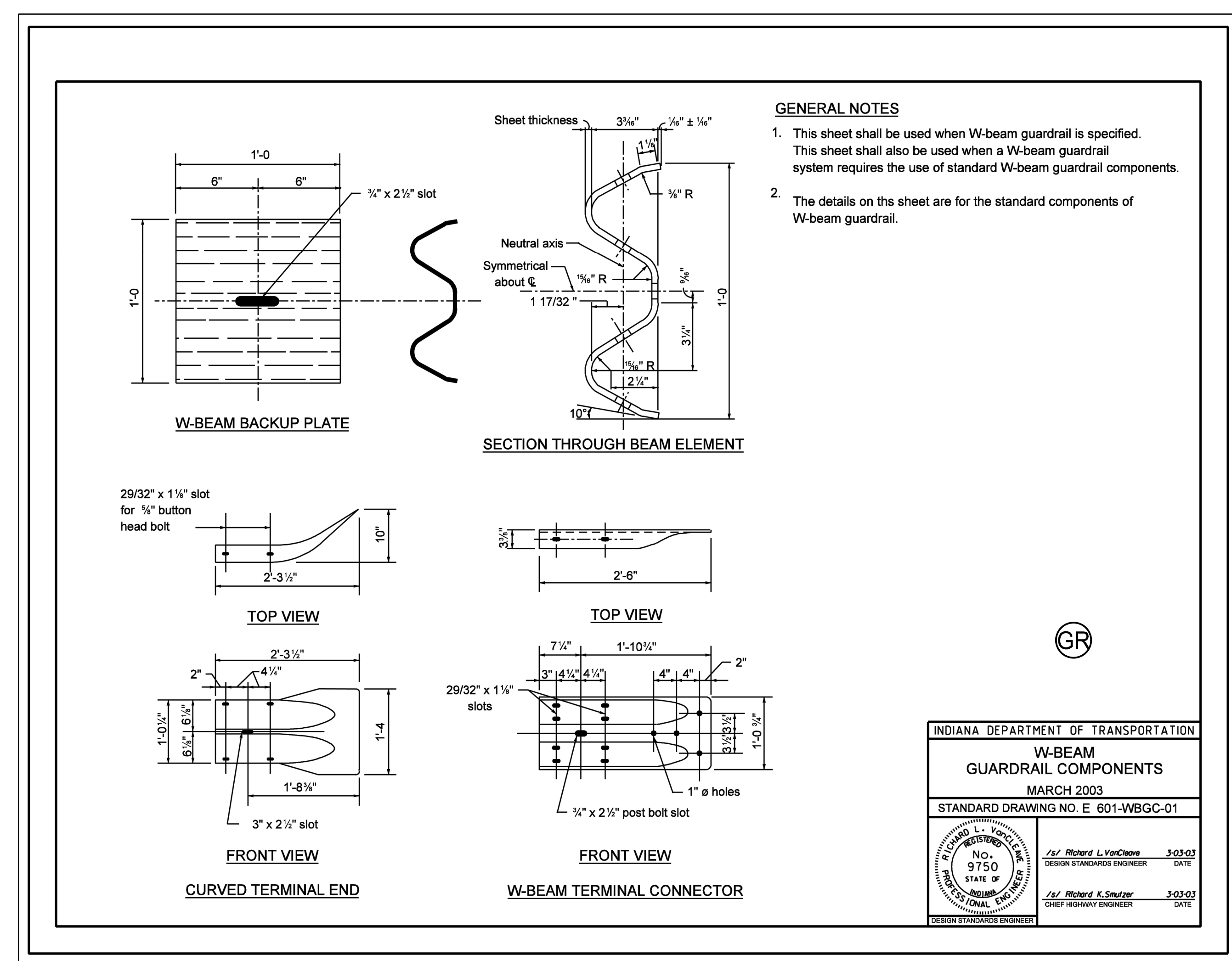
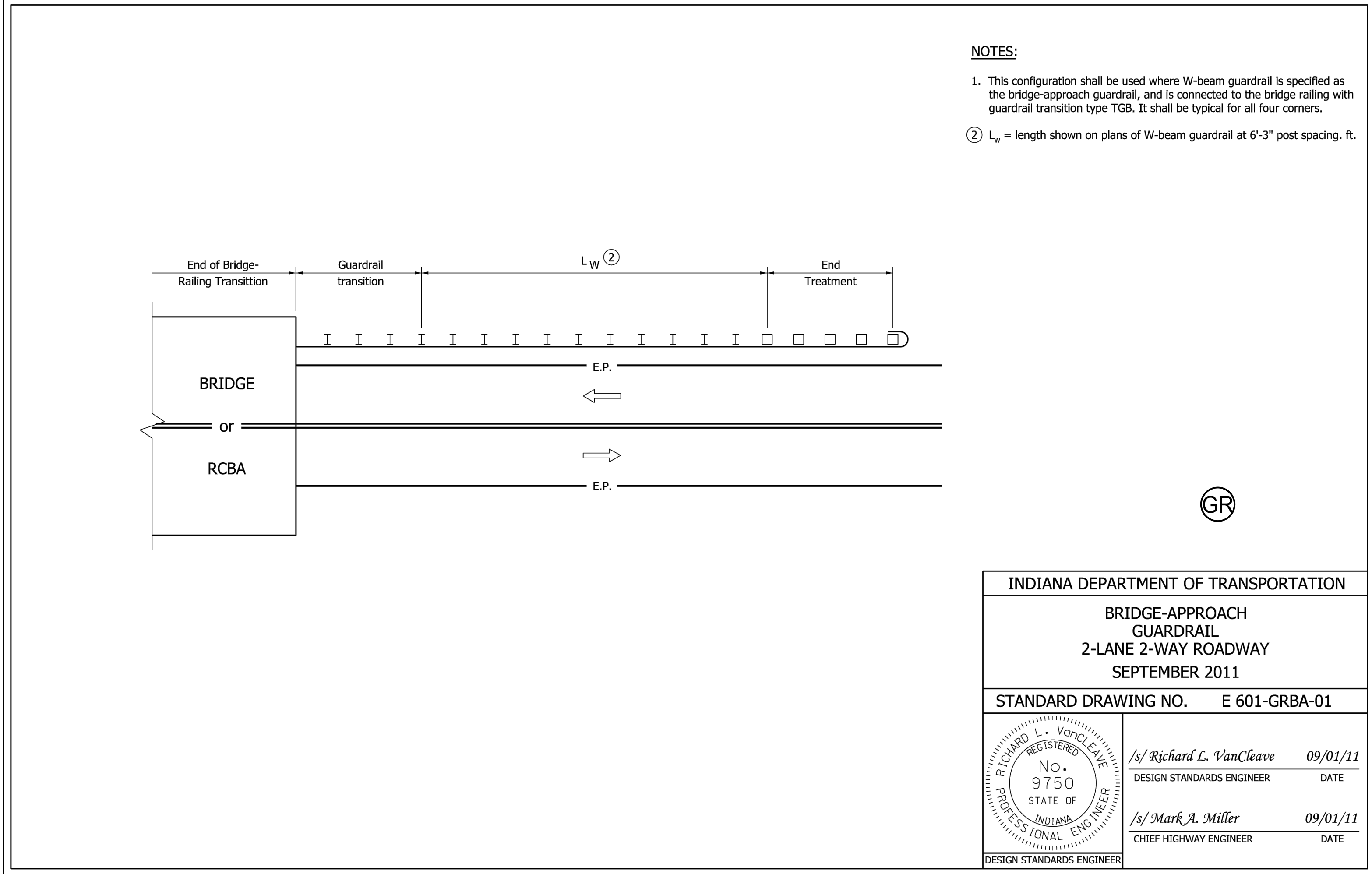
528 north walnut street
(812) 332-8030

bloomington, indiana
(812) 339-2990 (Fax)

certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C0 (3)
project no.: 402224



revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

BYNUM FANYO & ASSOCIATES, INC.

bloomington, indiana
(812) 339-2990 (Fax)

528 north walnut street
(812) 332-8030

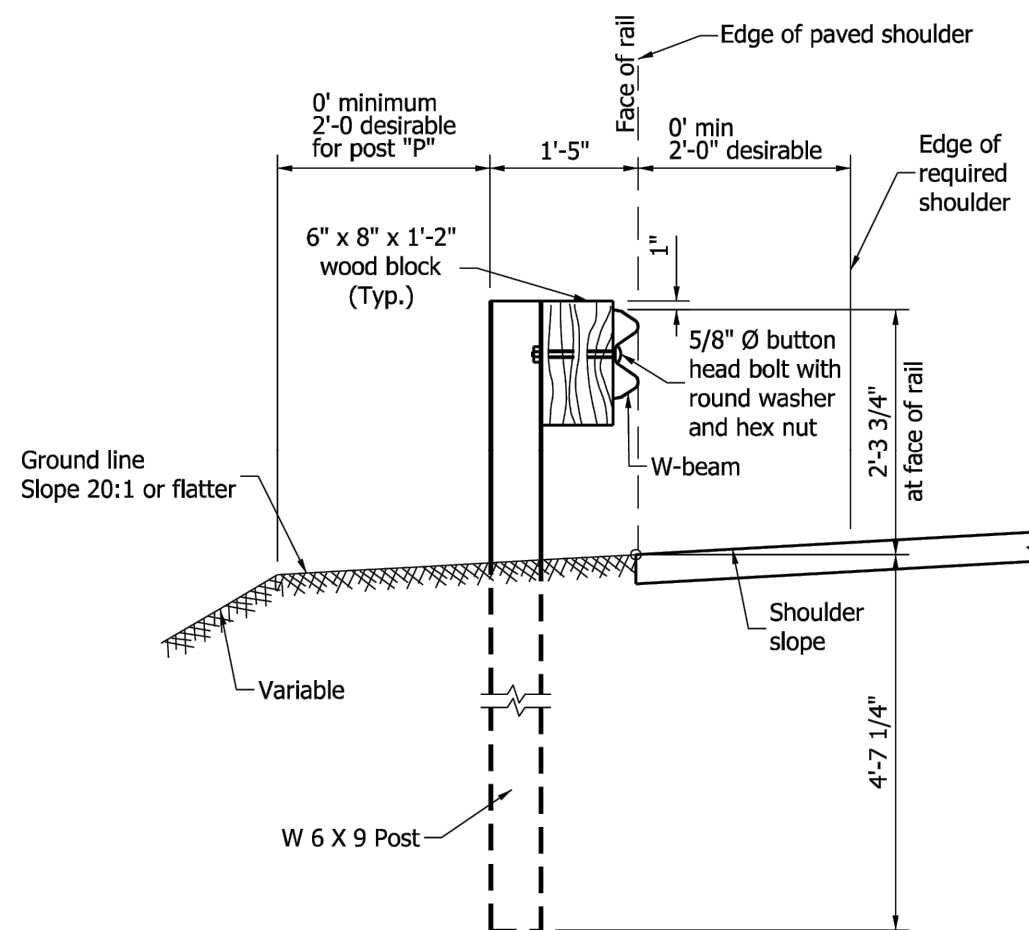
01.04.23

certified by:

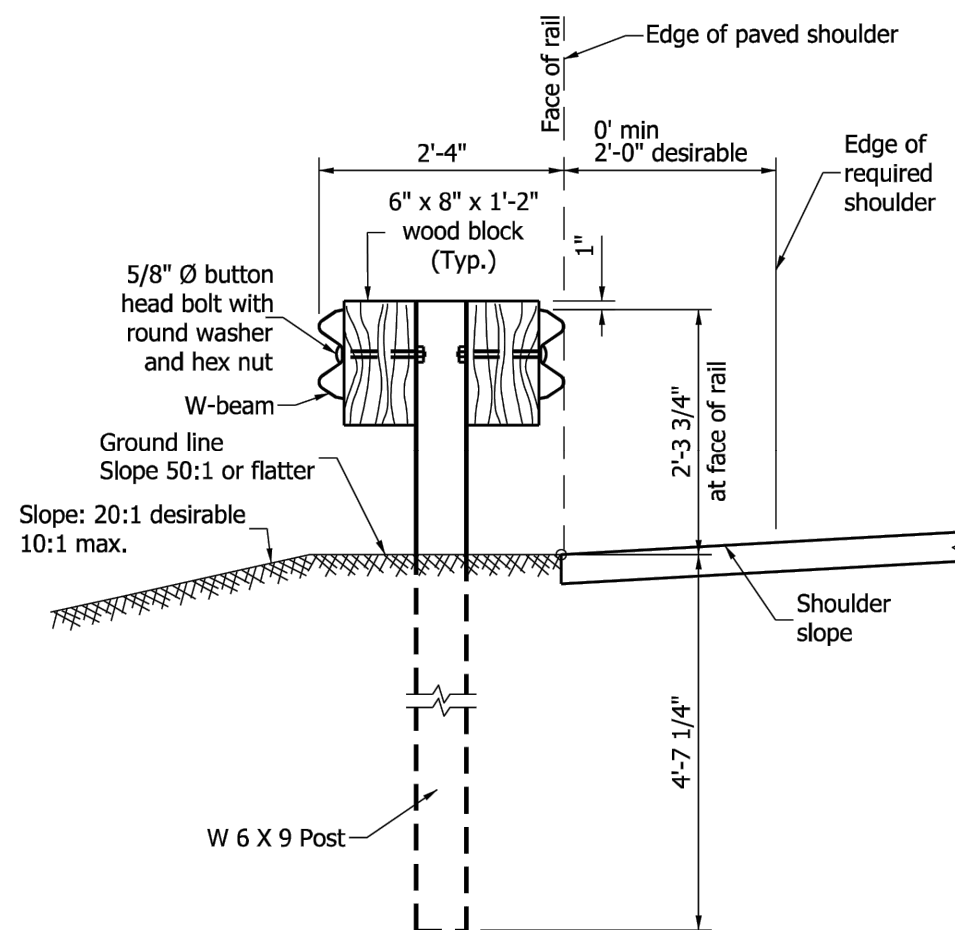
PROPOSED
HUNTER VALLEY ROAD EXTENSION
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: GUARDRAIL
DETAILS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C0 (4)
project no.: 402224



TYPICAL W-BEAM INSTALLATION



TYPICAL DOUBLE FACED W-BEAM INSTALLATION

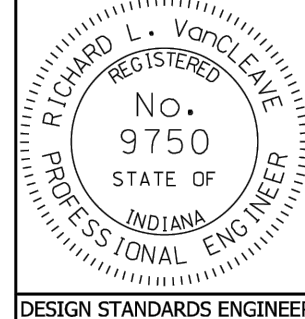
GR

INDIANA DEPARTMENT OF TRANSPORTATION

W-BEAM
GUARDRAIL ASSEMBLIES

SEPTEMBER 2011

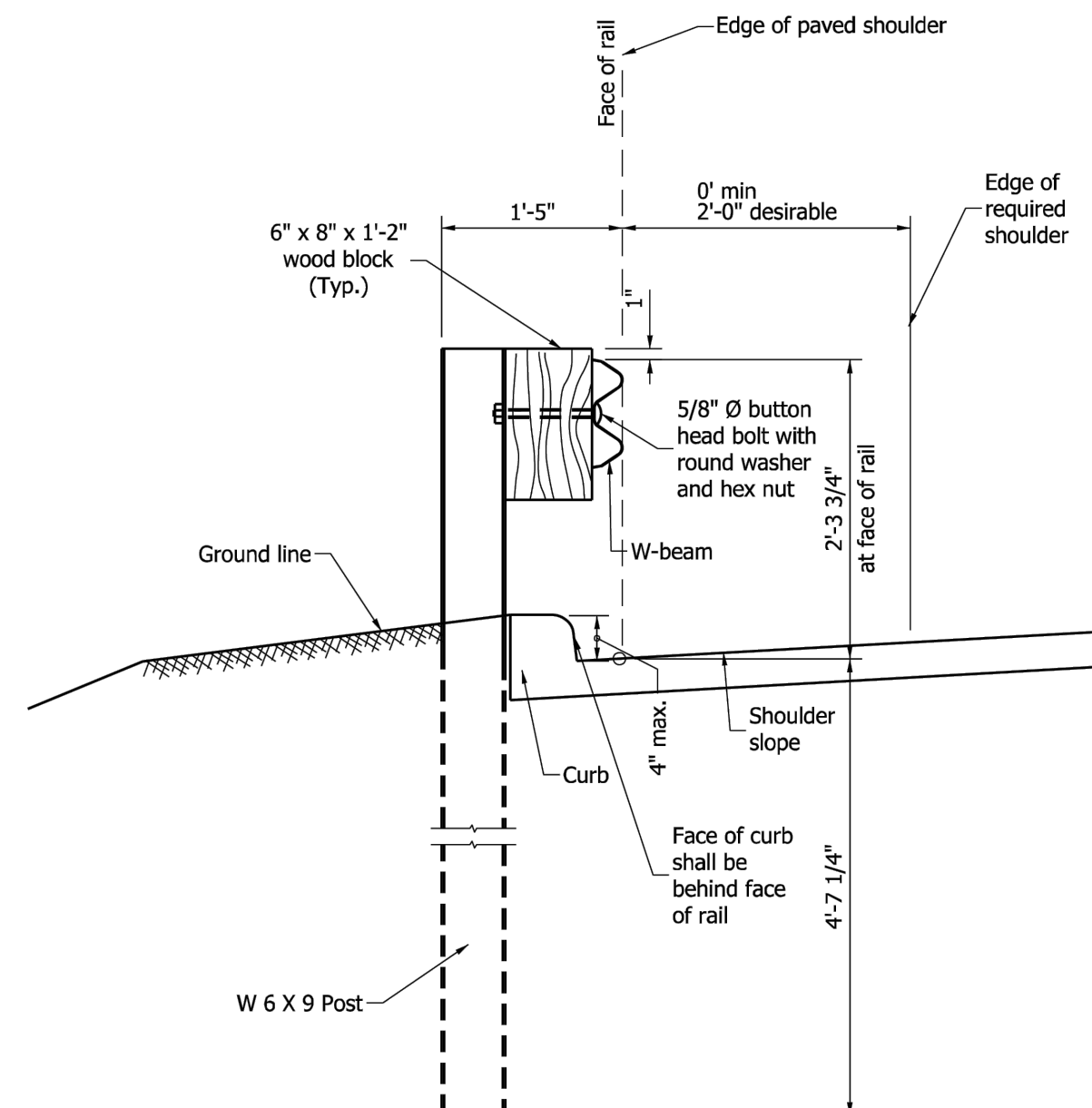
STANDARD DRAWING NO. E 601-WBGA-01



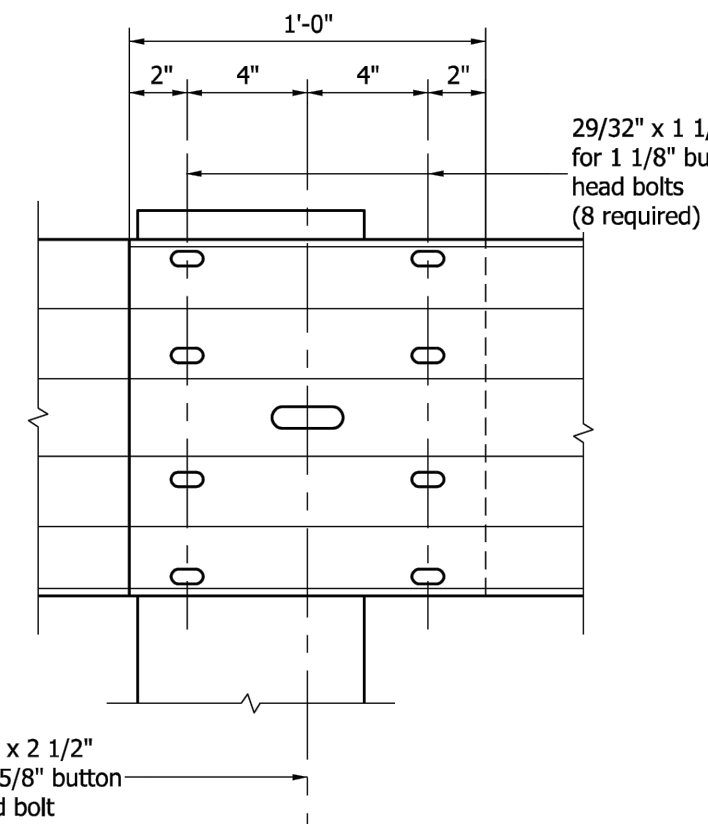
/s/ Richard L. VanCleave 09/01/11
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 09/01/11
CHIEF HIGHWAY ENGINEER DATE

DESIGN STANDARDS ENGINEER



TYPICAL W-BEAM INSTALLATION AT CURB



STEEL W-BEAM SPLICE DETAIL

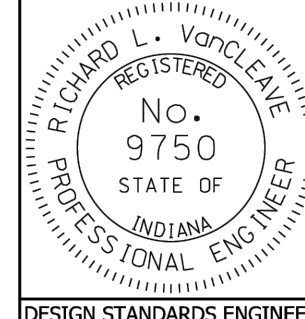
GR

INDIANA DEPARTMENT OF TRANSPORTATION

W-BEAM
GUARDRAIL ASSEMBLIES

SEPTEMBER 2011

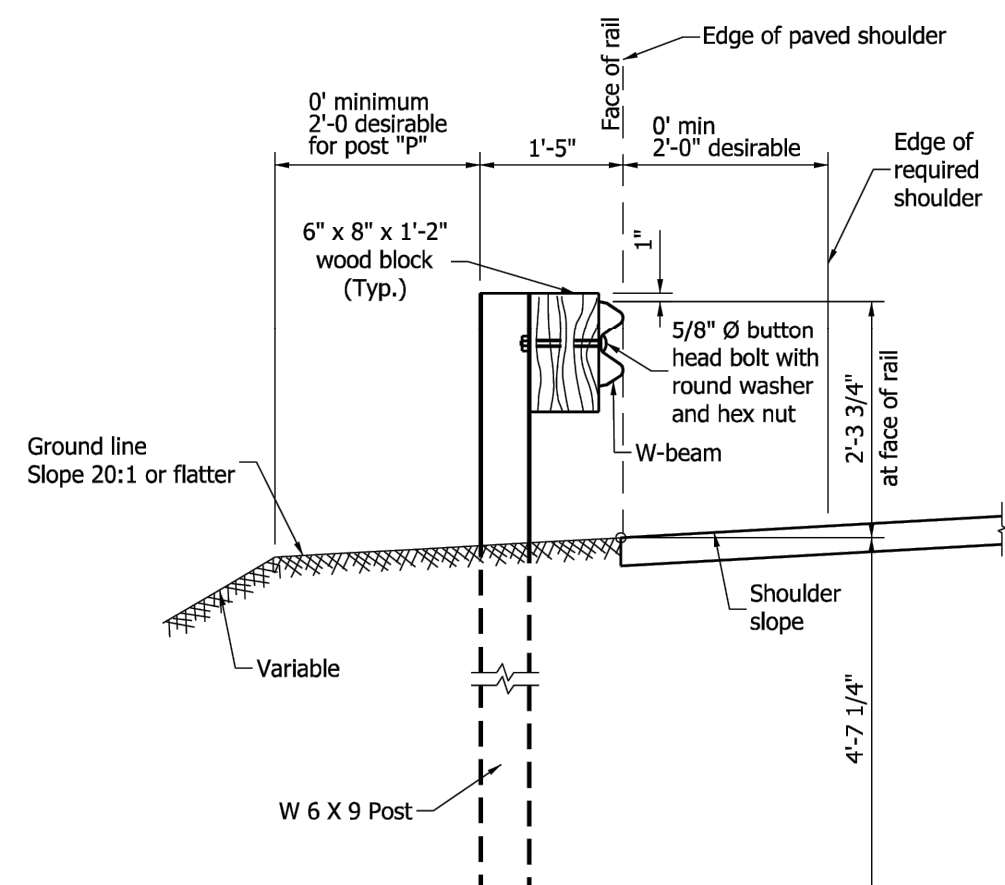
STANDARD DRAWING NO. E 601-WBGA-02



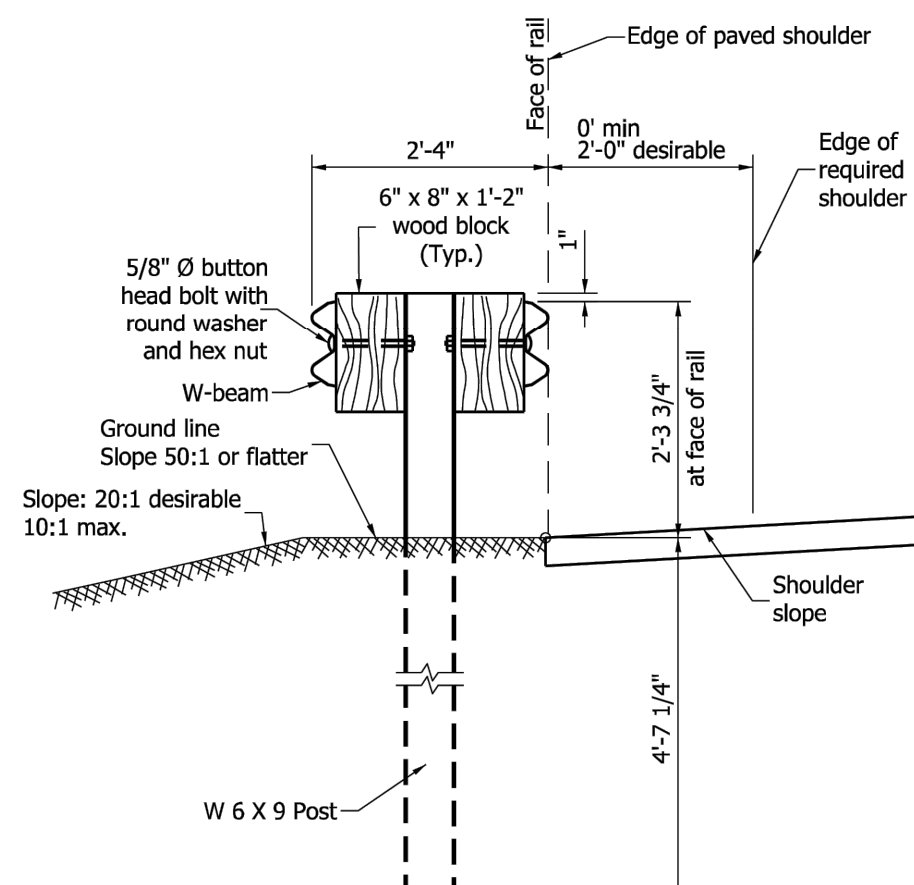
/s/ Richard L. VanCleave 09/01/11
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 09/01/11
CHIEF HIGHWAY ENGINEER DATE

DESIGN STANDARDS ENGINEER



TYPICAL W-BEAM INSTALLATION



TYPICAL DOUBLE FACED W-BEAM INSTALLATION

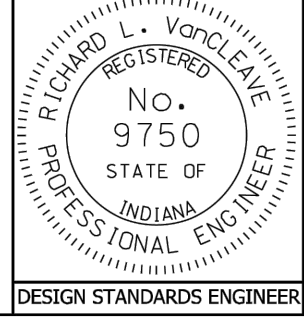
GR

INDIANA DEPARTMENT OF TRANSPORTATION

W-BEAM
GUARDRAIL ASSEMBLIES

SEPTEMBER 2011

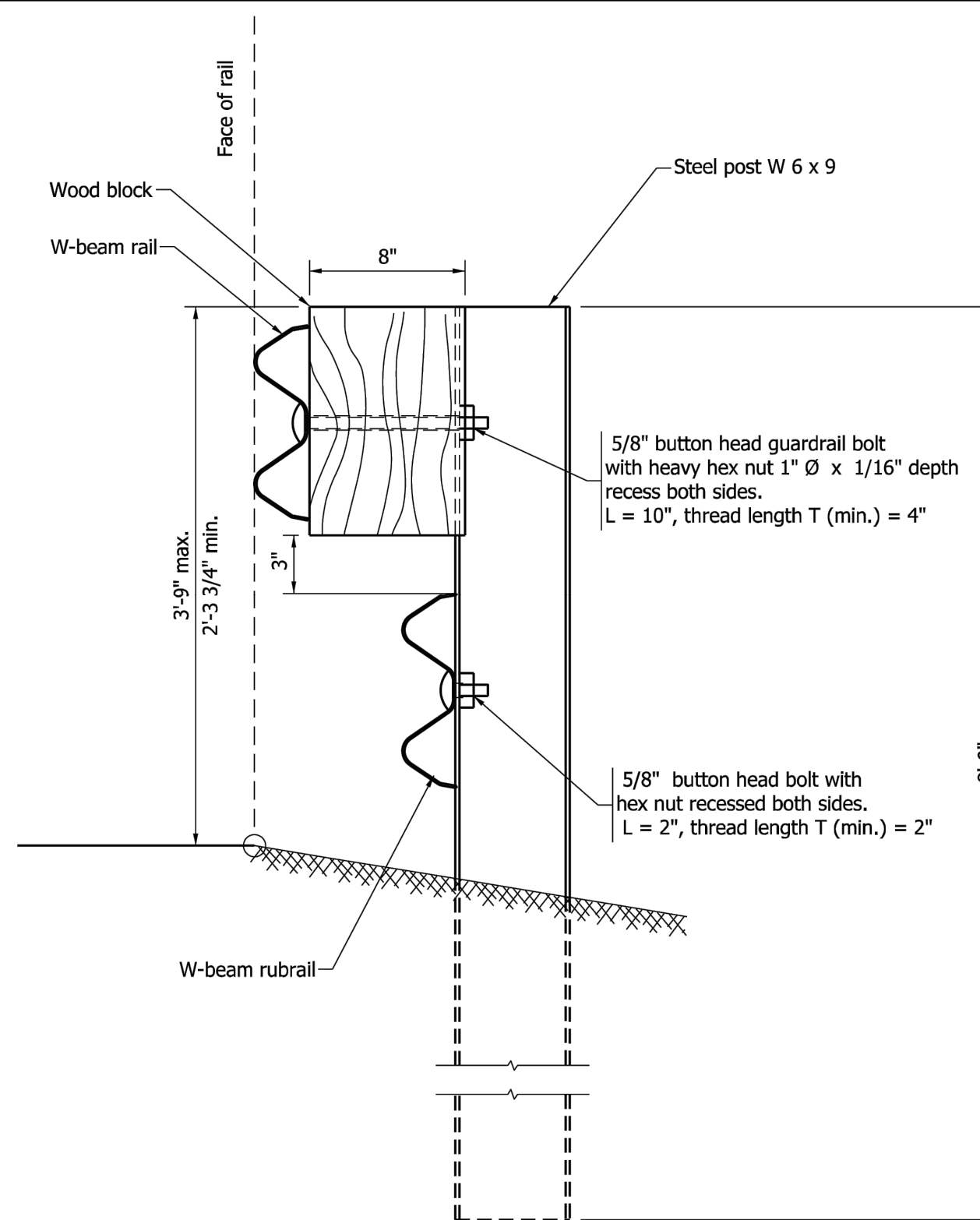
STANDARD DRAWING NO. E 601-WBGA-01



/s/ Richard L. VanCleave 09/01/11
DESIGN STANDARDS ENGINEER DATE

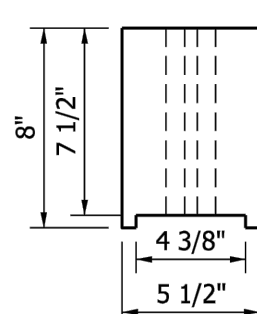
/s/ Mark A. Miller 09/01/11
CHIEF HIGHWAY ENGINEER DATE

DESIGN STANDARDS ENGINEER

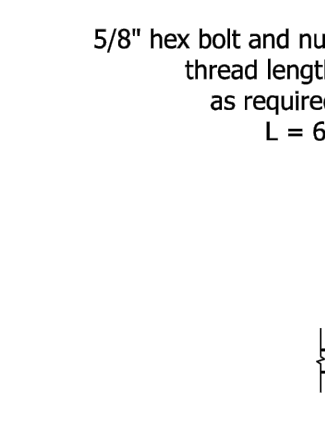
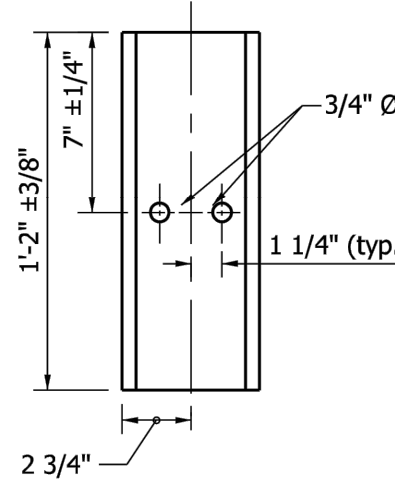


ELEVATION

STEEL POST AND WOOD BLOCK DETAIL
FOR W-BEAM GUARDRAIL



WOOD BLOCK



RUBRAIL TERMINATION DETAIL

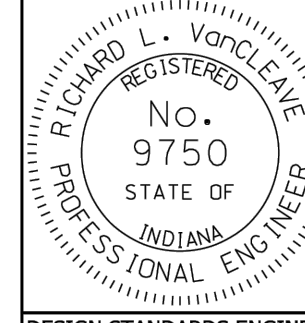
GR

INDIANA DEPARTMENT OF TRANSPORTATION

WR-BEAM GUARDRAIL

SEPTEMBER 2011

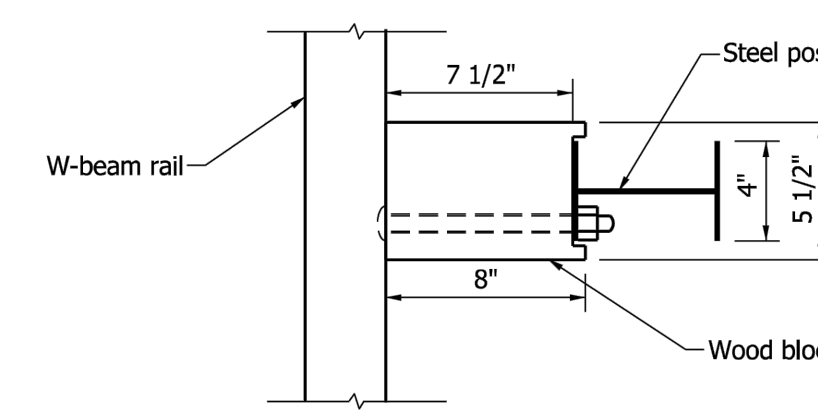
STANDARD DRAWING NO. E 601-WBGA-06



/s/ Richard L. VanCleave 09/01/11
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 09/01/11
CHIEF HIGHWAY ENGINEER DATE

DESIGN STANDARDS ENGINEER



PLAN

NOTE:

1. All posts shall be 8'-0" length and spaced at 6'-3".

revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

BYNUM FANYO & ASSOCIATES, INC.

Bloomington, Indiana
(812) 339-2990 (Fax)

528 north walnut street
(812) 332-8030

01.04.23

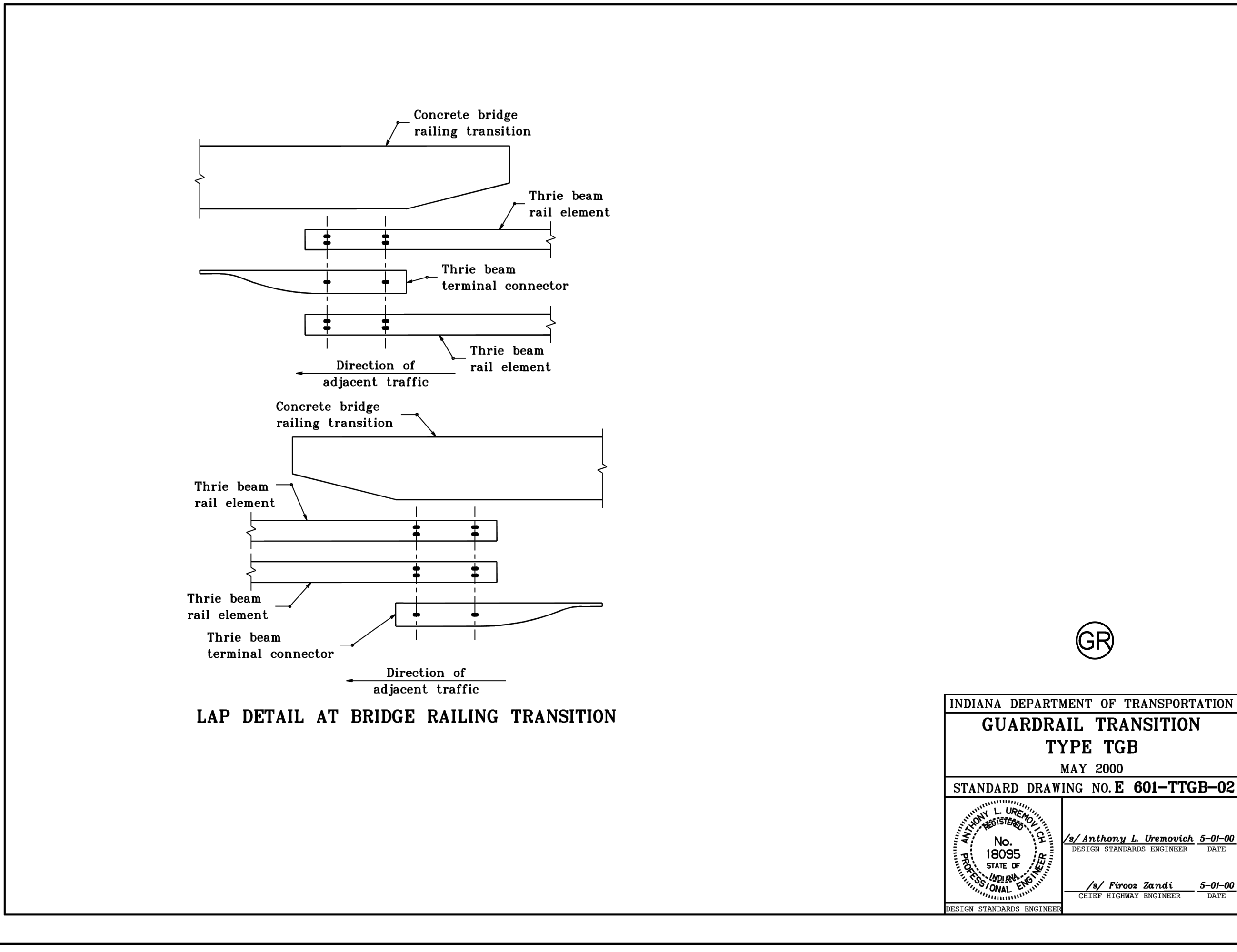
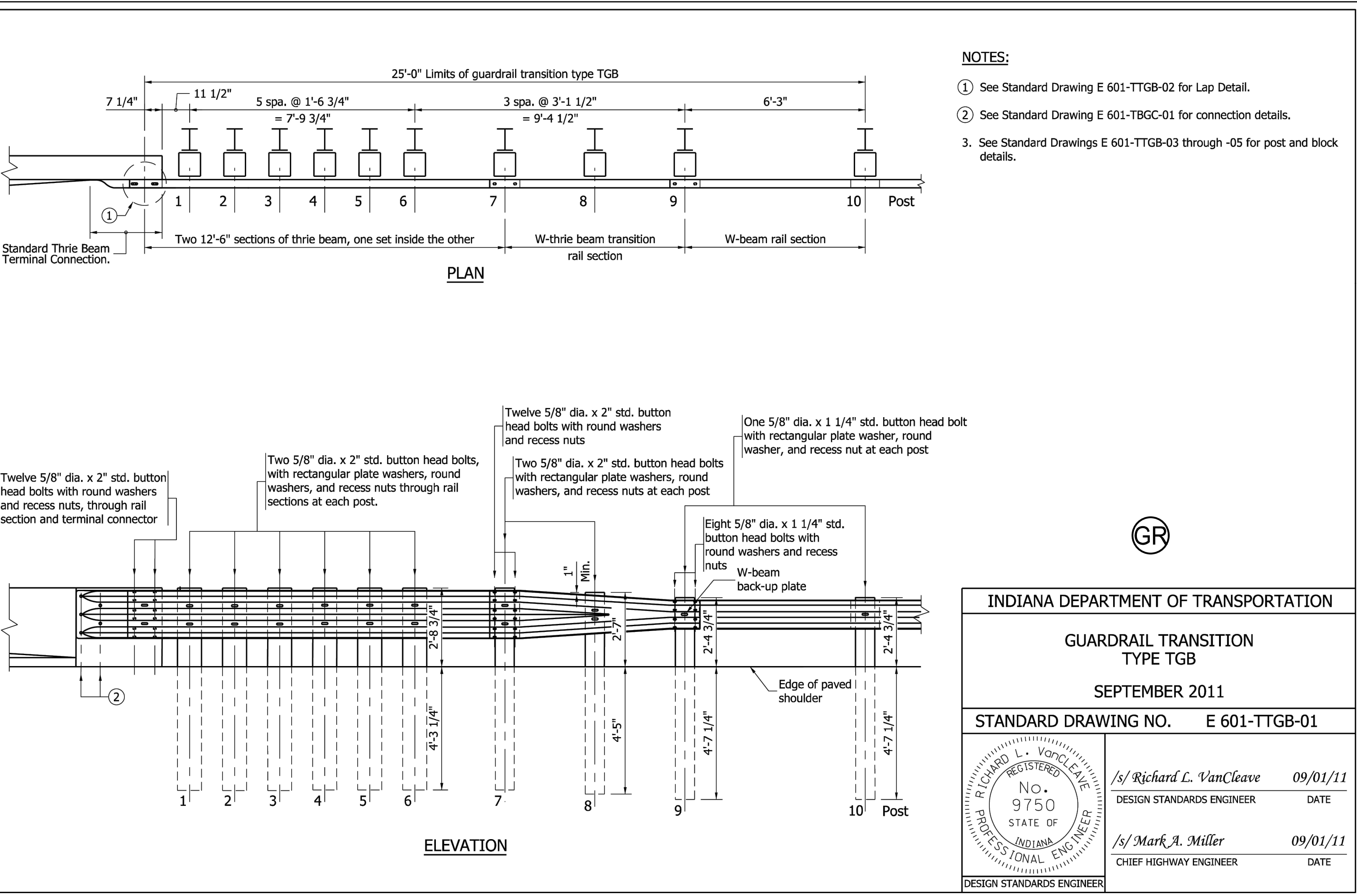
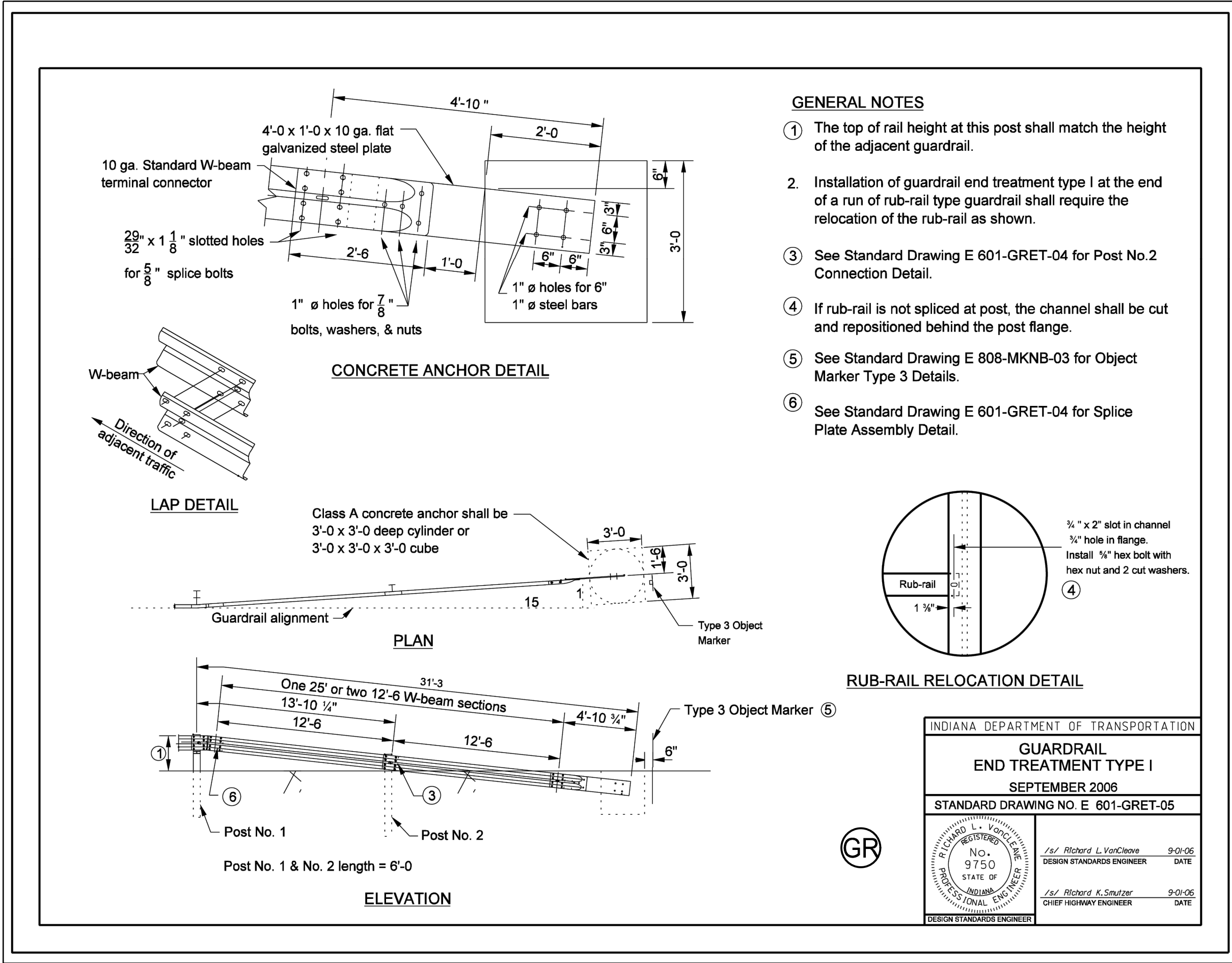
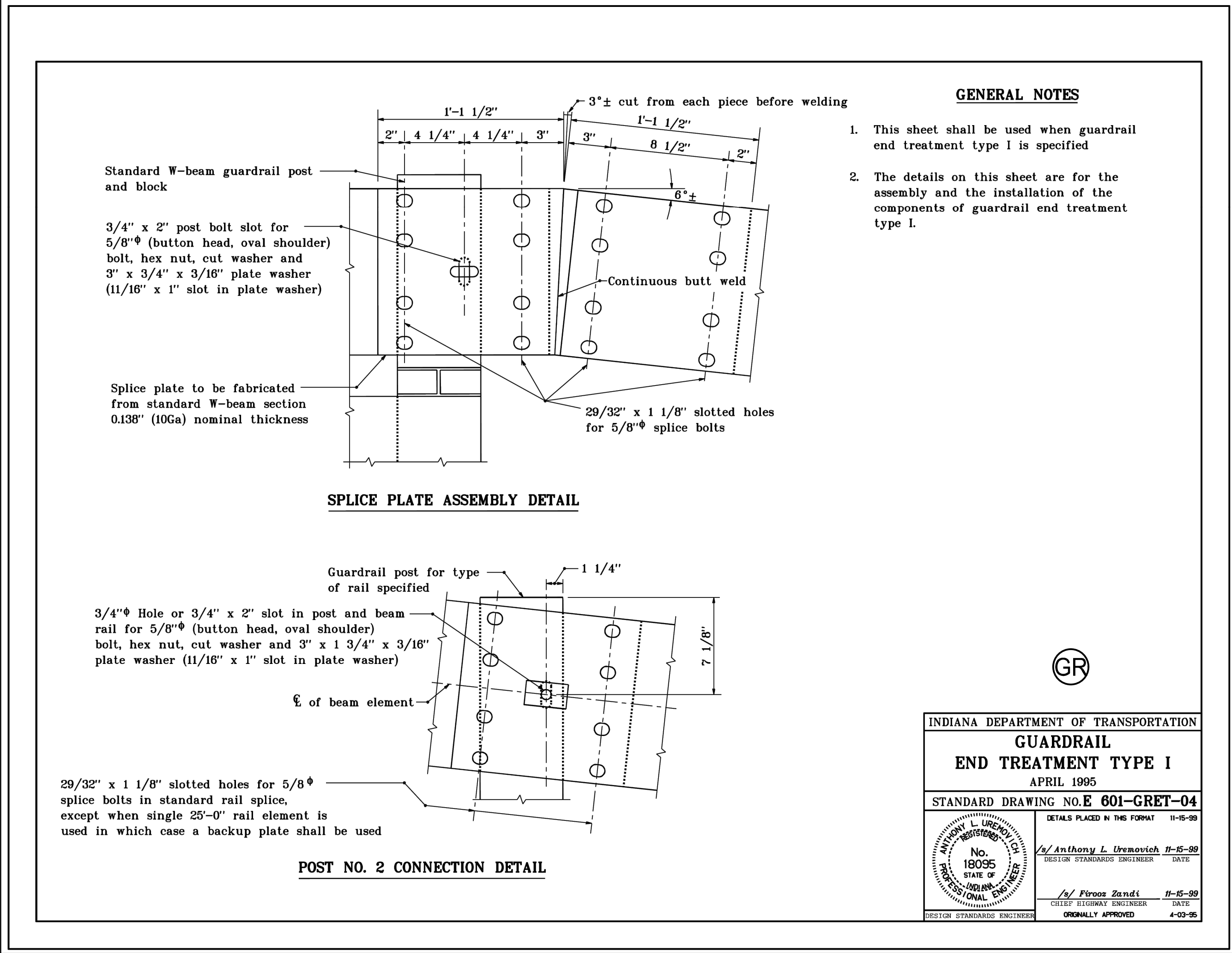
certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION

W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: GUARDRAIL
DETAILS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C0 (5)
project no.: 402224



revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

BYNUM FANYO & ASSOCIATES, INC.

Bloomington, Indiana
(812) 339-2990 (Fax)

528 north walnut street
(812) 332-8030

01.04.23

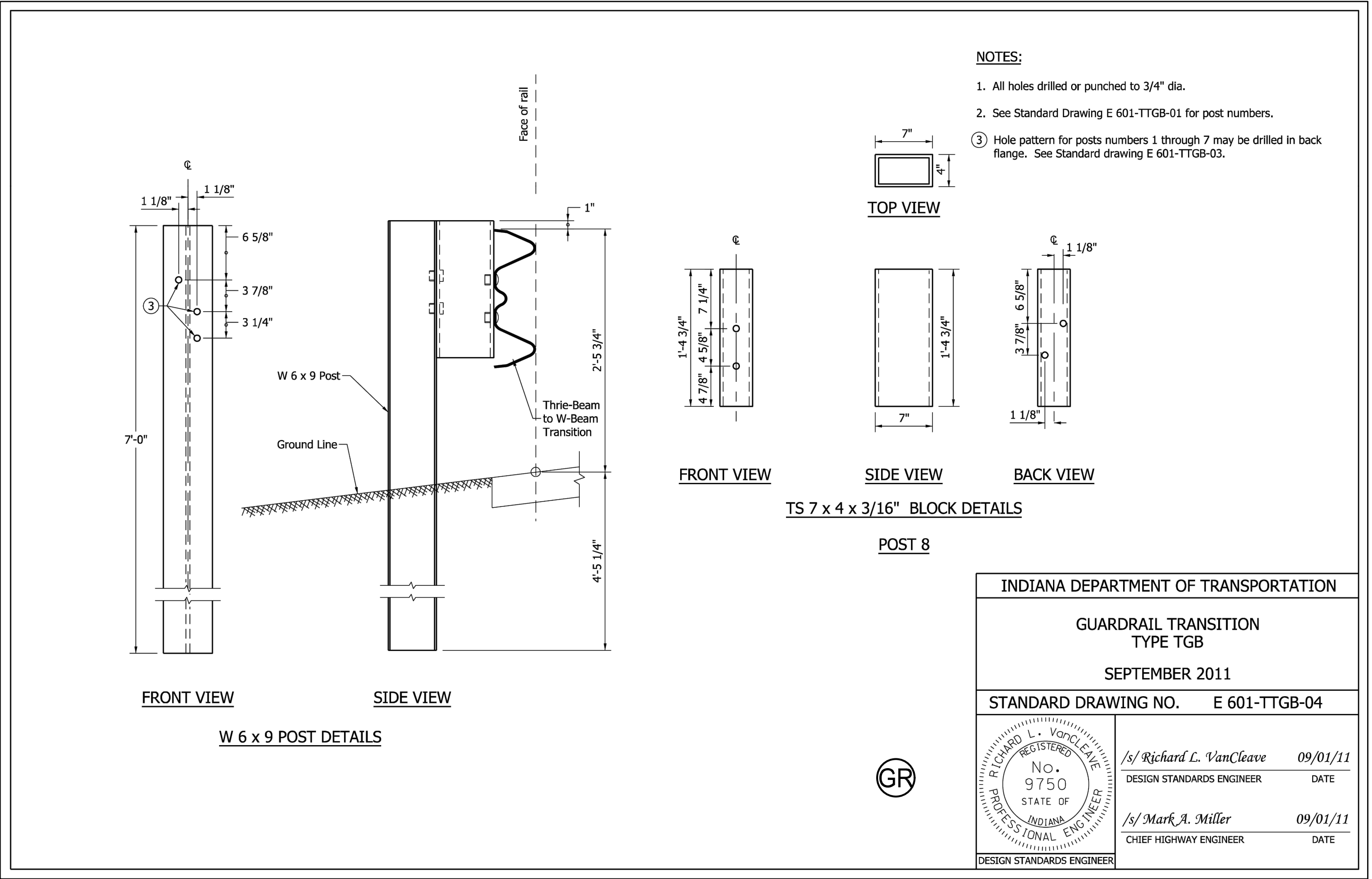
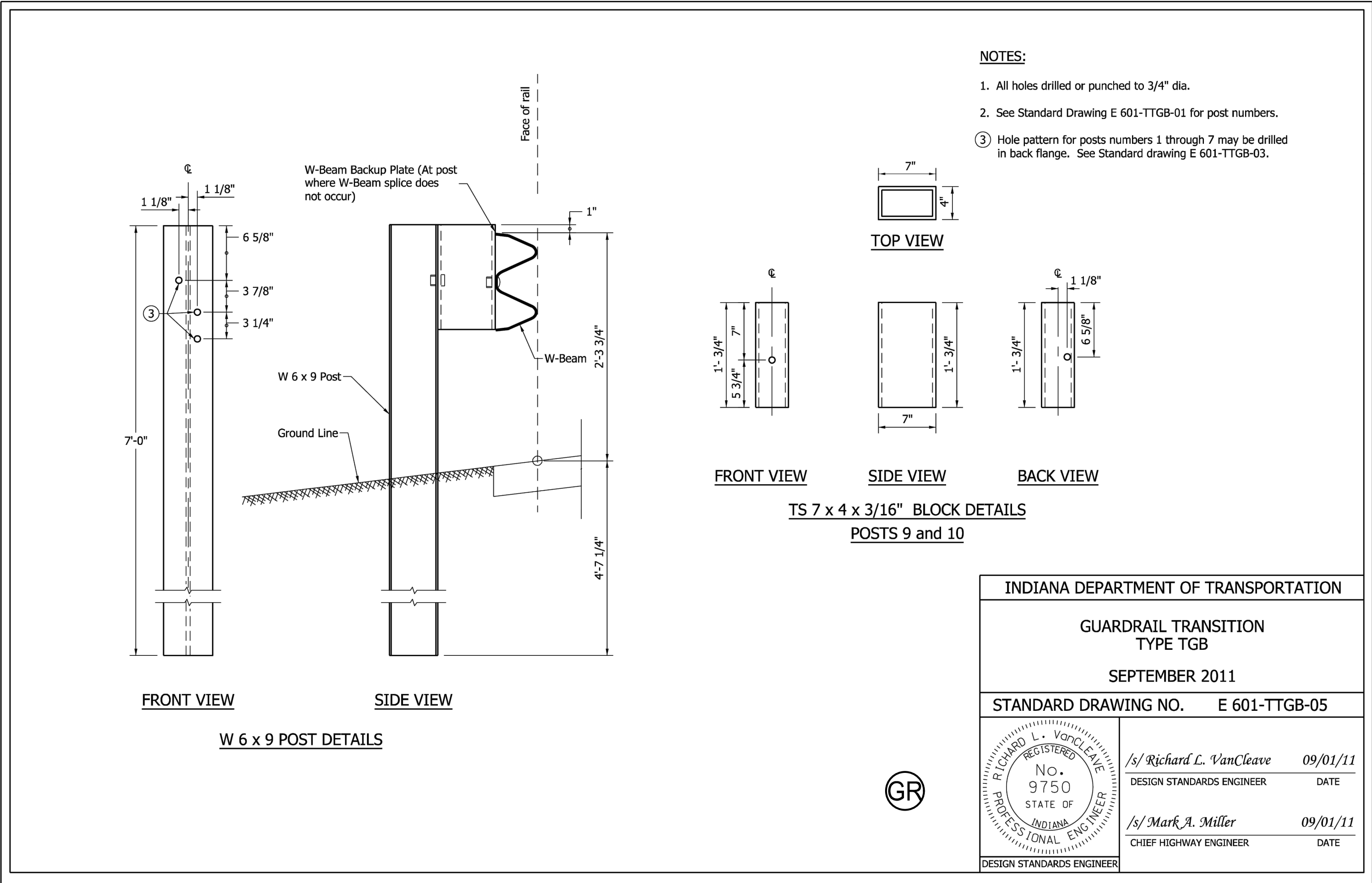
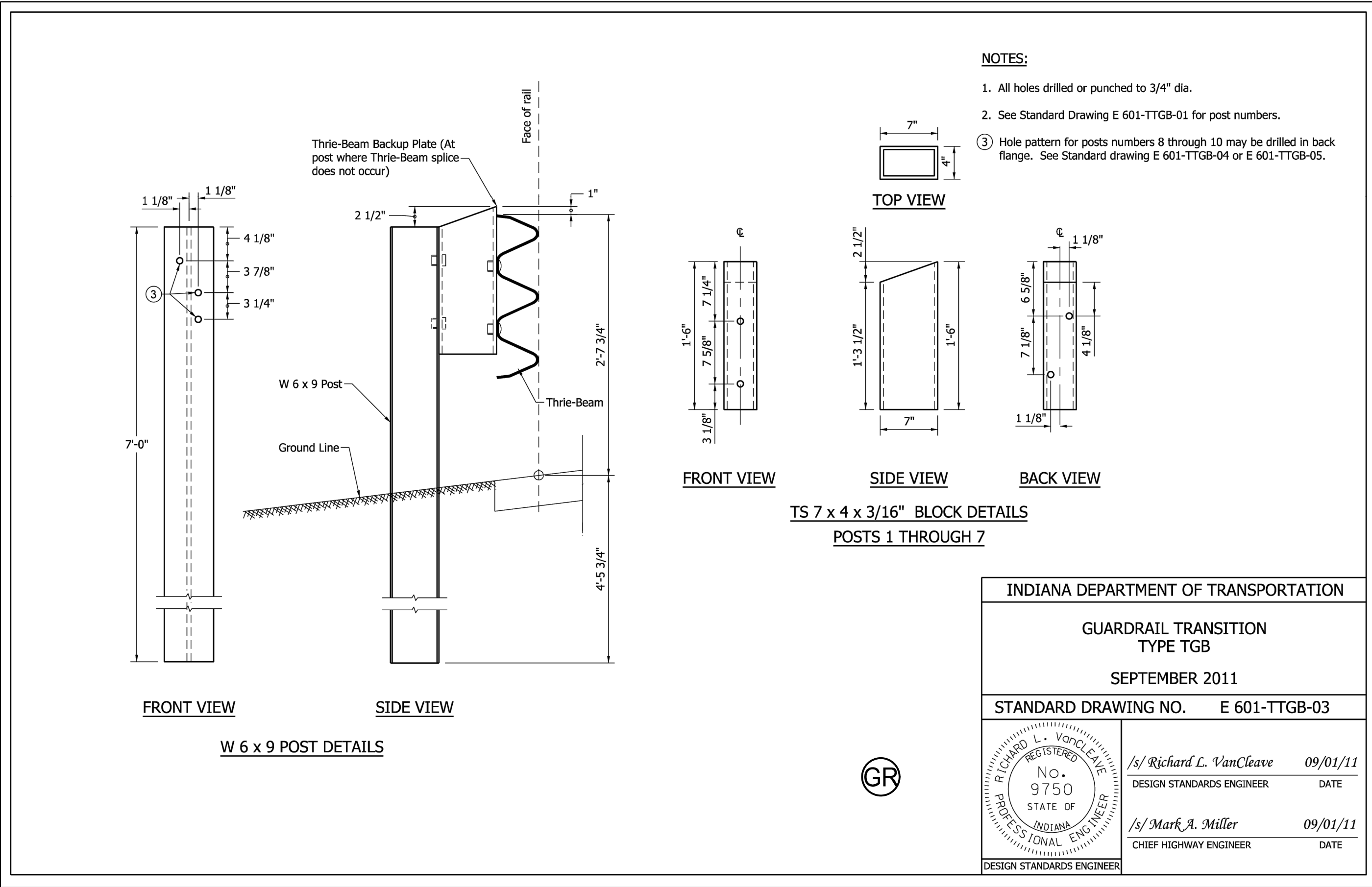
certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION

W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: GUARDRAIL
DETAILS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C0 (6)
project no.: 402224



revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

Bloomington, Indiana
(812) 339-2990 (Fax)

BYNUM FANYO & ASSOCIATES, INC.

528 north walnut street
(812) 332-8030

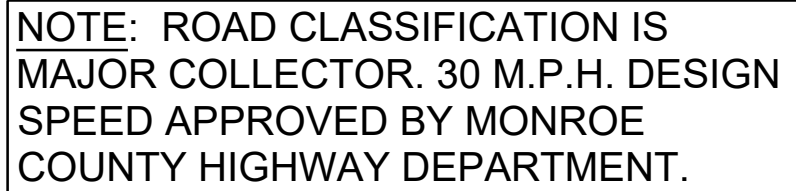
01.04.23

certified by:

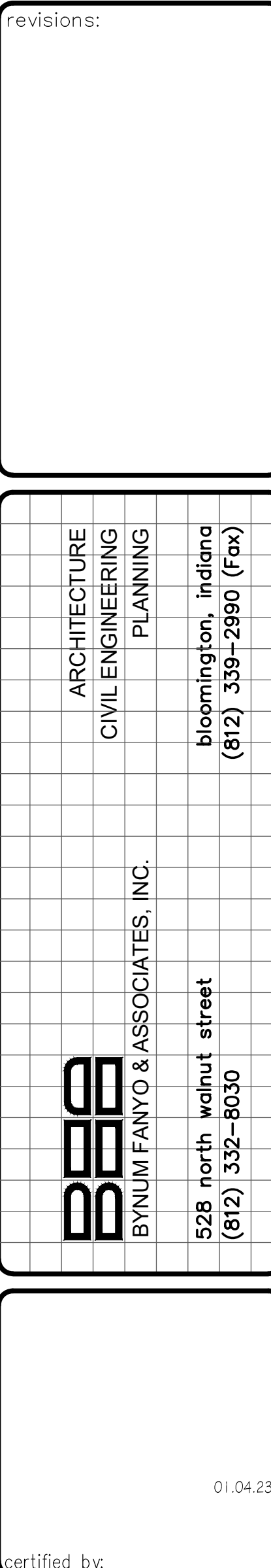
PROPOSED
HUNTER VALLEY ROAD EXTENSION
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: GUARDRAIL
DETAILS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C0 (7)
project no.: 402224



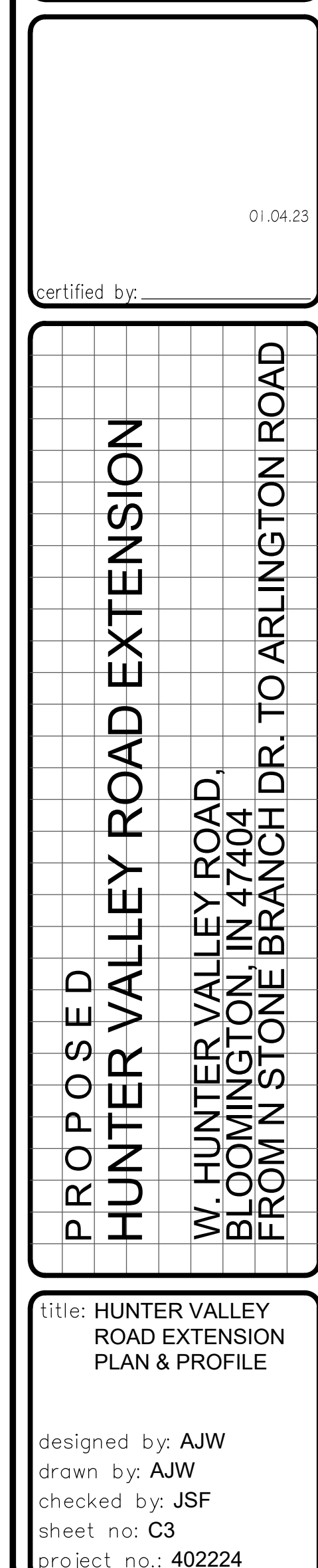
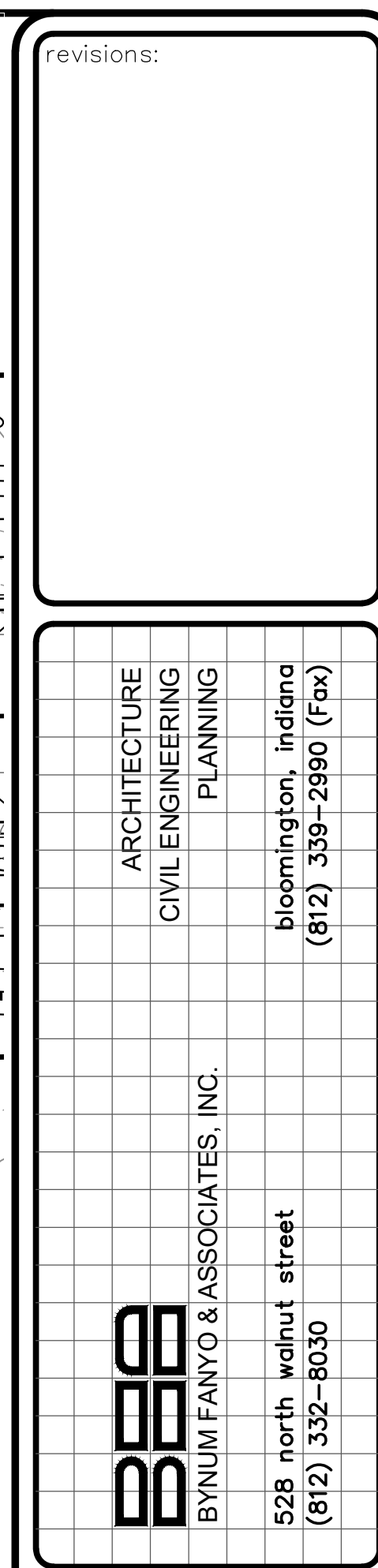
PROFILE LEGEND
MECHANICAL JOINT RESTRAINT REQUIRED
WHERE NOTED, 'MEGALUG OR APPROVED
EQUAL' - REFER TO THE CITY OF
BLOOMINGTON SPECIFICATIONS AND
MECHANICAL JOINT RESTRAINT DETAIL ON
SHEET C0(2) FOR MORE INFORMATION.

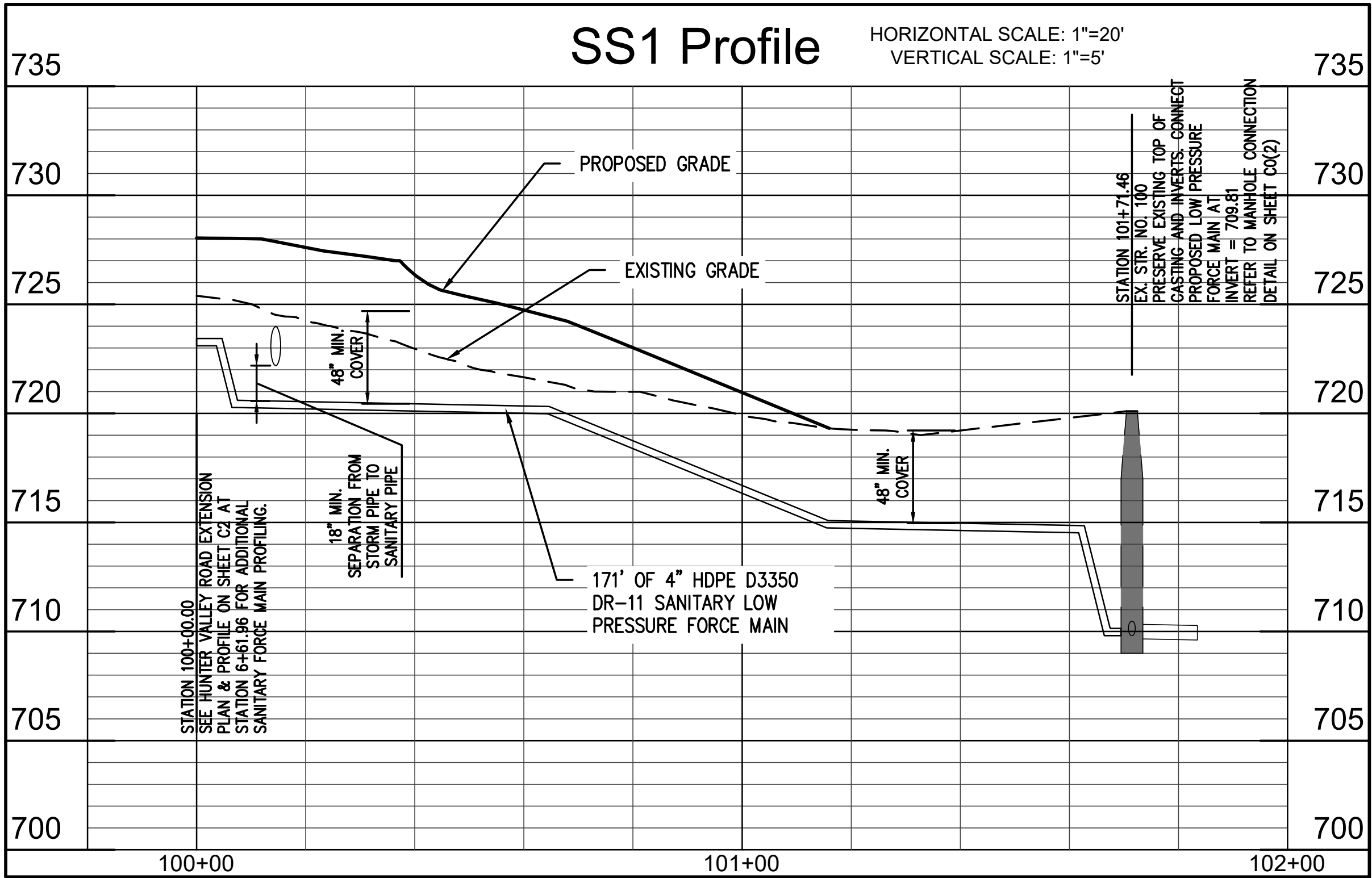
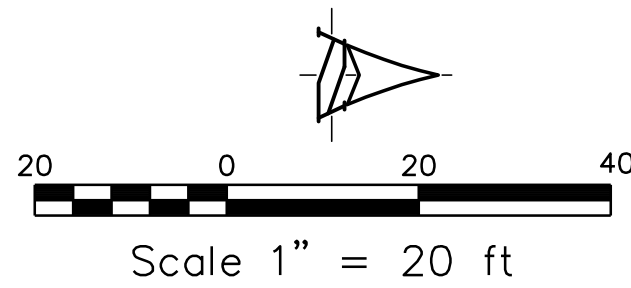
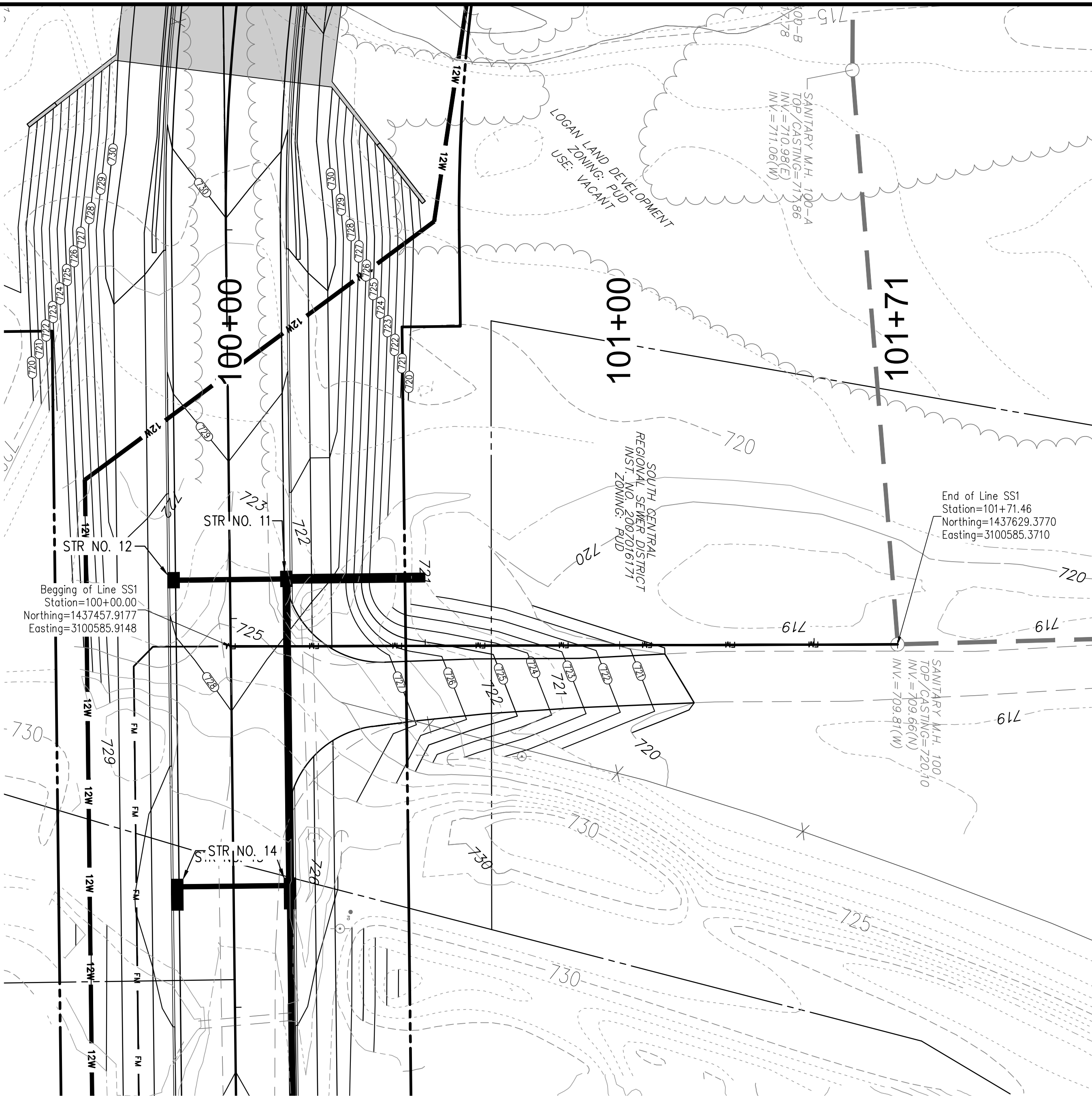


PROPOSED
HUNTER VALLEY ROAD EXTENSION
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: **HUNTER VALLEY ROAD EXTENSION PLAN & PROFILE**

designed by: **AJW**
drawn by: **AJW**
checked by: **JSF**
sheet no: **C2**
project no.: **402224**





FORCEMAIN NOTES

HDPE PIPE MATERIALS, INSTALLATION AND TESTING SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:

JOINING PE PIPE
POLYETHYLENE PIPE, INCLUDING THE SERVICE LATERAL TO THE MAIN LINE, SHALL BE JOINED BY BUTT FUSION AS DESCRIBED IN 4.4.3.2.3.2 OF THE CONSTRUCTION SPECIFICATIONS FOR SEWER PROJECTS.

PIPE
PIPE SUPPLIED UNDER THIS SPECIFICATION SHALL HAVE A NOMINAL IPS (IRON PIPE SIZE) OD AND SHALL HAVE A MINIMUM DR OR (DIMENSION RATIO) OF 11. THE PIPE SHALL BE PRODUCED FROM A HDPE PIPE GRADE RESIN MEETING THE SPECIFICATIONS OF ASTM D 3350 WITH A MINIMUM CELL CLASSIFICATION OF 345464C. PIPE SHALL BE MADE TO THE DIMENSIONS AND TOLERANCES SPECIFIED IN THE LATEST VERSION OF ASTM D3035, STANDARD SPECIFICATIONS FOR POLYETHYLENE (PE) PLASTIC PIPE (DR-PR) BASED ON CONTROLLED OUTSIDE DIAMETER. PIPE SHALL HAVE A MINIMUM PRESSURE RATING OF 160 PSI.

PIPE PERFORMANCE
THE PIPE WILL BE EXTRUDED FROM RESIN MEETING THE SPECIFICATIONS OF ASTM D 3350 WITH A MINIMUM CELL CLASSIFICATION OF 345464C.

FITTINGS
HDPE FITTINGS SHALL BE IN ACCORDANCE WITH ASTM D 3261 AND SHALL BE MANUFACTURED BY INJECTION MOLDING, A COMBINATION OF EXTRUSION AND MACHINING, OR FABRICATION FROM HDPE PIPE CONFORMING TO THIS SPECIFICATION. THE FITTINGS SHALL BE FULLY PRESSURE RATED AND PROVIDE A WORKING PRESSURE EQUAL TO THAT OF THE PIPE WITH AN INCLUDED 2:1 SAFETY FACTOR. THE FITTINGS BE MANUFACTURED FROM THE SAME RESIN TYPE AND CELL CLASSIFICATIONS THE PIPE ITSELF. THE FITTINGS SHALL BE HOMOGENEOUS THROUGHOUT AND FREE FROM CRACKS, HOLES, FOREIGN INCLUSIONS, VOIDS, OR OTHER INJURIOUS DEFECTS.

TESTING
THE NORMAL, TRADITIONAL HYDROSTATIC TEST METHOD FOR HDPE PIPE THROUGHOUT NORTH AMERICAN INDUSTRIES AND MUNICIPALITIES IS GIVEN IN THE PLASTIC PIPE INSTITUTE (PPI) TECHNICAL REPORT #30 (TR-30). THE PPI PROCEDURE REQUIRES THE APPLICATION OF HYDROSTATIC WATER PRESSURE NOT TO EXCEED 1.5 TIMES THE 50-YEAR PRESSURE (WRWP) CALCULATED AT ITS AMBIENT TEMPERATURE, THEN ISOLATING THE PRESSURE PUMP FOR A ONE TO THREE HOUR PERIOD. DUE TO THE VISCO-ELASTIC "CREEP" OF THE PLASTIC AT THE ELEVATED HOOP-STRESS DURING THE TEST PERIOD DURATION, ADDITIONAL MAKE-UP WATER IS REQUIRED TO SUSTAIN THE INTENSITY OF THE HYDROSTATIC PRESSURE. THE SUCCESS OF THE TEST IS THEN JUDGED BY THE QUANTITY OF MAKE-UP WATER REQUIRED TO RESTORE AND HOLD THE ORIGINAL TEST PRESSURE.

LOCATE WIRE REQUIRED -
A #10 INSULATED SOLID COPPER LOCATOR WIRE SHALL BE WRAPPED AROUND ALL FORCEMAIN. PIPES SO THAT ONE REVOLUTION IS MADE AT LEAST EVERY PIPE JOINT, SPLICES ARE TO BE MADE WITH AN APPROVED CONNECTOR, AND ARE TO BE SUITABLY PROTECTED AGAINST CORROSION. THE WIRE IS TO BE BROUGHT TO THE SURFACE AT A CLEAN-OUT OR VALVE CASTING.

revisions:

ARCHITECTURE

CIVIL ENGINEERING

PLANNING

BYNUM FANYO & ASSOCIATES, INC.

528 north walnut street

(812) 332-8030

bloomington, indiana

(812) 339-2890 (Fax)

01.04.23

certified by:

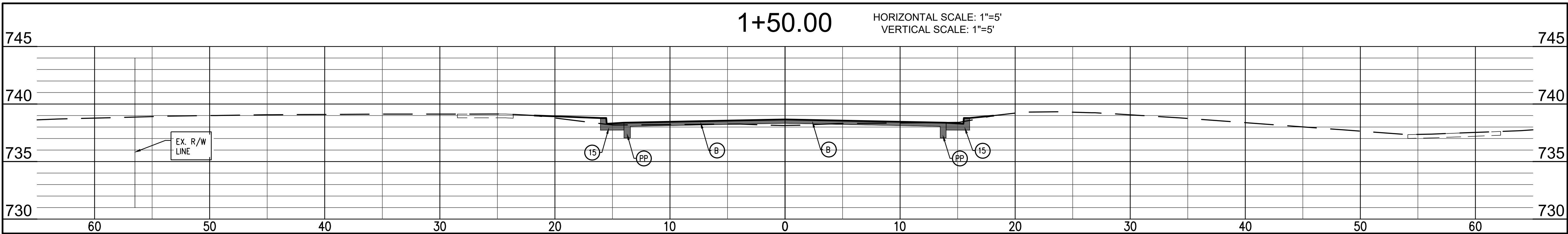
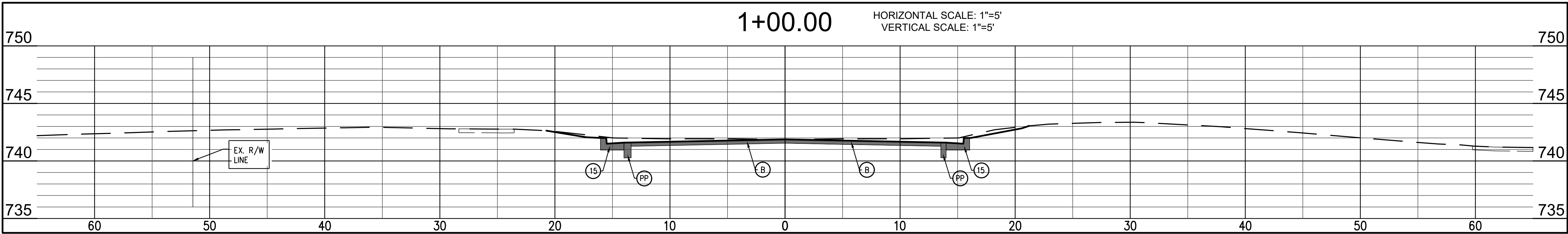
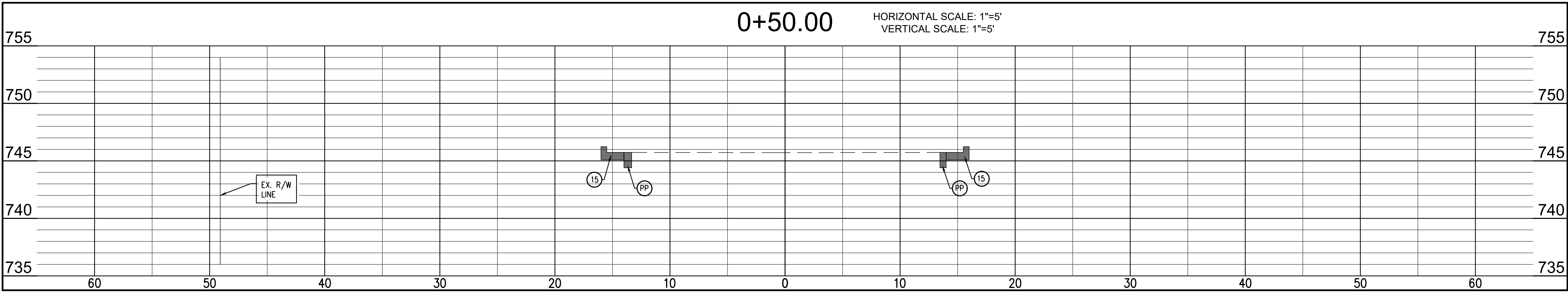
PROPOSED

HUNTER VALLEY ROAD EXTENSION

W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: SS1 PLAN & PROFILE

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C6
project no.: 402224



revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

bloomington, indiana
(812) 339-2990 (Fax)

BYNUM FANYO & ASSOCIATES, INC.

528 north walnut street
(812) 332-8030

01.04.23

certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION

W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C7
project no.: 402224

revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING
bloomington, indiana
(812) 339-2890 (Fax)

BYNUM FANYO & ASSOCIATES, INC.
528 north walnut street
(812) 332-8030

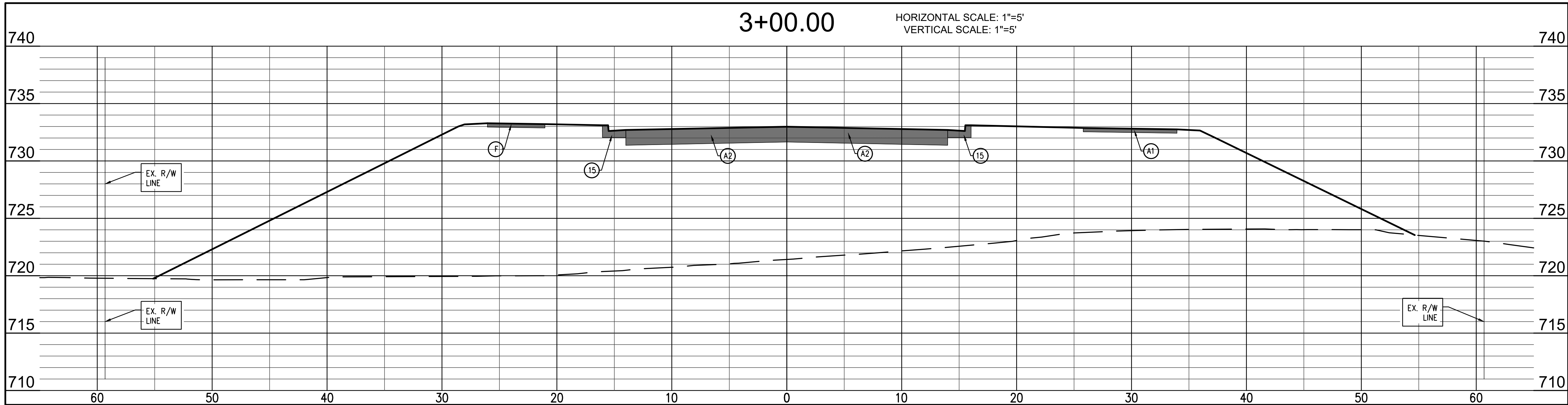
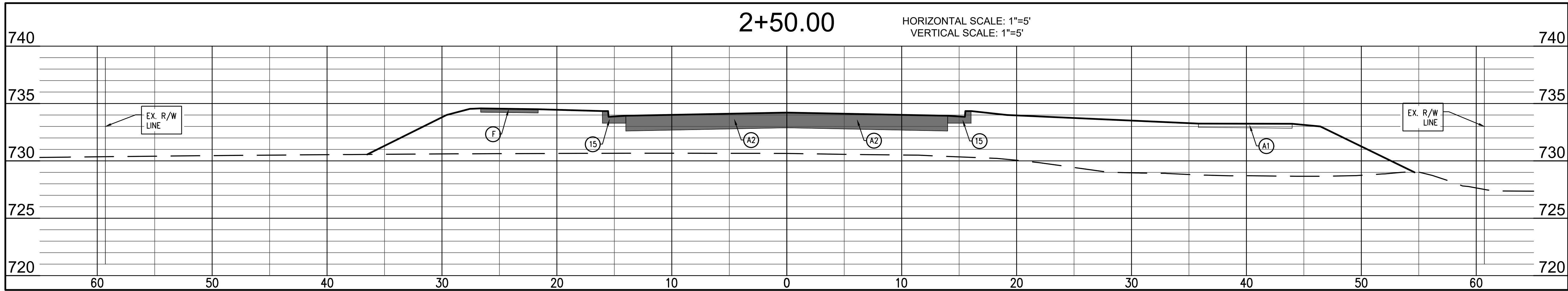
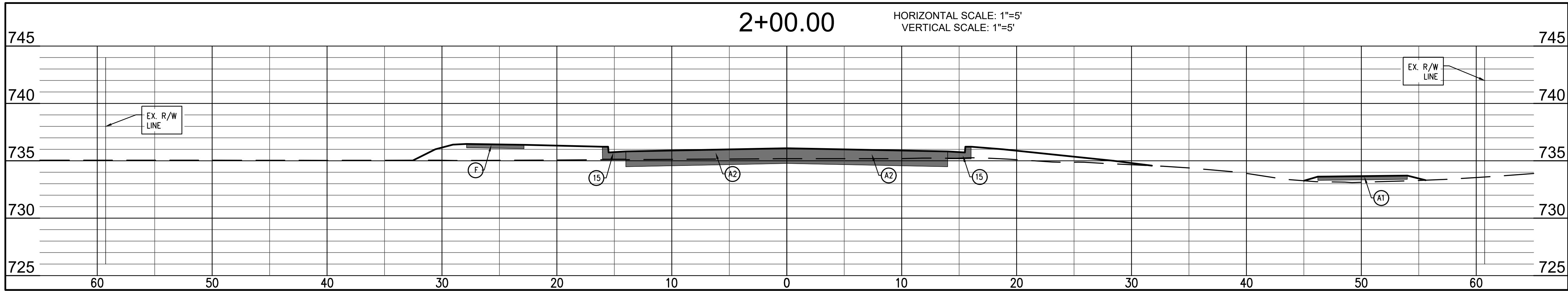
01.04.23

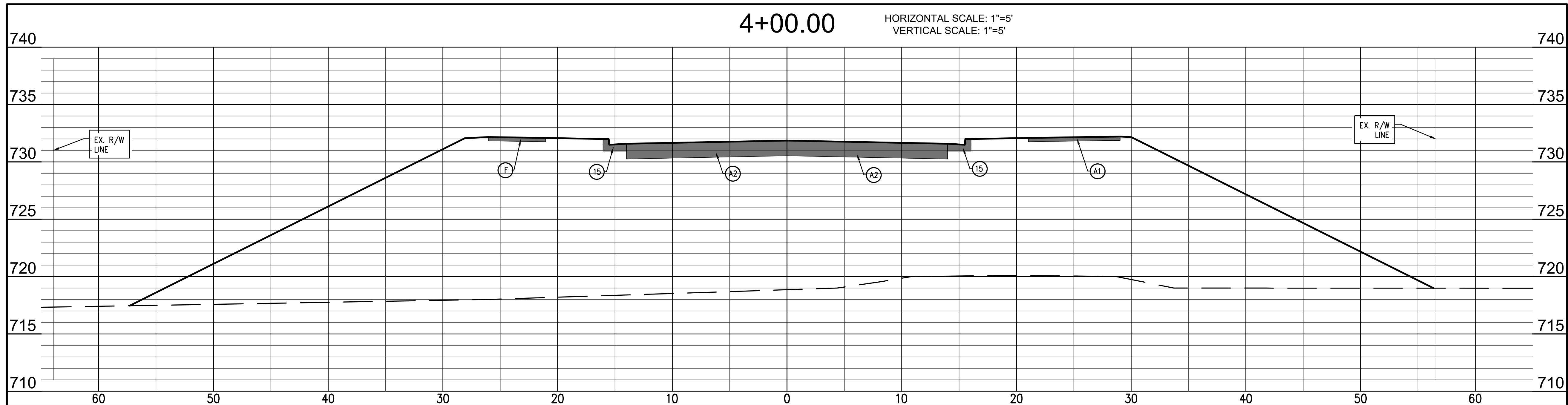
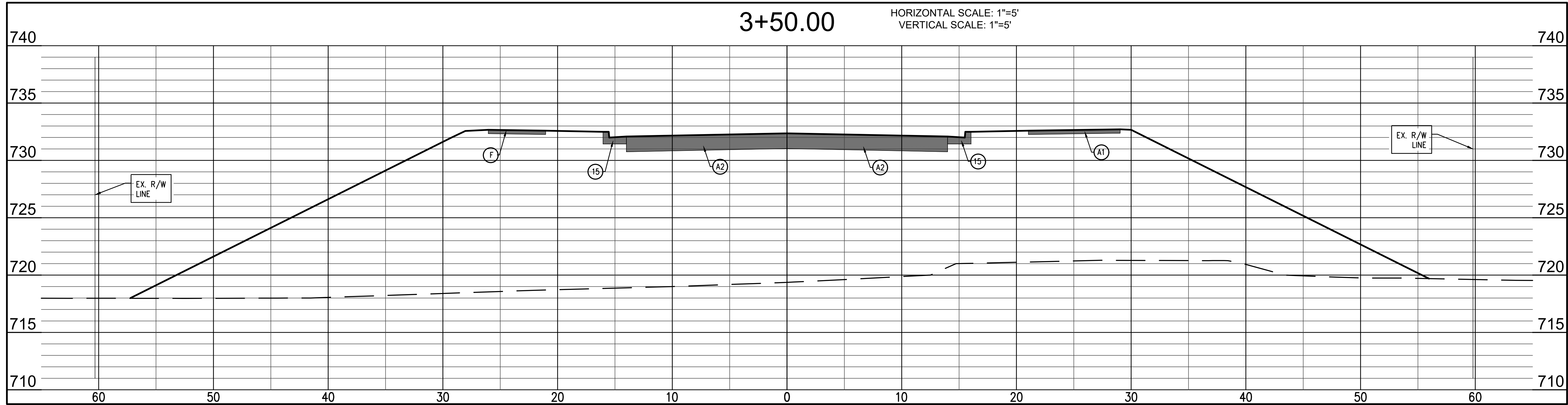
certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C8
project no.: 402224





revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

BYNUM FANYO & ASSOCIATES, INC.

528 north walnut street
(812) 332-8030

bloomington, indiana
(812) 339-2890 (Fax)

01.04.23

certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION

W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C9
project no.: 402224

revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING
BYNUM FANYO & ASSOCIATES, INC.
528 north walnut street
(812) 332-8030 (Fax)

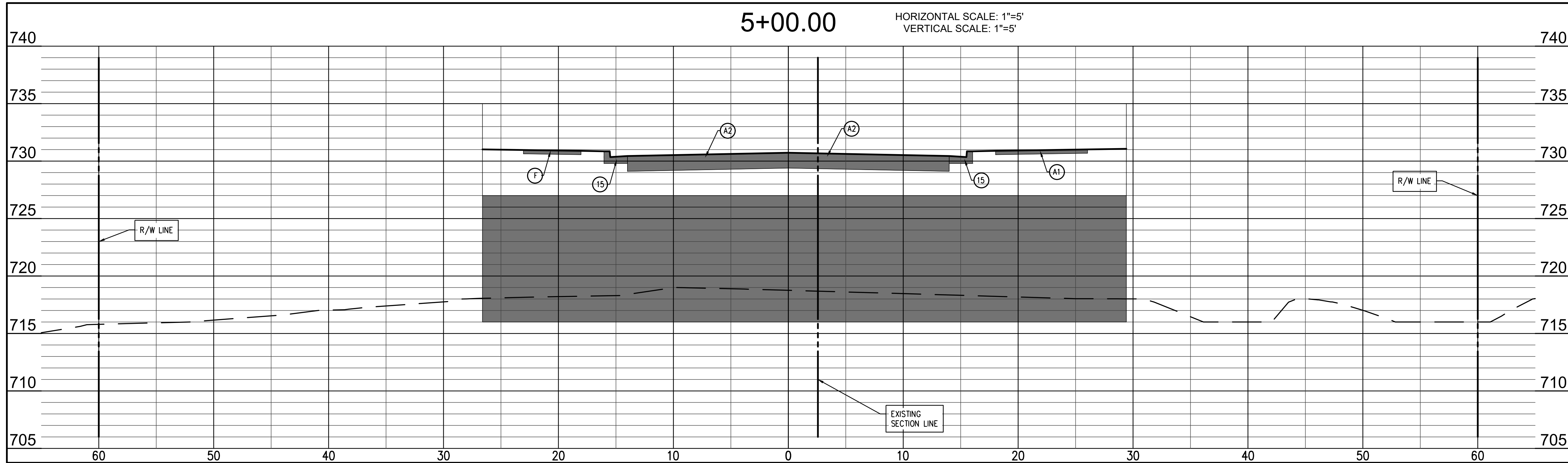
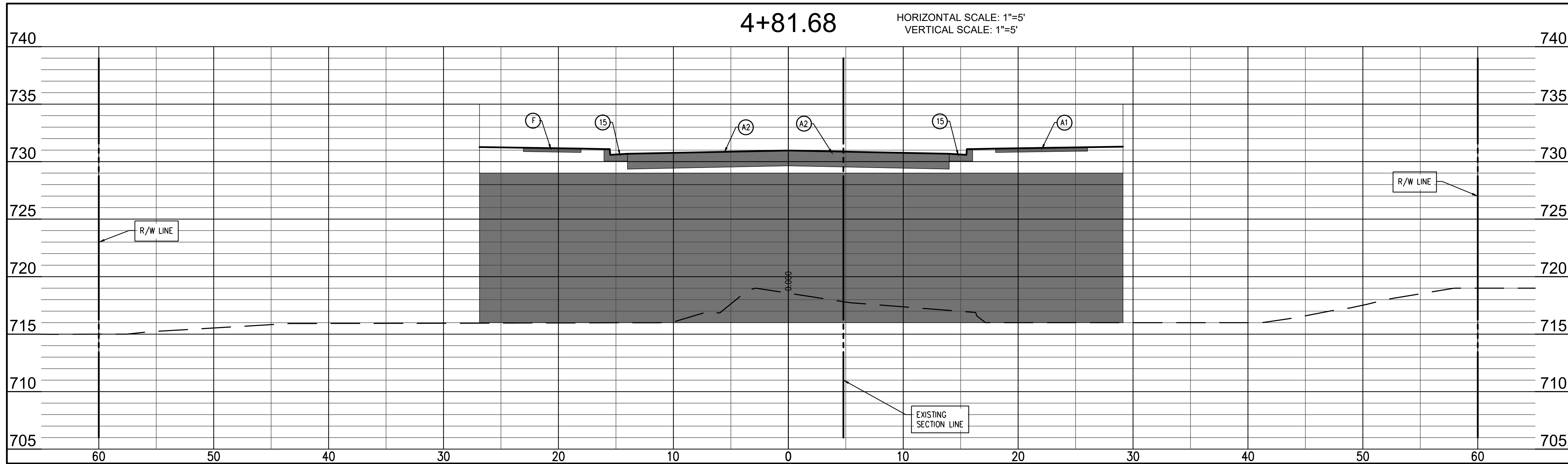
01.04.23

certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C10
project no.: 402224



revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING
BYNUM FANYO & ASSOCIATES, INC.
528 north walnut street
(812) 332-8030 (Fax)
bloomington, indiana
(812) 339-2890 (Fax)

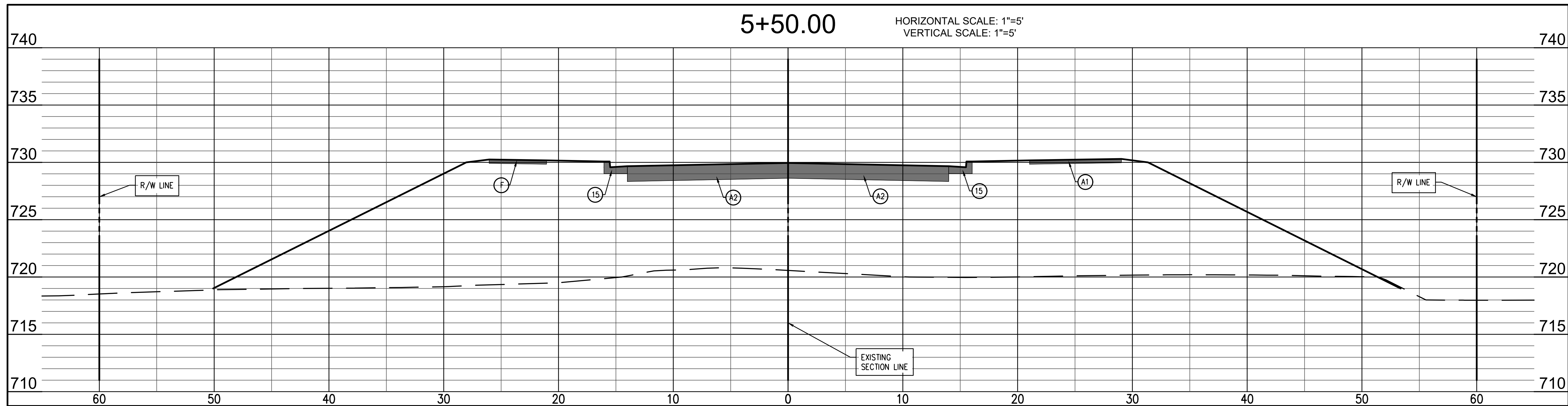
01.04.23

certified by:

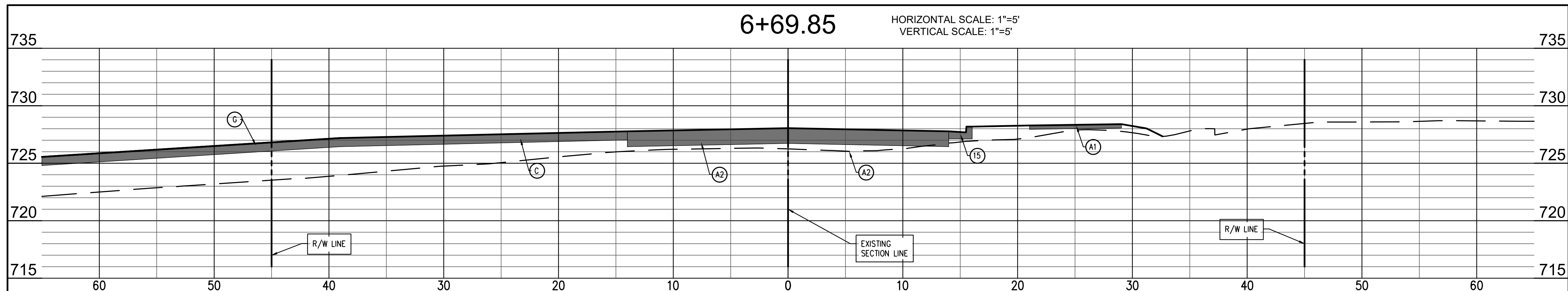
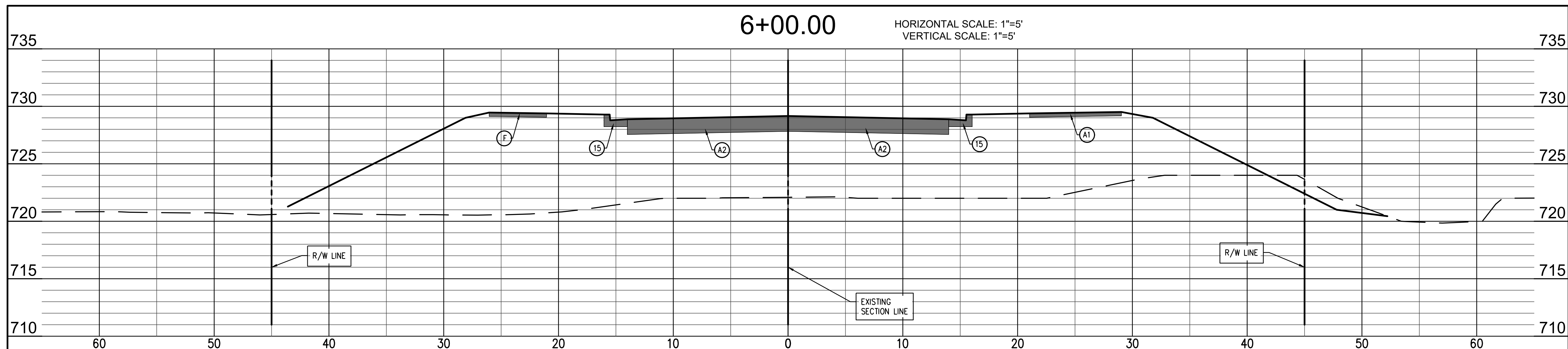
PROPOSED
HUNTER VALLEY ROAD EXTENSION
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

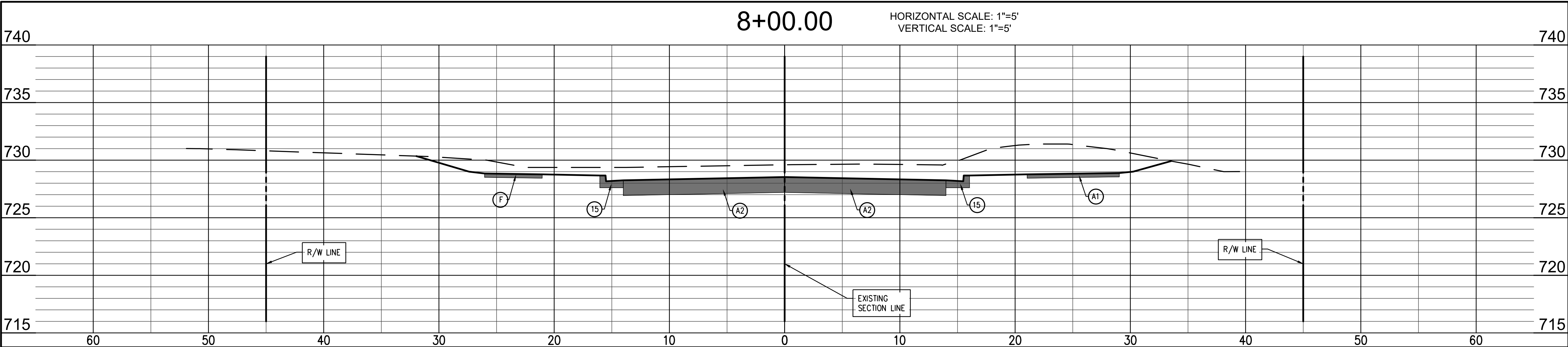
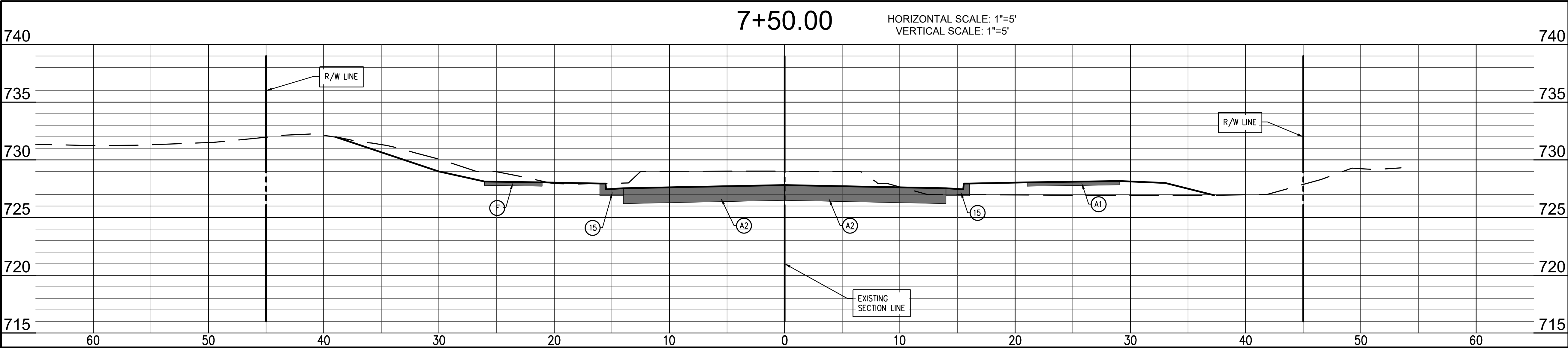
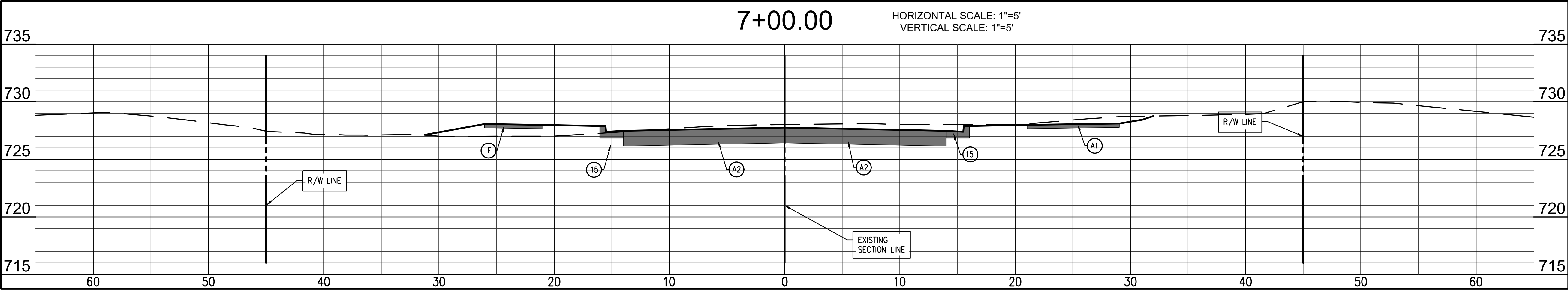
title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C11
project no.: 402224



HUNTER VALLEY EXTENSION CROSS SECTION AT STATION 7+50.00 FROM STATIONING ON SHEET C301-305





revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

BYNUM FANYO & ASSOCIATES, INC.

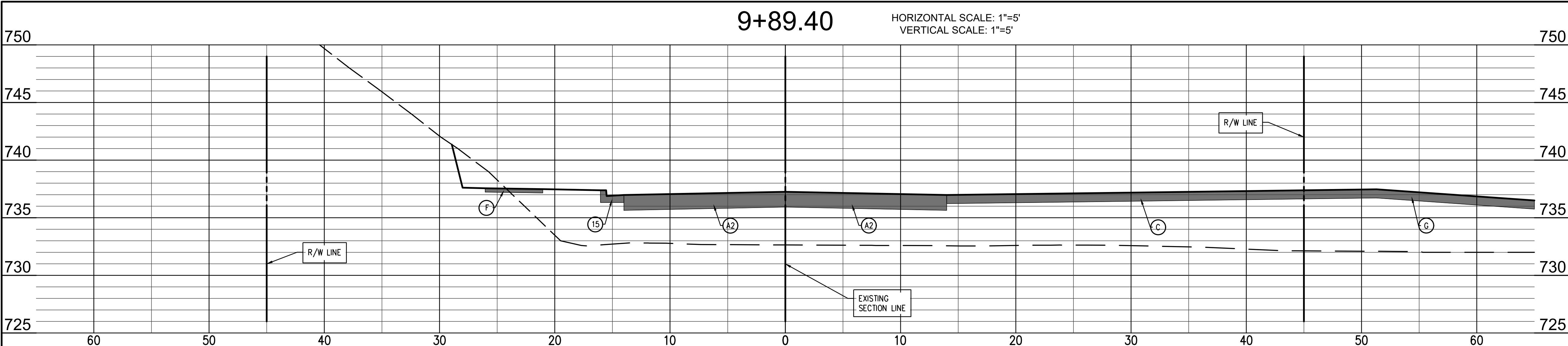
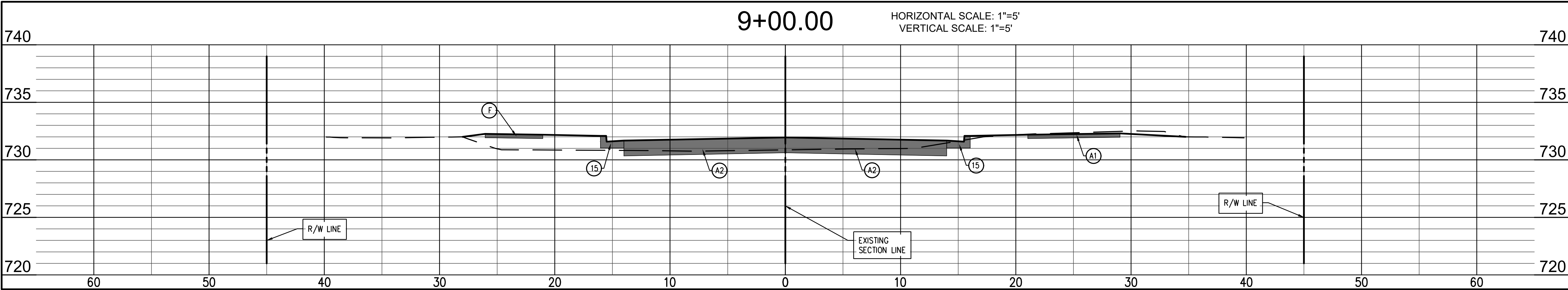
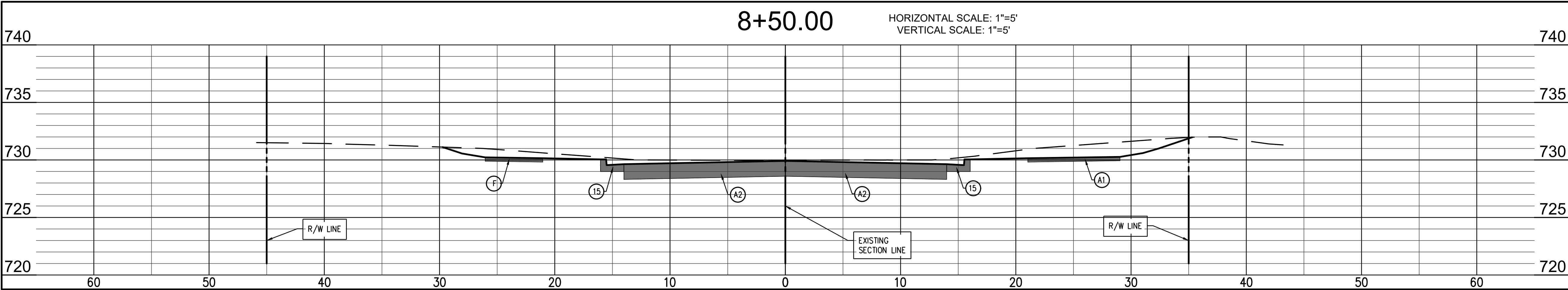
01.04.23

certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C12
project no.: 402224



revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

BYNUM FANYO & ASSOCIATES, INC.

Bloomington, Indiana
(812) 339-2890 (Fax)

528 north walnut street
(812) 332-8030

01.04.23

certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION

W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C13
project no.: 402224

revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING
bloomington, indiana
(812) 339-2890 (Fax)

BYNUM FANYO & ASSOCIATES, INC.
528 north walnut street
(812) 332-8030

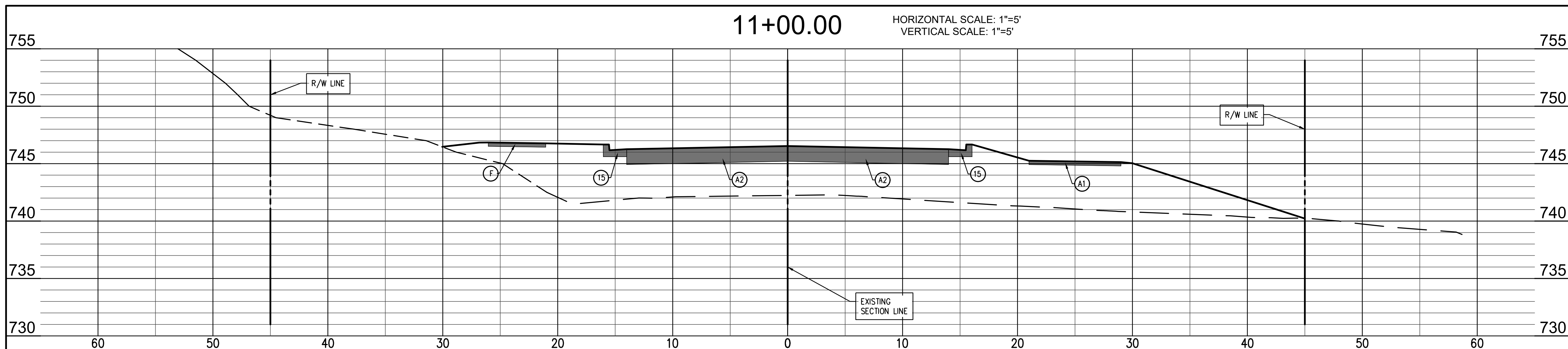
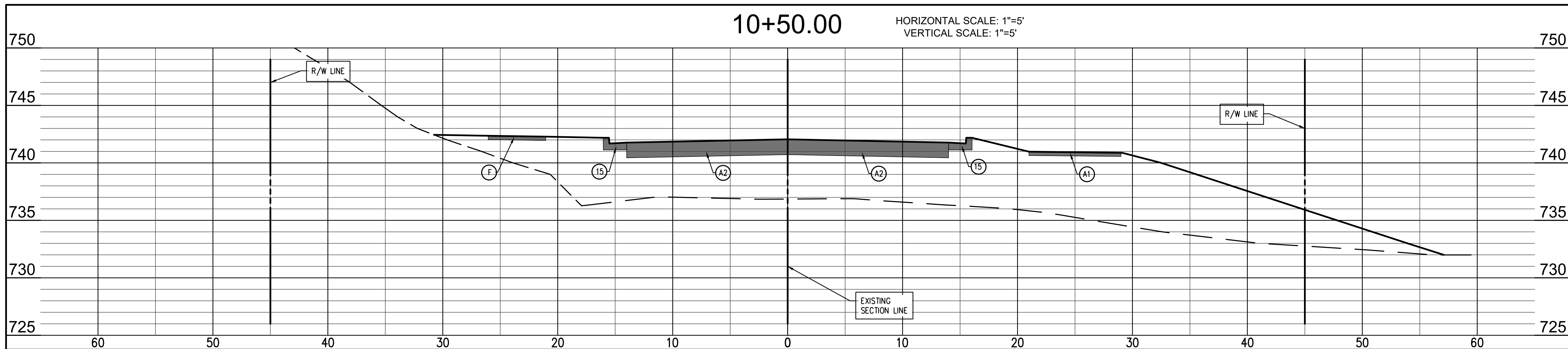
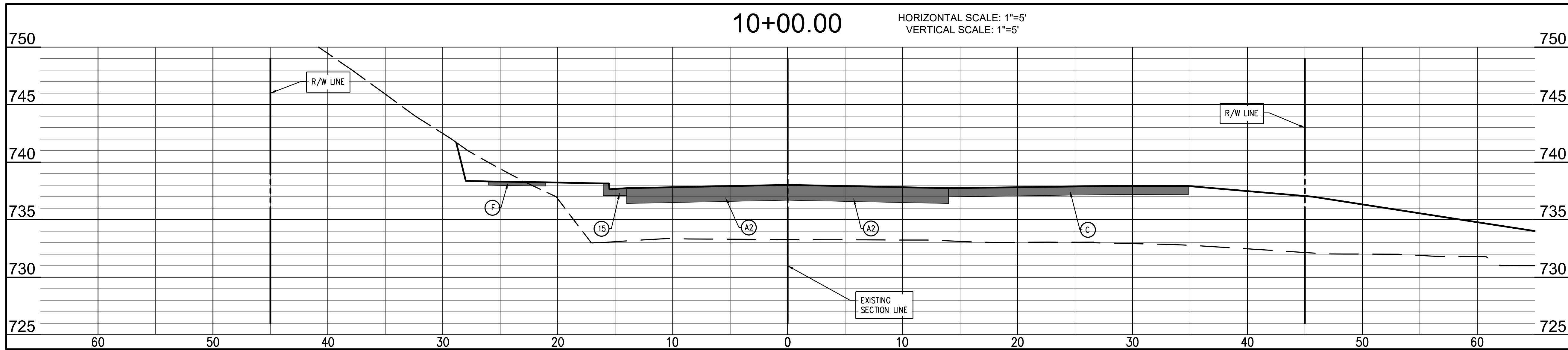
01.04.23

certified by:

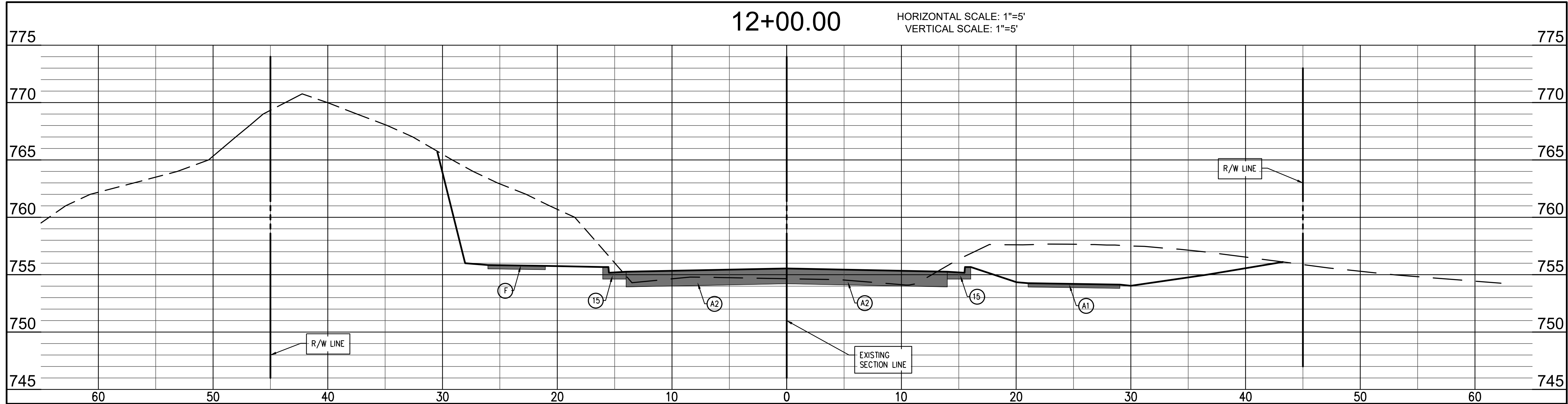
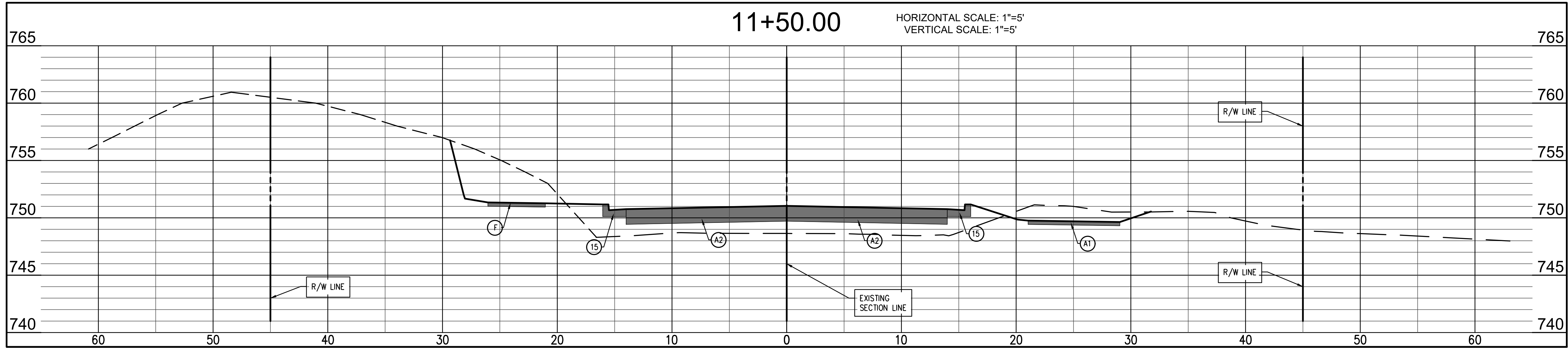
PROPOSED
HUNTER VALLEY ROAD EXTENSION
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C14
project no.: 402224



revisions:



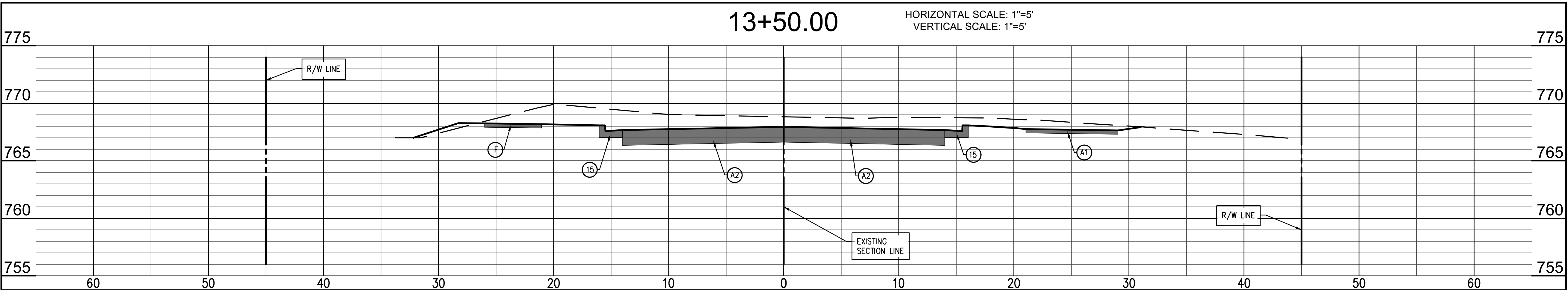
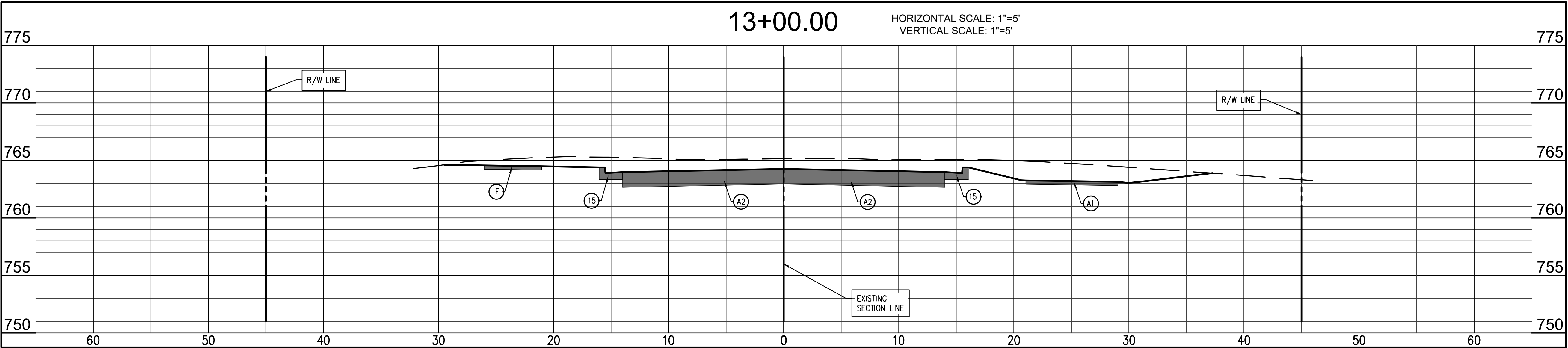
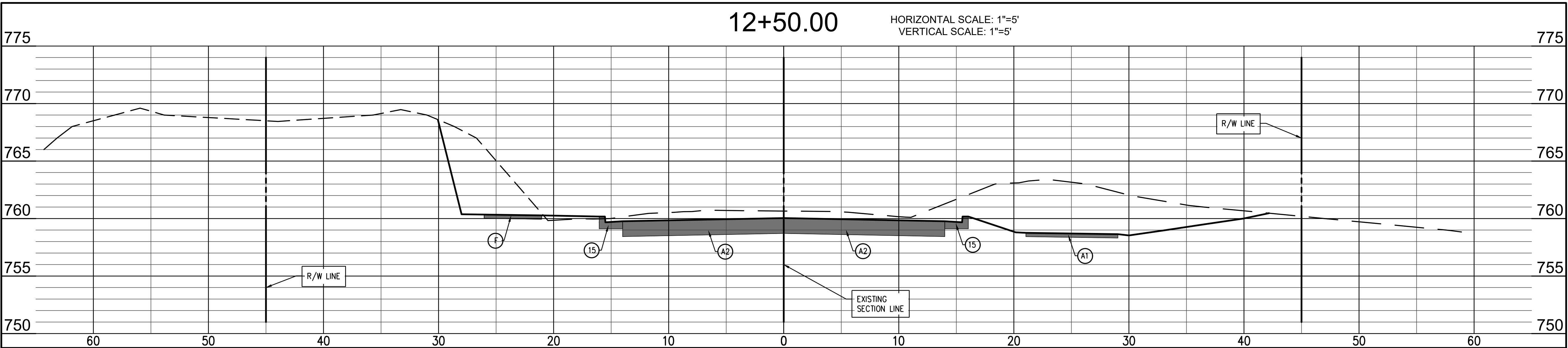
01.04.23

certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C15
project no.: 402224



revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

BYNUM FANYO & ASSOCIATES, INC.

Bloomington, Indiana
(812) 339-2890 (Fax)

528 north walnut street
(812) 332-8030

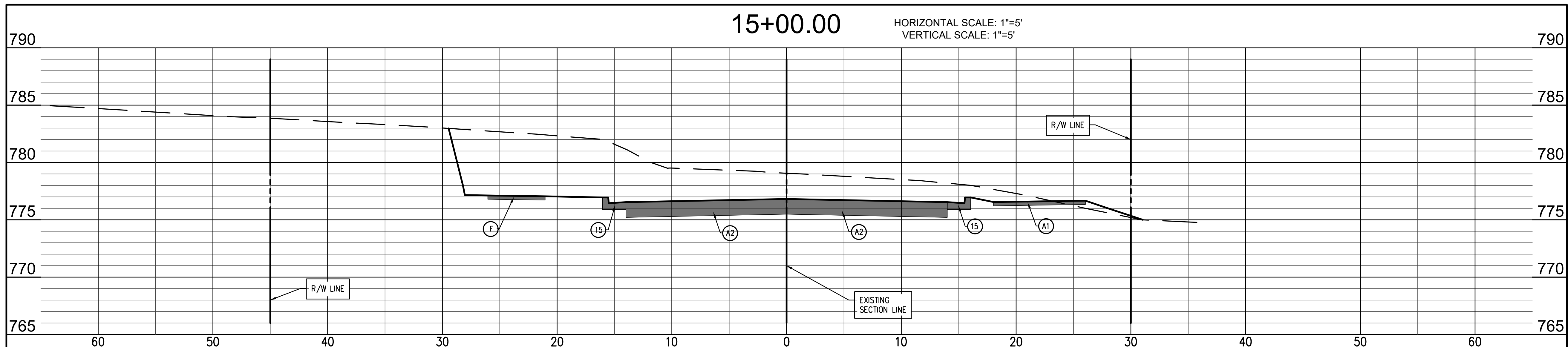
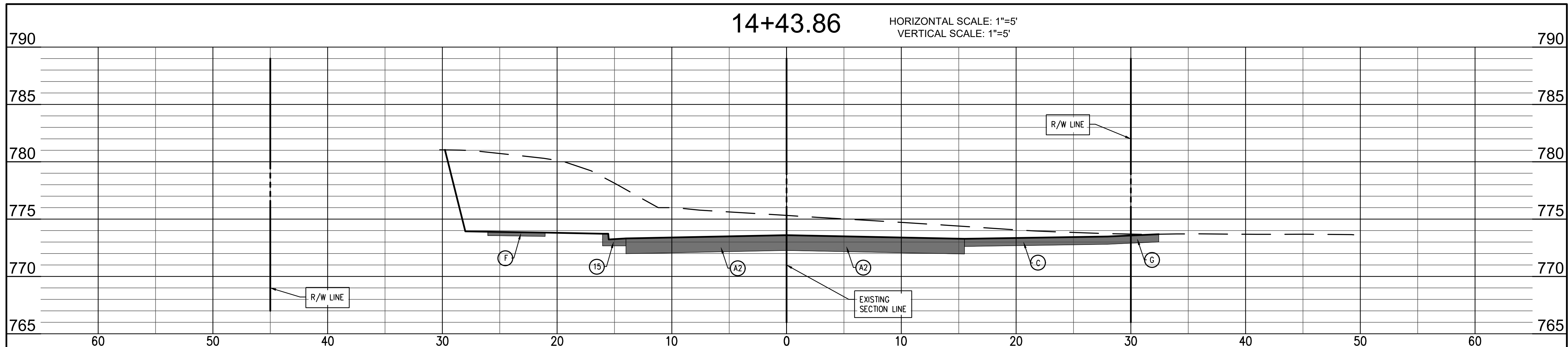
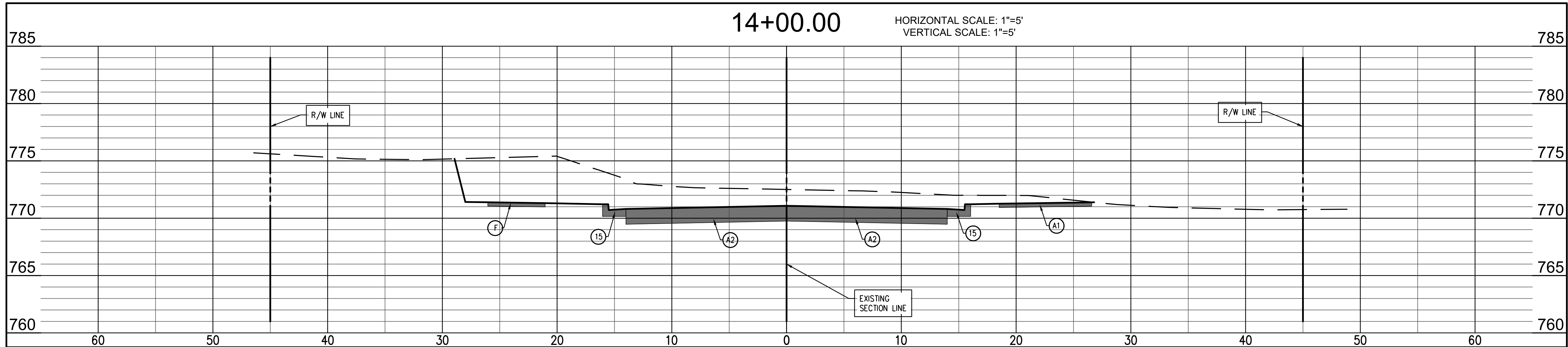
01.04.23

certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C16
project no.: 402224



revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

BYNUM FANYO & ASSOCIATES, INC.

Bloomington, Indiana
(812) 339-2890 (Fax)

528 north walnut street
(812) 332-8030

01.04.23

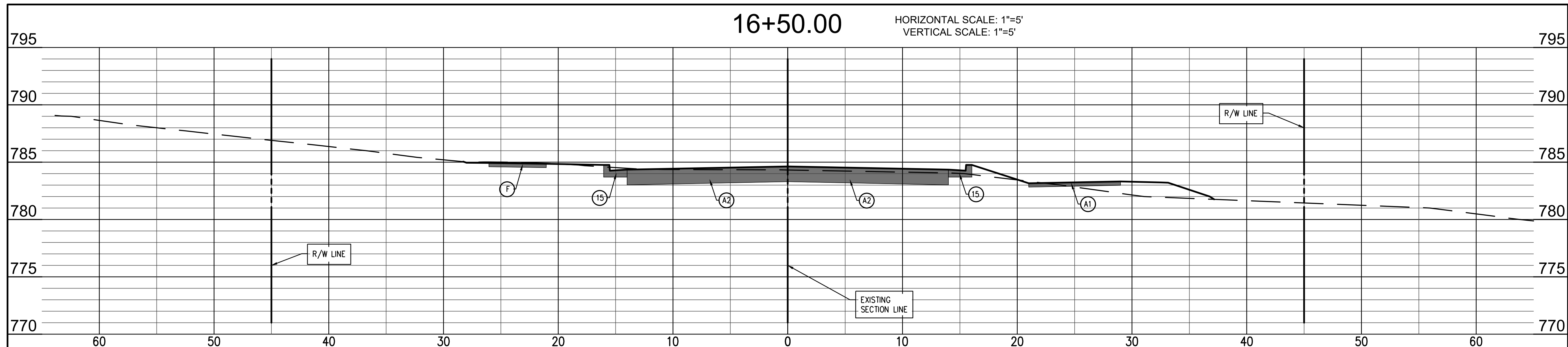
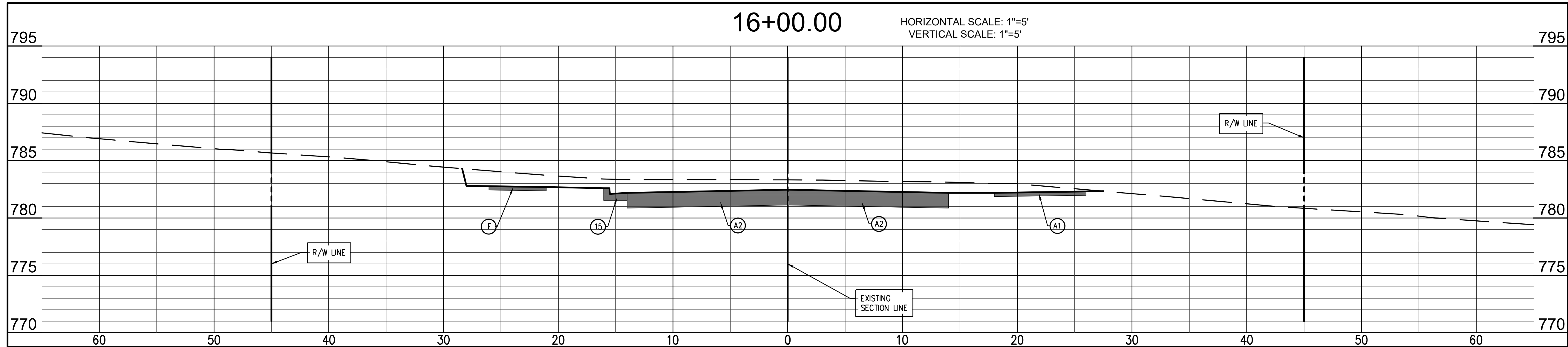
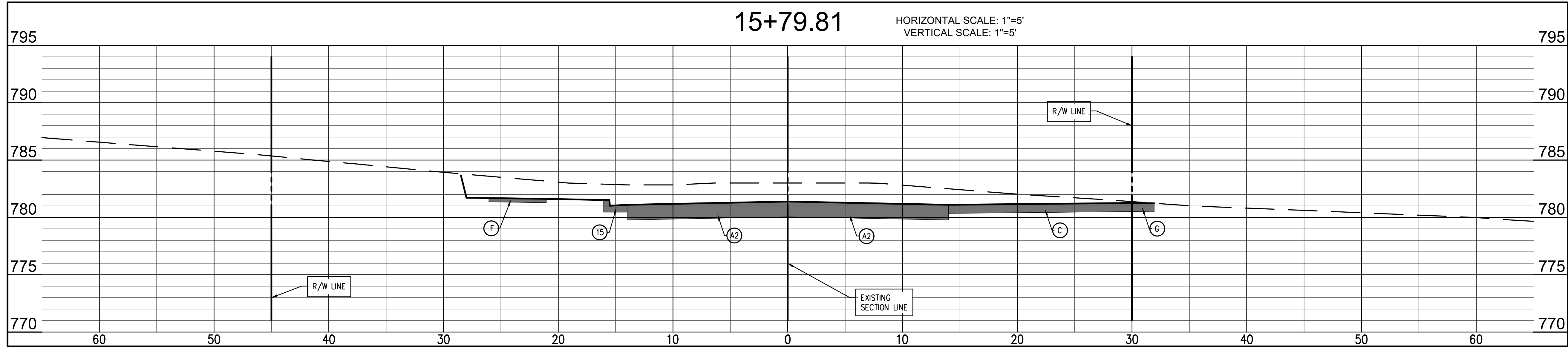
certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION

W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C17
project no.: 402224



revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

Bloomington, Indiana
(812) 339-2890 (Fax)

BYNUM FANYO & ASSOCIATES, INC.

528 north walnut street
(812) 332-8030

01.04.23

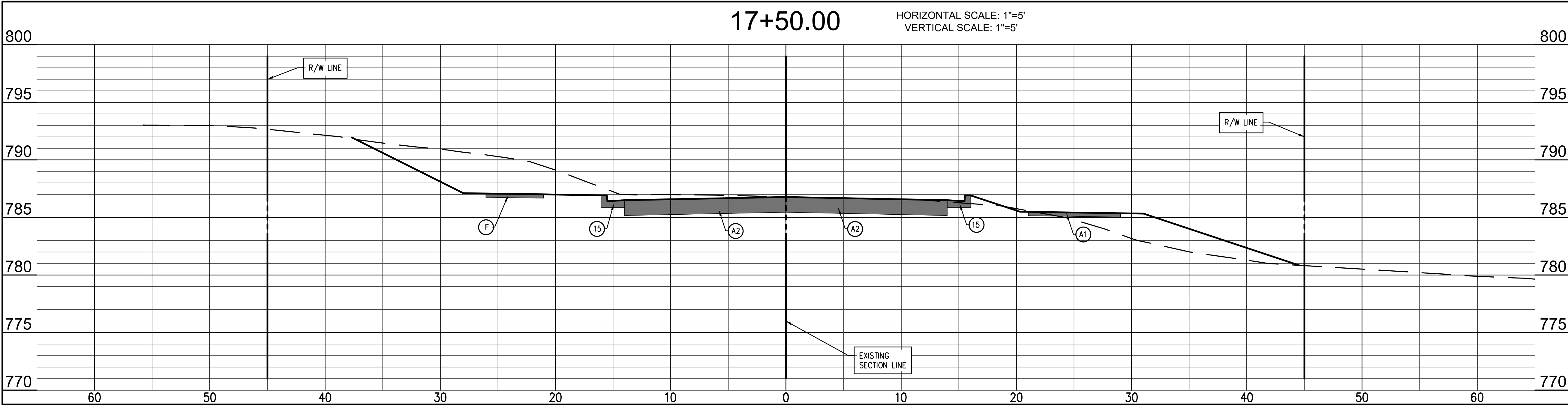
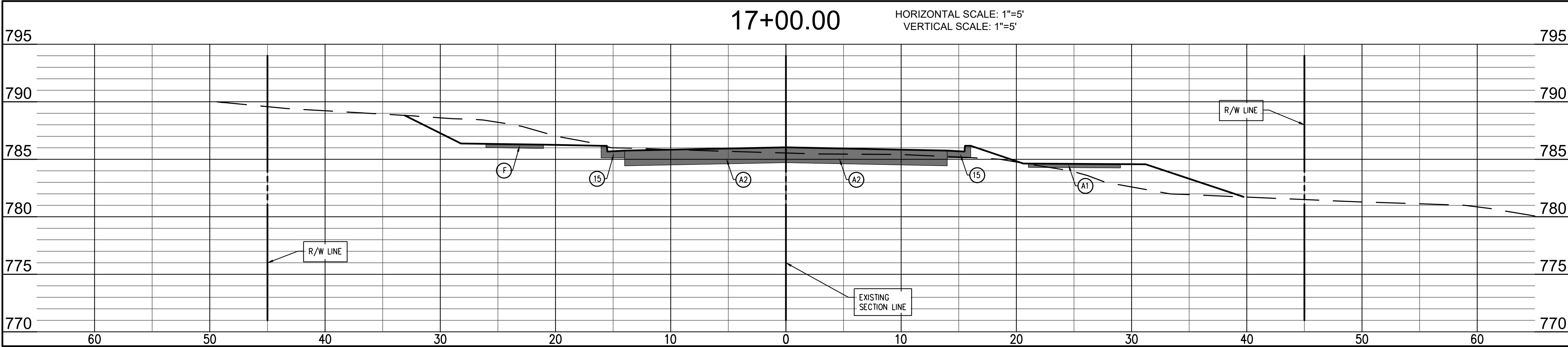
certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION

W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C18
project no.: 402224



revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

BYNUM FANYO & ASSOCIATES, INC.

528 north walnut street
(812) 332-8030 (Fax)

bloomington, indiana
(812) 339-2890 (Fax)

01.04.23

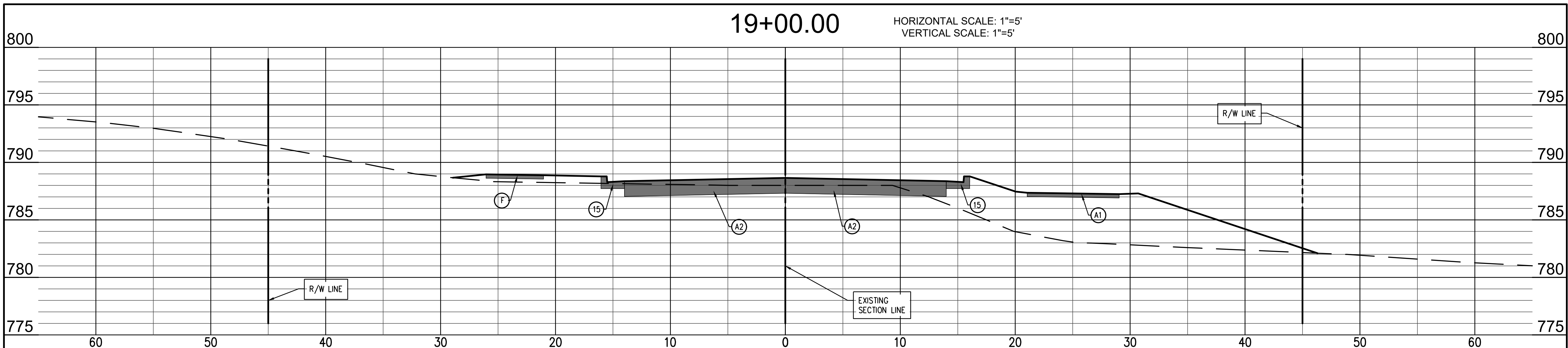
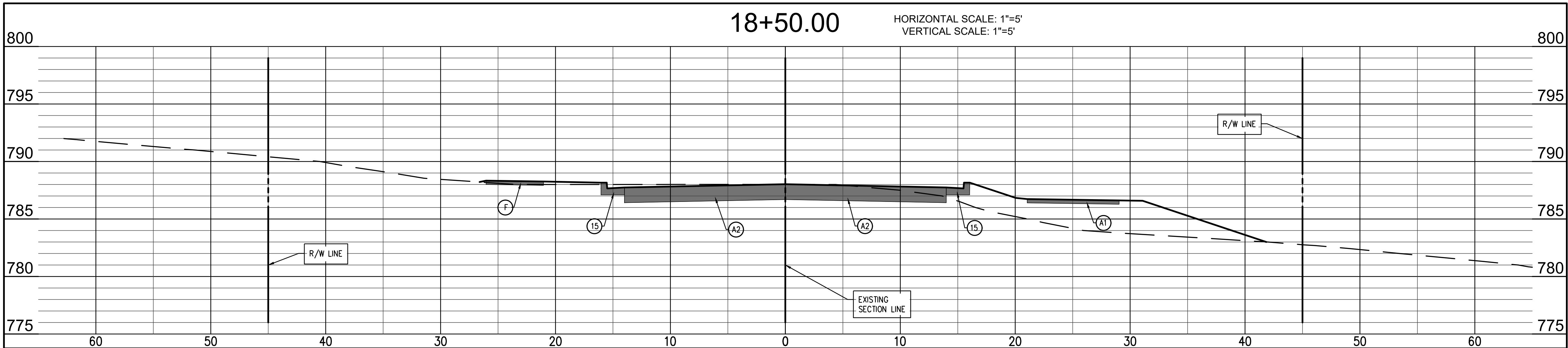
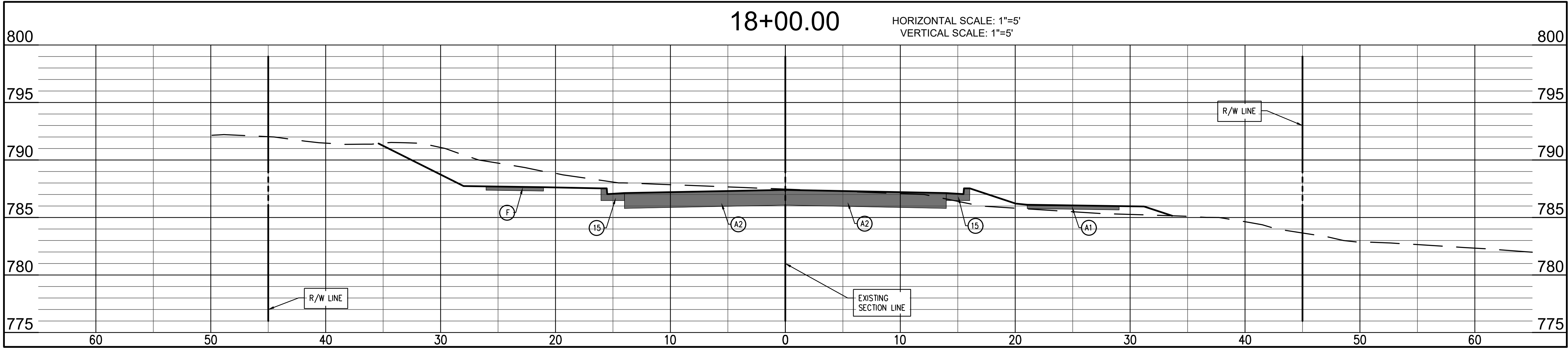
certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION

W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C19
project no.: 402224



revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

Bloomington, Indiana
(812) 339-2890 (Fax)

BYNUM FANYO & ASSOCIATES, INC.
528 north walnut street
(812) 332-8030

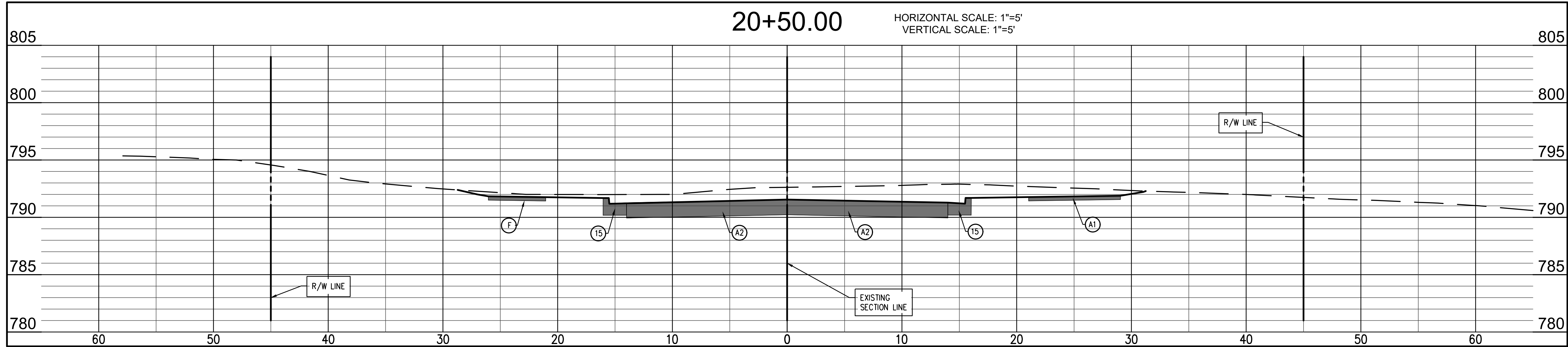
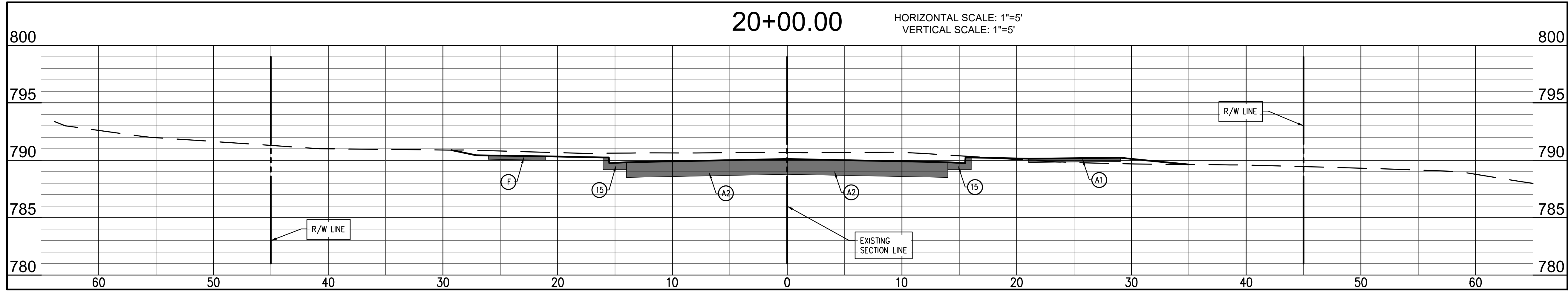
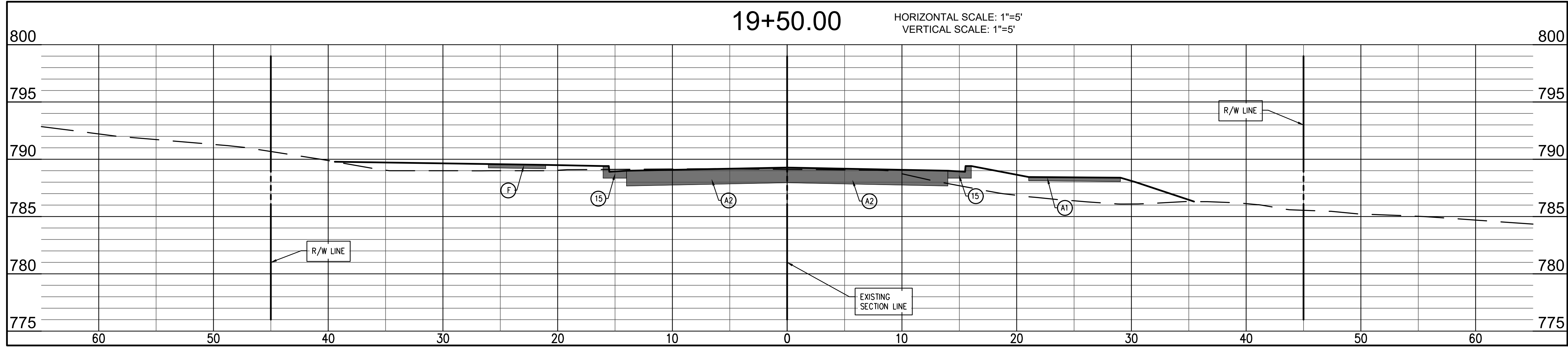
01.04.23

certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no.: C20
project no.: 402224



revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

bloomington, indiana
(812) 339-2990 (Fax)

BYNUM FANYO & ASSOCIATES, INC.

528 north walnut street
(812) 332-8030

01.04.23

certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION

W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C21
project no.: 402224

revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

bloomington, indiana
(812) 339-2990 (Fax)

BYNUM FANYO & ASSOCIATES, INC.

528 north walnut street
(812) 332-8030

01.04.23

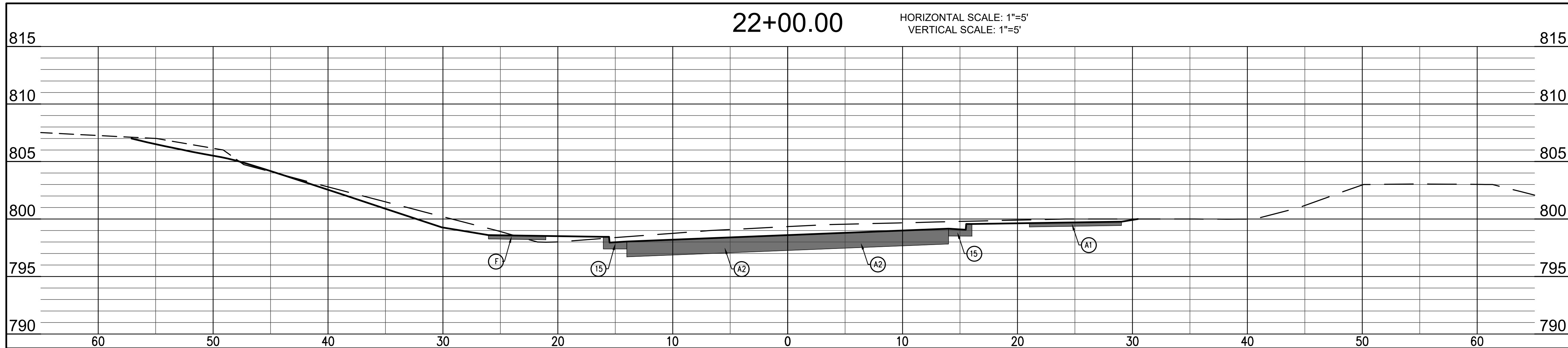
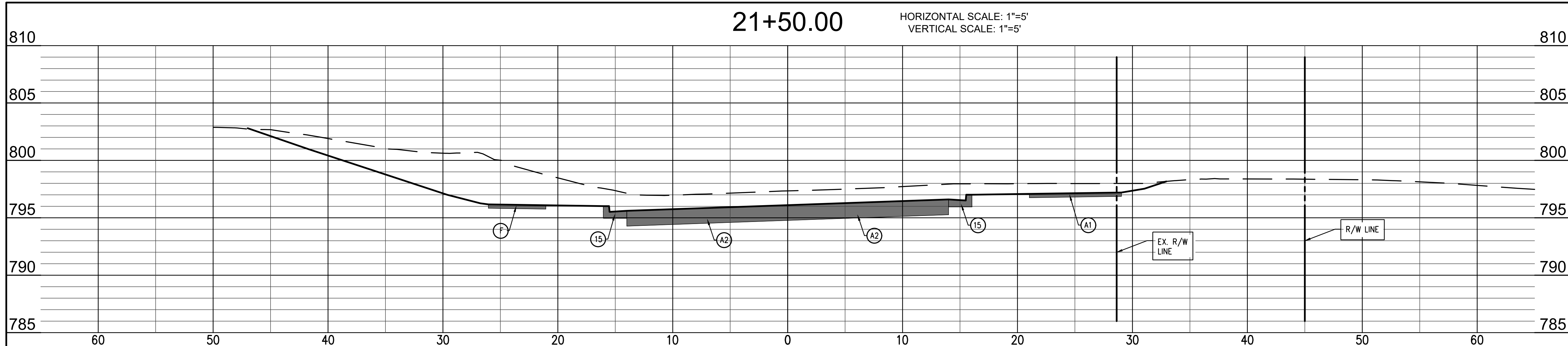
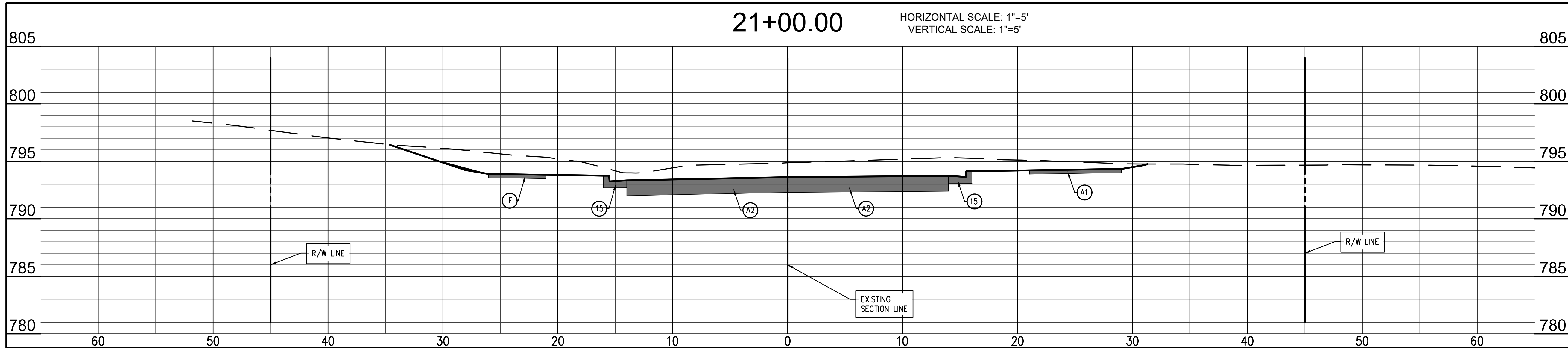
certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION

W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C22
project no.: 402224



revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING
BYNUM FANYO & ASSOCIATES, INC.
528 north walnut street
(812) 332-8030 (Fax)

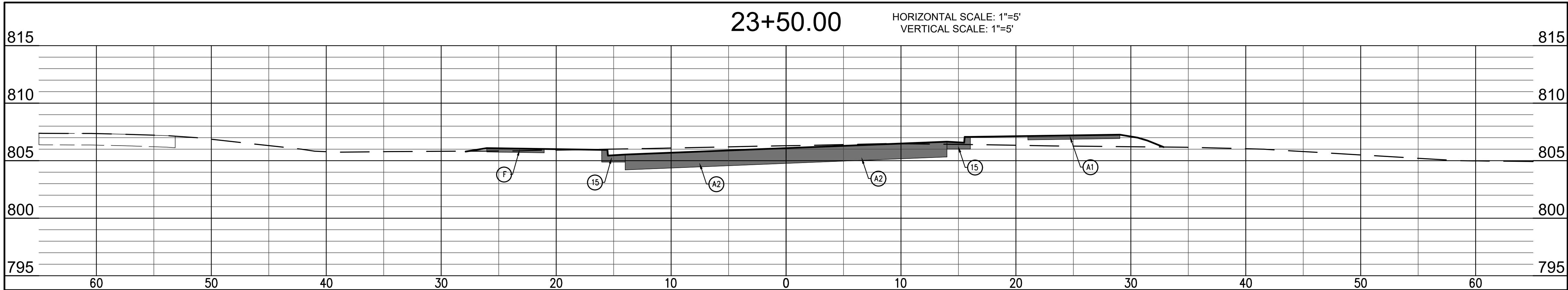
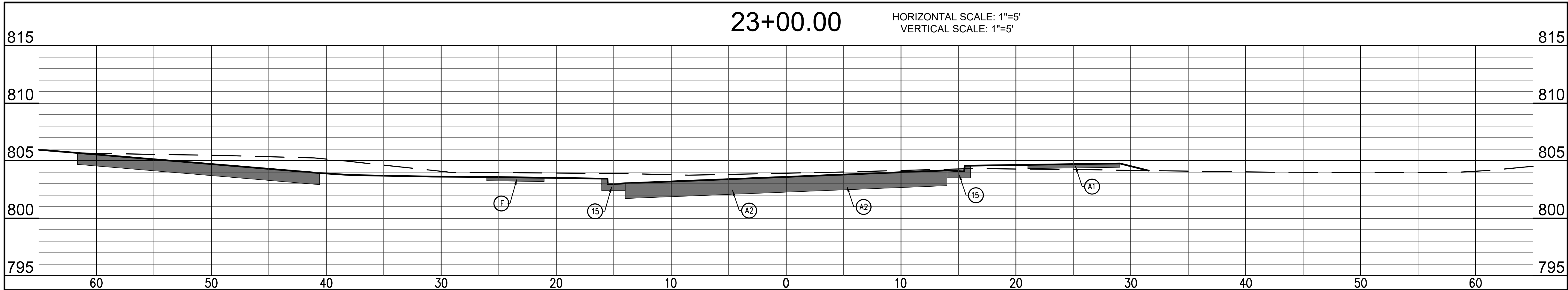
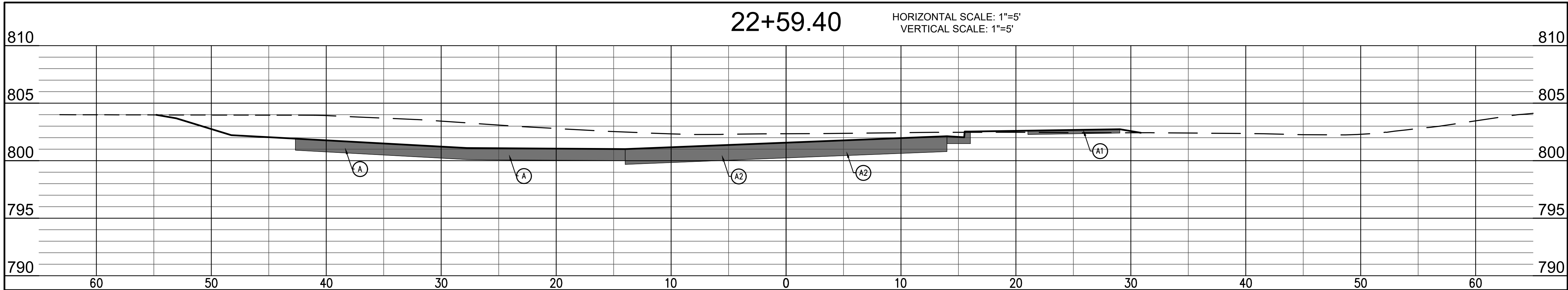
01.04.23

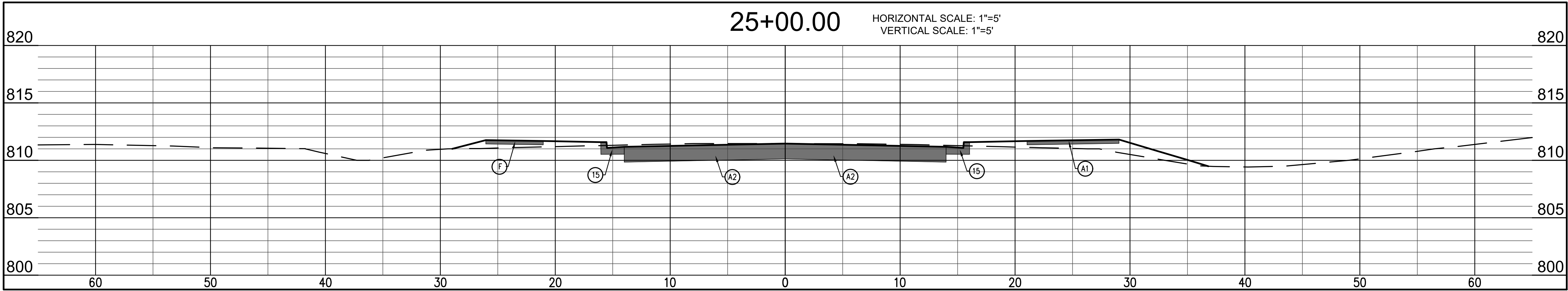
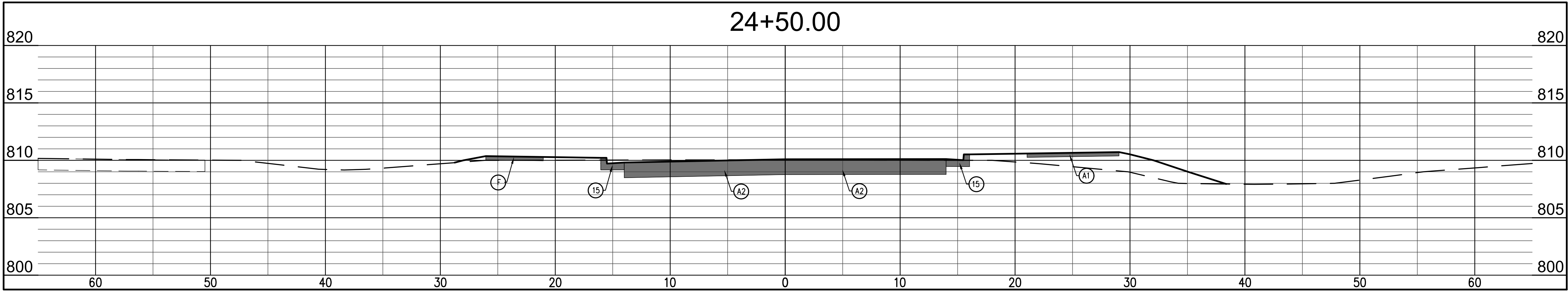
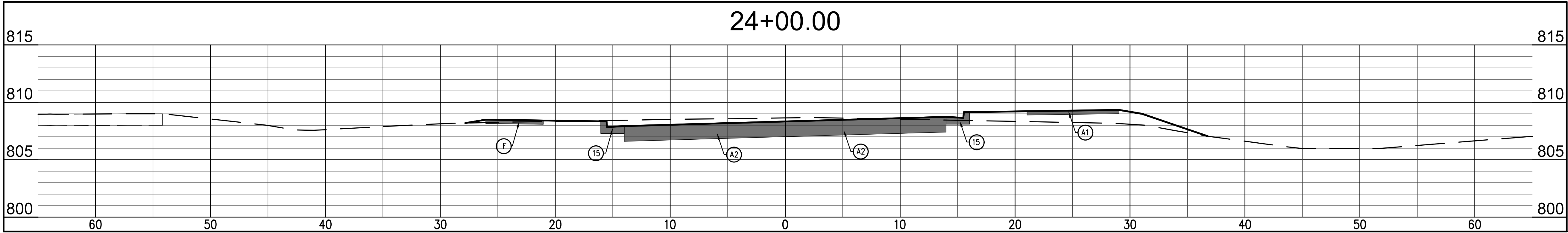
certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C23
project no.: 402224





revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING

Bloomington, Indiana
(812) 339-2890 (Fax)

BYNUM FANYO & ASSOCIATES, INC.

528 north walnut street
(812) 332-8030

01.04.23

certified by:

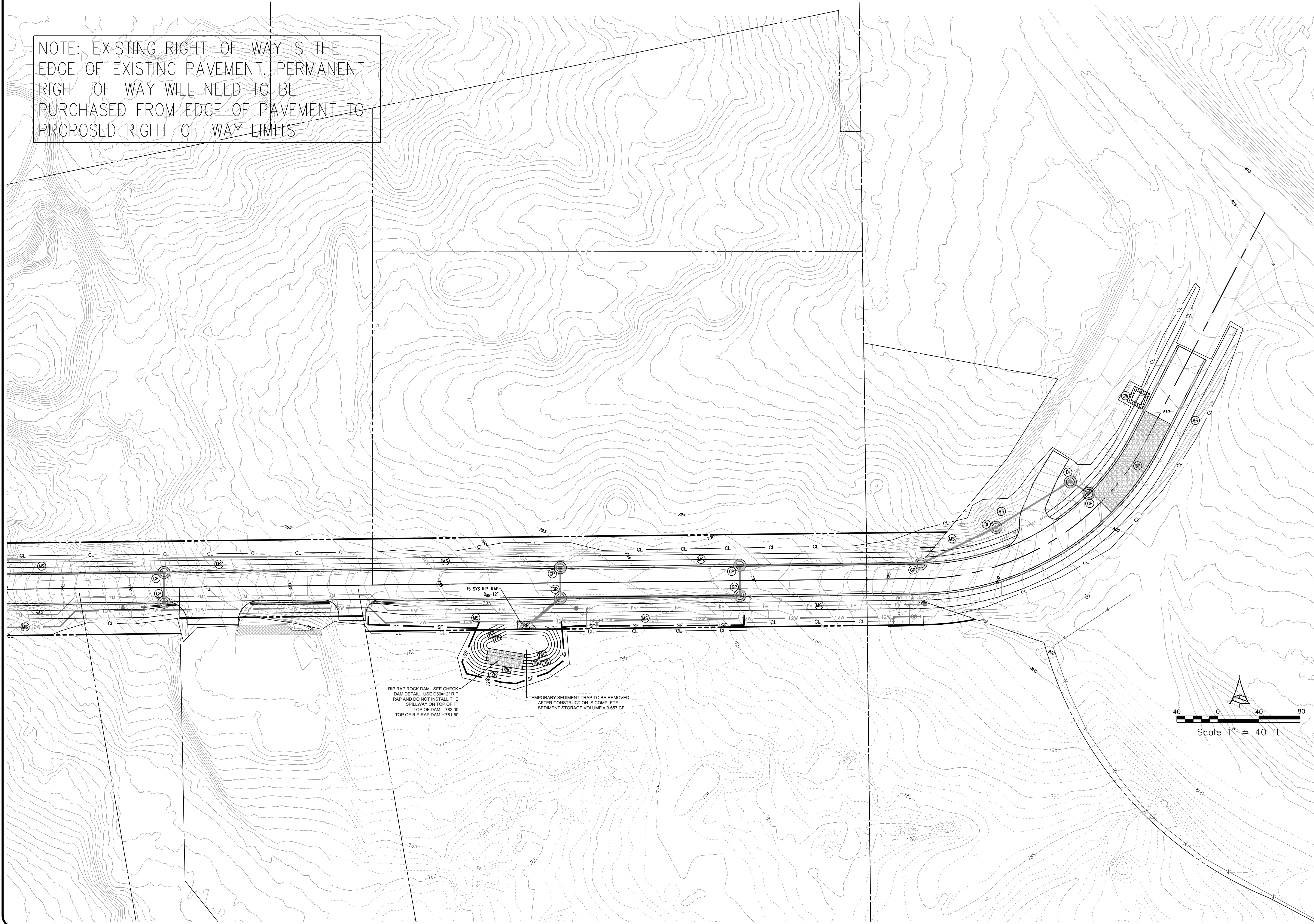
PROPOSED
HUNTER VALLEY ROAD EXTENSION

W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
EXTENSION
CROSS-SECTIONS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C24
project no.: 402224

NOTE: EXISTING RIGHT-OF-WAY IS THE
EDGE OF EXISTING PAVEMENT. PERMANENT
RIGHT-OF-WAY WILL NEED TO BE
PURCHASED FROM EDGE OF PAVEMENT TO
PROPOSED RIGHT-OF-WAY LIMITS



revisions:

ARCHITECTURE
CIVIL ENGINEERING
PLANNING
bloomington, indiana
(812) 339-2890 (Fax)

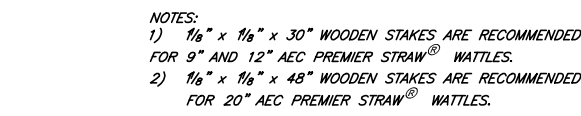
BYNUM FANYO & ASSOCIATES, INC.
528 north walnut street
(812) 332-8030

01.04.23

certified by:

**PROPOSED
HUNTER VALLEY ROAD EXTENSION**
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

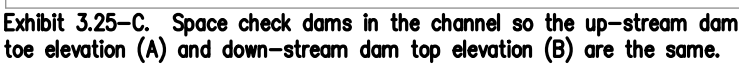
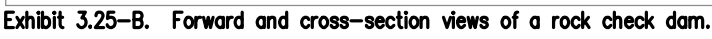
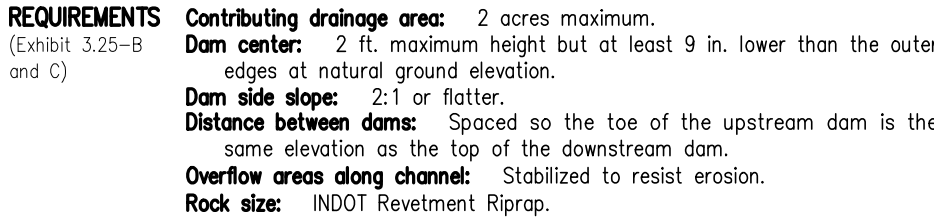
title: HUNTER VALLEY
ROAD EXTENSION
STORM WATER
POLLUTION
PREVENTION PLAN
designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C26
project no.: 402224



Slope Gradient	Slope	Product Name		
		9 in AEC Premier Straw Wattle ft. (m)	12 in AEC Premier Straw Wattle ft. (m)	20 in AEC Premier Straw Wattle ft. (m)
	4:1H:1V	40 (12.2)	60 (18.3)	80 (24.4)
	3H:1V	30 (9.1)	45 (13.7)	60 (18.3)
	2H:1V	20 (6.1)	30 (9.1)	40 (12.2)
	1H:1V	10 (3.0)	15 (4.6)	20 (6.1)

*Tighter spacing may be required based on soil type and seasonal rainfall patterns. For best results, use slope interruption devices in conjunction with rolled erosion control products.

AMERICAN EXCELSIOR COMPANY ARLINGTON, TEXAS	SHEET DESCRIPTION	DATE 03/01/18	DRAWN BY	
	AEC PREMIER STRAW® MATTE SLOPE INTERRUPTION DEVICE	SCALE	PROJECT NO.	SHEET NO.
		NONE		19



- Inspect check dams and the channel after each storm event, and repair and damage immediately.
- If significant erosion occurs between dams, install a riprap liner in that portion of the channel (Practice 3.32).
- Remove sediment accumulated behind each dam as needed to maintain channel capacity, to allow drainage through the dam, and to prevent large flows from displacing sediment.
- Add rock to the dams as needed to maintain design height and cross section.
- When the dams are no longer needed, remove the rock and stabilize channel, using an erosion-resistant lining if necessary.

REQUIREMENTS **Rock:** Hard, angular, and weather-resistant, having a specific gravity of at least 2.5.

Gradation: Well-graded stone, 50% (by weight) larger than the specified d_{50} ; however, the largest pieces should not exceed two times the specified d_{50} , and no more than 15% of the pieces (by weight) should be less than 3 in.

Filter: Use geotextile fabric for stabilization and filtration or sand/gravel layer placed under all permanent riprap installations.

Slope: 2:1 or flatter, unless approved in the erosion and sediment control plan.

Minimum thickness: Two times the specified d_{50} stone diameter.



4. Cut a keyway in stable material at the base of the slope to reinforce the toe; keyway depth should be 1 1/2 times the design thickness of the rip-rap and should extend a horizontal distance equal to the design thickness.
5. Smooth the graded foundation.

1. If using geotextile fabric, place it on the smoothed foundation, overlap the edges at least 12 in., and secure with anchor pins spaced every 3 ft. along the overlap. (For large riprap, consider a 4-in. layer of sand to protect the fabric.)
2. If using a sand/gravel filter, spread the well-graded aggregate in a uniform layer to the required thickness (6 in. minimum); if two or more layers are specified, place the layer of smaller gradation first, and avoid mixing the layers.

1. Immediately after installing the filter, add the riprap to full thickness in one operation. (Do not dump through chutes or use any method that causes segregation of rock sizes or that will dislodge or damage the underlying filter material.)
2. If fabric is damaged, remove the riprap and repair by adding another layer of filter, overlapping the damaged area by 12 in.
3. Place smaller riprap to voids to form a dense, uniform, well-graded mass. (Selective loading of the quarry and some hand placement may be needed to ensure an even distribution of rock material.)
4. Blend the rock surface smoothly with the surrounding area to eliminate protrusions or overfalls.

- * Inspect periodically for displaced rock material, slumping, and erosion at edges, especially downstream or downslope. (Properly designed and installed riprap usually requires very little maintenance if promptly repaired.)

REQUIREMENTS
(Exhibit 3.01-8)

Thickness: 2-3 in. washed stone (INDOT CA No. 2) over a stable foundation

Material: 6 in. minimum

Width: 50 ft. minimum or full width of entrance/exit roadway, whichever is greater.

Length: 200 ft. minimum. The length can be shorter for small sites such as for an individual home.

Washing facility (optional): Level area with 3 in. washed stone minimum or a commercial rock and water waste diverted to a sediment trap or basin (Practice 3.7.2).

Geotextile fabric underliner: May be used under wet conditions or for soils within a high seasonal water table to provide greater bearing strength.

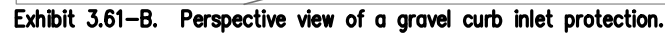


1. Avoid locating on steep slopes or at curves in public roads.
2. Remove all vegetation and other objectionable material from the foundation area, and grade and crown for positive drainage.
3. If slope towards the road exceeds 2%, construct a 6-8 in.-high water bar (ridge) with 3:1 side slopes across the foundation area about 15 ft from the entrance to divert runoff away from the road (Practice 3.2) (see Exhibit 3.01-C).
4. Install pipe under the pad if needed to maintain proper public road drainage.
5. If wet conditions are anticipated, place geotextile fabric on the graded foundation to improve stability.
6. Erosion control measures should be shown in the erosion/sediment control plan, leaving the surface smooth and sloped for drainage.
7. Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.



- * Inspect entrance pad and sediment disposal area weekly and after storm events or heavy use.
- * Reshape pad as needed for drainage and runoff control.
- * Top dress with clean stone as needed.
- * Immediately remove mud and sediment tracked or washed onto public roads by brushing or sweeping. Flushing should only be used if the water is conveyed into a sediment trap or basin.
- * Repair any broken road pavement immediately.

REQUIREMENTS (Exhibit 3.61-B) **Contributing drainage area:** 1 acre maximum.
Capacity: Runoff from a 2-yr. frequency, 24-hr. duration storm even entering the storm drain without bypass flow.
Location: At curb inlets where ponding is not likely to cause inconvenience.



1. Install gravel curb inlet protections as soon as the streets are paved in a new development situation or before land-disturbing activities in stabilized areas.
2. Place wire mesh over the curb inlet opening and/or grate so it extends at least 12 in. beyond both top and bottom of the opening/grate.
3. Install geotextile fabric over the wire mesh for additional filtration (optional).
4. Pile gravel over the wire mesh to anchor it against the curb, covering the inlet opening completely.



- * After each storm event, remove sediment and replace the gravel; replace the geotextile filter fabric if used.
- * Periodically remove sediment and tracked-on soil from the street (but not by flushing with water) to reduce the sediment load on the curb inlet practice.
- * Inspect periodically, and repair damage caused by vehicles.
- * When the contributing drainage area has been stabilized, remove the gravel, wire mesh, geotextile fabric, and any sediment, and dispose of them properly.

(NOTE: Silt fence captures sediment by ponding water to allow deposition not by filtration. Although the practice usually works best in conjunction with temporary basins, traps, or diversions, it can be sufficiently effective to be used alone. A silt fence is not recommended for use as a diversion nor is it to be used across a stream, channel or anywhere that concentrate flow is anticipated.)

- Drainage Area:** Limited to 1/4 acre per 100 ft. of fence; further restricted

- Location:** Fence nearly level, approximately following the land contour, and at least 10 ft. from toe of slope to provide a broad, shallow sediment pool.

- Support posts:** 2 x 2-in. hardwood posts (if used) or steel fence posts set at least 1 ft. deep.* (Steel posts should have projections for fastening fabric.)
- Spacing of posts:** 8 ft. maximum if fence supported by wire, 6 ft. for
- Exhibit 3.74-B. Maximum Land Slope and Distance for Which a Silt Fence Is Applicable.

	Land slope	Max. distance above fence
Fence height: High enough so depth of impounded water does not exceed 1 1/2 ft. at any point along fence line.	Less than 2%	100 ft.
	2 to 5%	75 ft.
Support wire (optional): 14 gauge, 6 in. wire fence (needed if using standard-strength fabric).	5 to 10%	50 ft.
	10 to 20%	25 ft.
	More than 20%	15 ft.

- Fence fabric:** Woven or non-woven geotextile fabric with specified filtering efficiency and tensile strength (see Exhibit 3.74-C) and containing UV inhibitors and stabilizers to ensure 6-month minimum life at temperatures 0°-120°F.

- * Some commercial silt fences come ready to install, with support posts attached and requiring now wire support.

Physical Property	Woven Fabric	Non-woven fabric
Filtration efficiency	85%	85%
Tensile strength at 20% elongation:		
Standard strength	30lbs./linear in.	50lbs./linear in.
Extra strength	50lbs./linear in.	70lbs./linear in.
Slurry flow rate	0.3 gal./min./sq.ft.	4.5 gal./min./sq.ft.
Water flow rate	15 gal./min./sq.ft.	220 gal./min./sq.ft.
UV resistance	70%	85%

- Outlet (optional):** To allow for safe storm flow bypass without overtopping fence. Placed along fence line to limit water depth to 1 1/2 ft. maximum crest--1 ft. high maximum; weir width--4 ft. maximum; splash pad--5 ft. wide, 3 ft. long, 1 ft. thick minimum.

SITE PREPARATION:

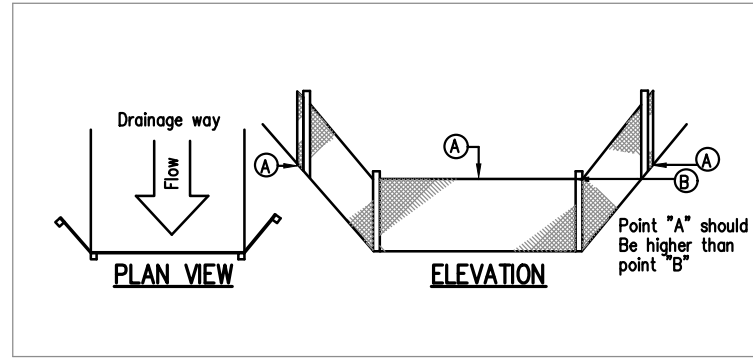
1. Plan for the fence to be at least 10 ft. from the toe of the slope to provide a sediment storage area.
2. Provide access to the area if sediment cleanout will be needed.

OUTLET CONSTRUCTION (OPTIONAL)

1. Determine the appropriate location for a reinforced, stabilized bypass flow outlet.
2. Set the outlet elevation so that water depth cannot exceed 1 1/2 ft. at the lowest point along the fence line.
3. Locate the outlet where support posts no more than 4 ft. apart, and install a horizontal brace between them. (Weir height should be no more than 1 ft. and water depth no more than 1 1/2 ft. anywhere else along the fence line.)
4. Excavate the foundation for the outlet splash pad to minims of 1 ft. deep, 5 ft. wide and 5 ft. long on level grade.
5. Fill the excavated foundation with INDOT CA No. 1 stone, being careful that the finished surface blends with the surrounding area, allowing no overfill.
6. Stabilize the area around the pad.

OUTLET CONSTRUCTION (OPTIONAL)

1. Along the entire intended fence line, dig an 8 in. deep, float-bottomed or V-notched trench.
 2. On the downslope side of the trench, drive the wood or steel support posts at least 1 ft. into the ground, spacing them no more than 8 ft. apart.
 3. If the fence is supported by wire, or if the fabric is extra strong fabric is used, the posts may be spaced at 16 ft. intervals.
 4. Lay the fabric in the trench, pulling it taut. If the fabric is not extra strong, set at the low points along the fence line. (NOTE: If the fence has pre-stretched posts or stakes, drive them deep enough so the fabric is satisfactorily in the trench as described in step 6.)
 5. Lay the fabric up the slope to the upslope side of the posts, extending it 1 ft. into the trench.
 6. Run a continuous length of geotextile fabric in front of the support wire and posts avoiding joints, particularly at low points in the fence line.
 7. Lay the fabric over the top of the posts, nearest post to a left, right or center post.
 8. Place the bottom 1 ft. of fabric in the 8 in. deep trench, extending the remaining 4 ft. toward the upslope side.
 9. Backfill the trench with topsoil or gravel.
- NOTE: If using a pre-paked commercial installation kit rather than constructing one, follow the manufacturer's instruction instructions.



- * Inspect the silt fence periodically and after each storm event.
- * If fence fabric tears, starts to decompose or in any way becomes ineffective replace the affected portion immediately.
- * Remove deposited sediment when it reaches half the height of the fence at its lowest point or is causing the fabric to bulge.
- * Take care to avoid undermining the fence during clean out.
- * After the contributing area has been stabilized, remove the fence and sediment deposits, bring the disturbed area to grade, and stabilize.

01.04.23

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no: C28
project no.: 402224

ECB

PRACTICE 3.17
EROSION CONTROL BLANKET (SURFACE-APPLIED)

Erosion control blanket is biodegradable organic or synthetic mulch incorporated into a polypropylene or similar netting material; it is an alternative to mulch and normally used on slopes or in concentrated flow channels.

PURPOSE

- To prevent erosion by protecting the soil from rainfall impact, overland water flow, concentrated runoff, or wind.
- To provide temporary surface stabilization.
- To anchor mulch in critical areas, including slopes.
- To reduce soil crusting.
- To conserve moisture and increase seed germination and seedling growth.

REQUIREMENTS

Materials: Either an organic (straw, excelsior, woven paper, coconut, fiber, etc.) or a synthetic mulch incorporated into a polypropylene or similar netting material. It may be biodegradable, photodegradable or permanent.

Expected life: 2 years maximum.

Anchoring: Use of staples or stakes to prevent movement or displacement.

INSTALLATION
(Exhibit 3.14-B)

1. Select the type and weight of erosion control blanket to fit the site conditions (e.g., slope, channel, flow velocity).
2. Install any practices needed to control erosion and runoff, such as temporary or permanent diversion, sediment basin or trap, silt fence, and straw bale dam (Practices 3.21, 3.22, 3.72, 3.73, 3.74, 3.75).
3. Grade the site as specified in the construction plan.
4. Add topsoil where appropriate (Practice 3.02).
5. Following manufacturer's directions, lay the blankets on the seeded area such that they are in continuous contact with the soil and that the upslope or upstream ones overlap the lower ones by at least 8 inches.
7. Tuck the uppermost edge of the upper blankets into a check slot (silt trench), backfill with soil and tamp down.
8. Anchor the blankets as specified by the manufacturer. This typically involves driving 6-8 inch metal staples into the ground in a pattern determined by the site conditions.

MAINTENANCE

- During vegetative establishment, inspect after storm events for any erosion below the blanket.
- If any area shows erosion, pull back that portion of the blanket covering it, add soil, re-seed the area, and re-apply and staple the blanket.
- After vegetative establishment, check the treated area periodically.

CW

TEMPORARY
CONCRETE WASHOUT AREA

REQUIREMENTS

Capacity: Temporary washout facilities shall be constructed above or below grade at the option of the contractor. Temporary washout facilities shall be constructed and maintained in sufficient quality and size to contain all liquid and concrete waste generated by washout operations.

Type: Below grade concrete washout facilities are typical. Above grade facilities are used if excavation is not practical.

Location: Facilities shall be located a minimum of 50' from storm drain inlets, open drainage facilities, and water courses.

Plastic Lining Material: Minimum 10 mil polyethylene sheeting and should be free of holes, tears or other defects.

Strow Bale Dimensions: Approximately 14 in. x 18 in. x 36 in.

Bale Anchoring: Two 36-in. long (minimum) steel rebars or 2 x 2-in. hardwood stakes driven through each bale.

INSTALLATION

- Temporary concrete washout facilities shall be constructed as shown in the above details, and as described below. All temporary washout facilities shall have at minimum 10' width, 3' depth, and sufficient length to contain all liquid and concrete waste generated.
- "Below Grade"**
 1. A pit shall be excavated with a minimum width of 10', depth of 3' and to contain all liquid and concrete waste generated.
 2. The pit should be lined with a minimum 10 mil plastic lining which overhangs the pit rim by 5' in each direction.
 3. Sandbags shall be placed on top of the plastic lining at 3' intervals along the rim of the excavated pit.
 4. Lath and flagging shall be installed on all sides of the excavated pit to clearly mark its location.
- "Above Grade"**
 1. A wood frame shall be constructed using two 2 x 12 boards staked on edge with a minimum width of 10' and length sufficient to contain all liquid and concrete waste generated.
 2. The wood frame shall be securely fastened around the entire perimeter using steel rebar or 2 in. x 2 in. hardwood stakes.
 3. The wood frame shall be lined with 10 mil plastic sheeting which shall be attached to the outside face of the wood frame.
 4. Straw bales shall be arranged such that they create a basin with a minimum width of 10' and length sufficient to contain all liquid and concrete waste generated.
 2. The straw bales shall be securely staked using steel rebar or 2 in. x 2 in. hardwood stakes. (two per bale)
 3. The basin shall be lined with 10 mil plastic sheeting which is attached to the straw bales using 4" steel wire staples. (two per bale)

MAINTENANCE

- Temporary concrete washout facilities should be maintained to provide adequate holding capacity with a minimum freeboard of 4 in. for above grade facilities and 12 in. for below grade facilities. Maintaining temporary concrete washout facilities should include removing and disposing of hardened concrete and returning the facilities to a functional condition. Hardened concrete materials should be removed and disposed of.
- Washout facilities must be cleaned, or new facilities must be constructed ready for use once the washout is 75% full.
- At the conclusion of concrete construction activities the temporary concrete washout area shall be removed and returned to its original condition.

PRACTICE 3.11
TEMPORARY SEEDING

REQUIREMENTS

Site and seedbed preparation: Graded and fertilizer applied.

Plant Species: Selected on the basis of quick germination, growth, and time of year to be seeded (see Exhibit 3.11-B).

Mulch: Clean grain, straw, hay, wood, fibre, etc., to protect seedbed and encourage plant growth.

Seeding Frequency: As often as possible following construction activity. Daily seeding of rough graded areas when the soil is loose and moist is usually most effective.

APPLICATION
(Exhibit 3.11-B)

SITE PREPARATION:

1. Install practices needed to control erosion, sedimentation, and water runoff, such as temporary and permanent diversions, sediment traps or basins, silt fences, and strow bale dams (practices 3.21, 3.22, 3.72, 3.73, 3.74, and 3.75).
2. Grade the site as specified in the construction plan.

SEEDBED PREPARATION:

1. Test soil to determine its nutrient levels. (Contact your county SWDC or Cooperative Extension office for assistance and soils information.
2. Fertilize as recommended by the soil test. If testing is not done, consider applying 400-600 lbs./acre of 12-12-12 analysis, or equivalent, fertilizer.
3. Work the fertilizer into the soil 2-4 in. deep with a disk or rake operated across the slope.

SEEDING:

1. Select a seeding mixture and rate from Exhibit 3.11-B, and plant at depth and on dates shown, including available soil testing services.)
2. Apply seed uniformly with a drill or cultipacker-seeder or by broadcasting, and cover to the depth shown in Exhibit 3.11-B.
3. If drilling or broadcasting, firm the seedbed with a roller or cultipacker.
4. Mulch seeded areas to increase seeding success. Anchor all mulch by crimping or tackifying. Use of netting or erosion control blankets is possible, but may not be cost-effective for temporary seeding.

Exhibit 3.11-B. Temporary Seeding Recommendations

Seed Species*	Rate/acre	Planting Depth	Optimum dates**
Wheat or rye	150 lbs.	1 to 1 1/2 in.	9/15 to 10/30
Spring oats	100 lbs.	1 in.	3/1 to 4/15
Annual ryegrass	40 lbs.	1/4 in.	3/1 to 5/1
			8/1 to 9/1
			5/4 to 6/1
			6/4 to 7/30

* Perennial species may be used as temporary cover, especially if the area to be seeded will remain idle for more than a year (Practice 3.12).

** Seeding done outside the optimum dates increases the chances of seeding failure.

MAINTENANCE

- Inspect periodically after planting to see that vegetative stands are adequately established; reseed if necessary.
- Check for erosion damage after storm events and repair; reseed and mulch if necessary.
- Topdress fall seeded wheat or rye seedings with 50 lbs./acre of nitrogen in February or March if nitrogen deficiency is apparent. (Exhibit 3.11-B shows only wheat/rye fall seeded.)

SS

SWALE SEEDING

REQUIREMENTS

Site and seedbed preparation: Proposed pond grading, as shown on Grading Plan. Entire area to be swale seeded shall be cleared of all underbrush and debris as to expose topsoil but not to disturb existing trees.

Plant Species: Swale Seeding Mix as referred to in the latest JF NW catalog (574.586.2412) or equal.

APPLICATION

1/4 acre permanent grasses as referred to in the latest JF NW catalog (574.586.2412) or equal.

PRACTICE 3.13
DORMANT AND FROST SEEDING

PURPOSES

- To provide early germination and soil stabilization in the spring.
- To reduce sediment runoff to downstream areas.
- To improve the visual aesthetics of the construction area.
- To repair previous seedings.

REQUIREMENTS

Site and seedbed preparation: Graded as needed, and lime and fertilizer applied.

Plant species: Selected on the basis of soil type, adaptability to the region, and planned use of the area (see Exhibits 3.13-B and 3.13-C).

APPLICATION
(Exhibit 3.13-B and C)

SITE PREPARATION:

1. Grade the area to be seeded.
2. Install needed erosion/water runoff control practices, such as temporary or permanent diversions, sediment basins, silt fences, or strow bale dams (Practices 3.21, 3.22, 3.72, 3.73, 3.74, and 3.75).

FOR DORMANT SEEDING

Site and seedbed preparation and mulching can be done months ahead of actual seeding or if the existing ground cover is adequate, seeding can be directly into it.

Seeding dates Dec. 1-Feb. 28 (north of US 40), Dec. 10-Jan. 15 (south of US 40).

1. Broadcast Fertilizer as recommended by a soil test; or if testing was not done consider applying 400-600 lbs./acre of 12-12-12 analysis or equivalent, fertilizer.
2. Apply mulch upon completion of grading (Practice 3.15).
3. Select an appropriate seed species or mixture from Exhibit 3.13-B or Exhibit 3.13-C, and broadcast on top of the mulch and/or into existing ground cover at rate shown. Do not work the seed into the soil.

FOR FROST SEEDING

Seed is broadcast over the prepared seedbed and incorporated into the soil by natural freeze-thaw action.

Seeding dates: Feb. 28-Mar. 28 (north of US 40), Feb. 15-Mar. 15 (south of US 40).

1. Broadcast Fertilizer as recommended by a soil test; or if testing was not done consider applying 400-600 lbs./acre of 12-12-12 analysis or equivalent, fertilizer.
2. Apply mulch upon completion of grading (Practice 3.15).
3. Select an appropriate seed species or mixture from Exhibit 3.13-B or Exhibit 3.13-C, and broadcast on top of the mulch and/or into existing ground cover at rate shown. Do not work the seed into the soil.

Exhibit 3.13-B. Temporary Dormant or Frost Seeding Recommendations.

Seed species*	Rate per acre
Wheat or rye	150lbs.
Spring oats	150 lbs.
Annual ryegrass	60 lbs.

* Perennial species may be used as a temporary cover, especially if the area to be seeded will remain idle for more than a year (Practice 3.12).

Exhibit 3.13-C. Permanent Dormant or Frost Seeding Recommendations.

This table provides several seeding options. Additional seed species and mixtures are available commercially. When selecting a mixture, consider site conditions, including soil properties (e.g., soil pH and drainage), slope aspect and the tolerance of each species to shade and droughtiness.

Seed species*	Rate per acre	Optimum soil pH
OPEN AND DISTRIBUTED AREAS (REMAINING IDLE MORE THAN 1 YR.)		
1. Perennial ryegrass	50 to 75 lbs.	5.6 to 7.0
+ white or ladino clover*	1 1/2 to 3 lbs.	
2. Kentucky bluegrass	30 lbs.	5.5 to 7.5
+ switchgrass	5 lbs.	
+ timothy	6 lbs.	
+ perennial ryegrass	15 lbs.	
+ white or ladino clover*	1 1/2 to 3 lbs.	
3. Perennial ryegrass	22 to 45 lbs.	5.6 to 7.0
+ prairie switchgrass	22 to 45 lbs.	
4. Prairie switch grass	50 to 75 lbs.	5.5 to 7.5
+ white or ladino clover*	1 1/2 to 3 lbs.	
STEEP BANKS AND CUTS, LOW MAINTENANCE AREAS (NOT MOWED).		
2. Prairie switch grass	50 to 75 lbs.	5.5 to 7.5
+ white or ladino clover*	1 1/2 to 3 lbs.	
3. Prairie switch grass	50 to 75 lbs.	5.5 to 7.5
+ red clover*	15 to 30 lbs.	
(Recommended north of US 40.)		
4. Orchardgrass	30 to 45 lbs.	5.6 to 7.0
+ red clover*	15 to 30 lbs.	
+ ladino clover*	1 1/2 to 3 lbs.	
LAWNS AND HIGH MAINTENANCE AREAS		
1. Bluegrass	160 to 210 lbs.	5.5 to 7.5
2. Perennial ryegrass (turf-type)	70 to 90 lbs.	5.6 to 7.0
+ bluegrass	105 to 135 lbs.	
3. Prairie switch grass (turf-type)	195 to 250 lbs.	5.6 to 7.5
+ bluegrass	30 to 45 lbs.	
CHANNELS AND AREAS OF CONCENTRATED FLOW		
1. Perennial ryegrass	150 to 225 lbs.	5.6 to 7.0
+ white or ladino clover*	1 1/2 to 3 lbs.	
2. Kentucky bluegrass	30 lbs.	5.5 to 7.5
+ switchgrass	5 lbs.	
+ timothy	6 lbs.	
+ perennial ryegrass	15 lbs.	
+ white or ladino clover*	1 1/2 to 3 lbs.	
+ white or ladino clover*	1 1/2 to 3 lbs.	
3. Prairie switch grass	150 to 225 lbs.	5.5 to 7.5
+ perennial bluegrass	22 to 30 lbs.	
+ kentucky bluegrass	22 to 30 lbs.	

* For best results: (a) legume seed should be inoculated; (b) seeding mixtures containing legumes should preferably be spring-seeded, although the grass may be fall-seeded and the legume frost-seeded; (c) if legumes are fall-seeded, do so in early fall.

NOTE: If using mixtures other than those listed here, increase the seeding rate by 50% over the conventional rate.

MAINTENANCE

- Apply 200-300 lbs./acre of 12-12-12 or equivalent fertilizer between Apr. 15 and May 10 or during periods of vigorous growth.
- Re-seed and mulch any areas that have inadequate cover by mid to late Apr. For best results, re-seed within the recommended dates shown in Practices 3.11 for temporary seeding or 3.12 for permanent seeding.

MS

PRACTICE 3.12
PERMANENT SEEDING

REQUIREMENTS

Site and seedbed preparation: Graded, and lime and fertilizer applied.

Plant Species: Selected on the basis of soil type, soil pH, region of the state, time of year, and planned use of the area to be seeded (see Exhibit 3.12-C).

Mulch: Clean grain, straw, hay, wood, fibre, etc., to protect seedbed and encourage plant growth. The mulch may need to be anchored to reduce removal by wind or water, or erosion control blankets may be considered.

APPLICATION
(Exhibit 3.12-B, C, and D)

Permanently seed all final grade areas (e.g., landscape berms, drainage swales, erosion control structures, etc.) as each is completed and all areas where additional work is not scheduled for a period of more than a year.

SITE PREPARATION:

1. Install practices needed to control erosion, sedimentation, and runoff prior to seeding. These include temporary and permanent diversions, sediment traps and basins, silt fences, and strow bale dams (Practices 3.21, 3.22, 3.72, 3.73, 3.74, and 3.75).
2. Grade the site and fill in depressions that can collect water.
3. Add topsoil to achieve needed depth for establishment of vegetation (Practice 3.02).

SEEDBED PREPARATION:

1. Test soil to determine pH and nutrient levels. (Contact your county SWDC or Cooperative Extension office for assistance and soils information, including available soil testing services.)
2. If soil pH is unsuitable for the species to be seeded, apply lime according to test recommendations.
3. Fertilize as recommended by the soil test. If testing was not done, consider applying 400-600 lbs./acre of 12-12-12 analysis, or equivalent, fertilizer.
4. Till the soil to obtain a uniform seedbed, working the fertilizer and lime into the soil 2-4 in. deep with a disk or rake operated across the slope (Exhibit 3.12-B).

SEEDING:

Optimum seeding dates are Mar. 1-May 10 and Aug. 10-Sept. 30. Permanent seeding done between May 10 and Aug. 10 may need to be irrigated. As an alternative, use temporary seeding (Practice 3.11) until the preferred date for permanent seeding.

1. Select a seeding mixture and rate from Exhibit 3.12-C, based on site conditions, soil pH, intended land use, and expected level of maintenance.
2. Apply seed uniformly with a drill or cultipacker-seeder (Exhibit 3.12-D) or by broadcasting, and cover to a depth of 1/4-1/2 in.
3. If drilling or broadcasting, firm the seedbed with a roller or cultipacker.
4. Mulch all seeded areas (Practice 3.15). Consider using erosion blankets on sloping areas (Practice 3.17). (NOTE: If seeding is done with a hydroseeder, fertilizer and mulch can be applied with the seed in a slurry mixture.)

Exhibit 3.12-C. Permanent Seeding Recommendations

This table provides several seeding options. Additional seed species and mixtures are available commercially. When selecting a mixture, consider site conditions, including soil properties (e.g., soil pH and drainage), slope aspect and the tolerance of each species to shade and droughtiness.

Seed species and mixtures	Rate per acre	Optimum soil pH
OPEN AND DISTURBED AREAS (REMAINING IDLE MORE THAN 1 YR.)		
1. Perennial ryegrass	35 to 50 lbs.	5.6 to 7.0
+ white or ladino clover*	1 to 2 lbs.	
2. Kentucky bluegrass	20 lbs.	5.5 to 7.5
+ switchgrass	3 lbs.	
+ timothy	4 lbs.	
+ perennial ryegrass	10 lbs.	
+ white or ladino clover*	1 to 2 lbs.	
3. Perennial ryegrass	15 to 30 lbs.	5.6 to 7.0
+ prairie switch grass	15 to 30 lbs.	
4. Prairie switch grass	35 to 50 lbs.	5.5 to 7.5
+ ladino or white clover*	1 to 2 lbs.	
STEEP BANKS AND CUTS, LOW MAINTENANCE AREAS (NOT MOWED)		
2. Prairie switch grass	35 to 50 lbs.	5.5 to 7.5
+ white or ladino clover*	1 to 2 lbs.	
3. Prairie switch grass	35 to 50 lbs.	5.5 to 7.5
+ red clover*	10 to 20 lbs.	
(Recommended north of US 40)		
4. Orchardgrass	20 to 30 lbs.	5.6 to 7.0
+ red clover*	10 to 20 lbs.	
+ ladino clover*	1 to 2 lbs.	
LAWNS AND HIGH MAINTENANCE AREAS		
1. Bluegrass	105 to 150 lbs.	5.5 to 7.0
2. Perennial ryegrass (turf-type)	45 to 60 lbs.	5.6 to 7.0
+ bluegrass	70 to 90 lbs.	
3. Prairie switch grass (turf-type)	135 to 107 lbs.	5.5 to 7.5
+ bluegrass	20 to 30 lbs.	
CHANNELS AND AREAS OF CONCENTRATED FLOW		
1. Perennial ryegrass	100 to 150 lbs.	5.6 to 7.0
+ white or ladino clover*	1 to 2 lbs.	
2. Kentucky bluegrass	20 lbs.	5.5 to 7.5
+ switchgrass	3 lbs.	
+ timothy	4 lbs.	
+ perennial ryegrass	10 lbs.	
+ white or ladino clover*	1 to 2 lbs.	
3. Prairie switch grass	100 to 150 lbs.	5.5 to 7.5
+ ladino or white clover*	1 to 2 lbs.	
4. Prairie switch grass	100 to 150 lbs.	5.5 to 7.5
+ Perennial ryegrass	15 to 20 lbs.	
+ Kentucky bluegrass	15 to 20 lbs.	

* For best results: (a) legume seed should be inoculated; (b) seeding mixtures containing legumes should preferably be spring-seeded, although the grass may be fall-seeded and the legume frost-seeded (Practice 3.13); and (c) if legumes are fall-seeded, do so in early fall.

NOTE: An oat or wheat companion or nurse crop may be used with any of the above permanent seeding mixtures. If so, it is best to seed during the fall seeding period, especially after Sept. 15, and at the following rates: spring oats-1 1/4 to 3/4 bu./acre; wheat-no more than 1/2 bu./acre.

MAINTENANCE

- Inspect periodically, especially after storm events, until the stand is successfully established. (Characteristics of a successful stand include: vigorous dark green or bluish-green seedlings; uniform density with nurse plants, legumes, and grasses well inter-mixed; green leaves; and the perennials remaining green throughout the summer, at least at the plant base.)
- Plan to add fertilizer the following growing season according to soil test recommendations.
- Repair damaged, bare or sparse areas by filling any gullies, re-fertilizing, over- or re-seeding, and mulching.
- If plant cover is sparse or patchy, review the plant materials chosen, soil fertility, moisture condition, and mulching; then repair the affected area either by over-seeding or by re-seeding and mulching after re-preparing the seedbed.
- If vegetation fails to grow, consider soil testing to determine acidity or nutrient deficiency problems. (Contact your SWDC or Cooperative Extension office for assistance.)
- If additional fertilization is needed to get a satisfactory stand, do so according to soil test recommendations.

revisions:

ARCHITECTURE

CIVIL ENGINEERING

PLANNING

BYNUM FANYO & ASSOCIATES, INC.

bloomington, indiana

(812) 359-2990 (Fax)

BBB

528 north walnut street

(812) 332-8030

certified by:

PROPOSED
HUNTER VALLEY ROAD EXTENSION
W. HUNTER VALLEY ROAD,
BLOOMINGTON, IN 47404
FROM N STONE BRANCH DR. TO ARLINGTON ROAD

title: HUNTER VALLEY
ROAD EXTENSION
SWPPP DETAILS

designed by: AJW
drawn by: AJW
checked by: JSF
sheet no.: C29
project no.: 402224