



STA. 10+29.77 TO STA. 41+97.61

HORIZONTAL CURVE IS LESS THAN AASHTO BICYCLE DESIGN GUIDE FOR A 20 MPH CURVE. THE CURVE DOES MEET A 16 MPH DESIGN CRITERIA. STATION 10+45.79, STATION 10+94.94 AND STATION 37+28.02.

HORIZONTAL CURVE IS LESS THAN AASHTO BICYCLE DESIGN GUIDE FOR A 20 MPH CURVE. THE CURVE DOES MEET A 12 MPH DESIGN CRITERIA. STATION 38+25.00 AND STATION 41+48.97.

HORIZONTAL CURVE IS LESS THAN AASHTO BICYCLE DESIGN GUIDE FOR A 20 MPH CURVE. THE CURVE DOES MEET A 10 MPH DESIGN CRITERIA. STATION 27+88.08, STATION 39+43.75 AND STATION 40+43.45.

1. All construction to be in accordance with "City of Columbia Street, Storm and Sanitary Specifications" (Current edition).
2. Known underground utilities are shown in their approximate locations. Other utilities may exist.
3. All removal of driveway pavements should be verified by field engineer.
4. All excavation to be in accordance with Sections 319.010-319.050, Revised Statutes of the State of Missouri. Such compliance shall not, however, excuse any person making any excavation from doing so in a careful and prudent manner, nor shall it excuse such person from liability for any damage or injury to underground utilities resulting from the excavation.
5. All RCP is Class III unless otherwise indicated.
6. All disturbed earth areas shall be restored as per TS-__ Seeding and TS-__ Erosion Control.
7. Remove all pavement surfaces, inlets, pipes and sidewalks within the construction limits as per TS-__, except those noted to remain. The field inspector shall verify removal of all driveway pavement.
8. Removal of trees and bushes shall be verified by field inspectors. Exercise caution when working near the construction limits to minimize disturbance to adjacent trees and shrubs that are not being removed by construction activities.
9. Backfill of reinforced concrete pipe shall be 1 inch clean rock or soil compacted to 90 percent of standard proctor density as per TS-__.
10. No open trenches will be allowed overnight outside of the "road closed" area. Asphaltic "cold mix" shall be used as a temporary patch overnight. Temporary patching shall be considered incidental to the work.

CPP - 9999 (523)

R 164-14

TELEPHONE
CenturyLink
625 Cherry Street
Columbia, MO 65205
573-886-3505

NATURAL GAS
Ameren Missouri
2001 Maguire Boulevard
Columbia, MO 65201
573-239-6165 (N of I-70)
573-876-3030 (S of I-70)

CABLE TELEVISION
Mediacom
901 N. College Avenue
Columbia, MO 65201
573-443-1536 ext 354

LOCATES
Missouri One Call Inc.
1022 B Northeast Drive
Jefferson City, MO 65109
1-800-344-7483

WATER
City of Columbia
P.O. Box 6015
Water & Light Department
Columbia, MO 65205
573-874-7301

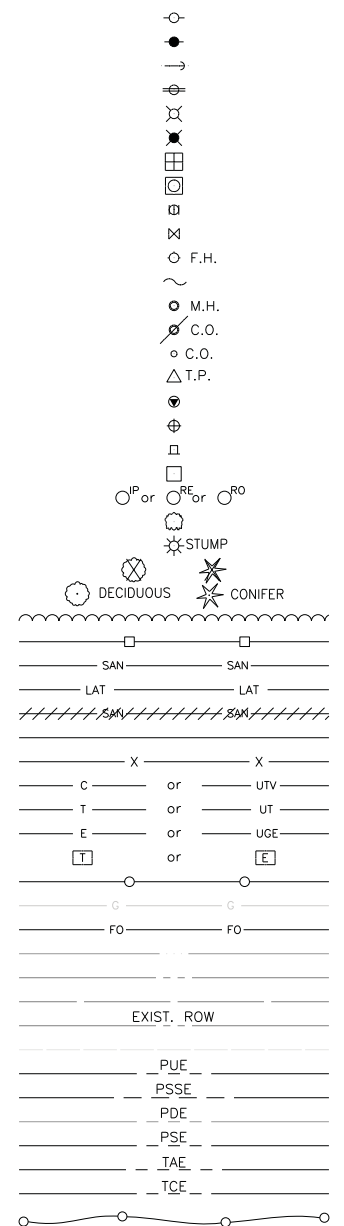
ELECTRIC
City of Columbia
P.O. Box 6015
Water & Light Department
Columbia, MO 65205
573-874-7301

SANITARY SEWER
City of Columbia
P.O. Box 6015
Public Works Department
Columbia, MO 65205
573-874-7250

ELECTRIC (county)
Boone Electric Cooperative
1413 Range Line Street
Columbia, MO 65201
573-449-4181 ext 231

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POWER POLE
TELEPHONE POLE
GUY ANCHOR
GUY POLE
STREET LIGHT POLE
YARD LIGHT (SOLAR)
WATER METER
GAS METER
GAS VALVE
WATER VALVE
FIRE HYDRANT
PIPE BREAKLINE
SANITARY MANHOLE
SANITARY CLEANOUT
SANITARY LATERAL CLEANOUT
TRAVERSE POINT
MoDOT ROW MARKER
BENCHMARK
SIGN
MAIL BOX
PROPERTY IRON
BUSH
STUMP
TREE REMOVAL
TREE
TREE LINE
SILT FENCE/TREE PROTECT
EXISTING PUBLIC SANITARY SEWER
EXISTING SANITARY SEWER LATERAL
EXISTING SANITARY SEWER TO BE ABANDONED
PROPOSED SEWER MAIN AND LATERALS
FENCE
CABLE TELEVISION
TELEPHONE
ELECTRIC
TELEPHONE OR ELECTRIC MANHOLE
WATER MAIN
GAS MAIN
FIBER OPTIC
FLOW LINE
PROPERTY LINE
LOT LINE
EXISTING RIGHT OF WAY LINE
EXISTING EASEMENT
PERMANANT UTILITY EASEMENT
PROPOSED SANITARY SEWER EASEMENT
PROPOSED PERMANENT DRAINAGE EASEMENT
PROPOSED RIGHT OF WAY
TEMPORARY ACCESS EASEMENT
TEMPORARY CONSTRUCTION EASEMENT
GRADING LIMIT



 City of Columbia, Missouri Department of Public Works			
No.	Date	By	Revision
File No. 32-XX-XX			Des. K.M.B.
Scale: None			Dwn. K.M.B.
Date: 9/6/2016			Chk. J.W.Z.
Sheet 1 of 18 David Allen Nichols Registered Professional Engineer E-24212			

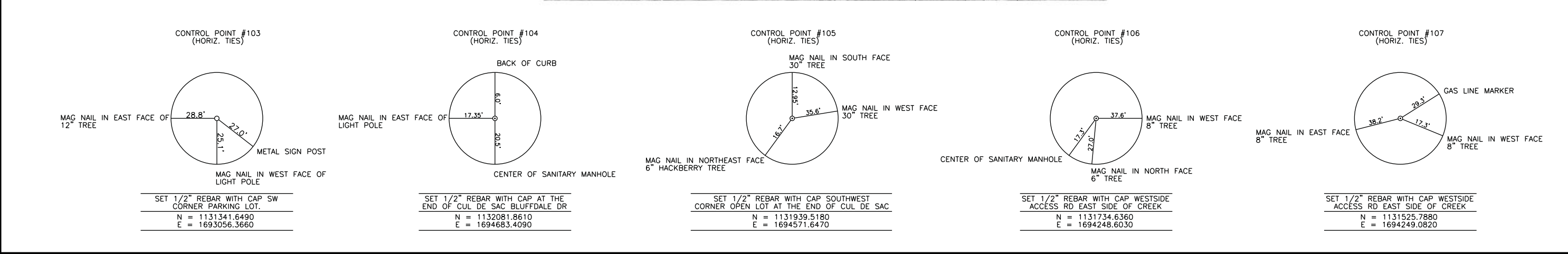
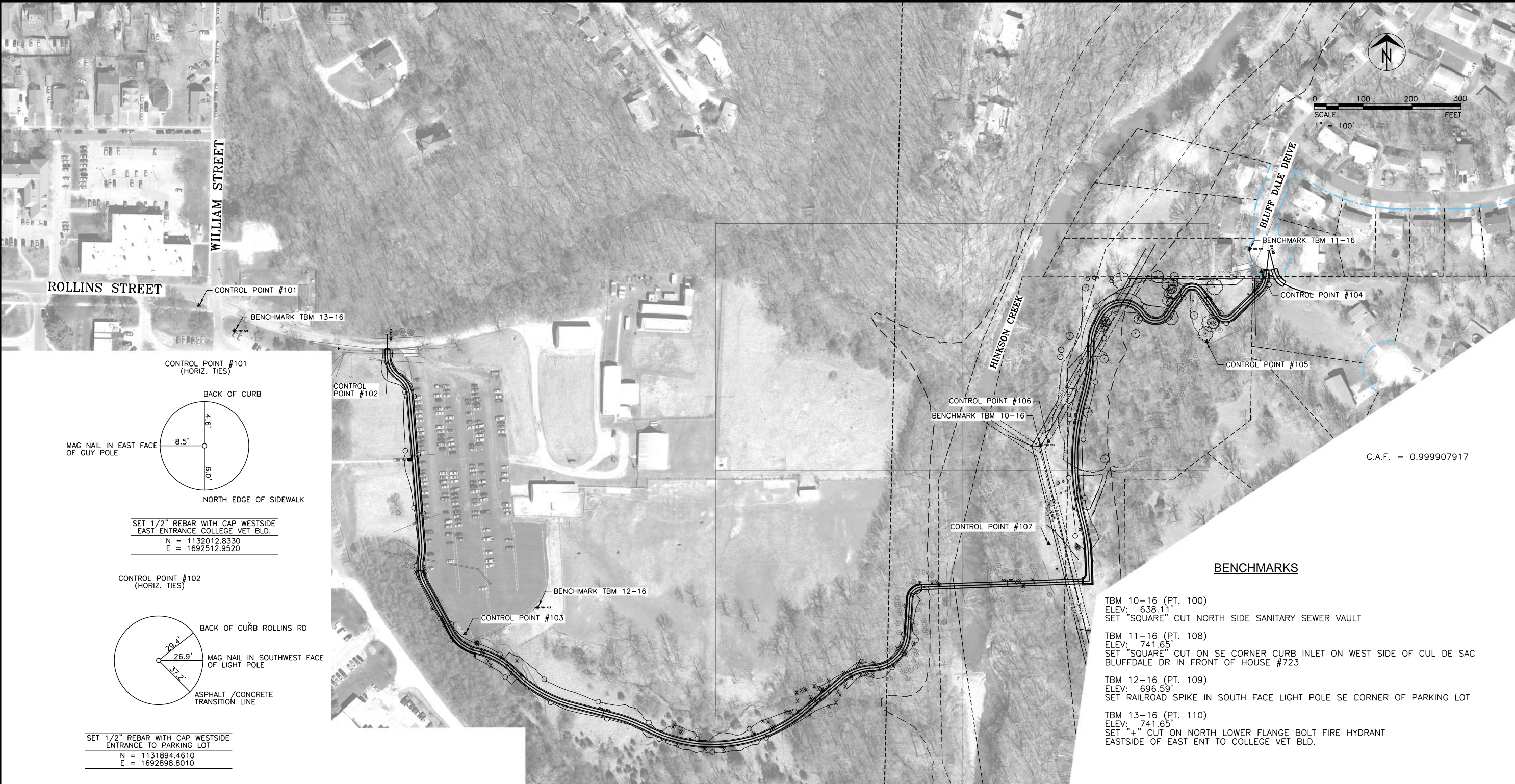
SHEPARD TO ROLLINS TRAIL CONNECTION

Approved By _____

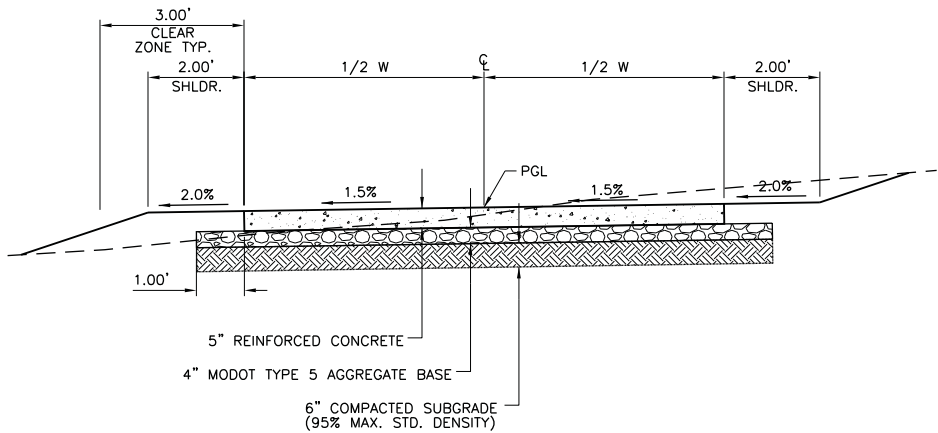
Director of Public Works _____

Date _____

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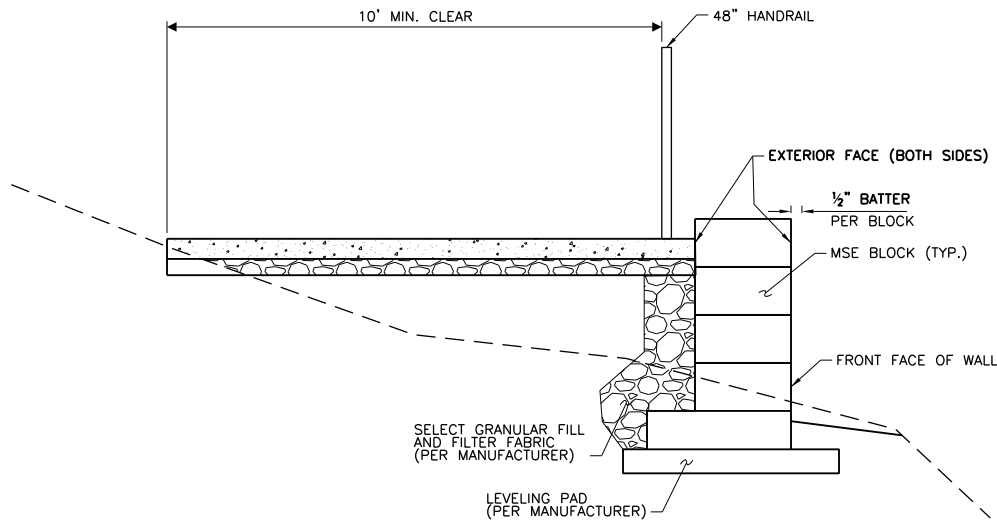


Revision	
By	
Date	
No.	
SHEPARD TO ROLLINS TRAIL CONNECTION Coordinate Reference Points	
City of Columbia, Missouri Department of Public Works	
JOHN ZIMMERMANN Registered Professional Engineer [ENGINEER NUMBER]	
Proj. No. CPP-9999 (523)	
File No. P101160118	
Scale: 1" = 100'	
Date: 4/17/2017	
Des. K.M.B.	
Dwn. K.M.B.	
Chk. J.W.Z.	
Sheet 2 of 18	



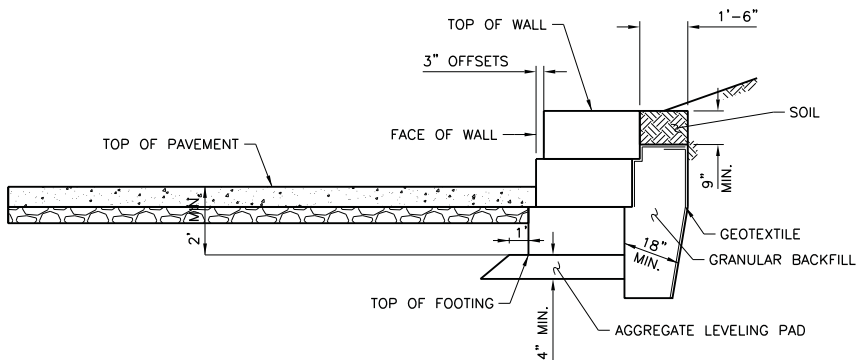
TRAIL TYPICAL SECTION

STA. 10+29.76 TO STA. 31+49.00 (EXCEPT BRIDGE), W = 10'
STA. 31+44.00 TO STA. 33+05.00, W = 11'
STA. 33+05.00 TO STA. 42+01.50, W = 10'



MSE RETAINING WALL SECTION

STA. 31+40.86 TO STA. 33+05.00, LT. & RT. (NO. 3 & 4)



STACKED LIMESTONE RETAINING WALL SECTION

STA. 15+86.15 TO STA. 16+66.60, RT. (NO. 1)
STA. 27+10.00 TO STA. 28+14.00, LT. (NO. 2)

GENERAL NOTES

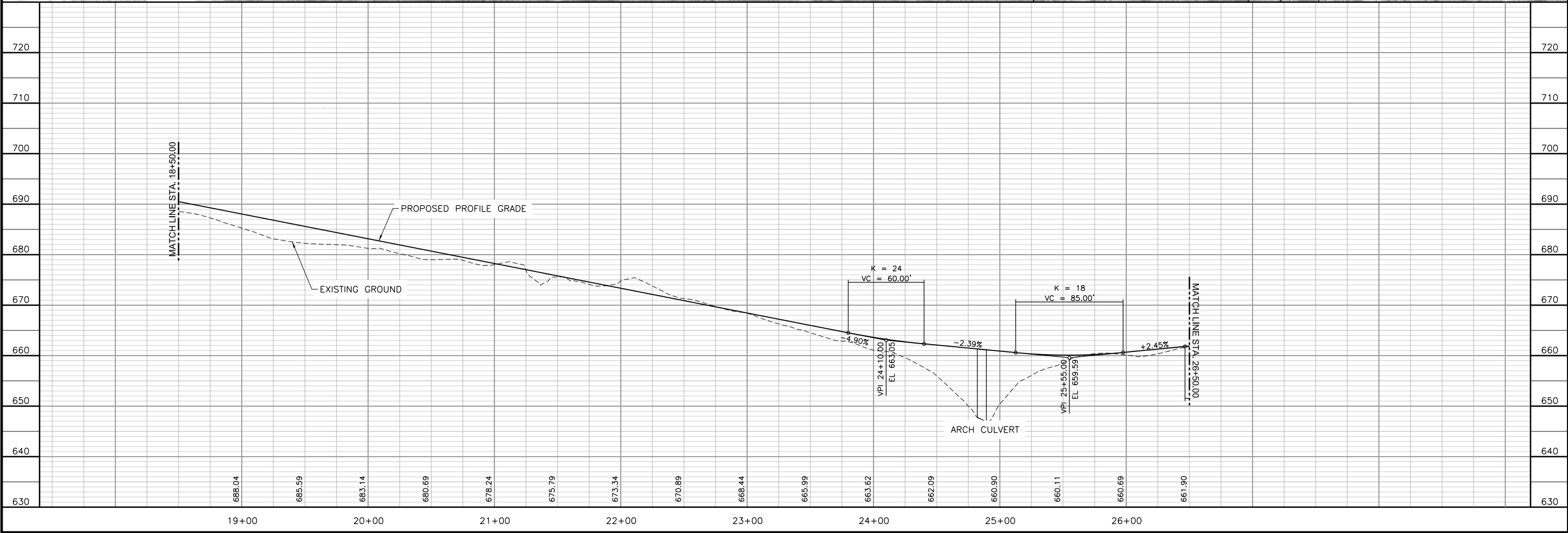
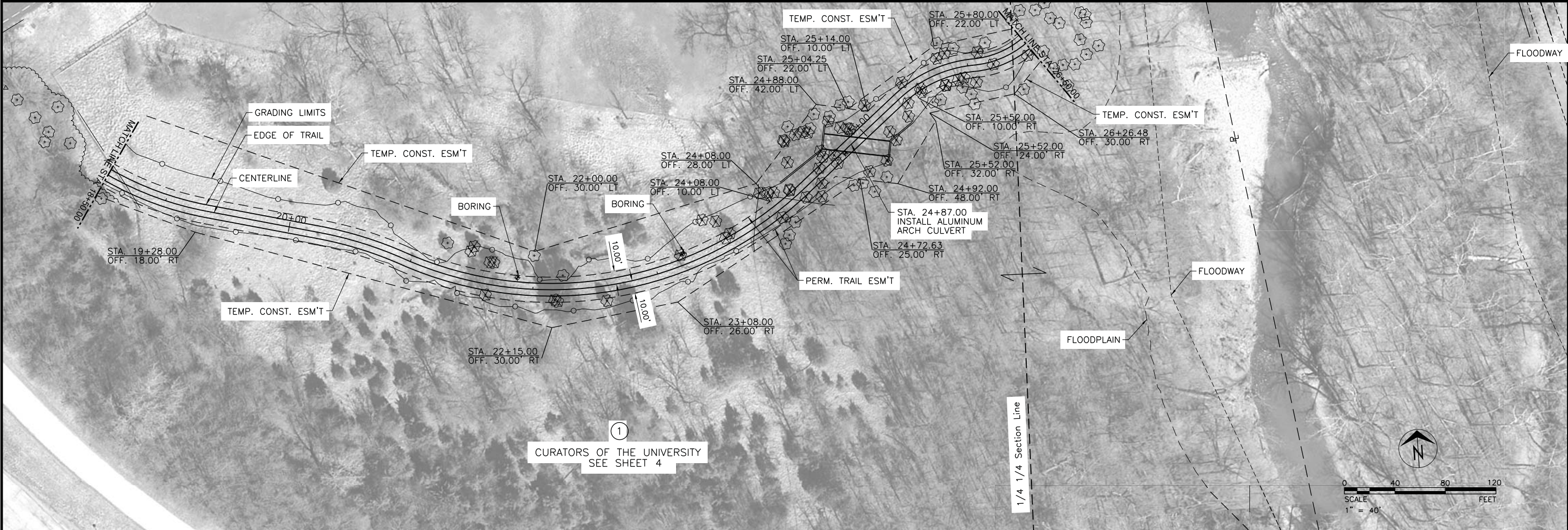
- "GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES", 2012, AASHTO IS HEREBY INCORPORATED, EXCEPT AS OTHERWISE SHOWN.
- ALL SIGNAGE TO CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" (MUTCD), LATEST RELEASE AND EDITIONS. POSTS TO BE 1 3/4" SQUARE 14 GAUGE.
- TRAIL ALIGNMENTS MAY BE ADJUSTED TO MEET FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- UTILITIES SHOWN MEET FHWA SUBSURFACE UTILITY ENGINEERING QUALITY LEVEL B. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES, CALL 1-800-344-7233. LAW REQUIRES 48 HOURS NOTICE. UNDERGROUND UTILITY LOCATIONS SHALL BE DETERMINED IN THE FIELD BY EACH UTILITY COMPANY AT THE REQUEST OF THE CONTRACTOR WHERE NECESSARY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO AS CERTAIN WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT AND THEIR EXACT HORIZONTAL AND VERTICAL LOCATIONS AS NEEDED.
- ALL NECESSARY UTILITY RELOCATIONS AND SERVICE LINE RECONNECTIONS SHALL BE PERFORMED PRIOR TO OR CONCURRENTLY WITH CONSTRUCTION. CONTRACTOR SHALL BE REQUIRED TO COOPERATE AND SCHEDULE WITH UTILITY COMPANIES TO FACILITATE RELOCATIONS DURING CONSTRUCTION.
- ALL TREES, STUMPS, SHRUBS, BUSHES, AND BRUSH WITHIN THE CONSTRUCTION LIMITS OF THE PROJECT SHALL BE REMOVED BY THE CONTRACTOR UNLESS SPECIFICALLY INDICATED TO BE SAVED ON THE PLANS. CONTRACTOR SHALL CONDUCT HIS CONSTRUCTION ACTIVITIES TO MINIMIZE THE AMOUNT OF CLEARING AND GRUBBING. LARGE TREES THAT ARE NOT SHOWN ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO DISTURBANCE AND SHALL BE SPARED, BY ADJUSTING THE PROJECT CONSTRUCTION LIMITS DURING CONSTRUCTION OR REMOVED, AS DIRECTED BY THE ENGINEER.
- TREES AND SHRUBS ADJACENT TO CONSTRUCTION AREAS SHALL BE PROTECTED BY THE CONTRACTOR. DAMAGE OR CUT SURFACE AREAS ON TREES OR SHRUBS SHALL BE PAINTED WITH AN ACCEPTED PRUNING PAINT SPECIALLY FORMULATED FOR HORTICULTURE APPLICATION. ALL TREES AND BRUSH, WHICH MUST BE REMOVED FOR PROPER EXECUTION OF THE WORK, SHALL BE REMOVED BY CONTRACTOR.
- ALL WORK SHALL BE CONFINED WITHIN THE EASEMENTS AND/OR CONSTRUCTION LIMITS. ANY DISTURBANCE OF EXISTING CONDITIONS OUTSIDE THE GRADING LIMITS SHALL BE REPAIRED PROMPTLY TO THE ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE, UNLESS OTHER WRITTEN ARRANGEMENTS HAVE BEEN MADE.
- ALL DEBRIS AND WASTE SHALL BE REMOVED FROM THE JOB SITE IMMEDIATELY AND DISPOSED OF AT A SITE FURNISHED BY THE CONTRACTOR. NO STOCKPILING ON SITE WILL BE ALLOWED.
- ALL DISTURBED AREAS SHALL BE SEEDED OR SODDED AS SOON AS FINISH GRADING IS COMPLETED OR AS OTHERWISE DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION SITE IN A CLEAN, ORDERLY AND SAFE CONDITION AT ALL TIMES DURING THE COURSE OF THE PROJECT.
- THE CONTRACTOR SHALL CONTROL THE EROSION AND SILTATION DURING ALL PHASES OF CONSTRUCTION, AND SHALL KEEP ALL STREETS CLEAN OF MUD AND DEBRIS.

TRAIL NOTES

- ALL CONCRETE JOINTS SHALL BE AT RIGHT ANGLES TO THE ALIGNMENT OF THE TRAIL AND MEET THE REQUIREMENTS INDICATED BELOW. THE CONTRACTOR SHALL LAYOUT THE JOINTS FOR APPROVAL BY THE ENGINEER PRIOR TO SAW CUTTING. CONTRACTION JOINTS SHALL BE SAW CUT IN CONCRETE TO CREATE SQUARE PANELS, MATCHING THE WIDTH OF THE TRAIL. CONTRACTION JOINTS SHALL BE ONE-EIGHTH (1/8) INCH WIDE BY ONE (1) INCH DEEP. TOOLED JOINTS ARE NOT ALLOWED.
- ONE-HALF (1/2) INCH THICK EXPANSION JOINTS SHALL BE PLACED WHERE THE TRAIL ABUTS OTHER STRUCTURES AND AT 250 FOOT INTERVALS ALONG THE TRAIL. EXPANSION JOINTS SPACING MAY BE INCREASED TO 300 FOOT INTERVALS FOR MACHINE LAID TRAILS IF 3/4" JOINT FILLER IS USED. EXPANSION JOINTS SHALL BE FORMED BY PREFORMED JOINT FILLER, EXTENDING THE FULL DEPTH OF THE SLAB, AND SECURED SO THAT THEY ARE NOT MOVED BY DEPOSITING AND COMPACTION OF CONCRETE.
- CONCRETE FINISHING: MEDIUM TRANSVERSE BROOM FINISH WITH NO EDGE TOOLING VISIBLE AFTER BROOM FINISH. SURFACE TO BE FREE OF DEFECTS, DISCOLORATION, AND DAMAGE FROM VANDALISM.
- CROSS-SLOPES CONSTRUCTED STEEPER THAN 2% ARE NOT COMPLIANT WITH THE AMERICANS WITH DISABILITIES ACT AND MUST BE MADE COMPLIANT AT THE CONTRACTOR'S EXPENSE. CONTRACTOR MUST REPLACE THE NONCOMPLIANT SECTIONS AT THE NEAREST JOINTS.
- ALL CONCRETE SHALL BE 4,000 PSI.

TRAIL ALIGNMENT

CURVE	P.C. STA.	NORTH.	EAST.	DELTA	FOR. BEAR.	TAN.	RAD.
TRAIL-1	10+45.79	1,131,908.02	1,692,898.17	56° 19' 11.67" LT	S 56° 55' 37.08" E	26.76'	50.00'
TRAIL-2	10+94.94	1,131,866.65	1,692,920.88	52° 15' 42.72" RT	S 4° 39' 54.36" E	24.53'	50.00'
TRAIL-3	14+43.98	1,131,526.38	1,692,968.11	14° 50' 52.40" RT	S 10° 10' 58.04" W	15.64'	120.00'
TRAIL-4	14+75.08	1,131,495.41	1,692,966.61	39° 04' 46.49" LT	S 28° 53' 48.46" E	28.39'	80.00'
TRAIL-5	16+42.74	1,131,343.59	1,693,029.97	49° 19' 22.06" LT	S 78° 13' 10.51" E	34.43'	75.00'
TRAIL-6	17+07.31	1,131,306.42	1,693,080.32	34° 02' 07.95" RT	S 44° 11' 02.57" E	45.91'	150.00'
TRAIL-7	17+96.41	1,131,264.12	1,693,157.26	31° 19' 25.10" LT	S 75° 30' 27.67" E	70.09'	250.00'
TRAIL-8	20+24.94	1,131,173.33	1,693,362.91	13° 09' 39.14" RT	S 62° 20' 48.53" E	34.61'	300.00'
TRAIL-9	20+93.85	1,131,148.61	1,693,427.07	67° 10' 43.79" LT	N 50° 28' 27.68" E	192.60'	290.00'
TRAIL-10	25+38.82	1,131,248.58	1,693,827.17	37° 53' 01.25" RT	N 88° 21' 28.93" E	34.32'	100.00'
TRAIL-11	26+04.94	1,131,271.40	1,693,887.95	84° 47' 52.88" LT	N 3° 33' 36.05" E	68.48'	75.00'
TRAIL-12	27+88.08	1,131,413.72	1,693,965.13	84° 23' 07.41" RT	N 87° 56' 43.45" E	22.66'	25.00'
TRAIL-13	32+17.95	1,131,499.43	1,694,330.21	13° 19' 07.07" LT	N 15° 22' 23.62" W	35.03'	300.00'
TRAIL-14	32+87.68	1,131,568.20	1,694,319.67	31° 15' 23.21" RT	N 15° 52' 59.59" E	134.27'	480.00'
TRAIL-15	35+49.54	1,131,826.82	1,694,320.82	15° 34' 25.95" LT	N 0° 18' 33.64" E	51.28'	375.00'
TRAIL-16	36+51.47	1,131,927.42	1,694,335.13	36° 33' 09.30" RT	N 36° 51' 42.94" E	39.63'	120.00'
TRAIL-17	37+28.02	1,131,998.76	1,694,359.12	111° 07' 59.43" RT	S 32° 00' 17.63" E	72.93'	50.00'
TRAIL-18	38+25.00	1,131,995.27	1,694,441.52	112° 59' 42.37" LT	N 35° 00' 00.00" E	45.32'	30.00'
TRAIL-19	39+43.75	1,132,042.77	1,694,525.71	110° 00' 00.00" RT	S 35° 00' 00.00" E	28.57'	20.00'
TRAIL-20	40+43.45	1,131,992.56	1,694,593.64	99° 09' 15.64" LT	N 45° 50' 44.36" E	23.48'	20.00'
TRAIL-21	41+56.51	1,132,044.33	1,694,680.24	38° 35' 42.79" LT	N 7° 15' 01.58" E	14.01'	40.00'



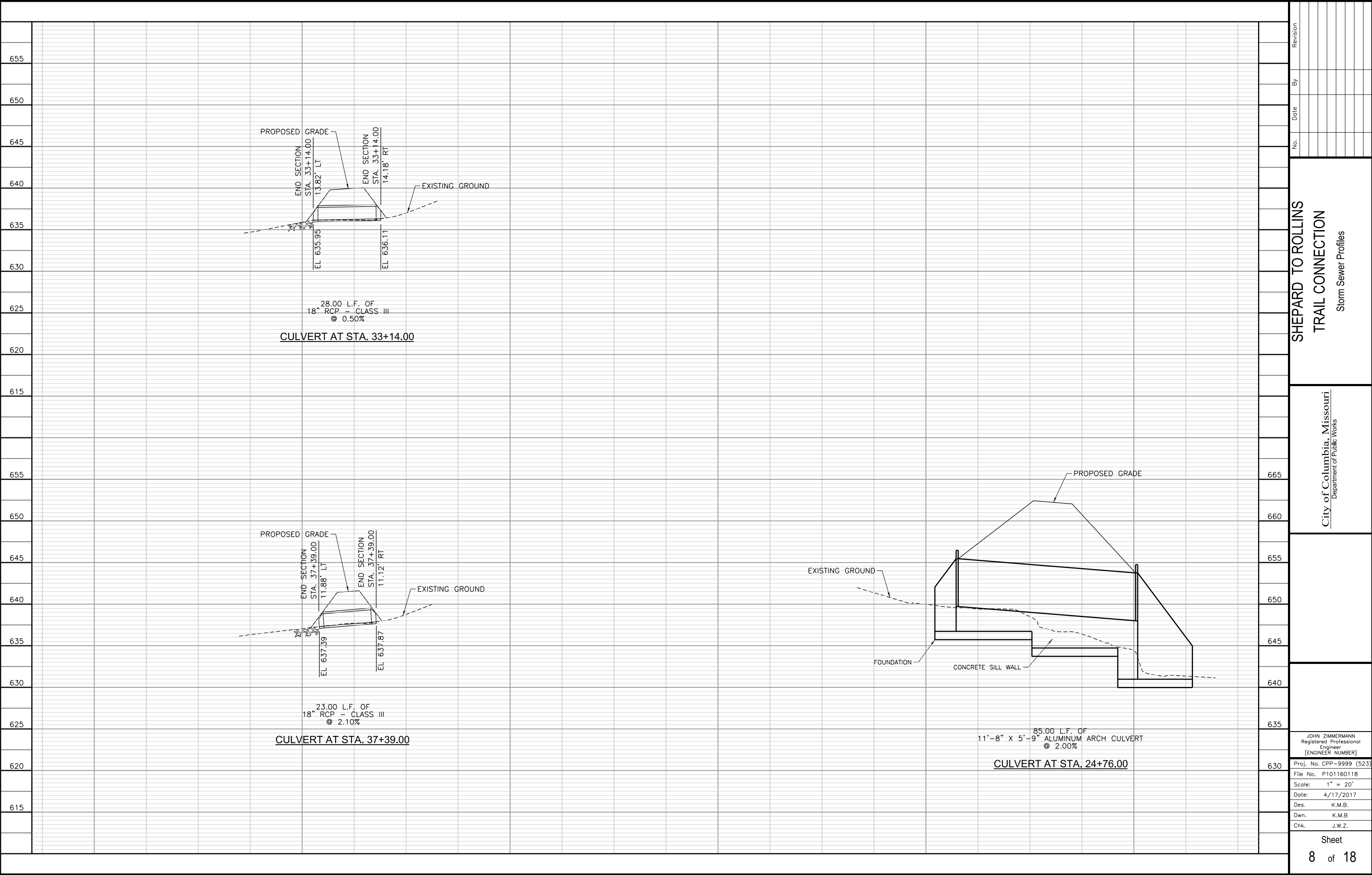
Revision	By	Date	No.

**SHEPARD TO ROLLINS
TRAIL CONNECTION**
Plan & Profile - Sta. 18+50.00 to Sta. 26+50.00

City of Columbia, Missouri
Department of Public Works

JOHN ZIMMERMANN Registered Professional Engineer [ENGINEER NUMBER]
Proj. No. CPP-9999 (523)
File No. P101160118
Scale: 1" = 40'
Date: 4/17/2017
Des. K.M.B.
Dwn. K.M.B.
Chk. J.W.Z.
Sheet 5 of 18

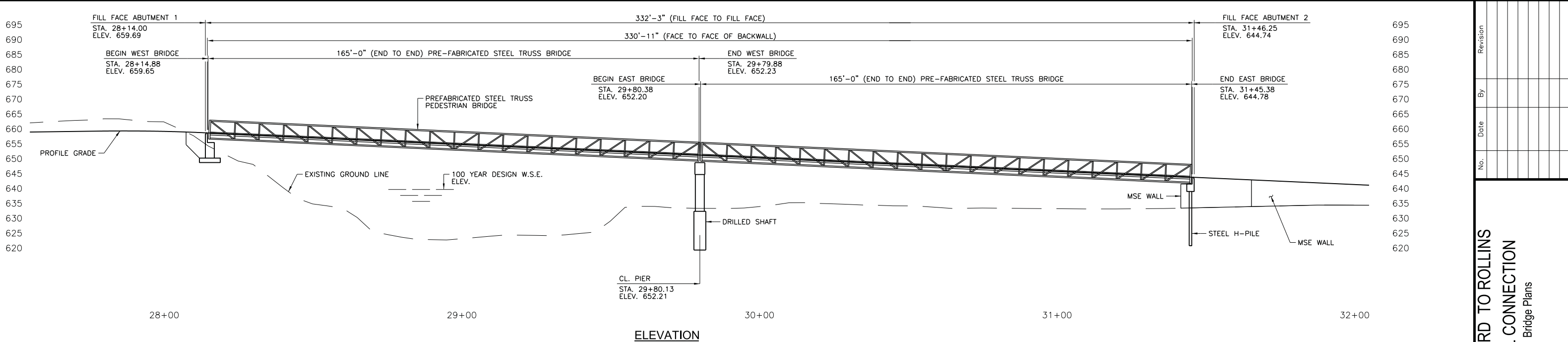
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SHEPARD TO ROLLINS
TRAIL CONNECTION
Storm Sewer Profiles

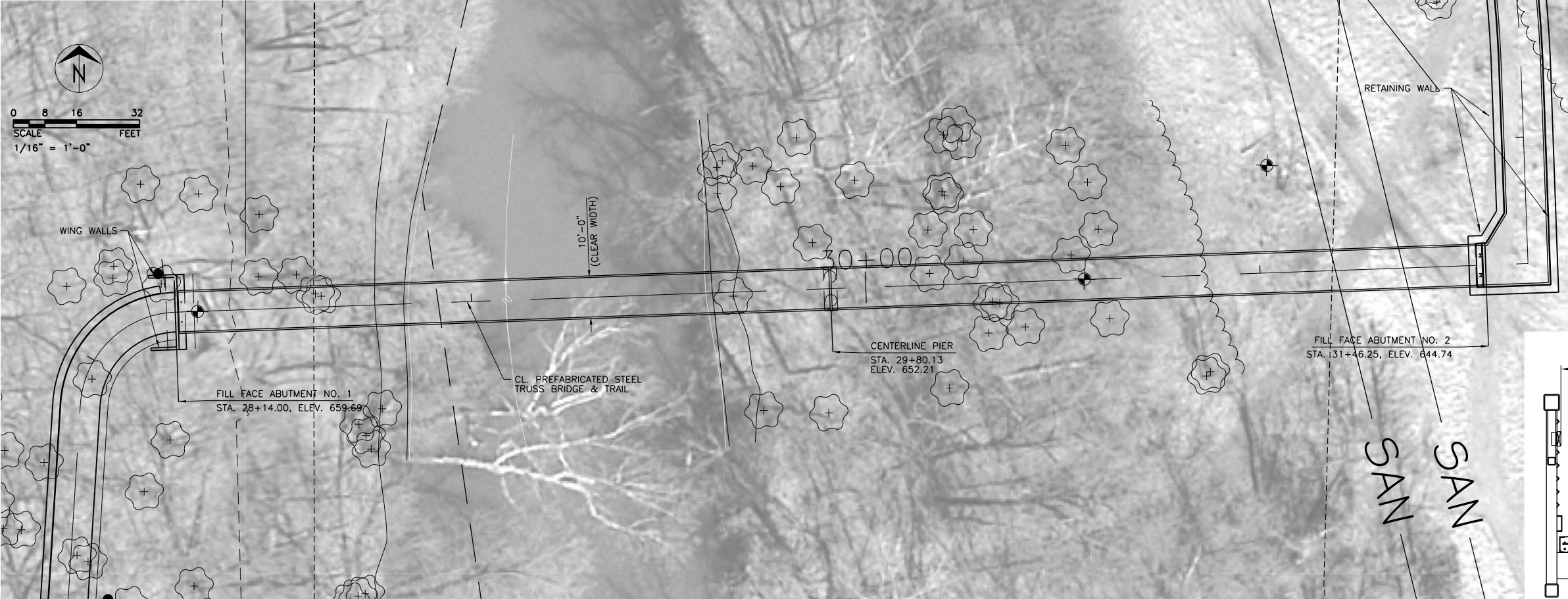
City of Columbia, Missouri
Department of Public Works

JOHN ZIMMERMANN
Registered Professional
Engineer
[ENGINEER NUMBER]
Proj. No. CPP-9999 (523)
File No. P101160118
Scale: 1" = 20'
Date: 4/17/2017
Des. K.M.B.
Dwn. K.M.B.
Chk. J.W.Z.

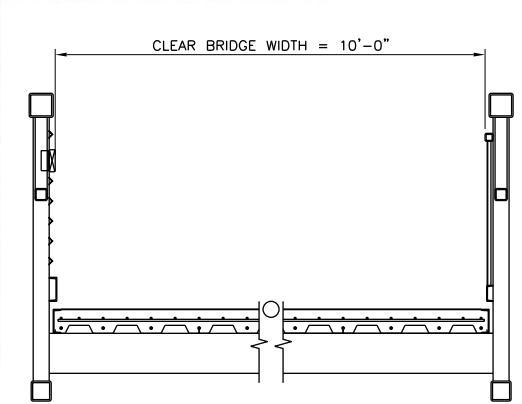


ELEVATION

HYDROLOGIC DATA	
DRAINAGE AREA	= 52.2 SQ. MILES
DESIGN DISCHARGE	= 16,520 CU. FT. / SECOND (100 YR.)
DESIGN H.W. ELEVATION	= 643.7 FT. (100 YR.)
OVERTOPPING FLOOD DATA	
DESIGN ELEVATION	= 30 YR.
DESIGN DISCHARGE	= 12,500 CU. FT. / SECOND



PLAN



SECTION THRU BRIDGE

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS:
ALL CONSTRUCTION FOR THIS PROJECT SHALL CONFORM TO THE 2004 MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND ANY JOB SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS:
2009 AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES WITH 2015 INTERIM REVISIONS.

DESIGN UNIT STRESSES:
CLASS B CONCRETE (SUBSTRUCTURE) $f'_c=3,000$ psi
REINFORCING STEEL (GRADE 60) $f_y=60,000$ psi

SHEPARD TO ROLLINS
TRAIL CONNECTION
Bridge Plans

City of Columbia, Missouri
Department of Public Works

JOHN ZIMMERMANN Registered Professional Engineer (ENGINEER NUMBER)
Proj. No. CPP-9999 (523)
File No. P101160118
Scale: As Shown
Date: 4/17/2017
Des. J.P.C.
Dwn. M.J.R.
Chk. D.J.G.