

No.	Date	By	Revision

**SHEPARD TO ROLLINS
TRAIL CONNECTION**
Coordinate Reference Points

City of Columbia, Missouri
Department of Public Works

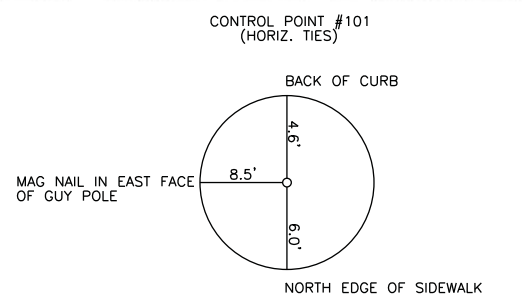
JOHN ZIMMERMANN
Registered Professional Engineer
[ENGINEER NUMBER]

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.

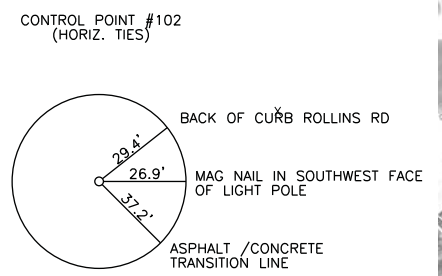
C.A.F. = 0.999907917

BENCHMARKS

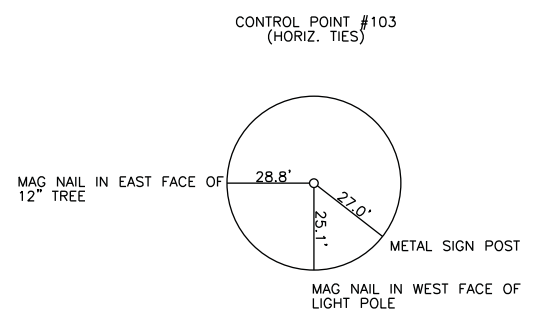
- TBM 10-16 (PT. 100)
ELEV.: 638.11'
SET "SQUARE" CUT NORTH SIDE SANITARY SEWER VAULT
- TBM 11-16 (PT. 108)
ELEV.: 741.65'
SET "SQUARE" CUT ON SE CORNER CURB INLET ON WEST SIDE OF CUL DE SAC BLUFFDALE DR IN FRONT OF HOUSE #723
- TBM 12-16 (PT. 109)
ELEV.: 696.59'
SET RAILROAD SPIKE IN SOUTH FACE LIGHT POLE SE CORNER OF PARKING LOT
- TBM 13-16 (PT. 110)
ELEV.: 741.65'
SET "+" CUT ON NORTH LOWER FLANGE BOLT FIRE HYDRANT EASTSIDE OF EAST ENT TO COLLEGE VET BLD.



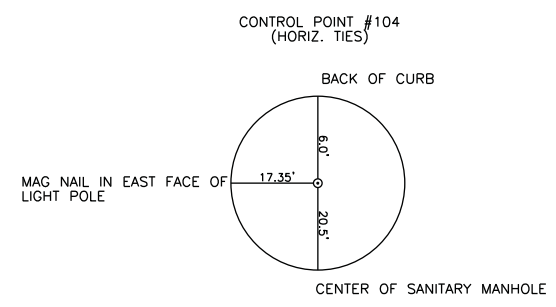
SET 1/2" REBAR WITH CAP WESTSIDE EAST ENTRANCE COLLEGE VET BLD.
N = 1132012.8330
E = 1692512.9520



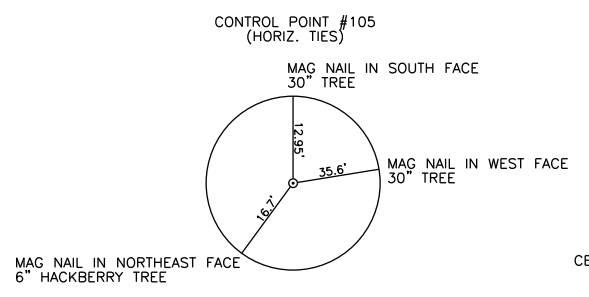
SET 1/2" REBAR WITH CAP WESTSIDE ENTRANCE TO PARKING LOT
N = 1131894.4610
E = 1692898.8010



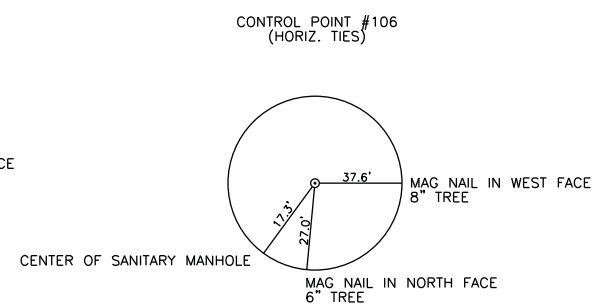
SET 1/2" REBAR WITH CAP SW CORNER PARKING LOT.
N = 1131341.6490
E = 1693056.3660



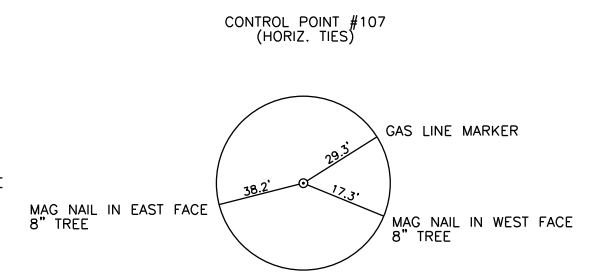
SET 1/2" REBAR WITH CAP AT THE END OF CUL DE SAC BLUFFDALE DR
N = 1132081.8610
E = 1694683.4090



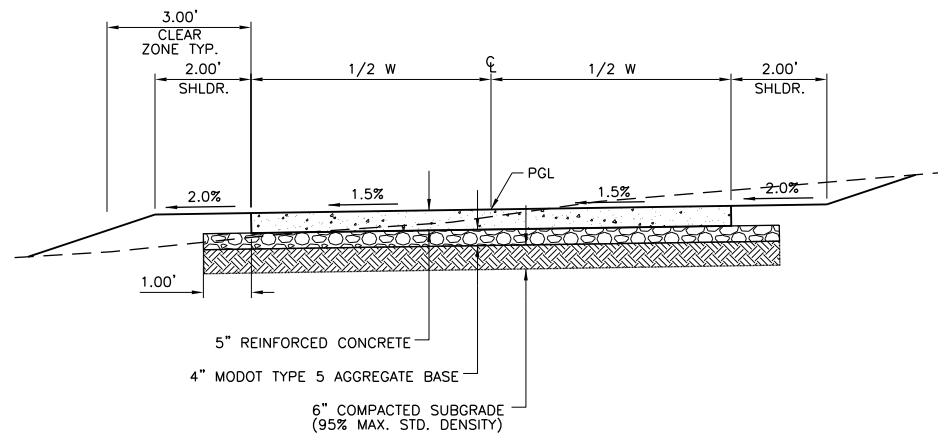
SET 1/2" REBAR WITH CAP SOUTHWEST CORNER OPEN LOT AT THE END OF CUL DE SAC
N = 1131939.5180
E = 1694571.6470



SET 1/2" REBAR WITH CAP WESTSIDE ACCESS RD EAST SIDE OF CREEK
N = 1131734.6360
E = 1694248.6030

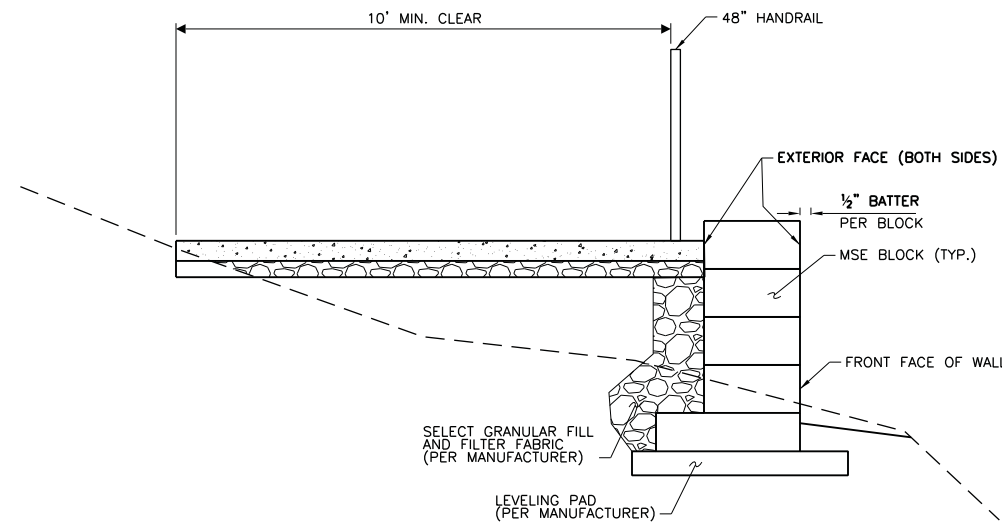


SET 1/2" REBAR WITH CAP WESTSIDE ACCESS RD EAST SIDE OF CREEK
N = 1131525.7880
E = 1694249.0820



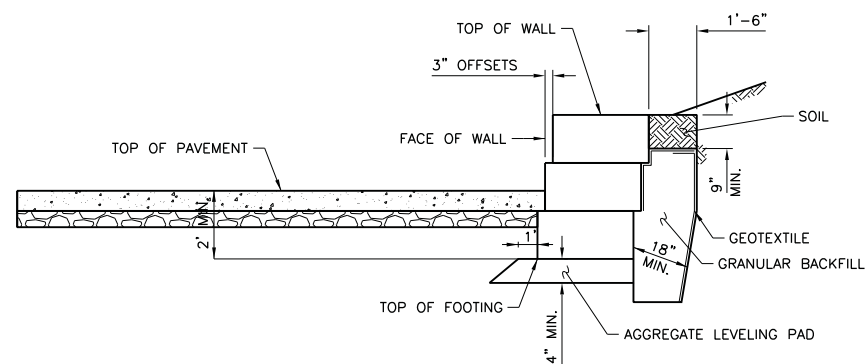
TRAIL TYPICAL SECTION

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 CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN 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, 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

Typical Sections, Alignment Tabulation, and General Notes

City of Columbia, Missouri
Department of Public Works

JOHN ZIMMERMANN
Registered Professional Engineer
[ENGINEER NUMBER]

Proj. No. CPP-9999 (523)

File No. P101160118

Scale: No Scale

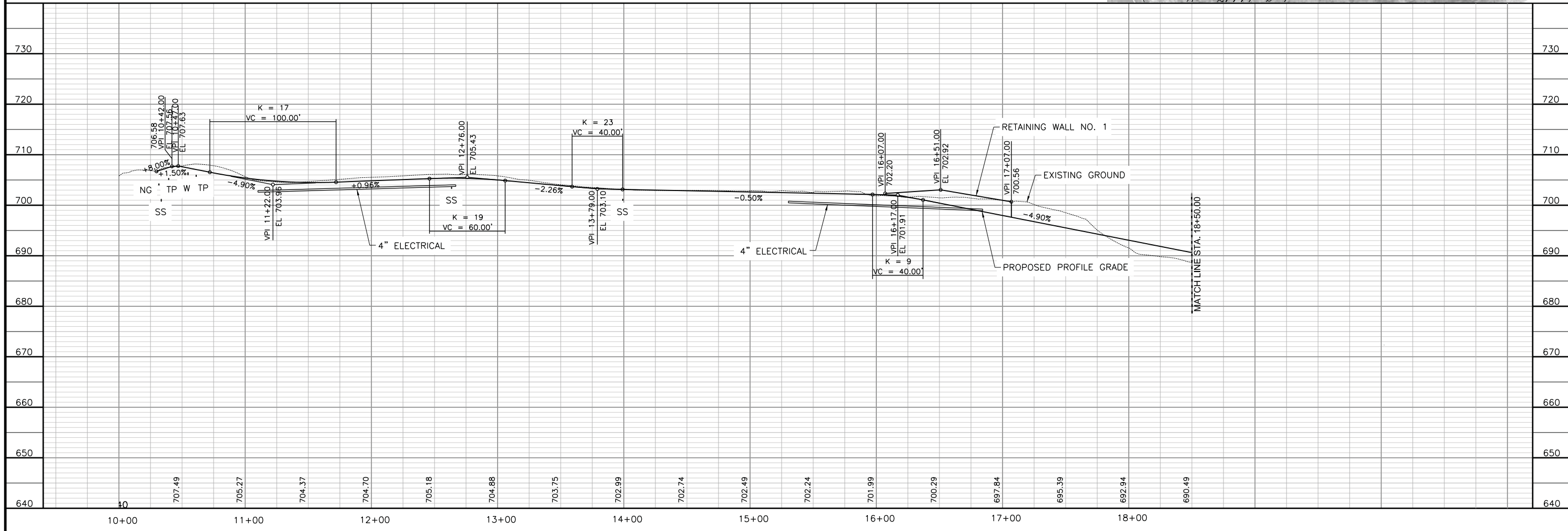
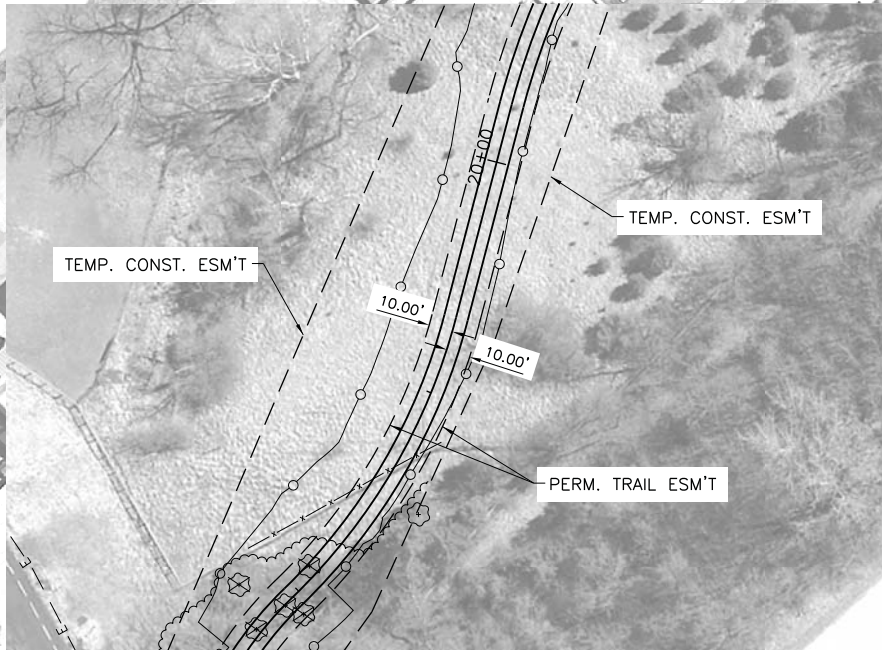
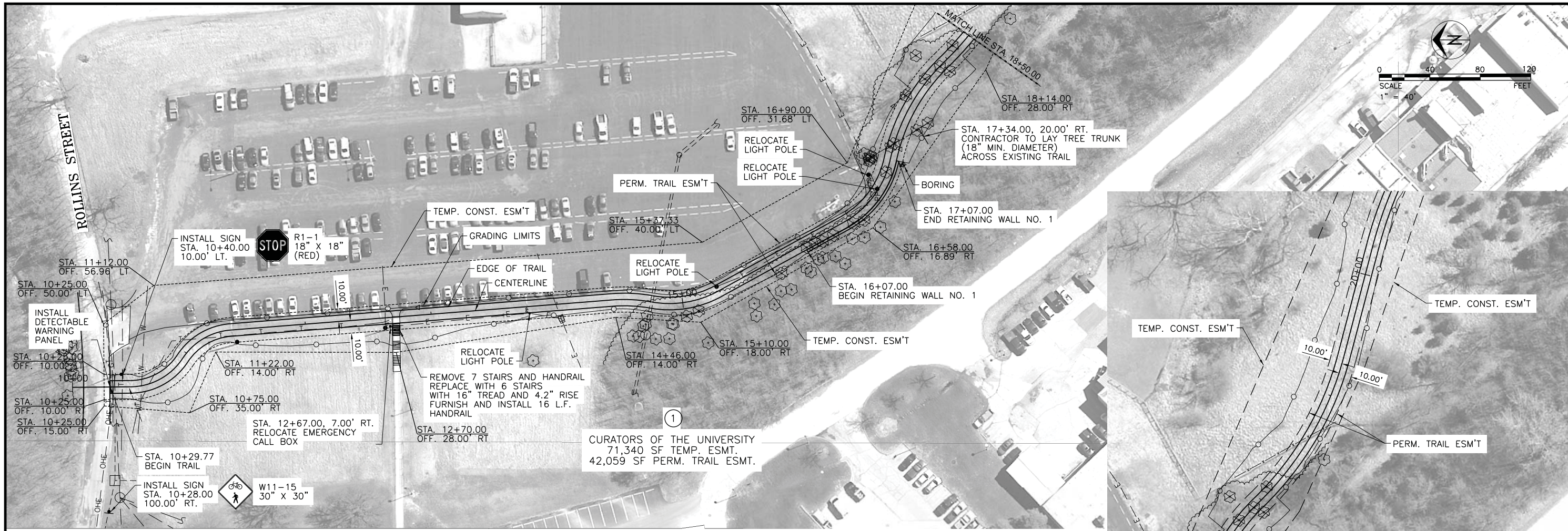
Date: 4/17/2017

Des. K.M.B.

Dwn. K.M.B.

Chk. J.W.Z.

Sheet
3 of 18

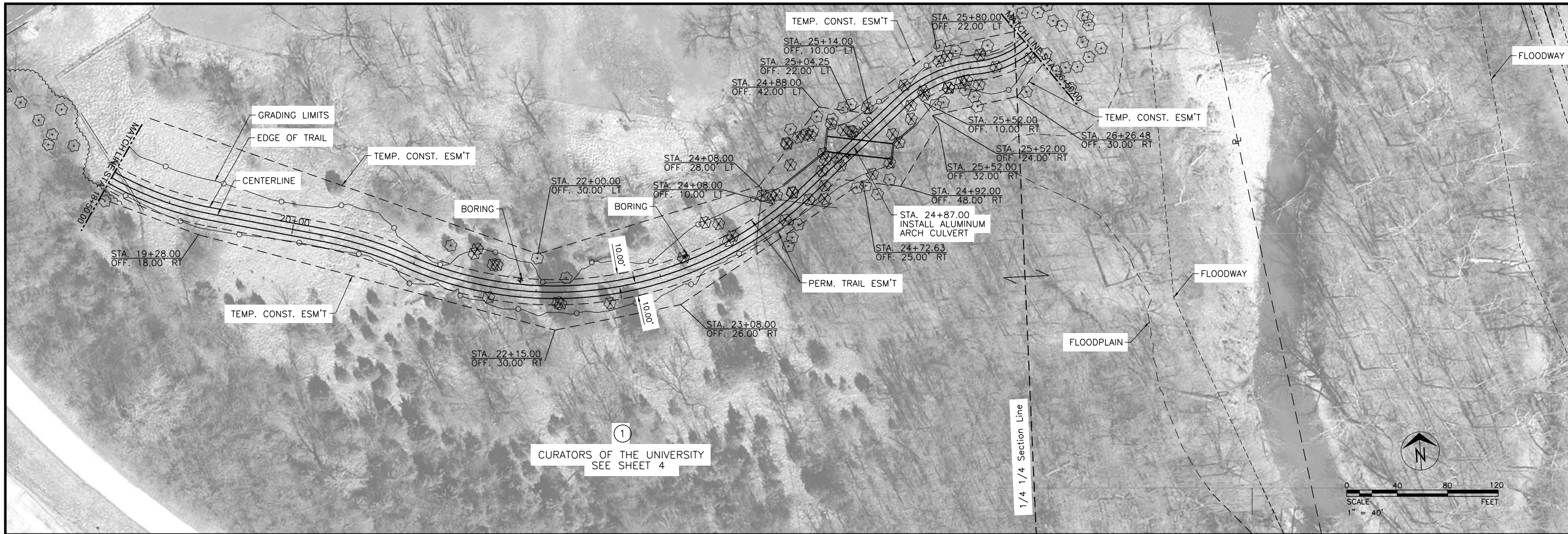


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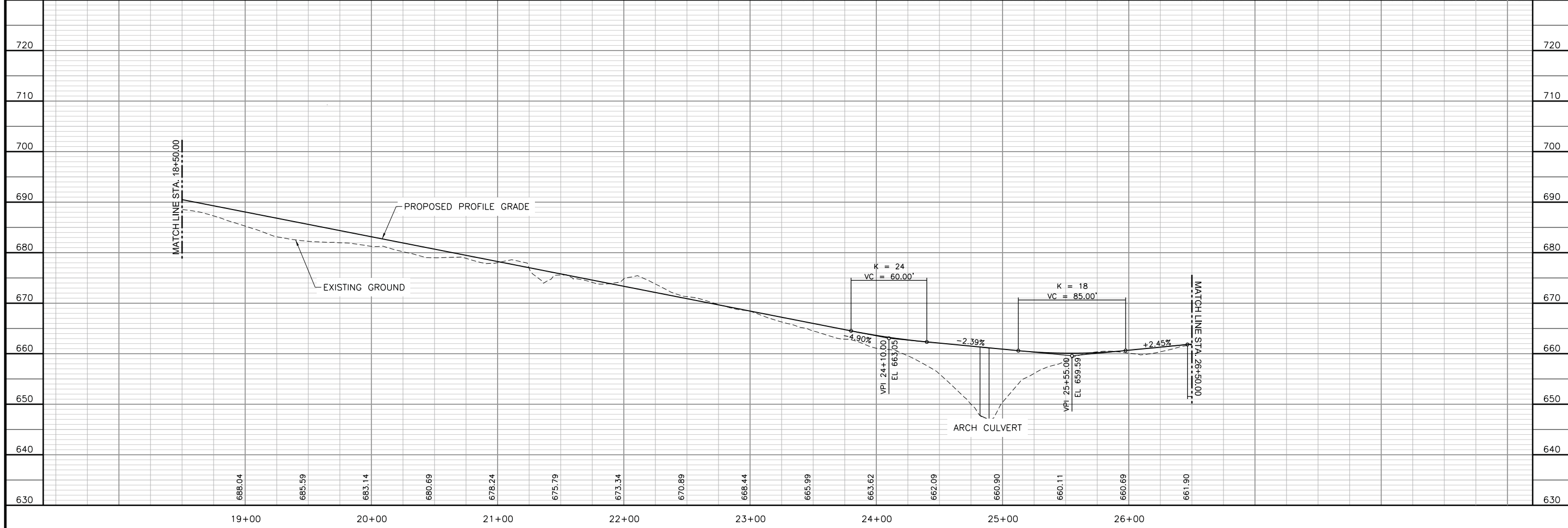
SHEPARD TO ROLLINS
TRAIL CONNECTION
Plan & Profile - Sta. 10+29.77 to Sta. 18+50.00

City of Columbia, Missouri
Department of Public Works

660	JOHN ZIMMERMANN Registered Professional Engineer [ENGINEER NUMBER]
650	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.
640	Sheet 4 of 18



①
CURATORS OF THE UNIVERSITY
SEE SHEET 4



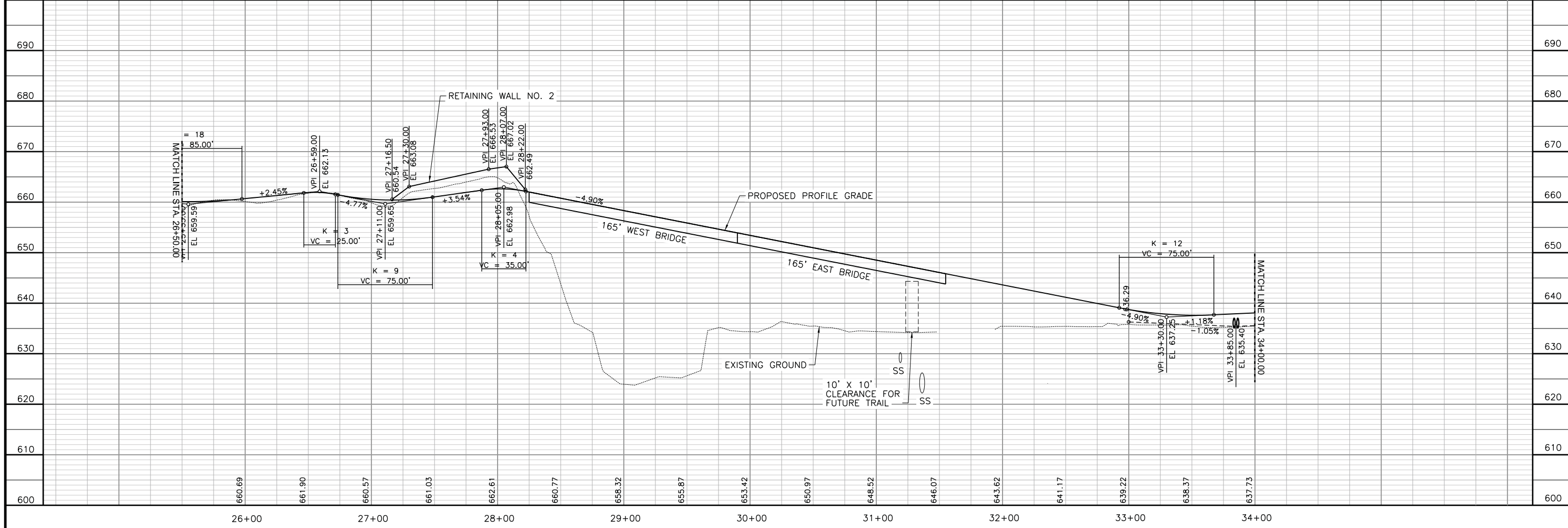
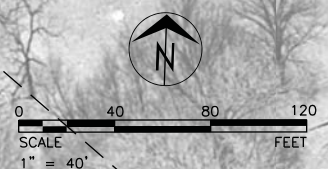
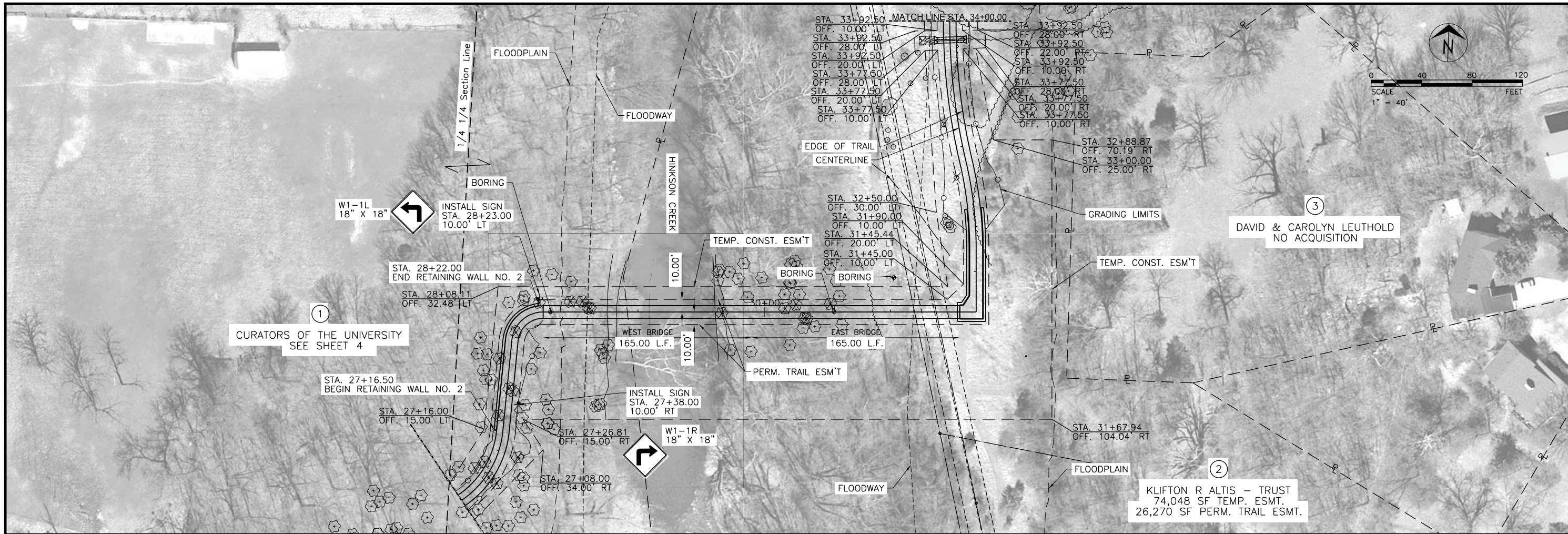
Revision	By	Date	No.

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

City of Columbia, Missouri
Department of Public Works

720
710
700
690
680
670
660
650
640
630

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.
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Chk. JW.Z.



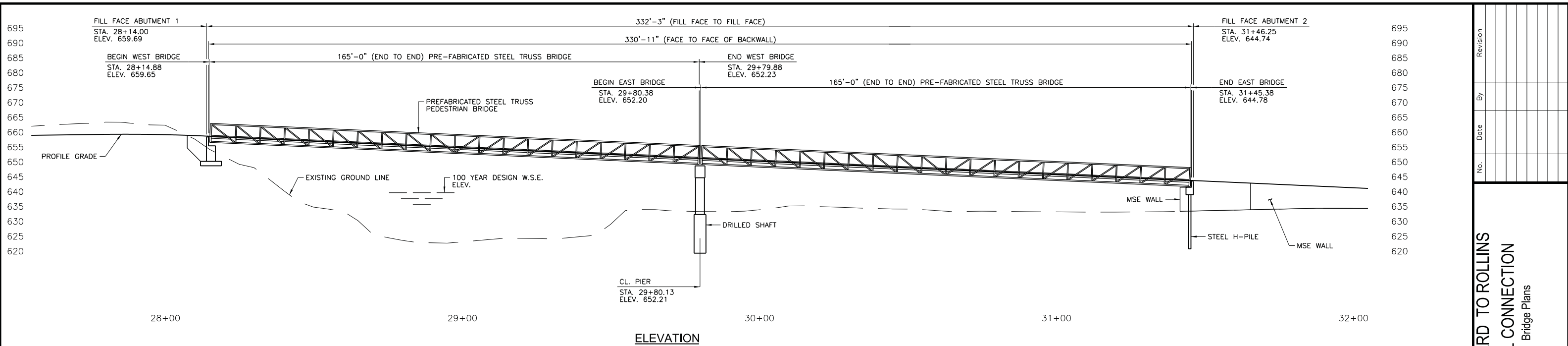
No.	Date	By	Revision

SHEPARD TO ROLLINS
TRAIL CONNECTION
 Plan & Profile - Sta. 26+50.00 to Sta 34+00.00

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



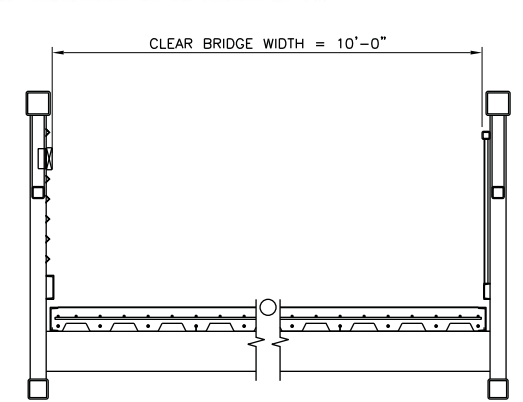
HYDROLOGIC DATA	
DRAINAGE AREA	= 52.2 SQ. MILES
DESIGN DISCHARGE	= 16,520 CU. FT. / SECOND (100 YR.)
DESIGN H.W. ELEVATION	= 643.7 FT. (100 YR.)
OVERTOPPING FLOOD DATA	
DESIGN ELEVATION	= 30 YR.
DESIGN DISCHARGE	= 12,500 CU. FT. / SECOND

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



No.	Date	By	Revision

**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.