



# CIVIL CONSTRUCTION

## VOLUME 4B BRIDGES

90% SUBMISSION  
DATE : 01/22/16

PLAN PACKAGE INDEX / DESCRIPTION	
CIVIL CONSTRUCTION	BID ALTERNATES
VOLUME 1 - EXISTING CONDITIONS & REMOVALS	VOLUME A - NOT USED
VOLUME 2A - CIVIL	VOLUME B - NOT USED
VOLUME 2B - CIVIL	VOLUME C - BID ALTERNATE 3 (LRCI 5) ▲
VOLUME 3A - TRACKWORK	VOLUME D - BID ALTERNATE 4 (LRCI 6) ▲
VOLUME 3B - TRACKWORK	VOLUME E - BID ALTERNATE 5 (LRCI 7) ▲
VOLUME 3C - TRACKWORK DETAILS	VOLUME F - BID ALTERNATE 6 (LRCI 8) ▲
VOLUME 4A - BRIDGES	VOLUME G - BID ALTERNATE 7 (LRCI 4) ▲
VOLUME 4B - BRIDGES	VOLUME H - BID ALTERNATE 8 (LRCI 10) ▲
VOLUME 4C - BRIDGES	VOLUME I - BID ALTERNATE 9 (LRCI 11) ▲
VOLUME 4D - BRIDGES	VOLUME J - BID ALTERNATE 10 (LRCI 12)
VOLUME 4E - BRIDGES	VOLUME K - BID ALTERNATE 11 (LRCI 13)
VOLUME 4F - BRIDGES	VOLUME L - BID ALTERNATE 12 (LRCI 14)
VOLUME 4G - BRIDGES	VOLUME M - BID ALTERNATE 13 (LRCI 26)
VOLUME 5 - TUNNELS	VOLUME N - BID ALTERNATE 14 (LRCI 27)
VOLUME 6 - RETAINING WALLS	VOLUME O - BID ALTERNATE 15 (LRCI 17)
VOLUME 7 - UTILITIES	VOLUME P - BID ALTERNATE 20 (LRCI 32)
VOLUME 8 - DRAINAGE	VOLUME Q - BID ALTERNATE 21 (LRCI 33)
VOLUME 9 - URBAN DESIGN / LANDSCAPE	
VOLUME 10A - TRAFFIC	
VOLUME 10B - LIGHTING *	
VOLUME 11A - STATIONS ▲	
VOLUME 11B - STATIONS	
VOLUME 11C - STATIONS	
VOLUME 11D - STATIONS	
VOLUME 11E - STATIONS	
VOLUME 12 - SYSTEMS	

\* TO BE SUBMITTED AT A LATER DATE  
▲ SUBMITTED AT 75%, NOT INCLUDED IN 90%

THE PROPOSED SOUTHWEST LRT PROJECT IS NOT FINAL BUT IS STILL UNDER ENVIRONMENTAL REVIEW AND THE PROJECT IS SUBJECT TO CHANGE. THESE PLANS ARE NOT FINAL.

THE COUNCIL, THROUGH THE DEVELOPMENT OF THESE PLANS, DOES NOT INTEND THAT THEY WILL PREJUDICE OR COMPROMISE ANY STATE OR FEDERAL ENVIRONMENTAL REVIEW OR OTHER LEGAL REQUIREMENTS. THESE PLANS DO NOT LIMIT THE PROJECT DESIGN ALTERNATIVES OR MITIGATIVE MEASURES THAT THE COUNCIL MAY UNDERTAKE IF THE PROPOSED SWLRT PROJECT PROCEEDS TO CONSTRUCTION.

THE COUNCIL WILL NOT TAKE FINAL ACTION ON THIS MATTER UNLESS THE COUNCIL PROCEEDS WITH THE PROJECT AFTER THE FTA'S RECORD OF DECISION AND THE COUNCIL'S DETERMINATION OF ADEQUACY.

WARNING: THIS RECORD MAY CONTAIN SENSITIVE SECURITY INFORMATION THAT IS CONTROLLED UNDER 49 CFR PARTS 15 AND 1520. NO PART OF THIS RECORD MAY BE DISCLOSED TO PERSONS WITHOUT A "NEED TO KNOW", AS DEFINED IN 49 CFR PARTS 15 AND 1520, EXCEPT WITH THE WRITTEN PERMISSION OF THE ADMINISTRATOR OF THE TRANSPORTATION SECURITY ADMINISTRATION OR THE SECRETARY OF TRANSPORTATION. UNAUTHORIZED RELEASE MAY RESULT IN CIVIL PENALTY OR OTHER ACTION. FOR U.S. GOVERNMENT AGENCIES, PUBLIC DISCLOSURE IS GOVERNED BY 5 U.S.C. 552 AND 49 CFR PARTS 15 AND 1520.






Jan, 21 2016 05:34 pm V:\3400\_ADC\CAD\CAD MANAGEMENT\DRAWING LIST\COVER SHEETS 90%\90% GEN-IDX\_VOL\_04.dwg By: v-krievamr

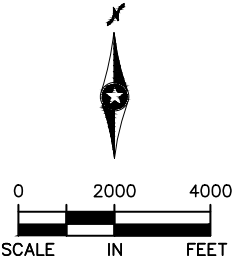
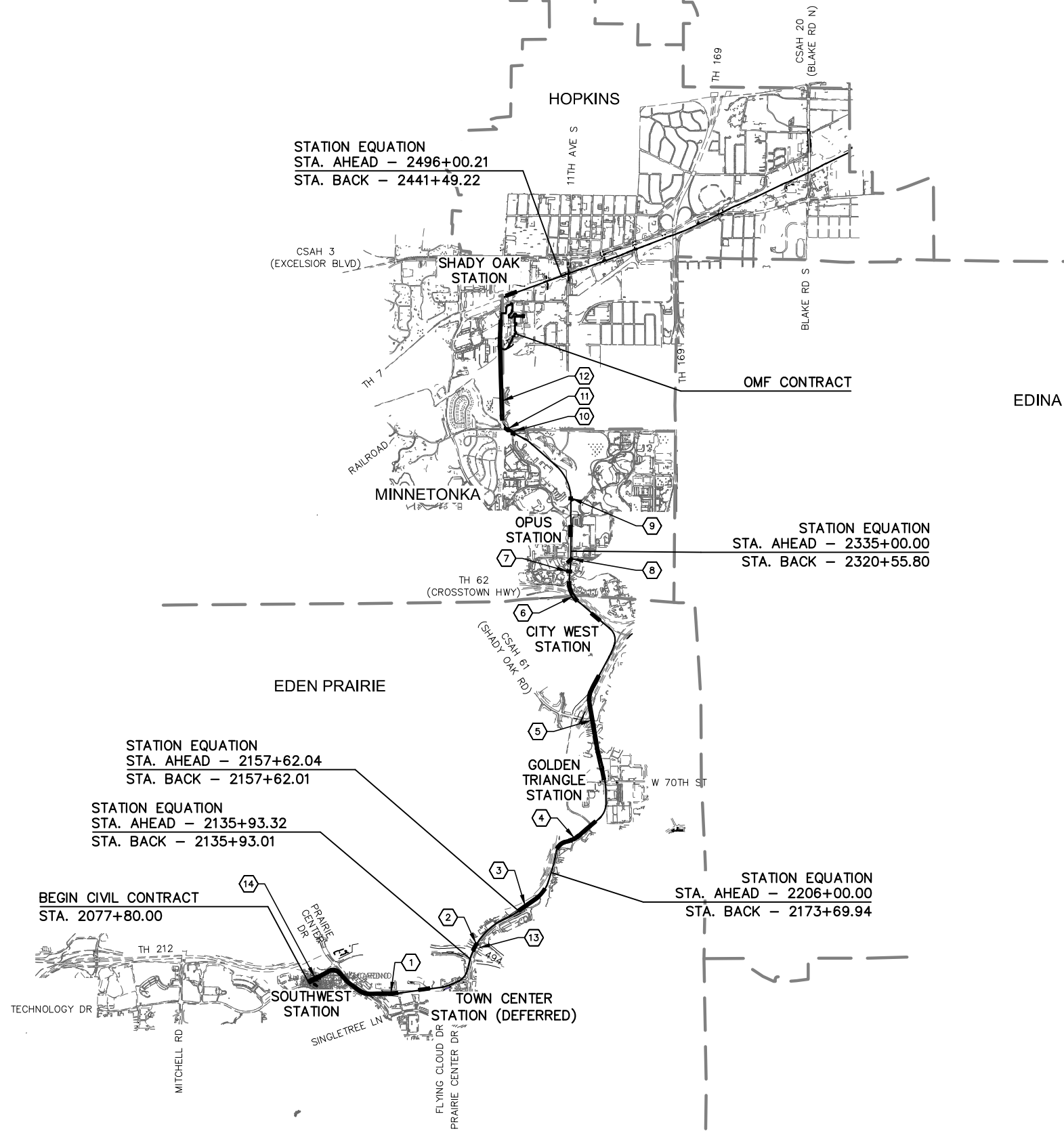
CIVIL CONSTRUCTION						CIVIL CONSTRUCTION						CIVIL CONSTRUCTION					
SHT #	SHEET NAME	SHEET DESCRIPTION	STATION	STATION	REV	SHT #	SHEET NAME	SHEET DESCRIPTION	STATION	STATION	REV	SHT #	SHEET NAME	SHEET DESCRIPTION	STATION	STATION	REV
VOLUME 4B - BRIDGES																	
1	00-GEN-CVR-001	COVER SHEET				15	CBR27C08-BRG-ABT-012	SOUTH ABUTMENT REINFORCEMENT 5				42	CBR27C06-BRG-PIR-011	PIER 4 REINFORCEMENT 1			
2	00-GEN-IDX-001	VOLUME INDEX OF PLAN SHEETS SHEET 1				16	CBR27C08-BRG-ABT-013	SOUTH ABUTMENT REINFORCEMENT 6				43	CBR27C06-BRG-PIR-012	PIER 4 REINFORCEMENT 2			
3	00-GEN-IDX-002	VOLUME INDEX OF PLAN SHEETS SHEET 2				17	CBR27C08-BRG-ABT-014	NORTH ABUTMENT DETAILS 1				44	CBR27C06-BRG-PIR-013	PIER 8 GEOMETRICS 1			
4	W0-GEN-KEY-001	GENERAL KEY MAP SHEET 1				18	CBR27C08-BRG-ABT-015	NORTH ABUTMENT DETAILS 2				45	CBR27C06-BRG-PIR-014	PIER 8 GEOMETRICS 2			
5	E0-GEN-KEY-002	GENERAL KEY MAP SHEET 2				19	CBR27C08-BRG-ABT-016	NORTH ABUTMENT DETAILS 3				46	CBR27C06-BRG-PIR-015	PIER 8 REINFORCEMENT 1			
6	00-GEN-NTS-001	GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS SHEET 1				20	CBR27C08-BRG-ABT-017	NORTH ABUTMENT DETAILS 4				47	CBR27C06-BRG-PIR-016	PIER 8 REINFORCEMENT 2			
7	00-GEN-NTS-002	GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS SHEET 2				21	CBR27C08-BRG-ABT-018	NORTH ABUTMENT DETAILS 5				48	CBR27C06-BRG-PIR-017	PIER 8 REINFORCEMENT 3			
SMETANA ROAD - BRIDGE 27C09						22	CBR27C08-BRG-ABT-019	NORTH ABUTMENT REINFORCEMENT 1				49	CBR27C06-BRG-PIR-018	PIER 9 GEOMETRICS 1			
1	CBR27C09-BRG-GPE-001	GENERAL PLAN AND ELEVATION	58+21.7	58+89.0		23	CBR27C08-BRG-ABT-020	NORTH ABUTMENT REINFORCEMENT 2				50	CBR27C06-BRG-PIR-019	PIER 9 GEOMETRICS 2			
2	CBR27C09-BRG-GPE-002	TRANSVERSE SECTION				24	CBR27C08-BRG-ABT-021	NORTH ABUTMENT REINFORCEMENT 3				51	CBR27C06-BRG-PIR-020	PIER 9 REINFORCEMENT 1			
3	CBR27C09-BRG-SUP-001	BRIDGE LAYOUT				25	CBR27C08-BRG-ABT-022	NORTH ABUTMENT REINFORCEMENT 4				52	CBR27C06-BRG-PIR-021	PIER 9 REINFORCEMENT 2			
4	CBR27C09-BRG-ABT-020	ABUTMENT AESTHETICS				26	CBR27C08-BRG-ABT-023	NORTH ABUTMENT REINFORCEMENT 5				53	CBR27C06-BRG-PIR-022	PIER 9 REINFORCEMENT 3			
5	CBR27C09-BRG-ABT-001	WEST ABUTMENT DETAILS 1				27	CBR27C08-BRG-ABT-024	NORTH ABUTMENT REINFORCEMENT 6				54	CBR27C06-BRG-PIR-023	PIER 10 GEOMETRICS 1			
6	CBR27C09-BRG-ABT-002	WEST ABUTMENT DETAILS 2				28	CBR27C08-BRG-SUP-001	FRAMING PLAN				55	CBR27C06-BRG-PIR-024	PIER 10 GEOMETRICS 2			
7	CBR27C09-BRG-ABT-004	WEST ABUTMENT DETAILS 3				29	CBR27C08-BRG-PCB-001	RB-18 PRESTRESSED CONCRETE BEAM				56	CBR27C06-BRG-PIR-025	PIER 10 REINFORCEMENT 1			
8	CBR27C09-BRG-ABT-021	WEST ABUTMENT DETAILS 4				30	CBR27C08-BRG-SUP-002	SUPERSTRUCTURE DETAILS 1				57	CBR27C06-BRG-PIR-026	PIER 10 REINFORCEMENT 2			
9	CBR27C09-BRG-ABT-005	WEST ABUTMENT REINFORCEMENT 1				31	CBR27C08-BRG-SUP-003	SUPERSTRUCTURE DETAILS 2				58	CBR27C06-BRG-PIR-027	PIER 10 REINFORCEMENT 3			
10	CBR27C09-BRG-ABT-006	WEST ABUTMENT REINFORCEMENT 2				32	CBR27C08-BRG-SUP-004	SUPERSTRUCTURE DETAILS 3				59	CBR27C06-BRG-PIR-028	PIER 11 GEOMETRICS 1			
11	CBR27C09-BRG-ABT-007	WEST ABUTMENT REINFORCEMENT 3				33	CBR27C08-BRG-SUP-005	SUPERSTRUCTURE DETAILS 4				60	CBR27C06-BRG-PIR-029	PIER 11 GEOMETRICS 2			
12	CBR27C09-BRG-ABT-023	WEST ABUTMENT REINFORCEMENT 4				34	CBR27C08-BRG-SUP-006	SUPERSTRUCTURE DETAILS 5				61	CBR27C06-BRG-PIR-030	PIER 11 REINFORCEMENT 1			
13	CBR27C09-BRG-ABT-024	WEST ABUTMENT REINFORCEMENT 5				35	CBR27C08-BRG-SUP-007	CORNER DETAILS				62	CBR27C06-BRG-PIR-031	PIER 11 REINFORCEMENT 2			
14	CBR27C09-BRG-ABT-003	WEST ABUTMENT REINFORCEMENT 6				36	CBR27C08-BRG-DTL-001	CONCRETE BARRIER (TYPE P-4, TL-4)				63	CBR27C06-BRG-PIR-032	PIER 11 REINFORCEMENT 2			
15	CBR27C09-BRG-ABT-010	EAST ABUTMENT DETAILS 1				37	CBR27C08-BRG-DTL-002	WIRE FENCE (DESIGN W-1)				64	CBR27C06-BRG-PIR-033	PIER 12 GEOMETRICS 1			
16	CBR27C09-BRG-ABT-011	EAST ABUTMENT DETAILS 2				38	CBR27C08-BRG-DTL-002	B-DETAILS 1				65	CBR27C06-BRG-PIR-034	PIER 12 GEOMETRICS 2			
17	CBR27C09-BRG-ABT-014	EAST ABUTMENT DETAILS 3				39	CBR27C08-BRG-DTL-003	B-DETAILS 2				66	CBR27C06-BRG-PIR-035	PIER 12 REINFORCEMENT 1			
18	CBR27C09-BRG-ABT-022	EAST ABUTMENT DETAILS 4				40	CBR27C08-BRG-DTL-004	B-DETAILS 3				67	CBR27C06-BRG-PIR-036	PIER 12 REINFORCEMENT 2			
19	CBR27C09-BRG-ABT-012	EAST ABUTMENT DETAILS 5				41	CBR27C08-BRG-DTL-013	AS-BUILT BRIDGE DATA				68	CBR27C06-BRG-PIR-037	PIER 12 REINFORCEMENT 3			
20	CBR27C09-BRG-ABT-015	EAST ABUTMENT REINFORCEMENT 1				42	CBR27C08-BRG-SUR	BRIDGE SURVEY				69	CBR27C06-BRG-PIR-038	PIER 13 GEOMETRICS 1			
21	CBR27C09-BRG-ABT-016	EAST ABUTMENT REINFORCEMENT 2				43	CBR27C08-BRG-BOR-001	BRIDGE SURVEY PLAN				70	CBR27C06-BRG-PIR-039	PIER 13 GEOMETRICS 2			
22	CBR27C09-BRG-ABT-017	EAST ABUTMENT REINFORCEMENT 3				44	CBR27C08-BRG-BOR-002	BRIDGE SURVEY PROFILE				71	CBR27C06-BRG-PIR-040	PIER 13 REINFORCEMENT 1			
23	CBR27C09-BRG-ABT-026	EAST ABUTMENT REINFORCEMENT 4				PRAIRIE CENTER DRIVE - BRIDGE 27C06						72	CBR27C06-BRG-PIR-041	PIER 13 REINFORCEMENT 2			
24	CBR27C09-BRG-ABT-025	EAST ABUTMENT REINFORCEMENT 5				1	CBR27C06-BRG-KEY-001	KEY PLAN				73	CBR27C06-BRG-PIR-042	PIER 13 REINFORCEMENT 3			
25	CBR27C09-BRG-ABT-018	EAST ABUTMENT REINFORCEMENT 6				2	CBR27C06-BRG-GPE-001	GENERAL PLAN & ELEVATION 1				74	CBR27C06-BRG-PIR-043	PIER 14 GEOMETRICS 1			
26	CBR27C09-BRG-SUP-002	FRAMING PLAN				3	CBR27C06-BRG-GPE-002	GENERAL PLAN & ELEVATION 2				75	CBR27C06-BRG-PIR-044	PIER 14 GEOMETRICS 2			
27	CBR27C09-BRG-PCB-001	27M PRESTRESSED CONCRETE BEAM				4	CBR27C06-BRG-GPE-003	GENERAL PLAN & ELEVATION 3				76	CBR27C06-BRG-PIR-045	PIER 14 REINFORCEMENT 1			
28	CBR27C09-BRG-SUP-004	SUPERSTRUCTURE DETAILS 1				5	CBR27C06-BRG-GPE-004	GENERAL PLAN & ELEVATION 4				77	CBR27C06-BRG-PIR-046	PIER 14 REINFORCEMENT 2			
29	CBR27C09-BRG-SUP-008	SUPERSTRUCTURE DETAILS 2				6	CBR27C06-BRG-GPE-005	GENERAL PLAN & ELEVATION 5				78	CBR27C06-BRG-PIR-047	PIER 14 REINFORCEMENT 3			
30	CBR27C09-BRG-SUP-003	SUPERSTRUCTURE DETAILS 3				7	CBR27C06-BRG-GPE-006	GENERAL PLAN & ELEVATION 6				79	CBR27C06-BRG-PIR-048	PIER 15 GEOMETRICS 1			
31	CBR27C09-BRG-SUP-007	CORNER DETAILS				8	CBR27C06-BRG-GPE-007	GENERAL PLAN & ELEVATION 7				80	CBR27C06-BRG-PIR-049	PIER 15 GEOMETRICS 2			
32	CBR27C09-BRG-DTL-003	WIRE FENCE				9	CBR27C06-BRG-TRN-001	CONSTRUCTION NOTES & QUANTITIES				81	CBR27C06-BRG-PIR-050	PIER 15 REINFORCEMENT 1			
33	CBR27C09-BRG-DTL-001	CONCRETE BARRIER (TYPE P-4, TL-4)				10	CBR27C06-BRG-TRN-002	STRAY CURRENT/CORROSION CONTROL NOTES				82	CBR27C06-BRG-PIR-051	PIER 15 REINFORCEMENT 2			
34	CBR27C09-BRG-DTL-002	CONCRETE PARAPET (TYPE P-1)				11	CBR27C06-BRG-TRN-003	TRANSVERSE SECTION 1				83	CBR27C06-BRG-PIR-052	PIER 15 REINFORCEMENT 3			
35	CBR27C09-BRG-DTL-009	WATERPROOF EXPANSION DEVICE 1				12	CBR27C06-BRG-TRN-004	TRANSVERSE SECTION 2				84	CBR27C06-BRG-PIR-053	PIER 16 GEOMETRICS 1			
36	CBR27C09-BRG-DTL-010	WATERPROOF EXPANSION DEVICE 2				13	CBR27C06-BRG-TRN-005	TRANSVERSE SECTION 3				85	CBR27C06-BRG-PIR-054	PIER 16 GEOMETRICS 2			
37	CBR27C09-BRG-DTL-004	BRIDGE DETAILS 1				14	CBR27C06-BRG-SUP-039	PIER DETAILS				86	CBR27C06-BRG-PIR-055	PIER 16 REINFORCEMENT 1			
38	CBR27C09-BRG-DTL-005	BRIDGE DETAILS 2				15	CBR27C06-BRG-SUP-001	BRIDGE LAYOUT 1				87	CBR27C06-BRG-PIR-056	PIER 16 REINFORCEMENT 2			
39	CBR27C09-BRG-DTL-006	BRIDGE DETAILS 3				16	CBR27C06-BRG-SUP-002	BRIDGE LAYOUT 2				88	CBR27C06-BRG-PIR-057	PIER 16 REINFORCEMENT 3			
40	CBR27C09-BRG-DTL-008	BRIDGE DETAILS 4				17	CBR27C06-BRG-SUP-003	BRIDGE LAYOUT 3				89	CBR27C06-BRG-PIR-058	PIER 17 GEOMETRICS 1			
41	CBR27C09-AS-BUILT BRIDGE DATA	AS-BUILT BRIDGE DATA				18	CBR27C06-BRG-SUP-004	BRIDGE LAYOUT 4				90	CBR27C06-BRG-PIR-059	PIER 17 GEOMETRICS 2			
42	CBR27C09-BRG-SUR-001	BRIDGE SURVEY				19	CBR27C06-BRG-SUP-005	BRIDGE LAYOUT 5				91	CBR27C06-BRG-PIR-060	PIER 17 REINFORCEMENT 1			
43	CBR27C09-BRG-SUR-002	BRIDGE SURVEY PLAN				20	CBR27C06-BRG-SUP-006	BRIDGE LAYOUT 6				92	CBR27C06-BRG-PIR-061	PIER 17 REINFORCEMENT 2			
44	CBR27C09-BRG-SUR-003	BRIDGE SURVEY PROFILE				21	CBR27C06-BRG-SUP-007	BRIDGE LAYOUT 7				93	CBR27C06-BRG-PIR-062	PIER 17 REINFORCEMENT 3			
FELTL ROAD - BRIDGE 27C08						22	CBR27C06-BRG-SUP-008	BRIDGE LAYOUT 8				94	CBR27C06-BRG-PIR-063	PIER 18 GEOMETRICS 1			
1	CBR27C08-BRG-GPE-001	GENERAL PLAN AND ELEVATION	24+73.4	25+18.0		23	CBR27C06-BRG-AES-001	AESTHETICS DETAILS 1				95	CBR27C06-BRG-PIR-064	PIER 18 GEOMETRICS 2			
2	CBR27C08-BRG-GPE-002	TRANSVERSE SECTION & QUANTITIES				24	CBR27C06-BRG-AES-002	AESTHETICS DETAILS 2				96	CBR27C06-BRG-PIR-065	PIER 18 REINFORCEMENT 1			
3	CBR27C08-BRG-GPE-003	BRIDGE LAYOUT				25	CBR27C06-BRG-ABT-001	EAST ABUTMENT GEOMETRICS 1				97	CBR27C06-BRG-PIR-066	PIER 18 REINFORCEMENT 2			
4	CBR27C08-BRG-ABT-001	ABUTMENT AESTHETICS 1				26	CBR27C06-BRG-ABT-002	EAST ABUTMENT GEOMETRICS 2				98	CBR27C06-BRG-PIR-067	PIER 18 REINFORCEMENT 3			
5	CBR27C08-BRG-ABT-002	ABUTMENT AESTHETICS 2				27	CBR27C06-BRG-ABT-003	EAST ABUTMENT GEOMETRICS 3				99	CBR27C06-BRG-PIR-068	PIER 19, 20, 22, 23, 25, 26, 28 & 29 GEOMETRICS 1			
6	CBR27C08-BRG-ABT-003	SOUTH ABUTMENT DETAILS 1				28	CBR27C06-BRG-ABT-004	EAST ABUTMENT REINFORCEMENT 1				100	CBR27C06-BRG-PIR-069	PIER 19, 20, 22, 23, 25, 26, 28 & 29 GEOMETRICS 2			
7	CBR27C08-BRG-ABT-004	SOUTH ABUTMENT DETAILS 2				29	CBR27C06-BRG-ABT-005	EAST ABUTMENT REINFORCEMENT 2				101	CBR27C06-BRG-PIR-070	PIER 19, 20, 22, 23, 25, 26, 28, 29 REINF. 1			
8	CBR27C08-BRG-ABT-005	SOUTH ABUTMENT DETAILS 3				30	CBR27C06-BRG-ABT-006	EAST ABUTMENT REINFORCEMENT 3				102	CBR27C06-BRG-PIR-071	PIER 19, 20, 22, 23, 25, 26, 28, 29 REINF. 2			
9	CBR27C08-BRG-ABT-006	SOUTH ABUTMENT DETAILS 4				31	CBR27C06-BRG-ABT-007	EAST ABUTMENT REINFORCEMENT 4				103	CBR27C06-BRG-PIR-072	PIER 7A, 1, 21, 24, 27 GEOMETRICS 1			
10	CBR27C08-BRG-ABT-007	SOUTH ABUTMENT DETAILS 5				32	CBR27C06-BRG-PIR-001	PIER 1A - 6A, 8A GEOMETRICS 1				104	CBR27C06-BRG-PIR-073	PIER 7A, 1, 21, 24, 27 GEOMETRICS 2			
11	CBR27C08-BRG-ABT-008	SOUTH ABUTMENT REINFORCEMENT 1				33	CBR27C06-BRG-PIR-002	PIER 1A - 6A, 8A GEOMETRICS 2				105	CBR27C06-BRG-PIR-074	PIER 7A, 1, 21, 24, 27 REINF. 1			
12	CBR27C08-BRG-ABT-009	SOUTH ABUTMENT REINFORCEMENT 2				34	CBR27C06-BRG-PIR-003	PIER 1A - 6A, 8A REINFORCEMENT 1				106	CBR27C06-BRG-PIR-075	PIER 7A, 1, 21, 24, 27 REINF. 2			
13	CBR27C08-BRG-ABT-010	SOUTH ABUTMENT REINFORCEMENT 3				35	CBR27C06-BRG-PIR-004	PIER 1A - 6A, 8A REINFORCEMENT 2				107	CBR27C06-BRG-SUP-009	FRAMING PLAN 1			
14	CBR27C08-BRG-ABT-011	SOUTH ABUTMENT REINFORCEMENT 4				36	CBR27C06-BRG-PIR-005	PIER 9A, 10A, 2, 3, 5, 6, 7 GEOMETRICS 1				108	CBR27C06-BRG-SUP-010	FRAMING PLAN 2			
						37	CBR27C06-BRG-PIR-006	PIER 9A, 10A, 2, 3, 5, 6, 7 GEOMETRICS 2				109	CBR27C06-BRG-SUP-011	FRAMING PLAN 3			
						38	CBR27C06-BRG-PIR-007	PIER 9A, 10A, 2, 3, 5, 6, 7 REINFORCEMENT 1				110	CBR27C06-BRG-SUP-012	FRAMING DETAILS 1			
						39	CBR27C06-BRG-PIR-008	PIER 9A, 10A, 2, 3, 5, 6, 7 REINFORCEMENT 2				111	CBR27C06-BRG-SUP-013	FRAMING DETAILS 2			



Jan, 21 2016 05:35 pm v:\3400\_ADC\CAD\CAD MANAGEMENT\DRAWING LIST\COVER SHEETS 90%\90% GEN-IDX\_VOL\_04.dwg By: v-krievant

CIVIL CONSTRUCTION						CIVIL CONSTRUCTION						CIVIL CONSTRUCTION											
SHT #	SHEET NAME	SHEET DESCRIPTION	STATION	STATION	REV	SHT #	SHEET NAME	SHEET DESCRIPTION	STATION	STATION	REV	SHT #	SHEET NAME	SHEET DESCRIPTION	STATION	STATION	REV						
VOLUME 4B - BRIDGES (cont'd)						187	CBR27C06-BRG-SUP-084	SUPERSTRUCTURE DETAILS 6															
115	CBR27C06-BRG-PCB-003	82MW PRESTRESSED CONCRETE BEAM 3				188	CBR27C06-BRG-SUP-085	SUPERSTRUCTURE DETAILS 7															
116	CBR27C06-BRG-PCB-004	82MW PRESTRESSED CONCRETE BEAM 4				189	CBR27C06-BRG-SUP-086	SUPERSTRUCTURE DETAILS 8															
117	CBR27C06-BRG-PCB-005	82MW PRESTRESSED CONCRETE BEAM 5				190	CBR27C06-BRG-SUP-087	SUPERSTRUCTURE DETAILS 9															
118	CBR27C06-BRG-SUP-015	SUPERSTRUCTURE GEOM. 1 (SEGMENT A)				191	CBR27C06-BRG-SUP-088	SUPERSTRUCTURE DETAILS 10															
119	CBR27C06-BRG-SUP-016	SUPERSTRUCTURE GEOM. 2 (SEGMENT A)				192	CBR27C06-BRG-SUP-089	SUPERSTRUCTURE DETAILS 11															
120	CBR27C06-BRG-SUP-017	SUPERSTRUCTURE GEOM. 3 (SEGMENT A)				193	CBR27C06-BRG-SUP-090	SUPERSTRUCTURE DETAILS 12															
121	CBR27C06-BRG-SUP-018	SUPERSTRUCTURE GEOM. 4 (SEGMENT A)				194	CBR27C06-BRG-SUP-091	SUPERSTRUCTURE DETAILS 13															
122	CBR27C06-BRG-SUP-019	SUPERSTRUCTURE GEOM. 5 (SEGMENT A)				195	CBR27C06-BRG-SUP-092	SUPERSTRUCTURE DETAILS 14															
123	CBR27C06-BRG-SUP-020	SUPERSTRUCTURE GEOM. 6 (SEGMENT A)				196	CBR27C06-BRG-RAL-001	WIRE FENCE															
124	CBR27C06-BRG-SUP-021	SUPERSTRUCTURE REINF. 1 (SEGMENT A)				197	CBR27C06-BRG-DTL-001	BRIDGE DETAILS 1															
125	CBR27C06-BRG-SUP-022	SUPERSTRUCTURE REINF. 2 (SEGMENT A)				198	CBR27C06-BRG-DTL-002	BRIDGE DETAILS 4															
126	CBR27C06-BRG-SUP-023	SUPERSTRUCTURE REINF. 3 (SEGMENT A)				199	CBR27C06-BRG-DTL-003	BRIDGE DETAILS 2															
127	CBR27C06-BRG-SUP-024	SUPERSTRUCTURE REINF. 4 (SEGMENT A)				200	CBR27C06-BRG-DTL-004	BRIDGE DETAILS 5															
128	CBR27C06-BRG-SUP-025	SUPERSTRUCTURE REINF. 5 (SEGMENT A)				201	CBR27C06-BRG-DTL-005	BRIDGE DETAILS 3															
129	CBR27C06-BRG-SUP-026	SUPERSTRUCTURE REINF. 6 (SEGMENT A)				202	CBR27C06-BRG-DTL-006	BRIDGE DETAILS 6															
130	CBR27C06-BRG-SUP-027	SUPERSTRUCTURE REINF. 7 (SEGMENT A)				203	CBR27C06-BRG-DTL-007	WATERPROOF EXPANSION DEVICE 1															
131	CBR27C06-BRG-SUP-028	SUPERSTRUCTURE REINF. 8 (SEGMENT A)				204	CBR27C06-BRG-DTL-008	WATERPROOF EXPANSION DEVICE 2															
132	CBR27C06-BRG-SUP-029	SUPERSTRUCTURE REINF. 9 (SEGMENT A)				205	CBR27C06-BRG-DTL-009	WATERPROOF EXPANSION DEVICE 3															
133	CBR27C06-BRG-SUP-030	SUPERSTRUCTURE REINF. 10 (SEGMENT A)				206	CBR27C06-BRG-DTL-010	STABILIZED AGGREGATE SLOPE PAVING															
134	CBR27C06-BRG-SUP-031	SUPERSTRUCTURE REINF. 11 (SEGMENT A)				207	CBR27C06-BRG-DTL-011	AS-BUILT DATA															
135	CBR27C06-BRG-SUP-032	SUPERSTRUCTURE GEOM. 1 (SEGMENT B)				208	CBR27C06-BRG-SUR-001	BRIDGE SURVEY 1															
136	CBR27C06-BRG-SUP-033	SUPERSTRUCTURE GEOM. 2 (SEGMENT B)				209	CBR27C06-BRG-SUR-002	BRIDGE SURVEY 2															
137	CBR27C06-BRG-SUP-034	SUPERSTRUCTURE GEOM. 3 (SEGMENT B)				210	CBR27C06-BRG-SUR-003	BRIDGE SURVEY 3															
138	CBR27C06-BRG-SUP-035	SUPERSTRUCTURE GEOM. 4 (SEGMENT B)				211	CBR27C06-BRG-SUR-004	BRIDGE SURVEY 4															
139	CBR27C06-BRG-SUP-036	SUPERSTRUCTURE GEOM. 5 (SEGMENT B)				212	CBR27C06-BRG-BOR-001	BRIDGE SURVEY PLAN 1															
140	CBR27C06-BRG-SUP-037	SUPERSTRUCTURE GEOM. 6 (SEGMENT B)				213	CBR27C06-BRG-BOR-002	BRIDGE SURVEY PLAN 2															
141	CBR27C06-BRG-SUP-038	SUPERSTRUCTURE GEOM. 7 (SEGMENT B)				214	CBR27C06-BRG-BOR-003	BRIDGE SURVEY PLAN 3															
142	CBR27C06-BRG-SUP-039	SUPERSTRUCTURE GEOM. 8 (SEGMENT B)				215	CBR27C06-BRG-BOR-004	BRIDGE SURVEY PLAN 4															
143	CBR27C06-BRG-SUP-040	SUPERSTRUCTURE GEOM. 9 (SEGMENT B)				216	CBR27C06-BRG-BOR-005	BRIDGE SURVEY PLAN 5															
144	CBR27C06-BRG-SUP-041	SUPERSTRUCTURE GEOM. 10 (SEGMENT B)				217	CBR27C06-BRG-BOR-006	BRIDGE SURVEY PLAN 6															
145	CBR27C06-BRG-SUP-042	SUPERSTRUCTURE REINF. 1 (SEGMENT B)				218	CBR27C06-BRG-BOR-007	BRIDGE SURVEY PLAN 7															
146	CBR27C06-BRG-SUP-043	SUPERSTRUCTURE REINF. 2 (SEGMENT B)				219	CBR27C06-BRG-BOR-008	BRIDGE SURVEY PLAN 8															
147	CBR27C06-BRG-SUP-044	SUPERSTRUCTURE REINF. 3 (SEGMENT B)				220	CBR27C06-BRG-BOR-009	BRIDGE SURVEY PLAN 9															
148	CBR27C06-BRG-SUP-045	SUPERSTRUCTURE REINF. 4 (SEGMENT B)				221	CBR27C06-BRG-BOR-010	BRIDGE SURVEY PLAN 10															
149	CBR27C06-BRG-SUP-046	SUPERSTRUCTURE REINF. 5 (SEGMENT B)				222	CBR27C06-BRG-BOR-011	BRIDGE SURVEY PROFILE 1															
150	CBR27C06-BRG-SUP-047	SUPERSTRUCTURE REINF. 6 (SEGMENT B)				223	CBR27C06-BRG-BOR-012	BRIDGE SURVEY PROFILE 2 (1 OF 2)															
151	CBR27C06-BRG-SUP-048	SUPERSTRUCTURE REINF. 7 (SEGMENT B)				224	CBR27C06-BRG-BOR-013	BRIDGE SURVEY PROFILE 2 (2 OF 2)															
152	CBR27C06-BRG-SUP-049	SUPERSTRUCTURE REINF. 8 (SEGMENT B)				225	CBR27C06-BRG-BOR-014	BRIDGE SURVEY PROFILE 3															
153	CBR27C06-BRG-SUP-050	SUPERSTRUCTURE REINF. 9 (SEGMENT B)				226	CBR27C06-BRG-BOR-015	BRIDGE SURVEY PROFILE 4															
154	CBR27C06-BRG-SUP-051	SUPERSTRUCTURE REINF. 10 (SEGMENT B)				227	CBR27C06-BRG-BOR-016	BRIDGE SURVEY PROFILE 5															
155	CBR27C06-BRG-SUP-052	SUPERSTRUCTURE REINF. 11 (SEGMENT B)				228	CBR27C06-BRG-BOR-017	BRIDGE SURVEY PROFILE 6															
156	CBR27C06-BRG-SUP-053	SUPERSTRUCTURE REINF. 12 (SEGMENT B)				229	CBR27C06-BRG-BOR-018	BRIDGE SURVEY PROFILE 7															
157	CBR27C06-BRG-SUP-054	SUPERSTRUCTURE REINF. 13 (SEGMENT B)				230	CBR27C06-BRG-BOR-019	BRIDGE SURVEY PROFILE 8															
158	CBR27C06-BRG-SUP-055	SUPERSTRUCTURE REINF. 14 (SEGMENT B)				231	CBR27C06-BRG-BOR-020	BRIDGE SURVEY PROFILE 9															
159	CBR27C06-BRG-SUP-056	SUPERSTRUCTURE REINF. 15 (SEGMENT B)				232	CBR27C06-BRG-BOR-021	BRIDGE SURVEY PROFILE 10															
160	CBR27C06-BRG-SUP-057	SUPERSTRUCTURE REINF. 16 (SEGMENT B)																					
161	CBR27C06-BRG-SUP-058	SUPERSTRUCTURE REINF. 17 (SEGMENT B)																					
162	CBR27C06-BRG-SUP-059	SUPERSTRUCTURE REINF. 18 (SEGMENT B)																					
163	CBR27C06-BRG-SUP-060	SUPERSTRUCTURE REINF. 19 (SEGMENT B)																					
164	CBR27C06-BRG-SUP-061	SUPERSTRUCTURE REINF. 20 (SEGMENT B)																					
165	CBR27C06-BRG-SUP-062	SUPERSTRUCTURE REINF. 21 (SEGMENT B)																					
166	CBR27C06-BRG-SUP-063	SUPERSTRUCTURE REINF. 22 (SEGMENT B)																					
167	CBR27C06-BRG-SUP-064	SUPERSTRUCTURE REINF. 23 (SEGMENT B)																					
168	CBR27C06-BRG-SUP-065	SUPERSTRUCTURE REINF. 24 (SEGMENT B)																					
169	CBR27C06-BRG-SUP-066	SUPERSTRUCTURE REINF. 25 (SEGMENT B)																					
170	CBR27C06-BRG-SUP-067	SUPERSTRUCTURE REINF. 26 (SEGMENT B)																					
171	CBR27C06-BRG-SUP-068	SUPERSTRUCTURE GEOM. 1 (SEGMENT C)																					
172	CBR27C06-BRG-SUP-069	SUPERSTRUCTURE GEOM. 2 (SEGMENT C)																					
173	CBR27C06-BRG-SUP-070	SUPERSTRUCTURE GEOM. 3 (SEGMENT C)																					
174	CBR27C06-BRG-SUP-071	SUPERSTRUCTURE GEOM. 4 (SEGMENT C)																					
175	CBR27C06-BRG-SUP-072	SUPERSTRUCTURE REINF. 1 (SEGMENT C)																					
176	CBR27C06-BRG-SUP-073	SUPERSTRUCTURE REINF. 2 (SEGMENT C)																					
177	CBR27C06-BRG-SUP-074	SUPERSTRUCTURE REINF. 3 (SEGMENT C)																					
178	CBR27C06-BRG-SUP-075	SUPERSTRUCTURE REINF. 4 (SEGMENT C)																					
179	CBR27C06-BRG-SUP-076	SUPERSTRUCTURE REINF. 5 (SEGMENT C)																					
180	CBR27C06-BRG-SUP-077	SUPERSTRUCTURE REINF. 6 (SEGMENT C)																					
181	CBR27C06-BRG-SUP-078	SUPERSTRUCTURE REINF. 7 (SEGMENT C)																					
182	CBR27C06-BRG-SUP-079	SUPERSTRUCTURE DETAILS 1																					
183	CBR27C06-BRG-SUP-080	SUPERSTRUCTURE DETAILS 2																					
184	CBR27C06-BRG-SUP-081	SUPERSTRUCTURE DETAILS 3																					
185	CBR27C06-BRG-SUP-082	SUPERSTRUCTURE DETAILS 4																					
186	CBR27C06-BRG-SUP-083	SUPERSTRUCTURE DETAILS 5																					
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL					 		CIVIL - VOLUME 4B GENERAL VOLUME INDEX OF											

Jan, 16 2016 03:38 pm V:\3400\_ADC\CAD\CAD MANAGEMENT\DRAWING LIST\COVER SHEETS 90%\W0-GEN-KEY.dwg By: V-KriedwMR



REF	BRIDGE DESCRIPTION	BRIDGE NUMBER
1	PRAIRIE CENTER DRIVE BRIDGE	27C06
2	BRIDGE OVER I-494	27W32
3	VALLEY VIEW RD BRIDGE	27R33
4	NINE MILE CREEK BRIDGE	27C07
5	TH 212 / SHADY OAK ROAD BRIDGE	27R34
6	TH 62 TUNNEL	27W33
7	PEDESTRIAN UNDERPASS #2	27J63
8	PEDESTRIAN UNDERPASS #1	27J62
9	PEDESTRIAN UNDERPASS #5	R0715
10	FELTL ROAD BRIDGE	27C08
11	SMETANA ROAD BRIDGE	27C09
12	MINNETONKA / HOPKINS LRT BRIDGE	R0686
13	FLYING CLOUD DRIVE BRIDGE MODIFICATIONS	27762 BA
14	SOUTHWEST STATION BUS LOOP BRIDGE	XXXXX

BA - BID ALTERNATE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

**AECOM**

90% SUBMISSION - 01/22/16

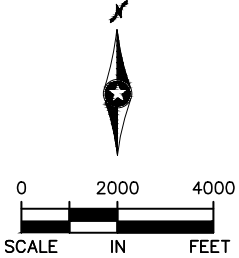
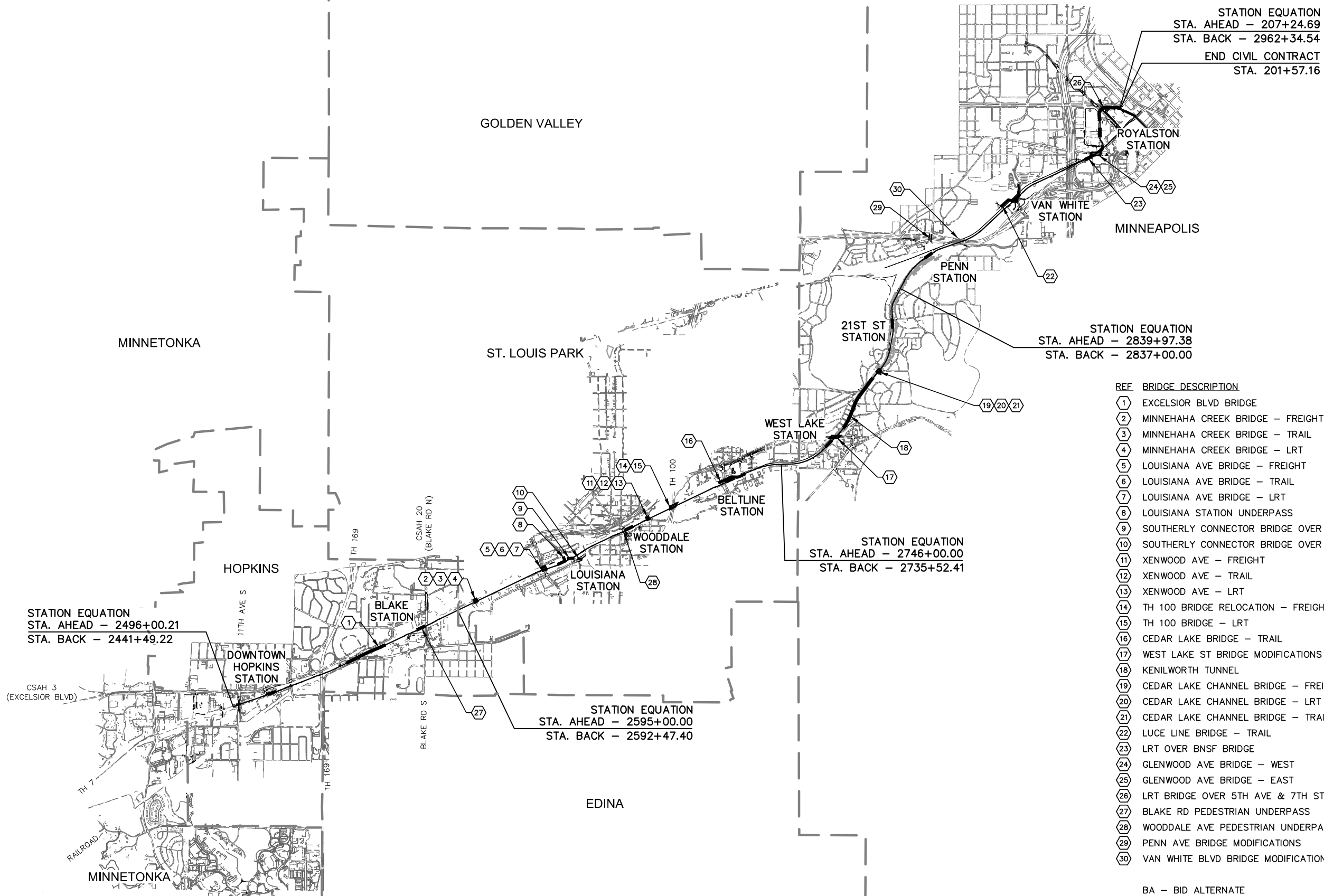


**CIVIL - VOLUME 4B  
GENERAL  
KEY MAP  
SHEET 1**

DISCIPLINE:	GENERAL	SHEET NAME:	W0-GEN-KEY-001
-------------	---------	-------------	----------------

**SHEET  
4  
OF  
327**

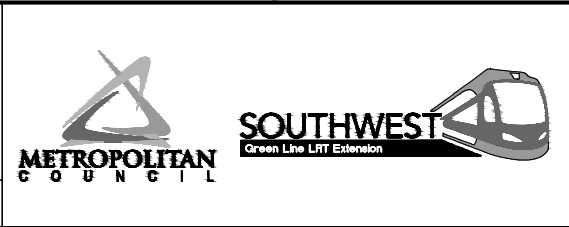
Jan, 16 2016 03:40 pm V:\3400\_ADC\CAD\CAD MANAGEMENT\DRAWING LIST\COVER SHEETS 90%\E0-GEN-KEY.dwg By: V-Kriewolr



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



90% SUBMISSION - 01/22/16



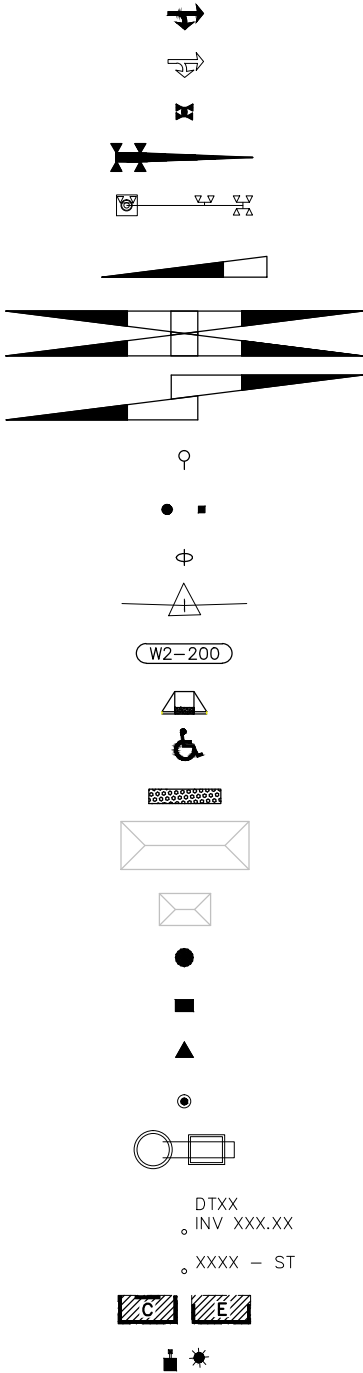
CIVIL - VOLUME 4B  
GENERAL  
KEY MAP  
SHEET 2

DISCIPLINE: GENERAL  
SHEET NAME: E0-GEN-KEY-002

SHEET  
5  
OF  
327

Jan, 18 2016 07:43 am V:\3400\_ADC\CAD\CAD MANAGEMENT\DRAWING LIST\COVER SHEETS 90%\CIV-GEN-NTS.dwg By: V-KriewaldMR

SYMBOLS



- PROPOSED DIRECTIONAL LANE USE
- EXISTING DIRECTIONAL LANE USE
- FLASHER (FREIGHT & PEDESTRIAN)
- CROSSING GATE (FREIGHT & LRT)
- CANTILEVER SIGNAL
- RAIL TURNOUT
- RAIL CROSSOVER (DOUBLE)
- RAIL CROSSOVER (SINGLE)
- POINT OF SWITCH (PS)
- OCS POLE FOUNDATION
- RAIL LUBRICATOR
- POINT OF INTERSECTION (PI)
- RAILROAD CURVE NUMBER
- ACCESSIBLE PEDESTRIAN CURB RAMP (DESIGN VARIES)
- HANDICAP PARKING STALL
- TACTILE WARNING STRIP
- TPSS BUILDING (TPSS-SW###) - NIC
- TUNNEL SYSTEMS HOUSE (TSY-SW###) - NIC
- SIGNAL / COMMUNICATION HOUSE - NIC
- STORM SEWER MANHOLE
- STORM SEWER CATCH BASIN
- STORM SEWER FLARED END SECTION
- STORM SEWER CLEAN-OUT
- STORM SEWER PUMP STATION
- DRAINTILE ID
- STORM SEWER STRUCTURE ID
- BUS SHELTER
- ROADWAY / PEDESTRIAN LIGHT

LINETYPES

- ROADWAY CL
- TRACK CL (LRT)
- TRACK CL (FRT)
- RETAINING WALL
- BALLAST CURB
- TUNNEL WALL
- FENCE
- EX ROW
- PROP ROW
- PROP TCE
- PROP PE
- FENCE / RAILING
- FREIGHT INTRUSION DETECTION
- CONCRETE CURB AND GUTTER
- TRAIL (WIDTH VARIES)
- SIDEWALK
- DRIVEWAY
- BRIDGE
- SAWCUT
- DELINEATED WETLAND
- BMP (NWL) WATER EDGE
- PROPOSED FLOODPLAIN MITIGATION AREA
- SILT FENCE
- BALE BARRIER
- STORM SEWER
- CASING PIPE
- PIPE REMOVAL
- STRUCTURE REMOVAL
- FLOATING SILT FENCE
- SUPER DUTY SILT FENCE
- CONSTRUCTION LIMITS
- ROCK WEEPER
- DIVERSION DITCH
- OVERLAND FLOW
- CROSSWALK
- STOP BAR
- MEDIAN NOSE
- WETLAND ID

CONSTRUCTION PACKAGE NOTE

NOTE: THE SWLRT CONSTRUCTION IS BEING IMPLEMENTED THROUGH THREE MAIN CONSTRUCTION PACKAGES; CIVIL, SYSTEMS & TUNNEL FACILITIES (SYS), AND OPERATIONS & MAINTENANCE FACILITY (OMF). CERTAIN SYS AND OMF SYMBOLS ARE SHOWN ON THE CIVIL CONTRACT PLANS FOR INFORMATION ONLY AND CERTAIN FACILITIES ARE NOT PART OF THE CIVIL CONTRACT.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
GENERAL  
NOTES, ABBREVIATIONS, AND SYMBOLS  
SHEET 1

DISCIPLINE: GENERAL

SHEET NAME: 00-GEN-NTS-001

Jan, 16 2016 03:40 pm V:\3400\_ADC\CAD\CAD MANAGEMENT\DRAWING LIST\COVER SHEETS 90%\CIV-GEN-NTS.dwg By: V-KriewaldMR

ABBREVIATIONS

3-2 (EG)	SIGNAL HEAD NUMBER (PHASE 3, NO. 2)
AD	ALGEBRAIC DIFFERENCE
AVE	AVENUE
AWF	ADVANCE WARNING FLASHER
BA	BID ALTERNATE
BGN	BEGIN
BP	BEGINNING POINT
BVCE	BEGINNING VERTICAL CURVE ELEVATION
BVCS	BEGINNING VERTICAL CURVE STATION
BLVD	BOULEVARD
BMP	BEST MANAGEMENT PRACTICE
BNSF	BURLINGTON NORTHERN SANTA FE RAILWAY
C&G	CURB AND GUTTER
CL	CENTERLINE
CB	CATCH BASIN
CE	CLEARANCE ENVELOPE
CIR	CIRCLE
CO	DRAINTILE CLEANOUT STRUCTURE
CP	CANADIAN PACIFIC
CPRAIL	CANADIAN PACIFIC RAILWAY
CS	CURVE TO SPIRAL
CSAH	COUNTY STATE AID HIGHWAY
D&U	DRAINAGE AND UTILITY
DF	DIRECT FIXATION
DR	DRIVE
DT	DRAINTILE
DTL	DETAIL
DWY	DRIVEWAY
E	EAST
Ea	ACTUAL SUPERELEVATION (INCHES)
EB	EAST BOUND
EL or ELEV	ELEVATION
EP	ENDING POINT
ESMT	EASEMENT
Eu	UNBALANCED SUPERELEVATION (INCHES)
EVCE	ENDING VERTICAL CURVE ELEVATION
EVCS	ENDING VERTICAL CURVE STATION
EVP	EMERGENCY VEHICLE PRE-EMPTION
EX	EXISTING
FES	FLARED END SECTION
FYA	FLASHING YELLOW ARROW
GR RD	GROUND ROD
GRN	GREEN INDICATION
HCRRA	HENNEPIN COUNTY REGIONAL RAILROAD AUTHORITY
INL	BRIDGE DRAIN INLET
INS GR	INSULATED GROUND
IP	INPLACE
LED	LIGHT EMITTING DIODE
LH	LEFT HAND
LN	LANE
LRCI	LOCALLY REQUESTED CAPITAL INVESTMENT
LRT	LIGHT RAIL TRANSIT
LRV	LIGHT RAIL VEHICLE
LT	LEFT
LUM	LUMINAIRE
Lc	CURVE LENGTH (FEET)
Ls	SPIRAL LENGTH (FEET)
MIN	MINIMUM
MPH	MILES PER HOUR
MPLS	CITY OF MINNEAPOLIS
MPRB	MINNEAPOLIS PARK AND RECREATION BOARD
N	NORTH
NB	NORTH BOUND
NIC	NOT IN CONTRACT
NO	NUMBER
NWL	NORMAL WATER LINE
OCS	OUTLET CONTROL SYSTEM
OCS	OVERHEAD CONTACT SYSTEM
OMF	OPERATIONS AND MAINTENANCE FACILITY
OH	OVERHEAD
P1-1 (EG)	PEDESTRIAN HEAD (PHASE 1, NO. 1)
PB2-1 (EG)	PUSHBUTTON (PHASE 2, NO. 1)
PC	POINT OF CURVE
PE	PERMANENT EASEMENT
PED	PEDESTRIAN
PITO	POINT OF INTERSECTION OF TURNOUT
PKWY	PARKWAY
POB	POINT OF BEGINNING
POE	POINT OF ENDING
POT	POINT ON TANGENT
PROP	PROPOSED
PS	POINT OF SWITCH

PT	POINT OF TANGENT
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS (FEET)
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RL	RAIL LUBRICATOR
r	RATE OF CHANGE VERTICAL CURVE
RH	RIGHT HAND
ROW	RIGHT OF WAY
RT	RIGHT
S	SOUTH
SB	SOUTH BOUND
SC	SPIRAL TO CURVE
SIG-COMM	SIGNAL COMMUNICATION
SOP	SOURCE OF POWER
ST	STREET
ST	SPIRAL TO TANGENT
ST	STORM MANHOLE STRUCTURE
STA	STATION
TCE	TEMPORARY CONSTRUCTION EASEMENT
TH	TRUNK HIGHWAY
THRU	THROUGH
TOR	TOP OF RAIL
TPSS	TRACTION POWER SUBSTATION
TRK	TRACK
TS	TANGENT TO SPIRAL
TYP	TYPICAL
UG	UNDERGROUND
V	DESIGN VELOCITY (MPH)
VC	VERTICAL CURVE
VDE	VEHICLE DYNAMIC ENVELOPE
W	WEST
WB	WEST BOUND
WLK	WALK INDICATION

TRAIL INDEX

ABBREVIATED NAME	FULL NAME / LOCATION
TRAIL 1	UNDER RED CIRCLE DR, LRT, AND YELLOW CIRCLE DR
TRAIL 2	FROM TRAIL 1 TO GREEN CIRCLE DR
TRAIL 3	OPUS STATION ACCESS FROM BREN RD E
TRAIL 4	FROM BREN RD W TO TRAIL 5
TRAIL 5	FROM OPUS STATION TO GREEN CIRCLE DR
TRAIL 6	FROM TRAIL 5 TO SMETANA RD
CEDAR LAKE TRAIL	CEDAR LAKE LRT REGIONAL TRAIL/FROM SHADY OAK STATION TO 11TH AVE
CEDAR LAKE TRAIL	CEDAR LAKE LRT REGIONAL TRAIL/WEST OF EXCELSIOR
CEDAR LAKE TRAIL	CEDAR LAKE LRT REGIONAL LRT TRAIL/BETWEEN EXCELSIOR AND KENILWORTH TRAIL CONNECTION
MIDTOWN GREENWAY	MIDTOWN GREENWAY/EAST OF KENILWORTH TRAIL CONNECTION
TRAIL A	KENILWORTH TRAIL (SECONDARY)/BETWEEN CEDAR-ISLES CHANNEL AND 21ST STREET STATION
TRAIL B	KENILWORTH TRAIL (SECONDARY)/BETWEEN 21ST STREET STATION AND PENN STATION
TRAIL B	CEDAR LAKE TRAIL (SECONDARY)/EAST OF PENN STATION
TRAIL C	10' CONNECTOR TRAIL FROM CEDAR LAKE LRT REGIONAL TRAIL TO TYLER AVE.
TRAIL D	10' CONNECTOR TRAIL/BELTLINE STATION TO CEDAR LAKE LRT REGIONAL TRAIL
KENILWORTH TRAIL	KENILWORTH TRAIL (MAIN)/W LAKE ST TO PENN STATION
CEDAR LAKE TRAIL	CEDAR LAKE TRAIL (MAIN)/PENN STATION TO TH 394
TRAIL E	KENILWORTH TRAIL (SECONDARY)/EAST OF W LAKE ST
TRAIL F	KENILWORTH TRAIL (SECONDARY)/WEST OF CEDAR LAKE PKWY
TRAIL G	NOT USED
TRAIL H	10' CONNECTOR TRAIL/EAST OF PENN STATION TO KENWOOD PKWY
TRAIL I	10' CONNECTOR TRAIL FROM CEDAR LAKE REGIONAL TRAIL TO CSAH 20 (BLAKE RD)
CEDAR LAKE TRAIL	CEDAR LAKE TRAIL (MAIN)/AT-GRADE CROSSING AT PENN STATION
TRAIL J	CEDAR LAKE TRAIL (SECONDARY)/NORTHWEST OF PENN STATION
TRAIL K	CEDAR LAKE TRAIL (SECONDARY)/NORTHWEST OF PENN STATION
TRAIL L	CEDAR LAKE TRAIL (SECONDARY)/EAST OF PENN STATION
TRAIL M	10' CONNECTOR TRAIL FROM CEDAR LAKE REGIONAL TRAIL TO CSAH 20 (BLAKE RD)
TRAIL N	8' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO EDGEBROOK DRIVE
TRAIL O	8' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO W LAKE STREET
TRAIL P	8' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO LOUISIANA AVE
TRAIL Q	10' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO TH 7 SERVICE ROAD
TRAIL R	20' CONNECTOR TRAIL FROM VAN WHITE STATION TO CEDAR LAKE TRAIL
TRAIL S	10' CONNECTOR TRAIL FROM CEDAR LAKE REGIONAL TRAIL TO BELTLINE BLVD
TRAIL T	8' CONNECTOR TRAIL FROM VAN WHITE STATION TO VAN WHITE MEMORIAL BLVD
TRAIL U	10' TRAIL PARALLEL TO CEDAR LAKE PKWY
LUCE LINE TRAIL	LUCE LINE REGIONAL TRAIL/ON BRIDGE OVER LIGHT RAIL
TRAIL V	CONNECTOR TRAIL TO LUCE LINE REGIONAL TRAIL WEST OF LIGHT RAIL
TRAIL W	CONNECTOR TRAIL TO LUCE LINE REGIONAL TRAIL WEST OF LIGHT RAIL
TRAIL X	NOT USED
TRAIL Y	12' CONNECTOR TRAIL FROM CEDAR LAKE REGIONAL TRAIL TO WOODDALE AVE S
TRAIL Z	12' CONNECTOR TRAIL FROM CEDAR LAKE REGIONAL TRAIL TO WOODDALE AVE S
TRAIL AA	8' PEDESTRIAN CONNECTOR TRAIL FROM TRAIL B TO PENN STATION
TRAIL BB	8' PEDESTRIAN CONNECTOR TRAIL FROM TRAIL B TO PENN STATION
TRAIL CC	10' CONNECTOR TRAIL FROM KENILWORTH TRAIL (MAIN) TO PENN STATION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
GENERAL  
NOTES, ABBREVIATIONS, AND SYMBOLS  
SHEET 2

DISCIPLINE: GENERAL

SHEET NAME: 00-GEN-NTS-002

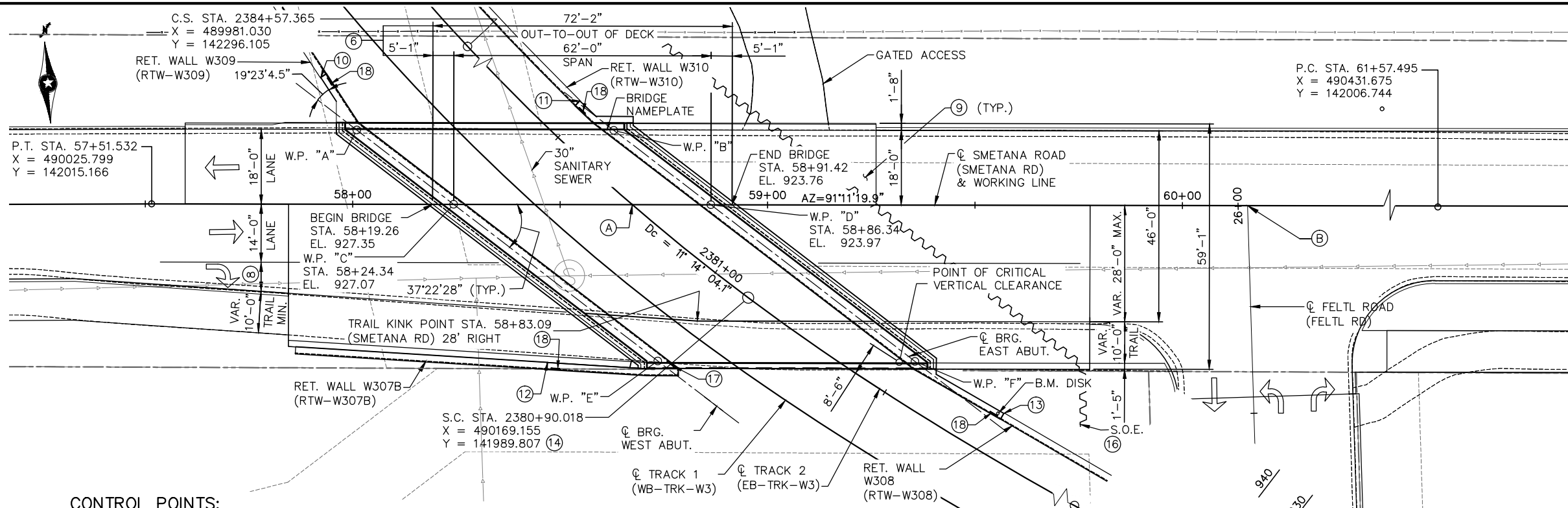
SHEET

7

OF

327

Jan, 14 2016 03:40 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-GPE-001.dwg By: V-Shrestha



CONTROL POINTS:

- (A) Smetana Road (Smetana Rd) P.O.T. STA. 58+67.381 =  
Track 2 (EB-TRK-W3) P.O.C. STA. 2381+25.872  
X = 490141.624  
Y = 142012.763  
ANGLE = 40°38'47.5"(T.T.C.)
- (B) Smetana Road (Smetana Rd) P.O.T. STA. 60+15.719 =  
Feltrl Road (Feltrl Rd) P.O.T. STA. 26+00.000  
X = 490289.929  
Y = 142009.685  
ANGLE = 88°08'59.4"

GENERAL NOTES:

- SEE SHEETS 42-44 FOR ADDITIONAL IN PLACE UTILITIES.
- HATCHED AREA TO BE REMOVED UNDER GRADING PORTION OF CONTRACT.
- TRAFFIC TO BE DETOURED DURING CONSTRUCTION.
- VERTICAL CLEARANCE IS BASED ON TRACK 2 PROFILE (FG-EB-TRK-W3).
- ALL UTILITIES IN AREA OF BRIDGE CONSTRUCTION TO BE RELOCATED UNLESS NOTED OTHERWISE.
- MEASURED ALONG Smetana Road.
- WIRE FENCE DESIGN W-1.
- VARIES, 4' MIN. (STA. 57+33.01) TO 14' MAX. (STA. 58+83.09)
- SEE GRADING PLANS FOR APPROACH PANEL DETAILS.
- X=490067.122  
Y=142044.811
- X=490129.454  
Y=142037.979
- X=490120.463  
Y=141975.129
- X=490230.206  
Y=141960.826
- SEE TRACK PLANS FOR MORE INFORMATION.
- ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM) WITH ARCHITECTURAL SURFACE FINISH (SINGLE COLOR). SEE SHEET 4 FOR DETAILS.

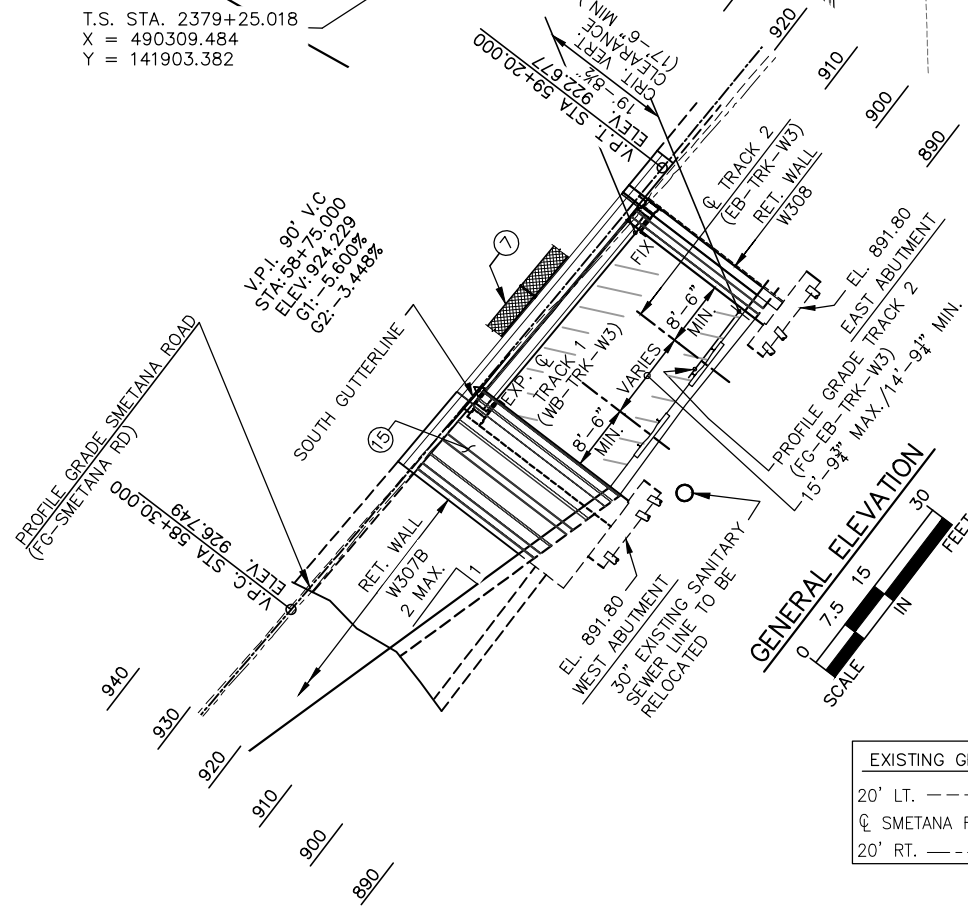
GENERAL PLAN



- (16) SUPPORT OF EXCAVATION (S.O.E) TO BE DESIGNED BY THE CONTRACTOR. STEEL SHEET PILING SHOWN, OTHER SYSTEM MAY BE UTILIZED AT THE CONTRACTOR'S OPTION.
- (17) STRAY CURRENT TEST STATION. SEE STRAY CURRENT NOTE 4 ON SHEET 2.
- (18) STRAY CURRENT BOND TEST STATION. SEE STRAY CURRENT NOTE 5 ON SHEET 2.

2040 PROJECTED TRAFFIC VOLUMES

ROADWAY OVER		ROADWAY UNDER
9800	AADT	N/A
380	ADTT	N/A



EXISTING GROUND PROFILE

20' LT. -----  
Smetana Road -----  
20' RT. -----

DESIGN DATA

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 7TH EDITION, 2014 WITH 2015 INTERIM REVISION.

METRO LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 4.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD  
HL 93 LIVE LOAD

DEAD LOAD INCLUDES 20 PSF ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS

MATERIAL DESIGN PROPERTIES:  
REINFORCED CONCRETE:  
f'c = 4 K.S.I., n = 8  
fy = 60 K.S.I.  
PRESTRESSED CONCRETE:  
f'c = 9 K.S.I., n = 1  
fpu = 270 K.S.I.  
0.6" DIA. LOW RELAXATION STRAND  
0.75 fpu FOR INITIAL PRESTRESS

DESIGN SPEED:  
OVER = 30 MPH  
UNDER(LRT) = N.A. MPH

APPROXIMATE DECK AREA = 4,270 SQ. FT.

HL-93 LRFR BRIDGE OPERATING RF = 1.94

LIST OF SHEETS

SHEET NO.	DESCRIPTION
1	GENERAL PLAN AND ELEVATION
2	TRANSVERSE SECTION
3	BRIDGE LAYOUT
4	ABUTMENT AESTHETICS
5-8	WEST ABUTMENT DETAILS 1-4
9-14	WEST ABUTMENT REINFORCEMENT 1-6
15-19	EAST ABUTMENT DETAILS 1-5
20-25	EAST ABUTMENT REINFORCEMENT 1-6
26	FRAMING PLAN
27	27M PRESTRESSED CONCRETE BEAM
28-30	SUPERSTRUCTURE DETAILS 1-3
31	CORNER DETAILS
32	WIRE FENCE DETAILS
33-34	CONCRETE BARRIER DETAILS
35-36	WATERPROOF EXPANSION DETAILS
37-40	DETAILS
41	AS-BUILT BRIDGE DATA
42	BRIDGE SURVEY
43	BRIDGE SURVEY PLAN
44	BRIDGE SURVEY PROFILE

BRIDGE NO. 27C09

SMETANA ROAD OVER SOUTHWEST LIGHT RAIL  
0.33 MI. EAST OF THE JUNCTION OF C.S.A.H. 61 AND  
SMETANA ROAD IN MINNETONKA

62'-0" PRESTRESSED CONCRETE BEAM SPAN  
CONC. BARRIER (TYPE F, TL-4) 46'-0" ROADWAY  
52°37'32" SKEW RT. AHEAD

IDENTIFICATION NO. 501

GENERAL PLAN AND ELEVATION

SEC. 25 TWP. 117 N R 22 W  
CITY OF MINNETONKA HENNEPIN COUNTY

JOB NO: T9N635

STATE PROJECT NO: 9909-01

MNDOT REVIEW: JOE NIETFELD

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB/BS  
CHECKED BY: ATN  
CHECKED BY: PLR/BR

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C09  
GENERAL PLAN AND ELEVATION

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C09-BRG-GPE-001

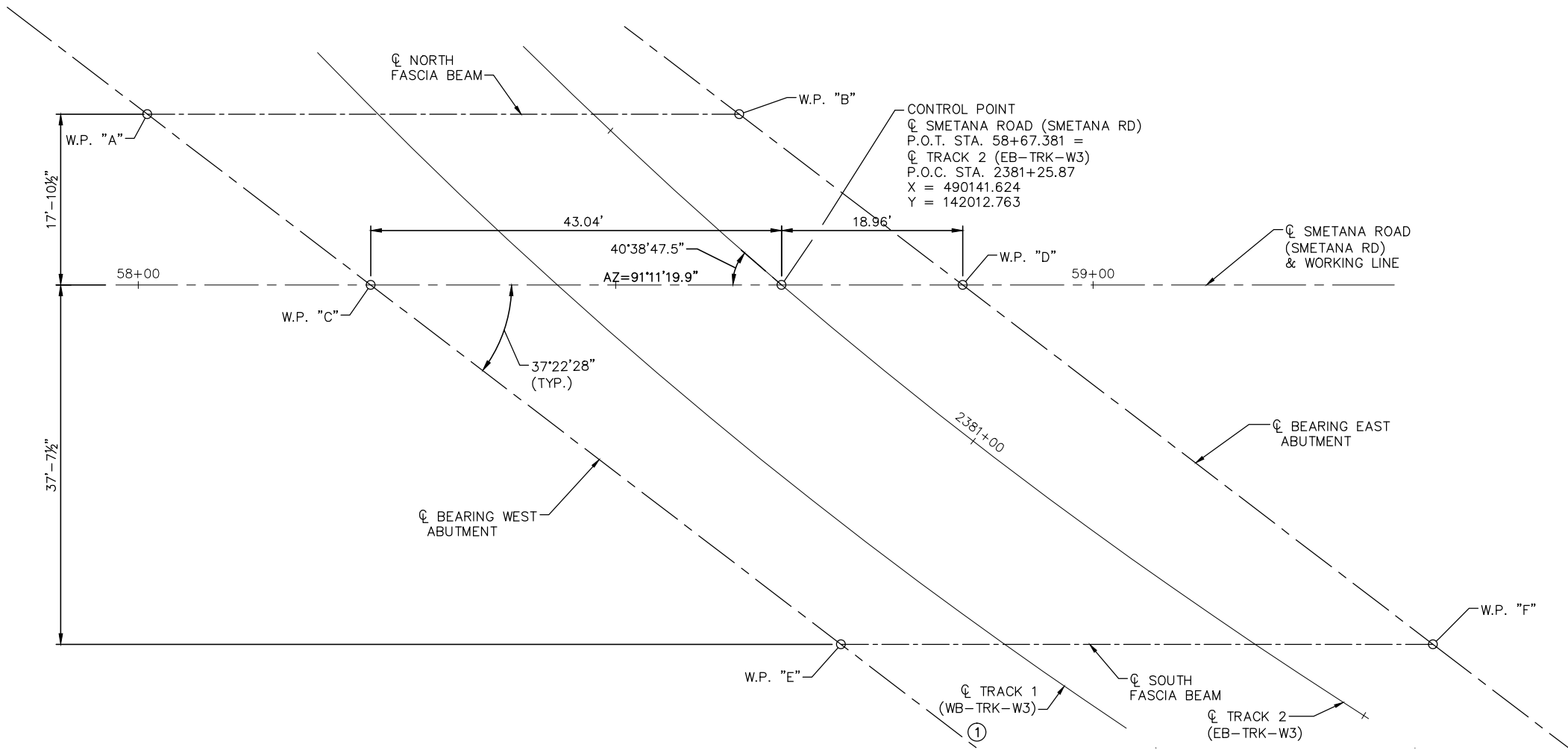
SHEET  
1  
OF  
44







Jan, 14 2016 03:42 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-SUP-001.dwg By: V-ShrestBA



WORKING POINT LAYOUT

NOTES:

- ① TRACK 1 STATIONING NOT SHOWN FOR CLARITY.  
SEE TRACK PLANS FOR MORE INFORMATION.

DIMENSIONS BETWEEN WORKING POINTS										ELEVATIONS			
POINT	STATION	X-COORDINATE	Y-COORDINATE	A	B	C	D	E	F	TOP OF ROADWAY	TOP OF RDWY TO BR. SEAT	BRIDGE SEAT	POINT
A	58+00.94	490075.569	142032.012		62.00	29.45	87.25		145.65	927.99	3.71	923.59	A
B	58+62.94	490137.556	142030.726				29.45	56.51		924.68	3.59	920.40	B
C	58+24.34	490098.594	142013.656				62.00	61.98	117.45	—	—	—	C
D	58+86.34	490160.581	142012.369						61.98	—	—	—	D
E	58+73.60	490147.059	141975.017						62.00	923.80	3.54	920.09	E
F	59+35.60	490209.047	141973.730							921.41	3.43	917.73	F

TOP OF ROADWAY TO BRIDGE SEAT						
	DECK THICKNESS	STOOL HEIGHT	BEAM HEIGHT	BEARING HEIGHT	TOTAL	
					INCHES	FEET
W. ABUT.	9"	3 7/8"	27"	4 5/8"	44 1/2"	3.71'
E. ABUT.	9"	3 7/8"	27"	3 1/4"	43 1/8"	3.59'

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB/BS	CHECKED BY: PLR/BR

90% SUBMISSION - 01/22/16

CIVIL – VOLUME 4B

SMETANA ROAD OVER SOUTHWEST LIGHT RAIL

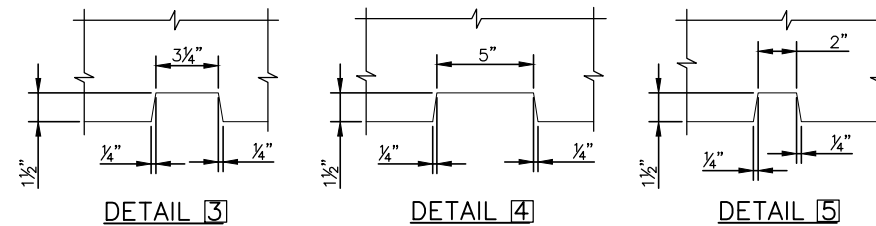
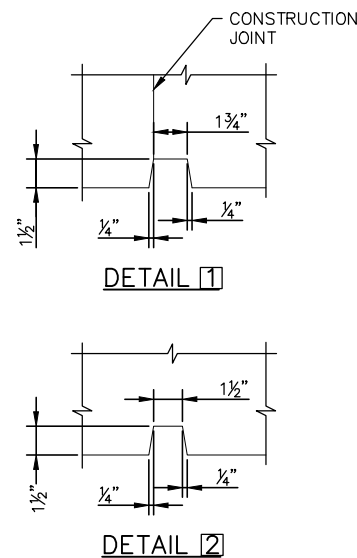
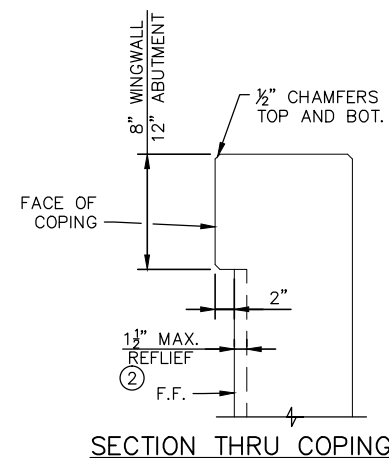
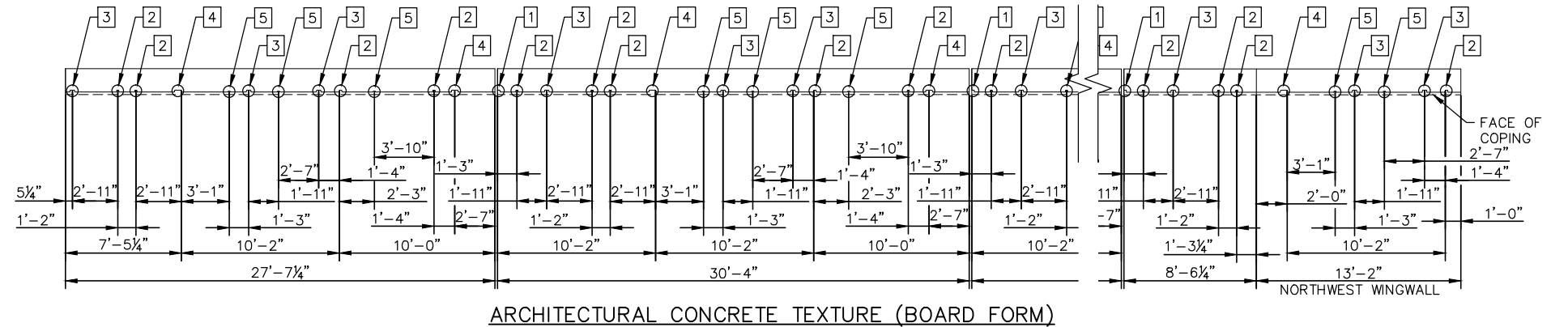
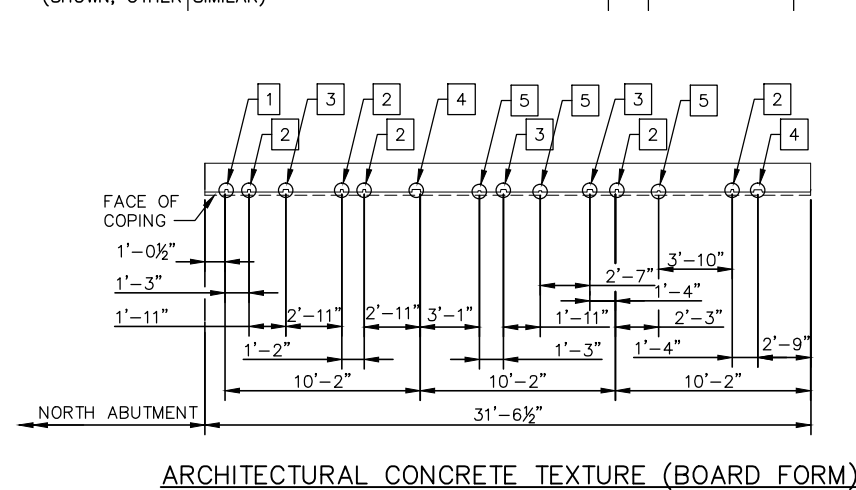
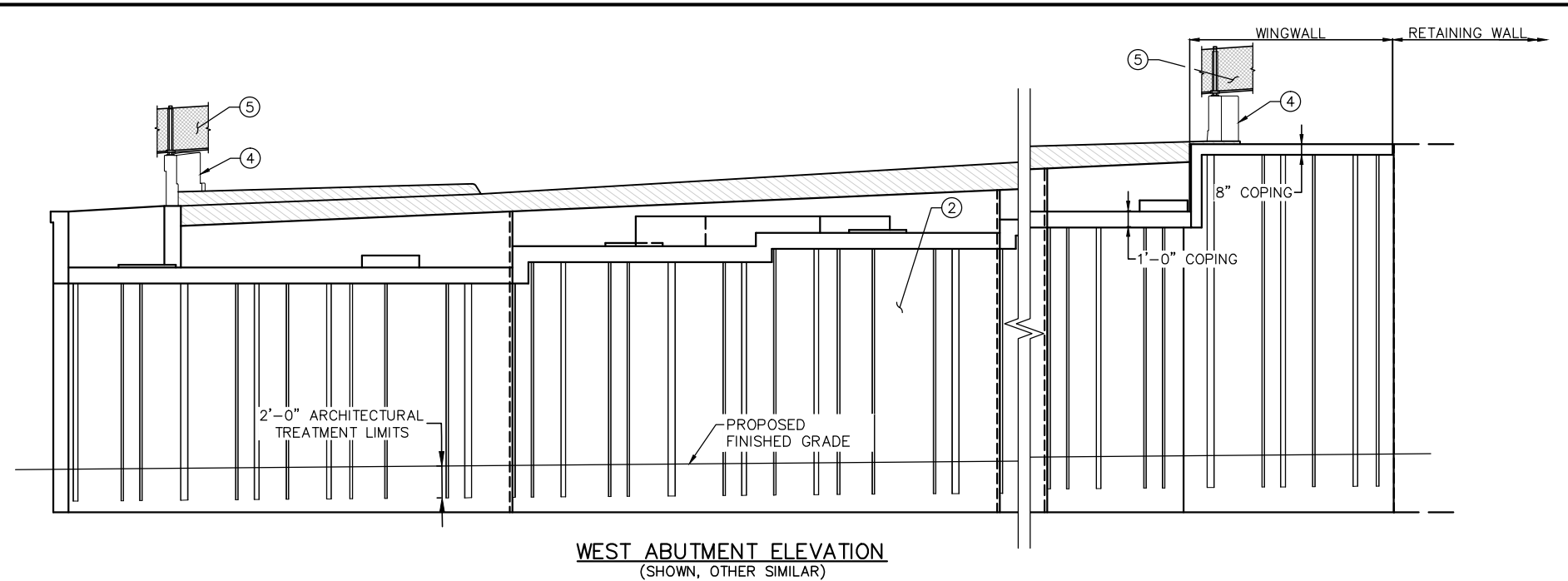
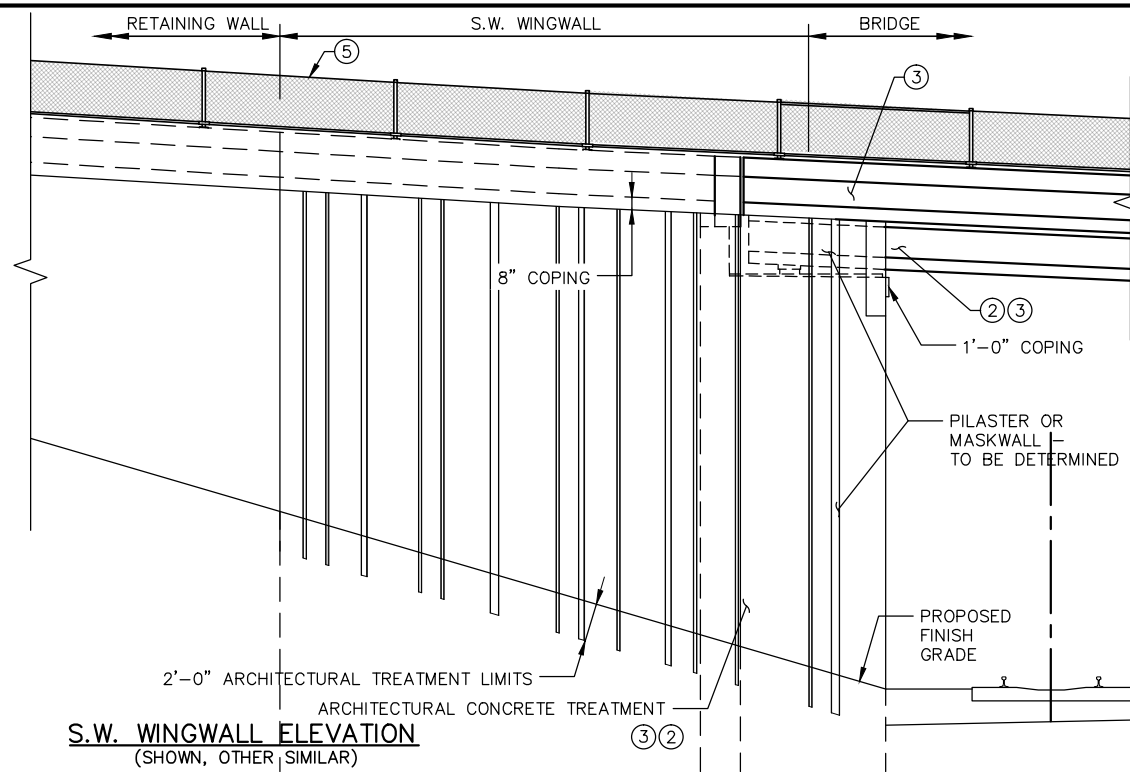
BRIDGE 27C09

BRIDGE LAYOUT

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C09-BRG-SUP-001

Jan, 15 2016 07:49 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-ABT-020.dwg By: V-Shrestha



**NOTES :**

- BOTH ABUTMENTS AND ABUTMENT WINGWALLS TO HAVE ARCHITECTURAL TREATMENT.
- ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM) WITH ARCHITECTURAL SURFACE FINISH (SINGLE COLOR) - SEE SPECIAL PROVISIONS.
- SPECIAL SURFACE FINISH. SEE SPECIAL PROVISIONS.
- CONCRETE BARRIER AND APPROACH PANEL IN CIVIL PLANS.
- WIRE FENCE DESIGN W-1.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB/BS

CHECKED BY: ATN  
CHECKED BY: PLR

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**  
**SMETANA ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C09**  
**ABUTMENT AESTHETICS**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C09-BRG-ABT-020**

**SHEET**  
**4**  
**OF**  
**44**

Jan, 18 2016 08:19 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09\BRG-ABT-001.dwg By: V-Shrestha

WEST ABUTMENT COMPUTED PILE LOAD – TONS/PILE	
FACTORED DEAD LOAD + EARTH PRESSURE	115.8
FACTORED LIVE LOAD	3.5
* FACTORED DESIGN LOAD	119.3

\* BASED ON STRENGTH 1 LOAD COMBINATION

WEST ABUTMENT REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES $R_n$ – TONS/PILE		
FIELD CONTROL METHOD	$\phi_{dyn}$	* $R_n$
MnDOT PILE FORMULA 2012 (MPF12)	0.50	238.6
$R_n = 20 \sqrt{\frac{WXH}{1000}} \times \log\left(\frac{10}{S}\right)$		
PDA	0.65	183.5

\*  $R_n = (\text{FACTORED DESIGN LOAD}) / \phi_{dyn}$

#### PILE NOTES

- 77 CAST-IN-PLACE CONC. PILES 55 FT. LONG  
78 CAST-IN-PLACE CONC. TEST PILES EST. LENGTH 65 FT.  
79 CAST-IN-PLACE CONC. PILES REQ'D FOR THE WEST ABUTMENT.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

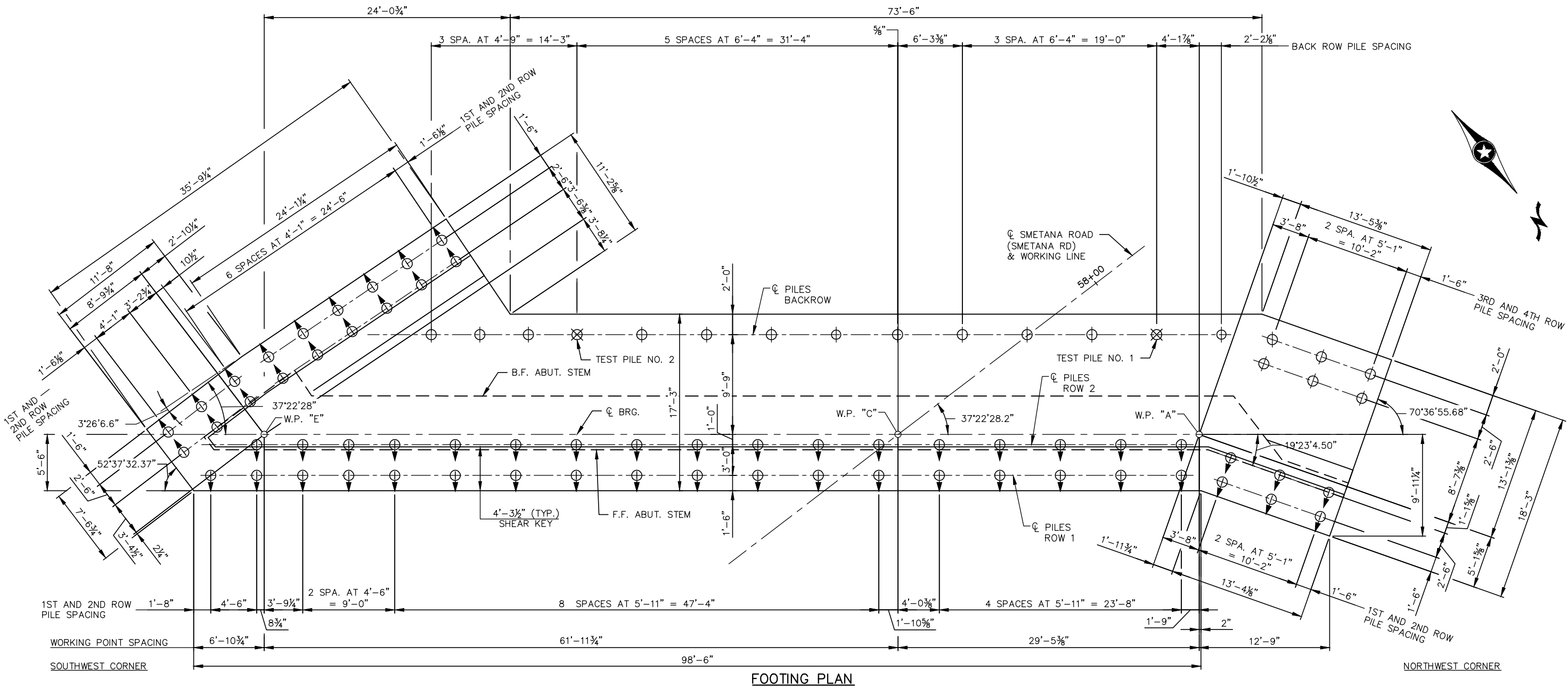
PILES MARKED THUS  $\odot$  TO BE BATTERED 3" PER  
FOOT IN DIRECTION SHOWN.

PILES TO HAVE A NOMINAL DIAMETER OF 12" AND WALL THICKNESS OF 0.375".

FOR PILE SPLICE DETAILS SEE DETAIL B201.

#### NOTES:

B.F. DENOTES BACK FACE.  
F.F. DENOTES FRONT FACE.



FOOTING PLAN

NO.	DATE	BY	CHECK/DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB/BS  
CHECKED BY: MSK  
CHECKED BY: PLR

**AECOM**

90% SUBMISSION - 01/22/16



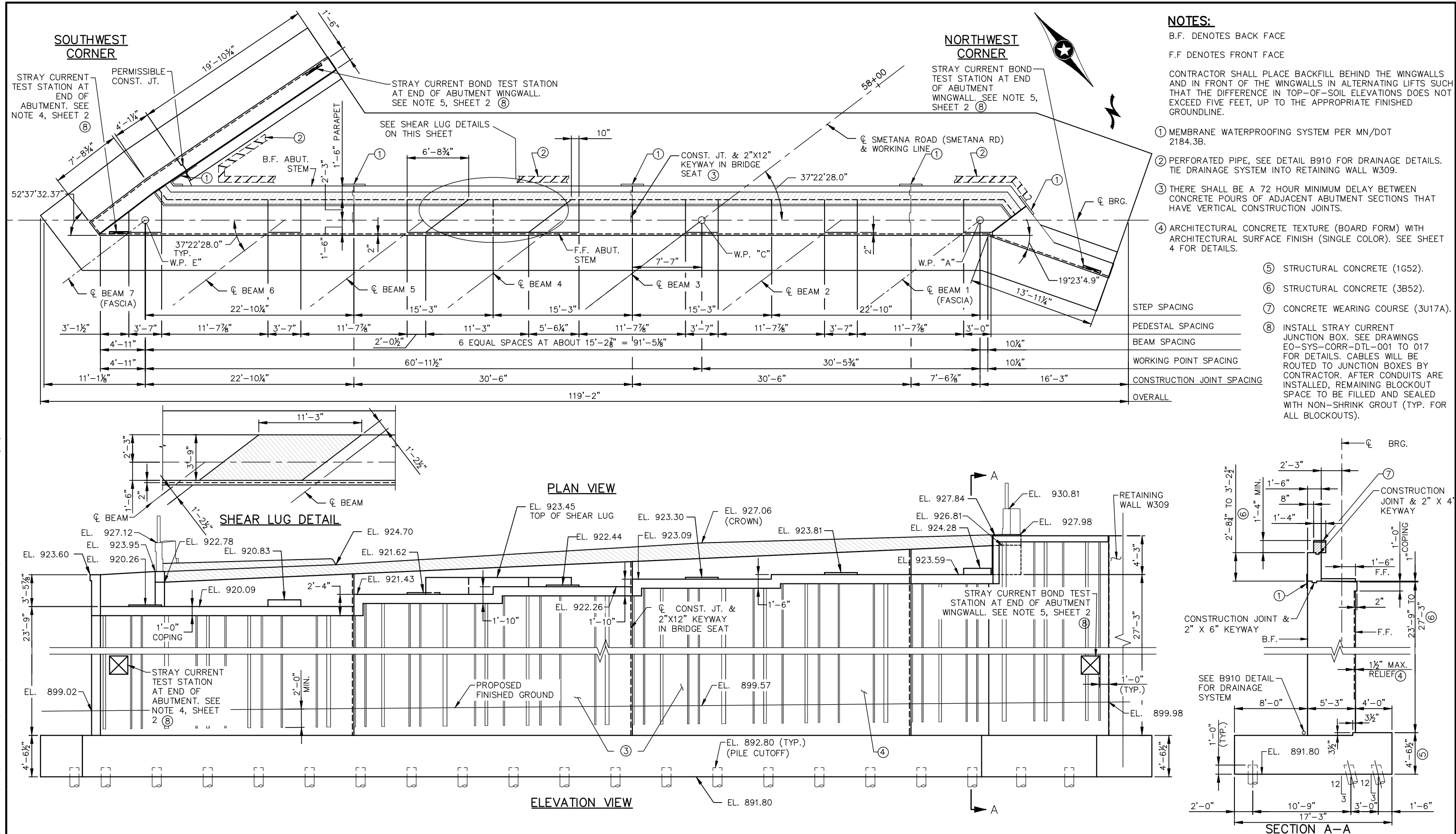
**CIVIL – VOLUME 4B**  
**SMETANA ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C09**  
**WEST ABUTMENT DETAILS 1**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C09-BRG-ABT-001**

**SHEET**  
**5**  
**OF**  
**44**

Jan, 14 2016 03:43 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-ABT-002.dwg By: V-Shrestha

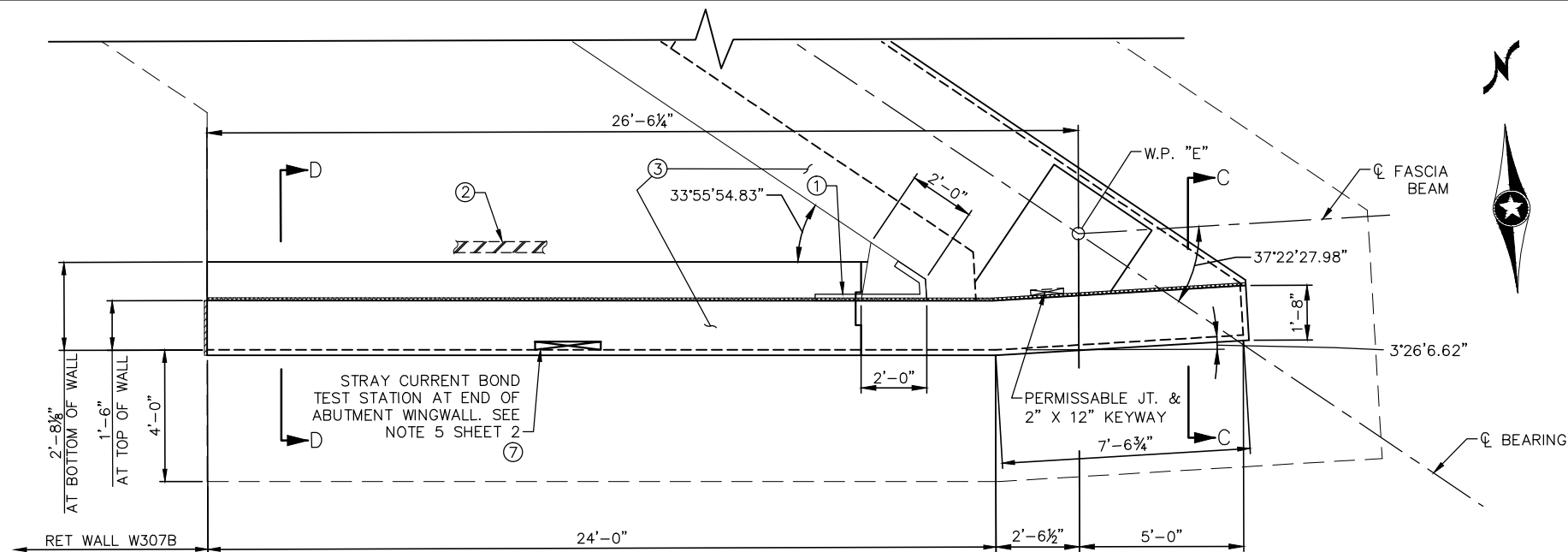


NO.	DATE	BY	CHECK/DESIGN	REVISION / SUBMITTAL	<div><div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div> <div>DESIGNED BY: RJH DRAWN BY: ALB/BS</div> <div>CHECKED BY: MSK CHECKED BY: PLR</div>	90% SUBMISSION - 01/22/16		<div><div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div>
-----	------	----	--------------	----------------------	--	---------------------------	--	--

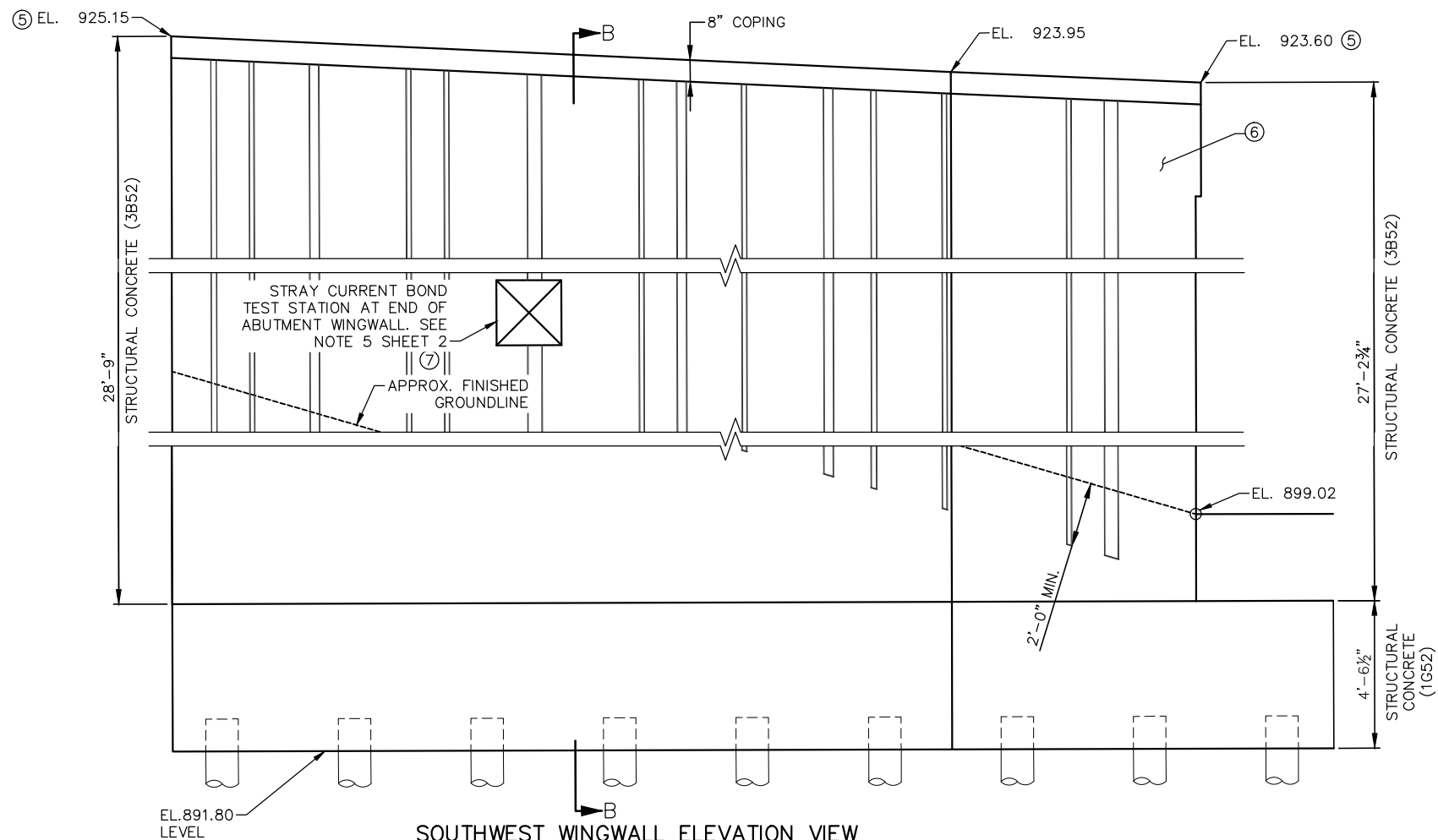
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C09-BRG-ABT-002

Jan, 14 2016 03:43 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-ABT-004.dwg By: V-ShrestBA



SOUTHWEST WINGWALL PLAN VIEW



SOUTHWEST WINGWALL ELEVATION VIEW

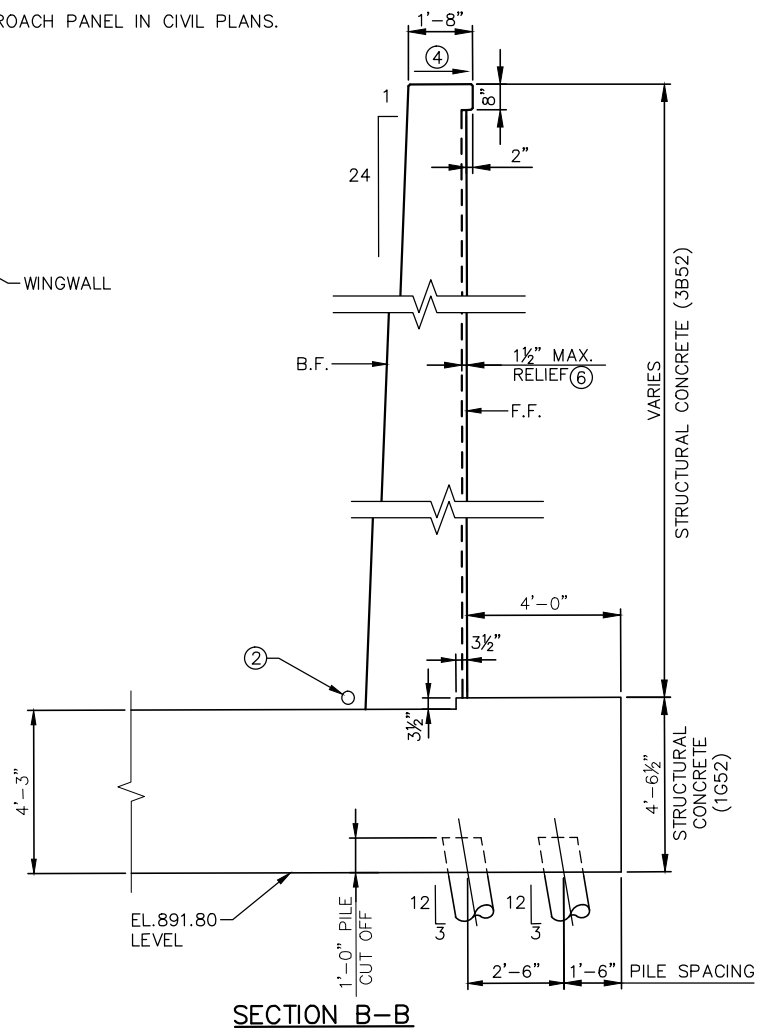
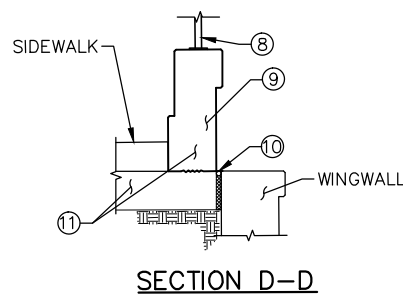
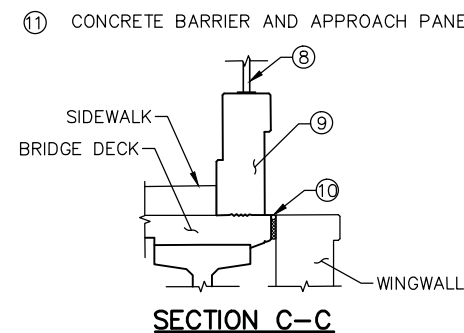
NOTES:

B.F. DENOTES BACK FACE

F.F DENOTES FRONT FACE

CONTRACTOR SHALL PLACE BACKFILL BEHIND THE WINGWALLS AND IN FRONT OF THE WINGWALLS IN ALTERNATING LIFTS SUCH THAT THE DIFFERENCE IN TOP-OF-SOIL ELEVATIONS DOES NOT EXCEED FIVE FEET, UP TO THE APPROPRIATE FINISHED GROUNDLINE.

- MEMBRANE WATERPROOFING SYSTEM PER MN/DOT 2184.3B.
- PERFORATED PIPE, SEE DETAIL B910 FOR DRAINAGE DETAILS.
- THERE SHALL BE A 72 HOUR MINIMUM DELAY BETWEEN CONCRETE POURS OF ADJACENT ABUTMENT SECTIONS THAT HAVE VERTICAL CONSTRUCTION JOINTS.
- SLOPE 1% + DOWN TOWARDS FRONT FACE
- ELEVATIONS ARE AT THE BACK FACE OF WINGWALL (POLYSTYRENE JOINT).
- ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM) WITH ARCHITECTURAL SURFACE FINISH (SINGLE COLOR). SEE SHEET 4 FOR DETAILS.
- INSTALL STRAY CURRENT JUNCTION BOX. SEE DRAWINGS EO-SYS-CORR-DTL-001 TO 017 FOR DETAILS. CABLES WILL BE ROUTED TO JUNCTION BOXES BY CONTRACTOR. AFTER CONDUITS ARE INSTALLED, REMAINING BLOCKOUT SPACE TO BE FILLED AND SEALED WITH NON-SHRINK GROUT (TYP. FOR ALL BLOCKOUTS).
- WIRE FENCE DESIGN W-1.
- CONCRETE PARAPET (TYPE P-1). SEE SHEET 34.
- PLACE POLYSTYRENE FULL HEIGHT (1'-0") FOR FORMING THE APPROACH PANEL. IT MAKE BE LEFT IN PLACE AND CUT DOWN FOR BACKER ROD AND SEALANT OR REMOVED. (SEE MNDOT APPROVED/QUALIFIED PRODUCTS LIST.
- CONCRETE BARRIER AND APPROACH PANEL IN CIVIL PLANS.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: MSK
DRAWN BY: ALB/BS	CHECKED BY: PLR

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B

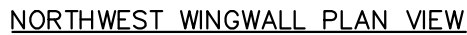
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL

BRIDGE 27C09

WEST ABUTMENT DETAILS 3

DISCIPLINE: STRUCTURES

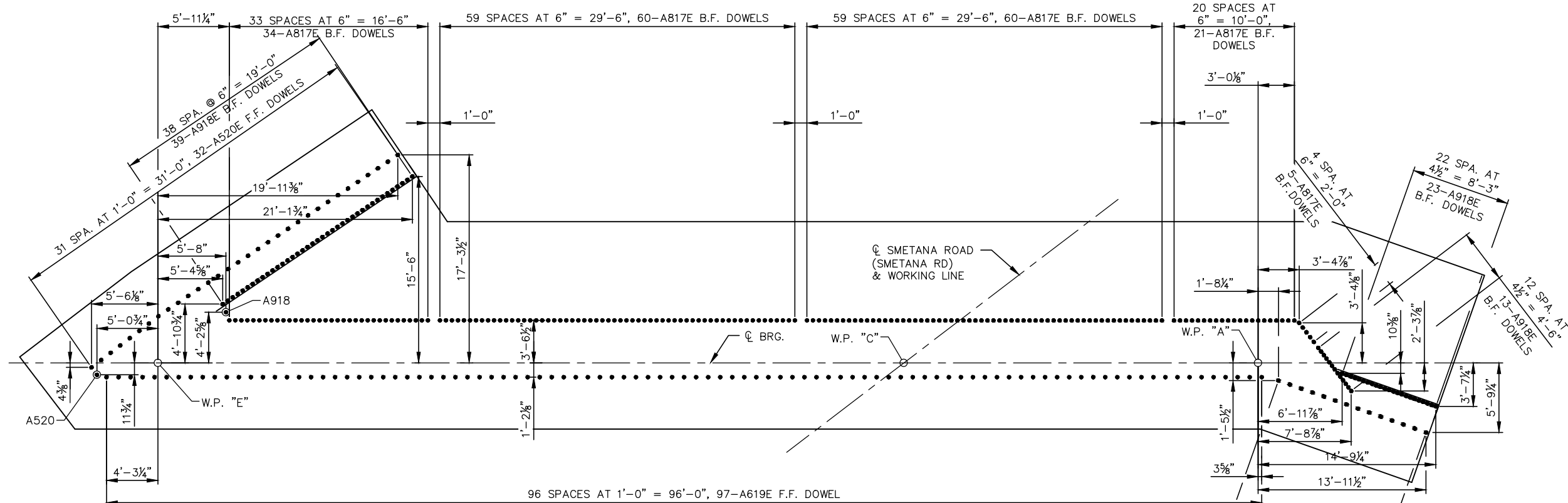
SHEET NAME: CBR27C09-BRG-ABT-004



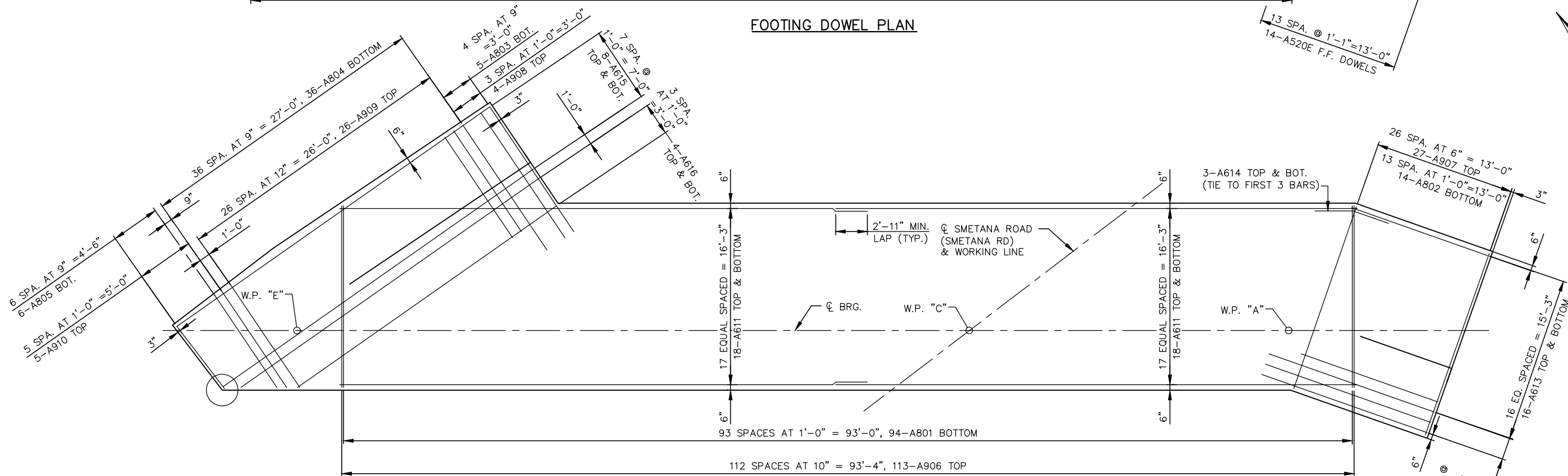
- SECTION E-E

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
-----	------	----	-------	--------	----------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Jan, 14 2016 03:44 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09\BRG-ABT-005.dwg By: V-Shrestha



FOOTING DOWEL PLAN



FOOTING REINFORCEMENT PLAN

SOUTHWEST  
CORNER

NORTHWEST  
CORNER

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB/BS  
CHECKED BY: MSK  
CHECKED BY: PLR

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C09  
WEST ABUTMENT REINFORCEMENT 1

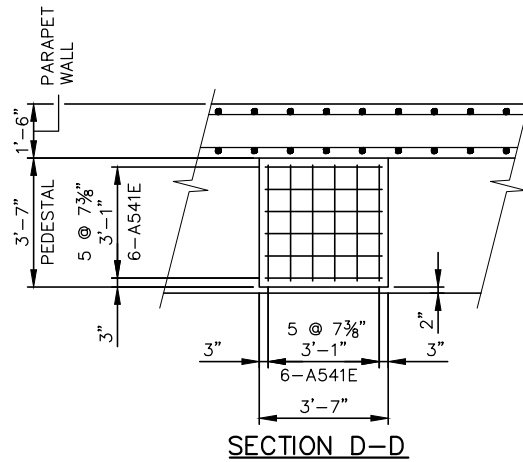
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C09-BRG-ABT-005

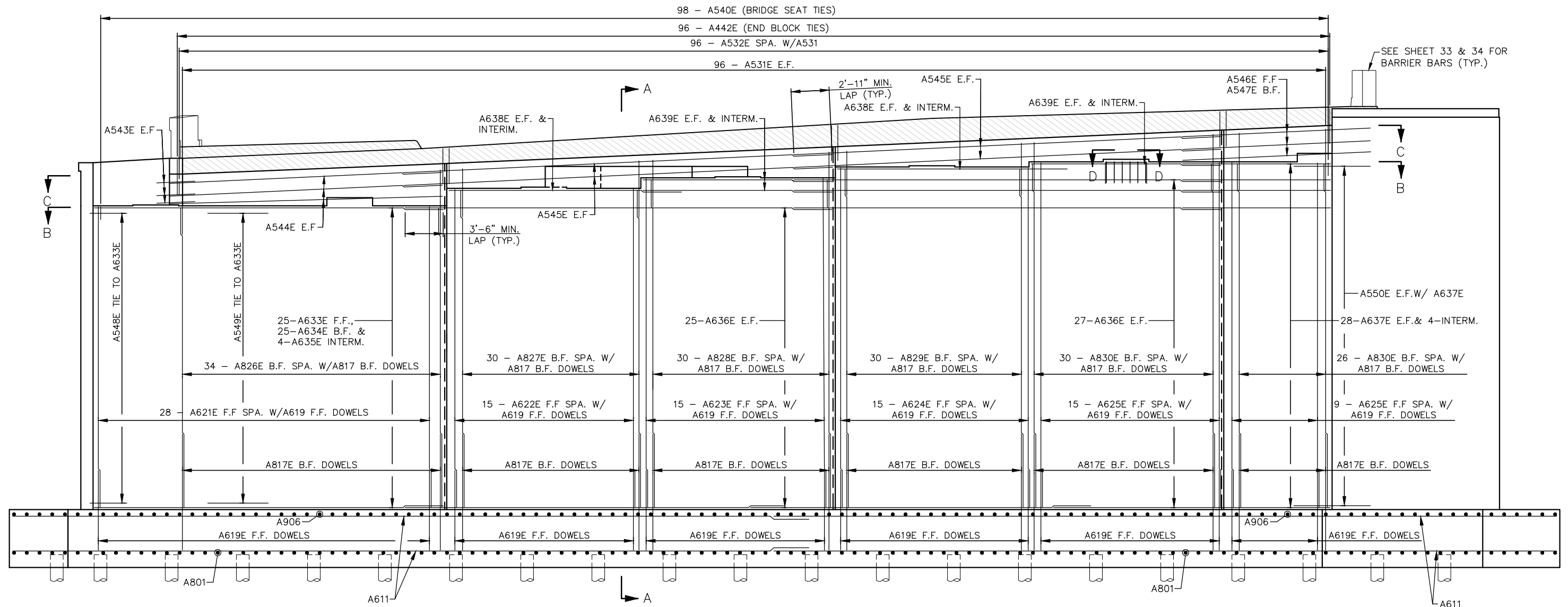
SHEET  
9  
OF  
44



Jan, 18 2016 08:42 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-ABT-006.dwg By: V-ShrestBA



SECTION D-D



ELEVATION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: MSK
DRAWN BY: ALB/BS	CHECKED BY: PLR



90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B

SMETANA ROAD OVER SOUTHWEST LIGHT RAIL

BRIDGE 27C09

WEST ABUTMENT REINFORCEMENT 2

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C09-BRG-ABT-006

SHEET 10 OF 44

SECTION C-C

A549E

A548E

W.P. "E"

4'-9 $\frac{3}{8}$ "

A633E

A635E

A634E

A638E

A639E

A638E

W.P. "C"

A639E

A637E

W.P. "A"

A550E

A621E SPA. W/A619E DOWELS

A622E SPA. W/A619E DOWELS

A623E SPA. W/A619E DOWELS

A624E SPA. W/A619E DOWELS

A625E SPA. W/A619E DOWELS

90'-0"

NORTHWEST  
CORNER

[illegible]**AECOM**

**METROPOLITAN**  
COUNCIL

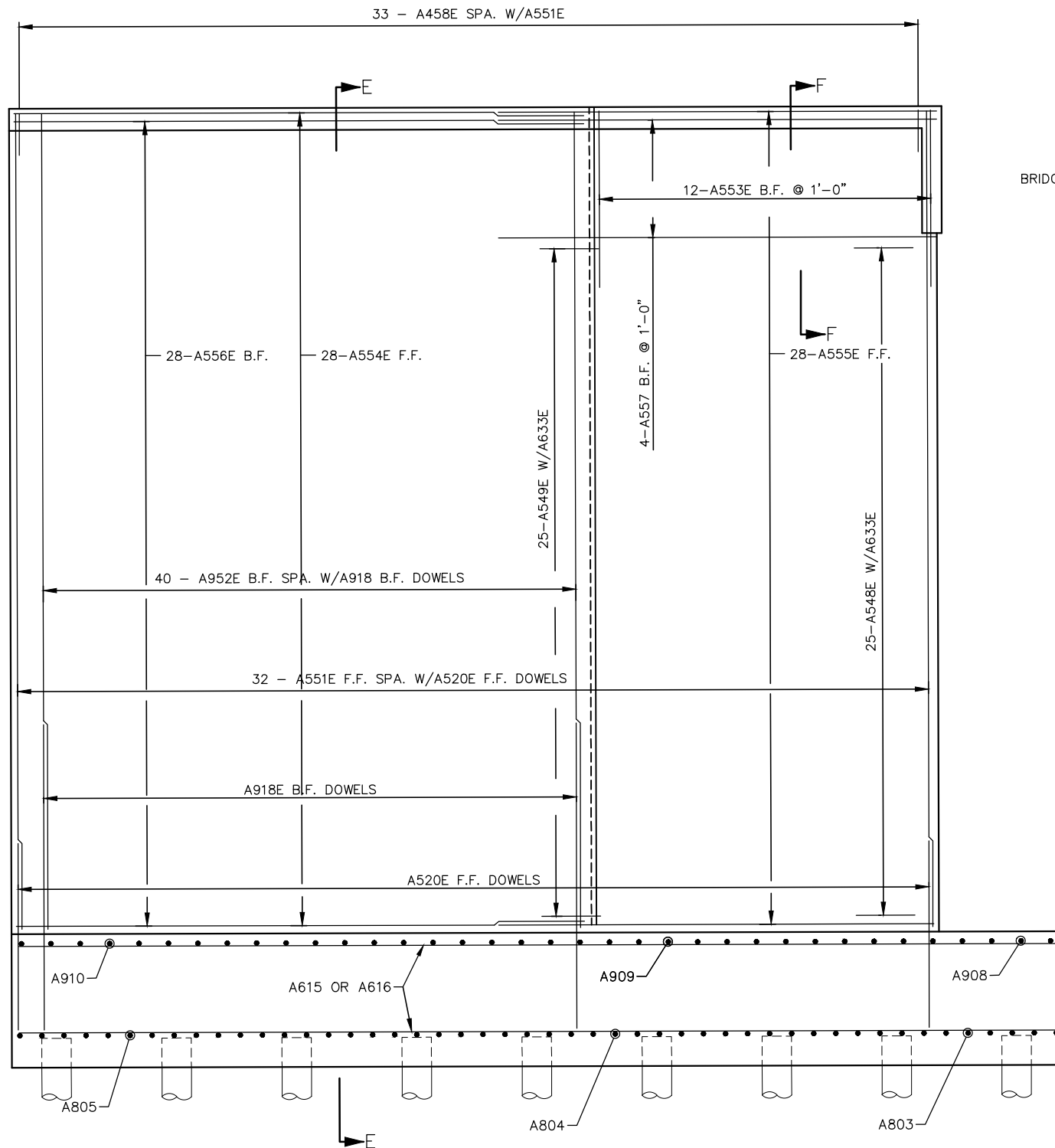
## SOUTHWEST



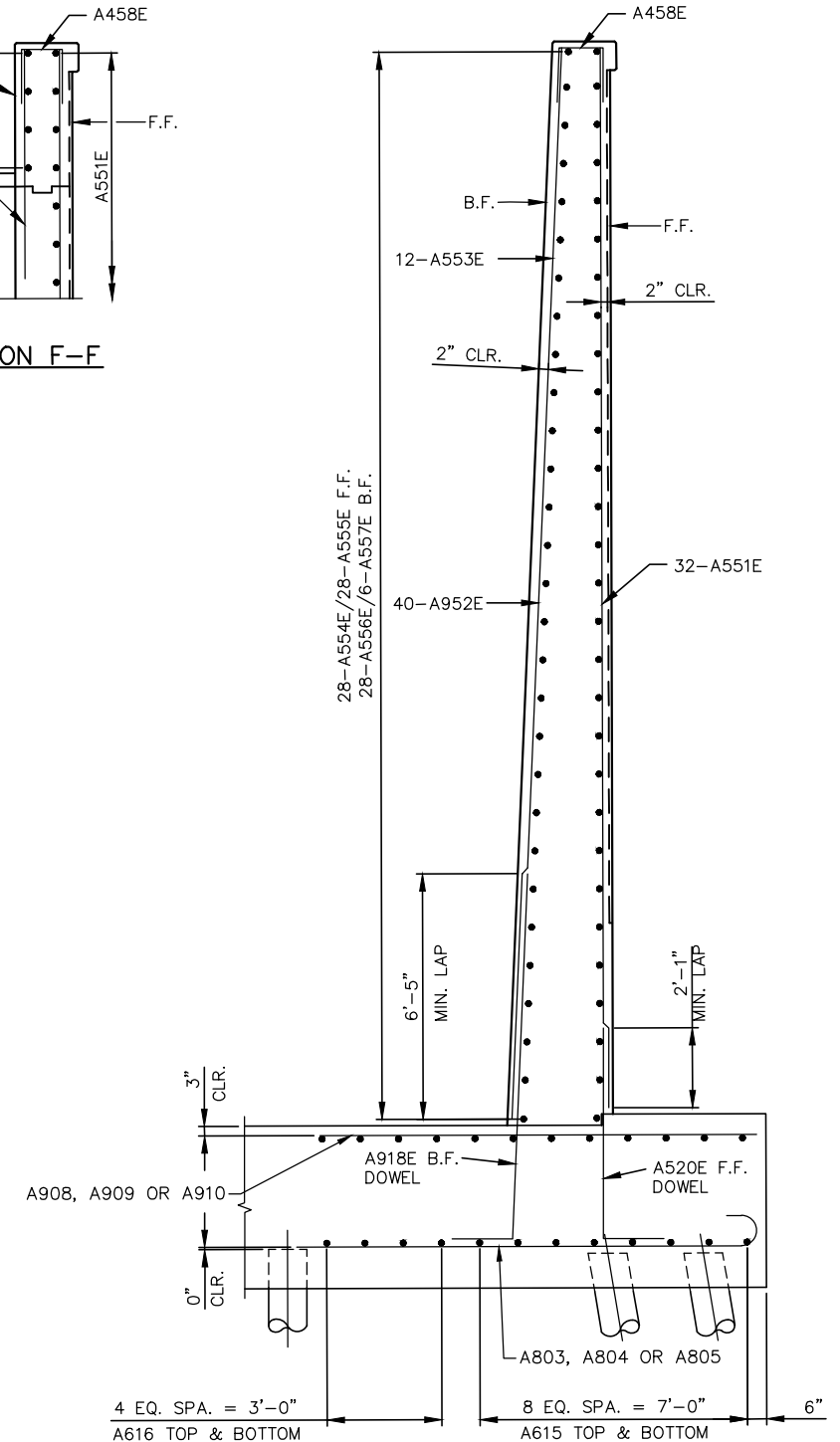
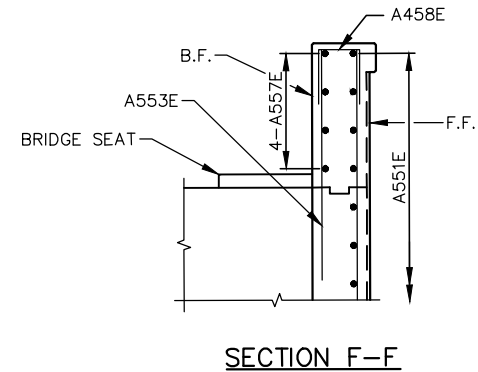
**CIVIL – VOLUME 4B**  
**SMETANA ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C09**  
**WEST ABUTMENT REINFORCEMENT 3**

SHEET NAME:	CBR27C09-BRG-ABT-007
-------------	----------------------

Jan, 14 2016 03:45 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09\CBR27C09-BRG-ABT-023.dwg By: V-Shrestha



SOUTHWEST WINGWALL ELEVATION VIEW



SECTION E-E

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: MSK
DRAWN BY: ALB/BS	CHECKED BY: PLR



90% SUBMISSION - 01/22/16



CIVIL – VOLUME 4B

SMETANA ROAD OVER SOUTHWEST LIGHT RAIL

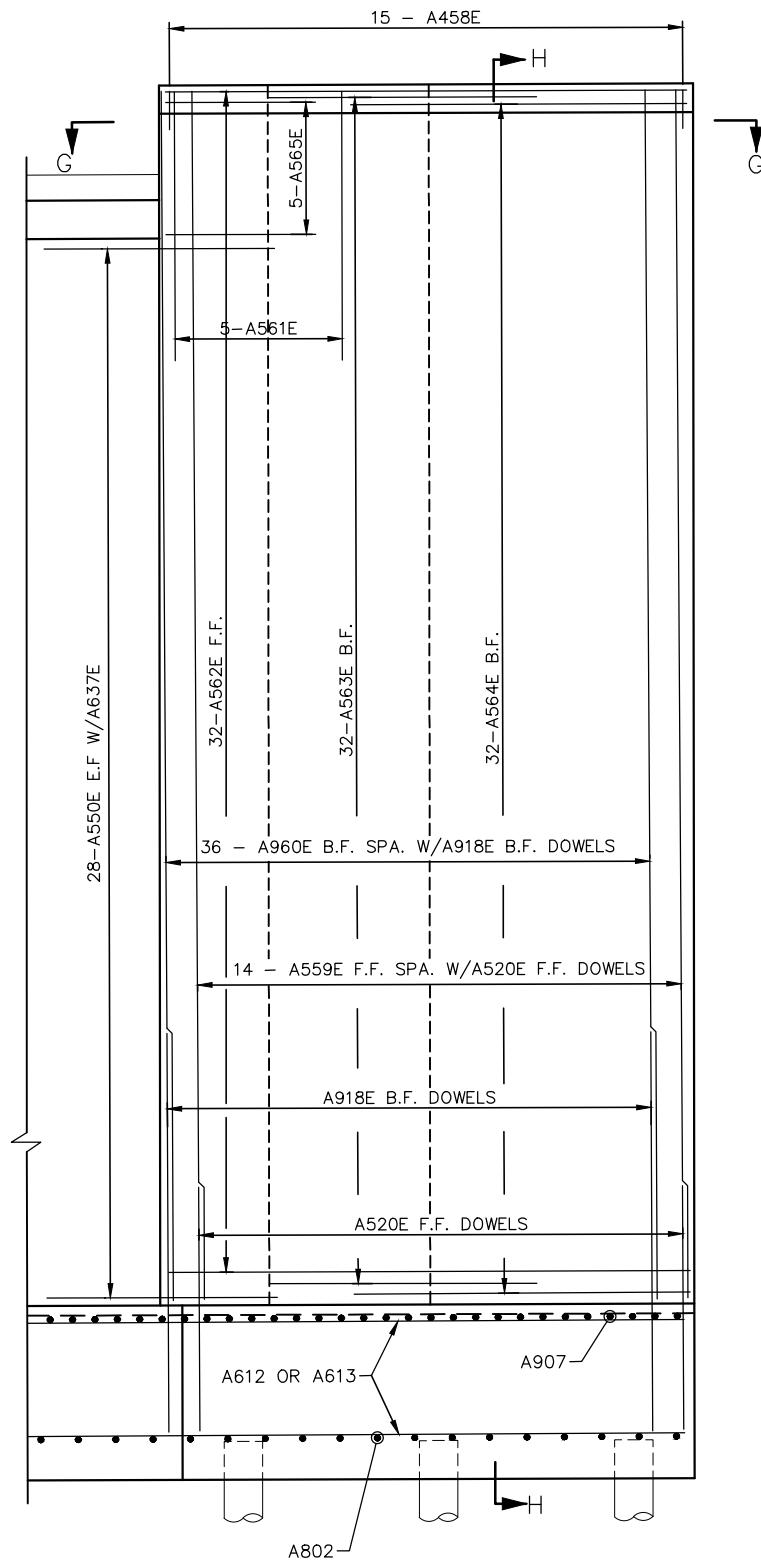
BRIDGE 27C09

WEST ABUTMENT REINFORCEMENT 4

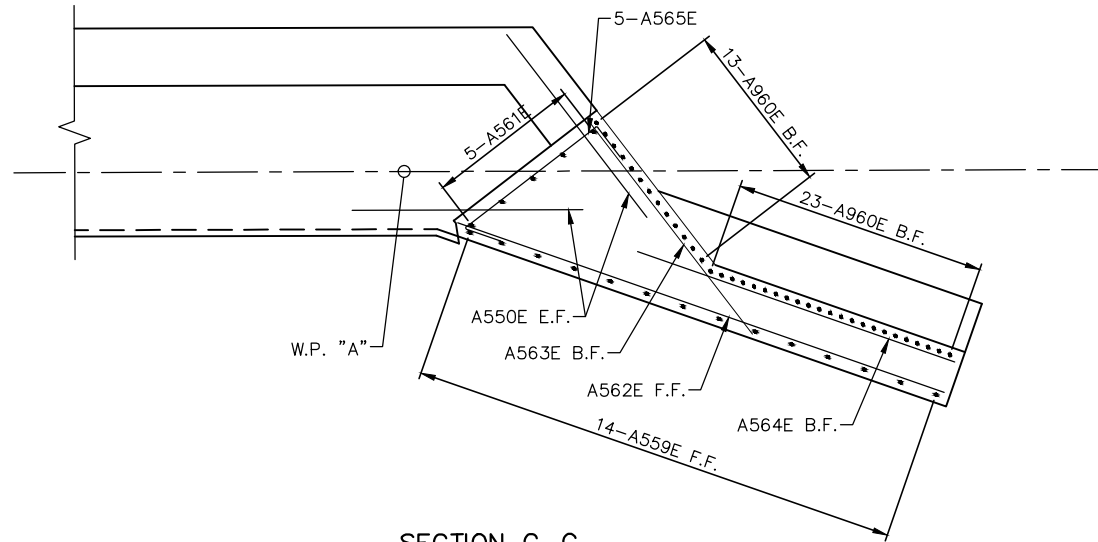
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C09-BRG-ABT-023

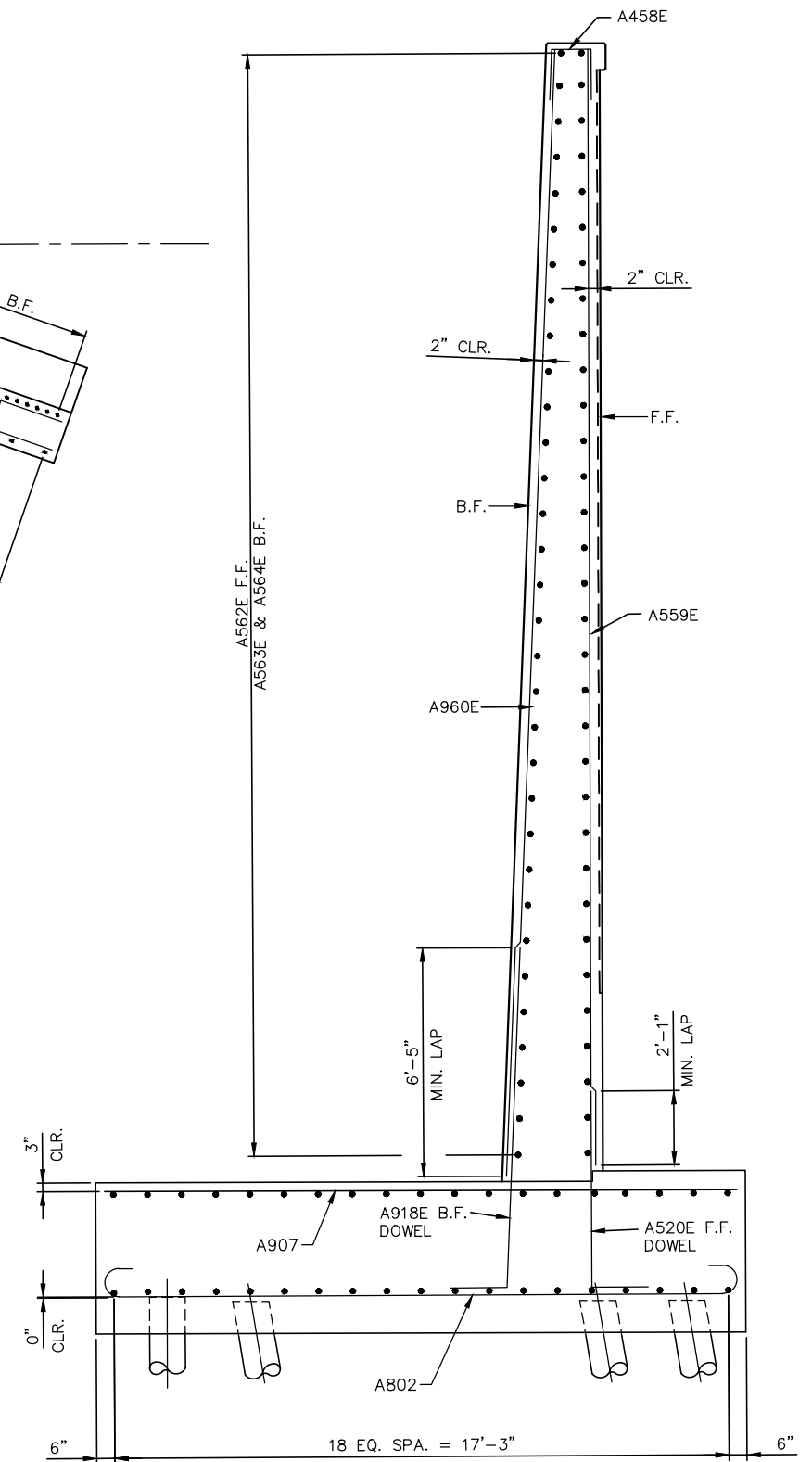
Jan, 14 2016 03:45 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09\BRG-ABT-024.dwg By: V-ShrestBA



NORTHWEST WINGWALL ELEVATION VIEW



SECTION G-G



SECTION H-H

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB/BS  
CHECKED BY: MSK  
CHECKED BY: PLR

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C09  
WEST ABUTMENT REINFORCEMENT 5

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C09-BRG-ABT-024

SHEET  
13  
OF  
44

A801, A802

16'-9"

17'-9"

A801

A802

A803, A804, A805

14'-0"

11'-1"

7'-1" TO 10'-3"

A803

A804

A805

Diagram showing the vertical spacing between four horizontal lines, labeled A817E, A918E, A619E, and A520E from top to bottom. The distances between the lines are indicated by arrows and text:

- Distance between A817E and A918E: 8'-4"
- Distance between A918E and A619E: 9'-8"
- Distance between A619E and A520E: 6'-1"
- Distance between A520E and the bottom line: 5'-8"

Elevation view of a stepped profile. The total height is 1'-0". The top horizontal segment has a width of 5'-1". The bottom horizontal segment has a width of 6". A fillet with a radius of  $\frac{1}{8}$ " is shown at the bottom right corner.

A diagram of a U-shaped pipe. The vertical section is labeled with a dimension of 2'-9" (2 feet 9 inches). The horizontal section at the bottom is labeled with a dimension of 6" (6 inches).

1'-0"

4'-6"

12

76

3'-0"

$\frac{3}{4}$  12



































13'-10"

13'-5"

A547E

A546E

9 1/8"

A532E	96	3'- 2"		BACKWALL VERTICAL TIES
A633E	25	27'- 1"		ABUTMENT HORIZONTAL
A634E	25	21'- 2"		ABUTMENT HORIZONTAL
A635E	SERIES OF 4	22'- 2" TO 25'- 11"		ABUTMENT HORIZONTAL
A636E	104	33'- 10"		ABUTMENT HORIZONTAL
A637E	60	16'- 1"		ABUTMENT HORIZONTAL
A638E	12	18'- 7"		ABUTMENT HORIZONTAL
A639E	14	14'- 11"		ABUTMENT HORIZONTAL
A540E	98	7'- 3"		BRIDGE SEAT TIE
A541E	84	6'- 5"		PEDESTAL TIE
A442E	96	6'- 0"		END BLOCK TIE
A543E	6	3'- 10"		BACKWALL HORIZONTAL CORNER
A544E	6	20'- 4"		BACKWALL HORIZONTAL E.F.
A545E	8	33'- 3"		BACKWALL HORIZONTAL E.F.
A546E	3	18'- 11"		BACKWALL HORIZONTAL F.F.
A547E	3	19'- 1"		BACKWALL HORIZONTAL B.F.
A548E	25	5'- 3"		CORNER BARS
A549E	25	12'- 2"		CORNER BARS
A550E	56	6'- 0"		CORNER BARS B.F.
A551E	SERIES OF 32	26'- 11" TO 28'- 5"		SW WINGWALL VERTICAL F.F.
A952E	SERIES OF 40	28'- 8" TO 27'- 6"		SW WINGWALL VERTICAL B.F.
A553E	12	6'- 0"		SW WINGWALL VERTICAL B.F.
A554E	28	19'- 7"		SW WINGWALL LONGITUDINAL F.F.
A555E	28	14'- 9"		SW WINGWALL LONGITUDINAL F.F.
A556E	28	19'- 7"		SW WINGWALL LONGITUDINAL B.F.
A557E	4	14'- 9"		SW WINGWALL LONGITUDINAL B.F.
A458E	48	6'- 7"		SW & NW WINGWALL VERTICAL TIES
A559E	14	31'- 2"		NW WINGWALL VERTICAL F.F.
A960E	36	31'- 5"		NW WINGWALL VERTICAL B.F.
A561E	5	7'- 0"		NW WINGWALL MASKWALL VERTICAL
A562E	32	13'- 7"		NW WINGWALL LONGITUDINAL F.F.
A563E	32	7'- 0"		NW WINGWALL LONGITUDINAL B.F.
A564E	32	8'- 9"		NW WINGWALL LONGITUDINAL B.F.
A565E	5	6'- 6"		NW WINGWALL MASKWALL HORIZONTAL

DESIGNED BY:	RJH	CHECKED BY:	MSK
DRAWN BY:	ALB/BS	CHECKED BY:	PLR




DISCIPLINE: **STRUCTURES**

**SHEET**  
**14**  
**OF**  
**44**

Jan, 18 2016 08:34 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-ABT-010.dwg By: V-Shrestha

EAST ABUTMENT COMPUTED PILE LOAD – TONS/PILE	
FACTORED DEAD LOAD + EARTH PRESSURE	108.6
FACTORED LIVE LOAD	4.6
* FACTORED DESIGN LOAD	113.2

\* BASED ON STRENGTH 1 LOAD COMBINATION

EAST ABUTMENT REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES $R_n$ – TONS/PILE		
FIELD CONTROL METHOD	$\phi_{dyn}$	* $R_n$
MnDOT PILE FORMULA 2012 (MPF12)	0.50	226.4
$R_n = 20 \sqrt{\frac{WXH}{1000}} \times \log\left(\frac{10}{S}\right)$		
PDA	0.65	174.1

\*  $R_n = (\text{FACTORED DESIGN LOAD}) / \phi_{dyn}$

PILE NOTES

- 61 CAST-IN-PLACE CONC. PILES 70 FT. LONG  
2 CAST-IN-PLACE CONC. TEST PILES EST. LENGTH 80 FT.  
63 CAST-IN-PLACE CONC. PILES REQ'D FOR THE EAST ABUTMENT.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

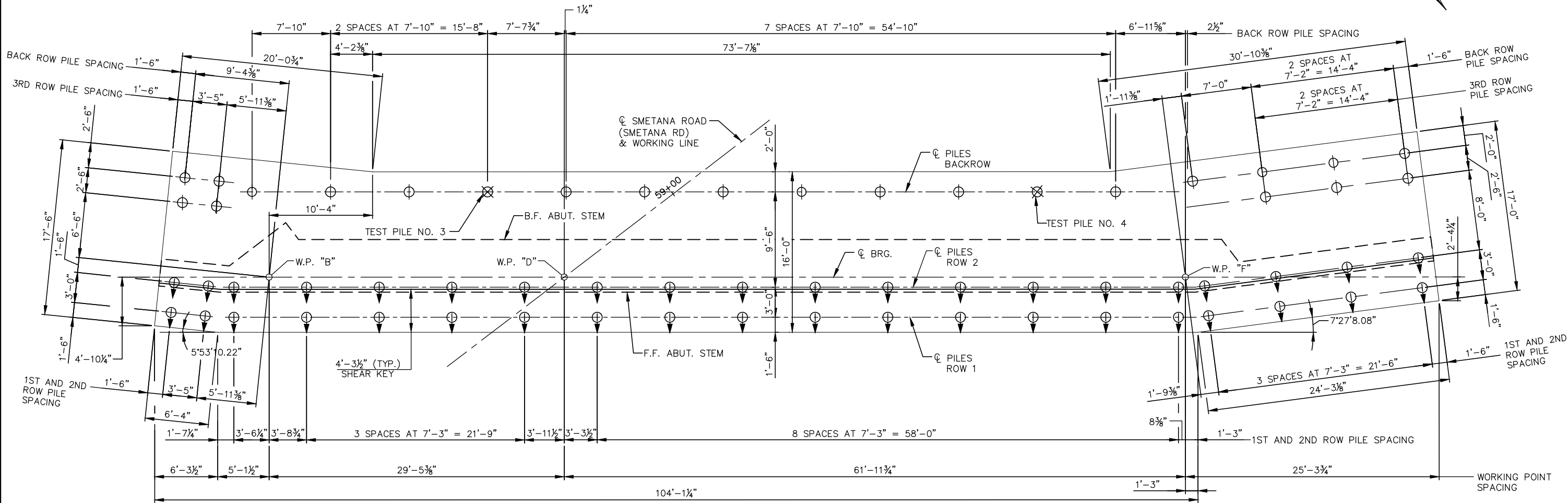
PILES MARKED THUS  $\odot \rightarrow$  TO BE BATTERED 3" PER  
FOOT IN DIRECTION SHOWN.

PILES TO HAVE A NOMINAL DIAMETER OF 12" AND WALL THICKNESS OF 0.375".

FOR PILE SPLICE DETAILS SEE DETAIL B201.

NOTES:

B.F. DENOTES BACK FACE.  
F.F. DENOTES FRONT FACE.



NORTHEAST  
CORNER

FOOTING PLAN

SOUTHEAST  
CORNER

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: MSK
DRAWN BY: ALB/BS	CHECKED BY: PLR

AECOM

90% SUBMISSION - 01/22/16



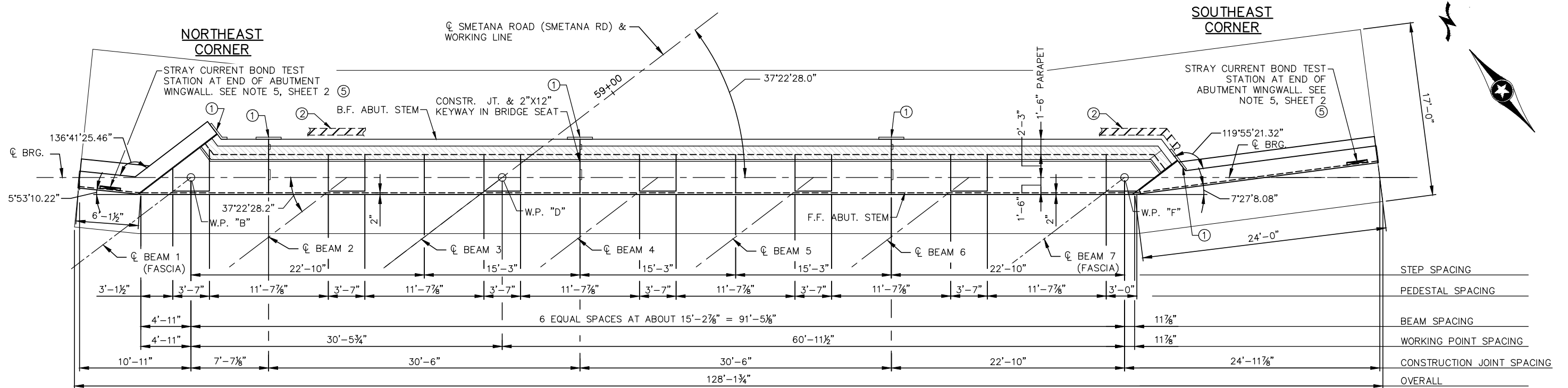
CIVIL – VOLUME 4B  
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C09  
EAST ABUTMENT DETAILS 1

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C09-BRG-ABT-010

SHEET  
15  
OF  
44

Jan, 14 2016 03:46 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-ABT-011.dwg By: V-Shrestha



PLAN VIEW

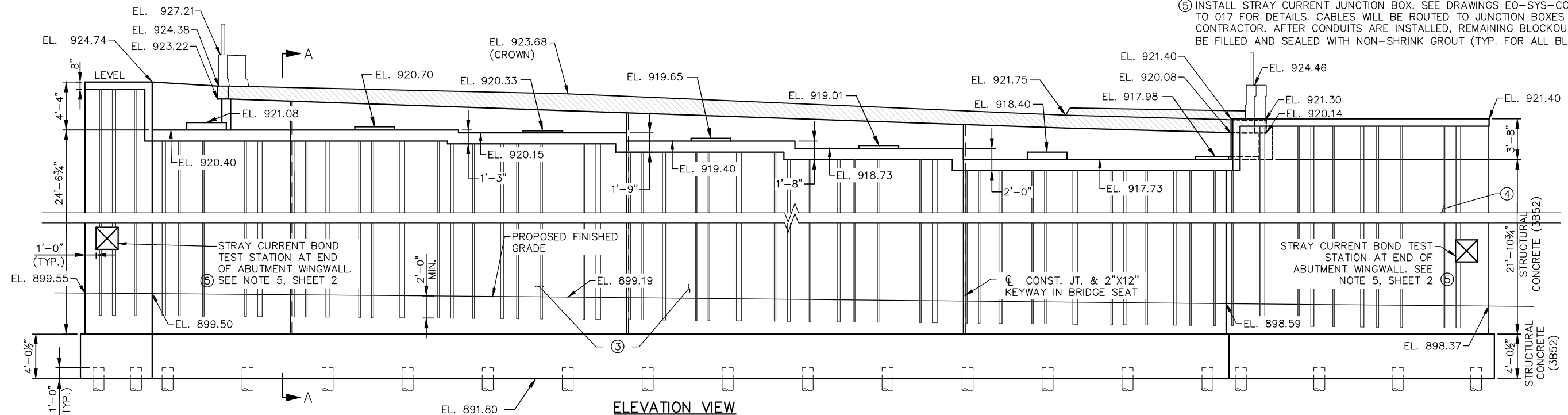
NOTES:

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

CONTRACTOR SHALL PLACE BACKFILL BEHIND THE WINGWALLS AND IN FRONT OF THE WINGWALLS IN ALTERNATING LIFTS SUCH THAT THE DIFFERENCE IN TOP-OF-SOIL ELEVATIONS DOES NOT EXCEED FIVE FEET, UP TO THE APPROPRIATE FINISHED GROUNDLINE.

- MEMBRANE WATERPROOFING SYSTEM PER MN/DOT 2184.3B TO BE INCLUDED IN PRICE BID FOR "STRUCTURAL CONCRETE (3B32).
- PERFORATED PIPE, SEE DETAIL B910 FOR DRAINAGE DETAILS. TIE DRAINAGE SYSTEM INTO RETAINING WALL W308.
- THERE SHALL BE A 72 HOUR MINIMUM DELAY BETWEEN CONCRETE POURS OF ADJACENT ABUTMENT SECTIONS THAT HAVE VERTICAL CONSTRUCTION JOINTS.
- ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM) WITH ARCHITECTURAL SURFACE FINISH (SINGLE COLOR). SEE SHEET 4 FOR DETAILS.
- INSTALL STRAY CURRENT JUNCTION BOX. SEE DRAWINGS EO-SYS-CORR-DTL-001 TO 017 FOR DETAILS. CABLES WILL BE ROUTED TO JUNCTION BOXES BY CONTRACTOR. AFTER CONDUITS ARE INSTALLED, REMAINING BLOCKOUT SPACE TO BE FILLED AND SEALED WITH NON-SHRINK GROUT (TYP. FOR ALL BLOCKOUTS).



ELEVATION VIEW

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

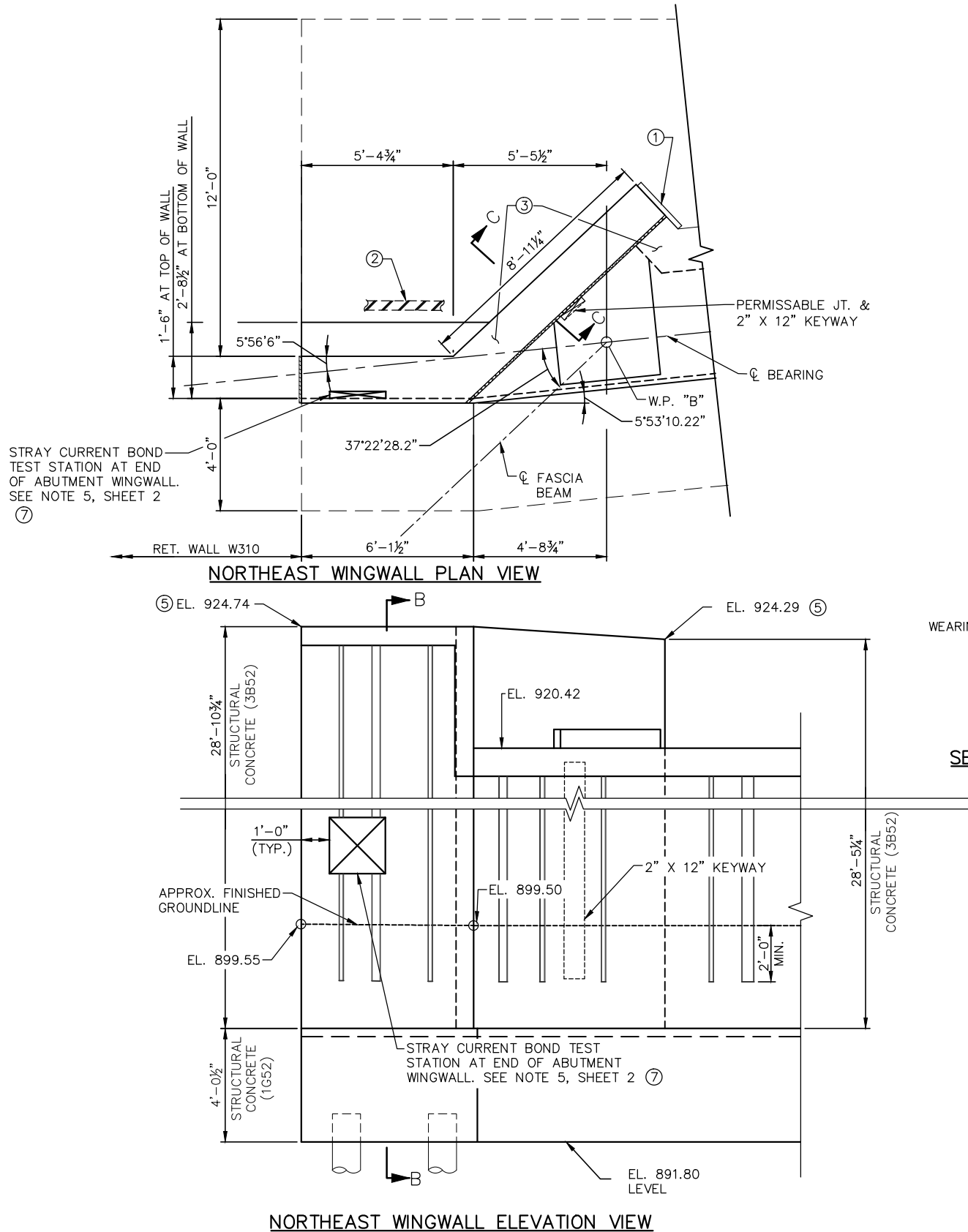
DESIGNED BY: RJH	CHECKED BY: MSK
DRAWN BY: ALB/BS	CHECKED BY: PLR

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B	
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL	
BRIDGE 27C09	
EAST ABUTMENT DETAILS 2	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C09-BRG-ABT-011



Jan, 14 2016 03:47 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-ABT-014.dwg By: V-Shrestha



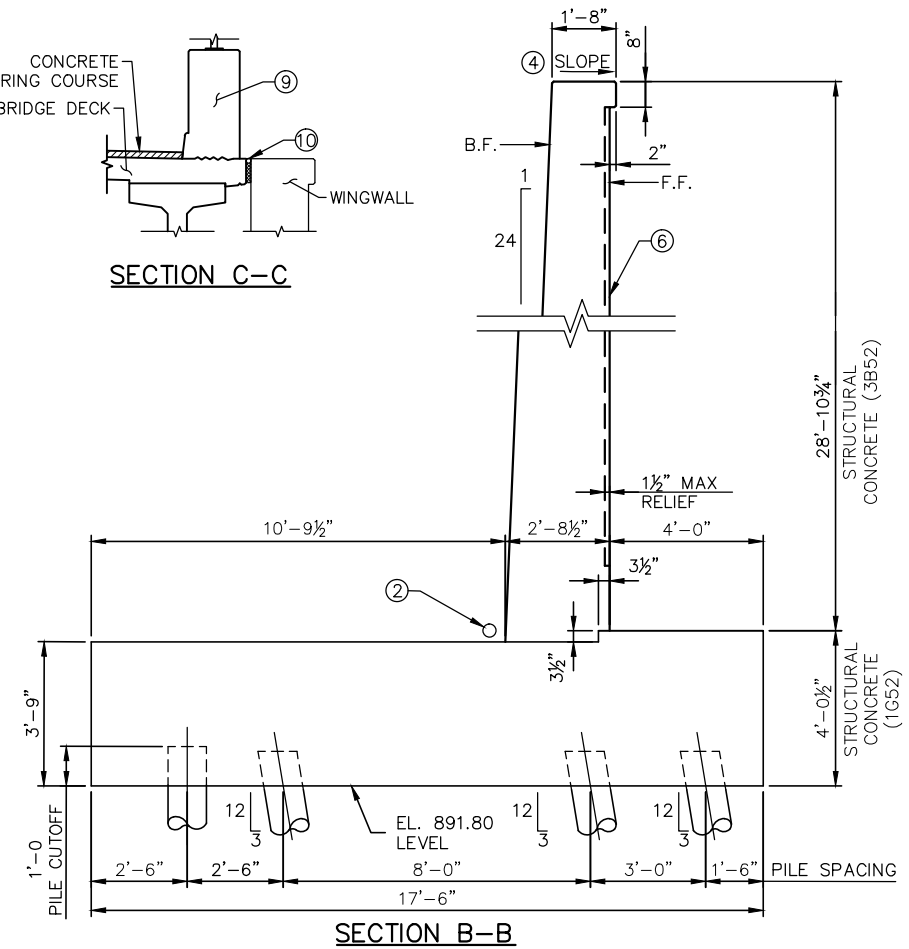
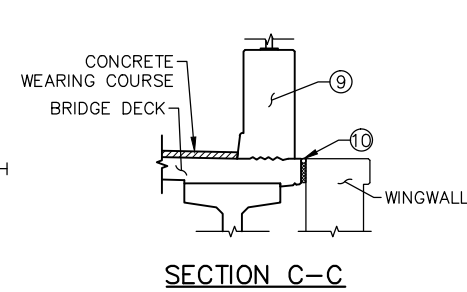
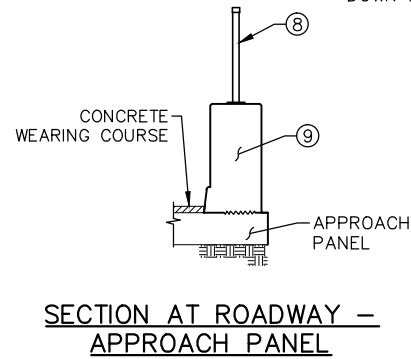
#### NOTES:

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

CONTRACTOR SHALL PLACE BACKFILL BEHIND THE WINGWALLS AND IN FRONT OF THE WINGWALLS IN ALTERNATING LIFTS SUCH THAT THE DIFFERENCE IN TOP-OF-SOIL ELEVATIONS DOES NOT EXCEED FIVE FEET, UP TO THE APPROPRIATE FINISHED GROUNDLINE.

- ① MEMBRANE WATERPROOFING SYSTEM PER MN/DOT2184.3B
- ② PERFORATED PIPE, SEE DETAIL B910 FOR DRAINAGE DETAILS.
- ③ THERE SHALL BE A 72 HOUR MINIMUM DELAY BETWEEN CONCRETE POURS OF ADJACENT ABUTMENT SECTIONS THAT HAVE VERTICAL CONSTRUCTION JOINTS.
- ④ SLOPE 1% + DOWN TOWARDS FRONT FACE
- ⑤ ELEVATIONS ARE AT THE BACK FACE OF WINGWALL (POLYSTYRENE JOINT).
- ⑥ ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM) WITH ARCHITECTURAL SURFACE FINISH (SINGLE COLOR). SEE SHEET 4 FOR DETAILS.
- ⑦ INSTALL STRAY CURRENT JUNCTION BOX. SEE DRAWINGS EO-SYS-CORR-DTL-001 TO 017 FOR DETAILS. CABLES WILL BE ROUTED TO JUNCTION BOXES BY CONTRACTOR. AFTER CONDUITS ARE INSTALLED, REMAINING BLOCKOUT SPACE TO BE FILLED AND SEALED WITH NON-SHRINK GROUT (TYP. FOR ALL BLOCKOUTS).
- ⑧ WIRE FENCE DESIGN W-1.
- ⑨ CONCRETE BARRIER TYPE P-4, TL-4. SEE SHEET 33.
- ⑩ PLACE POLYSTYRENE FULL HEIGHT (1'-0") FOR FORMING THE APPROACH PANEL. IT MAY BE LEFT IN PLACE AND CUT DOWN FOR BACKER ROD AND SEALANT OR REMOVED (SEE MNDOT APPROVED/QUALIFIED PRODUCTS LIST).



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: MSK
DRAWN BY: ALB/BS	CHECKED BY: PLR

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C09  
EAST ABUTMENT DETAILS 3

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C09-BRG-ABT-014

⑤ EL. 921.40

EL. 917.73

PERMISSABLE JT. & 2" X 12" KEYWAY

EL. 921.40 ⑤

⑥

25'-7"

1'-0" (TYP.)

APPROX. FINISHED GROUNDLINE

2'-0" MIN.

STRAY CURRENT BOND TEST STATION AT END OF ABUTMENT WINGWALL. SEE NOTE 5, SHEET 2 ⑦

EL. 898.59

EL. 898.59

25'-7"

STRUCTURAL CONCRETE (3B52)

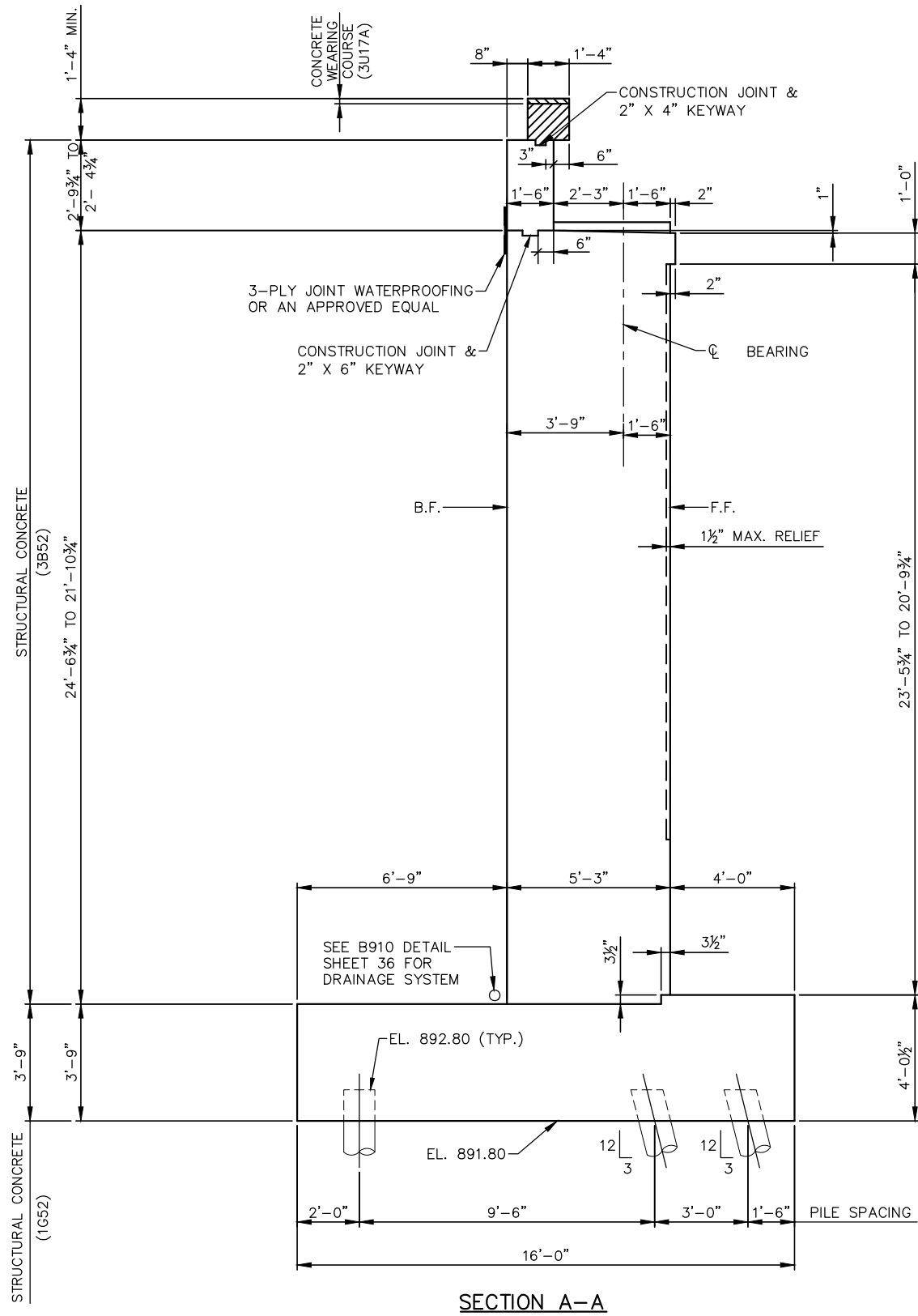
4'-0 1/2"

STRUCTURAL CONCRETE (1G52)

[illegible]

SHEET NAME:	CBR27C09-BRG-ABT-022
-------------	----------------------

Jan, 14 2016 03:47 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09\BRG-ABT-012.dwg By: V-Shrestha





NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: MSK
DRAWN BY: ALB/BS	CHECKED BY: PLR



90% SUBMISSION - 01/22/16

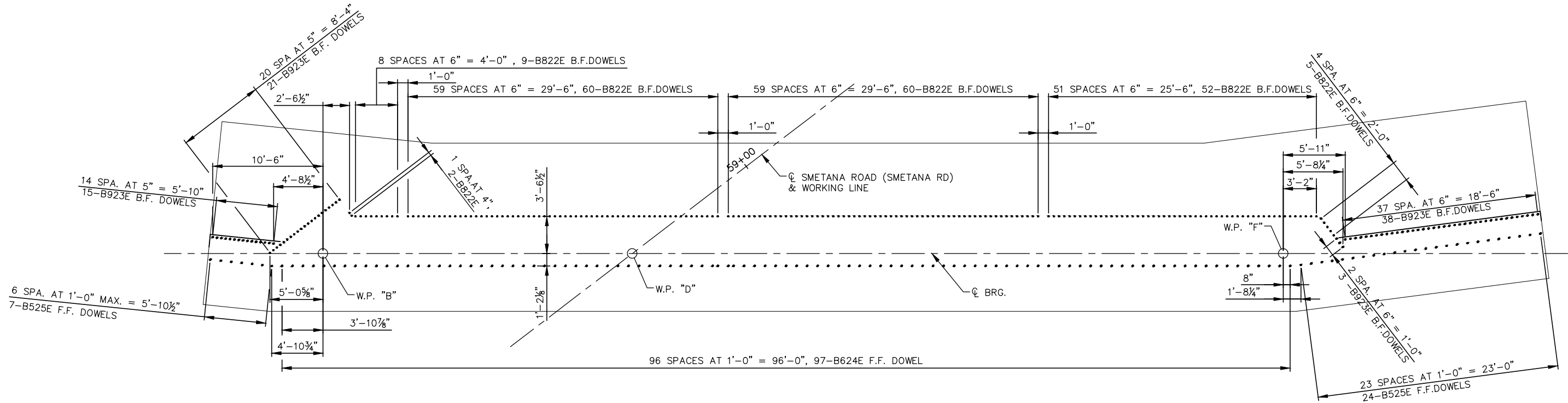


CIVIL – VOLUME 4B  
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C09  
EAST ABUTMENT DETAILS 5

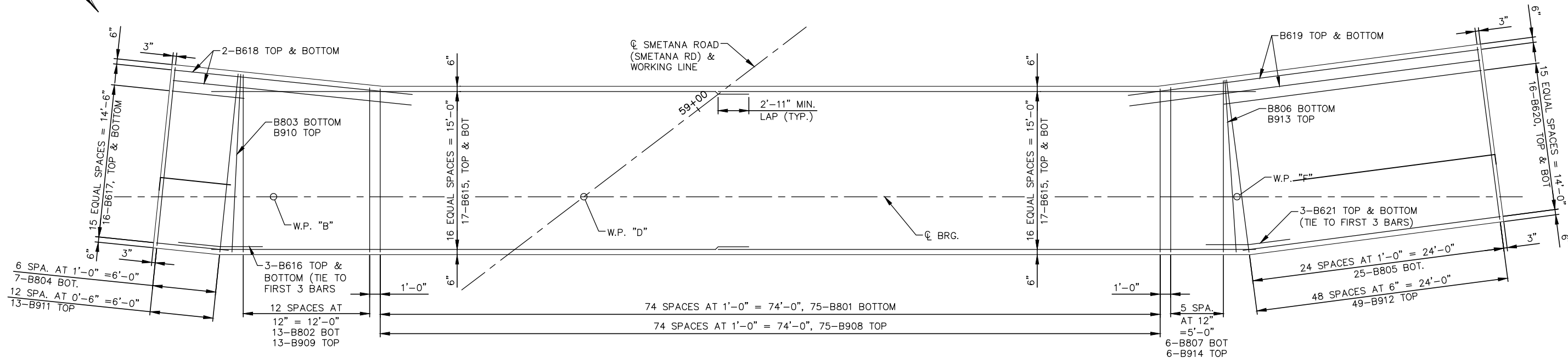
DISCIPLINE: STRUCTURES

SHEET NAME:  
CBR27C09-BRG-ABT-012

Jan, 14 2016 03:48 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-ABT-015.dwg By: V-ShrestBA



FOOTING DOWEL PLAN



FOOTING REINFORCEMENT PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: MSK
DRAWN BY: ALB/BS	CHECKED BY: PLR

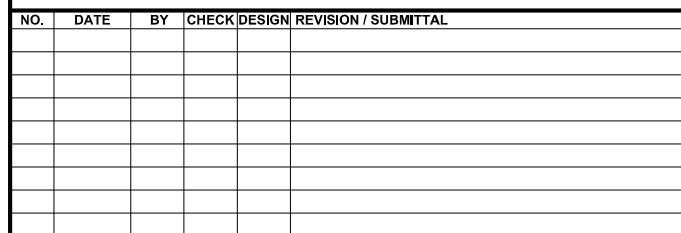
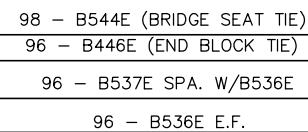
90% SUBMISSION - 01/22/16

DISCIPLINE: STRUCTURES

CIVIL – VOLUME 4B  
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C09  
EAST ABUTMENT REINFORCEMENT 1

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C09-BRG-ABT-015

**AECOM**

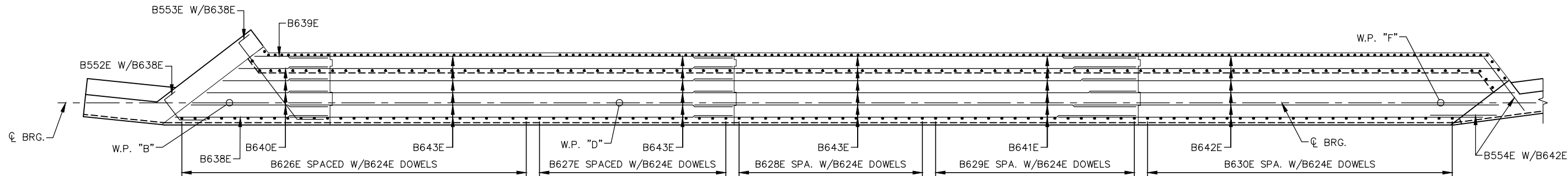
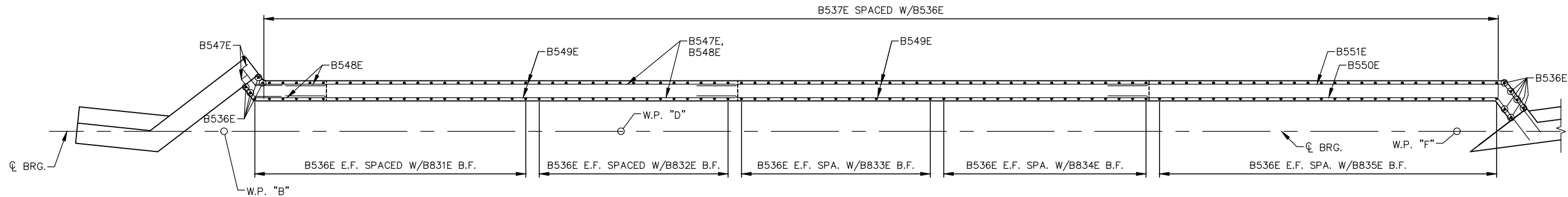
**METROPOLITAN**  
COUNCIL



**CIVIL – VOLUME 4B**  
**SMETANA ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C09**  
**EAST ABUTMENT REINFORCEMENT 2**

SHEET NAME:	CBR27C09-BRG-ABT-016
-------------	----------------------

Jan, 14 2016 03:49 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09\CBR27C09-BRG-ABT-017.dwg By: V-ShrestBA



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: MSK
DRAWN BY: ALB/BS	CHECKED BY: PLR

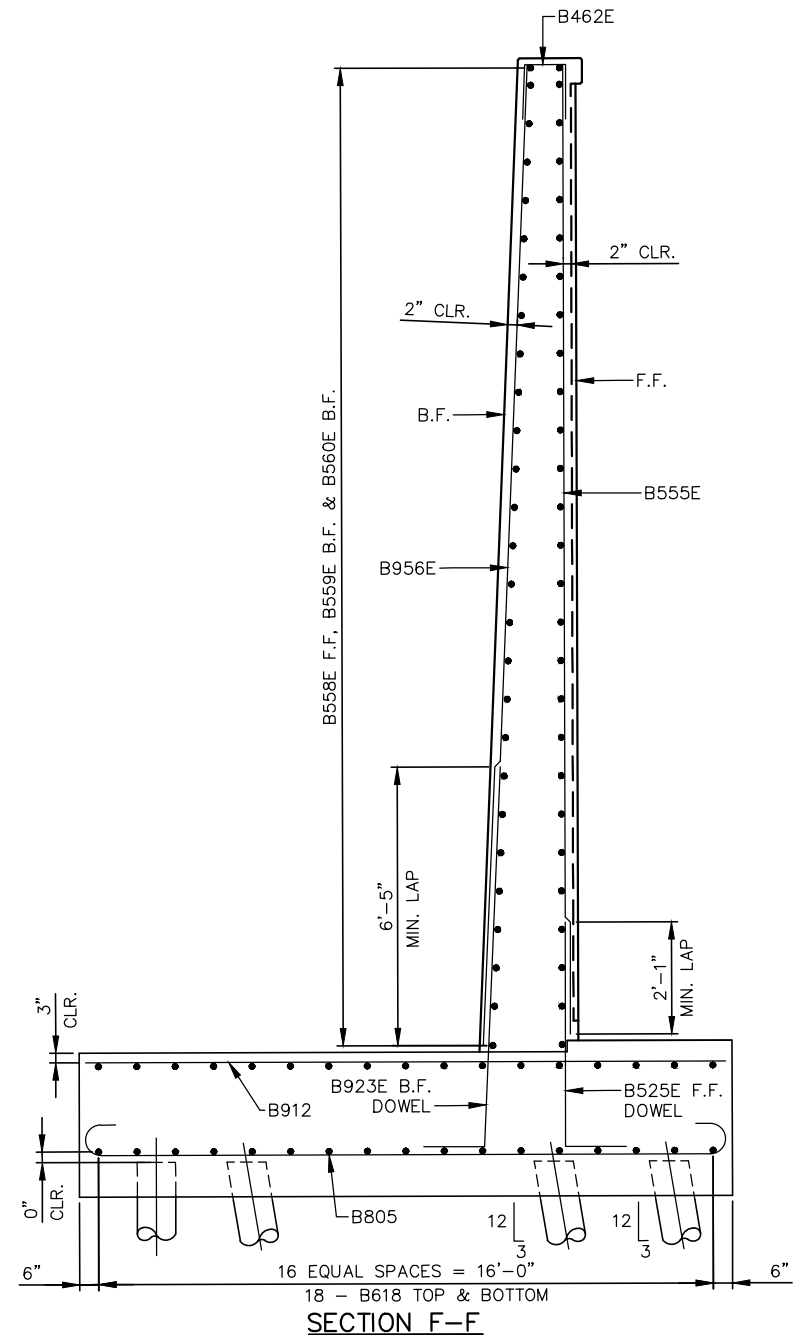
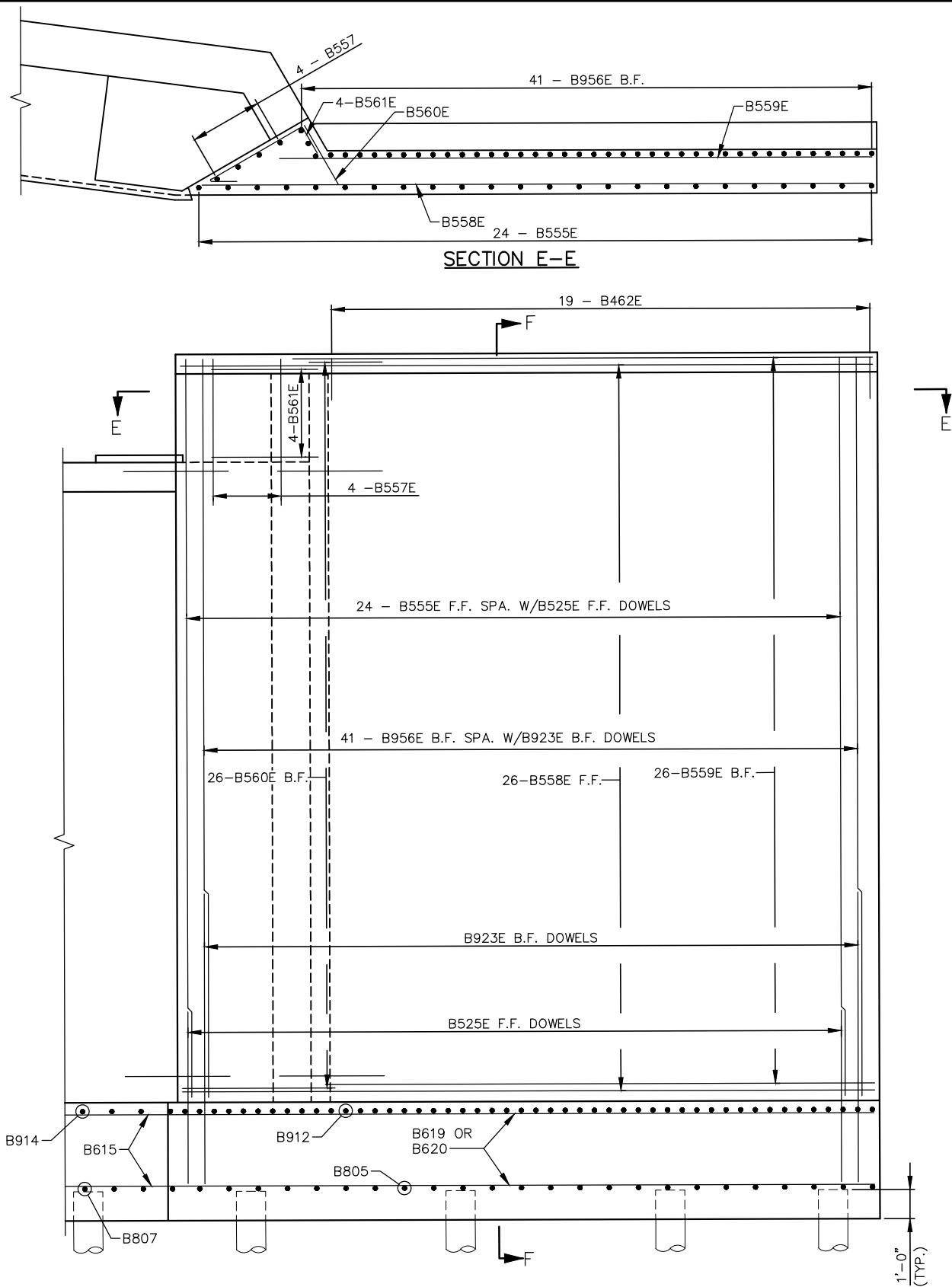
90% SUBMISSION - 01/22/16

CIVIL – VOLUME 4B  
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C09  
EAST ABUTMENT REINFORCEMENT 3

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C09-BRG-ABT-017

Jan, 14 2016 03:49 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09\BRG-ABT-026.dwg By: V-Shrestha



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: MSK
DRAWN BY: ALB/BS	CHECKED BY: PLR

90% SUBMISSION - 01/22/16

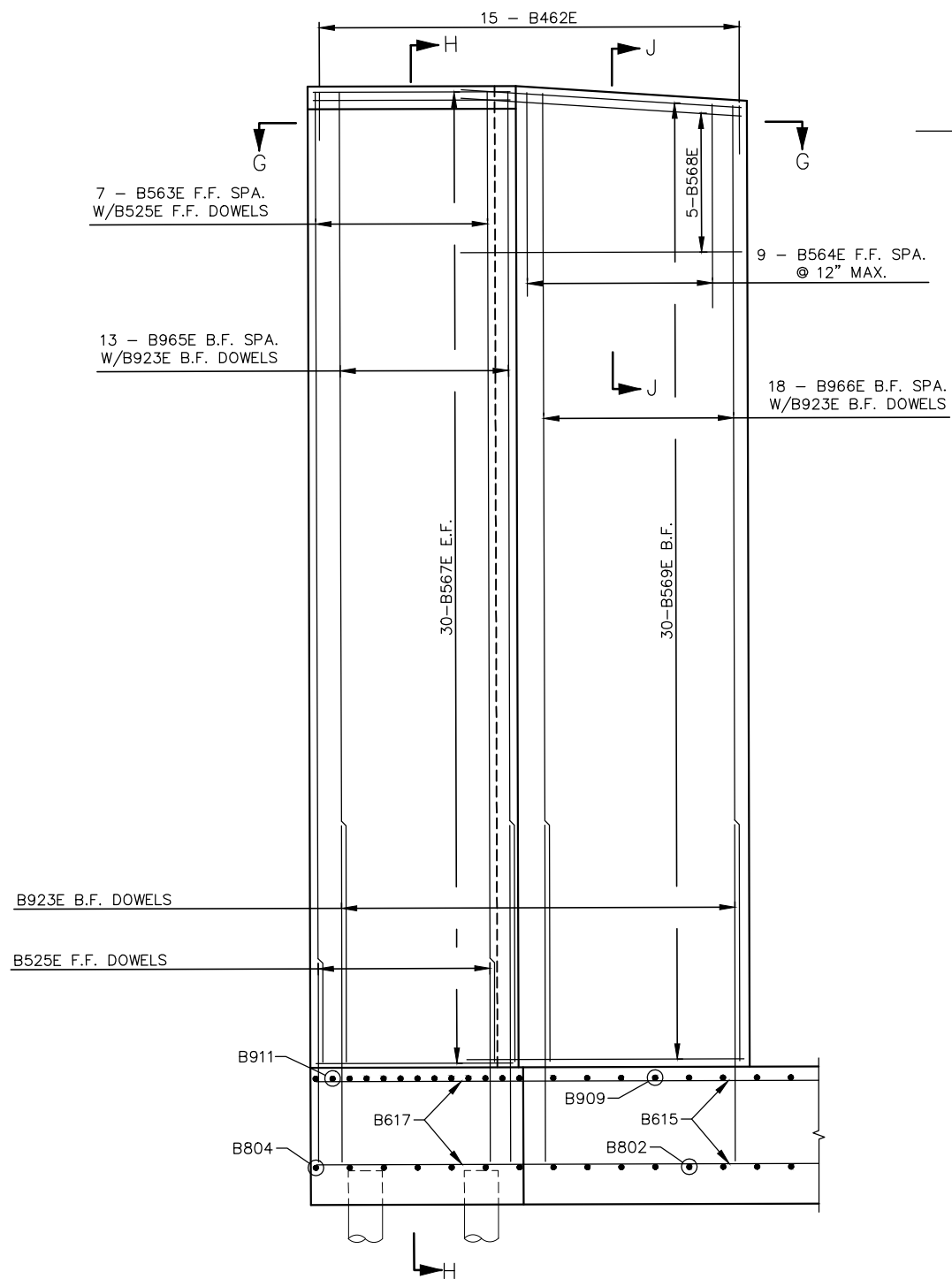
CIVIL - VOLUME 4B  
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C09  
EAST ABUTMENT REINFORCEMENT 4

DISCIPLINE: STRUCTURES

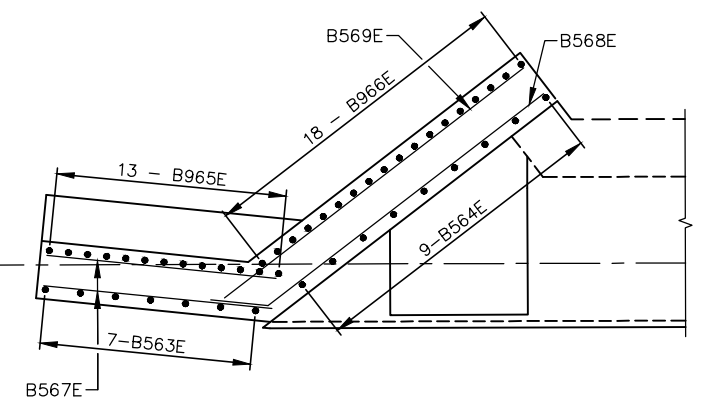
SHEET NAME: CBR27C09-BRG-ABT-026



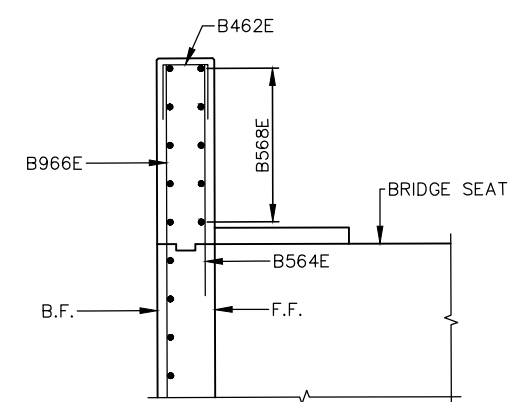
Jan, 14 2016 03:49 pm V:\3400\_ADC\CAD\CAD SHEETS\STRUCTURES\CBR27C09\CBR27C09-BRG-ABT-025.dwg By: V-Shrestha



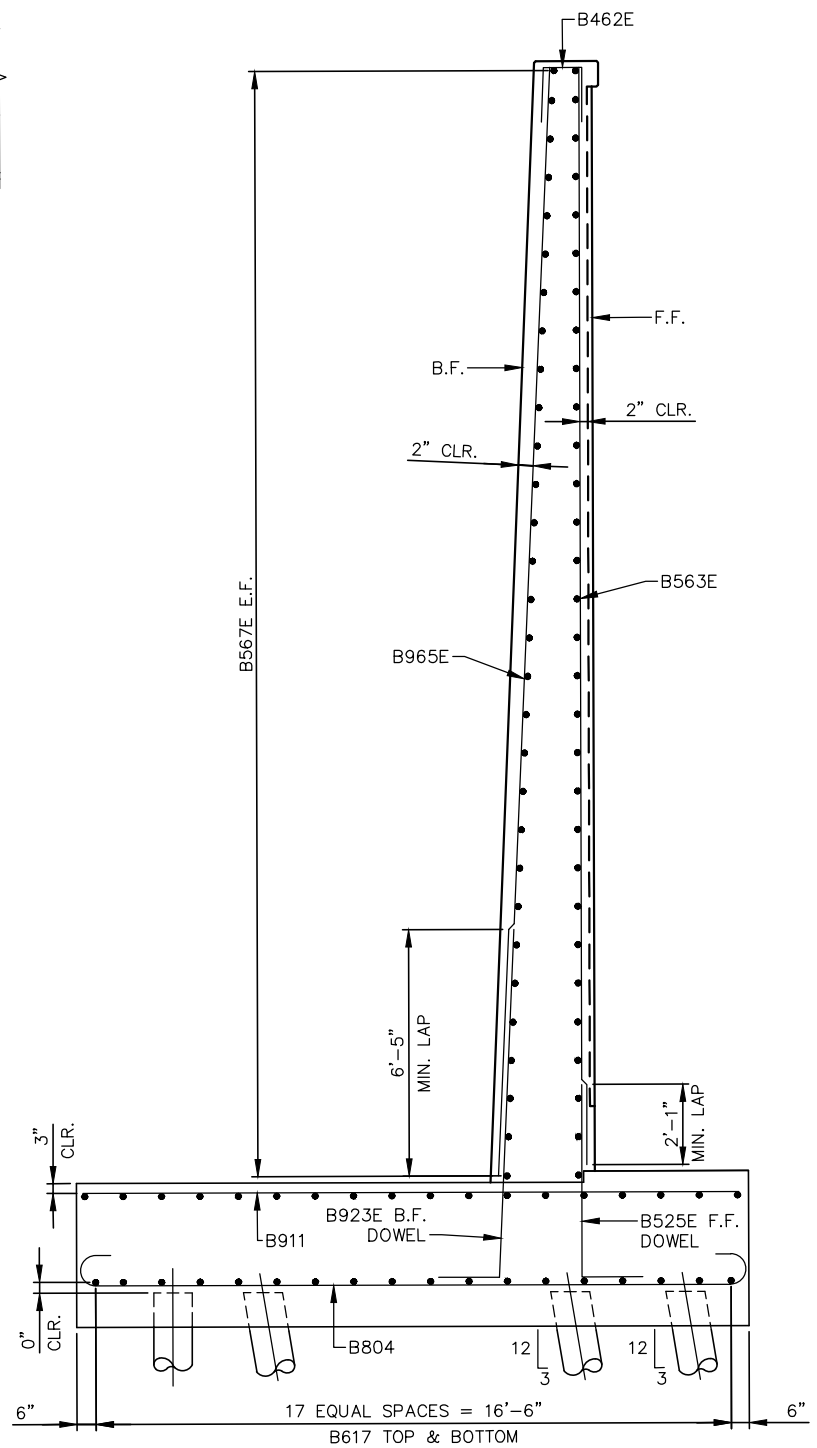
NORTHEAST WINGWALL ELEVATION VIEW



SECTION G-G



SECTION J-J



SECTION H-H

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

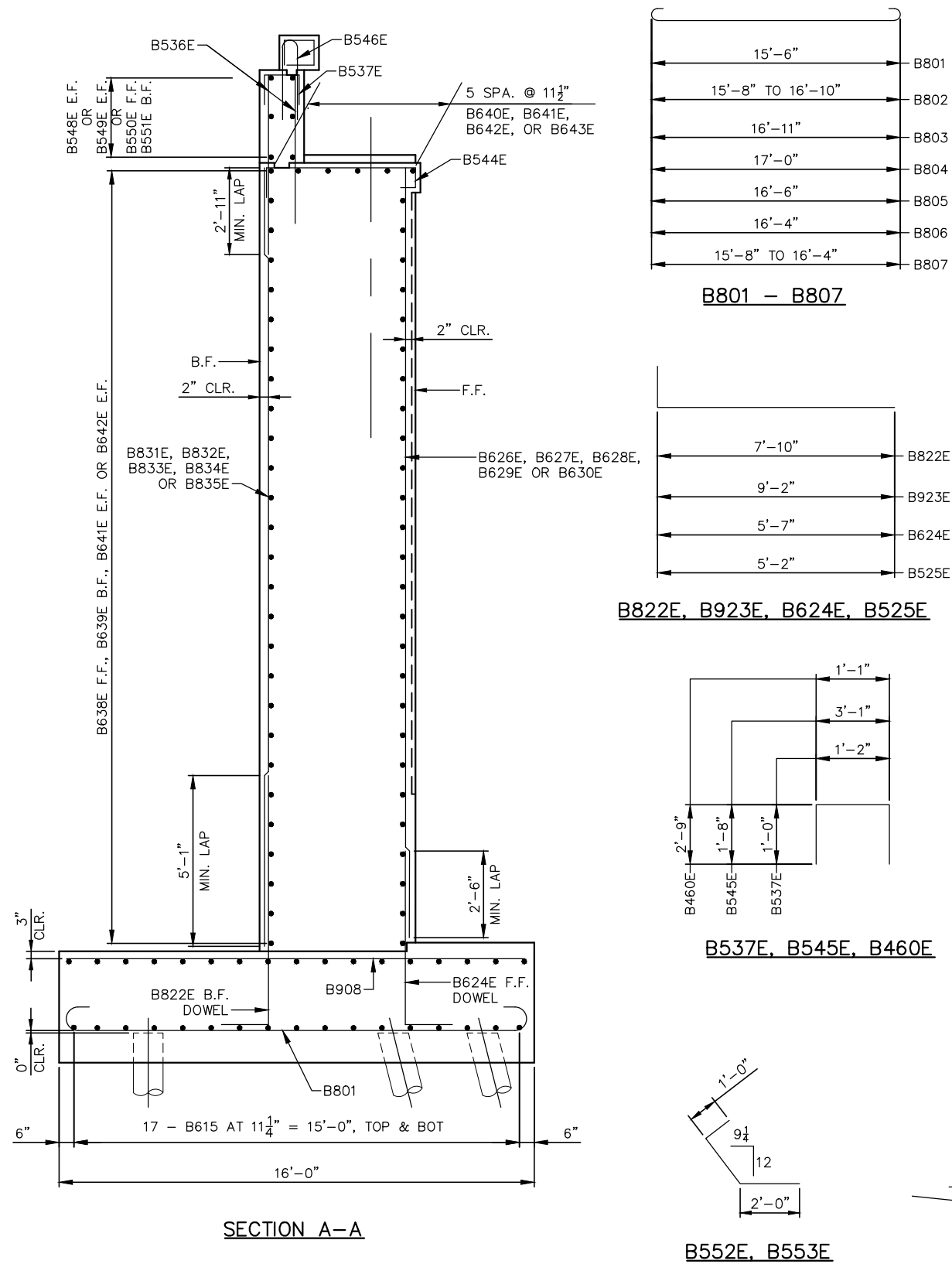
DESIGNED BY: RJH	CHECKED BY: MSK
DRAWN BY: ALB/BS	CHECKED BY: PLR






























90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C09  
EAST ABUTMENT REINFORCEMENT 5

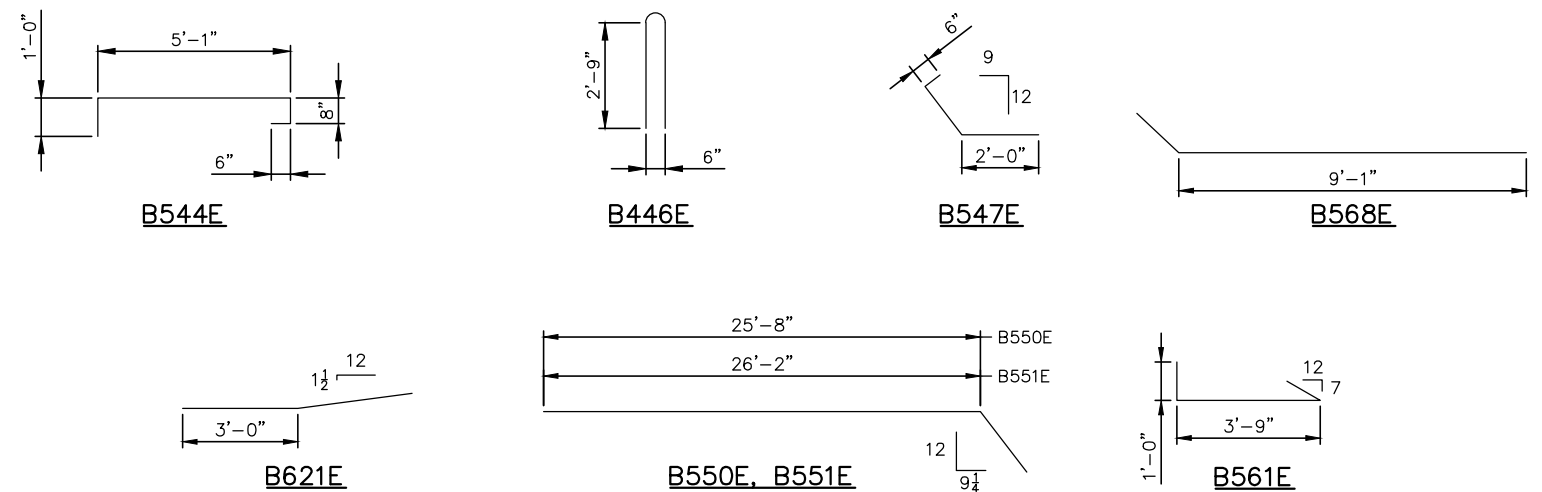
DISCIPLINE: STRUCTURES




SHEET NAME: CBR27C09-BRG-ABT-025



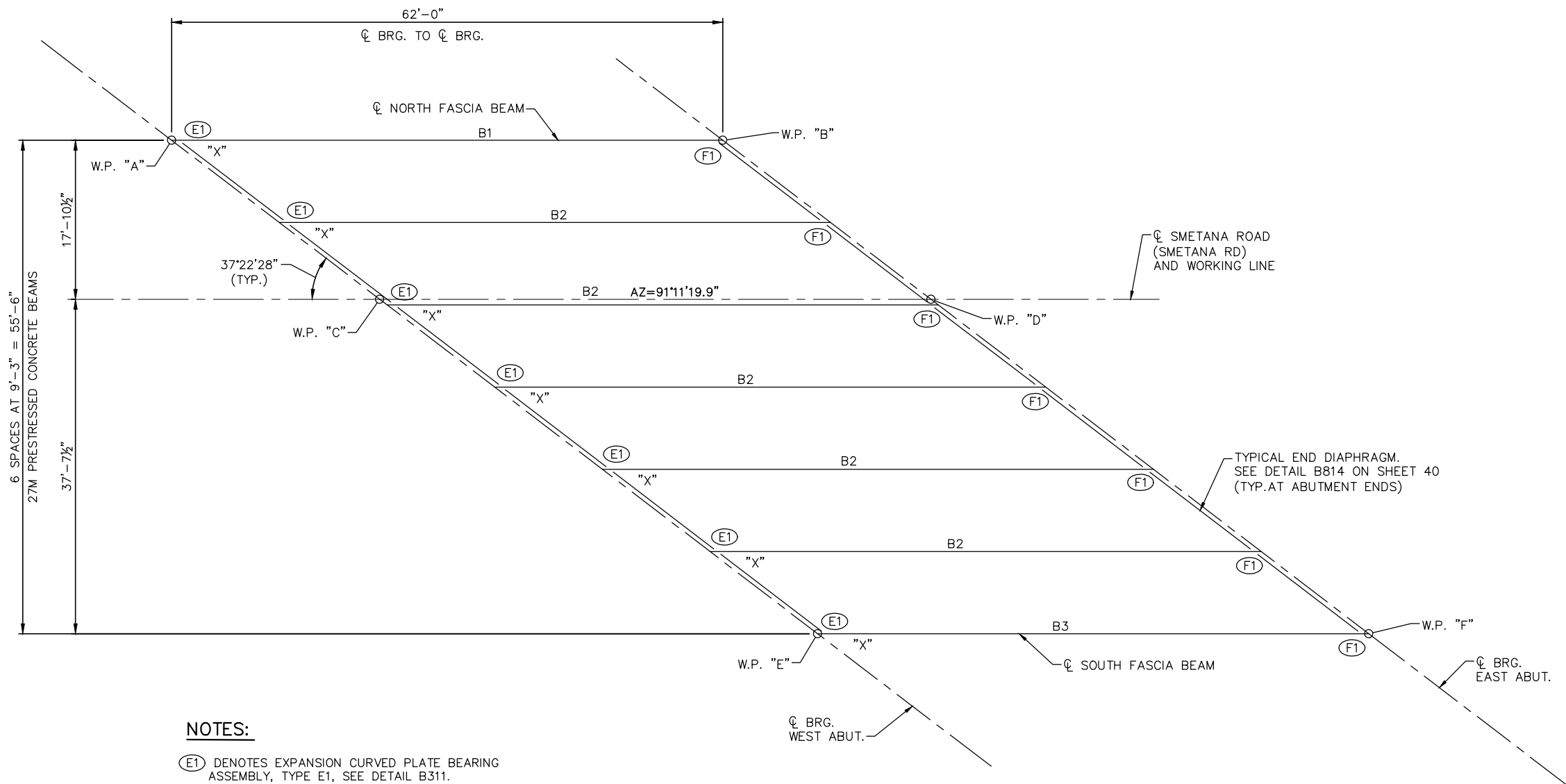
BILL OF REINFORCEMENT FOR EAST ABUTMENT				
BAR	NO.	LENGTH	SHAPE	LOCATION
B801	75	17'- 4"		TRANSVERSE FOOTING BOTTOM
B802	SERIES OF 13	17'- 6" TO 18'- 8"		TRANSVERSE FOOTING BOTTOM
B803	1	18'- 9"		TRANSVERSE FOOTING BOTTOM
B804	7	18'- 10"		TRANSVERSE FOOTING BOTTOM
B805	25	18'- 4"		TRANSVERSE FOOTING BOTTOM
B806	1	18'- 2"		TRANSVERSE FOOTING BOTTOM
B807	SERIES OF 6	17'- 6" TO 18'- 2"		TRANSVERSE FOOTING BOTTOM
B908	75	15'- 6"		TRANSVERSE FOOTING TOP
B909	SERIES OF 13	15'- 8" TO 16'- 10"		TRANSVERSE FOOTING TOP
B910	1	16'- 11"		TRANSVERSE FOOTING TOP
B911	13	17'- 0"		TRANSVERSE FOOTING TOP
B912	49	16'- 6"		TRANSVERSE FOOTING TOP
B913	1	16'- 4"		TRANSVERSE FOOTING TOP
B914	SERIES OF 6	15'- 8" TO 16'- 4"		TRANSVERSE FOOTING TOP
B615	68	51'- 0"		LONGITUDINAL FOOTING
B616	6	6'- 0"		LONGITUDINAL FOOTING
B617	32	6'- 1"		LONGITUDINAL FOOTING
B618	4	22'- 9"		LONGITUDINAL FOOTING
B619	4	33'- 7"		LONGITUDINAL FOOTING
B620	32	24'- 1"		LONGITUDINAL FOOTING
B621	6	6'- 0"		LONGITUDINAL FOOTING
B822E	188	9'- 2"		FOOTING DOWELS B.F.
B923E	77	10'- 9"		FOOTING DOWELS B.F.
B624E	97	6'- 7"		FOOTING DOWELS F.F.
B525E	31	6'- 0"		FOOTING DOWELS F.F.
B626E	27	24'- 3"		ABUTMENT VERTICAL F.F.
B627E	15	24'- 0"		ABUTMENT VERTICAL F.F.
B628E	15	23'- 3"		ABUTMENT VERTICAL F.F.
B629E	15	22'- 7"		ABUTMENT VERTICAL F.F.
B630E	25	21'- 7"		ABUTMENT VERTICAL F.F.
B831E	41	24'- 6"		ABUTMENT VERTICAL B.F.
B832E	30	24'- 3"		ABUTMENT VERTICAL B.F.
B833E	30	23'- 6"		ABUTMENT VERTICAL B.F.
B834E	30	22'- 10"		ABUTMENT VERTICAL B.F.

B835E	57	21'- 10"	—	ABUTMENT VERTICAL B.F.
B536E	192	5'- 6"	—	BACKWALL VERTICAL E.F.
B537E	96	3'- 2"	⌋	BACKWALL VERTICAL TIES
B638E	25	11'- 7"	—	ABUTMENT HORIZONTAL
B639E	25	5'- 8"	—	ABUTMENT HORIZONTAL
B640E	SERIES OF 4	10'- 5" TO 6'- 10"	—	ABUTMENT HORIZONTAL
B641E	100	33'- 10"	—	ABUTMENT HORIZONTAL
B642E	50	32'- 1"	—	ABUTMENT HORIZONTAL
B643E	18	18'- 7"	—	ABUTMENT HORIZONTAL
B544E	98	7'- 3"	⌋	BRIDGE SEAT TIE
B545E	84	6'- 5"	⌋	PEDESTAL TIE
B446E	96	6'- 0"	⌋	END BLOCK TIE
B547E	6	4'- 1"	⌋	BACKWALL HORIZONTAL CORNER E.F.
B548E	6	5'- 1"	—	BACKWALL HORIZONTAL E.F.
B549E	12	33'- 3"	—	BACKWALL HORIZONTAL E.F.
B550E	3	32'- 7"	—	BACKWALL HORIZONTAL F.F.
B551E	3	33'- 6"	—	BACKWALL HORIZONTAL B.F.
B552E	25	4'- 11"	⌋	CORNER REBAR
B553E	25	10'- 3"	⌋	CORNER REBAR
B554E	46	5'- 0"	—	CORNER REBAR
B555E	24	25'- 3"	—	SE WINGWALL VERTICAL F.F.
B956E	41	25'- 6"	—	SE WINGWALL VERTICAL B.F.
B557E	4	7'- 0"	—	SE WINGWALL MASKWALL VERTICAL
B558E	26	23'- 8"	—	SE WINGWALL LONGITUDINAL F.F.
B559E	26	20'- 0"	—	SE WINGWALL LONGITUDINAL B.F.
B560E	26	2'- 6"	—	SE WINGWALL LONGITUDINAL B.F.
B561E	4	5'- 9"	⌋	SE WINGWALL MASKWALL HORIZONTAL
B462E	34	6'- 7"	⌋	SE & NE WINGWALL VERTICAL TIES
B563E	7	28'- 7"	—	NE WINGWALL VERTICAL F.F.
B564E	9	7'- 4"	—	NE WINGWALL MASKWALL VERTICAL
B965E	13	28'- 10"	—	NE WINGWALL VERTICAL B.F.
B966E	SERIES OF 18	28'- 10" TO 28'- 5"	—	NE WINGWALL VERTICAL B.F.
B567E	60	6'- 0"	—	NE WINGWALL LONGITUDINAL E.F.
B568E	5	10'- 0"	⌋	NE WINGWALL MASKWALL HORIZONTAL
B569E	30	9'- 4"	—	NE WINGWALL LONGITUDINAL B.F.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL			 	<div>CIVIL – VOLUME 4B</div> <div>SMETANA ROAD OVER SOUTHWEST LIGHT RAIL</div> <div>BRIDGE 27C09</div> <div>EAST ABUTMENT REINFORCEMENT 6</div>		SHEET
					25						
					OF						
					44						
DESIGNED BY: RJH      CHECKED BY: MSK						90% SUBMISSION - 01/22/16	DISCIPLINE: STRUCTURES		SHEET NAME: CBR27C09-BRG-ABT-018		
DRAWN BY: ALB/BS      CHECKED BY: PLR											

Jan, 14 2016 03:50 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-SUP-002.dwg By: V-ShrestBA



**NOTES:**

- (E1) DENOTES EXPANSION CURVED PLATE BEARING ASSEMBLY, TYPE E1, SEE DETAIL B311.
- (F1) DENOTES FIXED CURVE PLATE BEARING ASSEMBLY, TYPE F1, SEE DETAIL B310.
- x DENOTES DENOTES WHICH END OF THE BEAM IS TO BE MARKED WITH AND "X".

**FRAMING PLAN**

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB/BS	CHECKED BY: PLR

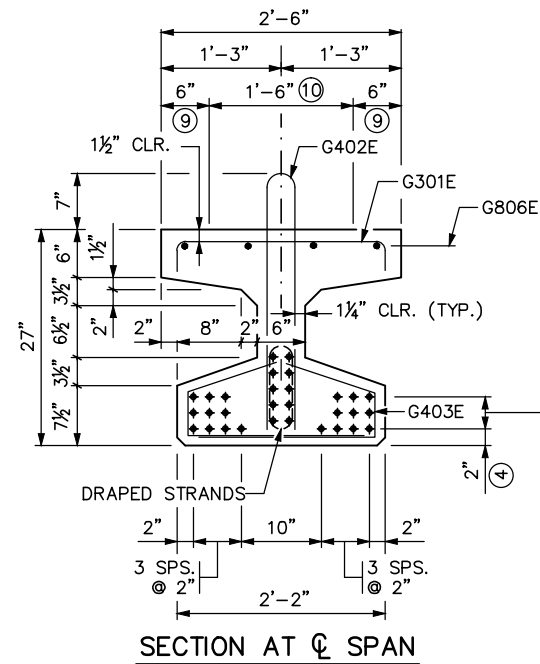
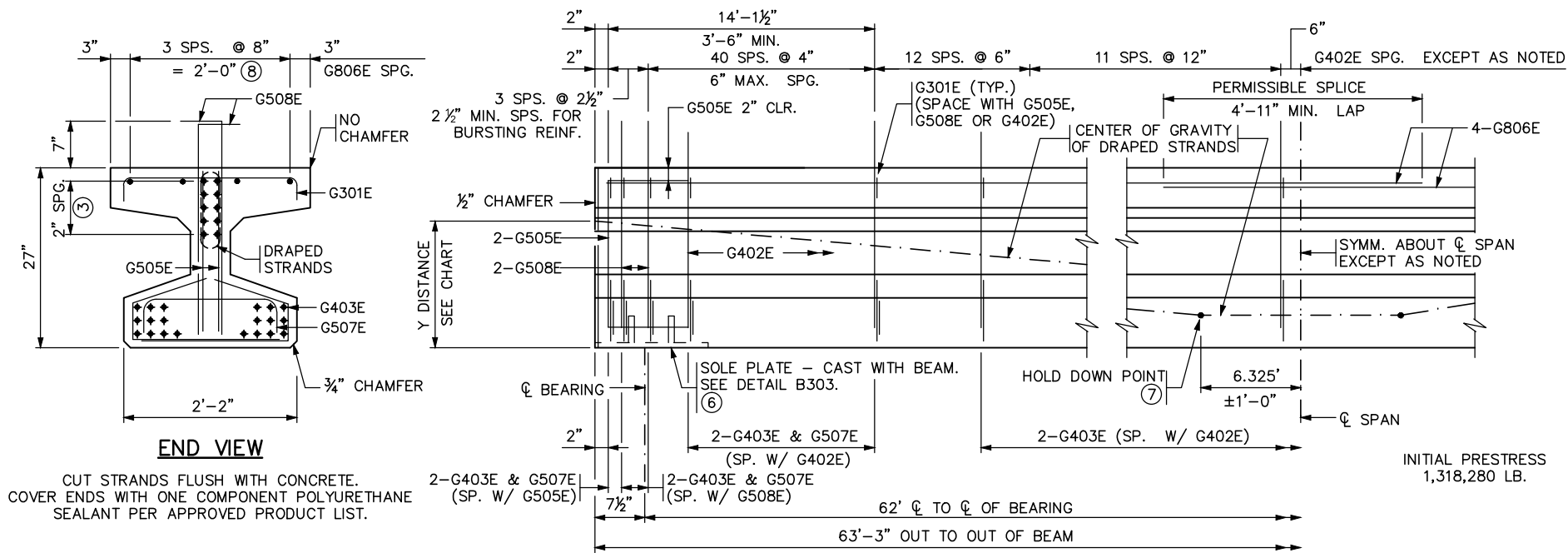
90% SUBMISSION - 01/22/16

CIVIL – VOLUME 4B  
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C09  
FRAMING PLAN

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C09-BRG-SUP-002

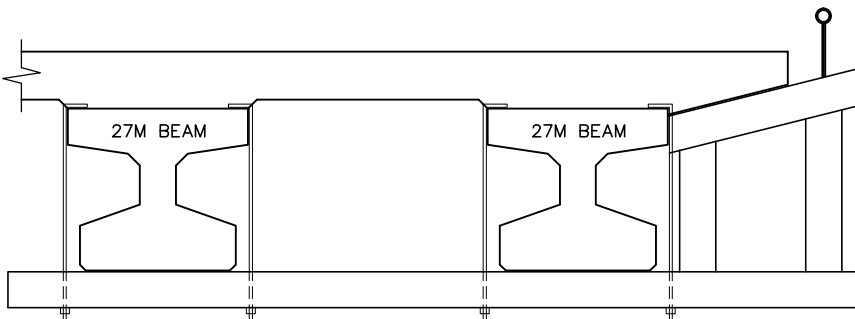
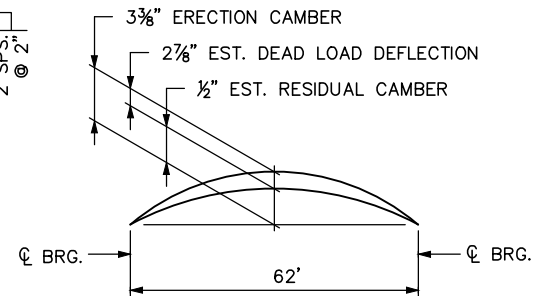
Jan, 15 2016 04:22 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-PCB-001.dwg By: V-Shrestha



Y DISTANCES (INCHES)			
	NO.	$\phi$ SPAN	END
STRAIGHT STRANDS	20	3.8	
DRAPED STRANDS	10	7.0	20.0 <sup>□</sup>
TOTAL STRANDS	30	4.87	

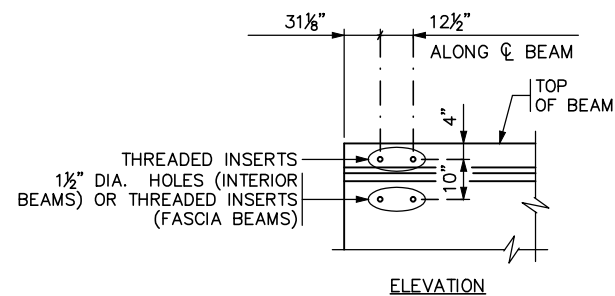
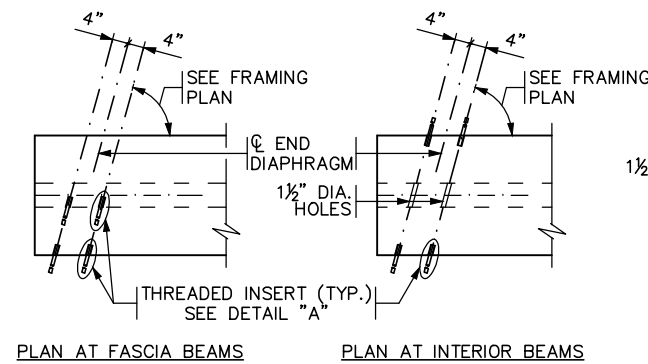
Y = DISTANCE TO CENTER OF GRAVITY OF STRANDS FROM BOTTOM OF BEAM. ALL STRANDS SPACED 2" CENTER TO CENTER, HORIZONTALLY AND VERTICALLY, EXCEPT AS NOTED.

<sup>□</sup> A TOLERANCE OF  $\pm 1"$  WILL BE PERMITTED IN THIS DIMENSION.



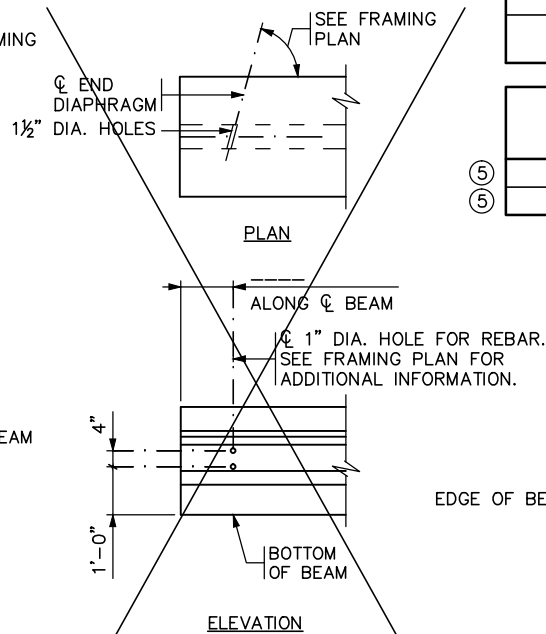
#### OVERHANG SUPPORT CONCEPT SKETCH

SEE THE "CONSTRUCTION NOTES" ON FRONT PORTION OF THE BRIDGE PLANS. THIS CONCEPT HAS BEEN USED SUCCESSFULLY ON PREVIOUS PROJECTS. CONTRACTORS MAY CONSIDER THIS OR ANOTHER SYSTEM AT THEIR DISCRETION.



#### CONCRETE END DIAPHRAGM

PARAPET ABUTMENT  
(SEE DETAIL B814 FOR DIAPHRAGM DETAILS)



#### CONCRETE END DIAPHRAGM

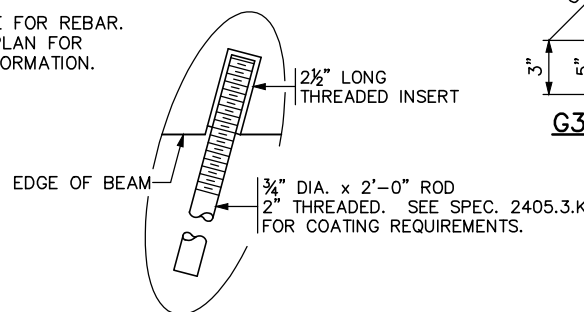
SEE SUPERSTRUCTURE DETAILS AND REINFORCEMENT FOR DIAPHRAGM DETAILS.

CONTRACTOR SHALL VERIFY STABILITY OF FASCIA BEAMS FROM OVERTURNING (NO PERMANENT BEAM DIAPHRAGMS ARE PRESENT). CONTRACTOR SHALL PROVIDE TEMPORARY BRACING.

CALCULATED PRESTRESS LOSSES	
ELASTIC SHORTENING LOSS	23.28 KSI
LONG TERM LOSSES	23.82 KSI
TOTAL LOSSES	47.10 KSI

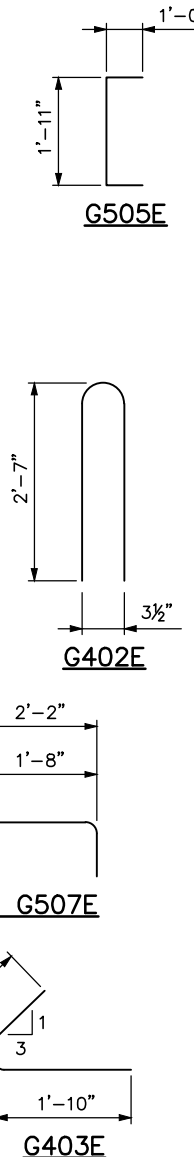
MINIMUM CONCRETE STRENGTH - K.S.I.	
① $f'_{ci}$	② $f'_c$
7.5 KSI	9 KSI

PRESTRESSING STRAND DIAMETER	
⑤ $\frac{1}{2}"$ <input type="checkbox"/>	
⑤ 0.60" <input checked="" type="checkbox"/>	



#### DETAIL "A"

CERTIFIED BY \_\_\_\_\_  
LICENSED PROFESSIONAL ENGINEER  
NAME: PATRICK L RIVARD  
DATE \_\_\_\_\_  
LIC. NO. 21168



#### GENERAL NOTES

PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.

MARK EACH BEAM SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS ON THE FACE OF THE BEAM, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. MARK FASCIA BEAMS ON THE INSIDE FACE. ENSURE ALL MARKINGS ARE STENCILLED AND CLEARLY LEGIBLE. FOR LOCATION OF BEAMS, SEE FRAMING PLAN.

ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET IS INCLUDED IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE SPEC. 2405.

SEE FRAMING PLAN FOR BEAM END MARKED "X".

APPROXIMATE WEIGHT OF BEAM IS 17.55 TONS.

AS AN ALTERNATE TO THE END DIAPHRAGM ANCHORAGES SHOWN, THE CONTRACTOR MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR APPROVAL. ANCHORAGE MUST PROVIDE AN ULTIMATE PULL OUT STRENGTH OF 15 KIPS PER ANCHORAGE.

APPLY AN APPROVED SEALER TO THE SIDES OF THE BEAM NEAR EACH END PER THE SPECIAL PROVISIONS.

- ① MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.
- ② MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.
- ③ DRAPED STRANDS.
- ④ STRAIGHT STRANDS.
- ⑤ USE 7-WIRE LOW RELAXATION PRESTRESSING STRAND, CONFORMING TO ASTM A416, GRADE 270.
- ⑥ FOR INTEGRAL ABUTMENT, SOLE PLATE CAN BE ELIMINATED OR REPLACED WITH AN APPROVED PROTECTION PLATE. BEAMS DETAILED TO INCLUDE A TAPERED PLATE PER STANDARD FIGURE B309 MUST INCLUDE SOLE PLATE.
- ⑦ CENTER OF GRAVITY OF HOLD DOWNS WHEN MULTIPLE HOLD DOWNS ARE USED.
- ⑧ TWO INSIDE BARS MAY BE PLACED ADJACENT TO VERTICAL STIRRUP FOR TYING CONVENIENCE.
- ⑨ STEEL TROWEL TO SMOOTH FINISH AND APPLY BOND BREAKER PER APPROVED PRODUCTS LIST.
- ⑩ ROUGH FLOAT AND BROOM TRANSVERSELY FOR BOND PER SPEC. 2405.3.D.

BEAMS B1-B3

FIG. 5-397.504

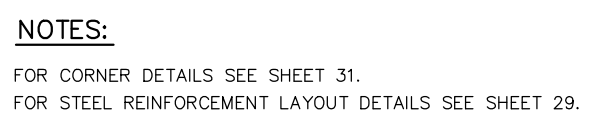
REVISED:

APPROVED: JANUARY 13, 2015




Nancy S. Mendenhall  
STATE BRIDGE ENGINEER

TITLE: 27" PRESTRESSED CONCRETE BEAM (PRETENSIONED) 27M-62





DES: RJH DR: ALB/BS  
CHK: ATN CHK: PLR  
SHEET NO. 27 OF 44 SHEETS  
BRIDGE NO. 27C09

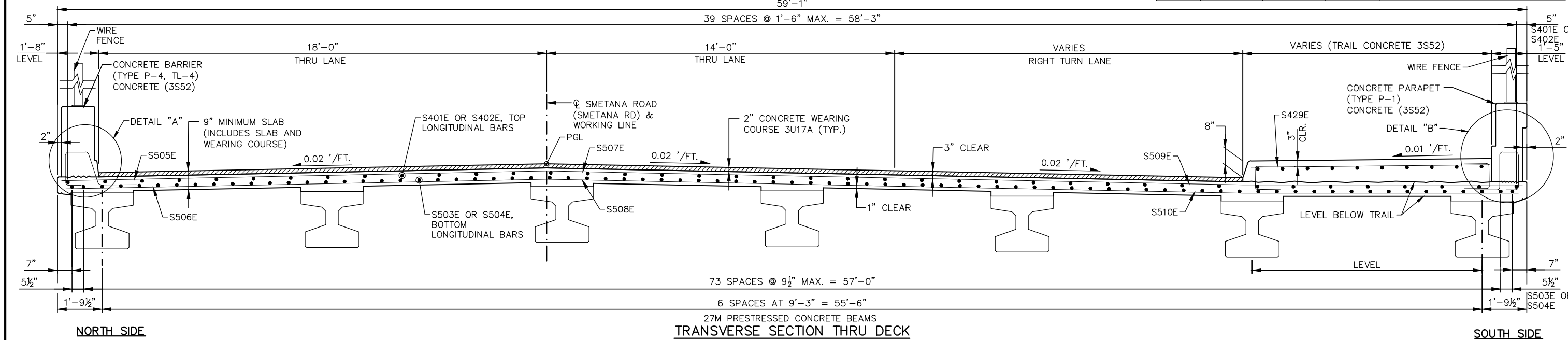


DECK PLAN

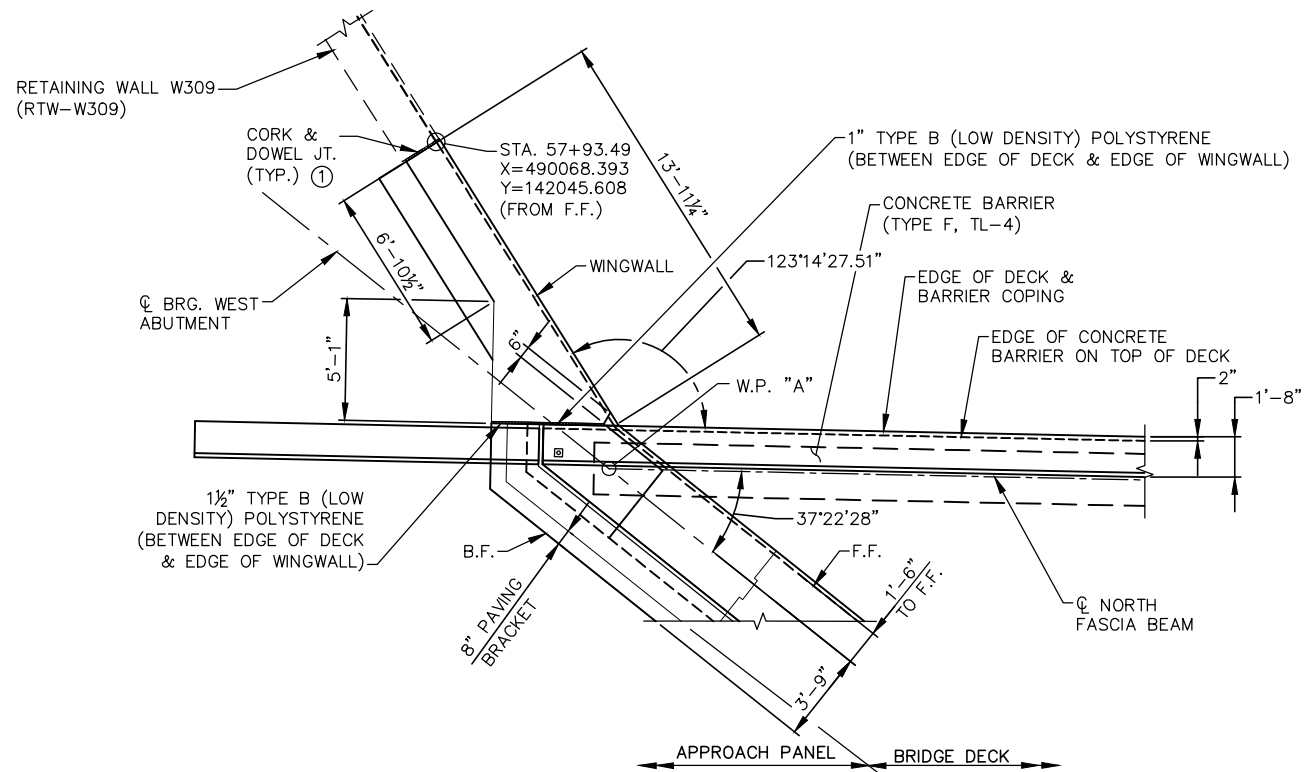
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL		 	<b>CIVIL – VOLUME 4B</b> <b>SMETANA ROAD OVER SOUTHWEST LIGHT RAIL</b> <b>BRIDGE 27C09</b> <b>SUPERSTRUCTURE DETAILS 1</b>		<b>SHEET</b>  <b>28</b>  <b>OF</b>  <b>44</b>
DESIGNED BY: RJH      CHECKED BY: ATN DRAWN BY: ALB/BS      CHECKED BY: PLR						<b>90% SUBMISSION - 01/22/16</b>	DISCIPLINE: <b>STRUCTURES</b> SHEET NAME: <b>CBR27C09-BRG-SUP-004</b>			



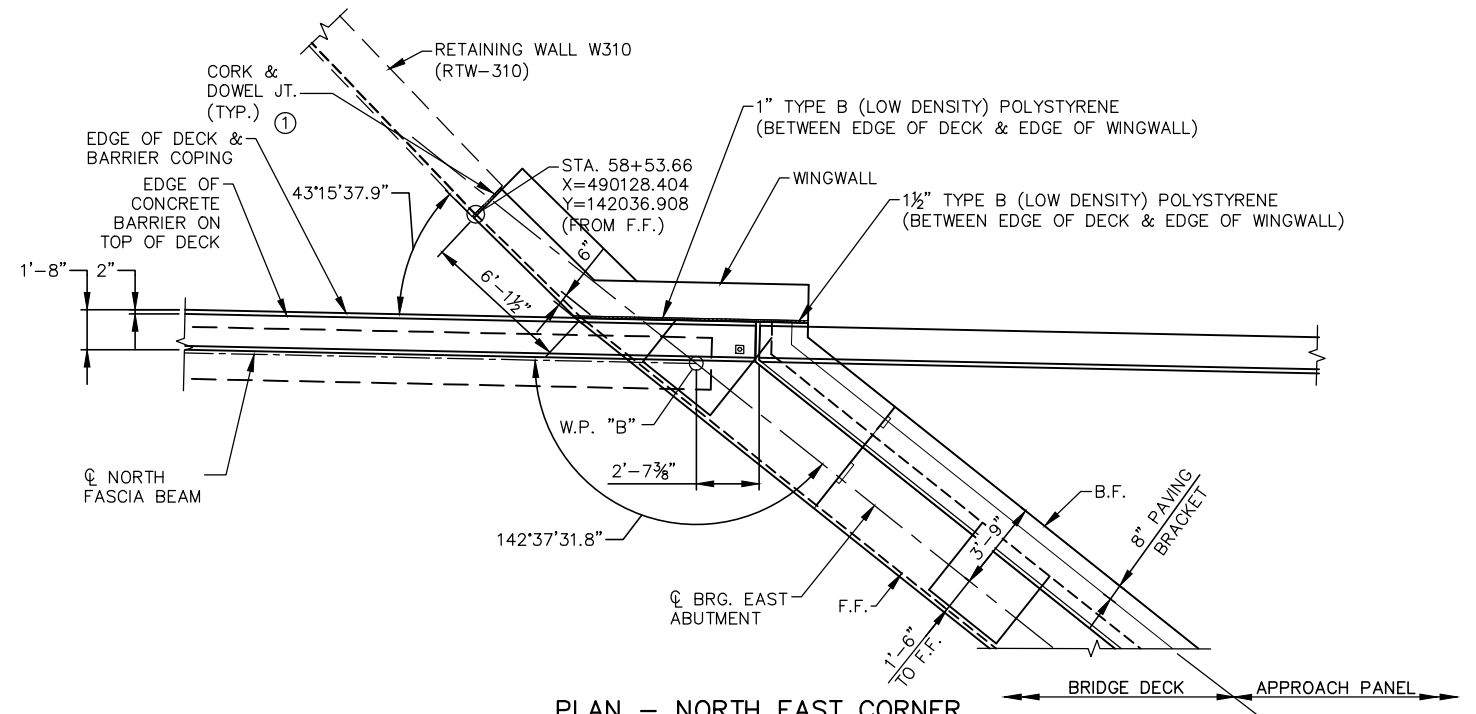
BILL OF REINFORCEMENT FOR SUPERSTRUCTURE				
BAR	NO.	LENGTH	SHAPE	LOCATION
S401E	40	60'- 0"	_____	TOP LONGITUDINAL
S402E	40	8'- 8"	_____	TOP LONGITUDINAL
S503E	76	60'- 0"	_____	BOTTOM LONGITUDINAL
S504E	76	9'- 8"	_____	BOTTOM LONGITUDINAL
S505E	SERIES OF 114	1'- 10" TO 52'- 2"	_____	TOP TRANSVERSE
S506E	SERIES OF 118	1'- 11" TO 52'- 3"	_____	BOTTOM TRANSVERSE
S507E	11	50'- 11"	_____	TOP TRANSVERSE
S508E	11	50'- 11"	_____	BOTTOM TRANSVERSE
S509E	SERIES OF 115	52'- 4" TO 1'- 8"	_____	TOP TRANSVERSE
S510E	SERIES OF 119	52'- 4" TO 1'- 7"	_____	BOTTOM TRANSVERSE
S511E	4	5'- 0"		NW & SE CORNER BARS
S512E	4	10'- 0"	_____	NW & SE CORNER BARS
S513E	8	48'- 9"	_____	ABUTMENT JOINT REINFORCEMENT
S414E	16	47'- 0"	_____	PAVEMENT BLOCK REINFORCEMENT
S415E	1	19'- 10"		SIDEWALK SE CORNER TIE
S416E	SERIES OF 6	1'- 2" TO 6'- 10"	_____	SIDEWALK TRANSVERSE
S417E	1	7'- 3"	_____	SIDEWALK TRANSVERSE
S418E	1	8'- 2"	_____	SIDEWALK TRANSVERSE
S419E	32	9'- 7"	_____	SIDEWALK TRANSVERSE
S420E	SERIES OF 8	10'- 4" TO 9'- 8"	_____	SIDEWALK TRANSVERSE
S421E	SERIES OF 9	9'- 10" TO 1'- 6"	_____	SIDEWALK TRANSVERSE
S422E	1	29'- 10"		SIDEWALK SW CORNER TIE
S423E	SERIES OF 6	0'- 11" TO 7'- 6"	_____	SIDEWALK LONGITUDINAL
S424E	1	16'- 4"	_____	SIDEWALK LONGITUDINAL
S425E	1	17'- 4"	_____	SIDEWALK LONGITUDINAL
S426E	28	18'- 9"	_____	SIDEWALK LONGITUDINAL
S427E	1	13'- 2"	_____	SIDEWALK LONGITUDINAL
S428E	SERIES OF 8	11'- 11" TO 1'- 10"	_____	SIDEWALK LONGITUDINAL
S429E	102	2'- 11"		SIDEWALK ENDS

[illegible]

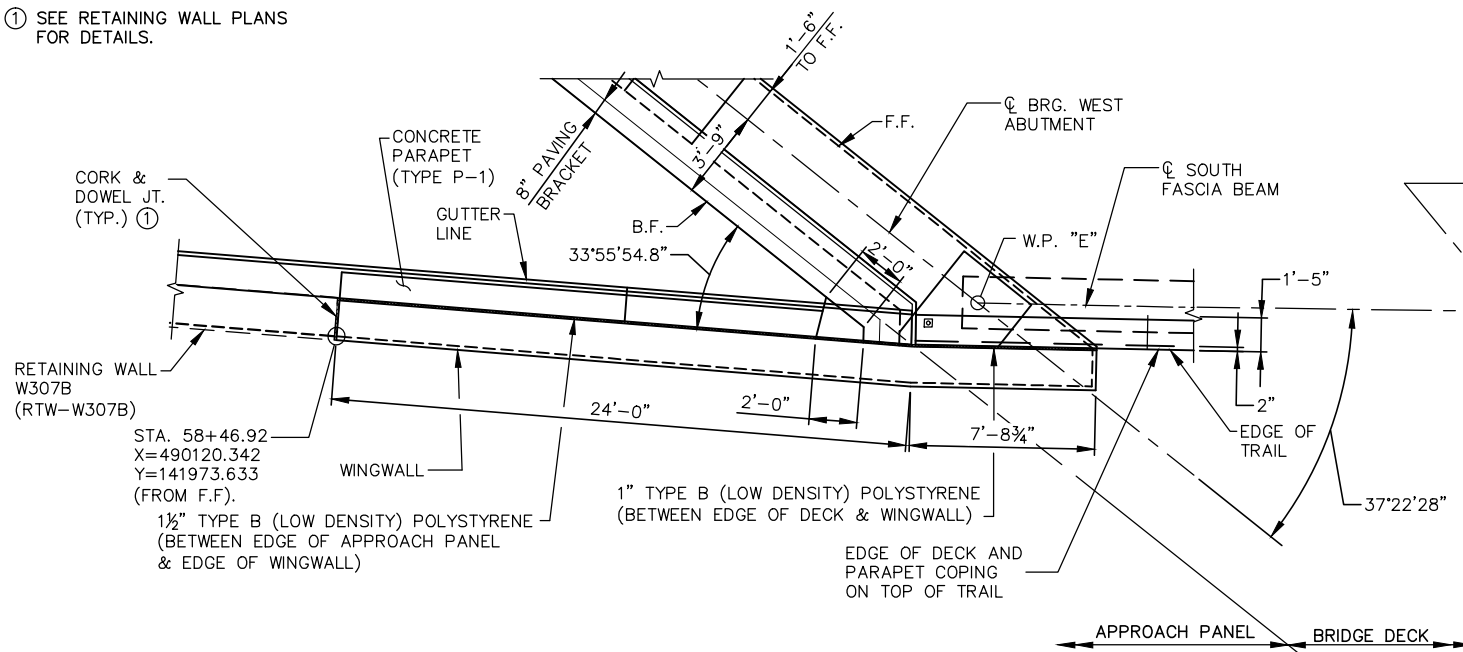
Jan, 14 2016 03:52 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-SUP-007.dwg By: V-Shrestha



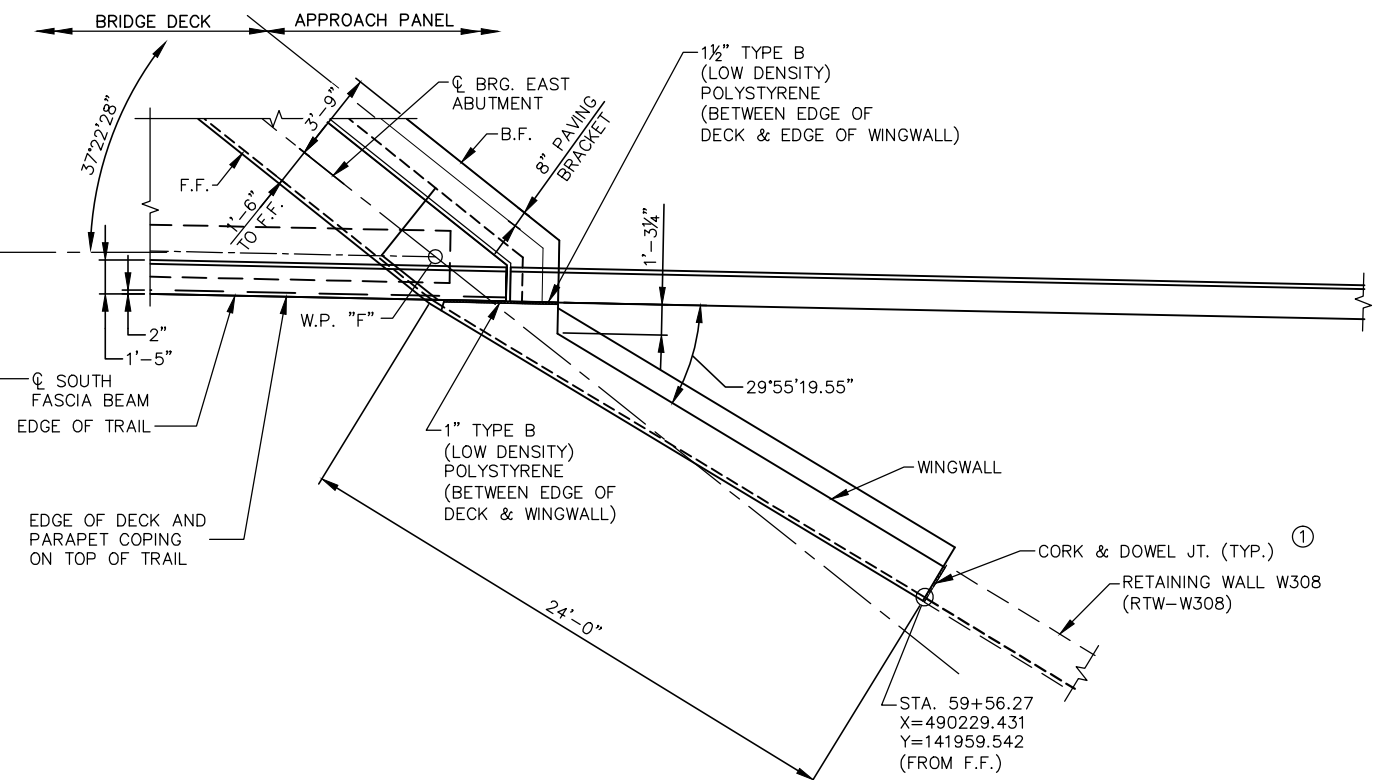
PLAN - NORTH WEST CORNER



PLAN - NORTH EAST CORNER



PLAN - SOUTH WEST CORNER



PLAN - SOUTH EAST CORNER

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB/BS

CHECKED BY: ATN  
CHECKED BY: PLR

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B SMETANA ROAD OVER SOUTHWEST LIGHT RAIL BRIDGE 27C09 CORNER DETAILS	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C09-BRG-SUP-007

SHEET  
31  
OF  
44





$\frac{3}{8}$ " x 12"  
 x 1'-0" PLATE

$\varnothing$  1" STANDARD PIPE  
 1.68 LBS./FT.

$\frac{1}{4}$ " TYP.

1'-3 $\frac{1}{2}$ "

SECTION B-B

(REINFORCEMENT NOT SHOWN)  
 ☆ DIMENSIONS INCLUDE  $\frac{3}{8}$ " PLATE

2" 4" 4" 2"

$\varnothing$  1" DIA. HOLES IN PLATE

$\frac{3}{8}$ " x 12"  
 x 1'-0" PLATE

3 $\frac{1}{2}$ " 6" 6" 3 $\frac{1}{2}$ "

GUARDRAIL CONNECTION DETAIL

GALVANIZE AFTER FABRICATION PER Mn/DOT SPEC. 3394  
 ESTIMATED WEIGHT = 22 LBS

DEFLECTION JOINT DETAILS  
ESTIMATED QUANTITY OF CORK PER JOINT = 2.15 SQ. FT.

BARRIER MEETS TEST LEVEL 4 REQUIREMENTS OF NCHRP REPORT 350

Technical drawing of a square plate with dimensions: 1'-0" width, 1'-4" height, 10 1/2" top width, 1'-5" slanted left side, and a 3-1 slope indicator.

Ⓐ R508E

R502E, R503E,  
~~R504E & R505E~~

SECTION C-C

SHEET MODIFICATION:  
 (A) DENOTES MODIFICATION  
 TO STANDARD SHEET

BILL OF REINFORCEMENT FOR BARRIER				
BAR	NO.	LENGTH	SHAPE	LOCATION
R501E	84	5'-7"	BENT	BARRIER VERTICAL
R502E	88	7'-11"	BENT	BARRIER VERTICAL
R503E	4	5'-11"	BENT	BARRIER VERTICAL
<del>R504E</del>	<del>=====</del>	<del>7'-5"</del>	<del>BENT</del>	<del>BARRIER VERTICAL</del>
<del>R505E</del>	<del>=====</del>	<del>7'-3"</del>	<del>BENT</del>	<del>BARRIER VERTICAL</del>
<del>R706E</del>	<del>=====</del>	<del>6'-7"</del>	<del>BENT</del>	<del>BARRIER END</del>
<del>R407E</del>	<del>=====</del>	<del>2'-8"</del>	<del>BENT</del>	<del>BARRIER END LONGIT.</del>
R508E	4	5'-1"	BENT	BARRIER VERTICAL
R409E	8	34'-3"	-----	BARRIER LONGITUDINAL
R410E	28	9'-1"	-----	BARRIER LONGITUDINAL
R411E	8	1'-0"	-----	BARRIER LONGITUDINAL
R412E	8	0'-9"	-----	BARRIER LONGITUDINAL

## GENERAL NOTES

~~LENGTH OF "TYPE P-4 (TL-4) RAILING CONCRETE (3Y46 OR 3Y46A)" FOR PAYMENT SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE BARRIER.~~

CONCRETE BARRIER = 579 LBS./FT. (0.143 CU. YDS./FT.)

FINISH ALL EDGES OF BARRIER WITH " VEE, EXCEPT  
WHERE OTHERWISE NOTED.

MAXIMUM SPACING OF CONCRETE DEFLECTION JOINTS  
SHALL BE 20 FT.

SEE SUPERSTRUCTURE SHEET FOR JOINT SPACING.

~~GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL,  
Mn/DOT SPEC. 3306.~~

~~GALVANIZE STRUCTURAL STEEL PER Mn/DOT SPEC. 3394  
AFTER FABRICATION.~~

~~GUARDRAIL CONNECTION, CORK, AND NAME PLATE TO BE  
CONSIDERED INCIDENTAL TO "TYPE P-4 (TL-4) RAILING  
CONCRETE (3Y46 OR 3Y46A)".~~

~~BARRIER QUANTITIES ARE LISTED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.~~

REVISED: 04-17-2013

APPROVED: JULY 25, 2005

— *Samuel S. Wagon*  
STATE BRIDGE ENGINEER

CERTIFIED BY

LICENSED PROFESSIONAL ENGINEER

DATE \_\_\_\_\_

NAME: PATRICK L RIVARD

LIC. NO. 21168

TITLE	
-------	--

CONCRETE BARRIER (TYPE P-4, TL-4)  
WITH INTEGRAL END POST  
(WITH CONC. WEARING COURSE)

DES: R.JH

R.J.H.

DR: ALB/F

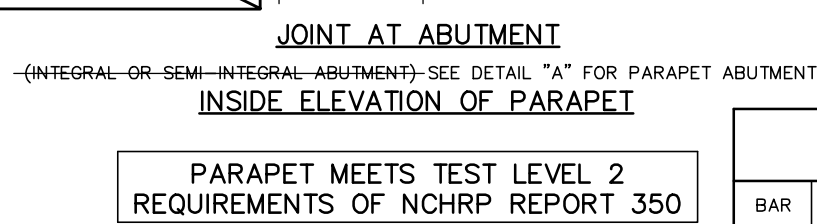
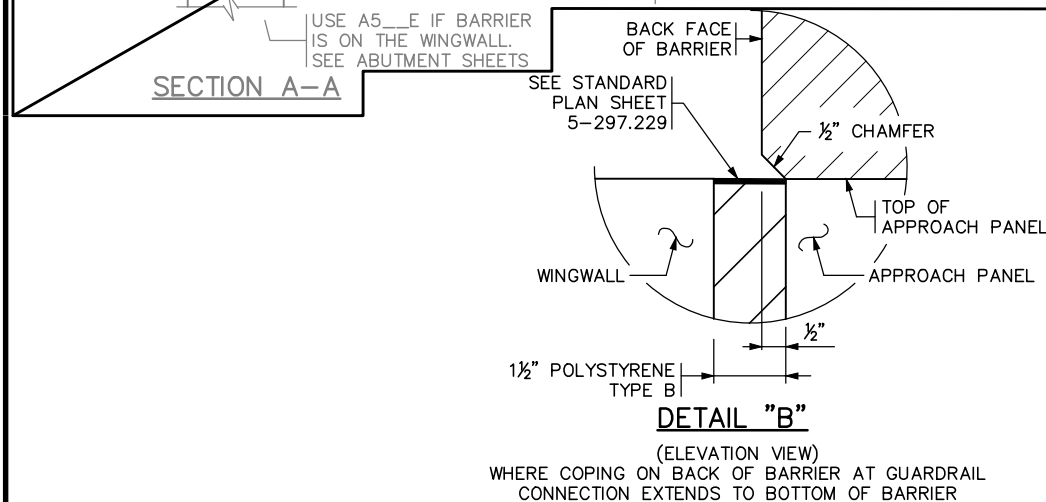
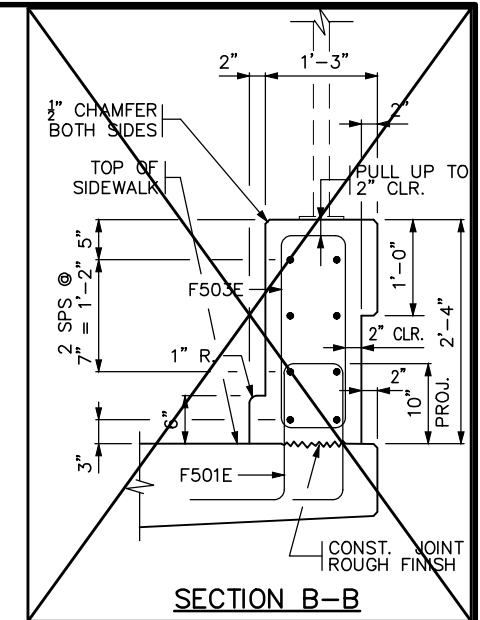
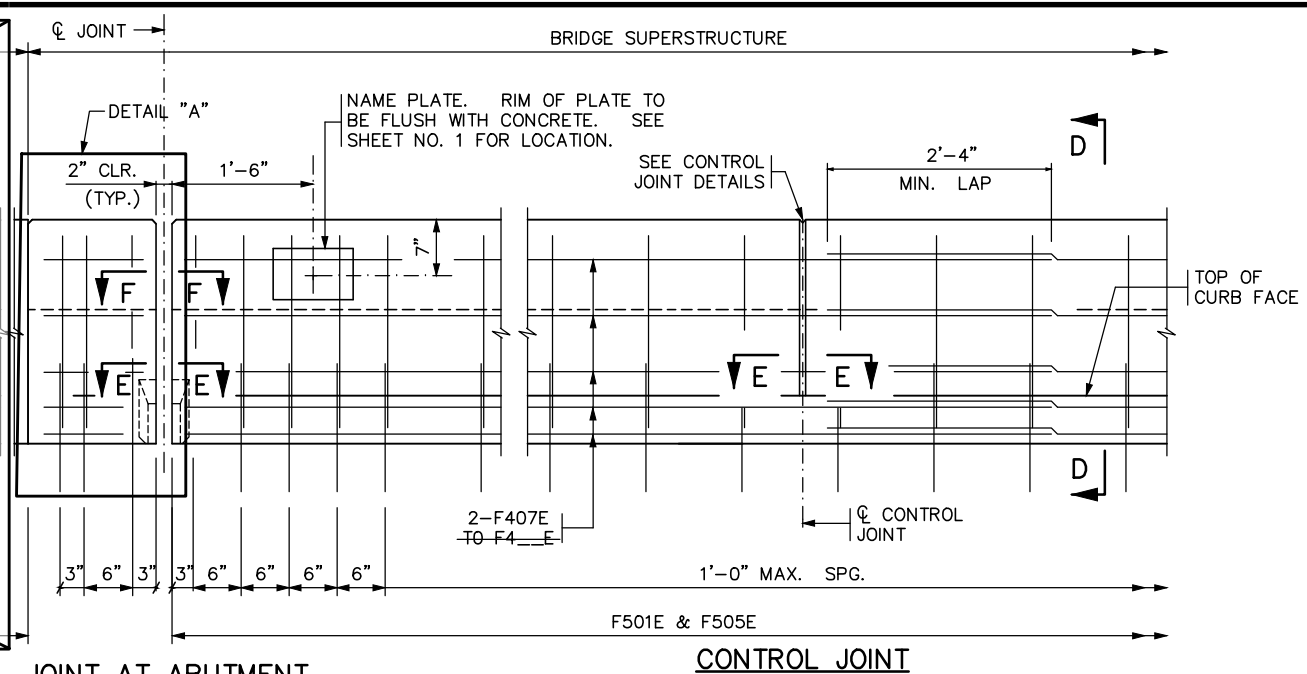
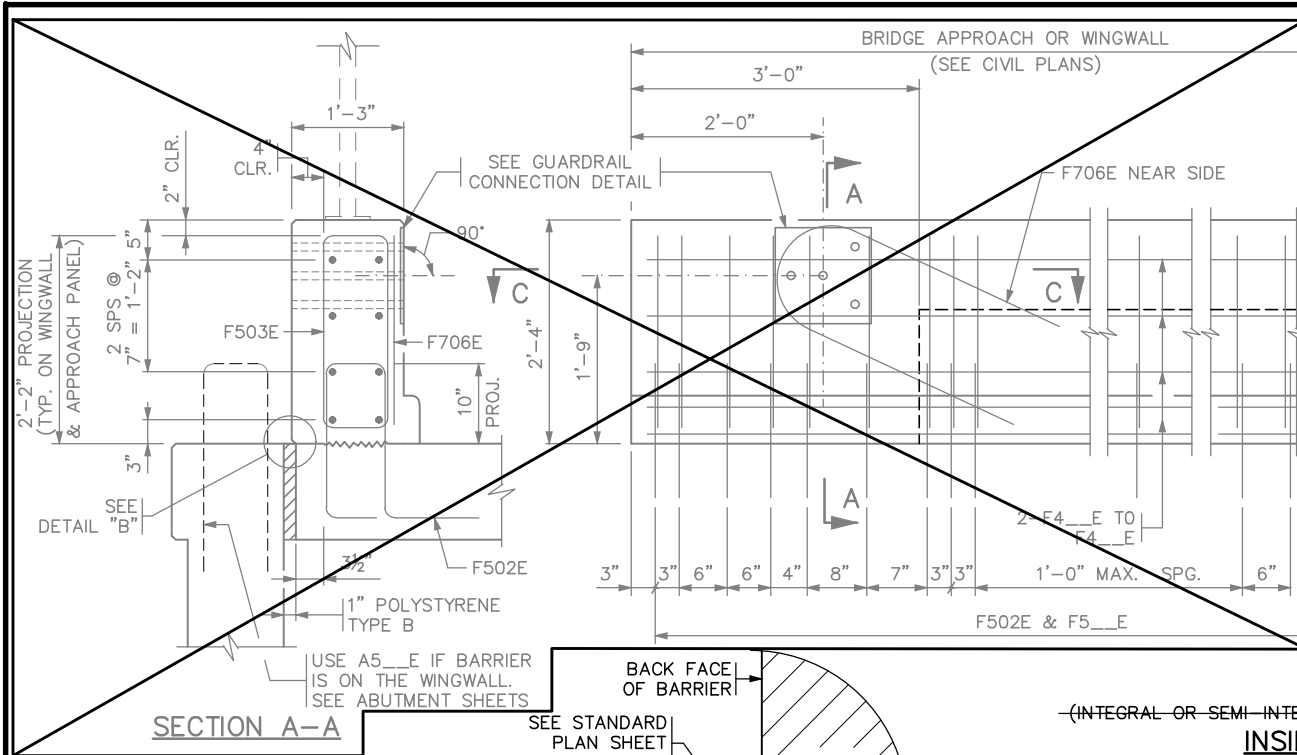
CHK:	PI P
------	------

APPROVED:

SHEET NO. 33 OF 44 SHEETS

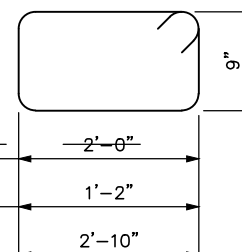
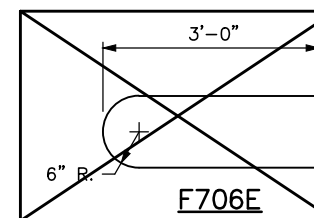
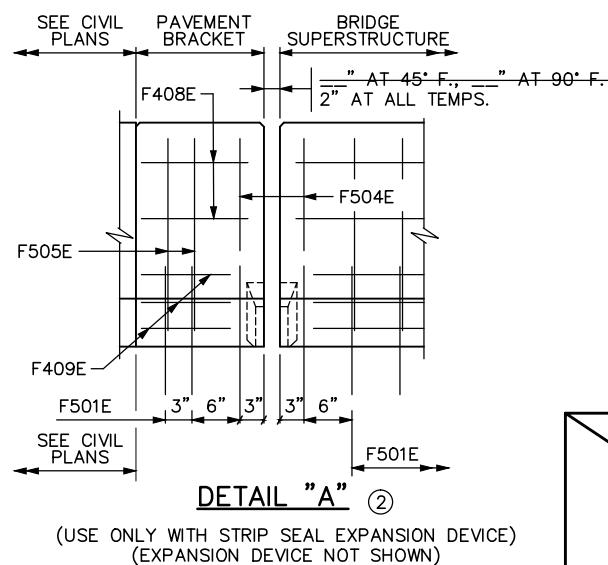
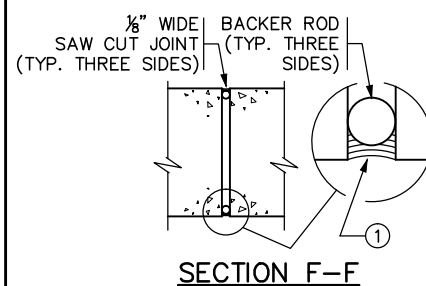
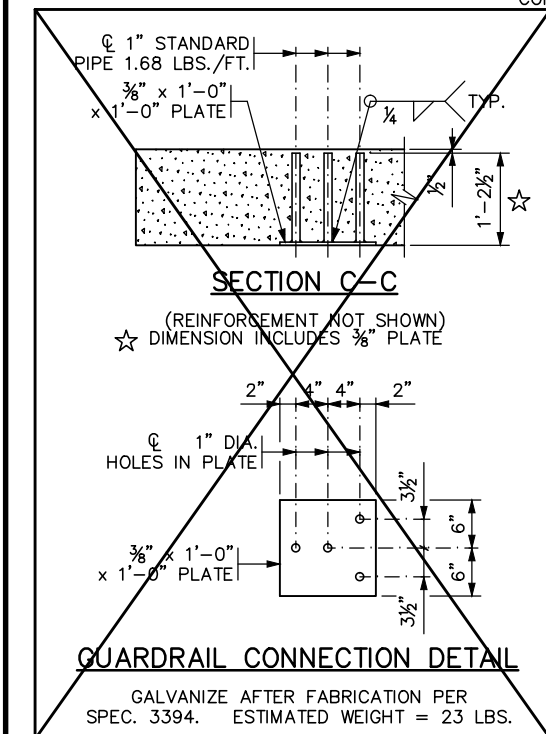
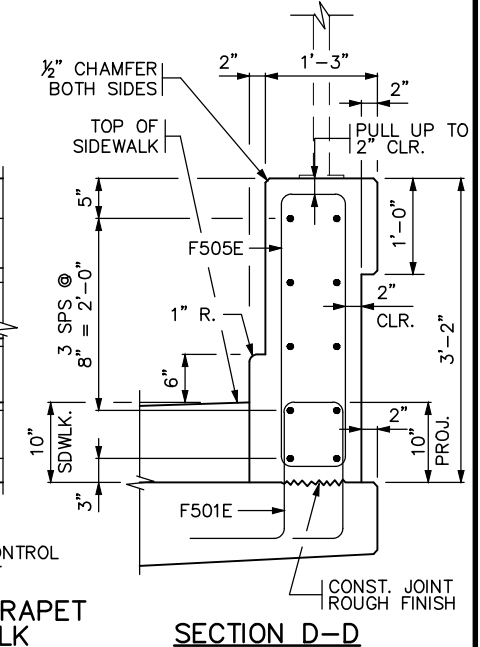
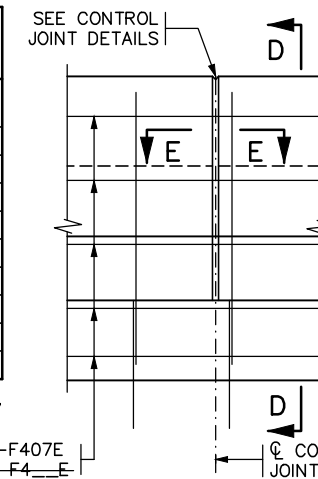
FIG. 5-397.173 MOD.

BRIDGE NO.  
**27C09**



BILL OF REINFORCEMENT FOR PARAPET				
BAR	NO.	LENGTH	SHAPE	LOCATION
F501E	75	5'-2"	□	PARAPET VERTICAL
F502E	—	5'-4"	□	PARAPET VERTICAL
F503E	—	6'-5"	□	PARAPET VERTICAL
F504E	4	4'-9"	□	PARAPET VERTICAL
F505E	75	8'-1"	□	PARAPET VERTICAL
F706E	—	6'-7"	□	PARAPET VERTICAL
F407E	20	34'-10"	—	PARAPET LONGIT.
F408E	6	1'-0"	—	PARAPET LONGIT.
F409E	4	0'-9"	—	PARAPET LONGIT.

\* F504E WHEN STRIP SEAL EXPANSION DEVICE IS USED, WITHOUT RAISED SIDEWALK. (SEE DETAIL "A")



### GENERAL NOTES

- CONTINUOUSLY GROUND ALL METAL RAILINGS; SEE THE SPECIAL PROVISIONS. REFER TO THE ELECTRICAL PLANS AND ELECTRICAL SPECIAL PROVISIONS FOR DETAILS REGARDING BONDING MULTIPLE ELECTRICAL GROUNDING SYSTEMS.
- PAYMENT LENGTH SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE PARAPET.
- CONCRETE PARAPET = 416 LBS./FT. (0.103 CU. YDS./FT.)
- CONCRETE PARAPET W/ADJACENT SIDEWALK (BASED ON A 10" SIDEWALK HEIGHT) = 573 LBS./FT. (0.141 CU. YDS./FT.)
- FINISH ALL EDGES OF PARAPET WITH " CHAMFER, EXCEPT WHERE OTHERWISE NOTED.
- MAXIMUM SPACING OF CONTROL JOINTS ON SUPERSTRUCTURE, APPROACH AND WINGWALL SHALL BE 10 FT. SEE SUPERSTRUCTURE SHEET FOR JOINT SPACING.
- GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL, SPEC. 3306. GUARDRAIL CONNECTION AND NAME PLATE TO BE CONSIDERED INCIDENTAL TO "TYPE P-1 PARAPET CONCRETE (3Y46 OR 3Y46A)".
- SEE STANDARD FIGURE 5-397 FOR LIGHT BLISTER DETAILS.
- PARAPET QUANTITIES ARE LISTED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.
- ① JOINT SEALANT PER MnDOT APPROVED/QUALIFIED PRODUCTS LIST - CRACK AND JOINT MATERIALS - SILICONE JOINT SEALERS.
- ② REFER TO STANDARD FIGURE 5-397.632 FOR COVER PLATE DETAILS.

REVISION:

APPROVED: NOVEMBER 6, 2013

Nancy Subenberger

STATE BRIDGE ENGINEER

SECTION E-E

CONTRACTOR OPTION 1

SECTION E-E

CONTRACTOR OPTION 2

CONTROL JOINT DETAILS

WHEN USING SLIP FORM METHOD TO PLACE THE CONCRETE, CUT JOINT 3 INCHES DEEP USING MARGIN TROWEL OR SIMILAR MEANS IMMEDIATELY AFTER CONCRETE PLACEMENT (TYP. THREE SIDES)

CERTIFIED BY

LICENSED PROFESSIONAL ENGINEER

DATE

NAME: PATRICK L RIVARD

LIC. NO. 21168

TITLE:

CONCRETE PARAPET (TYPE P-1)

WITH INTEGRAL END POST

(WITHOUT CONCRETE WEARING COURSE)

DES: RJH

DR: ALB/BS

CHK: ATN

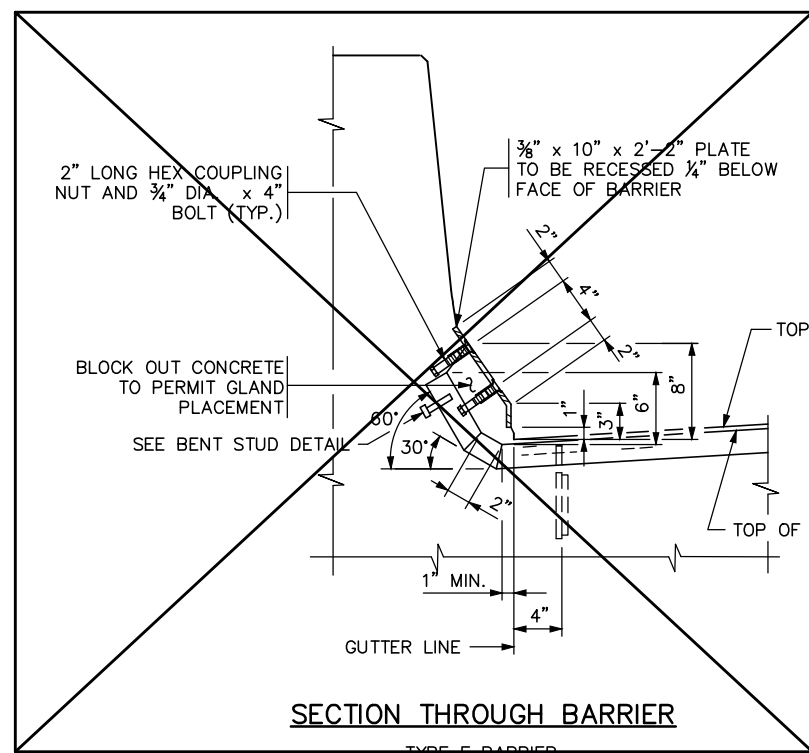
CHK: PLR

APPROVED:

BRIDGE NO. 27C09

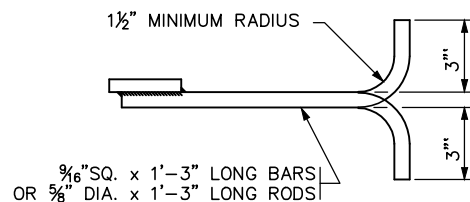
SHEET NO. 34 OF 44 SHEETS

Jan, 18 2016 08:56 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09\BRG-DTL-009.dwg By: V-Shrestha

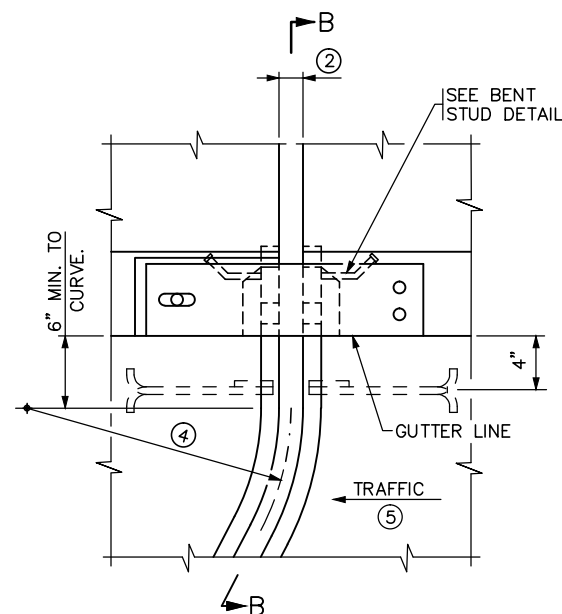


SECTION THROUGH BARRIER

TYPE F BARRIER



BAR-ROD DETAIL



PLAN VIEW @ EXPANSION DEVICE

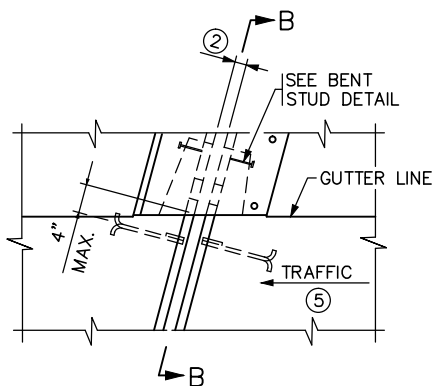
WITH CURVED DEVICE ALTERNATE

1" DIA. x 6" LONG SLOTTED HOLE FOR 3/4" DIA. x 1 1/2" FLATHEAD CAP SCREW WITH 1/2" SQUARE OR HEX SOCKET. APPLY BRIDGE BEARING LUBRICANT PER MnDOT APPROVED PRODUCTS LIST TO SCREW THREADS.

2" LONG HEX COUPLING NUT AND 3/4" DIA. x 4" BOLT. DO NOT TIGHTEN DOWN CAP SCREW. SEE DETAIL "A".

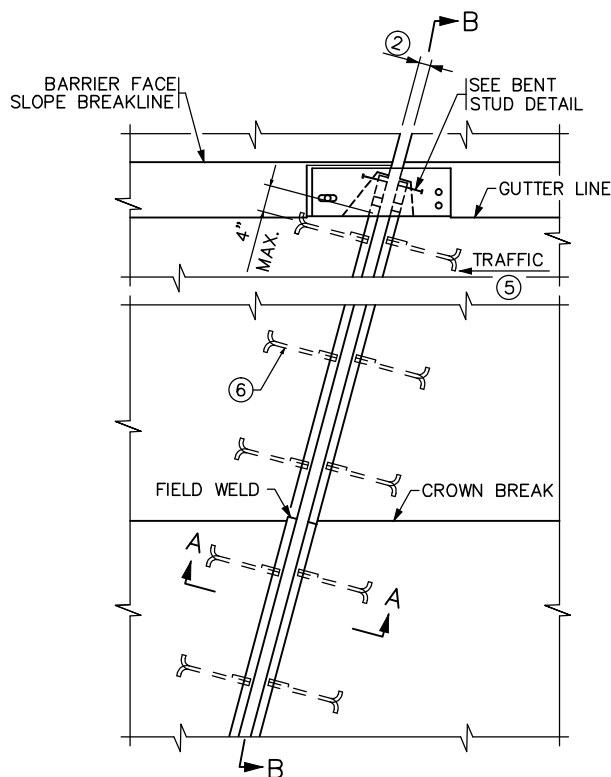
7 1/2" BIT. FELT OR EQUAL

BLOCK OUT FLARED AREA AS SHOWN FOR GLAND INSTALLATION



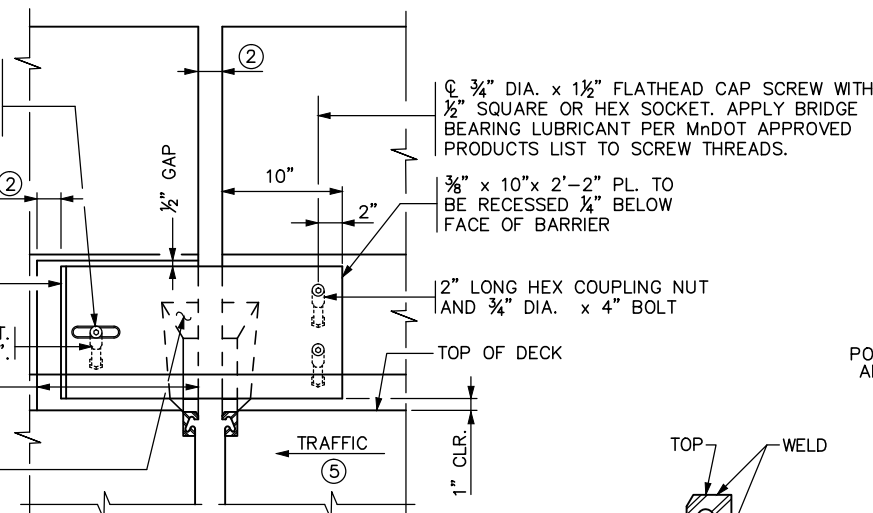
PLAN VIEW @ EXPANSION DEVICE

MEDIAN OR SIDEWALK ALTERNATE

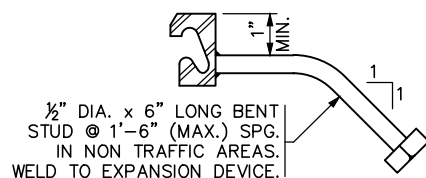


PLAN VIEW @ EXPANSION DEVICE

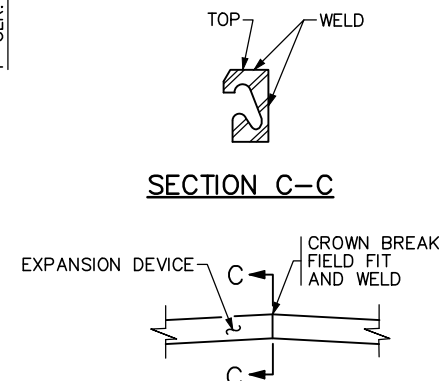
WITH STRAIGHT DEVICE



BARRIER ELEVATION

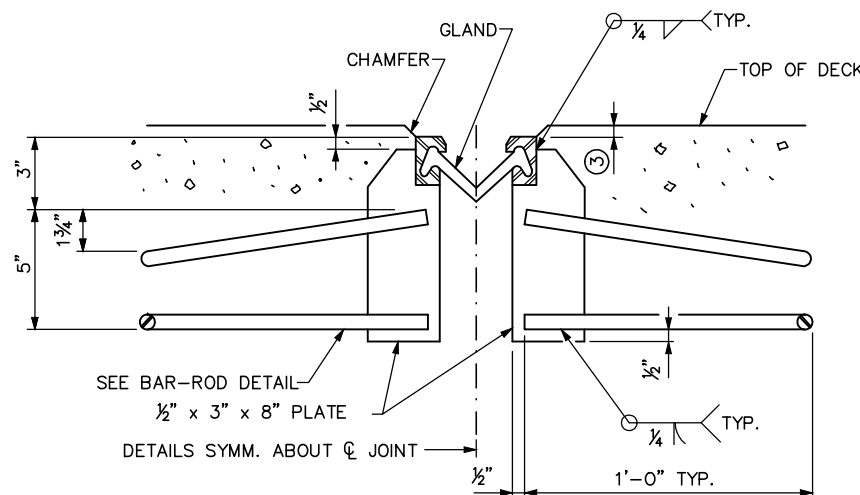


BENT STUD DETAIL

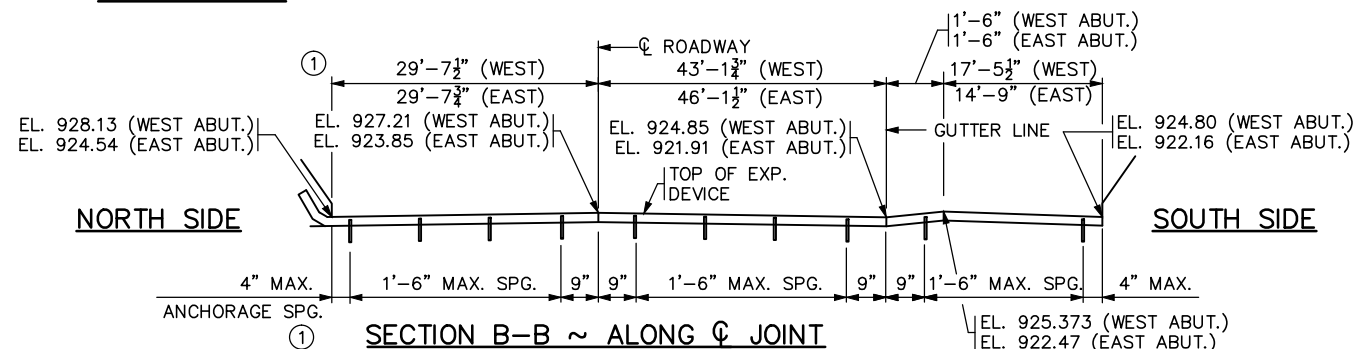


SECTION C-C

DETAIL "B"

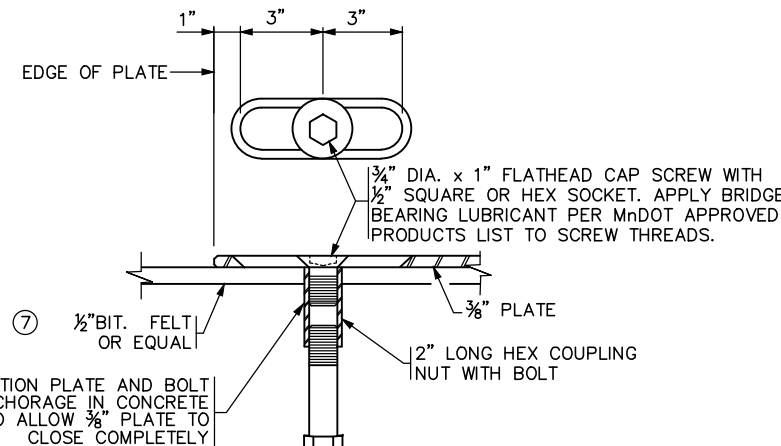


SECTION A-A



SECTION B-B ~ ALONG Q JOINT

ELEVATIONS SHOWN ARE 1/8" BELOW TOP OF SLAB @ Q JOINT  
ELEVATIONS SHOWN ARE 1/2" BELOW TOP OF SLAB @ Q JOINT



DETAIL "A"

GENERAL NOTES

GALVANIZE STRUCTURAL STEEL AFTER FABRICATION AS PER SPEC. 3394. GALVANIZE FASTENERS AS PER SPEC. 3392.

JOINTS IN EXTRUSION SHALL BE LOCATED AT BREAKS IN TRANSVERSE PROFILE AND AS OTHERWISE REQUIRED. JOINTS SHALL BE CLOSE FIT AND WELDED. REPAIR AFTER WELDING AS PER SPEC. 2471.3L.

STRUCTURAL STEEL SHALL COMPLY WITH SPEC. 3306 OR SPEC. 3309.

EXPANSION DEVICE SHALL BE STRAIGHTENED TO A TOLERANCE OF 1/8" IN 10 FT.

3/4" DIA. X 1" FLATHEAD CAP SCREW WITH 1/2" SQUARE OR HEX SOCKET PER SPEC 3391. CAP SCREWS SHALL BE COUNTERSUNK 1/8" BELOW TOP OF PLATE. APPLY BRIDGE BEARING LUBRICANT PER MnDOT APPROVED PRODUCTS LIST TO SCREW THREADS

LENGTH OF PAYMENT FOR DEVICE IS FROM OUTER END TO OUTER END OF EXTRUSION ALONG CENTERLINE OF JOINT. REFER TO THE SPECIAL PROVISIONS FOR MORE SPECIFIC PAYMENT INFORMATION.

- DIMENSIONS ARE ALONG CENTERLINE OF JOINT.
- AT 45° F; AT 90° F. 2" AT ALL TEMPS.
- 1/2" (1" MAX.) WHEN SNOWPLOW FINGERS ARE USED. SNOWPLOW FINGERS ARE REQUIRED FOR SKEWS OVER 15' AND LESS THAN 50'.
- SEE SUPERSTRUCTURE DETAILS FOR RADIUS.
- SEE SHEET NO. 1 FOR DIRECTION OF TRAFFIC.
- PLACE BAR-ROD NORMAL TO JOINT ON NEW BRIDGES AND JOINT REPLACEMENTS. ON JOINT REPLACEMENTS WHEN SKEW IS OVER 15' AND LESS THAN 50' BEND RODS PARALLEL TO Q ROADWAY.
- USE THE LARGEST SINGLE PIECE POSSIBLE. USE OF SMALL PIECES OR SCRAPS SECURED TOGETHER IS PROHIBITED.

REVISION: 09-11-2014  
APPROVED: NOVEMBER 6, 1995

Donald J. Planning  
STATE BRIDGE ENGINEER

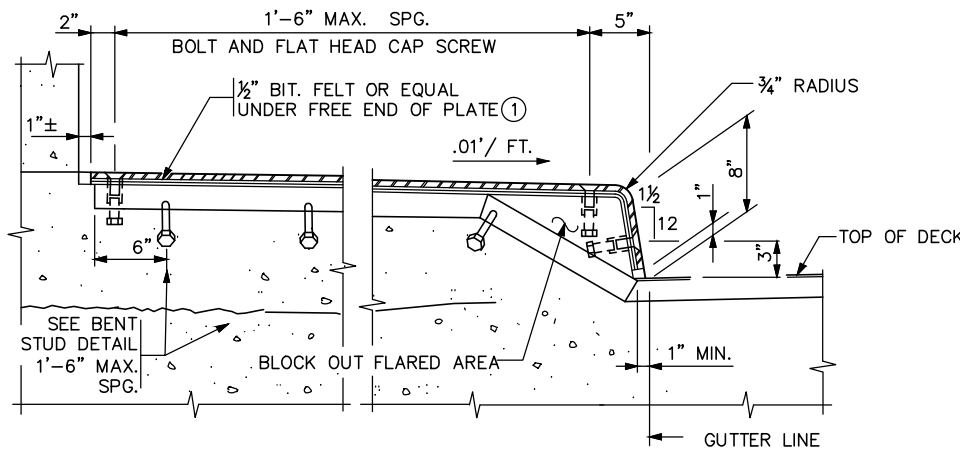
CERTIFIED BY: \_\_\_\_\_  
LICENSED PROFESSIONAL ENGINEER  
NAME: PATRICK L RIVARD  
DATE: \_\_\_\_\_  
LIC. NO. 21168

TITLE: WATERPROOF  
EXPANSION DEVICE  
(WITH TYPE F BARRIER)

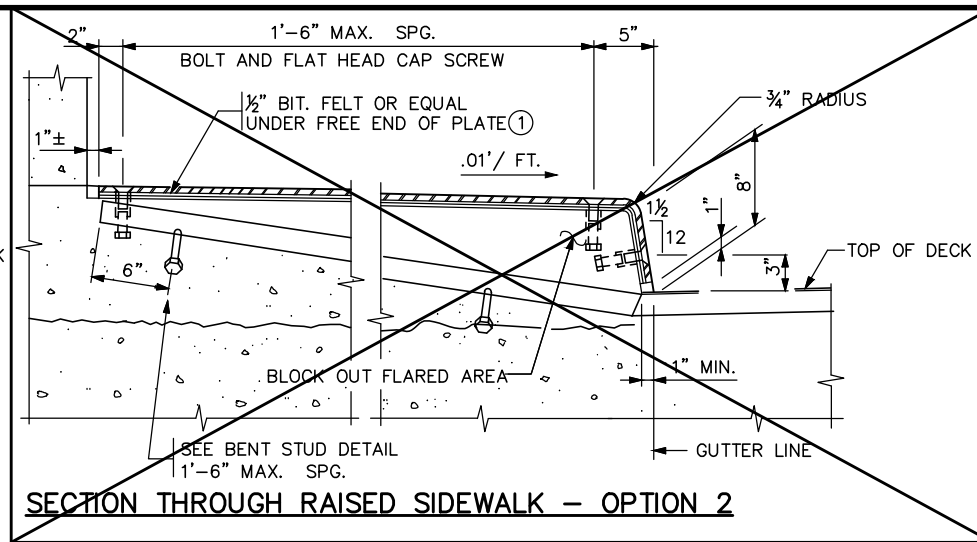
DES: RJH DR: ALB/BS  
CHK: ATN CHK: PLR  
SHEET NO. 35 OF 44 SHEETS  
APPROVED: \_\_\_\_\_  
BRIDGE NO. 27C09

FIG. 5-397.627 MOD.

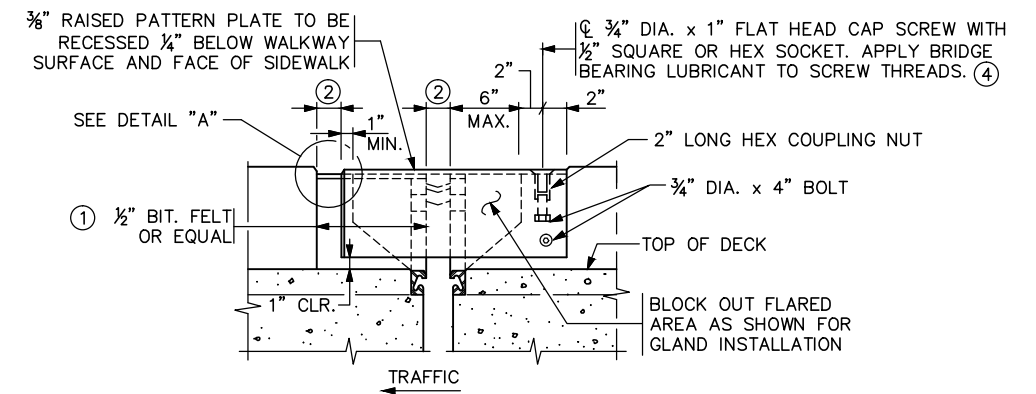
Jan, 15 2016 04:30 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-DTL-010.dwg By: V-Shrestha



SECTION THROUGH RAISED SIDEWALK - OPTION 1

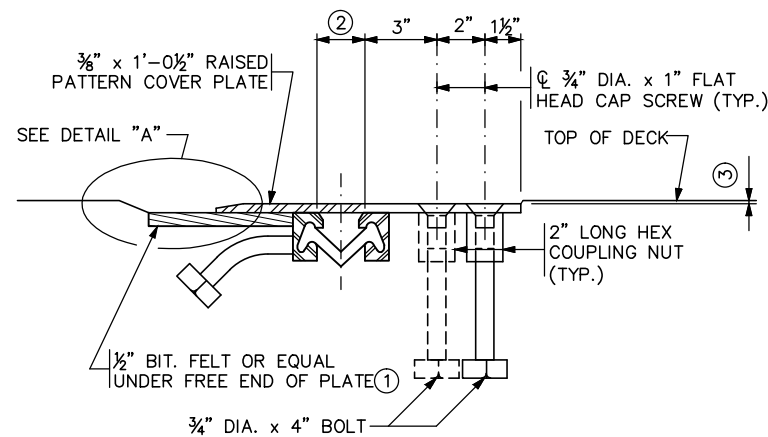


SECTION THROUGH RAISED SIDEWALK - OPTION 2



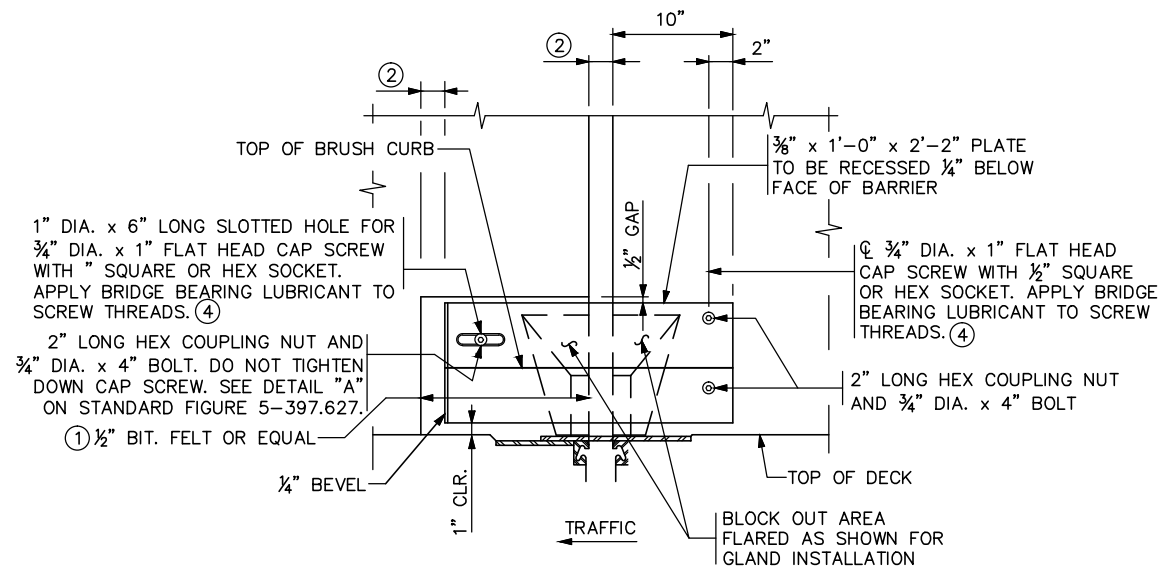
ELEVATION

RAISED SIDEWALK DETAILS



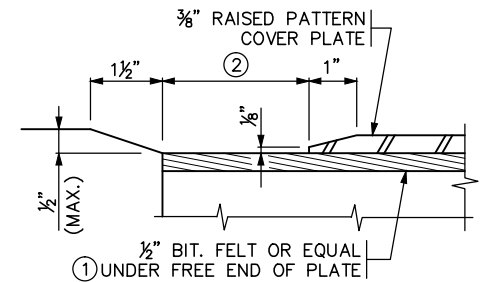
SECTION D-D

NOTE:  
TRANSVERSE DECK REINFORCEMENT MAY BE  
SHIFTED THE MINIMUM DISTANCE REQUIRED  
FOR EXPANSION DEVICE PLACEMENT



ELEVATION

(CONCRETE PARAPET BARRIER AND BACK OF TYPE F BARRIER)



DETAIL "A"

### GENERAL NOTES

SEE STANDARD FIGURE 5-397.627 FOR ADDITIONAL  
DETAILS AND NOTES.

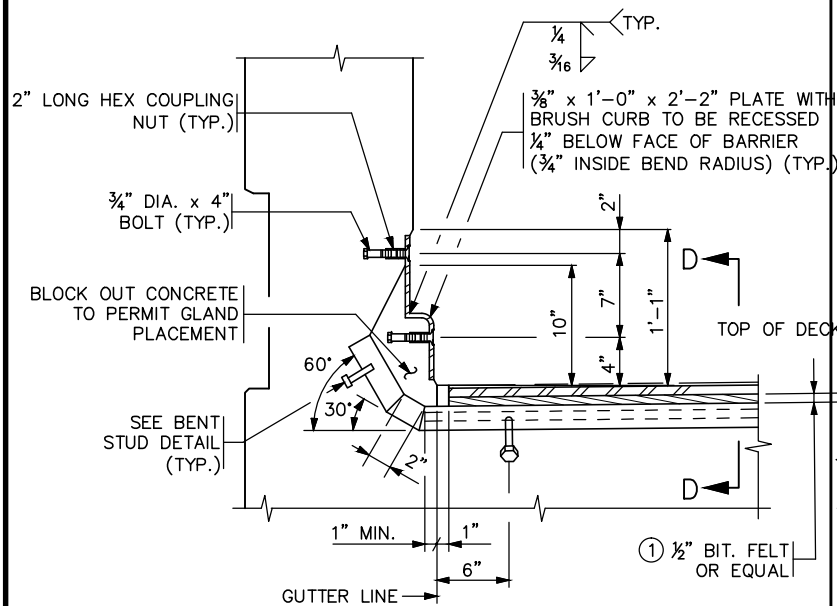
3/4" DIA. X 1" FLAT HEAD CAP SCREW WITH 1/2" SQUARE OR  
HEX SOCKET PER SPEC 3391. CAP SCREWS SHALL BE  
COUNTERSUNK 1/8" BELOW TOP OF PLATE. APPLY BRIDGE  
BEARING LUBRICANT TO SCREW THREADS. (4)

(1) USE LARGEST SINGLE PIECE POSSIBLE. USE OF SMALL  
PIECES OR SCRAPS SECURED TOGETHER IS PROHIBITED.

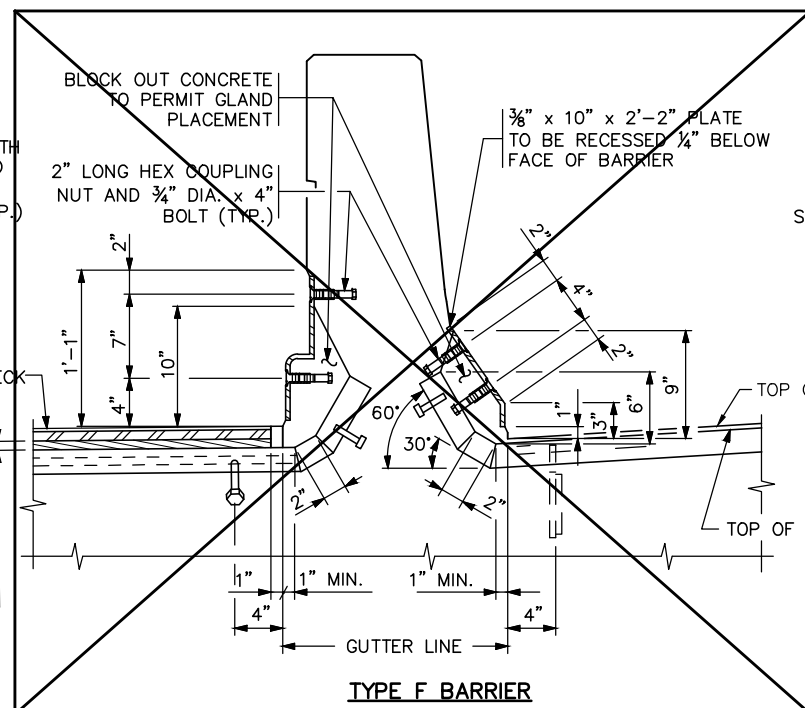
(2) SEE NOTE (2) ON STANDARD FIGURE 5-397.627.

(3) 1/8" (1/4" MAX.).

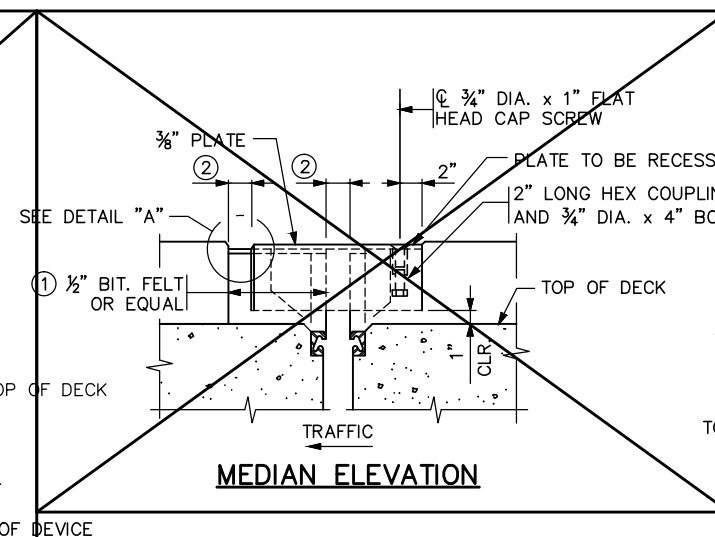
(4) LUBRICANT PER MnDOT APPROVED/QUALIFIED PRODUCTS  
LIST: BRIDGE - BRIDGE BEARING LUBRICANT.



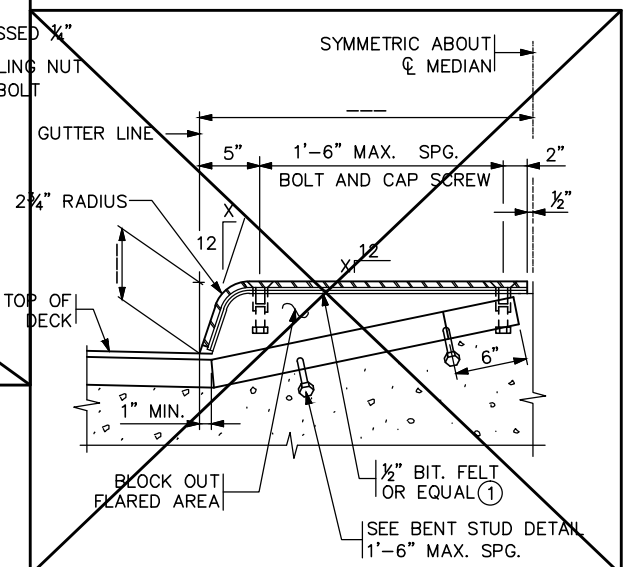
CONCRETE PARAPET BARRIER



TYPE F BARRIER



MEDIAN ELEVATION



MEDIAN SECTION

FIG. 5-397.630 MOD.

REVISION: 11-06-2013  
APPROVED: SEPTEMBER 26, 2003  
*Samuel L. Rivard*  
STATE BRIDGE ENGINEER

SECTION THROUGH BARRIERS - INTEGRAL SIDEWALK

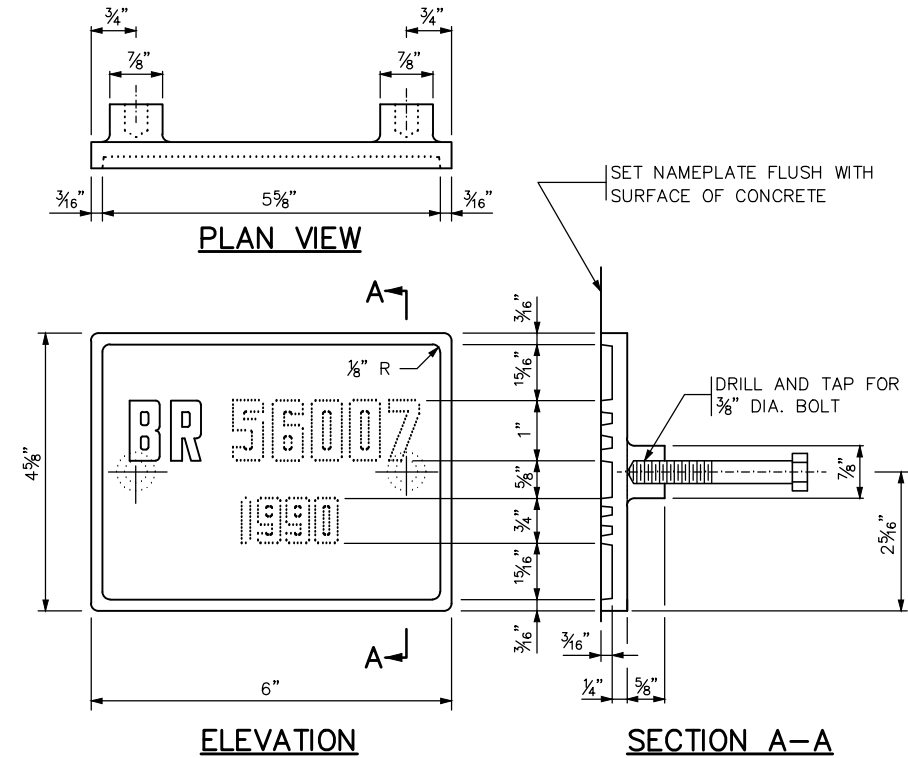
CERTIFIED BY \_\_\_\_\_  
LICENSED PROFESSIONAL ENGINEER DATE \_\_\_\_\_  
NAME: PATRICK L RIVARD LIC. NO. 21168

TITLE: WATERPROOF  
EXPANSION DEVICE  
(RAISED MEDIAN OR SIDEWALK WITH PARAPET)

DES: RJH DR: ALB/BS  
CHK: ATN CHK: PLR  
APPROVED: \_\_\_\_\_  
SHEET NO. 36 OF 44 SHEETS

BRIDGE NO.  
27C09

Jan, 18 2016 09:12 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-DTL-004.dwg By: V-Shrestha



THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION.  
DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

BRIDGE 27C09  
YEAR 2018

1234567890  
NUMBERS FOR NAMEPLATE

**NOTES:**

- MATERIAL SHALL COMPLY WITH SPEC. 3327.
- LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.
- DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".
- HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.
- TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.
- FURNISH 2 STEEL BOLTS 3/8" DIA. x 3" LONG WITH EACH PLATE.
- ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR 1" HIGH LETTERS AND NUMBERS.

APPROVED: NOVEMBER 22, 2002

*V-Shrestha*  
STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
**BRIDGE NAMEPLATE**  
(FOR NEW BRIDGES)

REVISION  
09-11-2014

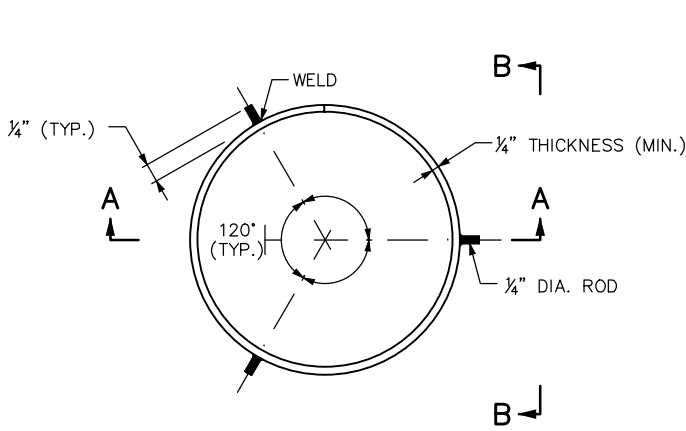
DETAIL NO.  
**B101**

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

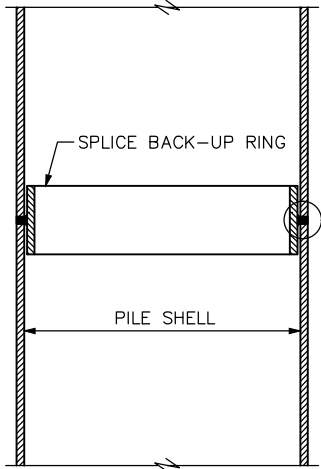
DESIGNED BY: RJH  
DRAWN BY: ALB/BS  
CHECKED BY: ATN  
CHECKED BY: PLR

**AECOM**

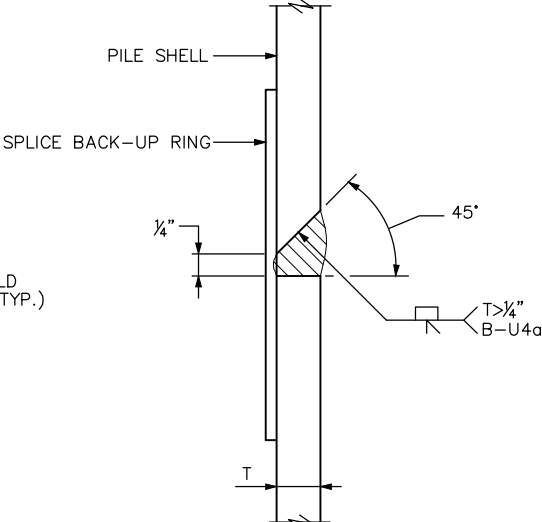
90% SUBMISSION - 01/22/16



PLAN VIEW – SPLICE BACK-UP RING  
PILE NOT SHOWN



SECTION A-A



DETAIL "A" ①

**NOTES:**

- APPROVED COMMERCIAL PILE SPLICE BACK-UP RING MAY BE USED IN LIEU OF THE TYPE DETAILED, PROVIDED THAT 1/4" ROOT IS MAINTAINED. BACK-UP RING SHALL HAVE A TIGHT FIT.
- WELDING ELECTRODES SHALL BE CELLULOSIC TYPE ELECTRODES E-6010 OR E-6011.
- ELECTRODES WHICH HAVE BECOME WET, SOILED OR DAMAGED SHALL NOT BE USED.
- WELDING SHALL NOT BE DONE WHEN THE AMBIENT TEMPERATURE IS LOWER THAN 0°F. OR WHEN THE PILE IS WET OR EXPOSED TO FALLING RAIN OR SNOW. WHEN THE PILE METAL TEMPERATURE IS BELOW 32°F, THE PILE METAL IN THE AREA OF THE WELD SHALL BE HEATED TO A MINIMUM TEMPERATURE OF 70°F. AND MAINTAINED AT THIS TEMPERATURE DURING WELDING.
- ① FOR PILE SHELL THICKNESSES GREATER THAN 1/4", USE A B-U4a WELD CONFIGURATION. SEE DETAIL "A".

APPROVED NOVEMBER 22, 2002

*V-Shrestha*  
STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
**PILE SPLICE**  
(CAST-IN-PLACE CONCRETE PILES)

REVISION:  
11-06-2013

DETAIL NO.  
**B201**



**CIVIL – VOLUME 4B**  
**SMETANA ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C09**  
**BRIDGE DETAILS 1**

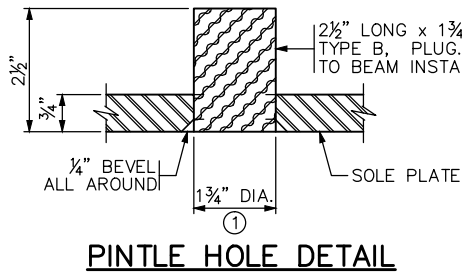
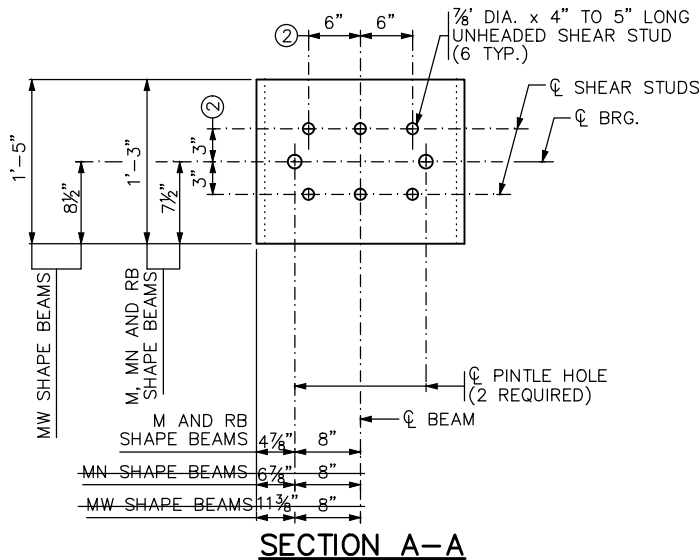
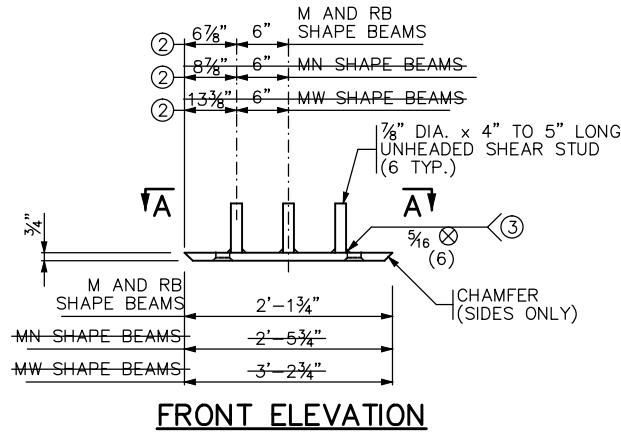
DISCIPLINE: **STRUCTURES**

SHEET NAME:  
**CBR27C09-BRG-DTL-004**

SHEET  
37  
OF  
44



Jan, 18 2016 09:14 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-DTL-005.dwg By: V-Shrestha



#### NOTES:

MATERIAL TO BE STRUCTURAL STEEL PER MnDOT SPEC. 3306.

WELDED STUDS TO BE WELDABLE CARBON STEEL PER MnDOT SPEC. 3391.2D.

SOLE PLATE FOR BEARING ASSEMBLY TO BE GALVANIZED PER MnDOT SPEC. 3394 AFTER FABRICATION.

PINTLE HOLES SHALL BE FREE OF ZINC BUILD UP FROM GALVANIZING.

SOLE PLATES ARE INCIDENTAL TO PRESTRESSED CONCRETE BEAMS.

- FOR 1 1/2" DIA. PINTLES.
- THESE DIMENSIONS MAY BE MODIFIED TO CLEAR PRESTRESSED STRANDS. HOWEVER, CHANGES MUST BE APPROVED BY THE ENGINEER.
- THE REQUIREMENTS FOR WELDING STUDS SHALL COMPLY WITH AASHTO/AWS D1.1.

APPROVED: SEPTEMBER 22, 2011

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

REVISED

DETAIL NO.

*Nancy Dubenberger*  
STATE BRIDGE ENGINEER

**SOLE PLATE**  
(PRESTRESSED CONCRETE BEAMS)  
(FOR BEARINGS WITH PINTLES)

B303

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB/BS  
CHECKED BY: ATN  
CHECKED BY: PLR

**AECOM**

90% SUBMISSION - 01/22/16

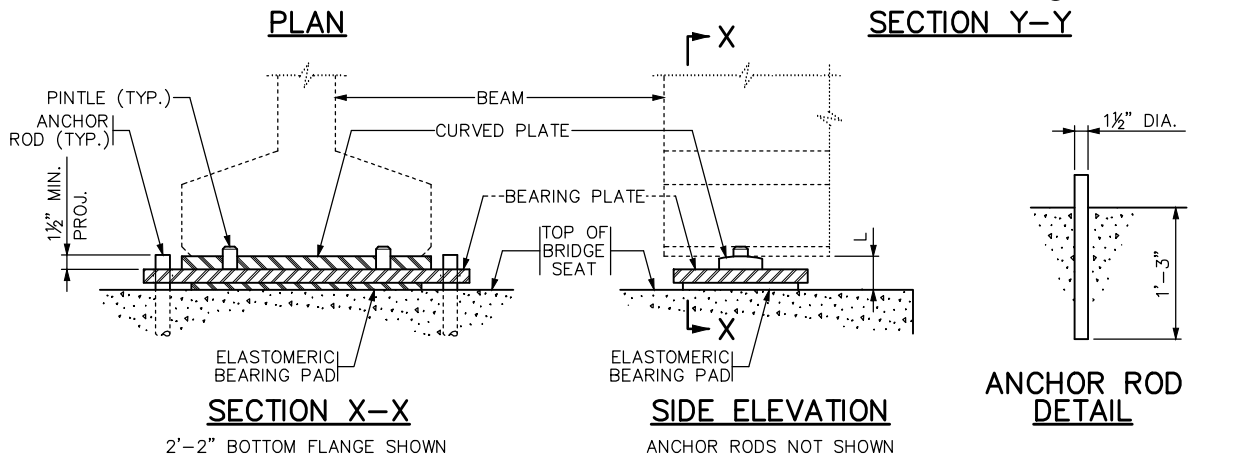
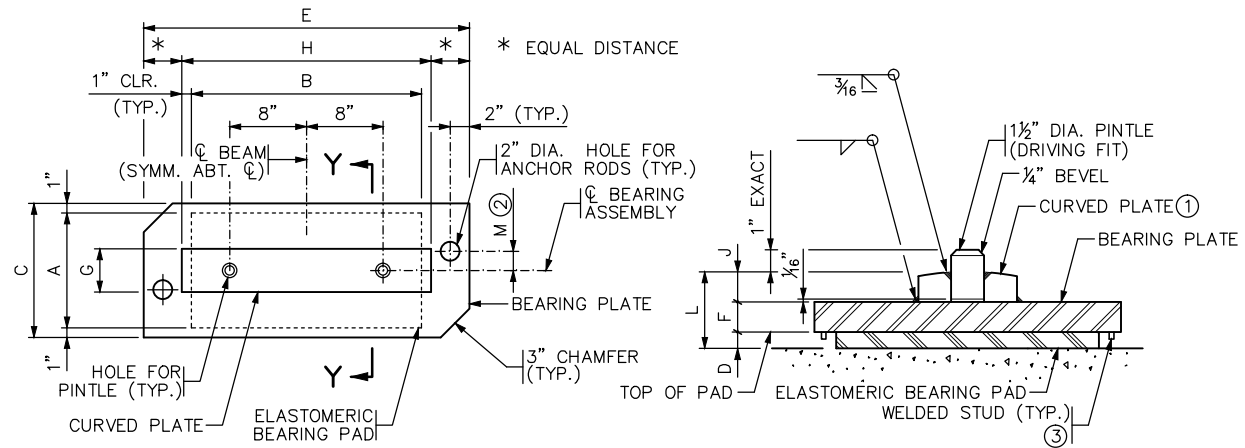


TABLE													
ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE			ANCHOR ROD OFFSET
			A	B	D		C	E	F	G	H	J	
F1	E. ABUT.	27M	12"	24"	1/2"	8.0	14"	34"	1 1/2"	4 1/2"	26"	1 1/4"	3 1/2"

#### NOTES:

ELASTOMERIC MATERIALS AND PAD CONSTRUCTION SHALL COMPLY WITH SPEC. 3741.

ALL STEEL PLATES SHALL COMPLY WITH SPEC. 3306.

ANCHOR RODS SHALL COMPLY WITH SPEC. 3306. GALVANIZE PER SPEC. 3392.

PINTLES SHALL COMPLY WITH SPEC. 3309.

GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER SPEC. 3394, EXCEPT AS NOTED.

PAYMENT FOR BEARING ASSEMBLY SHALL INCLUDE ALL MATERIAL ON THIS DETAIL.

① THE MIN. RADIUS SHALL BE 16" UNLESS OTHERWISE SPECIFIED IN THE TABLE. THE MAX. RADIUS SHALL BE 24". FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1/16" LESS THAN SHOWN.

② "+" DENOTES OFFSET AS SHOWN. "-" DENOTES OFFSET OPPOSITE OF SHOWN.

③ 3/16" DIA. x 3/8" KNOCK-OFF WELD STUDS INSTALLED ON BEARING PLATE AROUND PERIMETER OF BEARING PAD. CENTERLINE STUD TO EDGE OF PAD DIMENSION = 1/2". MAX. STUD SPACING = 4", AND MAX. SPACING TO PAD CORNER = 2".

#### DESIGN DATA:

MAXIMUM HORIZONTAL LOAD IS 70 KIPS FOR 1 1/2" PINTLES.

APPROVED: SEPTEMBER 22, 2011

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

REVISED  
11-06-2013

DETAIL NO.

*Nancy Dubenberger*  
STATE BRIDGE ENGINEER

**CURVED PLATE BEARING ASSEMBLY**  
(PRESTRESSED CONCRETE BEAMS)  
(FIXED)

B310-MOD



**CIVIL - VOLUME 4B**  
**SMETANA ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C09**  
**BRIDGE DETAILS 2**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C09-BRG-DTL-005**

SHEET

38

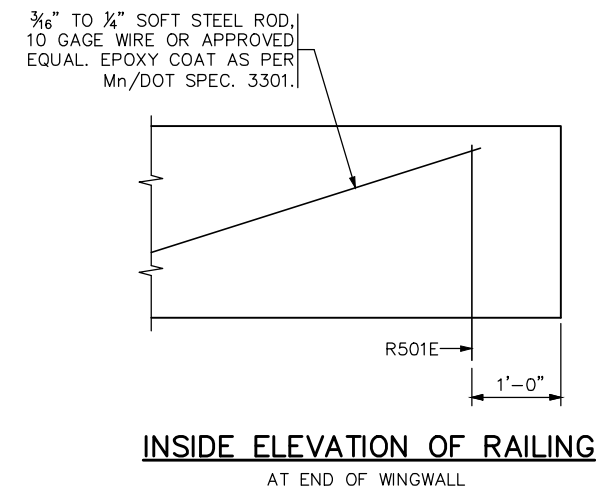
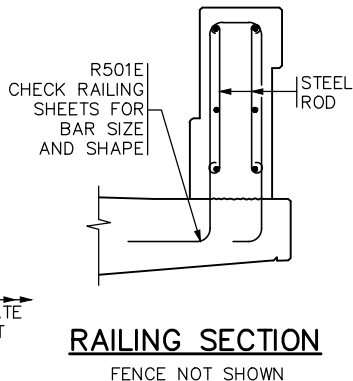
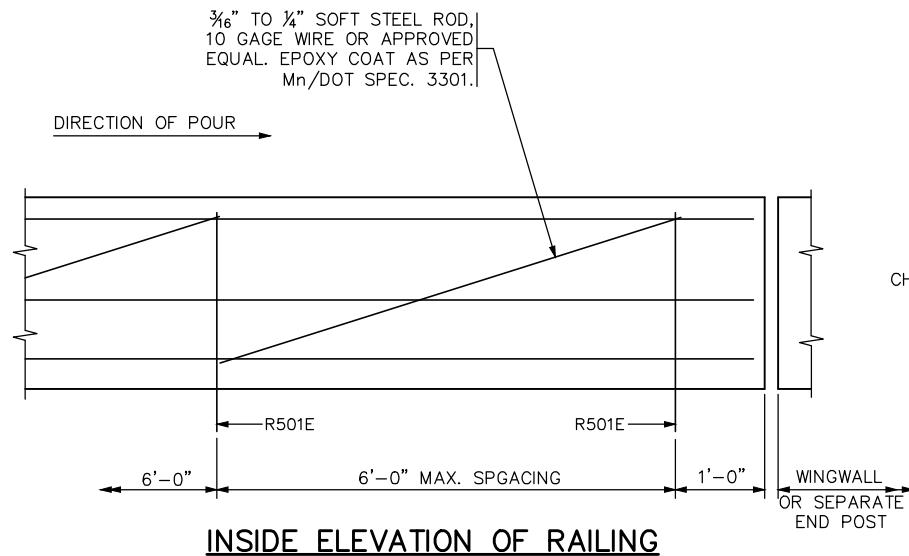
OF

44





Jan, 18 2016 09:31 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-DTL-008.dwg By: V-Shrestha



**NOTES:**  
CONTRACTOR WILL TOOL V-GROOVE AT DEFLECTION JOINTS AT TIME RAIL IS CAST AND SHALL EXTEND V-GROOVE AROUND ENTIRE PERIMETER OF RAIL.

FOR ADDITIONAL DIMENSIONS, DETAILS, REINFORCEMENT AND NOTES SEE RAILING SHEET.

FORM RAIL FOR A MINIMUM OF 2' ON EACH SIDE OF EXPANSION DEVICES, LIGHT STANDARDS AND DECK DRAIN BOX OUTS.

PAY QUANTITIES WILL NOT BE ADJUSTED AS A RESULT OF SELECTING THIS ALTERNATE.

USE A SIMILAR METHOD FOR TALLER RAILINGS OR MODIFIED VERSIONS OF THIS RAILING.

APPROVED: NOVEMBER 22, 2002

*Samuel A. Morgan*  
STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
**CONCRETE PARAPET RAILING**  
(SLIPFORM ALTERNATE)

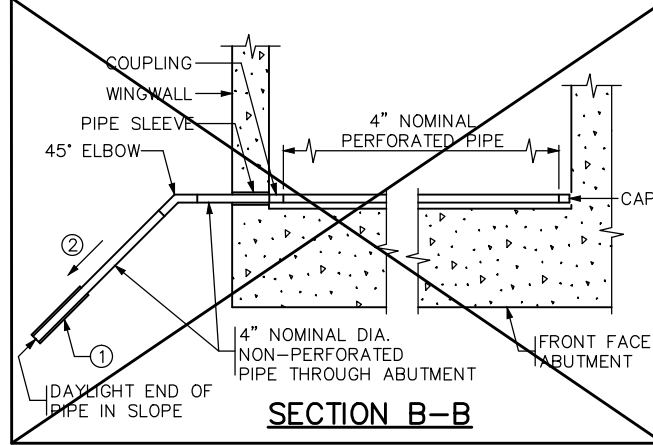
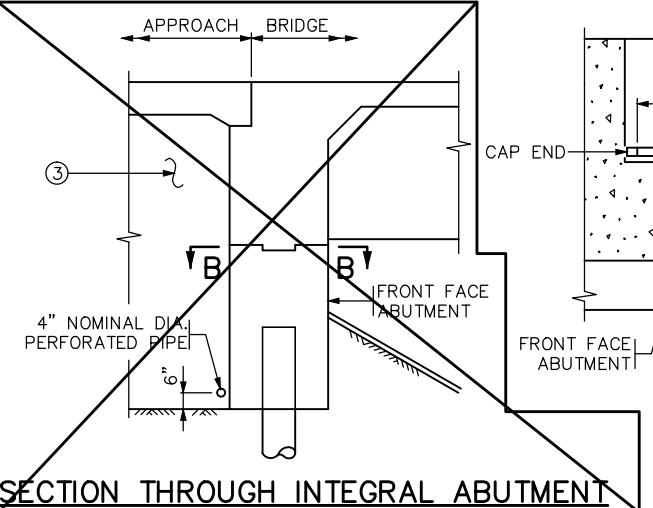
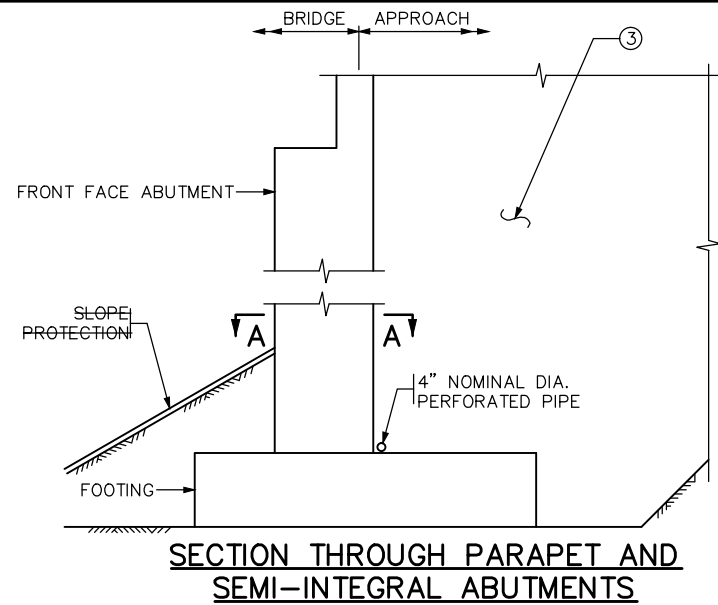
REVISION  
4-17-2013

DETAIL NO.  
**B831**

**AECOM**

DESIGNED BY: BS  
DRAWN BY: ALB/BS  
CHECKED BY: PLR  
CHECKED BY: PLR

90% SUBMISSION - 01/22/16



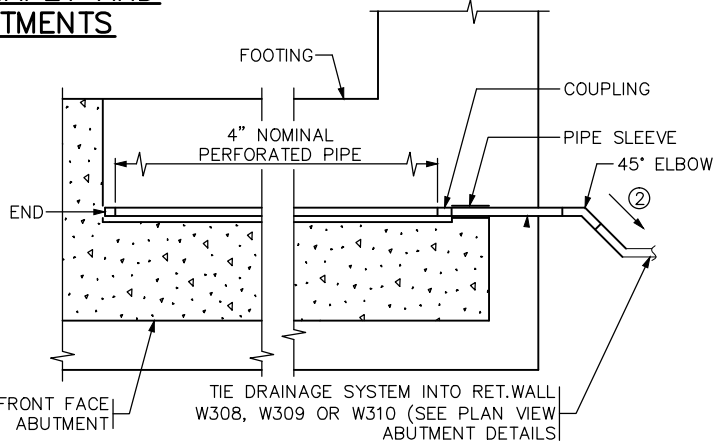
APPROVED: JANUARY 13, 2015

*Nancy Dubenberger*  
STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
**DRAINAGE SYSTEM**

SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM		
4" DIA. PERFORATED PIPE	240	LIN.FT.
45° ELBOW	7	EACH
90° ELBOW	2	EACH
4" DIA. END CAP	4	EACH

THE SUMMARY OF QUANTITIES IS SHOWN FOR INFORMATION ONLY AND SUMMARIZES ONLY MAJOR ELEMENTS REQUIRED FOR THE DRAINAGE SYSTEM.



**NOTES:**  
PAYMENT WILL BE INCLUDED IN THE SINGLE LUMP SUM PRICE FOR "DRAINAGE SYSTEM TYPE (B910)", INCLUDES BUT IS NOT LIMITED TO 4" DIAMETER PERFORATED AND NON-PERFORATED PIPE, ELBOWS, END CAPS, COUPLINGS, SLEEVES AND PRECAST CONCRETE HEADWALLS.

ALL PIPE TO COMPLY WITH SPEC. 3245.

WRAP PERFORATED PIPE WITH GEOTEXTILE PER SPEC. 3733, TYPE 1. ATTACH TO PIPE PER SPEC. 2502.

① AT CONTRACTORS OPTION, MAY TIE APPROACH PANEL DRAINAGE SYSTEM AND ABUTMENT DRAINAGE SYSTEM INTO A SINGLE PRECAST CONCRETE HEADWALL OR INTO A CATCH BASIN AS LONG AS A MINIMUM OF 1% POSITIVE SLOPE CAN BE MAINTAINED.

USE PRECAST CONCRETE HEADWALL WITH RODENT SCREEN. SEE STANDARD PLATE 3131 FOR DETAILS.

②  $\frac{1}{8}$ " PER FT. MINIMUM SLOPE.

③ REFER TO GRADING PLANS FOR ABUTMENT BACKFILL REQUIREMENTS.

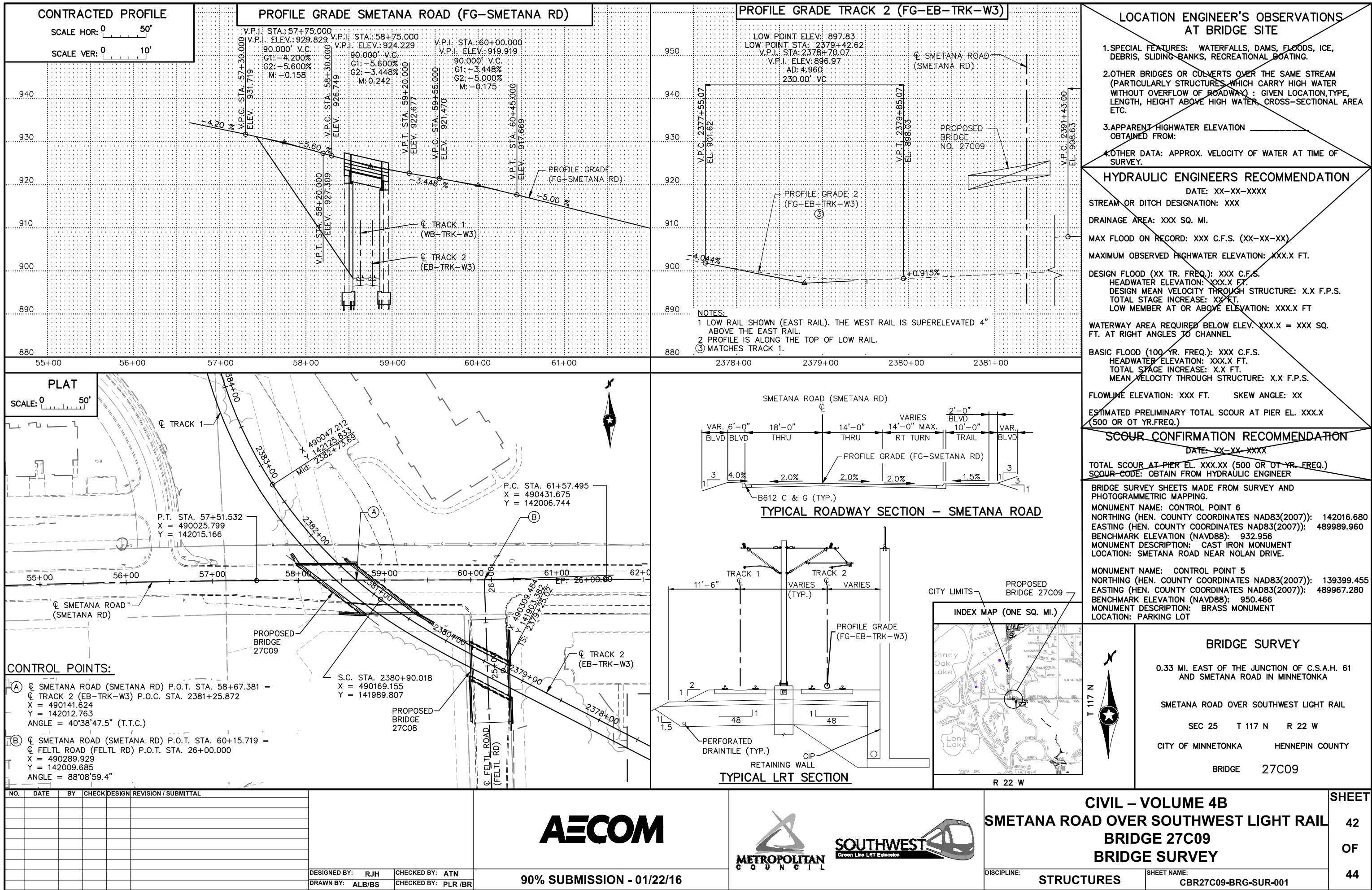
**CIVIL - VOLUME 4B**  
**SMETANA ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C09**  
**BRIDGE DETAILS 4**

DISCIPLINE: **STRUCTURES**  
SHEET NAME: **CBR27C09-BRG-DTL-008**

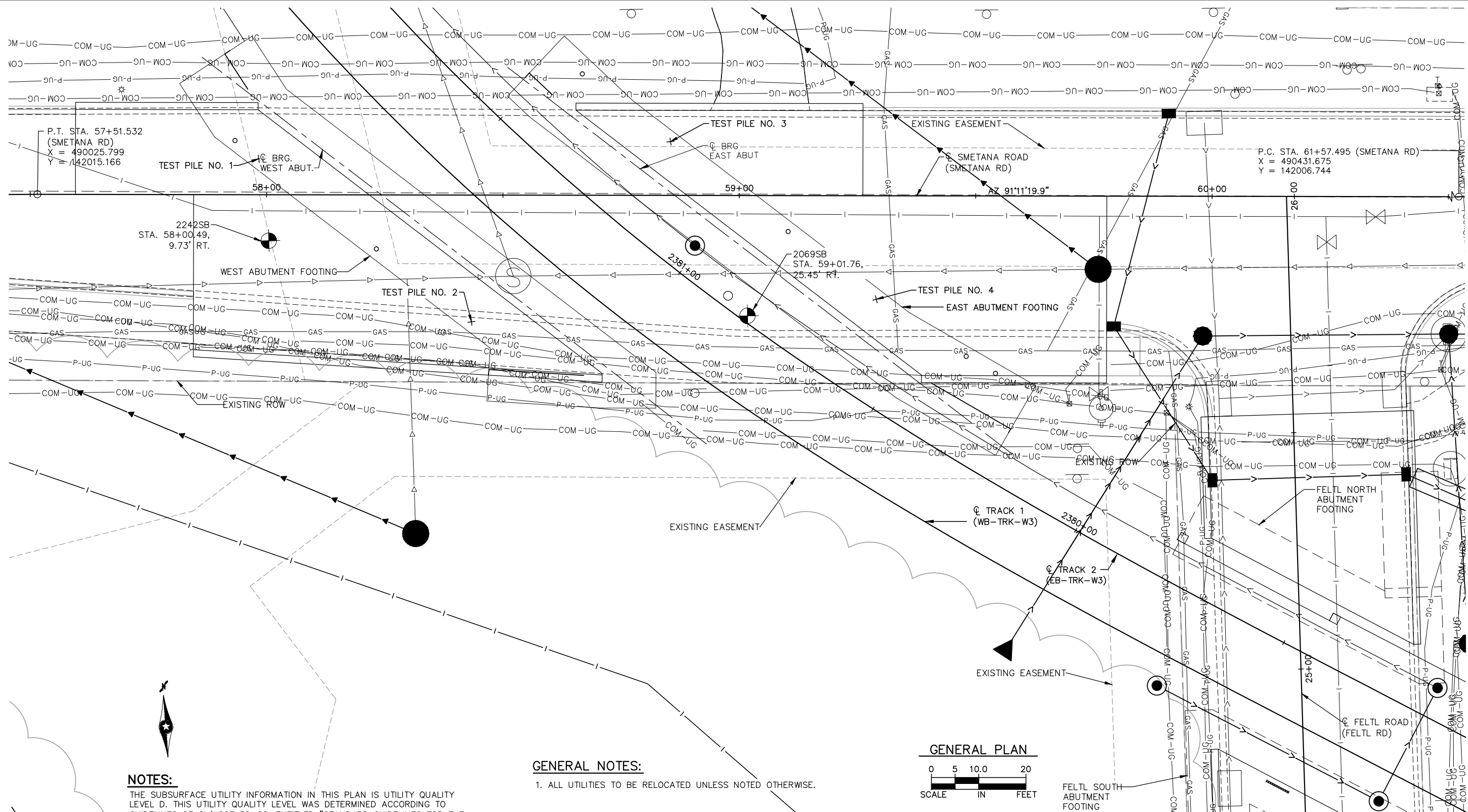
**SHEET**  
**40**  
**OF**  
**44**



Jan, 14 2016 03:58 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-SUR-001.dwg By: V-Shrestha



Jan, 14 2016 04:00 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C09-BRG-SUR-002.dwg By: V-Shrestha



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB/BS	CHECKED BY: PLR/BR

90% SUBMISSION - 01/22/16

CIVIL – VOLUME 4B  
SMETANA ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C09  
BRIDGE SURVEY PLAN

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C09-BRG-SUR-002



Jan, 08 2016 10:22 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-GPE-001.dwg By: bodenc

CONTROL POINT:

- (A)  $\phi$  FELTL ROAD (FELTL RD) P.O.T. STA. 25+03.742 =  
 $\phi$  TRACK 2 (EB-TRK-W3) P.O.C. STA. 2379+46.024  
X = 490291.040  
Y = 141913.434  
ANGLE = 60°40'50.5" TTC

HORIZONTAL ALIGNMENT DATA:

$\phi$  FELTL ROAD (FELTL RD):  
P.T. STA. 22+40.802  
X = 490294.075  
Y = 141650.511

P.O.T. STA. 26+00.000  
X = 490289.929  
Y = 142009.685

$\phi$  TRACK 2 (EB-TRK-W3):  
T.S. STA. 2379+25.018  
X = 490309.484  
Y = 141903.382

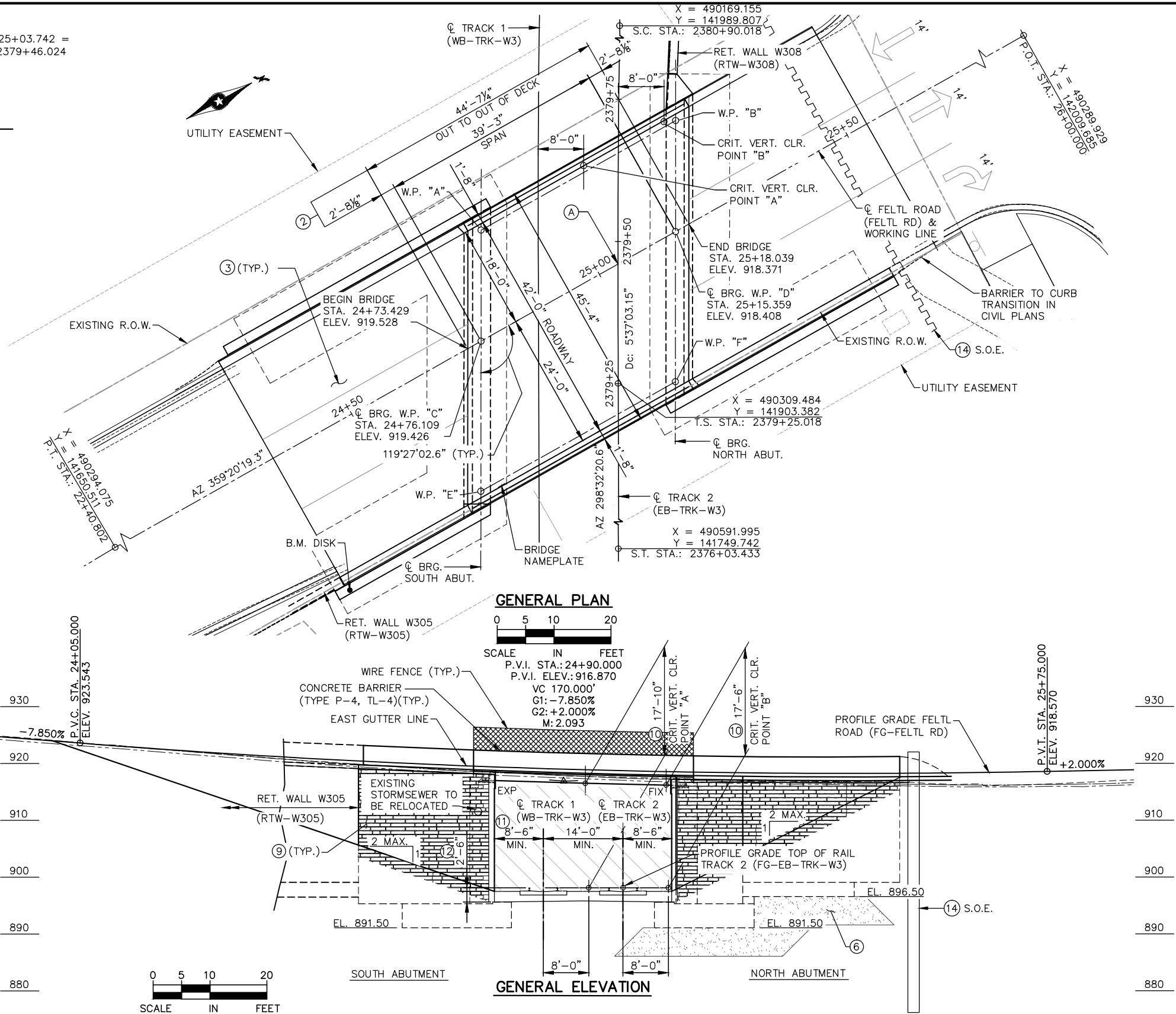
S.C. STA. 2380+90.018  
X = 490169.155  
Y = 141989.807

GENERAL NOTES:

- SEE BORING SHEETS FOR ADDITIONAL IN PLACE UTILITIES.
- MEASURED ALONG  $\phi$  FELTL ROAD.
- SEE CIVIL PLANS FOR APPROACH PANEL DETAILS.
- HATCHED AREA TO BE REMOVED UNDER GRADING PORTION OF CONTRACT.
- TRAFFIC TO BE DETOURED DURING CONSTRUCTION.
- 5'-0" SUBCUT AND REPLACE WITH GRANULAR FILL (NORTH ABUTMENT ONLY).
- VERTICAL CLEARANCE IS BASED ON TRACK 2 PROFILE (FG-EB-TRK-W3).
- DECK DRAINS NOT REQUIRED ON BRIDGE. SEE CIVIL PLANS FOR APPROACH ROADWAY DRAINS.
- ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM)-F.F. ABUTMENT BACKWALLS, SW, & NW WINGWALLS, ARCHITECTURAL CONCRETE TEXTURE (COURSED STONE)-NE & SE WINGWALLS. SEE SHEETS 4 & 5 FOR DETAILS.
- MINIMUM VERTICAL CLEARANCE REQUIRED IS 17'-6".
- MINIMUM HORIZONTAL CLEARANCE IS 8'-6".
- 4'-6" MIN. TO BOTTOM OF FOOTING.
- ADDITIONAL WINGWALL INFORMATION SHOWN ON "CORNER DETAILS" SHEET.
- SUPPORT OF EXCAVATION (S.O.E.) TO BE DESIGNED BY THE CONTRACTOR. STEEL SHEET PILING SHOWN, OTHER SYSTEMS MAY BE UTILIZED AT THE CONTRACTORS OPTION.

EXISTING GROUND PROFILE

20' LT. -----  
 $\phi$  FELTL ROAD -----  
20' RT. -----



DESIGN DATA

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7th EDITION, 2014 WITH 2015 INTERIM REVISIONS.

SOUTHWEST LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 4.0)

LOAD AND RESISTANCE FACTOR DESIGN METHOD

HL93 LIVE LOAD

DEAD LOAD INCLUDES 20 PSF ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS

MATERIAL DESIGN PROPERTIES:

REINFORCED CONCRETE:

$f'_c$  = 4 k.s.i.,  $n$  = 8

$f_y$  = 60 k.s.i. REINFORCEMENT

PRESTRESSED CONCRETE:

$f'_c$  = 7.8 k.s.i.,  $n$  = 1

$f_{pu}$  = 270 k.s.i.

0.6" DIA. LOW RELAXATION STRAND

0.75 fpu FOR INITIAL PRESTRESS

DESIGN SPEED:

OVER = 30 MPH

UNDER(LRT) = 45 MPH

DECK AREA = 2,020 SQ. FT.

HL-93 LRFR BRIDGE OPERATING FACTOR, RF=1.84

LIST OF SHEETS

SHEET NO.	DESCRIPTION
1	GENERAL PLAN AND ELEVATION
2	TRANSVERSE SECTION & QUANTITIES
3	BRIDGE LAYOUT
4-5	ABUTMENT AESTHETICS 1-2
6-10	SOUTH ABUTMENT DETAILS 1-5
11-16	SOUTH ABUTMENT REINFORCEMENT 1-6
17-21	NORTH ABUTMENT DETAILS 1-5
22-27	NORTH ABUTMENT REINFORCEMENT 1-6
28	FRAMING PLAN
29	RB-18 PRESTRESSED CONCRETE BEAM
30-34	SUPERSTRUCTURE DETAILS 1-5
35	CORNER DETAILS
36	CONCRETE BARRIER (TYPE P-4 TL-4)
37	WIRE FENCE (DESIGN W-1)
38-40	B-DETAILS 1-3
41	AS-BUILT BRIDGE DATA
42	BRIDGE SURVEY
43	BRIDGE SURVEY PLAN
44	BRIDGE SURVEY PROFILE

2030 PROJECTED TRAFFIC VOLUMES

ROADWAY OVER		ROADWAY UNDER
3000	AADT	N/A
120	ADTT	N/A

BRIDGE NO. 27C08

FELTL ROAD OVER SOUTHWEST LIGHT RAIL  
0.35 MI. EAST OF THE JUNCTION OF C.S.A.H. 61 AND  
SMETANA ROAD IN MINNETONKA

39'-0" PRESTRESSED CONCRETE BEAM SPAN  
CONC. BARRIER (TYPE P-4, TL-4) 42'-0" ROADWAY  
29°27'02.6" SKEW LT. AHEAD

IDENTIFICATION NO. 501

GENERAL PLAN AND ELEVATION

SEC 25 AND 36 T 117 N R 22 W  
CITY OF MINNETONKA HENNEPIN COUNTY

JOB NO: T9N635

STATE PROJECT NO: 9909-01

MNDOT REVIEW: JOE NIETFELD

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR  
DRAWN BY: ALB  
CHECKED BY: MPC  
CHECKED BY: MPC

AECOM

90% SUBMISSION - 01/22/16



SOUTHWEST  
Green Line LRT Extension



CIVIL - VOLUME 4B  
FELTL ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C08  
GENERAL PLAN AND ELEVATION

DISCIPLINE:  
STRUCTURES

SHEET NAME:  
CBR27C08-BRG-GPE-001

SHEET

1

OF

44

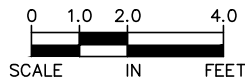


SCHEDULE OF QUANTITIES			
SPEC. SECTION	ITEM	UNIT	QUANTITY
—	CONSTRUCT BRIDGE 27C08	LUMP SUM	LS

COMPONENT ITEM SUMMARY (BRIDGE 27C08)				
SPEC. SECTION (3)	COMPONENT ITEM	UNIT (2)	QUANTITY (2)	
(1)	2401	STRUCTURAL CONCRETE (1G52)	CU. YD.	379
	2401	STRUCTURAL CONCRETE (3B52)	CU. YD.	566
	2401	TYPE P-4 (TL-4) RAILING CONCRETE (3S52)	LIN. FT.	90
	2401	REINFORCEMENT BARS	POUND	26,890
	2401	REINFORCEMENT BARS (EPOXY COATED)	POUND	77,730
	2401	REINFORCEMENT BARS (STAINLESS-60KSI)	POUND	640
	SB-8	BRIDGE SLAB CONCRETE (3YHPC-S)	SQ. FT.	2,020
	2402	BEARING ASSEMBLY	EACH	10
	2404	CONCRETE WEARING COURSE (3U17A)	SQ. FT.	1,874
	2405	PRESTRESSED CONCRETE BEAMS 18RB	LIN. FT.	203
	SB-13	ARCH CONCRETE TEXTURE (BOARD FORM)	SQ. FT.	2,650
	SB-13	ARCH CONCRETE TEXTURE (COURSED STONE)	SQ. FT.	1,030
	SB-13	ARCH CONCRETE SURFACE FINISH (SINGLE COLOR)	SQ. FT.	4,710
2502	DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	1	
2557	WIRE FENCE DESIGN W-1	LIN. FT.	80	

- TRANSVERSE SECTION

(UPSTATION)



THE FOLLOWING STRAY CURRENT CONTROL NOTES ARE A SUPPLEMENT TO THE SYSTEM WIDE ELECTRICAL DRAWINGS - SEE SYSTEMS DRAWINGS, VOLUME 12 FOR ASSOCIATED DETAILS AND DOCUMENT CERTIFICATION RELATED TO STRAY CURRENT REQUIREMENTS.

- ## CONSTRUCTION NOTES

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

BRIDGE SEAT REINFORCEMENT SHALL BE CAREFULLY PLACED TO AVOID INTERFERENCE WITH DRILLING HOLES FOR ANCHOR RODS. THE BEAMS SHALL BE ERECTED IN FINAL POSITION PRIOR TO DRILLING HOLES FOR AND PLACING ANCHOR RODS.




THE FIRST DIGIT OR THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR SIZE. THE BAR SIZES SHOWN IN THIS PLAN ARE IN U.S. CUSTOMARY DESIGNATIONS. BARS MARKED WITH A SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301. BARS MARKED WITH A SUFFIX "S" SHALL BE STAINLESS STEEL IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN SET IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

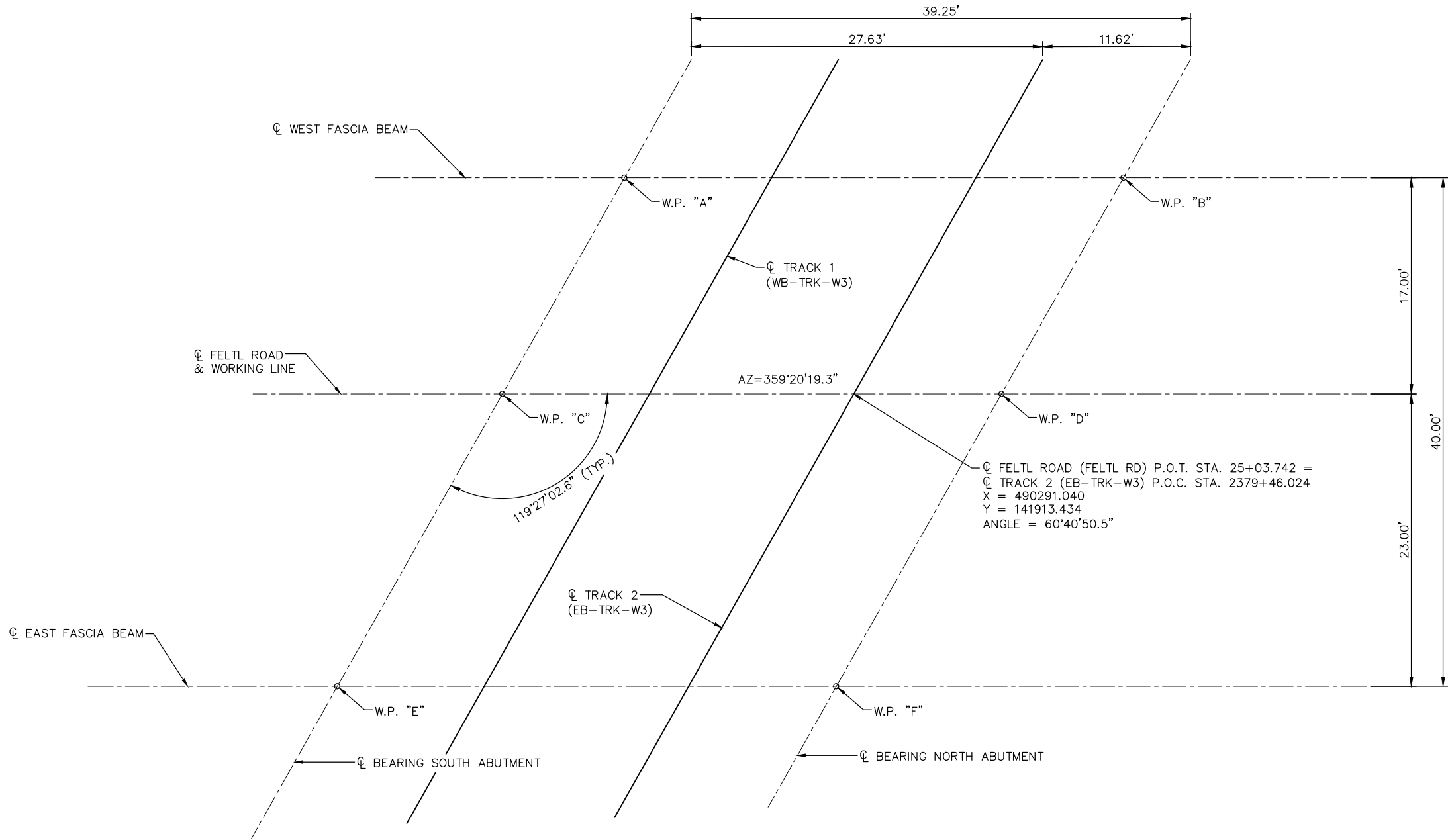
SEE MnDOT LRFD BRIDGE DESIGN MANUAL (AUGUST 2014), APPENDIX 2-C, FOR A LIST OF STANDARD ABBREVIATIONS UNLESS NOTED OTHERWISE.

CONTRACTOR SHALL VERIFY STABILITY OF FASCIA BEAMS FROM OVERTURNING (NO PERMANENT BEAM DIAPHRAGMS ARE PRESENT). CONTRACTOR SHALL PROVIDE TEMPORARY BRACING.

① CHANGE IN GRADE FROM PROFILE GRADE TO GUTTERLINE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL							 		CIVIL - VOLUME 4B FELTL ROAD OVER SOUTHWEST LIGHT RAIL BRIDGE 27C08 TRANSVERSE SECTION & QUANTITIES		SHEET
																2
																OF
																44
						DESIGNED BY: PLR DRAWN BY: ALB		CHECKED BY: MPC CHECKED BY: MPC		90% SUBMISSION - 01/22/16		DISCIPLINE: STRUCTURES		SHEET NAME: CBR27C08-BRG-GPE-002		

Jan, 08 2016 10:26 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08\BRG-GPE-003.dwg By: bodenc



WORKING POINT LAYOUT

DIMENSIONS BETWEEN WORKING POINTS										ELEVATIONS			POINT
POINT	STATION	X-COORDIN	Y-COORDIN	A	B	C	D	E	F	TOP OF ROADWAY	TOP OF RDWY TO BR. SEAT	BRIDGE SEAT	
A	24+85.714	490274.249	141895.204		39.25	19.52	34.18		43.33	918.75	2.88	915.87	A
B	25+24.958	490273.796	141934.452			51.72	19.52	73.65		917.95	2.83	915.12	B
C	24+76.109	490291.359	141885.802				39.25	26.41	34.91				C
D	25+15.359	490290.906	141925.050					57.08	26.41				D
E	24+63.117	490314.507	141873.082						39.25	919.50	2.88	916.62	E
F	25+02.367	490314.054	141912.329							918.19	2.83	915.36	F

TOP OF ROADWAY TO BRIDGE SEAT						
	DECK THICKNESS	STOOL HEIGHT	BEAM HEIGHT	BEARING HEIGHT	TOTAL	
					INCHES	FEET
S. ABUT	9"	3¾"	18"	37⁄8"	345⁄8"	2.88
N. ABUT	9"	3¾"	18"	3¼"	34"	2.83

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC

90% SUBMISSION - 01/22/16

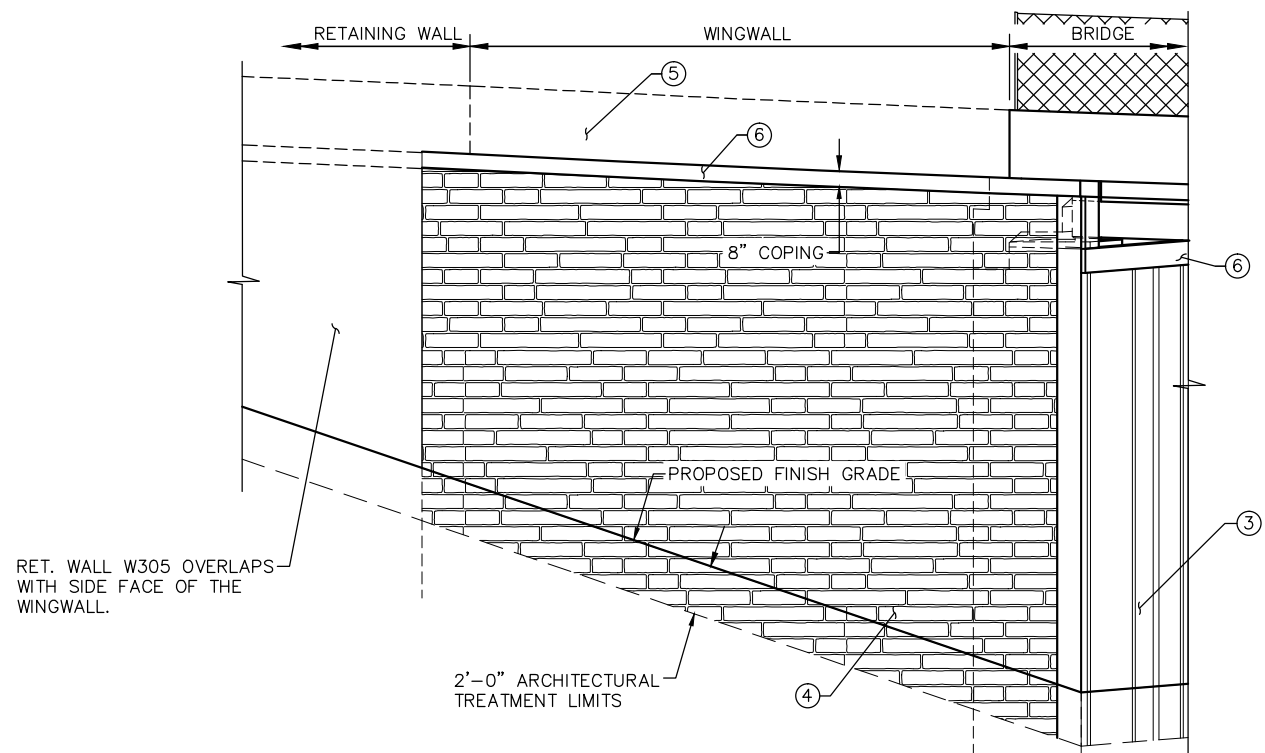
CIVIL - VOLUME 4B  
FELTL ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C08  
BRIDGE LAYOUT

DISCIPLINE: STRUCTURES

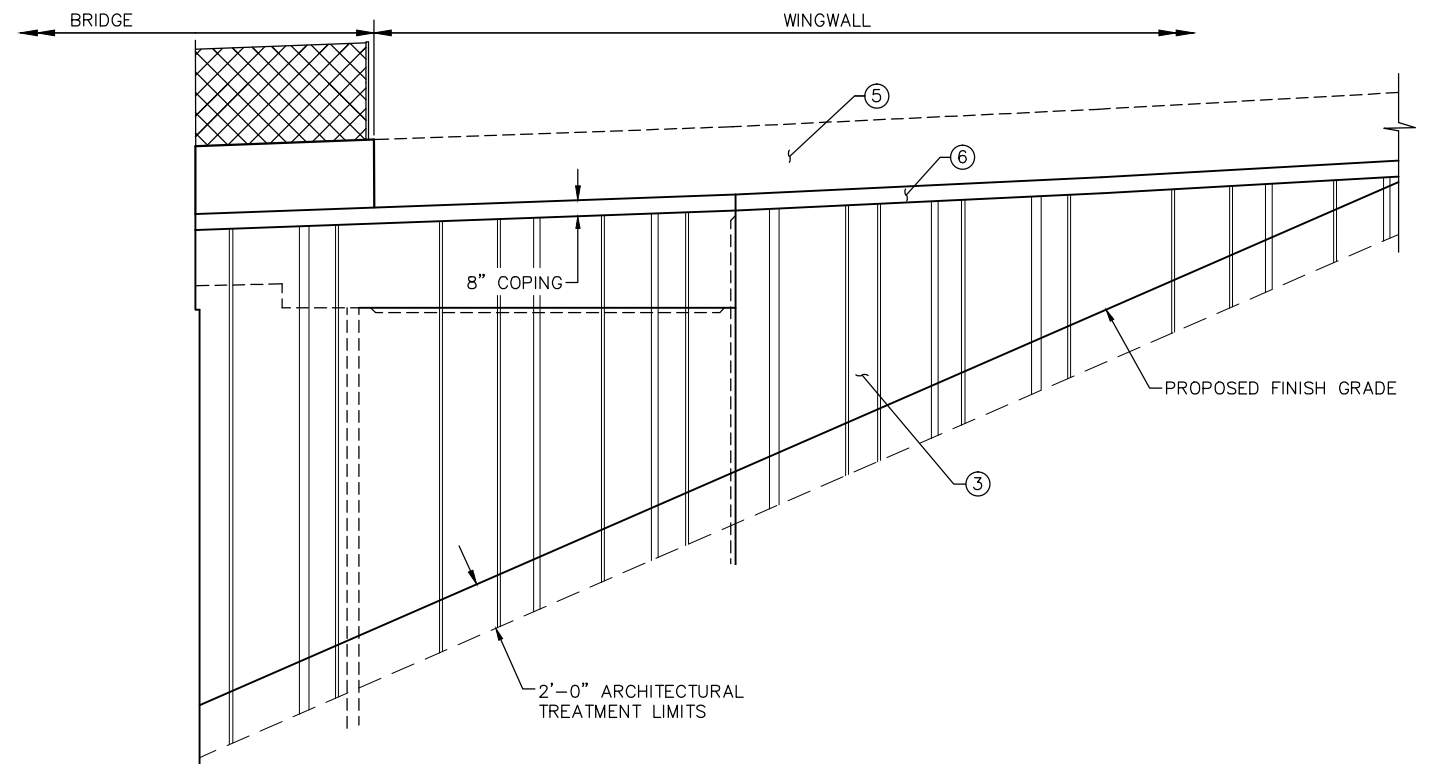
SHEET NAME: CBR27C08-BRG-GPE-003



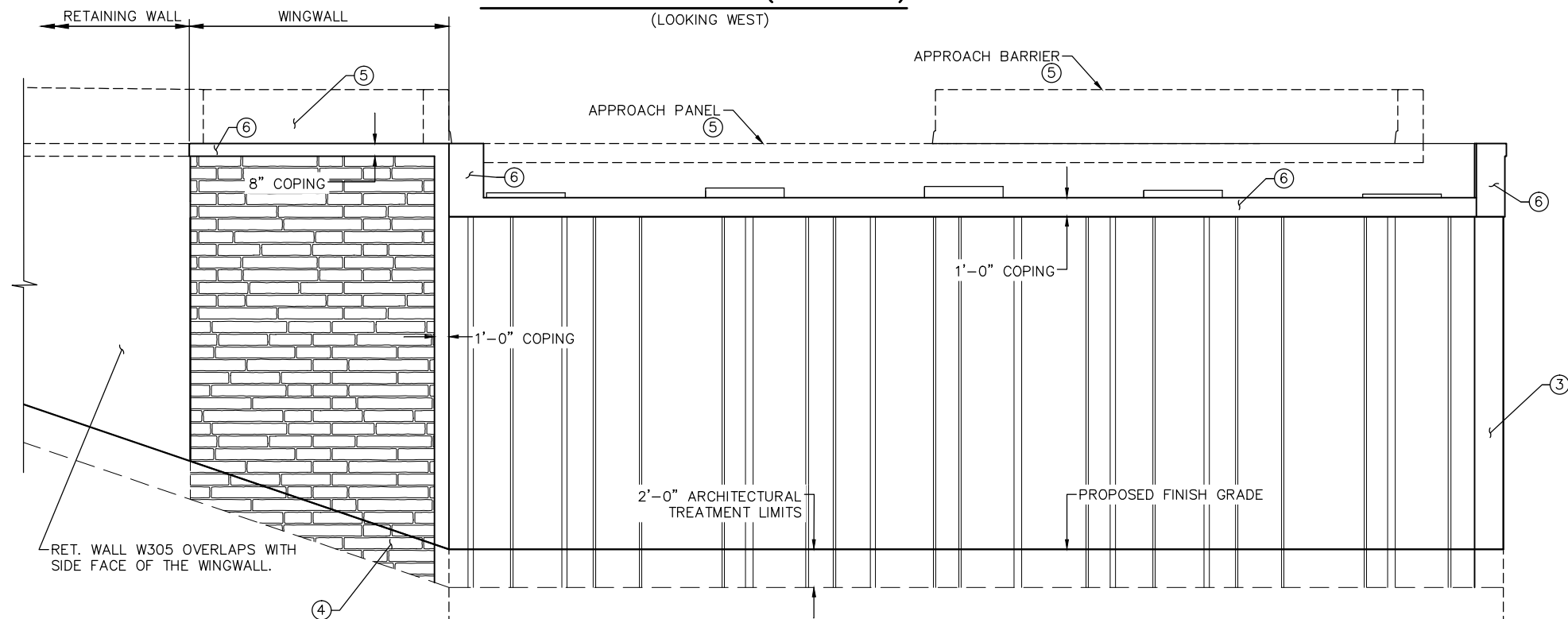
Jan, 13 2016 02:30 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08\CBR27C08-BRG-ABT-001.dwg By: bodenc



**SE WINGWALL ELEVATION (NE SIMILAR)**  
(LOOKING WEST)



**SW WINGWALL ELEVATION (NW SIMILAR)**  
(LOOKING EAST)



**SOUTH ABUTMENT ELEVATION**  
(LOOKING SOUTH)

**NOTES**

1. BOTH ABUTMENTS AND ABUTMENT WINGWALLS TO HAVE ARCHITECTURAL TREATMENT.
2. PLACE POLYSTYRENE FULL HEIGHT (1'-0") FOR FORMING THE APPROACH PANEL. IT MAY BE LEFT IN PLACE AND CUT DOWN FOR BACKER ROD AND SEALANT OR REMOVED (SEE MNDOT APPROVED/QUALIFIED PRODUCTS LIST).
3. ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM) - SEE SPECIAL PROVISIONS.
4. ARCHITECTURAL CONCRETE TEXTURE (COURSED STONE) - SEE SPECIAL PROVISIONS.
5. CONCRETE BARRIER AND APPROACH PANEL IN CIVIL PLANS.
6. COPING PROTRUDES 2" FROM THE FORMLINER FACE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR  
DRAWN BY: ALB  
CHECKED BY: MPC  
CHECKED BY: MPC

**AECOM**

90% SUBMISSION - 01/22/16



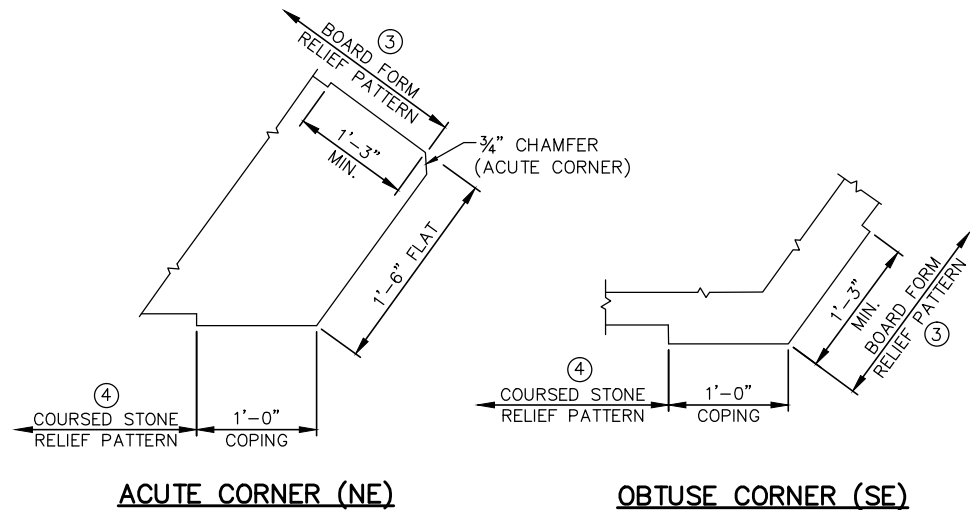
**CIVIL - VOLUME 4B**  
**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C08**  
**ABUTMENT AESTHETICS 1**

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C08-BRG-ABT-001

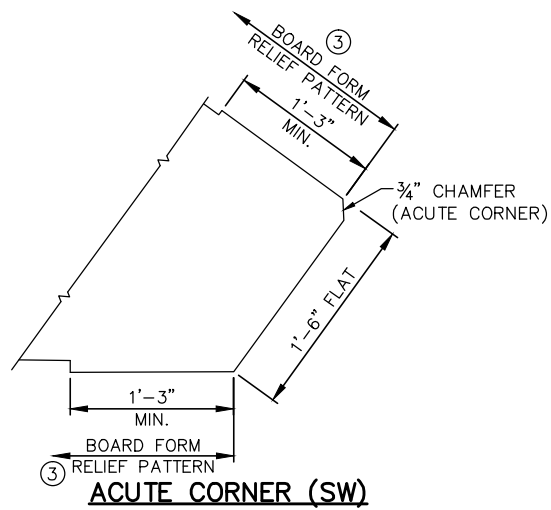
**SHEET**  
**4**  
**OF**  
**44**

Jan, 15 2016 11:42 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-ABT-002.dwg By: bodenc



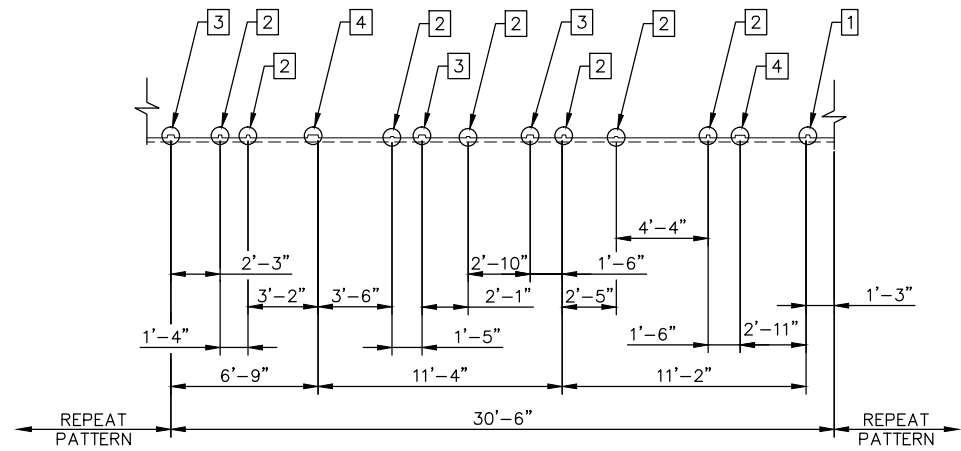
OBTUSE CORNER (SE)

ACUTE CORNER (NE)

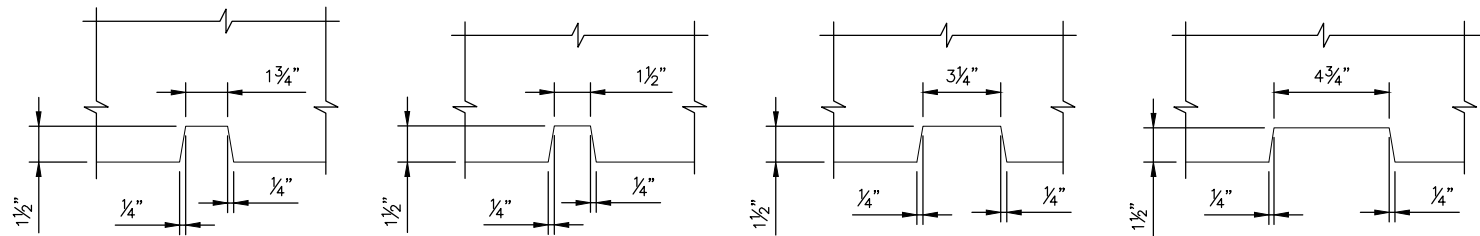


ACUTE CORNER (SW)

CORNER DETAILS



SPACING LAYOUT



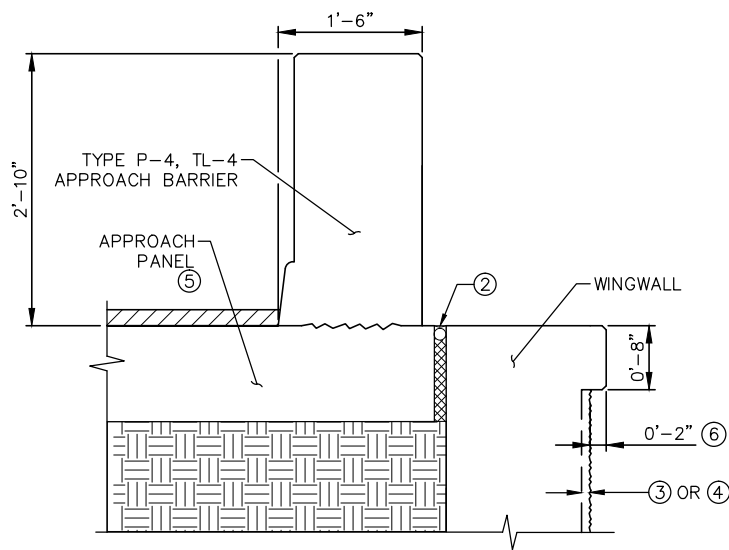
DETAIL 1

DETAIL 2

DETAIL 3

DETAIL 4

BOARD FORM DETAILS



SECTION AT ROADWAY  
(TYPICAL FOR SW, SE, AND NE WINGWALLS)

NOTES

- BOTH ABUTMENTS AND ABUTMENT WINGWALLS TO HAVE ARCHITECTURAL TREATMENT.
- PLACE POLYSTYRENE FULL HEIGHT (1'-0") FOR FORMING THE APPROACH PANEL. IT MAY BE LEFT IN PLACE AND CUT DOWN FOR BACKER ROD AND SEALANT OR REMOVED (SEE MNDOT APPROVED/QUALIFIED PRODUCTS LIST).
- ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM) - SEE SPECIAL PROVISIONS.
- ARCHITECTURAL CONCRETE TEXTURE (COURSED STONE) - SEE SPECIAL PROVISIONS.
- CONCRETE BARRIER AND APPROACH PANEL IN CIVIL PLANS.
- COPING PROTRUDES 2" FROM THE FORMLINER FACE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
FELTL ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C08  
ABUTMENT AESTHETICS 2

DISCIPLINE: STRUCTURES

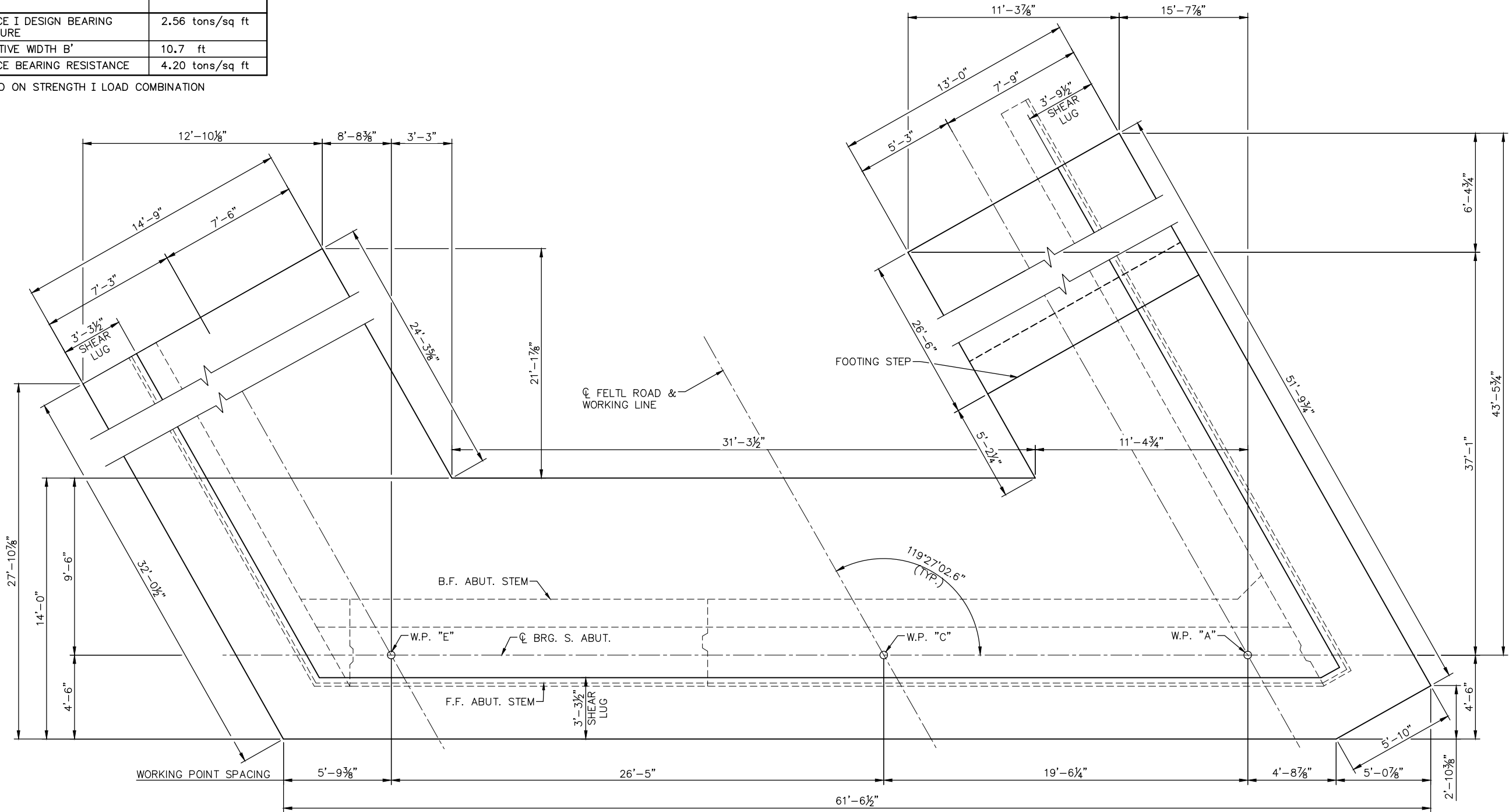
SHEET NAME: CBR27C08-BRG-ABT-002

Jan, 08 2016 10:29 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08\CBR27C08-BRG-ABT-003.dwg By: bodenc

SOUTH ABUTMENT SPREAD  
FOOTING LOAD DATA

* FACTORED DESIGN BEARING PRESSURE	3.28 tons/sq ft
EFFECTIVE WIDTH B'	11.0 ft
FACTORED BEARING RESISTANCE, $\phi_b \cdot q_n$	3.75 tons/sq ft
SERVICE I DESIGN BEARING PRESSURE	2.56 tons/sq ft
EFFECTIVE WIDTH B'	10.7 ft
SERVICE BEARING RESISTANCE	4.20 tons/sq ft

\* BASED ON STRENGTH I LOAD COMBINATION



SOUTH EAST CORNER

FOOTING PLAN

SOUTH WEST CORNER

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
FELTL ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C08  
SOUTH ABUTMENT DETAILS 1

DISCIPLINE: STRUCTURES

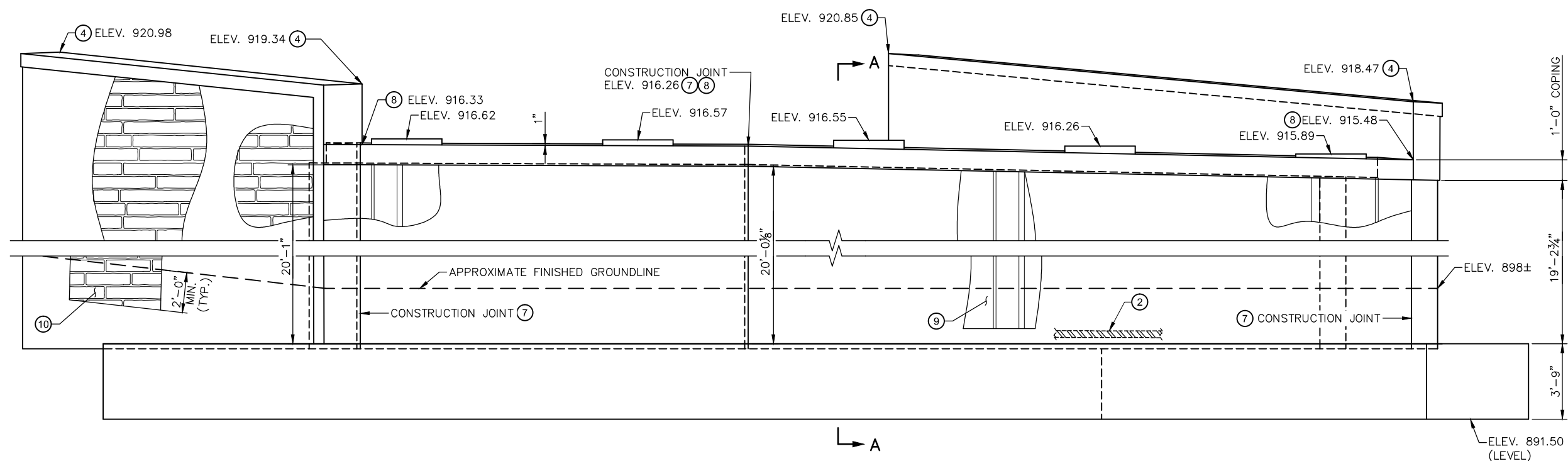
SHEET NAME: CBR27C08-BRG-ABT-003

SHEET  
6  
OF  
44

PLAN VIEW

SOUTH WEST CORNER

⑩ ARCHITECTURAL CONCRETE TEXTURE  
(COURSED STONE) SEE SHEET 4 & 5 FOR  
DETAILS.



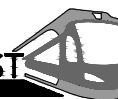
ELEVATION VIEW

SOUTH WEST CORNER

[illegible]**AECOM**

**METROPOLITAN**  
COUNCIL

## SOUTHWEST






**CIVIL - VOLUME 4B**  
**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C08**  
**SOUTH ABUTMENT DETAILS 2**

DISCIPLINE: **STRUCTURES**

SHEET NAME:	CBR27C08-BRG-ABT-004
-------------	----------------------

- ① SLOPE 1% ± DOWN TOWARDS FRONT FACE.
- ② MEMBRANE WATERPROOFING SYSTEM PER MnDOT 2184.3B.
- ③ CONSTRUCTION JOINT & 2" X 12" KEYWAY.
- ④ THERE SHALL BE A 72 HOUR MINIMUM DELAY BETWEEN CONCRETE POURS OF ADJACENT ABUTMENT SECTIONS THAT HAVE VERTICAL CONSTRUCTION JOINTS.
- ⑤ ELEVATIONS ARE AT THE BACK FACE OF WINGWALL (POLYSTYRENE JOINT).
- ⑥ ARCHITECTURAL CONCRETE TEXTURE (COURSED STONE) SEE SHEET 4 & 5 FOR DETAILS.
- ⑦ ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM) SEE SHEET 4 & 5 FOR DETAILS.
- ⑧ INSTALL STRAY CURRENT JUNCTION BOX. CABLES WILL BE ROUTED TO JUNCTION BOXES BY CONTRACTOR. AFTER CONDUITS ARE INSTALLED, REMAINING BLOCKOUT SPACE TO BE FILLED AND SEALED WITH NON-SHRINK GROUT (TYP. FOR ALL BLOCKOUTS).

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL							 		CIVIL - VOLUME 4B FELTL ROAD OVER SOUTHWEST LIGHT RAIL BRIDGE 27C08 SOUTH ABUTMENT DETAILS 3		SHEET 8 OF 44	
						DESIGNED BY: PLR		CHECKED BY: MPC		90% SUBMISSION - 01/22/16				DISCIPLINE: STRUCTURES		SHEET NAME: CBR27C08-BRG-ABT-005	
						DRAWN BY: CRVB		CHECKED BY: MPC									

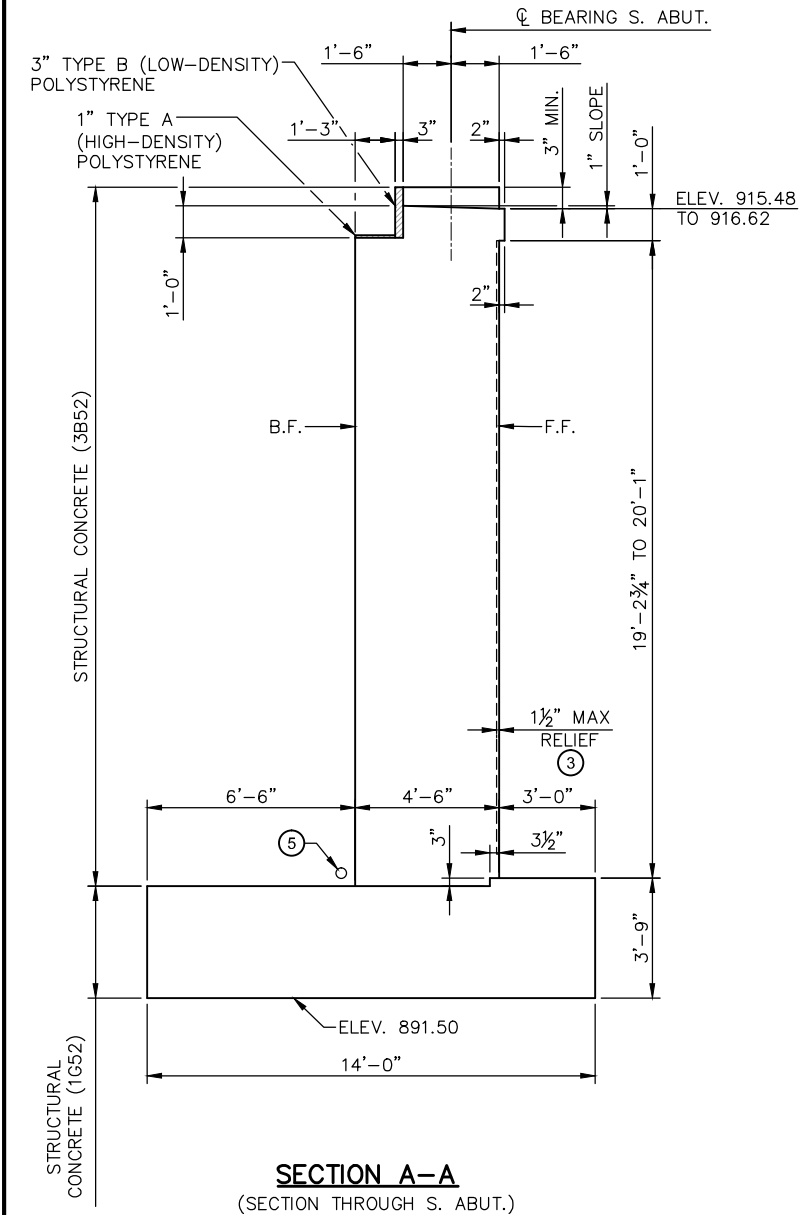
**WEST WINGWALL ELEVATION**

This elevation view shows the structural details of the West Wingwall. Key features include:

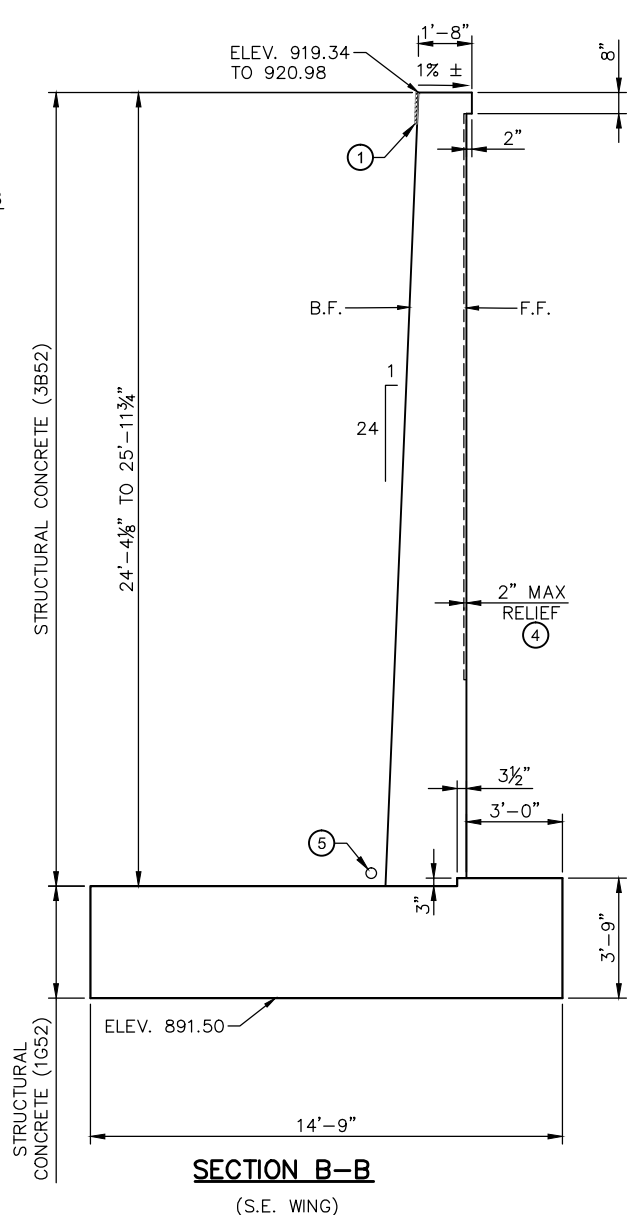
- Dimensions:**
  - Overall height: 23'-5 5/8" (5)
  - Top width: 15'-3"
  - Bottom width: 21'-1 1/4" (5)
  - Vertical dimensions on the right: 3'-3" and 1'-8"
  - Horizontal dimensions at the base: 5'-0", 3'-9", and 2'-0"
  - Internal vertical dimensions: 19'-3 3/4", 24'-3 3/8" @ JOINT (5), and 19'-6 3/8" @ JOINT (5)
  - Horizontal dimensions at the top: 30'-6" and 10'-0"
- Elevations:**
  - Top left corner: ELEV. 918.47 (5)
  - Top center: ELEV. 919.28 (5)
  - Top right corner: ELEV. 920.00 (5)
  - Top right corner (higher): ELEV. 920.85 (5)
  - Base left: ELEV. 891.50
  - Base center: ELEV. 894.83 (SHEAR KEY)
  - Base right: ELEV. 896.50
  - Intermediate elevation: ELEV. 898±
  - Internal elevation: ELEV. 914.56
- Structural Details:**
  - 8" CONSTANT wall thickness.
  - JOINT (5) locations.
  - STRAY CURRENT TEST STATION AT END OF ABUTMENT. SEE NOTE 3, SHEET 2. (9)
  - APPROXIMATE FINISHED GROUNDLINE (dashed line).
  - MIN. 2'-0" dimension near the groundline.
- Orientation:**
  - Section line C-C (top and bottom).
  - Section line D-D (left and right).
  - Section line E-E (top and right).

## 4

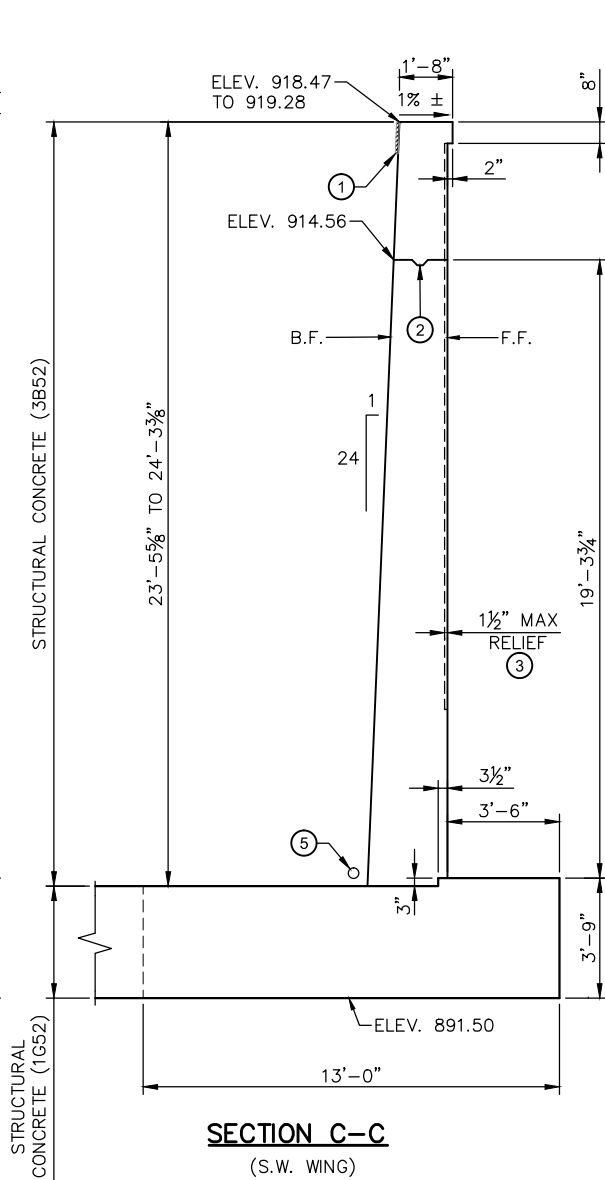
Jan, 08 2016 10:38 am V:\3400\_ADC\CAD\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-ABT-006-007.dwg By: bodenc



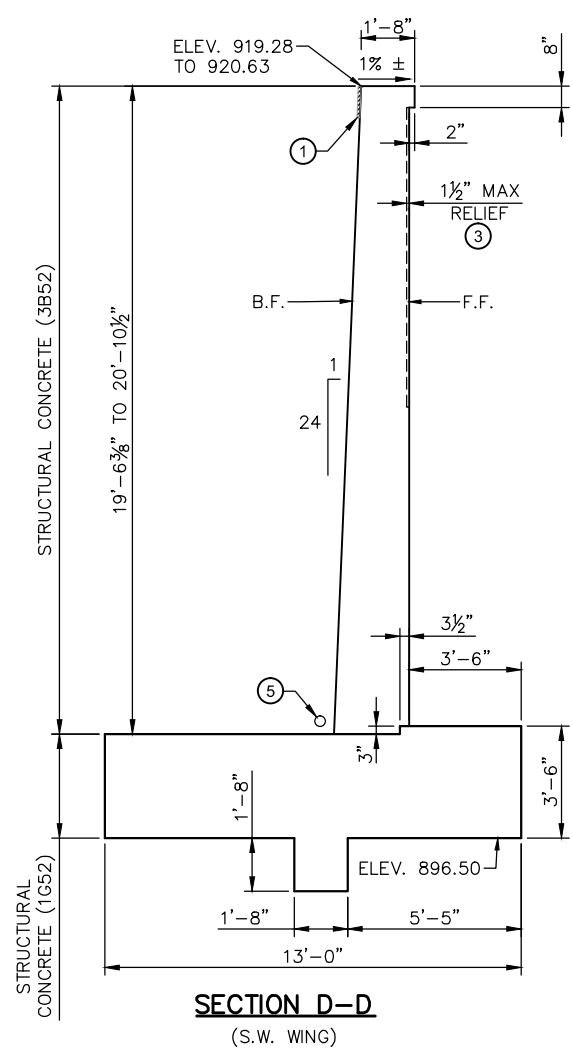
**SECTION A-A**  
(SECTION THROUGH S. ABUT.)



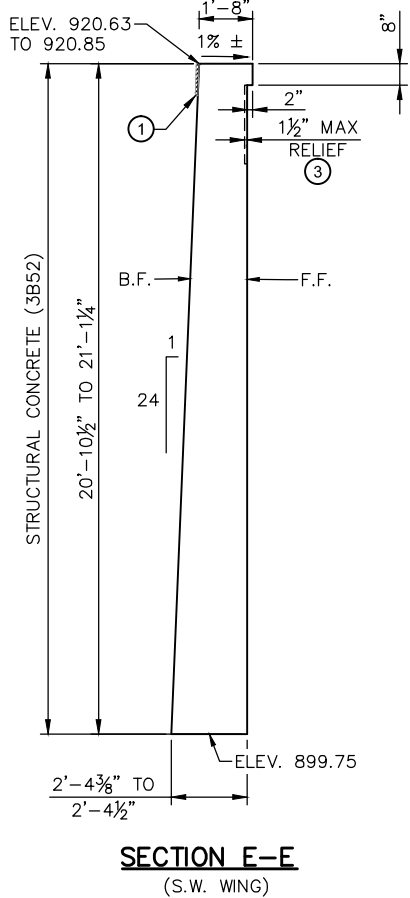
**SECTION B-B**  
(S.E. WING)



**SECTION C-C**  
(S.W. WING)



**SECTION D-D**  
(S.W. WING)



**SECTION E-E**  
(S.W. WING)

**NOTES**

CONTRACTOR SHALL PLACE BACKFILL BEHIND THE WINGWALLS AND IN FRONT OF THE WINGWALLS IN ALTERNATING LIFTS SUCH THAT THE DIFFERENCE IN TOP-OF-SOIL ELEVATIONS DOES NOT EXCEED FIVE FEET, UP TO THE APPROXIMATE FINISHED GROUNDLINE.

B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

RAILING AND FENCE NOT SHOWN. SEE SHEETS 35, 36, & 37 FOR ADDITIONAL INFORMATION.

SEE DETAILS ON SHEET 40 FOR DRAINAGE SYSTEM & BACKFILL INFORMATION.

- ① 1" TYPE B (LOW DENSITY) POLYSTYRENE BETWEEN EDGE OF DECK AND WINGWALL. 1 1/2" TYPE B (LOW DENSITY) POLYSTYRENE BETWEEN EDGE OF APPROACH SLAB AND WINGWALL. (INCLUDED IN CIVIL PLANS.)
- ② PERMISSIBLE CONSTRUCTION JOINT & 2" X 6" KEYWAY.
- ③ ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM) SEE SHEET 4 & 5 FOR DETAILS.
- ④ ARCHITECTURAL CONCRETE TEXTURE (COURSED STONE) SEE SHEET 4 & 5 FOR DETAILS.
- ⑤ 4"Ø PERFORATED PIPE. SEE DETAIL B910.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

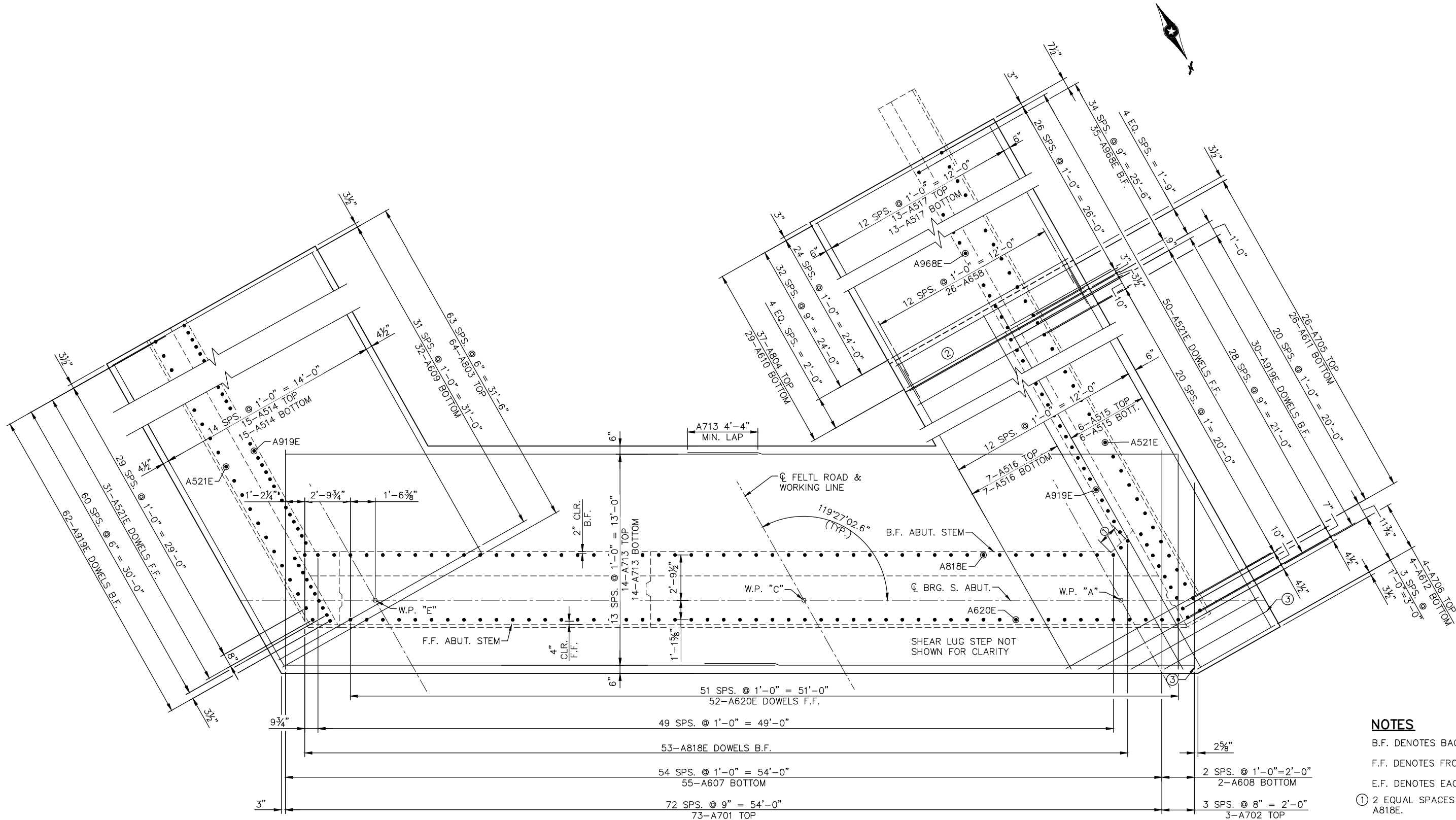
DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC

90% SUBMISSION - 01/22/16

**CIVIL - VOLUME 4B**  
**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C08**  
**SOUTH ABUTMENT DETAILS 5**

DISCIPLINE: <b>STRUCTURES</b>	SHEET NAME: <b>CBR27C08-BRG-ABT-007</b>
----------------------------------	--

Jan, 08 2016 10:40 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-ABT-008.dwg By: bodenc



SOUTH EAST CORNER

FOOTING PLAN

SOUTH WEST CORNER

- NOTES**
- B.F. DENOTES BACK FACE
  - F.F. DENOTES FRONT FACE
  - E.F. DENOTES EACH FACE
  - ① 2 EQUAL SPACES = 1'-3" A818E.
  - ② SEE SHEET 14 FOR FOOTING STEP DETAIL.
  - ③ HOOK END.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC



90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B

FELTL ROAD OVER SOUTHWEST LIGHT RAIL

BRIDGE 27C08

SOUTH ABUTMENT REINFORCEMENT 1

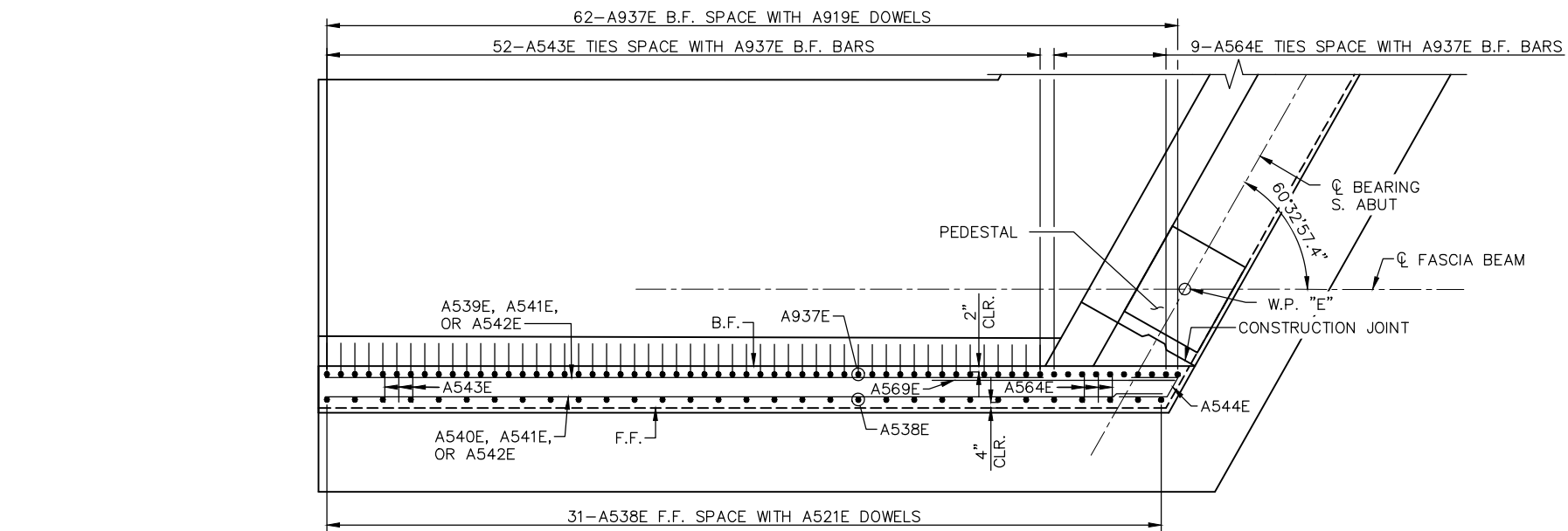
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C08-BRG-ABT-008

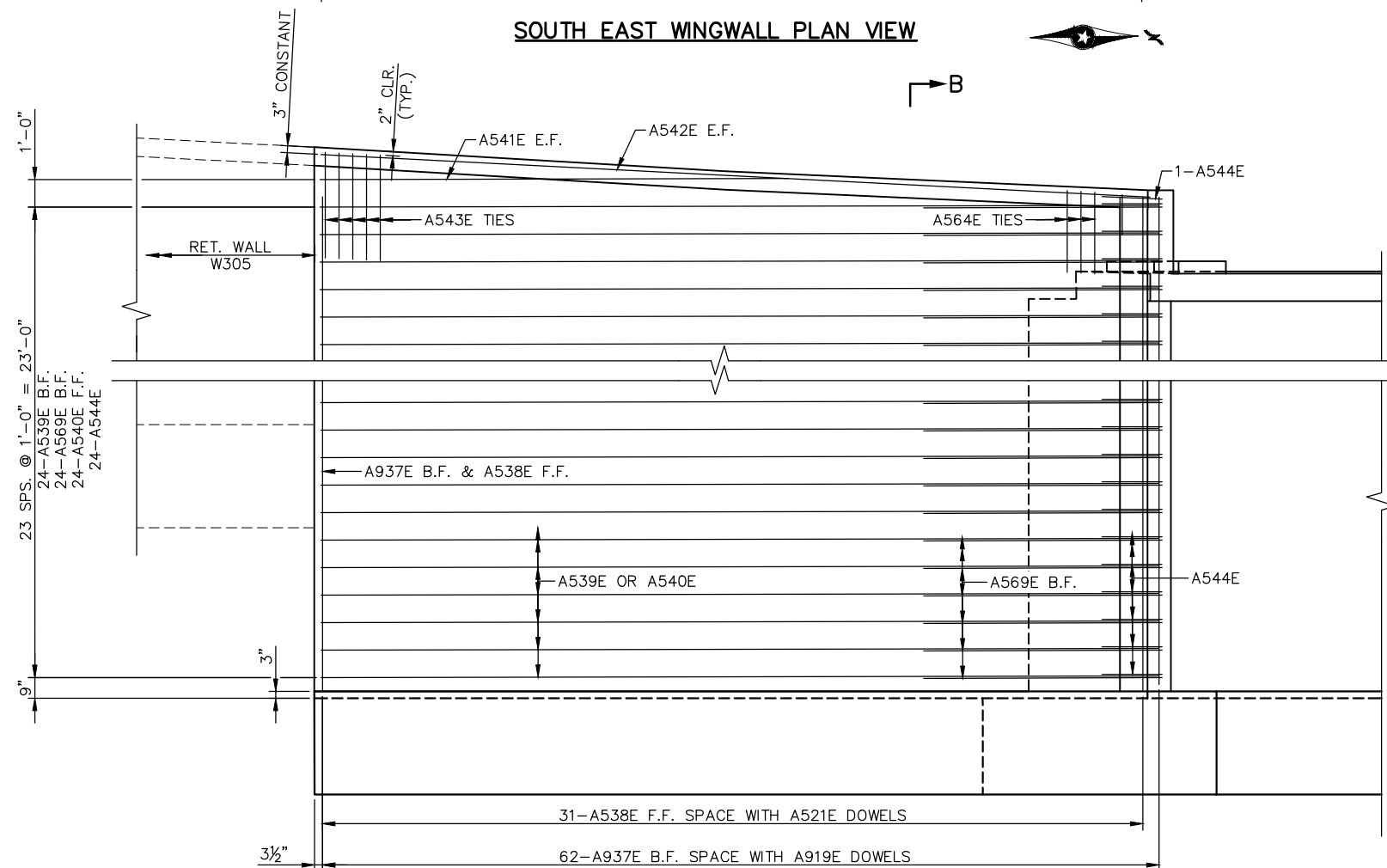




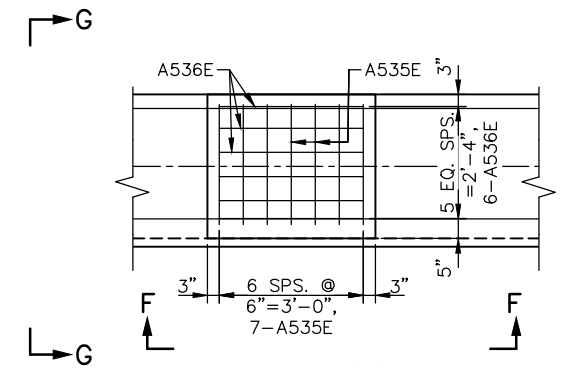
Jan, 08 2016 10:44 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-ABT-010.dwg By: bodenc



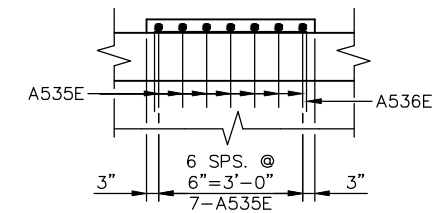
**SOUTH EAST WINGWALL PLAN VIEW**



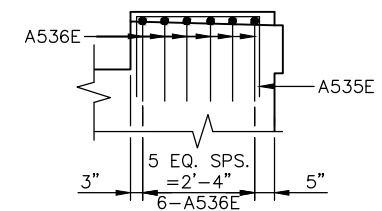
**SOUTH EAST WINGWALL ELEVATION**



**DETAIL 'A'**



**SECTION F-F**



**SECTION G-G**

**NOTES**

- B.F. DENOTES BACK FACE
- F.F. DENOTES FRONT FACE
- E.F. DENOTES EACH FACE
- SEE SHEET 15 FOR SECTION B-B.
- SEE SHEET 12 FOR LOCATION OF DETAIL 'A'.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC



**90% SUBMISSION - 01/22/16**



**CIVIL - VOLUME 4B**

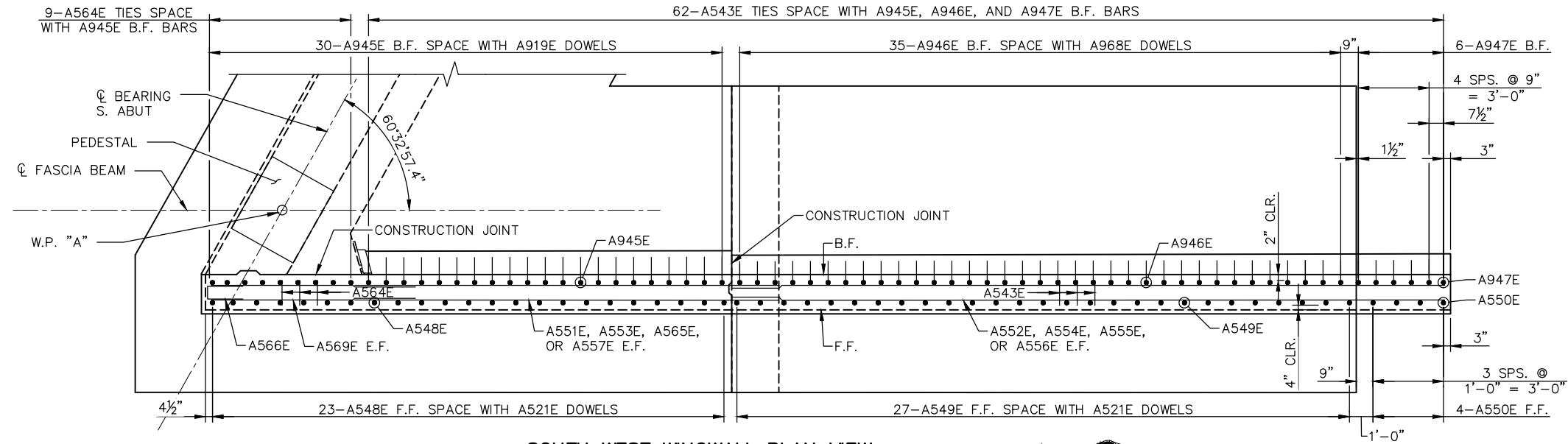
**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**

**BRIDGE 27C08**

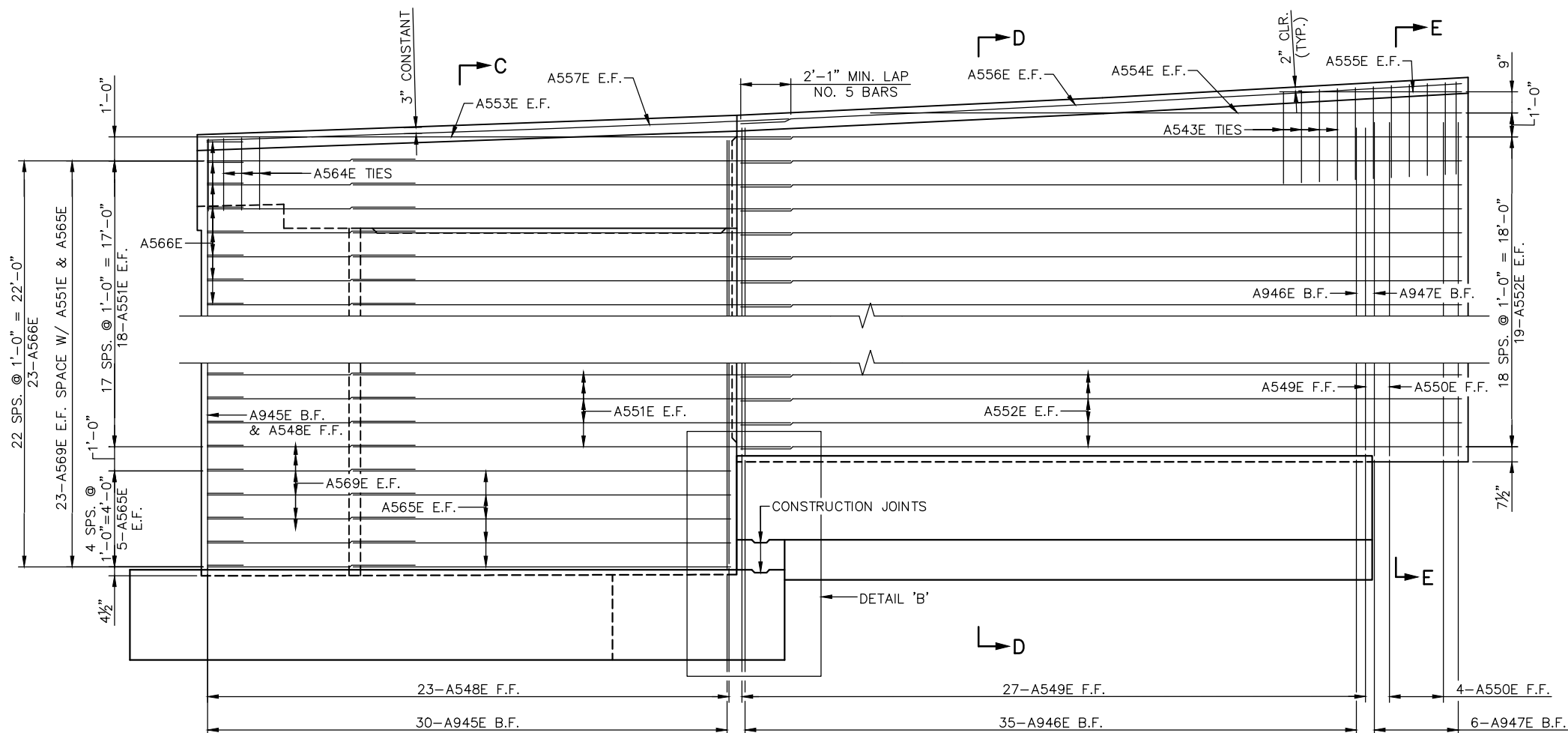
**SOUTH ABUTMENT REINFORCEMENT 3**

DISCIPLINE:	SHEET NAME:
STRUCTURES	CBR27C08-BRG-ABT-010

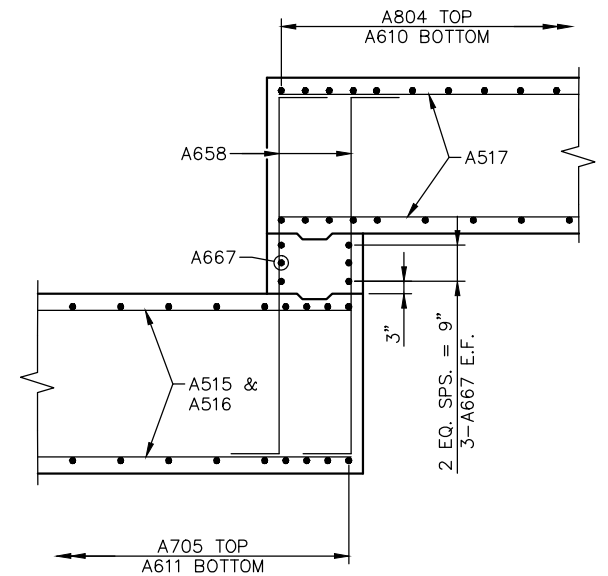
Jan, 08 2016 10:49 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-ABT-011-012.dwg By: bodenc



SOUTH WEST WINGWALL PLAN VIEW



SOUTH WEST WINGWALL ELEVATION



DETAIL 'B'

NOTES

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

E.F. DENOTES EACH FACE

SEE SHEET 15 FOR SECTION C-C, D-D, AND E-E.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR  
DRAWN BY: CRVB

CHECKED BY: MPC  
CHECKED BY: MPC

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
FELTL ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C08  
SOUTH ABUTMENT REINFORCEMENT 4

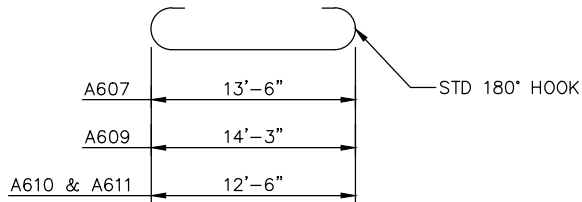
DISCIPLINE:  
STRUCTURES

SHEET NAME:  
CBR27C08-BRG-ABT-011

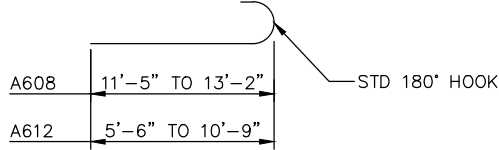
SHEET  
14  
OF  
44



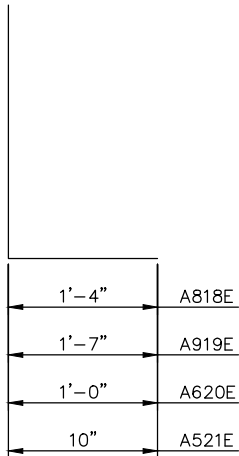
Jan, 08 2016 10:50 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08\CBR27C08-BRG-ABT-013.dwg By: bodenc



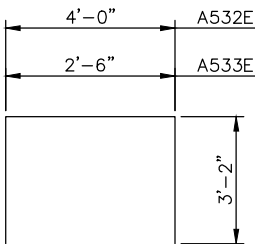
**A607, A609, A610, & A611**



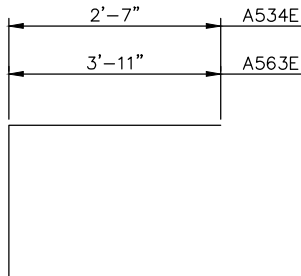
**A608 & A612**



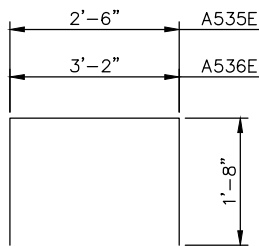
**A818E, A919E, A620E, & A521E**



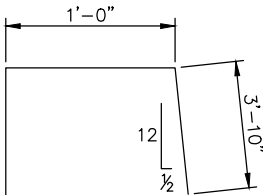
**A532E & A533E**



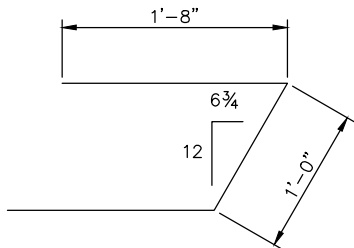
**A534E & A563E**



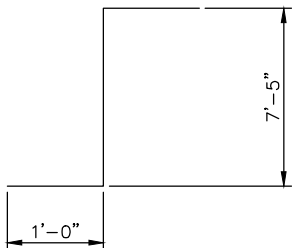
**A535E & A536E**



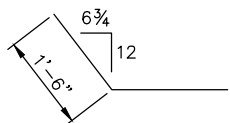
**A543E**



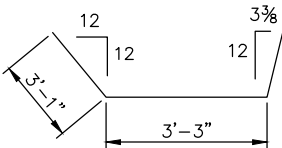
**A544E**



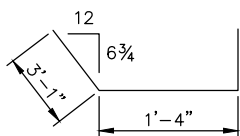
**A658**



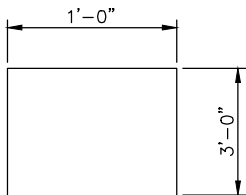
**A660E**



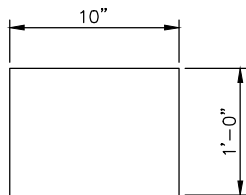
**A661E**



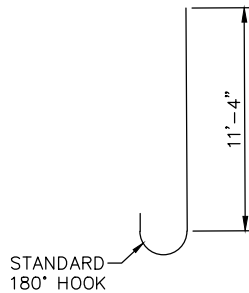
**A662E**



**A564E**



**A566E**



**A968E**

**BILL OF REINFORCEMENT FOR SOUTH ABUTMENT**

BAR	NO.	LENGTH	SHAPE	LOCATION
A701	73	13'-6"		FOOTING TRANSVERSE TOP
A702	SERIES OF 3	11'-5" TO 13'-10"		FOOTING TRANSVERSE TOP
A803	64	14'-3"		FOOTING TRANSVERSE TOP
A804	37	12'-6"		FOOTING TRANSVERSE TOP
A705	26	12'-6"		FOOTING TRANSVERSE TOP
A706	SERIES OF 4	5'-6" TO 10'-9"		FOOTING TRANSVERSE TOP
A607	55	14'-10"		FOOTING TRANSVERSE BOTTOM
A608	SERIES OF 2	12'-1" TO 13'-10"		FOOTING TRANSVERSE BOTTOM
A609	32	15'-7"		FOOTING TRANSVERSE BOTTOM
A610	29	13'-10"		FOOTING TRANSVERSE BOTTOM
A611	26	13'-10"		FOOTING TRANSVERSE BOTTOM
A612	SERIES OF 4	6'-2" TO 11'-5"		FOOTING TRANSVERSE BOTTOM
A713	56	30'-2"		FOOTING LONGITUDINAL TOP & BOTTOM
A514	30	31'-6"		FOOTING LONGITUDINAL TOP & BOTTOM
A515	12	26'-9"		FOOTING LONGITUDINAL TOP & BOTTOM
A516	2 SERIES OF 7	23'-0" TO 26'-4"		FOOTING LONGITUDINAL TOP & BOTTOM
A517	26	26'-0"		FOOTING LONGITUDINAL TOP & BOTTOM
A818E	53	9'-7"		FOOTING DOWELS B.F.
A919E	92	11'-2"		FOOTING DOWELS B.F.
A620E	52	7'-6"		FOOTING DOWELS F.F.
A521E	81	6'-10"		FOOTING DOWELS F.F.
A622E	21	26'-6"		ABUTMENT HORIZONTAL B.F.
A623E	20	31'-11"		ABUTMENT HORIZONTAL B.F.
A624E	21	24'-3"		ABUTMENT HORIZONTAL F.F.
A625E	20	32'-5"		ABUTMENT HORIZONTAL F.F.
A626E	1	25'-8"		ABUTMENT HORIZONTAL B.F.
A627E	1	24'-3"		ABUTMENT HORIZONTAL F.F.
A628E	1	32'-6"		ABUTMENT HORIZONTAL B.F.
A629E	1	32'-5"		ABUTMENT HORIZONTAL F.F.
A830E	53	19'-4"		ABUTMENT VERTICAL B.F.
A631E	52	20'-0"		ABUTMENT VERTICAL F.F.
A532E	48	10'-4"		ABUTMENT VERTICAL TIE
A533E	50	8'-10"		BRIDGE SEAT TIE

**BILL OF REINFORCEMENT FOR SOUTH ABUTMENT**

BAR	NO.	LENGTH	SHAPE	LOCATION
A534E	8	5'-9"		BRIDGE SEAT TIE
A535E	35	5'-10"		PEDESTAL TIE TRANSVERSE
A536E	30	6'-6"		PEDESTAL TIE LONGITUDINAL
A937E	62	24'-2"		WINGWALL VERTICAL B.F.
A538E	31	23'-11"		WINGWALL VERTICAL F.F.
A539E	24	25'-8"		WINGWALL HORIZONTAL B.F.
A540E	24	29'-10"		WINGWALL HORIZONTAL F.F.
A541E	2	17'-0"		WINGWALL HORIZONTAL E.F.
A542E	2	30'-1"		WINGWALL HORIZONTAL E.F.
A543E	114	8'-8"		WINGWALL VERTICAL TIE
A544E	25	4'-4"		WINGWALL HORIZONTAL TIE
A945E	30	23'-3"		WINGWALL VERTICAL B.F.
A946E	35	19'-4"		WINGWALL VERTICAL B.F.
A947E	6	19'-4"		WINGWALL VERTICAL B.F.
A548E	23	23'-0"		WINGWALL VERTICAL F.F.
A549E	27	19'-1"		WINGWALL VERTICAL F.F.
A550E	4	19'-1"		WINGWALL VERTICAL F.F.
A551E	36	18'-3"		WINGWALL HORIZONTAL E.F.
A552E	38	30'-2"		WINGWALL HORIZONTAL E.F.
A553E	2	22'-9"		WINGWALL HORIZONTAL E.F.
A554E	2	30'-0"		WINGWALL HORIZONTAL E.F.
A555E	2	9'-10"		WINGWALL HORIZONTAL E.F.
A556E	2	30'-4"		WINGWALL HORIZONTAL E.F.
A557E	2	24'-7"		WINGWALL HORIZONTAL E.F.
A658	26	9'-5"		FOOTING STEP TIE
A659E	2	14'-7"		ABUTMENT HORIZONTAL E.F.
A660E	44	4'-7"		WINGWALL TO ABUT. TIE
A661E	20	7'-10"		WINGWALL TO ABUT. TIE
A662E	21	5'-11"		WINGWALL TO ABUT. TIE
A563E	14	7'-1"		ABUTMENT VERTICAL TIE
A564E	18	7'-0"		WINGWALL VERTICAL TIE
A565E	10	15'-9"		WINGWALL HORIZONTAL E.F.
A566E	24	2'-10"		WINGWALL HORIZONTAL TIE
A667	6	12'-6"		WINGWALL FOOTING STEP TRANSVERSE
A968E	35	12'-7"		FOOTING DOWELS B.F.
A569E	70	8'-8"		WINGWALL HORIZONTAL E.F.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
FELTL ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C08  
SOUTH ABUTMENT REINFORCEMENT 6

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C08-BRG-ABT-013

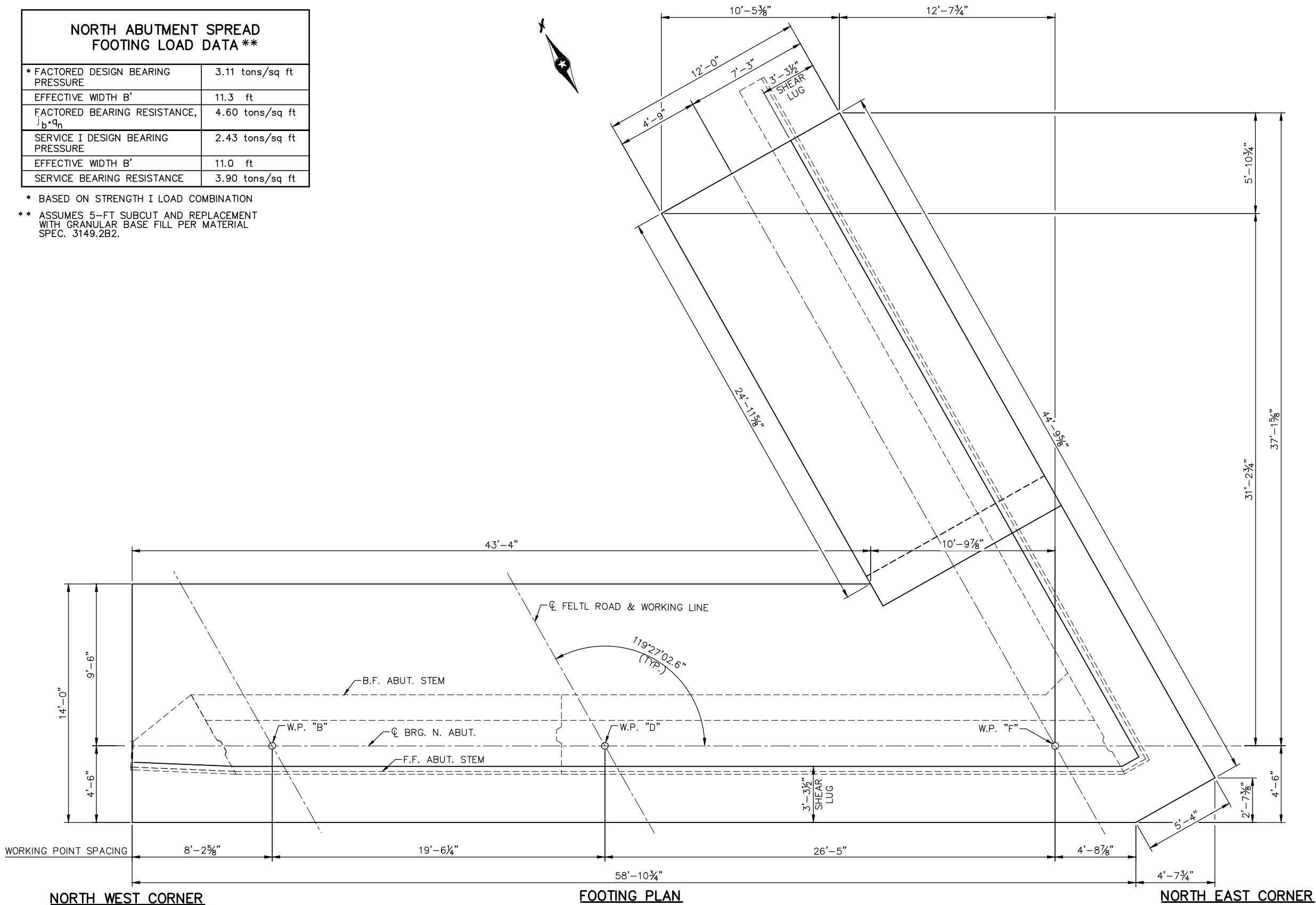
Jan, 08 2016 10:51 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08\CBR27C08-BRG-ABT-014.dwg By: bodenc

NORTH ABUTMENT SPREAD  
FOOTING LOAD DATA \*\*

* FACTORED DESIGN BEARING PRESSURE	3.11 tons/sq ft
EFFECTIVE WIDTH B'	11.3 ft
FACTORED BEARING RESISTANCE, $\phi_b \cdot q_n$	4.60 tons/sq ft
SERVICE I DESIGN BEARING PRESSURE	2.43 tons/sq ft
EFFECTIVE WIDTH B'	11.0 ft
SERVICE BEARING RESISTANCE	3.90 tons/sq ft

\* BASED ON STRENGTH I LOAD COMBINATION

\*\* ASSUMES 5-FT SUBCUT AND REPLACEMENT  
WITH GRANULAR BASE FILL PER MATERIAL  
SPEC. 3149.2B2.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
FELTL ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C08  
NORTH ABUTMENT DETAILS 1

DISCIPLINE:  
STRUCTURES

SHEET NAME:  
CBR27C08-BRG-ABT-014

SHEET  
17  
OF  
44

PLAN VIEW

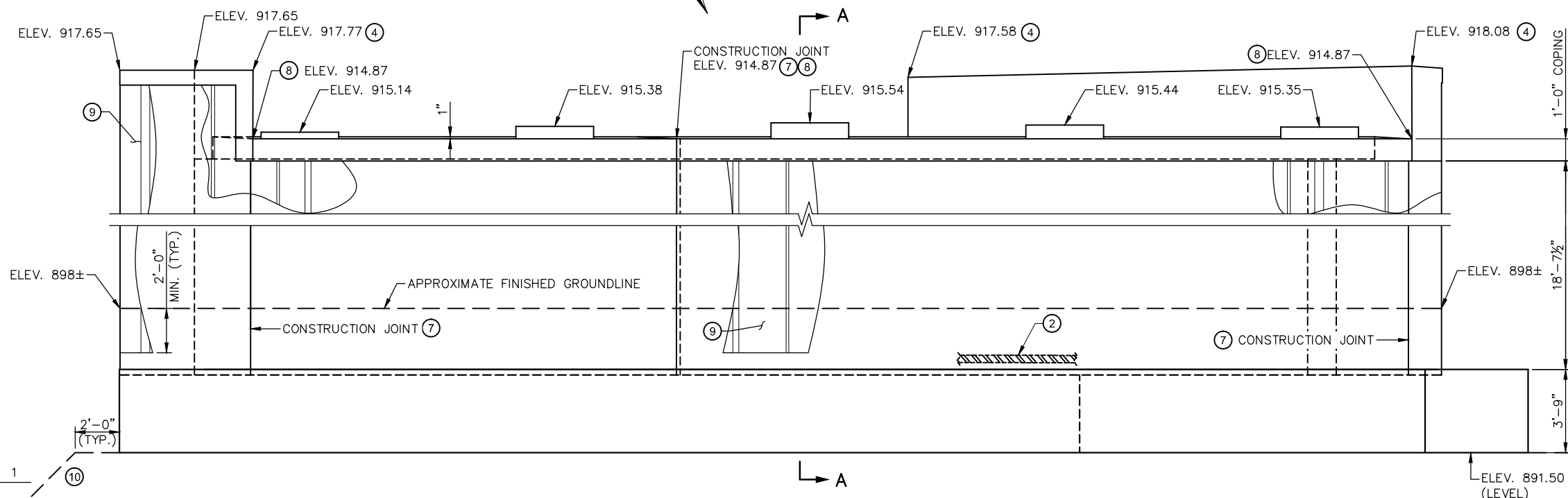
NORTH EAST CORNER

FOR WINGWALL DETAILS SEE SHEETS 19 & 20. SEE SHEET 21 FOR SECTION A-A.

F.F. DENOTES FRONT FACE.

SEE CORNER DETAILS, SHEET 35, FOR LOCATION OF  
POLYSTYRENE MATERIAL BETWEEN DECK AND WINGS.

- ① MEMBRANE WATERPROOFING SYSTEM PER MnDOT 2184.3B.
- ② 4"Ø PERFORATED PIPE. SEE DETAIL B910 FOR DRAINAGE DETAILS.
- ③ THERE SHALL BE A 72 HOUR MINIMUM DELAY BETWEEN CONCRETE POURS OF ADJACENT ABUTMENT SECTIONS THAT HAVE VERTICAL CONSTRUCTIONS JOINTS.
- ④ ELEVATIONS ARE AT THE BACK FACE OF WINGWALL (POLYSTYRENE JOINT).
- ⑤ 1'-0" X 2" ABUTMENT STEM COPING.
- ⑥ 8" X 2" WINGWALL COPING.
- ⑦ CONSTRUCTION JOINT AND 2" X 12" KEYWAY.
- ⑧ ELEVATION IS AT F.F. OF ABUTMENT STEM.
- ⑨ ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM) SEE SHEET 4 & 5 FOR DETAILS.
- ⑩ UPON EXCAVATION, WHERE UNSUITABLE SOILS ARE FOUND, SUBCUT TO DEPTH 5' AS REQUIRED BY THE GEOTECHNICAL REPORT. REPLACE WITH SUITABLE COMPACTED STRUCTURAL FILL TO ACHIEVE THE REQUIRED BEARING CAPACITY. BACKFILL WITH GRANULAR MATERIAL, SPEC. 3149.2B2. COMPACT BACKFILL PER SPEC. 2105.3F.



NORTH WEST CORNER

ELEVATION

NORTH EAST CORNER

[illegible]

DESIGNED BY: <b>PLR</b>	CHECKED BY: <b>MPC</b>
DRAWN BY: <b>CRVB</b>	CHECKED BY: <b>MPC</b>

**AECOM**

**90% SUBMISSION - 01/22/16**



## SOUTHWEST



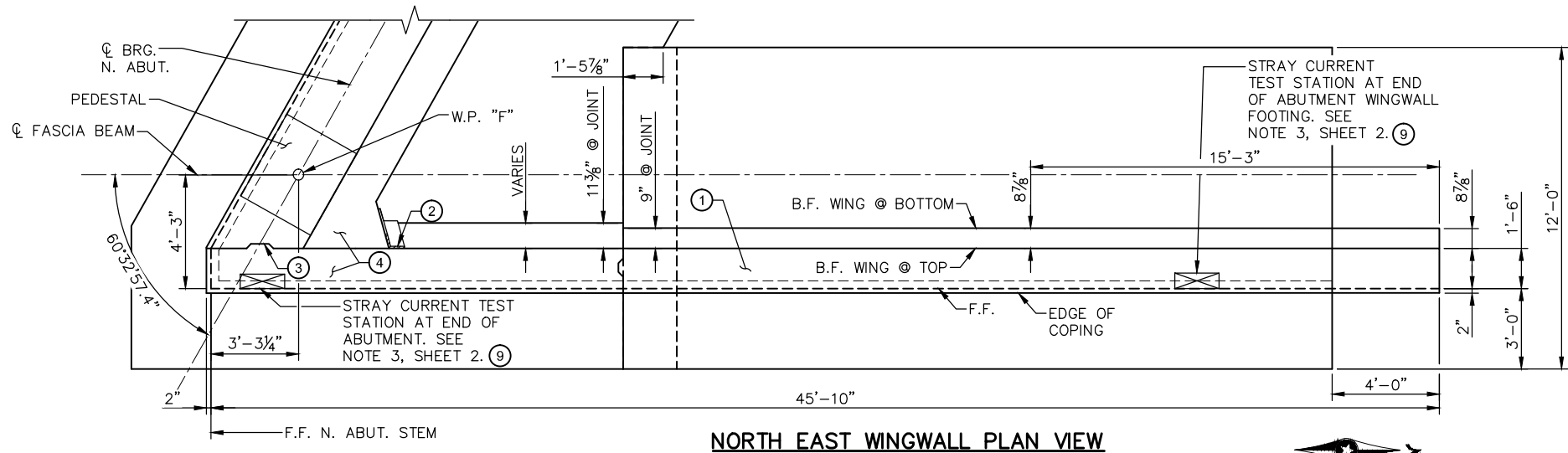
**CIVIL - VOLUME 4B**  
**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C08**  
**NORTH ABUTMENT DETAILS 2**

DISCIPLINE: **STRUCTURES**

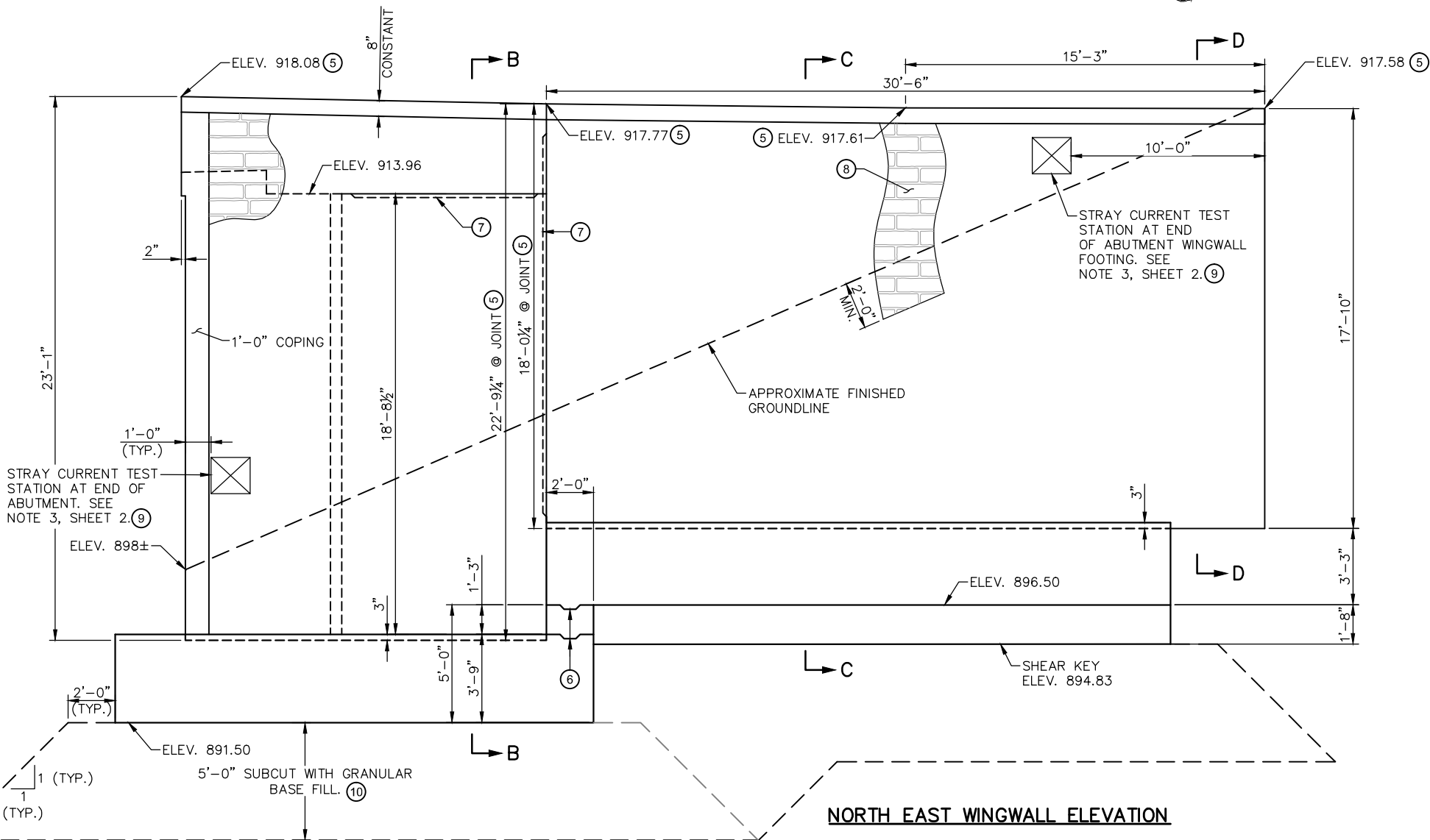
SHEET NAME:	CBR27C08-BRG-ABT-015
-------------	----------------------

**SHEET**  
**18**  
**OF**  
**44**

Jan, 08 2016 10:55 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-ABT-016.dwg By: bodenc



NORTH EAST WINGWALL PLAN VIEW



NORTH EAST WINGWALL ELEVATION

### NOTES

SEE CORNER DETAILS, SHEET 35, FOR LOCATION OF POLYSTYRENE MATERIAL BETWEEN DECK & WING.

CONTRACTOR SHALL PLACE BACKFILL BEHIND THE WINGWALLS AND IN FRONT OF THE WINGWALLS IN ALTERNATING LIFTS SUCH THAT THE DIFFERENCE IN TOP-OF-SOIL ELEVATIONS DOES NOT EXCEED FIVE FEET, UP TO THE APPROXIMATE FINISHED GROUNDLINE.

SEE SHEET 21 FOR SECTIONS B-B, C-C, AND D-D.

B.F. DENOTES BACK FACE.

F.F. DENTOEES FRONT FACE.

- ① SLOPE 1% ± DOWN TOWARDS FRONT FACE.
- ② MEMBRANE WATERPROOFING SYSTEM PER MnDOT 2184.3B.
- ③ CONSTRUCTION JOINT & 2" X 12" KEYWAY.
- ④ THERE SHALL BE A 72 HOUR MINIMUM DELAY BETWEEN CONCRETE POURS OF ADJACENT ABUTMENT SECTIONS THAT HAVE VERTICAL CONSTRUCTION JOINTS.
- ⑤ ELEVATIONS ARE AT THE BACK FACE OF WINGWALL (POLYSTYRENE JOINT).
- ⑥ PERMISSIBLE CONSTRUCTION JOINT & 2" X 8" KEYWAY.
- ⑦ PERMISSIBLE CONSTRUCTION JOINT & 2" X 6" KEYWAY.
- ⑧ ARCHITECTURAL CONCRETE TEXTURE (COURSED STONE) SEE SHEET 4 & 5 FOR DETAILS.
- ⑨ INSTALL STRAY CURRENT JUNCTION BOX. CABLES WILL BE ROUTED TO JUNCTION BOXES BY CONTRACTOR. AFTER CONDUITS ARE INSTALLED, REMAINING BLOCKOUT SPACE TO BE FILLED AND SEALED WITH NON-SHRINK GROUT (TYP. FOR ALL BLOCKOUTS).
- ⑩ UPON EXCAVATION, WHERE UNSUITABLE SOILS ARE FOUND, SUBCUT TO DEPTH 5' AS REQUIRED BY THE GEOTECHNICAL REPORT. REPLACE WITH SUITABLE COMPACTED STRUCTURAL FILL TO ACHIEVE THE REQUIRED BEARING CAPACITY. BACKFILL WITH GRANULAR MATERIAL, SPEC. 3149.2B2. COMPACT BACKFILL PER SPEC. 2105.3F.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR  
DRAWN BY: CRVB  
CHECKED BY: MPC  
CHECKED BY: MPC

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
FELTL ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C08  
NORTH ABUTMENT DETAILS 3

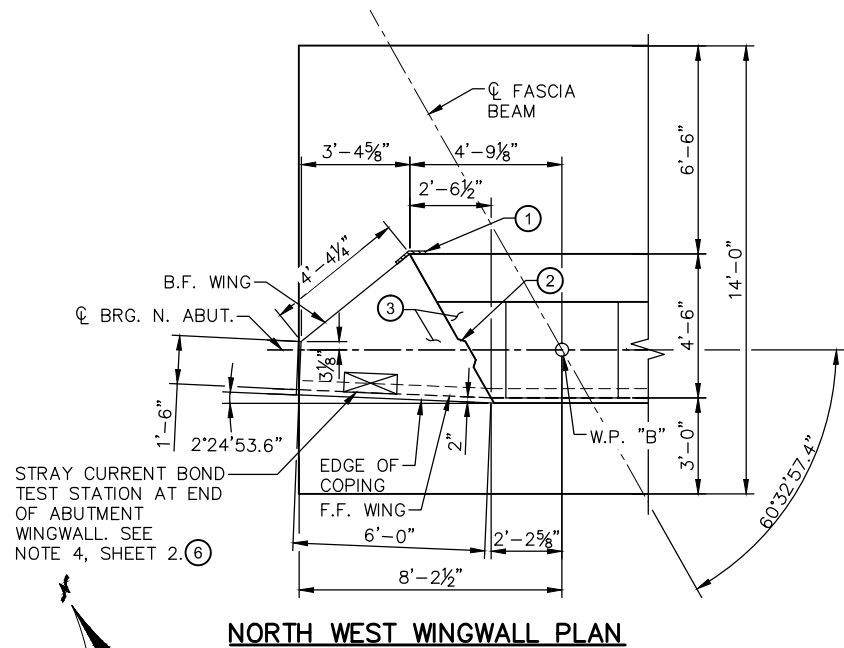
DISCIPLINE:  
STRUCTURES

SHEET NAME:  
CBR27C08-BRG-ABT-016

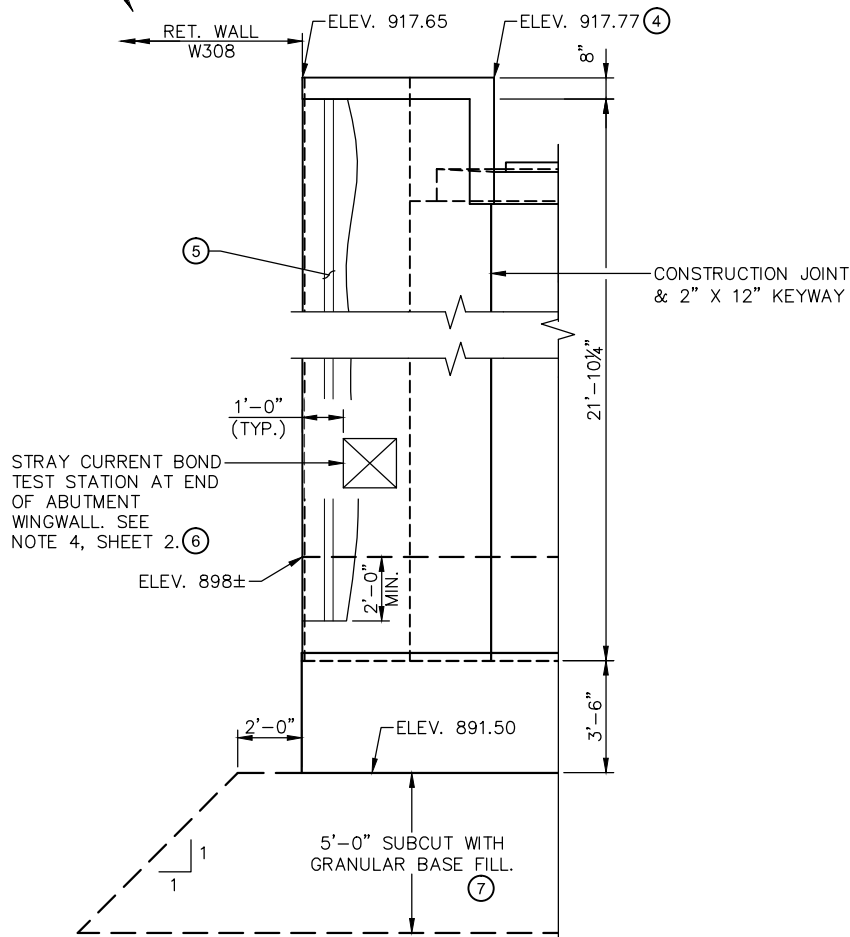
SHEET  
19  
OF  
44



Jan, 08 2016 10:57 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08\CBR27C08-BRG-ABT-017.dwg By: bodenc



**NORTH WEST WINGWALL PLAN**



**NORTH WEST WINGWALL ELEVATION**

**NOTES**

- SEE CORNER DETAILS, SHEET 35, FOR LOCATION OF POLYSTYRENE MATERIAL BETWEEN DECK & WING.
- CONTRACTOR SHALL PLACE BACKFILL BEHIND THE WINGWALLS AND IN FRONT OF THE WINGWALLS IN ALTERNATING LIFTS SUCH THAT THE DIFFERENCE IN TOP-OF-SOIL ELEVATIONS DOES NOT EXCEED FIVE FEET, UP TO THE APPROXIMATE FINISHED GROUNDLINE.
- B.F. DENOTES BACK FACE.
- F.F. DENTOEES FRONT FACE.
- ① MEMBRANE WATERPROOFING SYSTEM PER MnDOT 2184.3B
  - ② CONSTRUCTION JOINT & 2" X 12" KEYWAY.
  - ③ THERE SHALL BE A 72 HOUR MINIMUM DELAY BETWEEN CONCRETE POURS OF ADJACENT ABUTMENT SECTIONS THAT HAVE VERTICAL CONSTRUCTION JOINTS.
  - ④ ELEVATIONS ARE AT THE BACK FACE OF WINGWALL (POLYSTYRENE JOINT).
  - ⑤ ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM) SEE SHEET 4 & 5 FOR DETAILS.
  - ⑥ INSTALL STRAY CURRENT JUNCTION BOX. CABLES WILL BE ROUTED TO JUNCTION BOXES BY CONTRACTOR. AFTER CONDUITS ARE INSTALLED, REMAINING BLOCKOUT SPACE TO BE FILLED AND SEALED WITH NON-SHRINK GROUT (TYP. FOR ALL BLOCKOUTS).
  - ⑦ UPON EXCAVATION, WHERE UNSUITABLE SOILS ARE FOUND, SUBCUT TO DEPTH 5' AS REQUIRED BY THE GEOTECHNICAL REPORT. REPLACE WITH SUITABLE COMPACTED STRUCTURAL FILL TO ACHIEVE THE REQUIRED BEARING CAPACITY. BACKFILL WITH GRANULAR MATERIAL, SPEC. 3149.2B2. COMPACT BACKFILL PER SPEC. 2105.3F.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC

90% SUBMISSION - 01/22/16

**CIVIL - VOLUME 4B**  
**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C08**  
**NORTH ABUTMENT DETAILS 4**

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C08-BRG-ABT-017

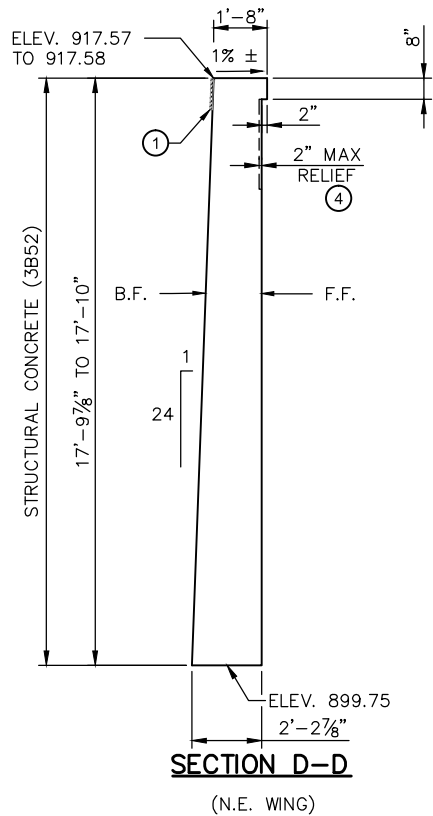
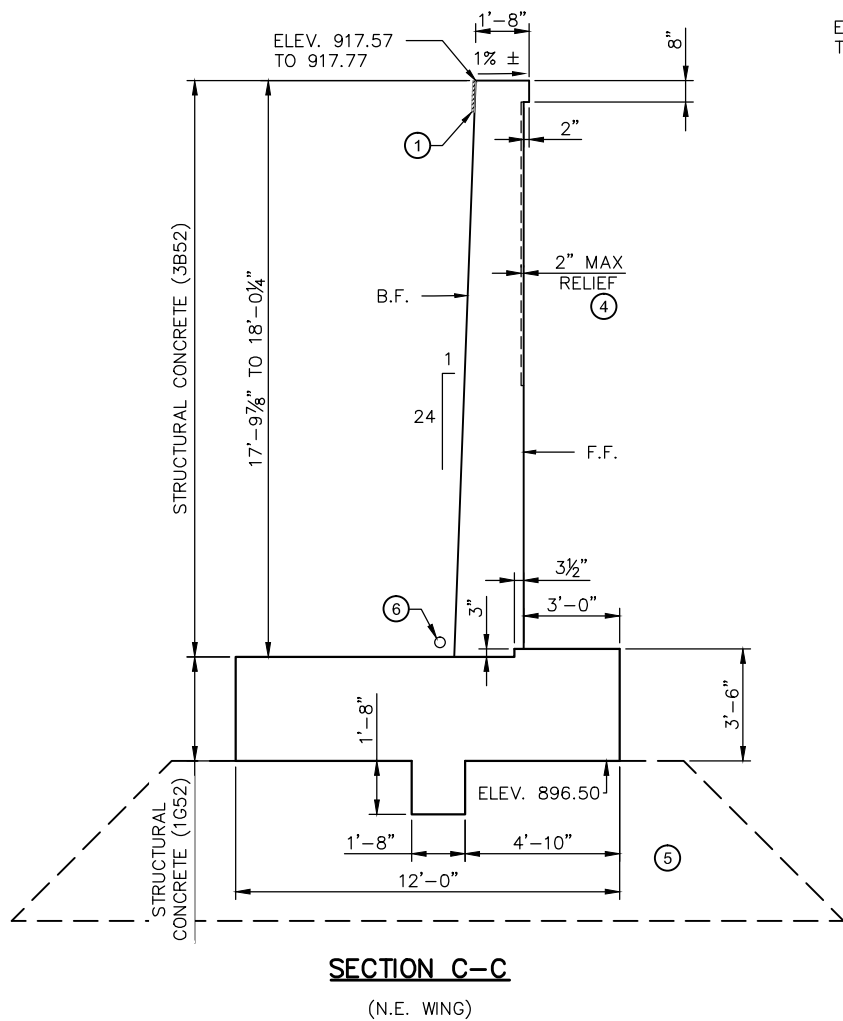
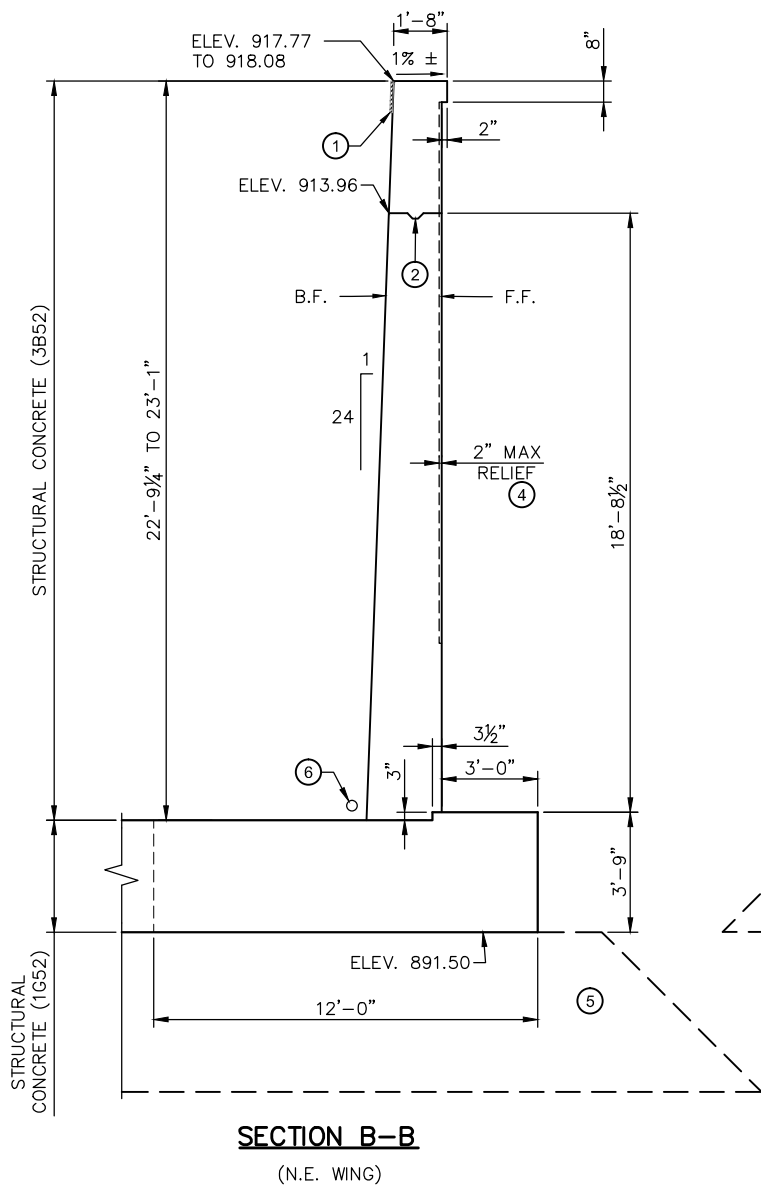
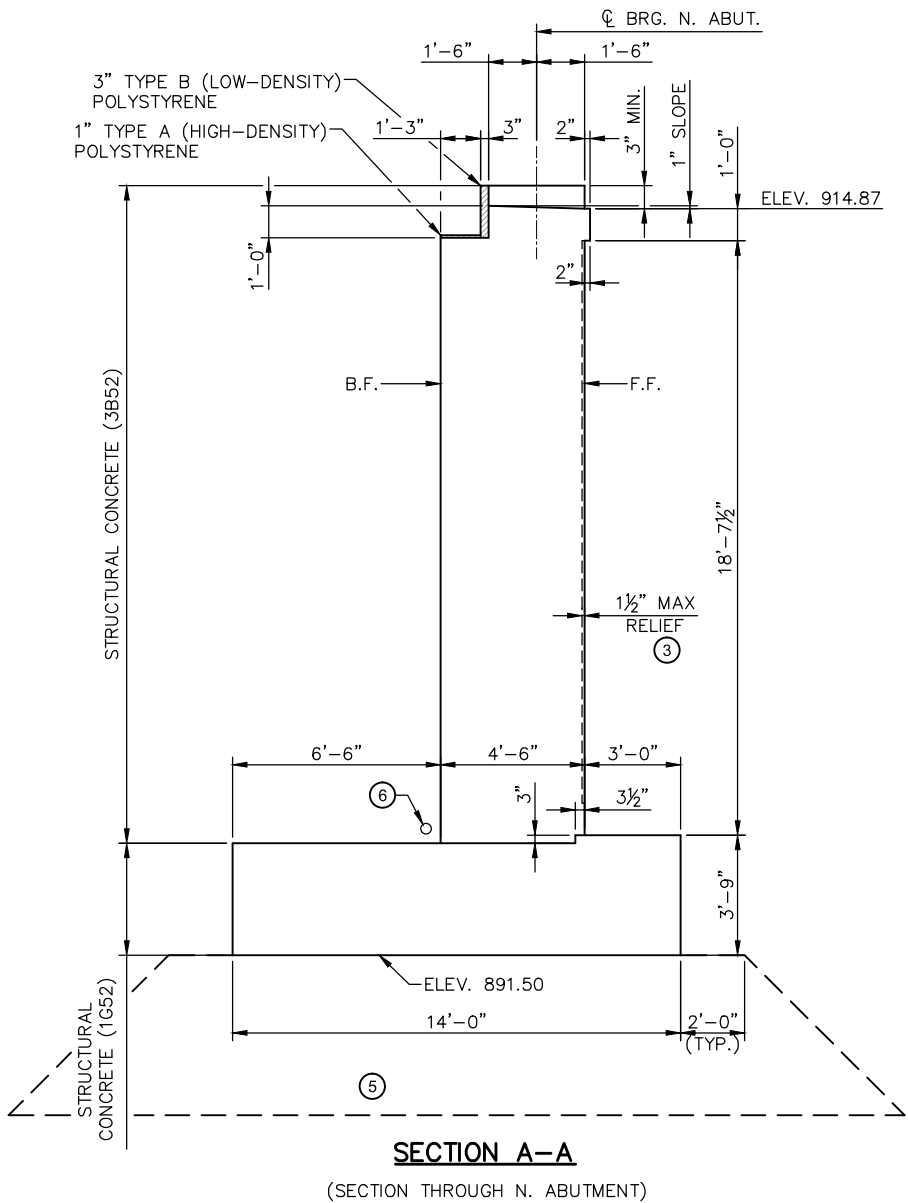
SHEET

20

OF

44

Jan, 08 2016 10:59 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-ABT-018.dwg By: bodenc



#### NOTES

CONTRACTOR SHALL PLACE BACKFILL BEHIND THE WINGWALLS AND IN FRONT OF THE WINGWALLS IN ALTERNATING LIFTS SUCH THAT THE DIFFERENCE IN TOP-OF-SOIL ELEVATIONS DOES NOT EXCEED FIVE FEET, UP TO THE APPROXIMATE FINISHED GROUNDLINE.

B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

RAILING AND FENCE NOT SHOWN. SEE SHEETS 35, 36, & 37 FOR ADDITIONAL INFORMATION.

SEE DETAILS ON SHEET 40 FOR DRAINAGE SYSTEM & BACKFILL INFORMATION.

- ① 1" TYPE B (LOW DENSITY) POLYSTYRENE BETWEEN EDGE OF DECK AND WINGWALL. 1 1/2" TYPE B (LOW DENSITY) POLYSTYRENE BETWEEN EDGE OF APPROACH SLAB AND WINGWALL. (INCLUDED IN CIVIL PLANS).
- ② PERMISSIBLE CONSTRUCTION JOINT & 2" X 6" KEYWAY.
- ③ ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM) SEE SHEET 4 & 5 FOR DETAILS.
- ④ ARCHITECTURAL CONCRETE TEXTURE (COURSED STONE) SEE SHEET 4 & 5 FOR DETAILS.
- ⑤ UPON EXCAVATION, WHERE UNSUITABLE SOILS ARE FOUND, SUBCUT TO DEPTH 5' AS REQUIRED BY THE GEOTECHNICAL REPORT. REPLACE WITH SUITABLE COMPACTED STRUCTURAL FILL TO ACHIEVE THE REQUIRED BEARING CAPACITY. BACKFILL WITH GRANULAR MATERIAL, SPEC. 3149.2B2. COMPACT BACKFILL PER SPEC. 2105.3F.
- ⑥ 4"Ø PERFORATED PIPE. SEE DETAIL B910.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC

**AECOM**

90% SUBMISSION - 01/22/16



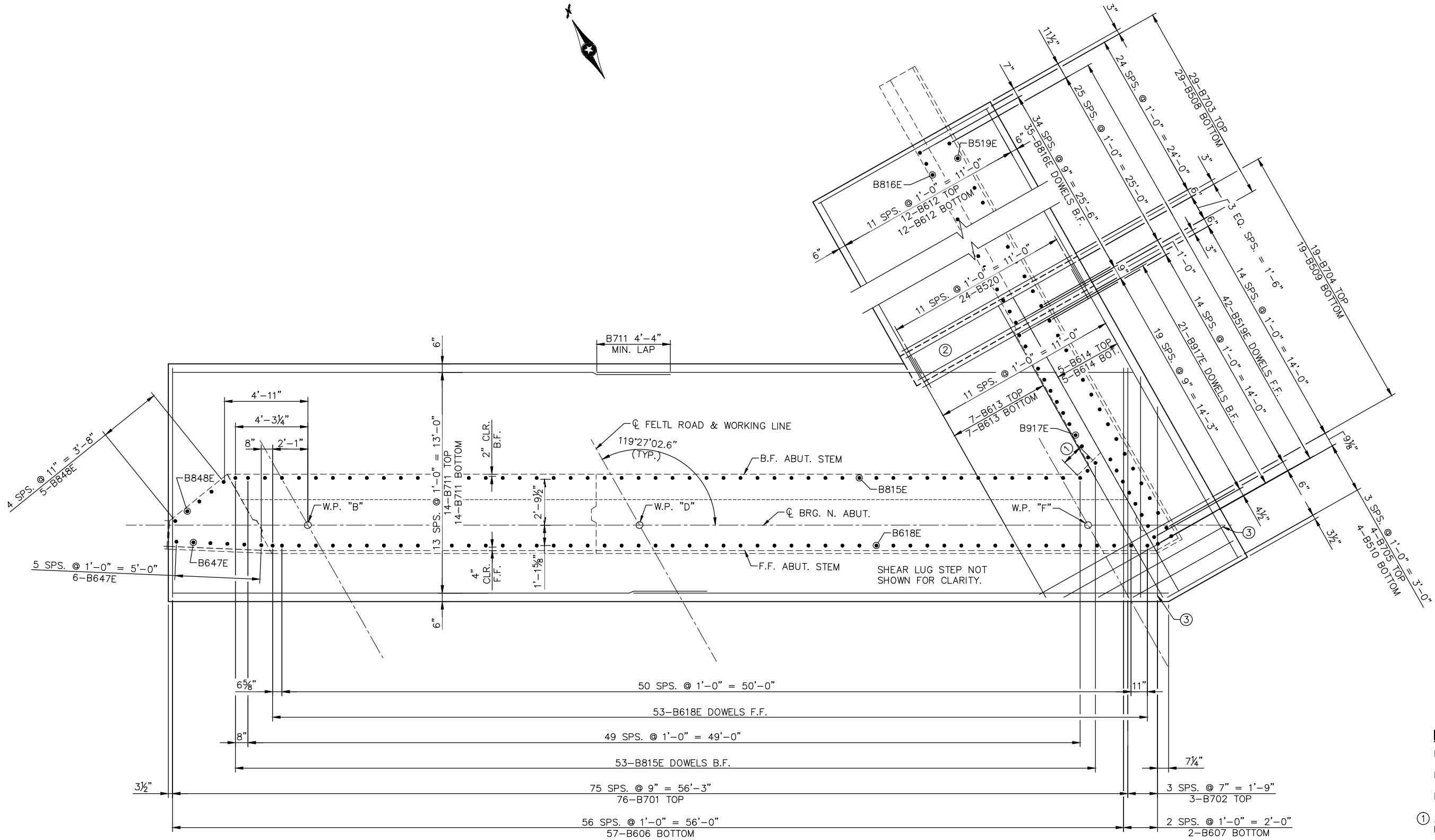
**CIVIL - VOLUME 4B**  
**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C08**  
**NORTH ABUTMENT DETAILS 5**

DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C08-BRG-ABT-018**

**SHEET**  
**21**  
**OF**  
**44**

Jan, 08 2016 11:01 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-ABT-019.dwg By: bodenc



NORTH WEST CORNER

FOOTING PLAN

NORTH EAST CORNER

NOTES

- B.F. DENOTES BACK FACE.  
F.F. DENOTES FRONT FACE.  
E.F. DENOTES EACH FACE.

- ① 2 EQUAL SPACES = 1'-3" B815E.  
② SEE SHEET 24 FOR FOOTING STEP DETAIL.  
③ HOOK END.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC



90% SUBMISSION - 01/22/16

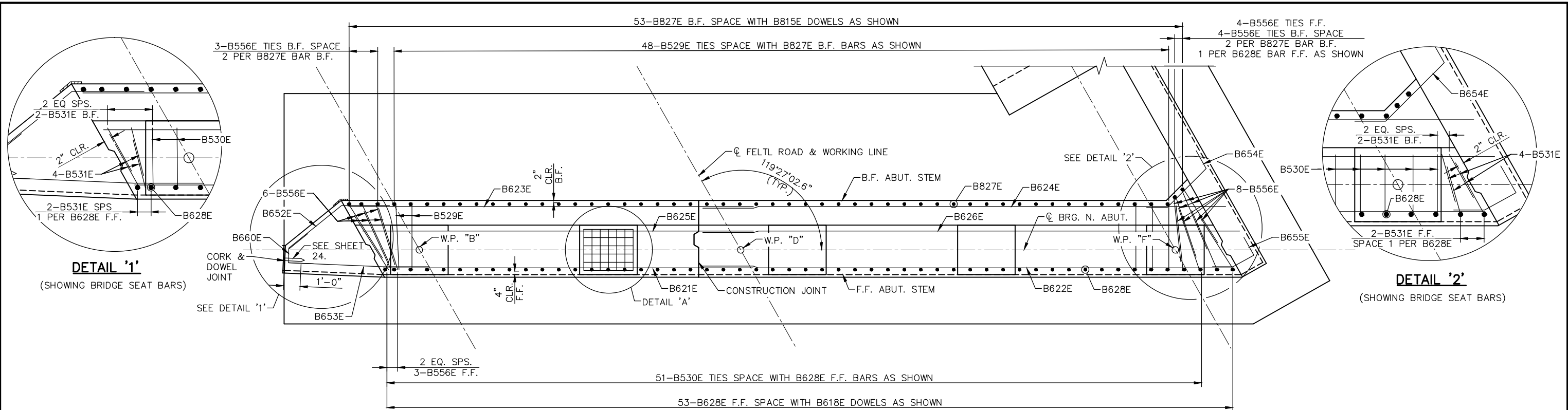


CIVIL - VOLUME 4B  
FELTL ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C08  
NORTH ABUTMENT REINFORCEMENT 1

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C08-BRG-ABT-019

SHEET
22
OF
44

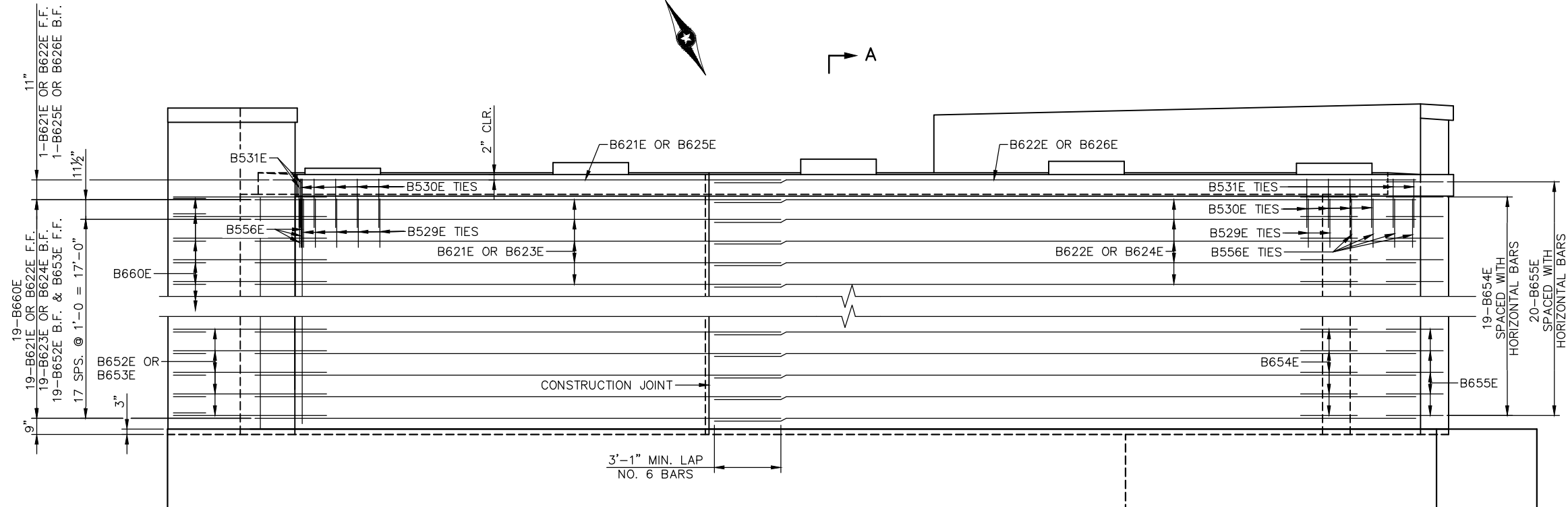
Jan, 08 2016 11:03 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08\CBR27C08-BRG-ABT-020.dwg By: bodenc



NORTH WEST CORNER

PLAN VIEW

NORTH EAST CORNER



NORTH WEST CORNER

ELEVATION

NORTH EAST CORNER

#### NOTES

- SEE SHEET 26 FOR SECTION A-A.
- B.F. DENOTES BACK FACE.
- F.F. DENOTES FRONT FACE.
- E.F. DENOTES EACH FACE.
- SEE SHEET 24 FOR DETAILS 'A'.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR  
DRAWN BY: CRVB

CHECKED BY: MPC  
CHECKED BY: MPC

**AECOM**

90% SUBMISSION - 01/22/16



**SOUTHWEST**  
Green Line LRT Extension



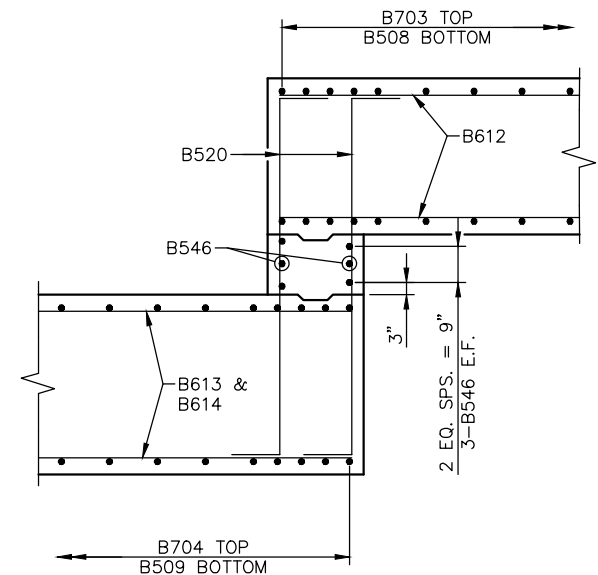
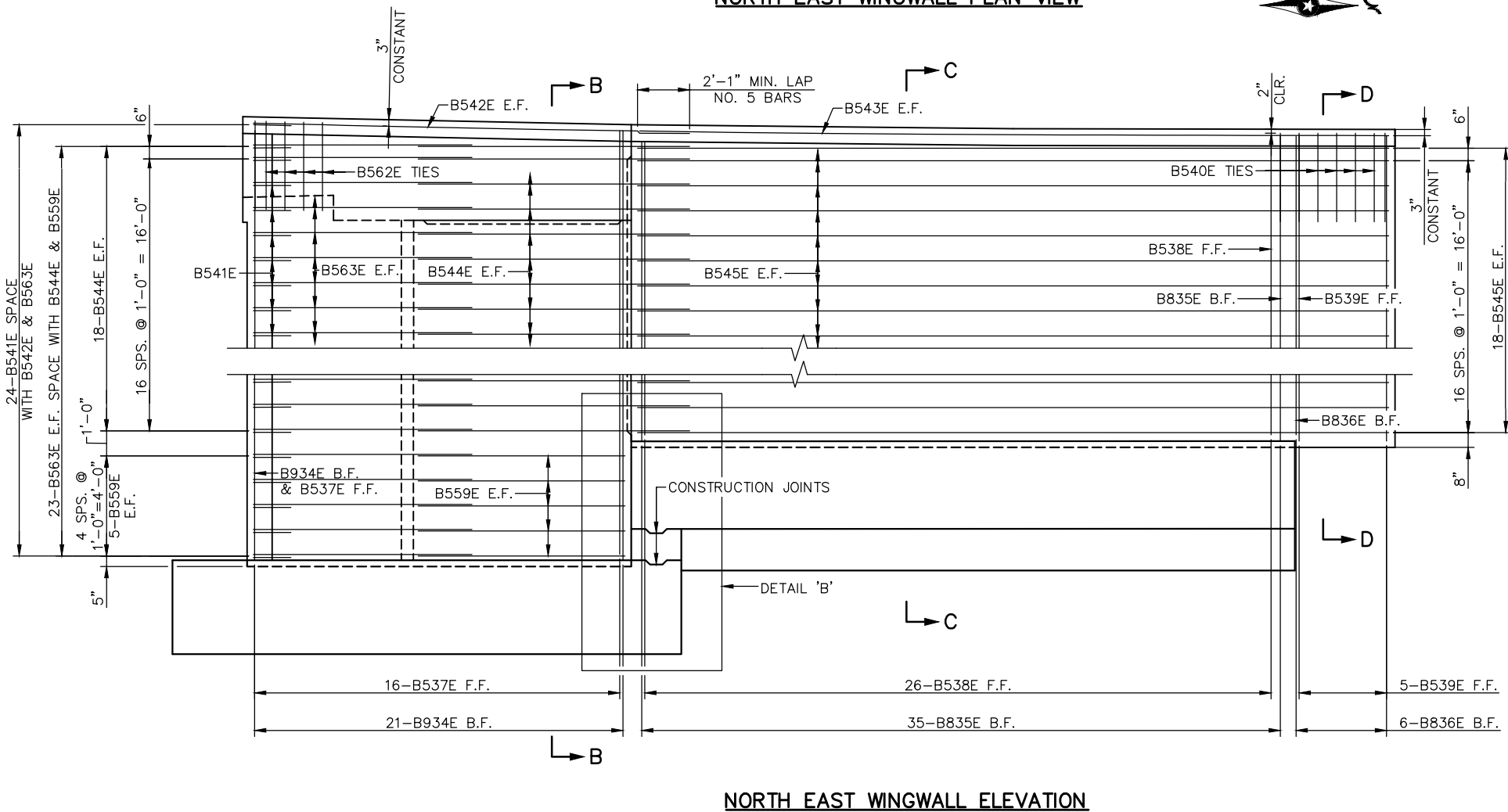
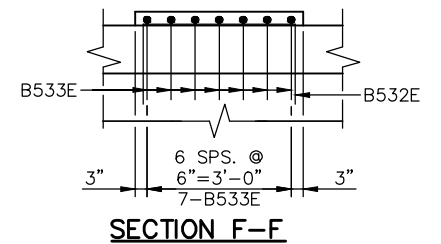
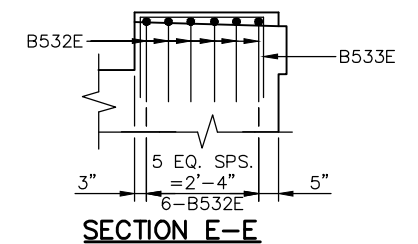
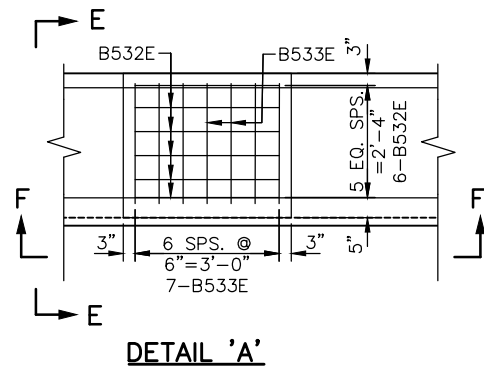
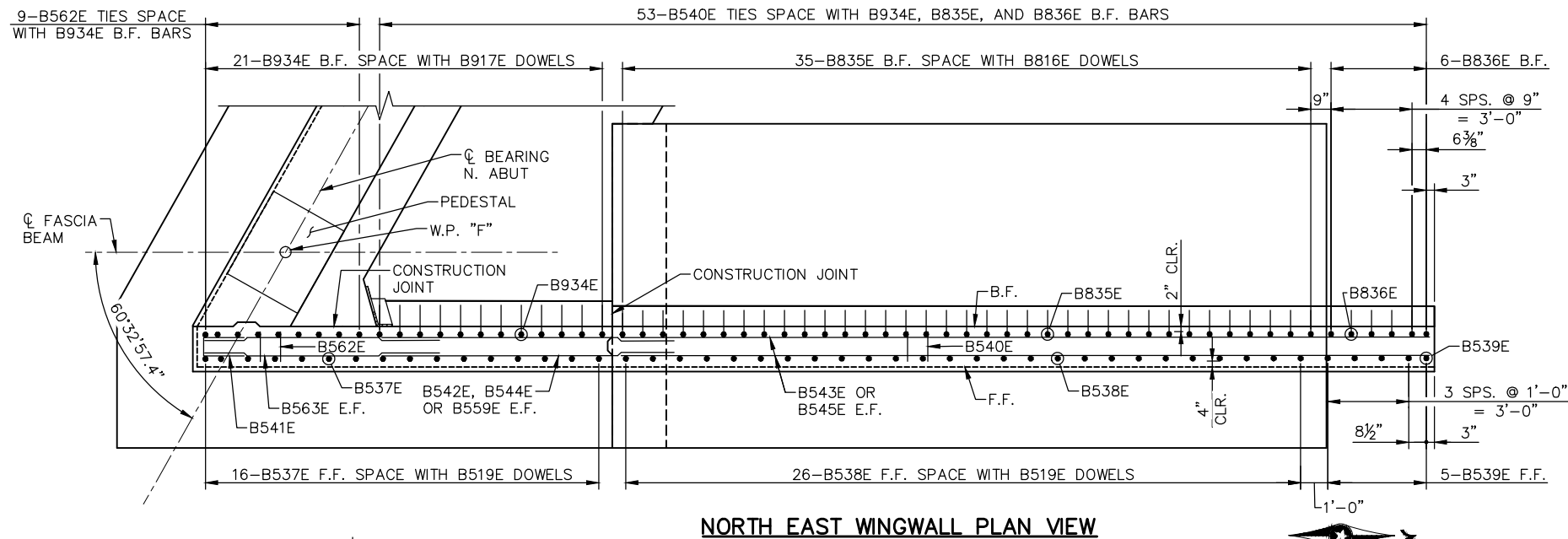
**CIVIL - VOLUME 4B**  
**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C08**  
**NORTH ABUTMENT REINFORCEMENT 2**

DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C08-BRG-ABT-020**

**SHEET**  
**23**  
**OF**  
**44**

Jan, 08 2016 11:06 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-ABT-021.dwg By: bodenc



#### NOTES

- B.F. DENOTES BACK FACE.
- F.F. DENOTES FRONT FACE.
- E.F. DENOTES EACH FACE.
- SEE SHEET 26 FOR SECTIONS B-B, C-C, & D-D.
- SEE SHEET 23 FOR LOCATION OF DETAIL 'A'.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR  
DRAWN BY: CRVB

CHECKED BY: MPC  
CHECKED BY: MPC

**AECOM**

90% SUBMISSION - 01/22/16



**SOUTHWEST**  
Green Line LRT Extension



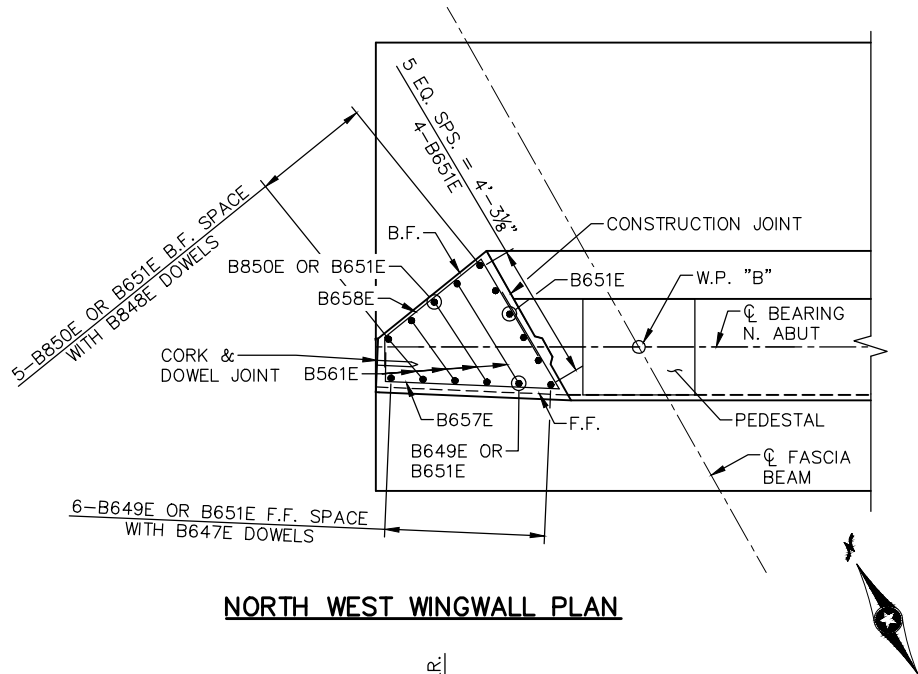
**CIVIL - VOLUME 4B**  
**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C08**  
**NORTH ABUTMENT REINFORCEMENT 3**

DISCIPLINE: STRUCTURES

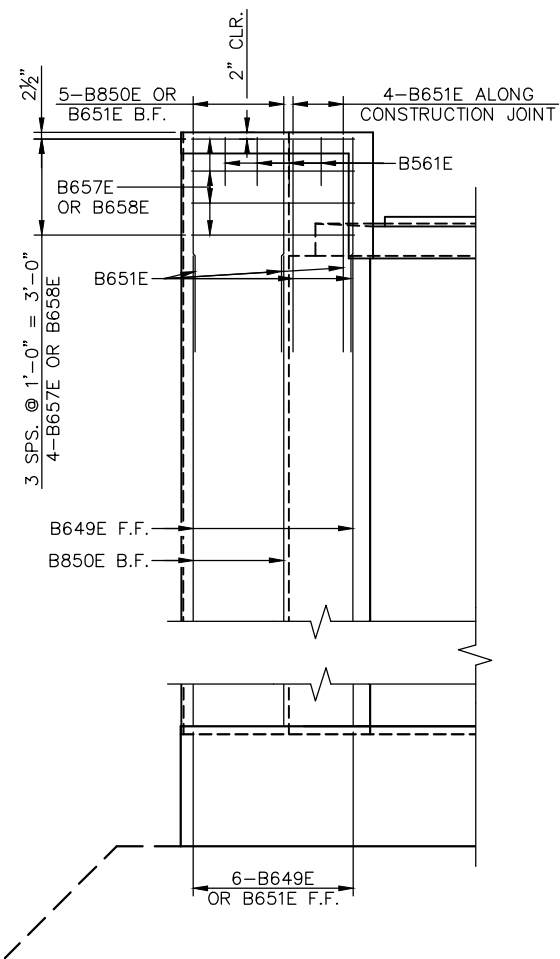
SHEET NAME: CBR27C08-BRG-ABT-021

**SHEET**  
**24**  
**OF**  
**44**

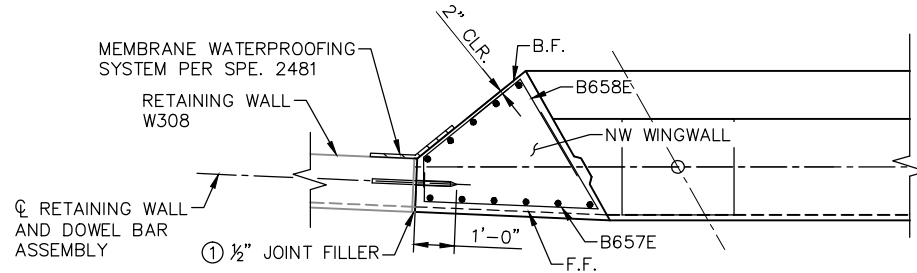
Jan, 08 2016 11:08 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08\CBR27C08-BRG-ABT-022.dwg By: bodenc



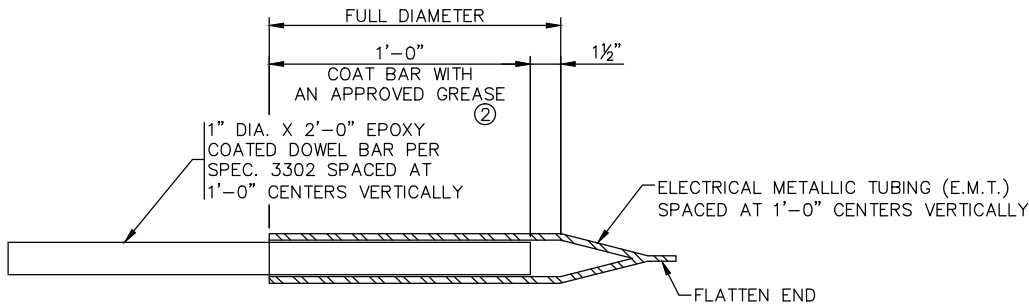
**NORTH WEST WINGWALL PLAN**



**NORTH WEST WINGWALL ELEVATION**



**CORK & DOWEL JOINT DETAIL**  
(TYPICAL SECTION THROUGH JOINT) ③



**DOWEL BAR ASSEMBLY**

**NOTES**

B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

E.F. DENOTES EACH FACE.

THE MATERIALS AND PLACEMENT OF THE CORK AND DOWEL JOINT/CONSTRUCTION JOINT (DOWEL BAR ASSEMBLIES, JOINT FILLER, AND JOINT WATERPROOFING) ARE INCIDENTAL.

THE CONTRACTOR SHALL ASSIGN TO THE REINFORCING BAR SUPPLIER THE RESPONSIBILITY OF SUPPLYING THE NECESSARY MATERIALS ASSOCIATED WITH THE DETAILS SHOWN ON THIS SHEET.

① JOINT FILLER SHALL BE CORK SPEC. 2401.3E3.

② GREASE SHALL BE AN APPROVED HIGH PRESSURE TYPE THAT IS EFFECTIVE OVER THE FULL RANGE OF EXPECTED TEMPERATURES AND RESISTANT TO CHEMICAL ACTION.

③ DOWEL BAR ASSEMBLY MUST BE PLACED PERPENDICULAR TO JOINT AND PARALLEL TO THE WALL FACE, AND TO EACH OTHER.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC

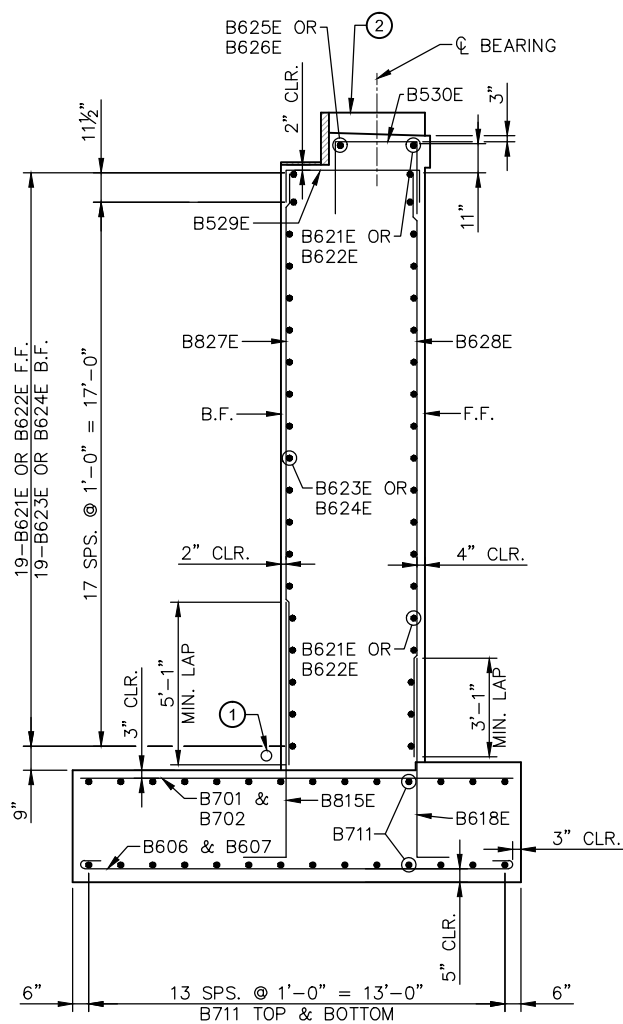
<b>AECOM</b>
90% SUBMISSION - 01/22/16

 <b>METROPOLITAN COUNCIL</b>	 <b>SOUTHWEST</b> Green Line Light Rail Extension
---	---

<b>CIVIL - VOLUME 4B</b>	
<b>FELTL ROAD OVER SOUTHWEST LIGHT RAIL</b>	
<b>BRIDGE 27C08</b>	
<b>NORTH ABUTMENT REINFORCEMENT 4</b>	
DISCIPLINE: <b>STRUCTURES</b>	SHEET NAME: <b>CBR27C08-BRG-ABT-022</b>

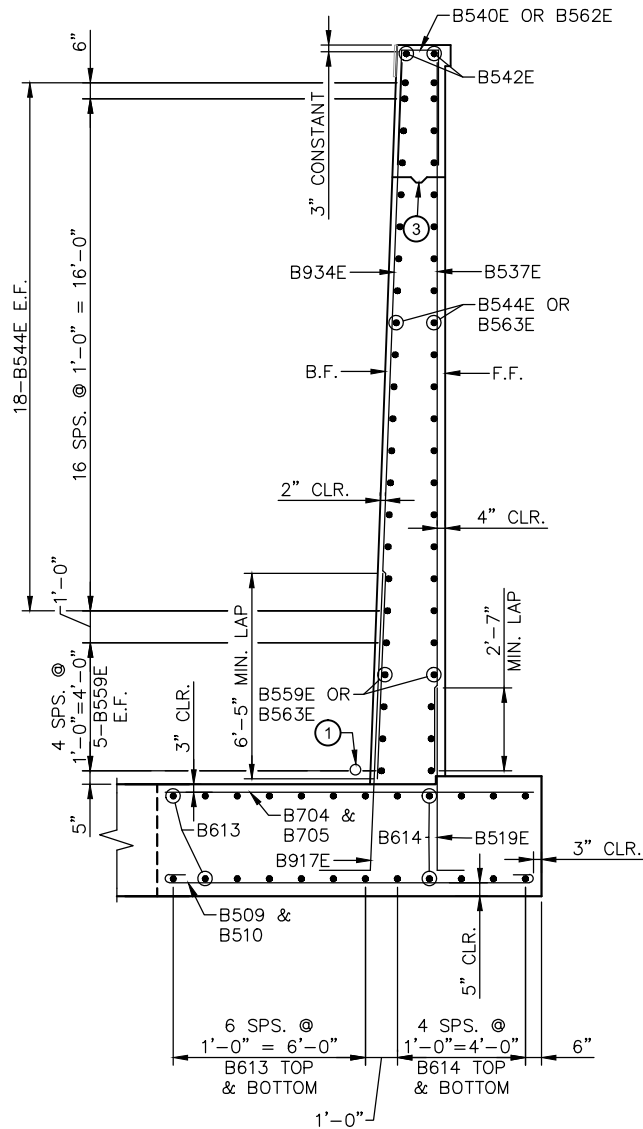
<b>SHEET</b>
<b>25</b>
<b>OF</b>
<b>44</b>

Jan, 08 2016 11:11 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-ABT-023.dwg By: bodenc



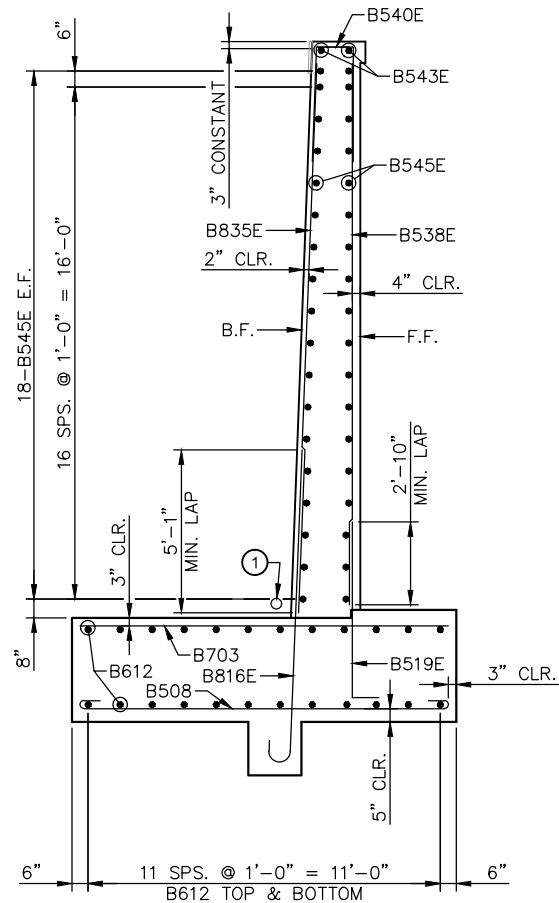
**SECTION A-A**

(SECTION THROUGH N. ABUT.)



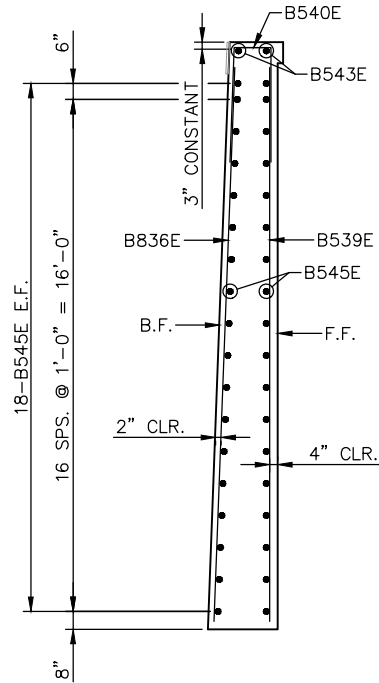
**SECTION B-B**

(N.E. WING)



**SECTION C-C**

(N.E. WING)



**SECTION D-D**

(N.E. WING)

**NOTES**

B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

E.F. DENOTES EACH FACE.

SEE SHEET 23 FOR LOCATION OF SECTION A-A.

SEE SHEET 24 FOR LOCATIONS OF SECTIONS B-B, C-C, AND D-D.

① 4"Ø PERFORATED PIPE. SEE DETAIL B910.

② SEE DETAIL 'A' ON SHEET 24 FOR PEDESTAL REINFORCEMENT.

③ PERMISSIBLE CONSTRUCTION JOINT & 2" X 6" KEYWAY.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC

**AECOM**

90% SUBMISSION - 01/22/16



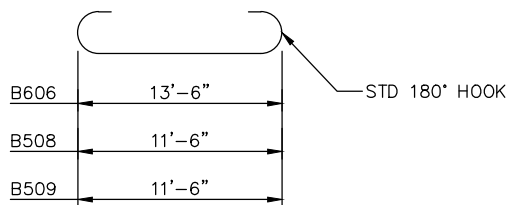
**CIVIL - VOLUME 4B**  
**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C08**  
**NORTH ABUTMENT REINFORCEMENT 5**

DISCIPLINE: STRUCTURES

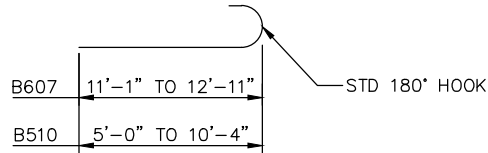
SHEET NAME: CBR27C08-BRG-ABT-023

**SHEET**  
**26**  
**OF**  
**44**

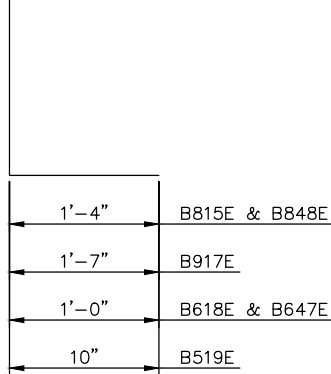
Jan, 08 2016 11:11 am V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08\CBR27C08-BRG-ABT-024.dwg By: bodenc



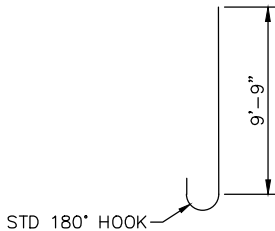
**B606, B508,  
& B509**



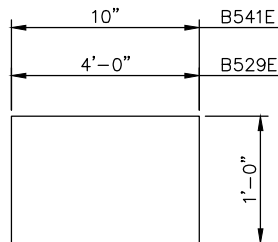
**B607 & B510**



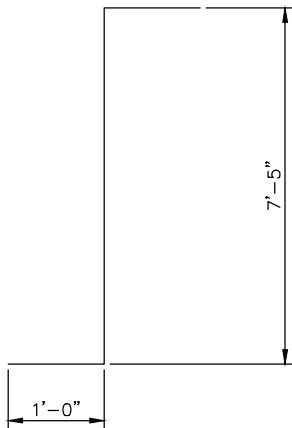
**B815E, B917E, B618E,  
B519E, B647E, & B848E**



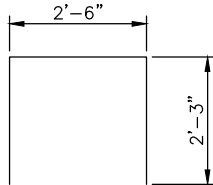
**B816E**



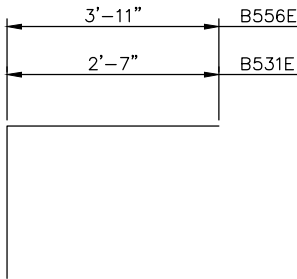
**B529E & B541E**



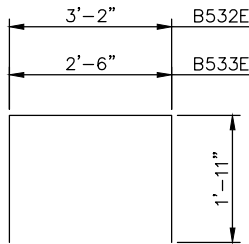
**B520**



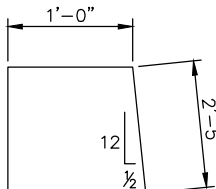
**B530E**



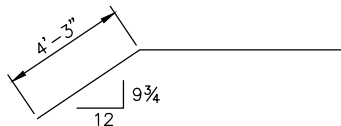
**B531E & B556E**



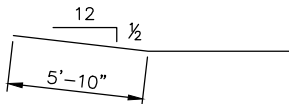
**B532E & B533E**



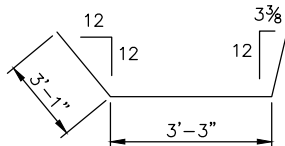
**B540E**



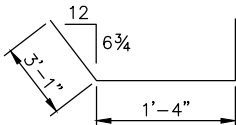
**B652E**



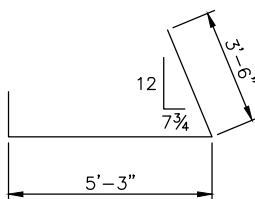
**B653E**



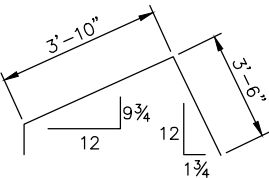
**B654E**



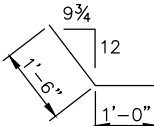
**B655E**



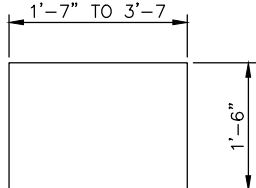
**B657E**



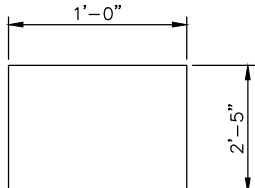
**B658E**



**B660E**



**B561E**



**B562E**

**BILL OF REINFORCEMENT FOR  
NORTH ABUTMENT**

BAR	NO.	LENGTH	SHAPE	LOCATION
B701	76	13'-6"	—	FOOTING TRANSVERSE TOP
B702	SERIES OF 3	11'-1" TO 13'-2"	—	FOOTING TRANSVERSE TOP
B703	29	11'-6"	—	FOOTING TRANSVERSE TOP
B704	19	11'-6"	—	FOOTING TRANSVERSE TOP
B705	SERIES OF 4	5'-0" TO 10'-4"	—	FOOTING TRANSVERSE TOP
B606	57	14'-10"	—	FOOTING TRANSVERSE BOTTOM
B607	SERIES OF 2	11'-9" TO 13'-7"	—	FOOTING TRANSVERSE BOTTOM
B508	29	12'-8"	—	FOOTING TRANSVERSE BOTTOM
B509	19	12'-8"	—	FOOTING TRANSVERSE BOTTOM
B510	SERIES OF 4	5'-7" TO 10'-11"	—	FOOTING TRANSVERSE BOTTOM
B711	56	31'-6"	—	FOOTING LONGITUDINAL TOP & BOTT.
B612	24	26'-0"	—	FOOTING LONGITUDINAL TOP & BOTT.
B613	2 SERIES OF 7	16'-3" TO 19'-8"	—	FOOTING LONGITUDINAL TOP & BOTT.
B614	10	19'-9"	—	FOOTING LONGITUDINAL TOP & BOTT.
B815E	53	9'-7"	—	FOOTING DOWEL B.F.
B816E	35	10'-8"	—	FOOTING DOWEL B.F.
B917E	21	11'-2"	—	FOOTING DOWEL B.F.
B618E	53	7'-6"	—	FOOTING DOWEL F.F.
B519E	42	6'-8"	—	FOOTING DOWEL F.F.
B520	24	9'-5"	—	FOOTING STEP TIES
B621E	20	22'-4"	—	ABUTMENT HORIZONTAL F.F.
B622E	20	32'-5"	—	ABUTMENT HORIZONTAL F.F.
B623E	19	24'-8"	—	ABUTMENT HORIZONTAL B.F.
B624E	19	31'-10"	—	ABUTMENT HORIZONTAL B.F.
B625E	1	23'-10"	—	ABUTMENT HORIZONTAL B.F.
B626E	1	32'-9"	—	ABUTMENT HORIZONTAL B.F.
B827E	53	18'-9"	—	ABUTMENT VERTICAL B.F.
B628E	53	19'-5"	—	ABUTMENT VERTICAL F.F.
B529E	48	6'-0"	—	ABUTMENT VERTICAL TIE
B530E	51	7'-0"	—	BRIDGE SEAT TIE
B531E	8	4'-10"	—	BRIDGE SEAT TIE
B532E	30	7'-0"	—	PEDESTAL TIE LONGITUDINAL
B533E	35	6'-4"	—	PEDESTAL TIE TRANSVERSE
B934E	21	22'-7"	—	WINGWALL VERTICAL B.F.
B835E	35	17'-8"	—	WINGWALL VERTICAL B.F.
B836E	6	17'-3"	—	WINGWALL VERTICAL B.F.
B537E	16	22'-4"	—	WINGWALL VERTICAL F.F.
B538E	26	17'-5"	—	WINGWALL VERTICAL F.F.
B539E	5	17'-3"	—	WINGWALL VERTICAL F.F.
B540E	53	5'-10"	—	WINGWALL VERTICAL TIE
B541E	24	2'-10"	—	WINGWALL HORIZONTAL TIE
B542E	2	17'-7"	—	WINGWALL HORIZONTAL E.F.
B543E	2	30'-4"	—	WINGWALL HORIZONTAL E.F.
B544E	36	11'-3"	—	WINGWALL HORIZONTAL E.F.
B545E	36	30'-2"	—	WINGWALL HORIZONTAL E.F.
B546	6	11'-6"	—	FOOTING TRANSVERSE, STEP
B647E	6	7'-6"	—	FOOTING DOWEL F.F.
B848E	5	9'-7"	—	FOOTING DOWEL B.F.
B649E	6	19'-5"	—	WINGWALL VERTICAL F.F.
B850E	5	18'-9"	—	WINGWALL VERTICAL B.F.
B651E	15	6'-11"	—	WINGWALL VERTICAL
B652E	19	7'-6"	—	WINGWALL TO ABUTMENT TIE
B653E	19	9'-1"	—	WINGWALL TO ABUTMENT TIE
B654E	19	7'-10"	—	WINGWALL TO ABUTMENT TIE
B655E	20	5'-11"	—	WINGWALL TO ABUTMENT TIE
B556E	14	6'-2"	—	ABUTMENT VERTICAL TIE
B657E	4	9'-11"	—	WINGWALL HORIZONTAL TIE
B658E	4	8'-6"	—	WINGWALL HORIZONTAL TIE
B559E	10	8'-9"	—	WINGWALL HORIZONTAL E.F.
B660E	19	4'-0"	—	WINGWALL HORIZONTAL TIE
B561E	SERIES OF 4	4'-7" TO 6'-7"	—	WINGWALL VERTICAL TIE
B562E	9	5'-10"	—	WINGWALL VERTICAL TIE
B563E	46	8'-8"	—	WINGWALL HORIZONTAL E.F.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: ALB	CHECKED BY: MPC



90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**

**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**

**BRIDGE 27C08**

**NORTH ABUTMENT REINFORCEMENT 6**

DISCIPLINE: **STRUCTURES** SHEET NAME: **CBR27C08-BRG-ABT-024**

**SHEET**

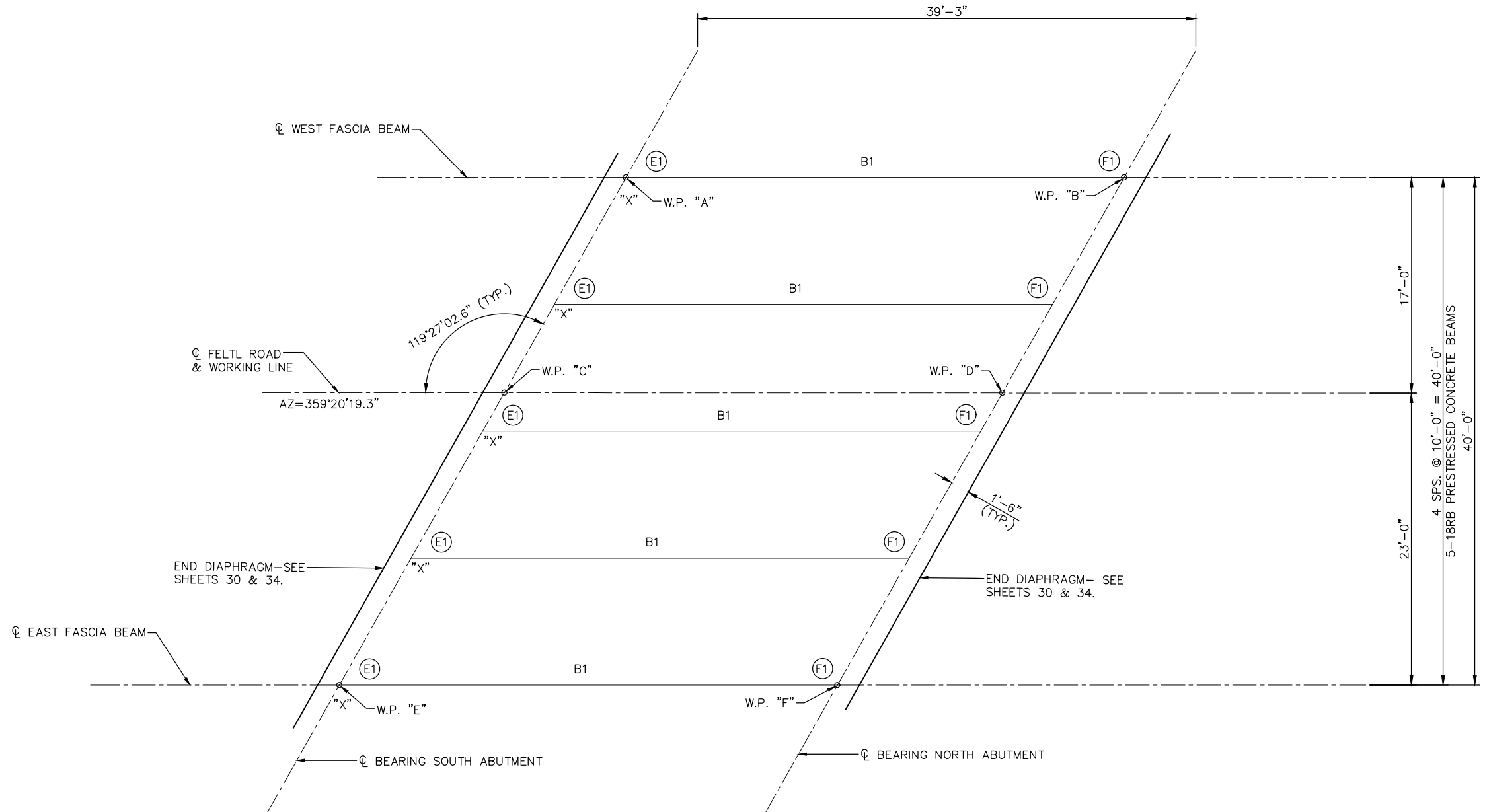
27

OF

44



Jan, 04 2016 01:13 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08\BRG-SUP-001.dwg By: bodenc



FRAMING PLAN



- NOTES**
- (E1) DENOTES EXPANSION CURVED PLATE BEARING ASSEMBLY, TYPE E1, SEE DETAIL B311.
  - (F1) DENOTES FIXED CURVED PLATE BEARING ASSEMBLY, TYPE F1, SEE DETAIL B310.
  - "X" DENOTES BEAM END

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC

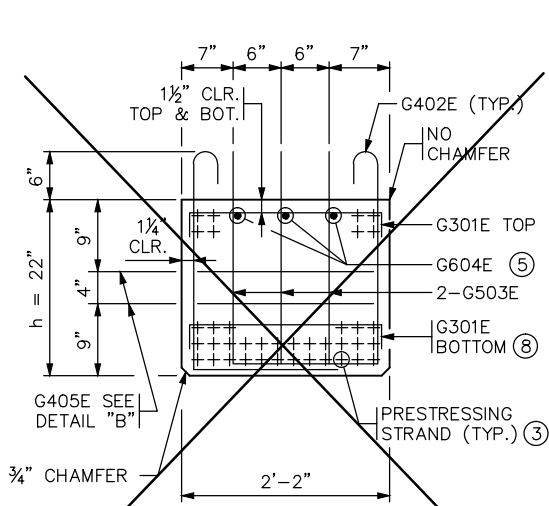
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
FELTL ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C08  
FRAMING PLAN

DISCIPLINE: STRUCTURES

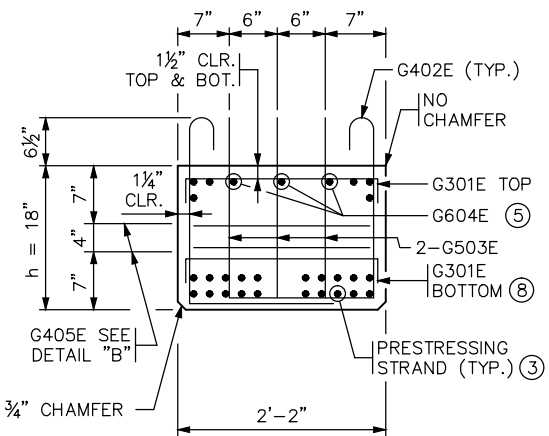
SHEET NAME: CBR27C08-BRG-SUP-001

Jan, 04 2016 01:13 pm v:\3400\_ADC\CAD\SEGMENT\W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-PCB.dwg By: bodenc



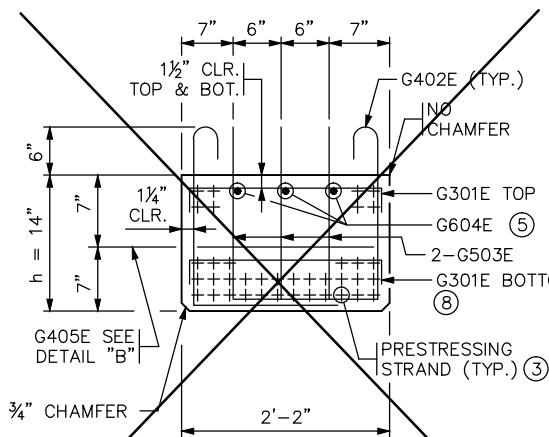
END VIEW - 22" RB

CUT STRANDS FLUSH WITH CONCRETE.  
COVER ENDS WITH ONE COMPONENT POLYURETHANE  
SEALANT PER APPROVED PRODUCT LIST.



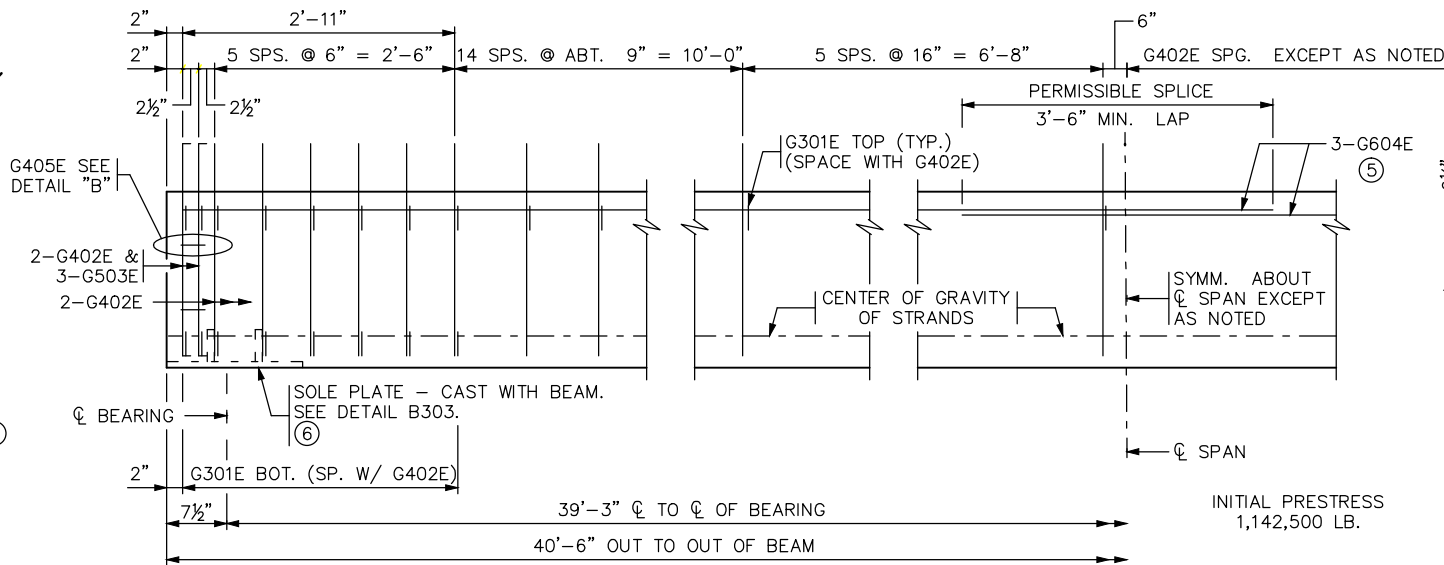
END VIEW - 18" RB

CUT STRANDS FLUSH WITH CONCRETE.  
COVER ENDS WITH ONE COMPONENT POLYURETHANE  
SEALANT PER APPROVED PRODUCT LIST.

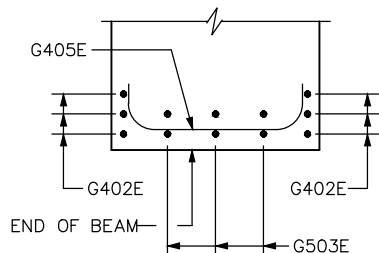


END VIEW - 14" RB

CUT STRANDS FLUSH WITH CONCRETE.  
COVER ENDS WITH ONE COMPONENT POLYURETHANE  
SEALANT PER APPROVED PRODUCT LIST.

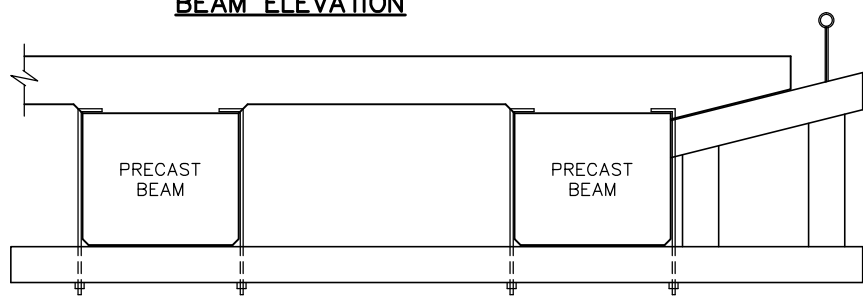


BEAM ELEVATION



DETAIL "B"

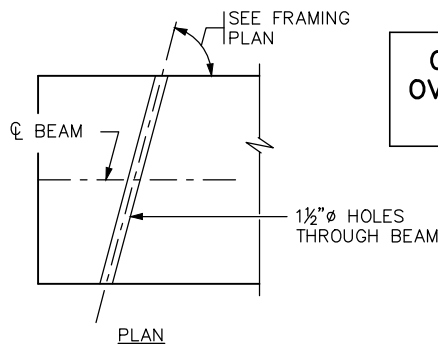
PLAN VIEW SHOWING  
PLACEMENT OF G405E BAR



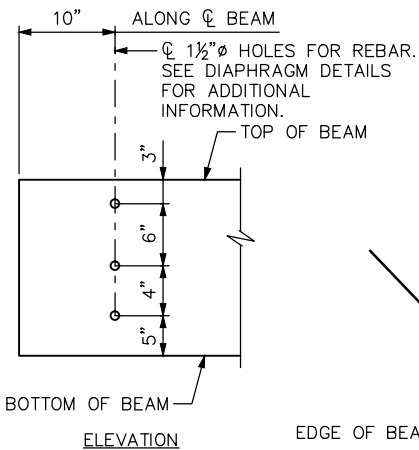
OVERHANG SUPPORT CONCEPT SKETCH

SEE THE "CONSTRUCTION NOTES" ON FRONT PORTION OF THE BRIDGE PLANS.  
THIS CONCEPT HAS BEEN USED SUCCESSFULLY ON PREVIOUS PROJECTS.  
CONTRACTORS MAY CONSIDER THIS OR ANOTHER SYSTEM AT THEIR DISCRETION.

CONTRACTOR SHALL VERIFY STABILITY OF FASCIA BEAMS FROM  
OVERTURNING (NO PERMANENT BEAM DIAPHRAGMS ARE PRESENT).  
CONTRACTOR SHALL PROVIDE TEMPORARY BRACING.



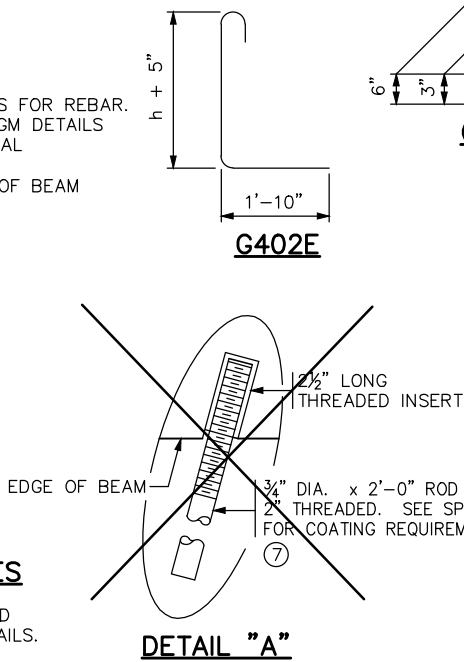
PLAN



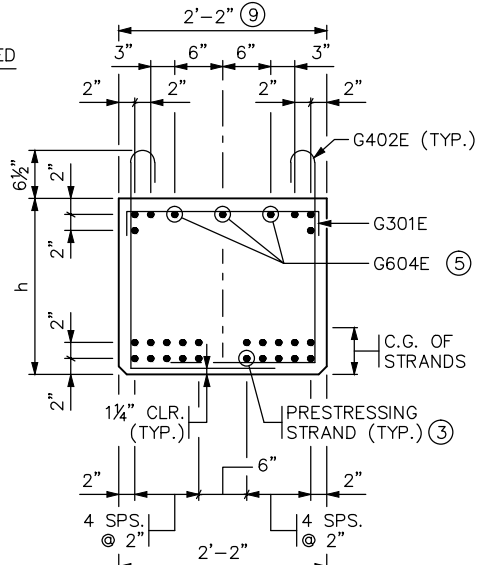
ELEVATION

CONCRETE END  
DIAPHRAGM ANCHORAGES

SEE SUPERSTRUCTURE DETAILS AND  
REINFORCEMENT FOR DIAPHRAGM DETAILS.



DETAIL "A"

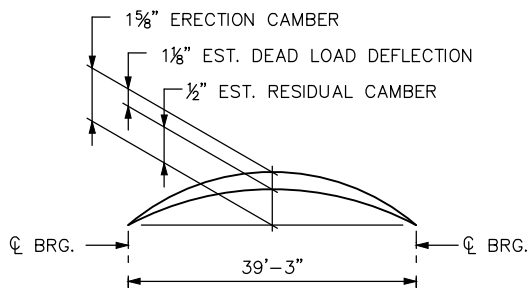


SECTION AT C CENTER SPAN

STRAND ARRANGEMENT	
LOCATION	NO. OF STRANDS
TOP ROW	4
2ND ROW FROM TOP	2
3RD ROW FROM BOTTOM	-
2ND ROW FROM BOTTOM	10
BOTTOM ROW	10
TOTAL	26
C.G. OF STRANDS = 5.85 INCHES	

C.G. = DISTANCE TO CENTER OF GRAVITY OF ALL STRANDS  
FROM BOTTOM OF BEAM. ALL STRANDS SPACED 2"  
CENTER TO CENTER, HORIZONTALLY AND VERTICALLY,  
EXCEPT AS NOTED.

ALL STRAIGHT STRAND.



CAMBER DIAGRAM

DEAD LOAD DEFLECTION SHOWN IS FOR WEIGHT OF SLAB,  
WEARING COURSE, BARRIER, SIDEWALK AND MEDIAN WHERE  
APPLICABLE.

CONTRACTOR WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER  
ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE  
BUILDING FORMS TO CORRECT GRADE AND SPECIFIED SLAB  
THICKNESS. PROVIDE COPY OF ELEVATIONS TO THE ENGINEER.

## GENERAL NOTES

PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.

MARK EACH BEAM SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL  
IDENTIFICATION LETTERS AND NUMBERS ON THE FACE OF THE BEAM, NEAR THE END,  
SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN  
CAST. MARK FASCIA BEAMS ON THE INSIDE FACE. ENSURE ALL MARKINGS ARE  
STENCILLED AND CLEARLY LEGIBLE. FOR LOCATION OF BEAMS, SEE FRAMING PLAN.

ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET IS INCLUDED IN UNIT  
PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE SPEC. 2405.

SEE FRAMING PLAN FOR BEAM END MARKED "X".

APPROXIMATE WEIGHT OF BEAM IS 11 TONS.

AS AN ALTERNATE TO THE END DIAPHRAGM ANCHORAGES SHOWN, THE CONTRACTOR  
MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR  
APPROVAL. ANCHORAGE MUST PROVIDE AN ULTIMATE PULL OUT STRENGTH OF  
15 KIPS PER ANCHORAGE.

- MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.
- MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.
- USE 7-WIRE LOW RELAXATION PRESTRESSING STRAND, CONFORMING TO ASTM A416, GRADE 270.
- MAY STAGGER BARS TO AVOID INTERFERENCE.
- PROVIDE 2" CLEARANCE AT ENDS OF BEAM.
- FOR INTEGRAL ABUTMENT, SOLE PLATE CAN BE ELIMINATED OR REPLACED WITH AN APPROVED PROTECTION PLATE. BEAMS DETAILED TO INCLUDE A TAPERED PLATE PER STANDARD FIGURE B309 MUST INCLUDE SOLE PLATE.
- FOR INSERTS IN THE OUTSIDE OF FASCIA BEAM, ADJUST THE ROD LENGTH ACCORDING TO THE OVERHANG DIMENSION.
- PLACE G301E BAR ON TOP OF THE TOP ROW OF PRESTRESSING STRANDS IN THE BOTTOM OF THE BEAM.
- ROUGH FLOAT AND BROOM TRANSVERSELY FOR BOND PER SPEC. 2405.3.D.

SECTION HEIGHT "h"	
14" <input type="checkbox"/>	18" <input checked="" type="checkbox"/>
22" <input type="checkbox"/>	

AN "X" IN THE BOX  
INDICATES THE SECTION HEIGHT.

CALCULATED PRESTRESS LOSSES	
ELASTIC SHORTENING LOSS	17.71 KSI
LONG TERM LOSSES	23.81 KSI
TOTAL LOSSES	41.52 KSI

MINIMUM CONCRETE STRENGTH - K.S.I.	
① f'ci	② f'c
7.50 KSI	7.75 KSI

PRESTRESSING STRAND DIAMETER	
③ 1/2" <input type="checkbox"/>	③ 5/8" <input checked="" type="checkbox"/>

MODIFIED CONCRETE END DIAPHRAGM  
ANCHORAGES.

CERTIFIED BY \_\_\_\_\_  
LICENSED PROFESSIONAL ENGINEER DATE \_\_\_\_\_  
NAME: \_\_\_\_\_ LIC. NO. \_\_\_\_\_

TITLE: **18" RECTANGULAR  
PRESTRESSED CONCRETE BEAM  
(PRETENSIONED) 18RB-41**

DES: PLR DR: CRVB APPROVED: \_\_\_\_\_  
CHK: MPC CHK: MPC  
SHEET NO. 29 OF 44 SHEETS

BEAM B1

FIG. 5-397.550 MOD

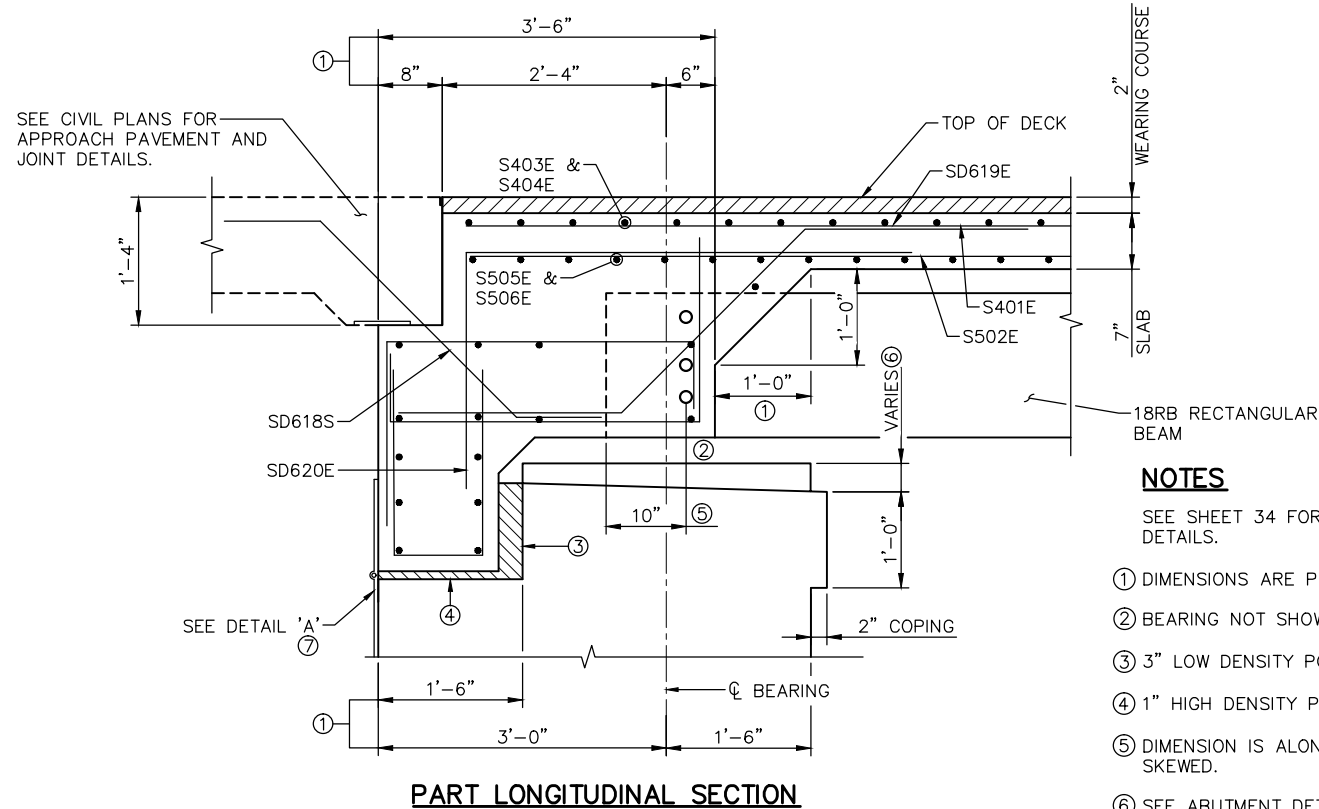
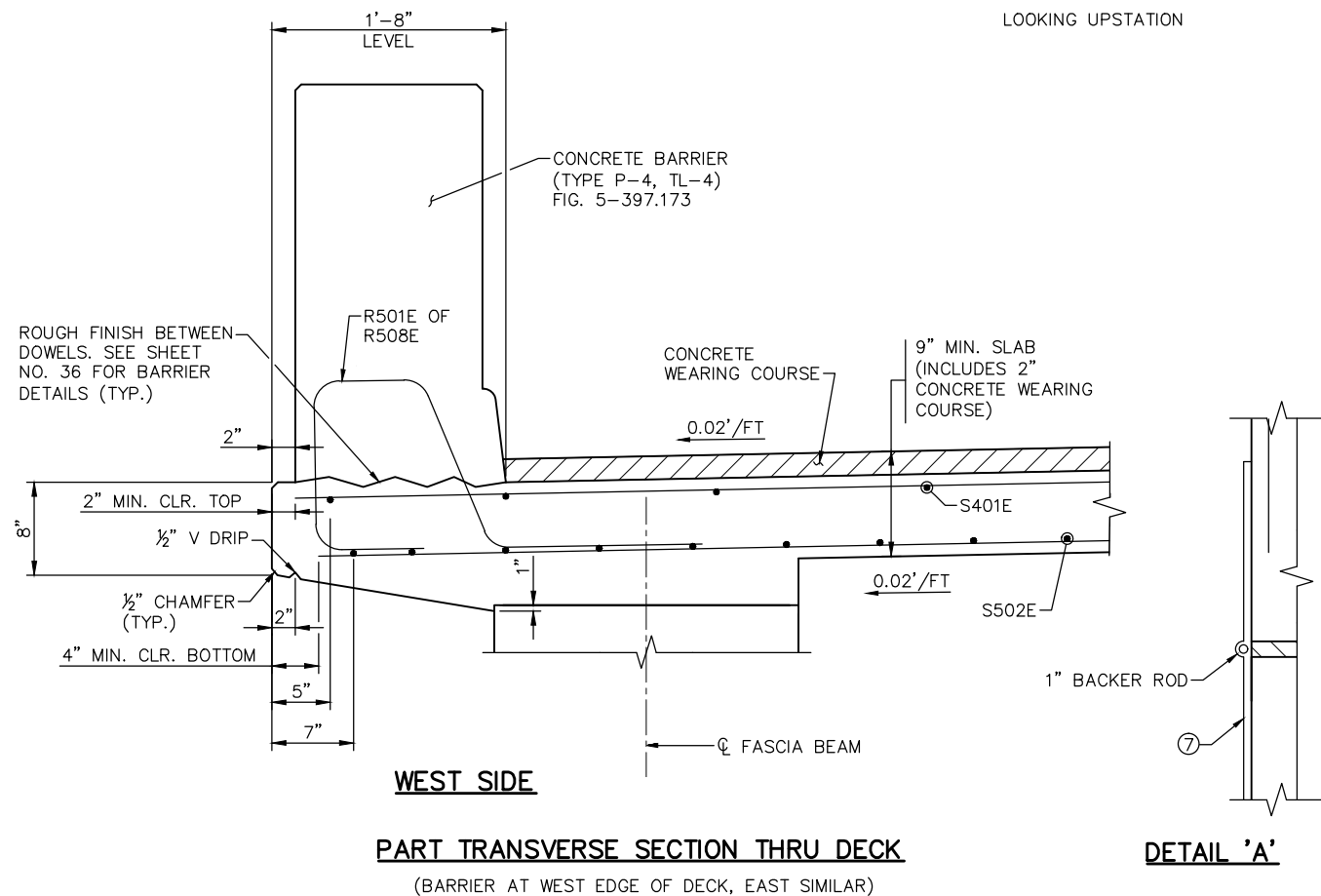
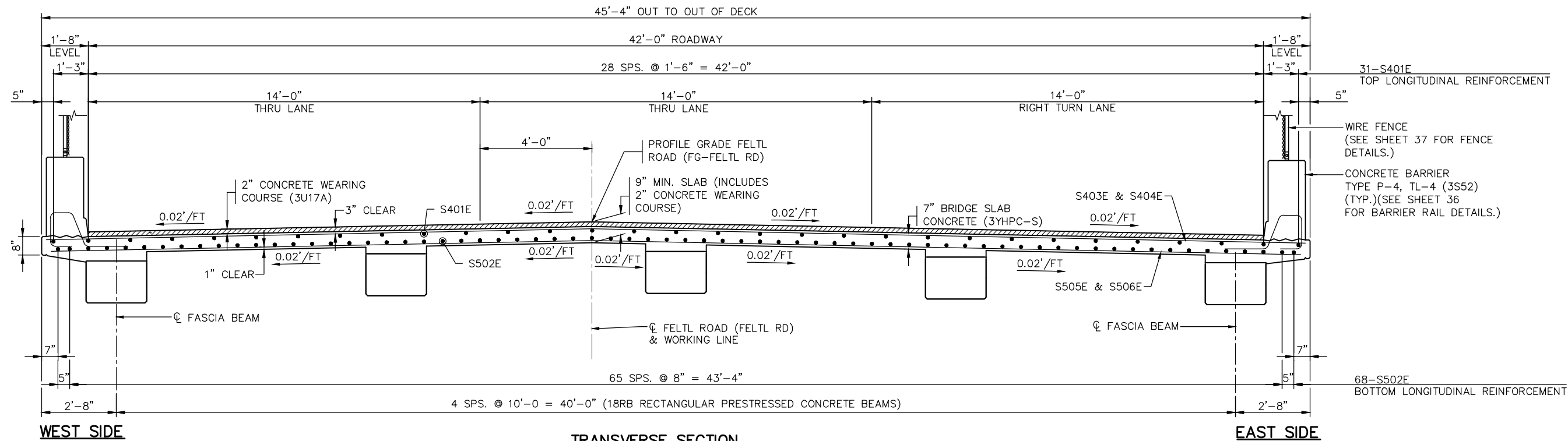
BRIDGE NO.  
27C08

REVISED:

APPROVED: JANUARY 13, 2015

*Nancy S. Dubenberger*  
STATE BRIDGE ENGINEER

Jan, 04 2016 01:14 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-SUP-002.dwg By: bodenc



- NOTES**
- SEE SHEET 34 FOR ADDITIONAL END DIAPHRAGM DETAILS.
- ① DIMENSIONS ARE PERPENDICULAR TO  $\phi$  BEARING.
- ② BEARING NOT SHOWN.
- ③ 3" LOW DENSITY POLYSTYRENE.
- ④ 1" HIGH DENSITY POLYSTYRENE.
- ⑤ DIMENSION IS ALONG  $\phi$  OF BEAM, PIPE SLEEVES ARE SKEWED.
- ⑥ SEE ABUTMENT DETAILS FOR STEP ELEVATIONS.
- ⑦ MEMBRANE WATERPROOFING SYSTEM PER MNDOT 2481.3B EXCEPT THE STRIP SHALL BE 24" WIDE TO ALLOW MOVEMENT.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

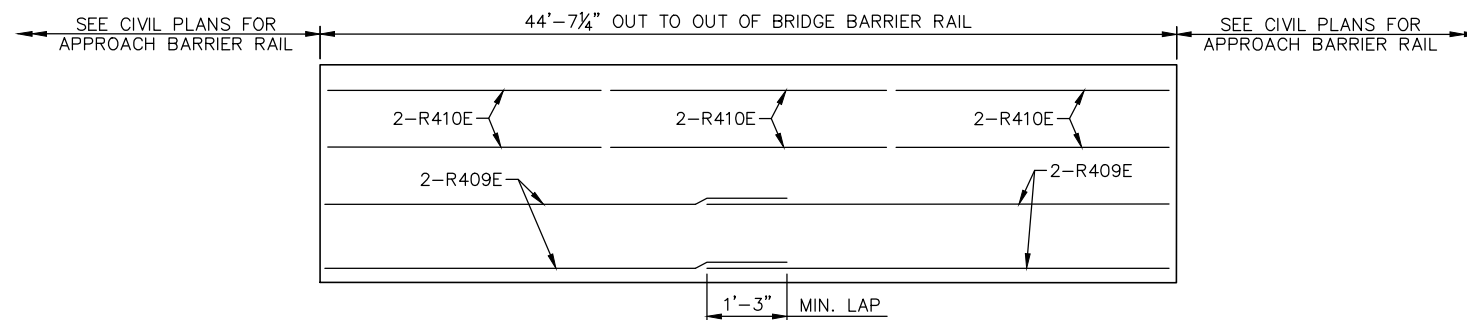
DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
FELTL ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C08  
SUPERSTRUCTURE DETAILS 1




DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C08-BRG-SUP-002

SHEET 30 OF 44

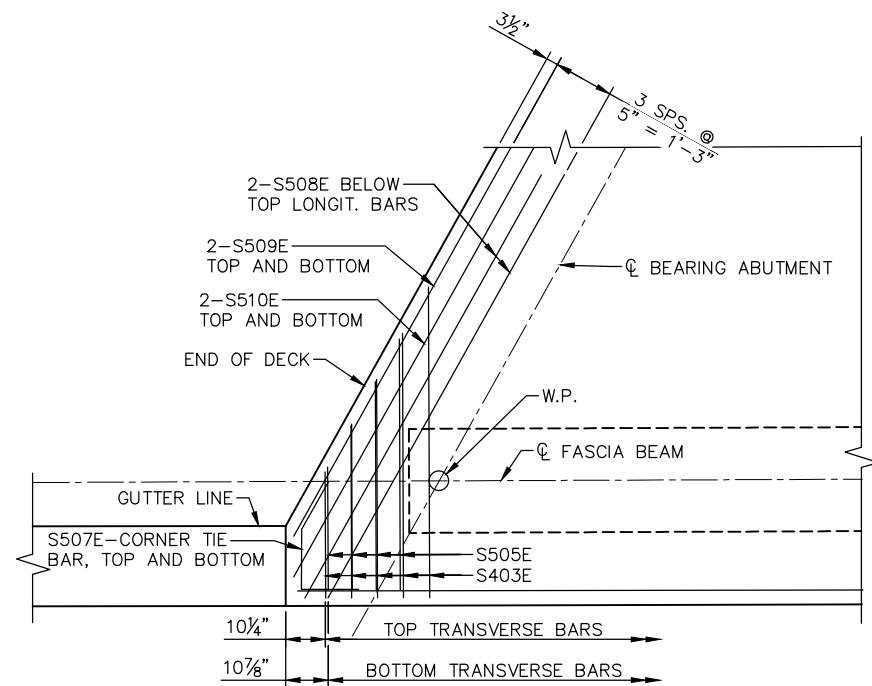


NOTES

FOR ADDITIONAL RAIL REINFORCEMENT SEE  
SHEET 36.

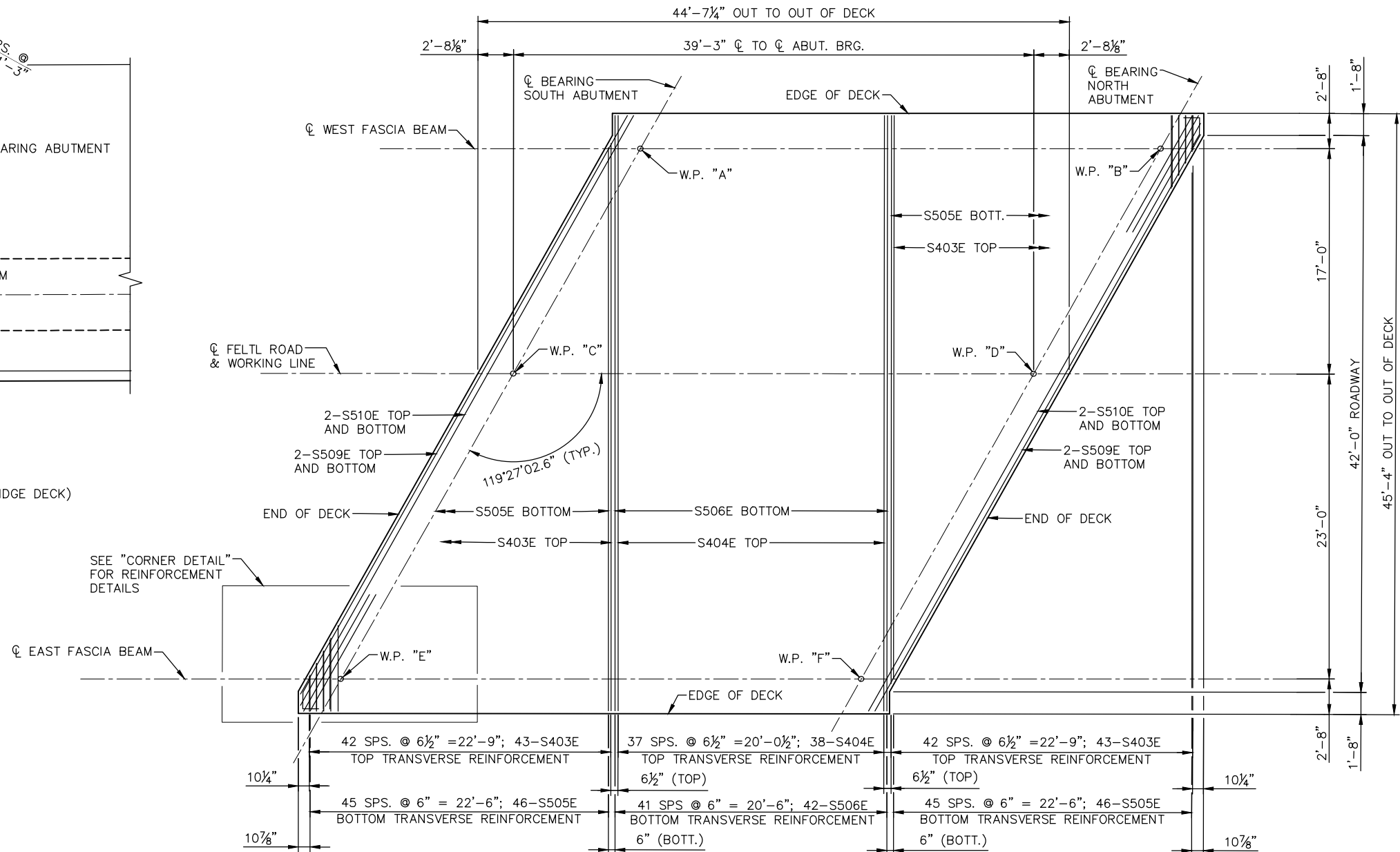
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	<div></div>	<div></div>	<div>CIVIL - VOLUME 4B FELTL ROAD OVER SOUTHWEST LIGHT RAIL BRIDGE 27C08 SUPERSTRUCTURE DETAILS 2</div>		SHEET  31  OF  44	
<div>DESIGNED BY: PLR      CHECKED BY: MPC DRAWN BY: CRVB      CHECKED BY: MPC</div>						90% SUBMISSION - 01/22/16	<div>DISCIPLINE:      SHEET NAME:</div> <div>STRUCTURES      CBR27C08-BRG-SUP-003</div>				

Jan, 04 2016 01:18 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08\BRG-SUP-004.dwg By: bodenc



**CORNER DETAIL**

(TYP. AT NORTH WEST & SOUTH EAST CORNERS OF BRIDGE DECK)



**DECK PLAN**

(SHOWING TRANSVERSE BAR STEEL REINFORCEMENT LAYOUT DETAILS)

**NOTES**

- FOR CORNER DETAILS SEE SHEET 35.
- FOR END DIAPHRAGM DETAILS SEE SHEETS 30 & 34.
- FOR LONGITUDINAL (TOP & BOTTOM) BAR SPACING SEE SHEET NO. 31.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR  
DRAWN BY: CRVB  
CHECKED BY: MPC  
CHECKED BY: MPC

**AECOM**

90% SUBMISSION - 01/22/16



**SOUTHWEST**  
Green Line LRT Extension



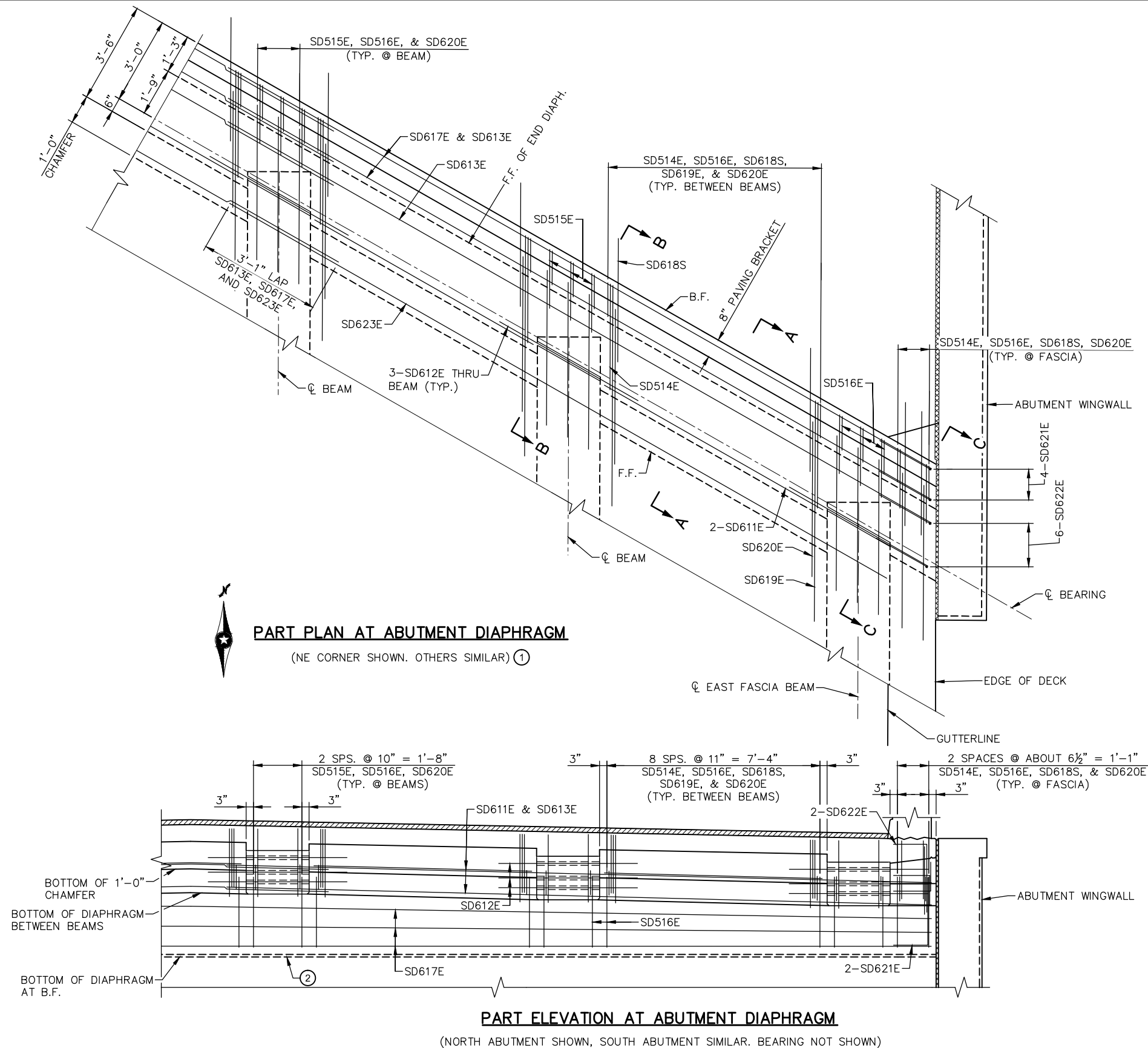
**CIVIL - VOLUME 4B**  
**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C08**  
**SUPERSTRUCTURE DETAILS 3**

DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C08-BRG-SUP-004**

**SHEET**  
**32**  
**OF**  
**44**

Jan, 04 2016 01:21 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-SUP-005.dwg By: bodenc



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
FELTL ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C08  
SUPERSTRUCTURE DETAILS 4

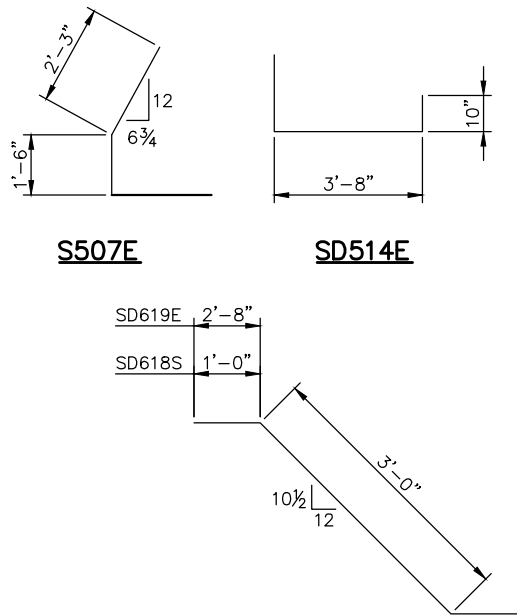
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C08-BRG-SUP-005

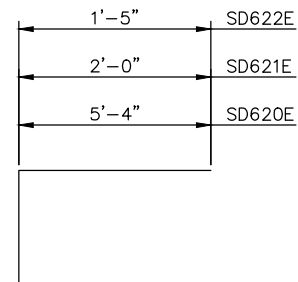
Jan, 04 2016 01:22 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-SUP-006.dwg By: bodenc

## BILL OF REINFORCEMENT FOR SUPERSTRUCTURE

BAR	NO.	LENGTH	SHAPE	LOCATION
S401E	31	44'-2"		DECK LONGITUDINAL TOP
S502E	68	44'-2"		DECK LONGITUDINAL BOTTOM
S403E	2 SERIES OF 43	2'-8" TO 42'-11"		TOP TRANSVERSE
S404E	38	45'-0"		TOP TRANSVERSE
S505E	2 SERIES OF 46	2'-3" TO 42'-1"		BOTTOM TRANSVERSE
S506E	42	44'-8"		BOTTOM TRANSVERSE
S507E	4	6'-0"		NW & SE CORNER REINFORCEMENT
S508E	4	10'-0"		NW & SE CORNER REINFORCEMENT
S509E	4	49'-11"		ABUT. JOINT REINFORCEMENT
S510E	4	51'-2"		ABUT. JOINT REINFORCEMENT
SD611E	16	8'-9"		END DIAPH. HORIZ. BETWEEN BEAMS
SD612E	30	5'-7"		END DIAPH. THRU BEAM
SD613E	24	27'-6"		END DIAPH. HORIZ. HORIZONTAL
SD514E	168	6'-5"		END DIAPH. TIE
SD515E	60	4'-6"		END DIAPH. TIE
SD516E	114	5'-7"		END DIAPH. STIRRUPS
SD617E	24	27'-6"		END DIAPH. HORIZONTAL
SD618S	84	5'-0"		END DIAPH. TIES TO APPROACH PANEL
SD619E	72	8'-4"		END DIAPH. TIES TO BRIDGE DECK
SD620E	114	8'-4"		END DIAPH. VERTICAL
SD621E	16	4'-0"		END DIAPH. AT EDGES OF DECK
SD622E	24	2'-10"		END DIAPH. AT EDGES OF DECK
SD623E	4	24'-4"		END DIAPH. HORIZONTAL

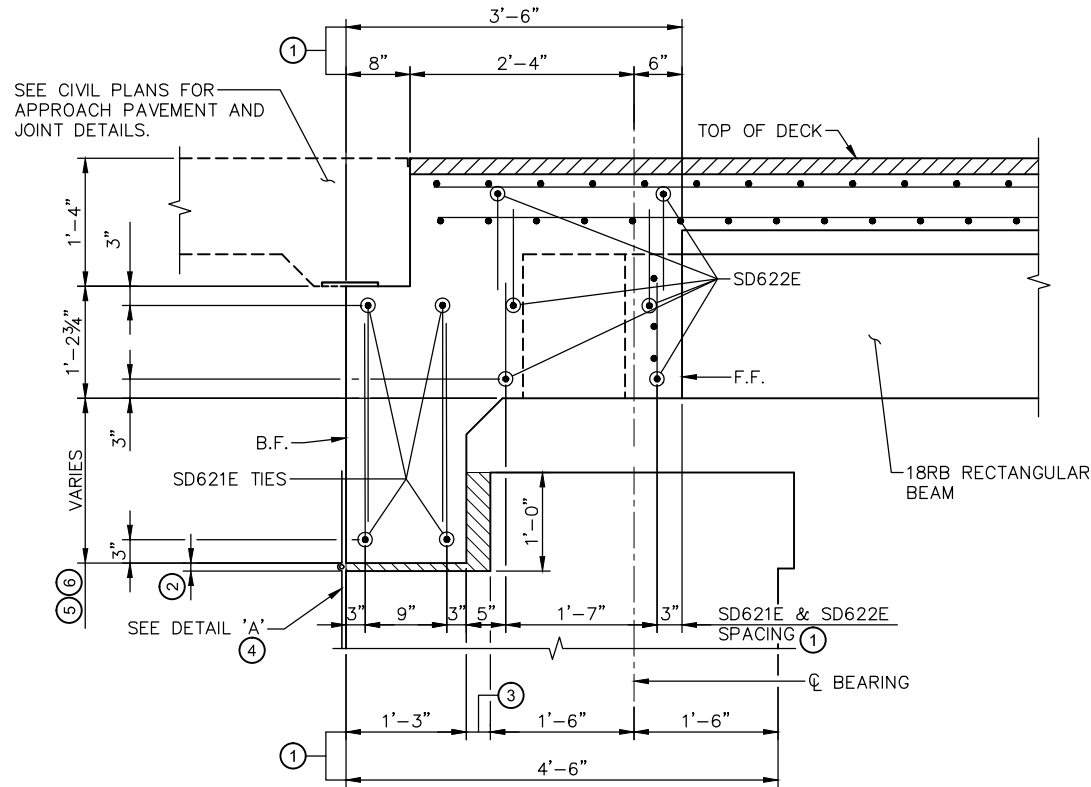


SD618S & SD619E



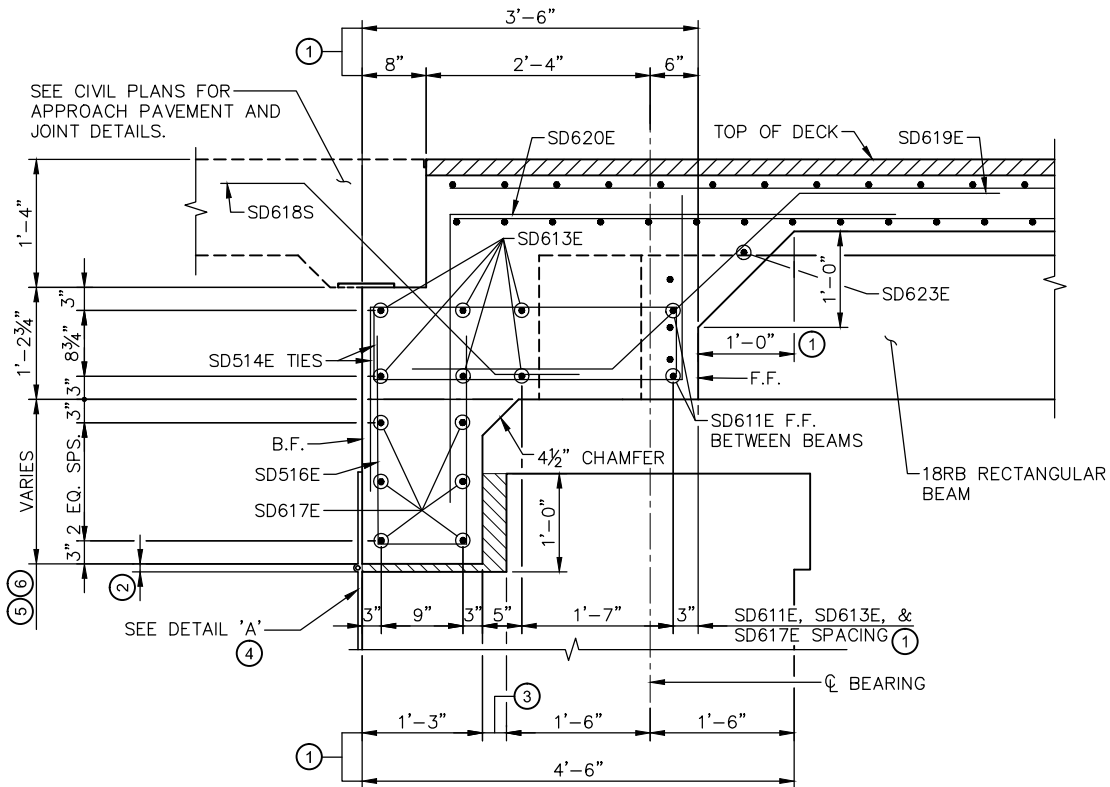
SD620E, SD621E, & SD622E

### BENT BAR DETAILS

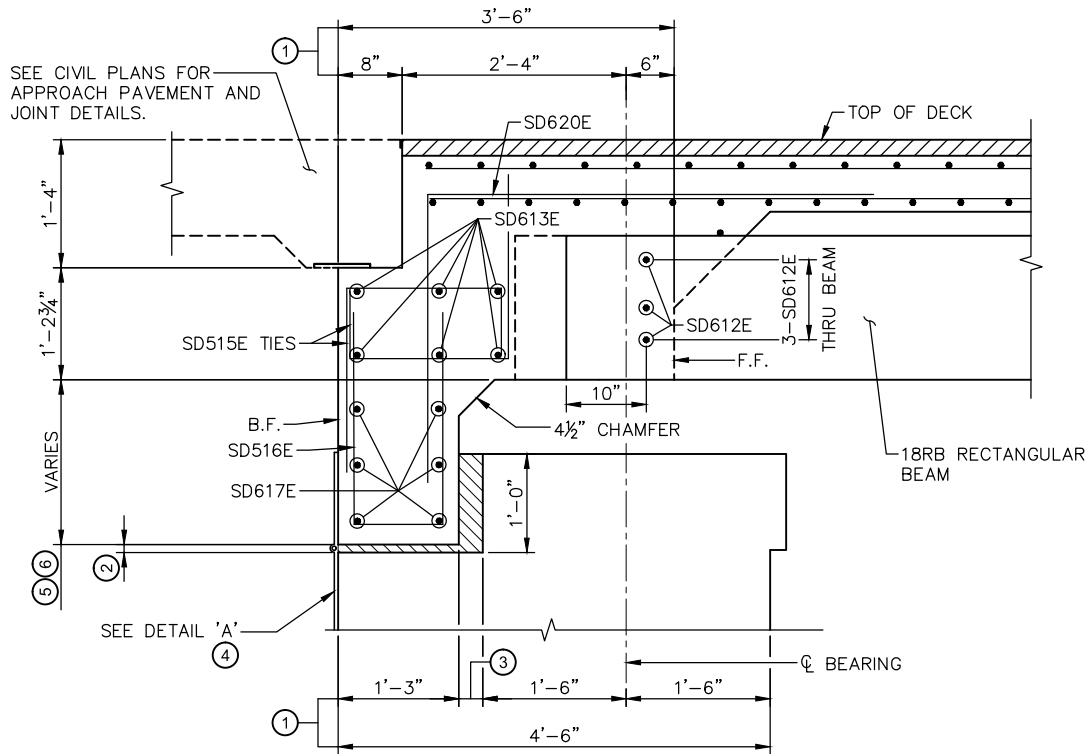


### SECTION C-C

SHOWING SD621E & SD622E



### SECTION A-A



### SECTION B-B

### NOTES

B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

SEE SHEET 33 FOR LOCATIONS OF SECTION A-A, B-B, AND C-C.

SEE SHEETS 30-32 FOR ADDITIONAL DECK REINFORCING.

① DIMENSIONS ARE MEASURED PERPENDICULAR TO CL OF BEARING.

② 1" HIGH DENSITY POLYSTYRENE.

③ 3" LOW DENSITY POLYSTYRENE.

④ SEE SHEET 30 FOR DETAIL 'A'.

⑤ END DIAPHRAGM SHALL BE CAST WITH THE DECK.

⑥ BRIDGE DECK CONCRETE (3YHPC-S)

NO.	DATE	BY	CHECK/DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR  
DRAWN BY: CRVB  
CHECKED BY: MPC  
CHECKED BY: MPC

**AECOM**

90% SUBMISSION - 01/22/16

**METROPOLITAN**  
C O U N C I L

**SOUTHWEST**  
Green Line LRT Extension



**CIVIL - VOLUME 4B**  
**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C08**  
**SUPERSTRUCTURE DETAILS 5**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C08-BRG-SUP-006**

**SHEET**

**34**

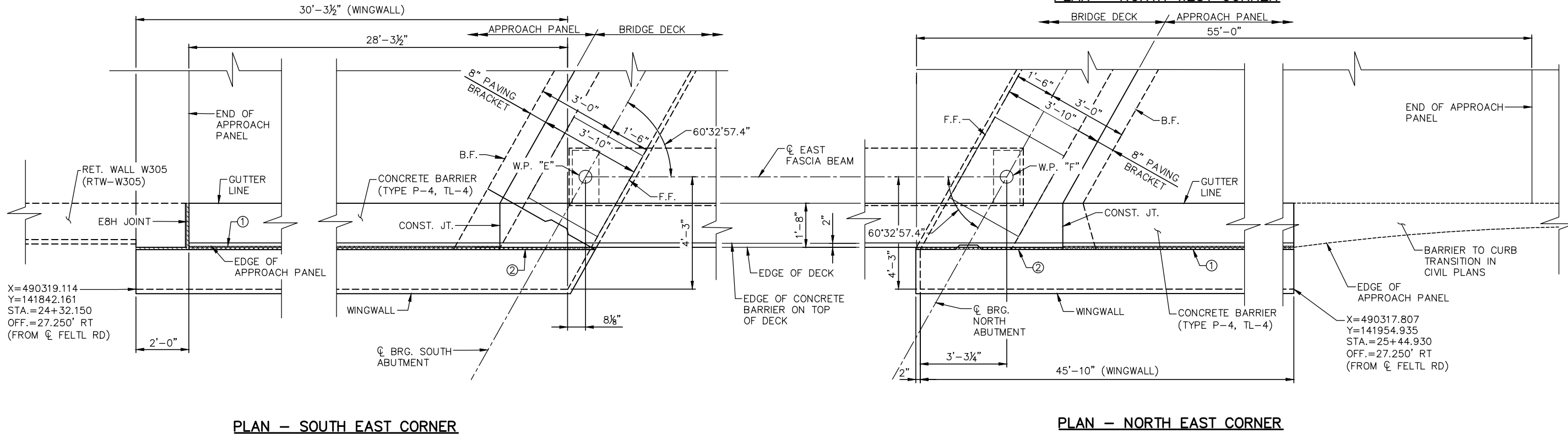
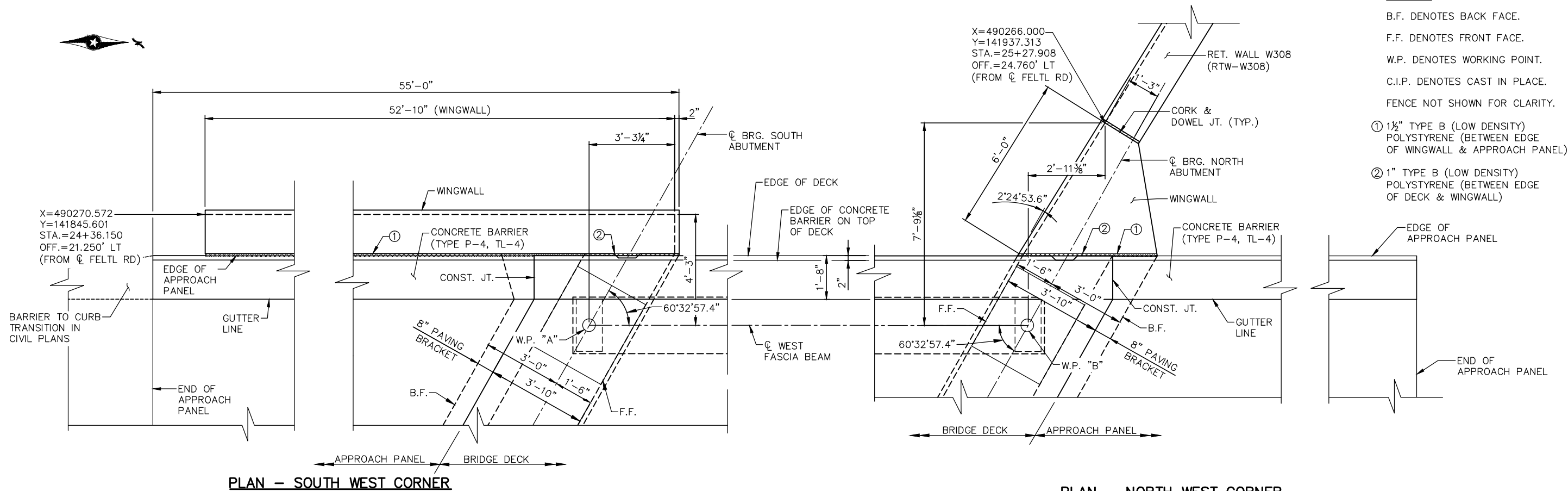
**OF**

**44**

Jan, 04 2016 01:23 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-SUP-007.dwg By: bodenc

NOTES

- B.F. DENOTES BACK FACE.  
F.F. DENOTES FRONT FACE.  
W.P. DENOTES WORKING POINT.  
C.I.P. DENOTES CAST IN PLACE.  
FENCE NOT SHOWN FOR CLARITY.  
① 1½" TYPE B (LOW DENSITY) POLYSTYRENE (BETWEEN EDGE OF WINGWALL & APPROACH PANEL)  
② 1" TYPE B (LOW DENSITY) POLYSTYRENE (BETWEEN EDGE OF DECK & WINGWALL)



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: ALB	CHECKED BY: MPC

90% SUBMISSION - 01/22/16

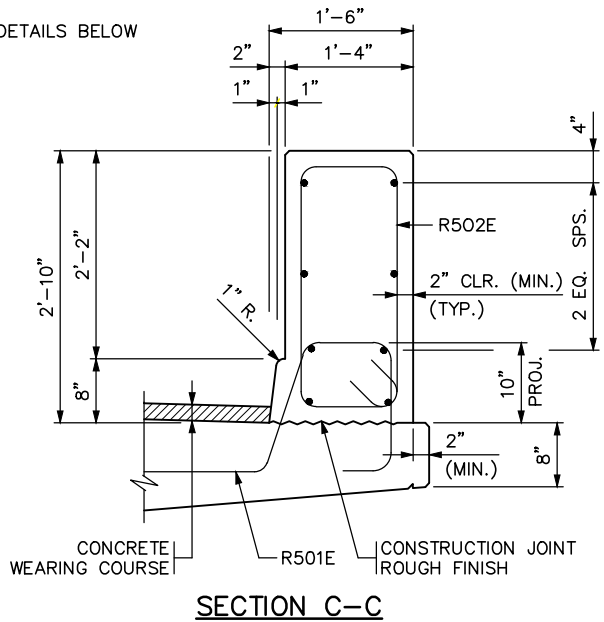
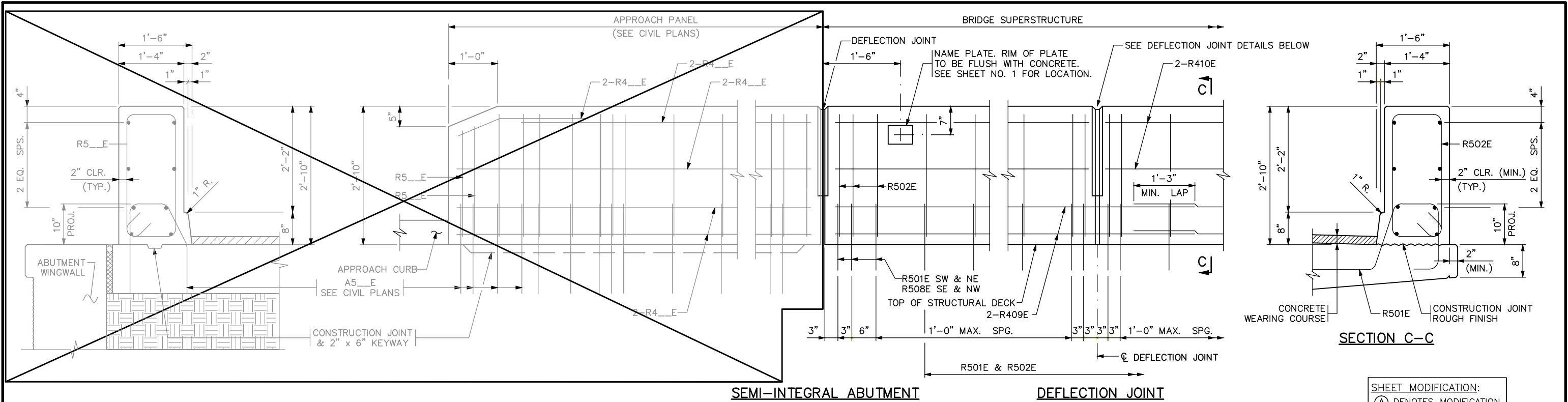
CIVIL - VOLUME 4B  
FELTL ROAD OVER SOUTHWEST LIGHT RAIL  
BRIDGE 27C08  
CORNER DETAILS

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C08-BRG-SUP-007



Jan, 04 2016 01:24 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08\BRG-DTL-001.dwg By: bodenc

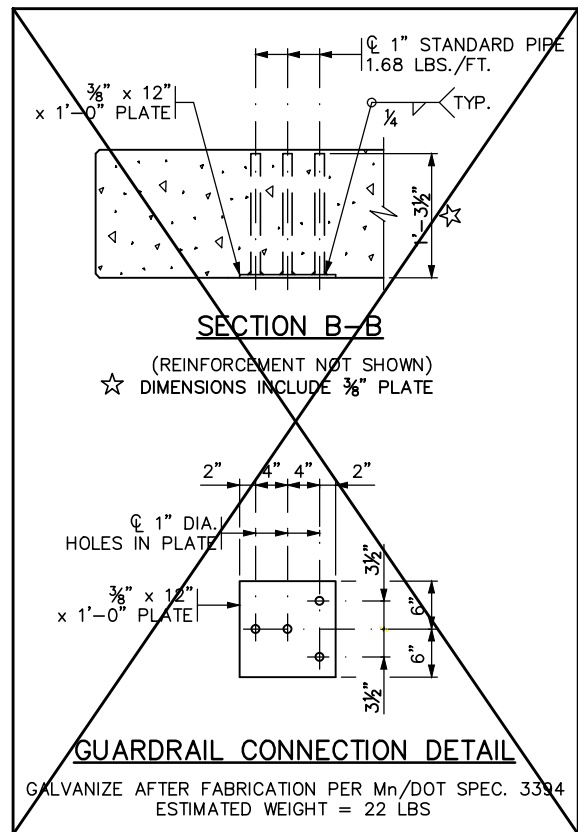


SHEET MODIFICATION:  
(A) DENOTES MODIFICATION  
TO STANDARD SHEET

① INSIDE ELEVATION OF BARRIER

CONCRETE WEARING COURSE NOT SHOWN

BARRIER MEETS TEST LEVEL 4 REQUIREMENTS OF NCHRP REPORT 350

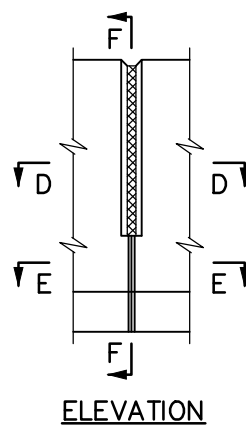


SECTION B-B

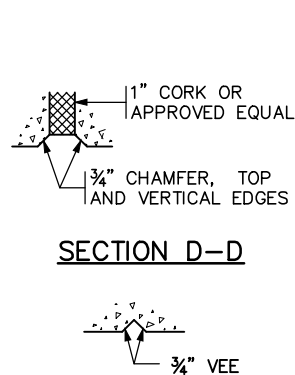
(REINFORCEMENT NOT SHOWN)  
☆ DIMENSIONS INCLUDE 3/8" PLATE

GUARDRAIL CONNECTION DETAIL

GALVANIZE AFTER FABRICATION PER Mn/DOT SPEC. 3394  
ESTIMATED WEIGHT = 22 LBS

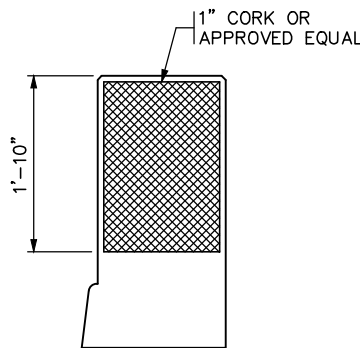


ELEVATION

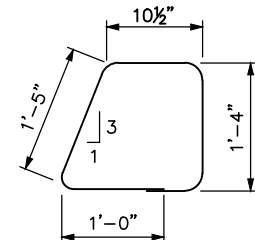


SECTION D-D

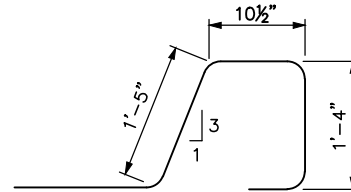
SECTION E-E



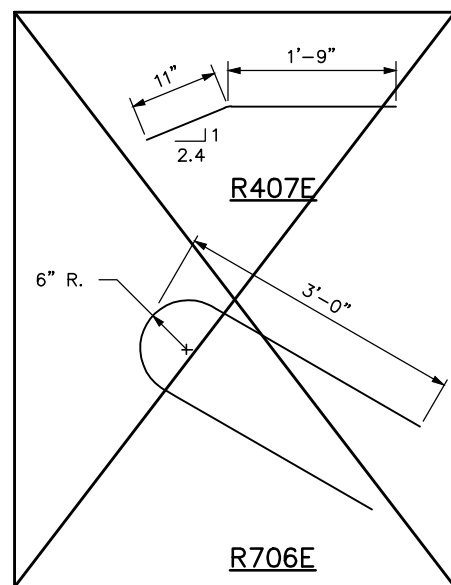
SECTION F-F



① R508E

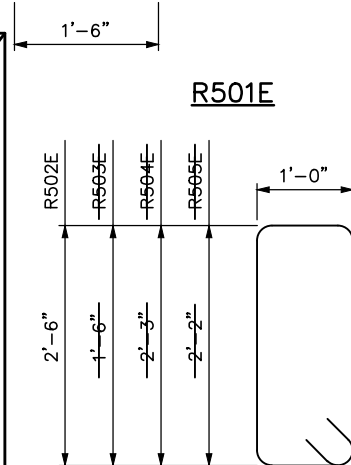


R501E



R407E

R706E



R502E, R503E,  
R504E & R505E

BILL OF REINFORCEMENT FOR BARRIER

BAR	NO.	LENGTH	SHAPE	LOCATION
R501E	100	5'-7"	BENT	BARRIER VERTICAL
R502E	106	7'-11"	BENT	BARRIER VERTICAL
R503E		5'-11"	BENT	BARRIER VERTICAL
R504E		7'-5"	BENT	BARRIER VERTICAL
R505E		7'-3"	BENT	BARRIER VERTICAL
R706E		6'-7"	BENT	BARRIER END
R407E		2'-8"	BENT	BARRIER END LONGIT.
R508E	6	5'-1"	BENT	BARRIER VERTICAL
R409E	16	22'-10"		BARRIER LONGITUDINAL
R410E	24	14'-5"		BARRIER LONGITUDINAL
R411E				BARRIER LONGITUDINAL

GENERAL NOTES

LENGTH OF "TYPE P-4 (TL-4) RAILING CONCRETE (3Y46 OR 3Y46A)" FOR PAYMENT SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE BARRIER.

CONCRETE BARRIER = 579 LBS./FT. (0.143 CU. YDS./FT.)

FINISH ALL EDGES OF BARRIER WITH 1/2" VEE, EXCEPT WHERE OTHERWISE NOTED.

MAXIMUM SPACING OF CONCRETE DEFLECTION JOINTS SHALL BE 20 FT.

SEE SUPERSTRUCTURE, SHEET 31, FOR JOINT SPACING.

GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL, Mn/DOT SPEC. 3306.

GALVANIZE STRUCTURAL STEEL PER Mn/DOT SPEC. 3394 AFTER FABRICATION.

GUARDRAIL CONNECTION, CORK, AND NAME PLATE TO BE CONSIDERED INCIDENTAL TO "TYPE P-4 (TL-4) RAILING CONCRETE (3Y52)".

BARRIER QUANTITIES ARE LISTED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.

REVISED: 04-17-2013

APPROVED: JULY 25, 2005

STATE BRIDGE ENGINEER

DEFLECTION JOINT DETAILS  
ESTIMATED QUANTITY OF CORK PER JOINT = 2.15 SQ. FT.

CERTIFIED BY  
NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_  
LIC. NO. \_\_\_\_\_

TITLE:  
CONCRETE BARRIER (TYPE P-4, TL-4)  
WITH INTEGRAL END POST  
(WITH CONC. WEARING COURSE)

GUARDRAIL CONNECTION, NOT USED.

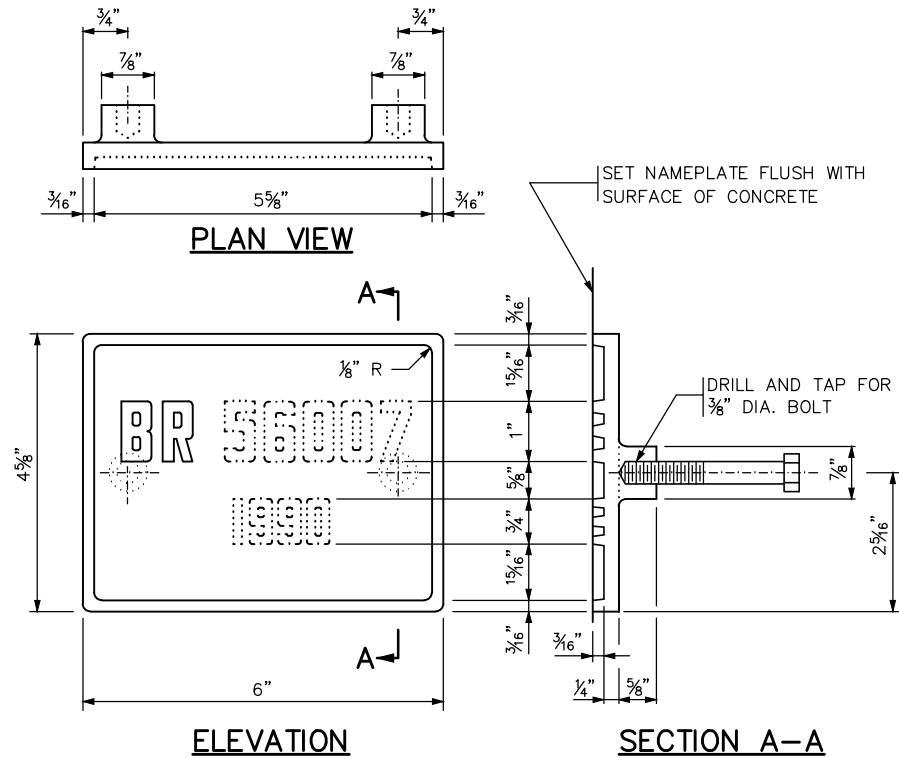
FIG. 5-397.173 MOD.

DES: PLR  
CHK: MPC  
DR: CRVB  
CHK: MPC  
APPROVED:  
SHEET NO. 36 OF 44 SHEETS

BRIDGE NO.  
27C08



Jan, 13 2016 02:32 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-DTL-002-006.dwg By: bodenc



THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION.  
DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

BRIDGE 27C08  
YEAR 2018

1234567890  
NUMBERS FOR NAMEPLATE

#### NOTES:

- MATERIAL SHALL COMPLY WITH SPEC. 3327.
- LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.
- DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".
- HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.
- TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.
- FURNISH 2 STEEL BOLTS 3/8" DIA. x 3" LONG WITH EACH PLATE.
- ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR 1" HIGH LETTERS AND NUMBERS.

APPROVED: NOVEMBER 22, 2002

*Samuel J. Morgan*  
STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
**BRIDGE NAMEPLATE**  
(FOR NEW BRIDGES)

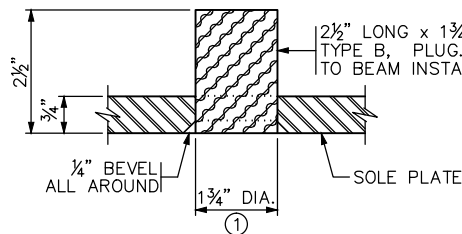
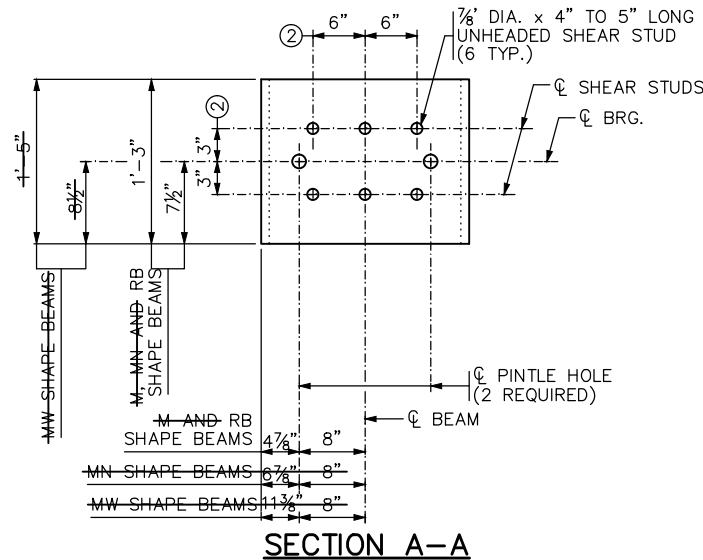
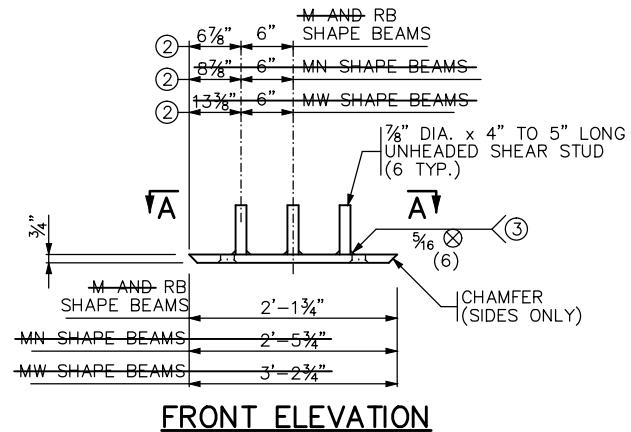
REVISION  
09-11-2014

DETAIL NO.  
**B101**

**AECOM**

DESIGNED BY: PLR  
DRAWN BY: CRVB  
CHECKED BY: MPC  
CHECKED BY: MPC

90% SUBMISSION - 01/22/16



#### PINTLE HOLE DETAIL

#### NOTES:

- MATERIAL TO BE STRUCTURAL STEEL PER MnDOT SPEC. 3306.
- WELDED STUDS TO BE WELDABLE CARBON STEEL PER MnDOT SPEC. 3391.2D.
- SOLE PLATE FOR BEARING ASSEMBLY TO BE GALVANIZED PER MnDOT SPEC. 3394 AFTER FABRICATION.
- PINTLE HOLES SHALL BE FREE OF ZINC BUILD UP FROM GALVANIZING.
- SOLE PLATES ARE INCIDENTAL. ~~TO PRESTRESSED CONCRETE BEAMS.~~
- ① FOR 1 1/2" DIA. PINTLES.
- ② THESE DIMENSIONS MAY BE MODIFIED TO CLEAR PRESTRESSED STRANDS. HOWEVER, CHANGES MUST BE APPROVED BY THE ENGINEER.
- ③ THE REQUIREMENTS FOR WELDING STUDS SHALL COMPLY WITH AASHTO/AWS D1.1.

APPROVED: SEPTEMBER 22, 2011

*Nancy Dubenberger*  
STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

**SOLE PLATE**  
(PRESTRESSED CONCRETE BEAMS)  
(FOR BEARINGS WITH PINTLES)

REVISED

DETAIL NO.

**B303**

**CIVIL - VOLUME 4B**  
**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C08**  
**B-DETAILS 1**

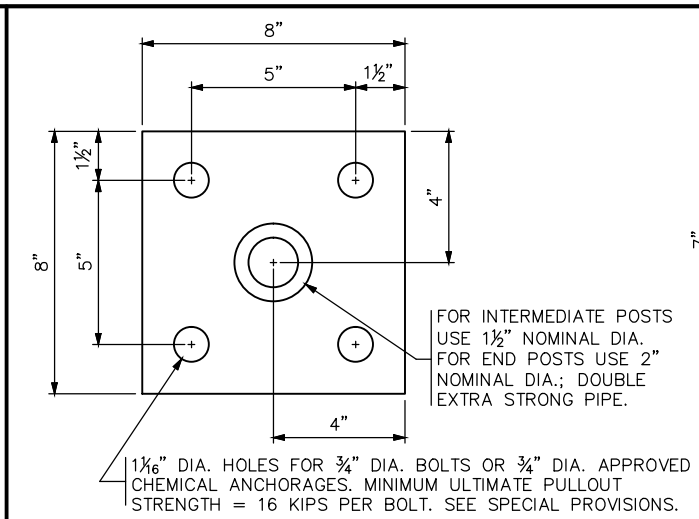
DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C08-BRG-DTL-002**

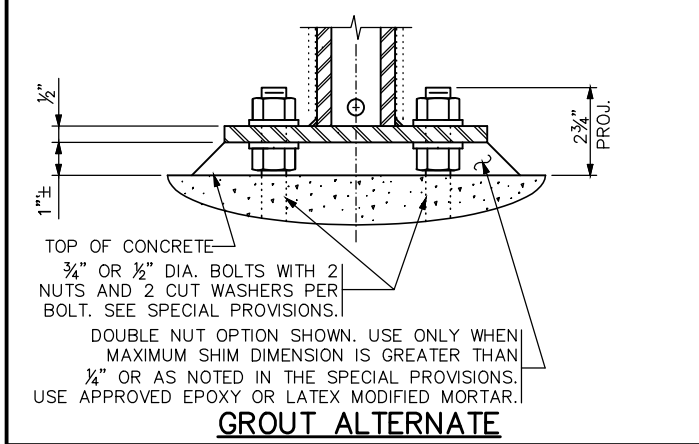
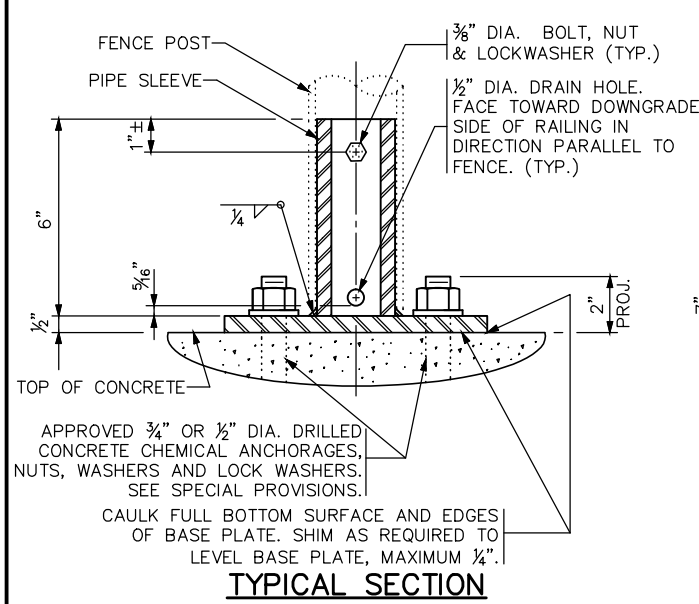
**SHEET**  
**38**  
**OF**  
**44**



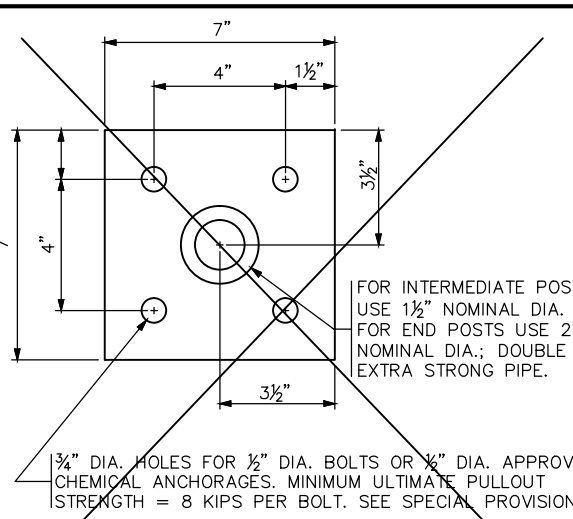
Jan, 04 2016 01:25 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-DTL-002-006.dwg By: bodenc



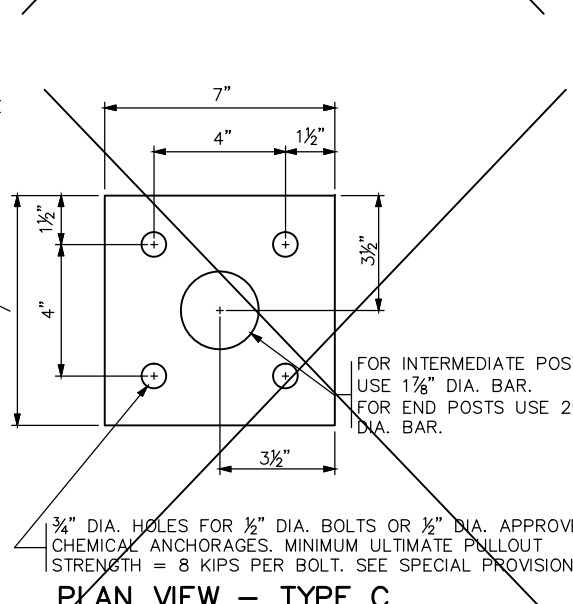
PLAN VIEW - TYPE A  
ESTIMATED WEIGHT = 12 OR 14 LBS.



APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
<i>Daniel J. Morgan</i> STATE BRIDGE ENGINEER	FENCE POST ANCHORAGE		B905



PLAN VIEW - TYPE B  
ESTIMATED WEIGHT = 10 OR 12 LBS.



PLAN VIEW - TYPE C  
ESTIMATED WEIGHT = 12 OR 15 LBS.

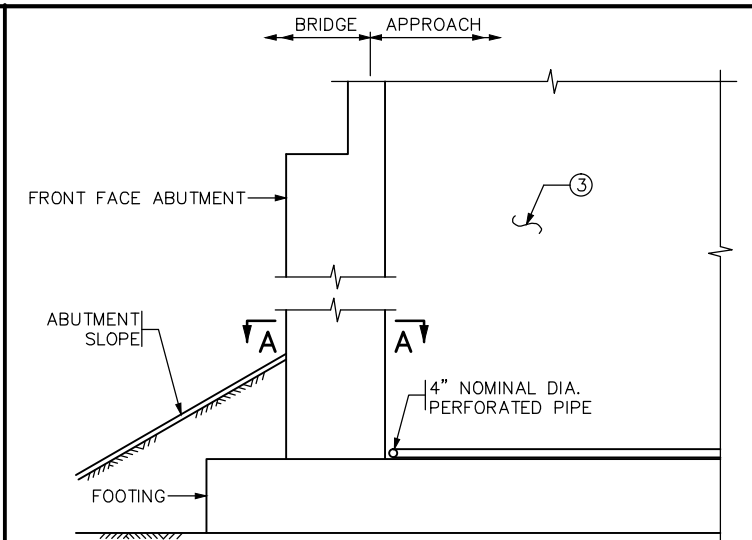
**NOTES:**

STRUCTURAL STEEL PER Mn/DOT SPEC. 3306.

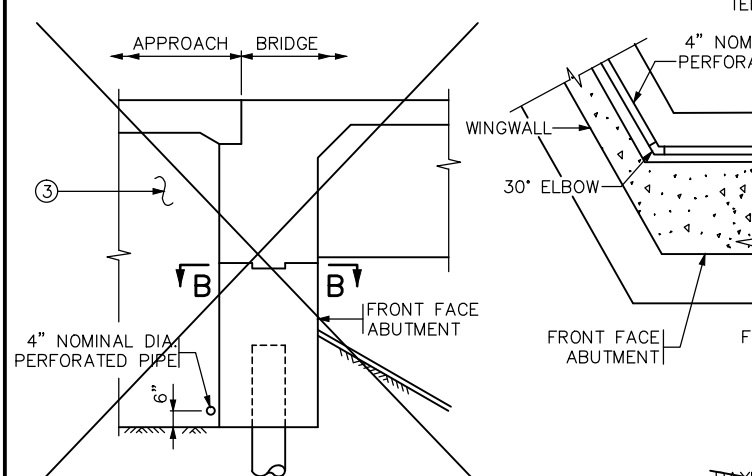
STRUCTURAL PIPE PER Mn/DOT SPEC. 3362.

GALVANIZE THE FENCE POST ANCHORAGE AFTER FABRICATION PER Mn/DOT SPEC. 3394. GALVANIZE THE FASTENERS PER Mn/DOT SPEC. 3392.

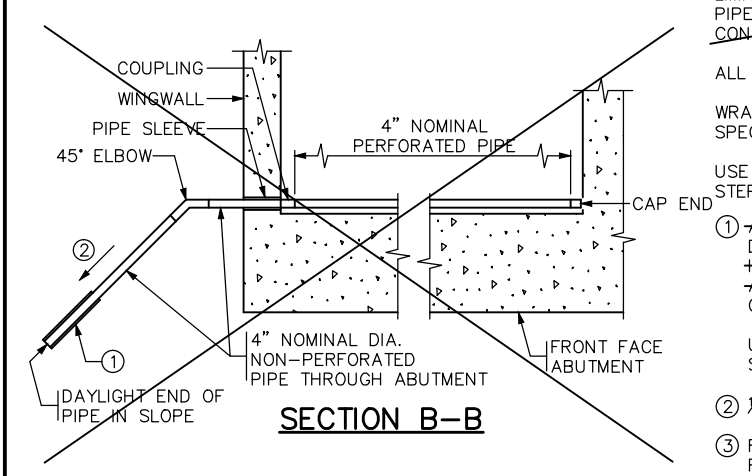
DOUBLE EXTRA STRONG PIPE WEIGHTS:  
1/2" NOMINAL DIA. = 6.41 LBS./FT.  
2" NOMINAL DIA. = 9.03 LBS./FT.



SECTION THROUGH PARAPET AND SEMI-INTEGRAL ABUTMENTS



SECTION THROUGH INTEGRAL ABUTMENT



APPROVED: JANUARY 13, 2015	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVIS	DETAIL NO.
<i>Nancy Dubenberger</i> STATE BRIDGE ENGINEER	DRAINAGE SYSTEM		B910

SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM		
4" DIA. PERFORATED PIPE	250	LIN. FT.
4" DIA. NON-PERFORATED PIPE	20	LIN. FT.
30° ELBOW	3	EACH
45° ELBOW	2	EACH
90° ELBOW	5	EACH
4" DIA. END CAP	4	EACH
4" DIA. 90° TEE	1	EACH
PIPE SLEEVE 4"	2	EACH
P/C CONCRETE HEADWALL	1	EACH

SOUTH ABUTMENT: DAYLIGHT END OF PIPE INTO DITCH.  
NORTH ABUTMENT: CONNECT TO RET. WALL W308 DRAINAGE.

PAYMENT WILL BE INCLUDED IN THE SINGLE LUMP SUM PRICE FOR "DRAINAGE SYSTEM TYPE (B910)". INCLUDES BUT IS NOT LIMITED TO 4" DIAMETER PERFORATED AND NON-PERFORATED PIPE, ELBOWS, END CAPS, COUPLINGS, SLEEVES AND PRECAST CONCRETE HEADWALLS.

- ALL PIPE TO COMPLY WITH SPEC. 3245.
- WRAP PERFORATED PIPE WITH GEOTEXTILE PER SPEC. 3733, TYPE 1. ATTACH TO PIPE PER SPEC. 2502.
- USE 90° ELBOWS AND VERTICAL SECTION OF PIPE BETWEEN STEPPED FOOTINGS.
- ① AT CONTRACTOR'S OPTION, MAY TIE APPROACH PANEL DRAINAGE SYSTEM AND ABUTMENT DRAINAGE SYSTEM INTO A SINGLE PRECAST CONCRETE HEADWALL OR INTO A CATCH BASIN AS NOTED IN THE PLANS WITH A MINIMUM OF 1% POSITIVE SLOPE. CAN BE MAINTAINED.
- USE PRECAST CONCRETE HEADWALL WITH RODENT SCREEN. SEE STANDARD PLATE 3131 FOR DETAILS.
- ② 1/8" PER FT. MINIMUM SLOPE.
- ③ REFER TO CIVIL PLANS FOR ABUTMENT BACKFILL REQUIREMENTS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: CRVB	CHECKED BY: MPC

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B FELTL ROAD OVER SOUTHWEST LIGHT RAIL BRIDGE 27C08 B-DETAILS 3	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C08-BRG-DTL-004



<h2 style="margin: 0;"><u>CONCRETE WEARING COURSE</u></h2>	
<input type="checkbox"/> LOW SLUMP	
<input type="checkbox"/> OTHER _____	TYPE OR MANUFACTURER _____
<h2 style="margin: 0;"><u>EXPANSION JOINTS</u></h2>	
JOINT MANUFACTURER _____	
MANUFACTURER'S IDENTIFICATION _____	_____ MFR'S No. AND/OR LETTER DESIGNATION FOR JOINT USED
GLAND MANUFACTURER _____	_____ NAME AND ADDRESS (CITY, STATE)
SIZE OF GLAND _____	
MANUFACTURER'S IDENTIFICATION _____	_____ MFR'S No. AND/OR LETTER DESIGNATION FOR GLAND USED
<h2 style="margin: 0;"><u>ELASTOMERIC BEARING PADS</u></h2>	
PAD MANUFACTURER _____	
_____ NAME AND ADDRESS (CITY, STATE)	
<h2 style="margin: 0;"><u>SPECIAL SURFACE FINISH</u></h2>	
SYSTEM: _____	COLOR: _____
<h2 style="margin: 0;"><u>FINISHING ROADWAY FACES OF BARRIER RAILING</u></h2>	
TYPE: _____	COLOR: _____
<h2 style="margin: 0;"><u>ANTI-GRAFFITI COATING</u></h2>	
MANUFACTURER _____	
_____ NAME AND ADDRESS (CITY, STATE)	
PRODUCT NAME: _____	LOCATION: _____

<b><u>PAINT SYSTEM</u></b>	
Mn/DOT SPECIFICATION NUMBER _____	2478 OR 2479 OR OTHER _____
MANUFACTURER _____	NAME AND ADDRESS (CITY, STATE) _____
PRIME COAT _____	MnDOT MATERIAL SPECIFICATION NUMBER _____
INTERMEDIATE COAT _____	MnDOT MATERIAL SPECIFICATION NUMBER _____
FINISH COAT _____	<div style="display: flex; justify-content: space-between;"> <span>MnDOT MATERIAL SPECIFICATION NUMBER _____</span> <span>COLOR _____</span> </div>
<b><u>PLAN QUALITY</u></b>	
RATE 1 (AGREE), 2 (NEUTRAL), OR 3 (DISAGREE, PLEASE COMMENT BELOW)	
DIMENSIONING AND DETAILING ADEQUATELY DESCRIBED REQUIRED CONSTRUCTION. _____	
BAR LISTS AND QUANTITIES WERE TYPICALLY COMPLETE AND FREE OF ERRORS. _____	
SCALE OF DRAWINGS AND OVERALL LEGIBILITY OF LINES AND TEXT WAS GOOD. _____	
(SB) SPECIAL PROVISIONS ADEQUATELY DESCRIBED SPECIAL WORK AND PAYMENT. _____	
COMMENTS: _____	
_____	
_____	
_____	
_____	
_____	
_____	
_____	
NUMBER OF BRIDGE SUPPLEMENTAL AGREEMENTS: _____ COST: \$ _____	
LIST SIGNIFICANT ERRORS OR OMISSIONS IN PLAN DETAILS OR PAY QUANTITIES IN THE SPACE PROVIDED AT RIGHT.	

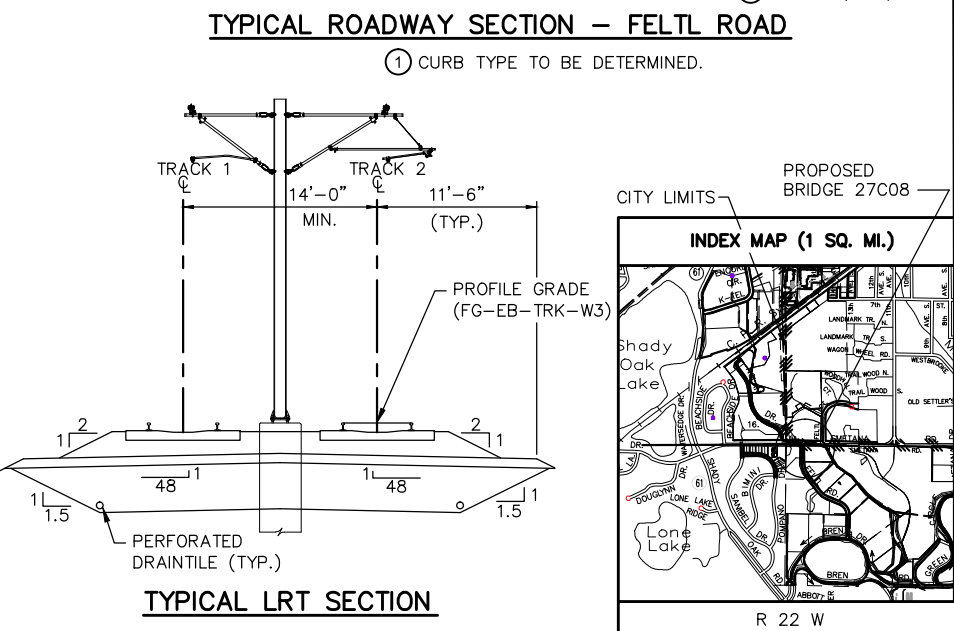
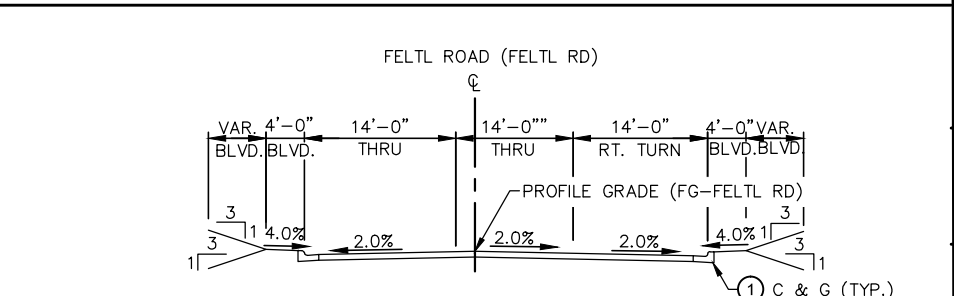
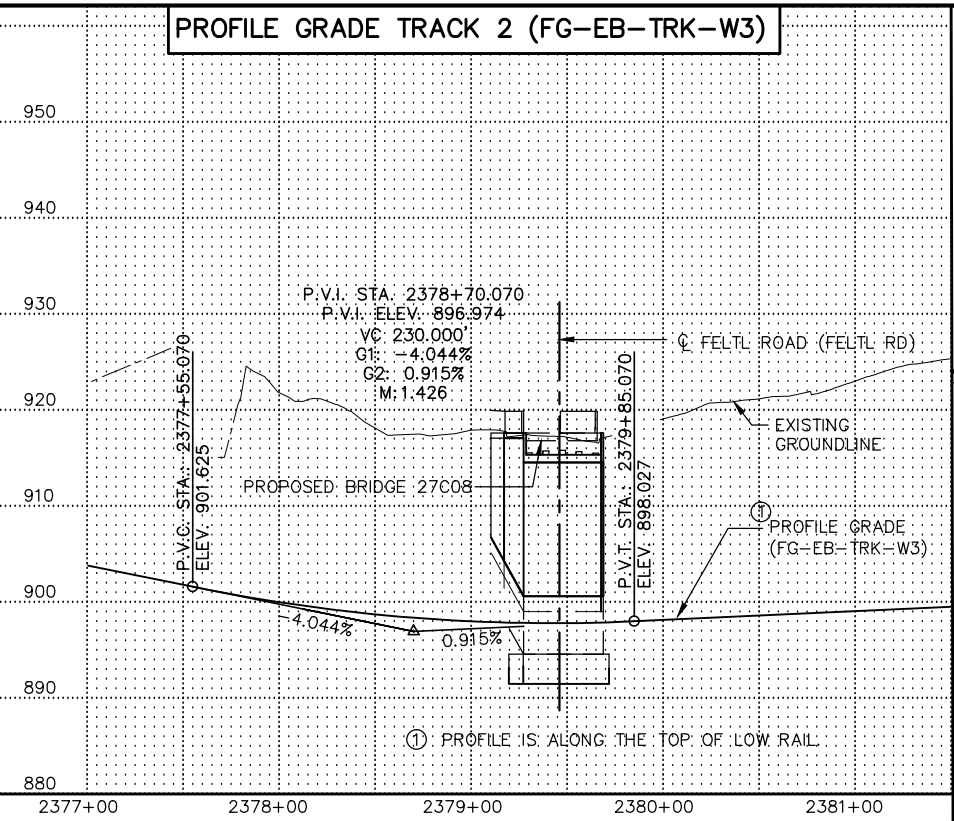
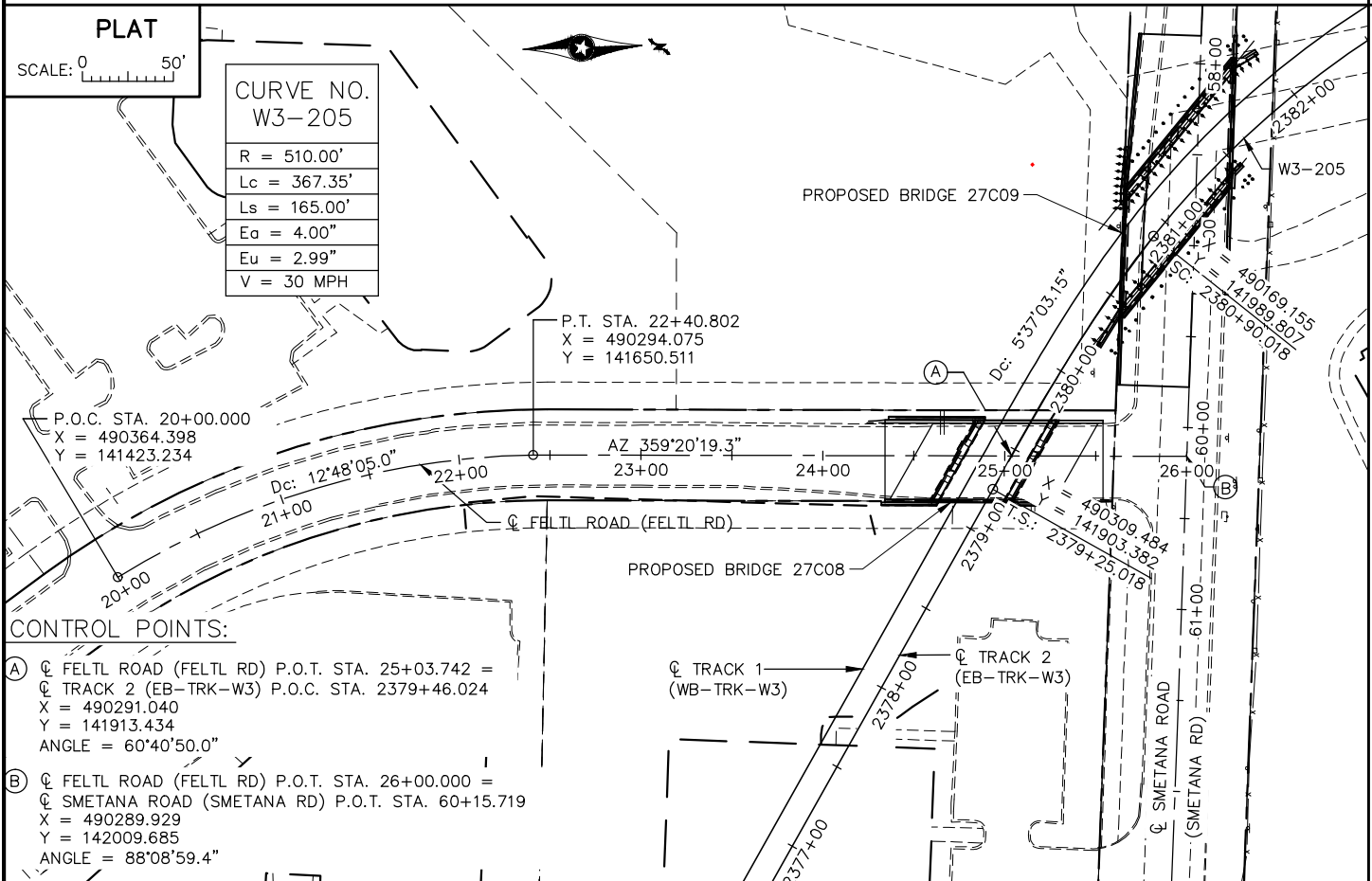
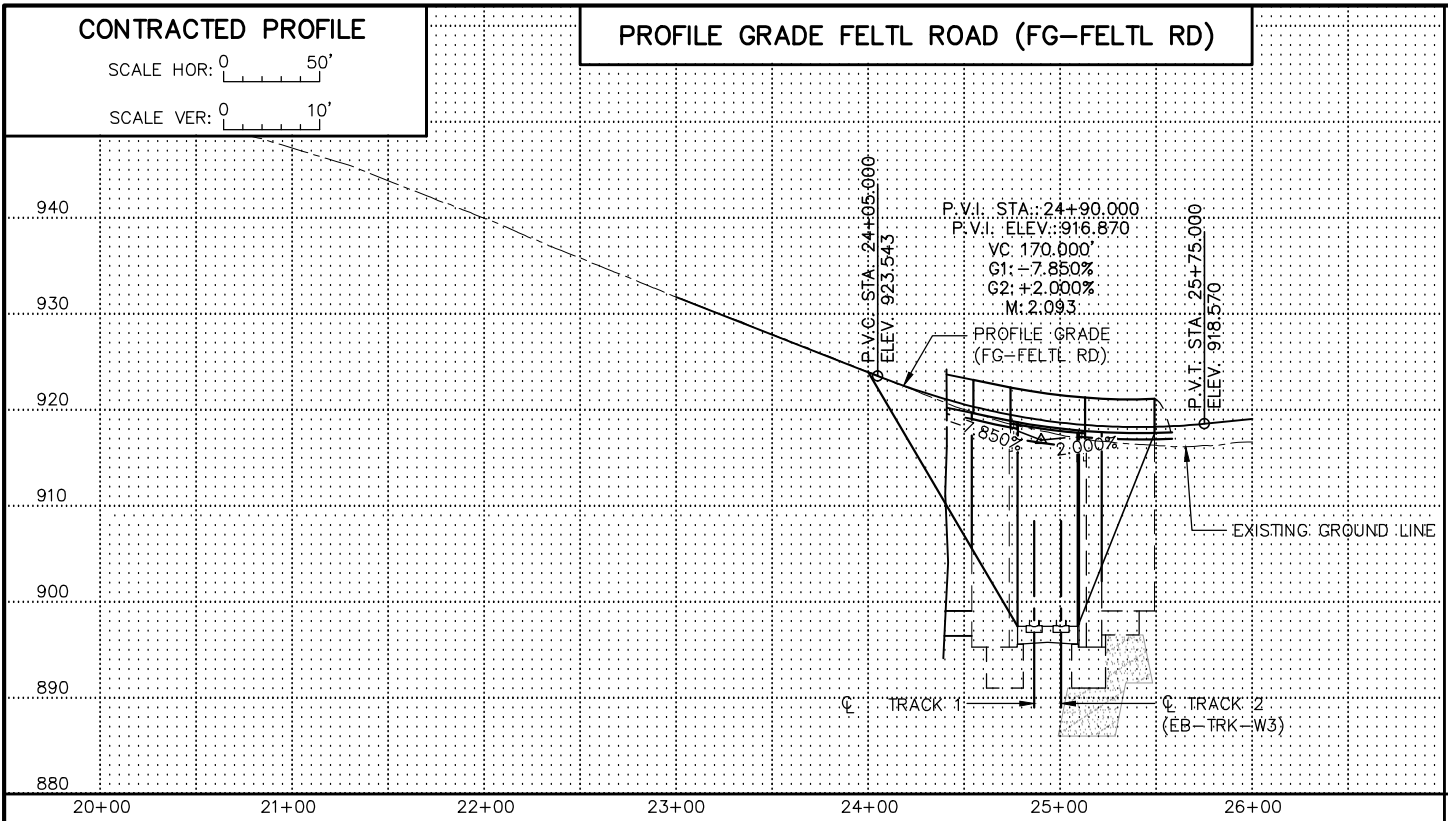
[illegible][illegible]

THE AS-BUILT INFORMATION WAS ADDED TO THE PLAN BY:

_____	_____
INSPECTOR(S) SIGNATURE	DATE
CHECKED BY: _____	_____
PROJECT ENGINEER/SUPERVISOR SIGNATURE	DATE

AT THE TIME OF THE FINAL, THIS COMPLETED AS-BUILT BRIDGE DATA SHEET MUST BE SUBMITTED TO THE BRIDGE OFFICE – ATTN: REGIONAL CONSTRUCTION ENGINEER (MS610).

Jan, 04 2016 01:30 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-SUR.dwg By: bodenc



**LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE**

1. SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.

2. OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION, TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS-SECTIONAL AREA ETC.

3. APPARENT HIGHWATER ELEVATION \_\_\_\_\_ OBTAINED FROM:

4. OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

**HYDRAULIC ENGINEERS RECOMMENDATION**

DATE: XX-XX-XXXX

STREAM OR DITCH DESIGNATION: XXX

DRAINAGE AREA: XXX SQ. MI.

MAX FLOOD ON RECORD: XXX C.F.S. (XX-XX-XX)

MAXIMUM OBSERVED HIGHWATER ELEVATION: XXX.X FT.

DESIGN FLOOD (XX TR. FREQ.): XXX C.F.S.

HEADWATER ELEVATION: XXX.X FT.

DESIGN MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.

TOTAL STAGE INCREASE: XX FT.

LOW MEMBER AT OR ABOVE ELEVATION: XXX.X FT

WATERWAY AREA REQUIRED BELOW ELEV. XXX.X = XXX SQ. FT. AT RIGHT ANGLES TO CHANNEL

BASIC FLOOD (100 YR. FREQ.): XXX C.F.S.

HEADWATER ELEVATION: XXX.X FT.

TOTAL STAGE INCREASE: X.X FT.

MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.

FLOWLINE ELEVATION: XXX FT. SKEW ANGLE: XX

ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. XXX.X (500 OR OT YR. FREQ.)

**SCOUR CONFIRMATION RECOMMENDATION**

DATE: XX-XX-XXXX

TOTAL SCOUR AT PIER EL. XXX.XX (500 OR OT YR. FREQ.)

SCOUR CODE: OBTAIN FROM HYDRAULIC ENGINEER

BRIDGE SURVEY SHEETS MADE FROM SURVEY AND PHOTOGRAMMETRIC MAPPING.

MONUMENT NAME: CONTROL POINT 6

NORTHING (HEN. COUNTY COORDINATES NAD83(2007)): 142016.680

EASTING (HEN. COUNTY COORDINATES NAD83(2007)): 489989.960

BENCHMARK ELEVATION (NAVD88): 932.956

MONUMENT DESCRIPTION: CAST IRON MONUMENT

LOCATION: SMETANA ROAD NEAR NOLAN DRIVE.

MONUMENT NAME: CONTROL POINT 5

NORTHING (HEN. COUNTY COORDINATES NAD83(2007)): 139399.455

EASTING (HEN. COUNTY COORDINATES NAD83(2007)): 489967.280

BENCHMARK ELEVATION (NAVD88): 950.466

MONUMENT DESCRIPTION: BRASS MONUMENT

LOCATION: PARKING LOT

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: PLR	CHECKED BY: MPC
DRAWN BY: ALB	CHECKED BY: MPC

**AECOM**

90% SUBMISSION - 01/22/16

**METROPOLITAN**

**SOUTHWEST**

Green Line LRT Extension

**CIVIL - VOLUME 4B**

**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**

**BRIDGE 27C08**

**BRIDGE SURVEY**

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C08-BRG-SUR

**SHEET**

42

OF

44

1. ALL UTILITIES TO BE RELOCATED UNLESS NOTED OTHERWISE.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF C/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

[illegible]

DESIGNED BY: <b>PLR</b>	CHECKED BY: <b>MPC</b>
DRAWN BY: <b>CRVB</b>	CHECKED BY: <b>MPC</b>

**AECOM**

**90% SUBMISSION - 01/22/16**



## SOUTHWEST



**CIVIL - VOLUME 4B**  
**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C08**  
**BRIDGE SURVEY PLAN**

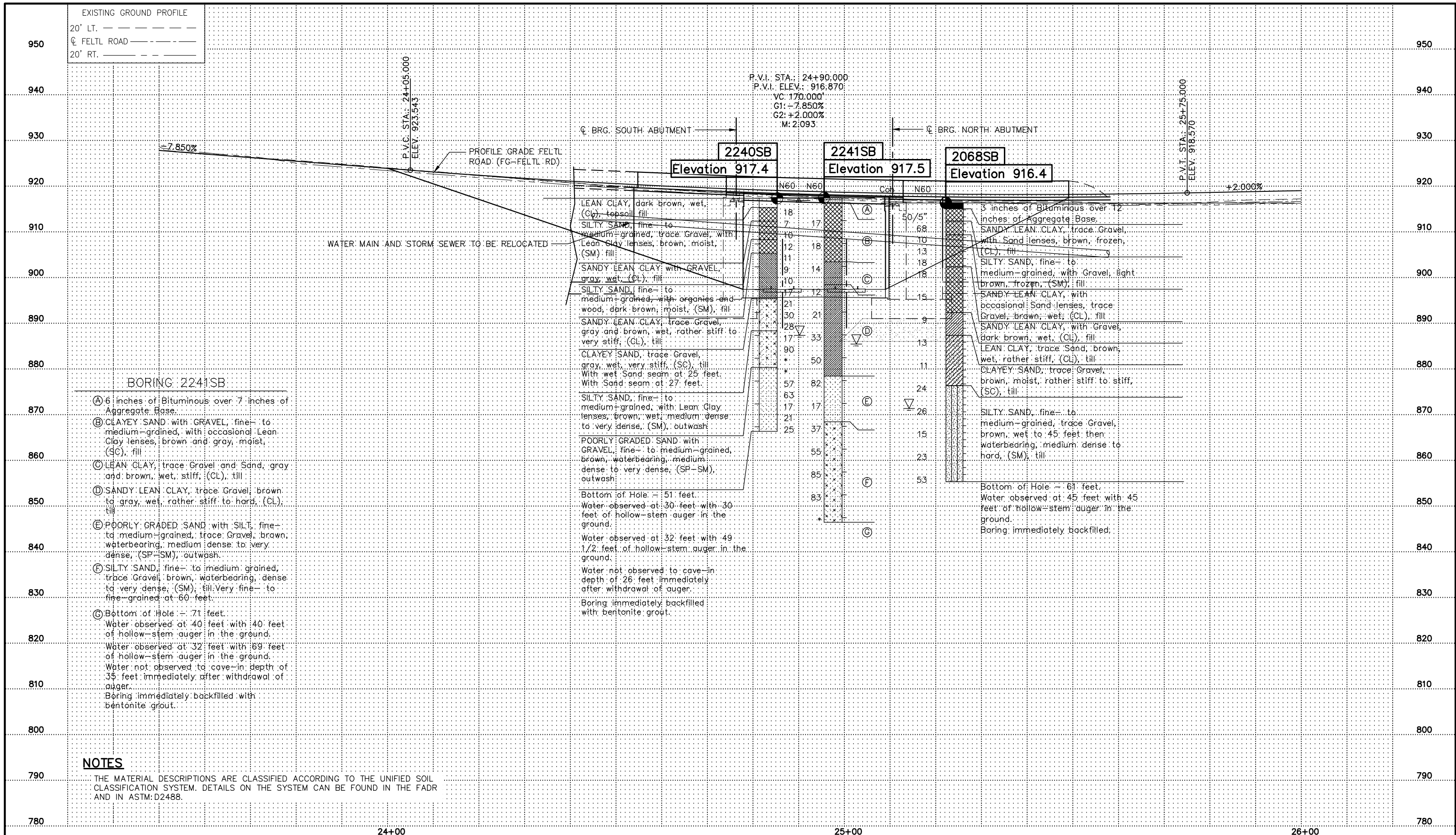
DISCIPLINE: **STRUCTURES**

SHEET NAME:	CBR27C08-BRG-BOR-001
-------------	----------------------

HEET  
43  
OF  
44



Jan, 04 2016 01:39 pm V:\3400\_ADC\CAD\SEGMENT W3\PLAN SHEETS\STRUCTURES\CBR27C08-BRG-BOR.dwg By: bodenc



#### NOTES

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

**AECOM**



DESIGNED BY: PLR  
DRAWN BY: ALB

CHECKED BY: MPC  
CHECKED BY: MPC

90% SUBMISSION - 01/22/16

**CIVIL - VOLUME 4B**  
**FELTL ROAD OVER SOUTHWEST LIGHT RAIL**  
**BRIDGE 27C08**  
**BRIDGE SURVEY PROFILE**

DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C08-BRG-BOR-002**

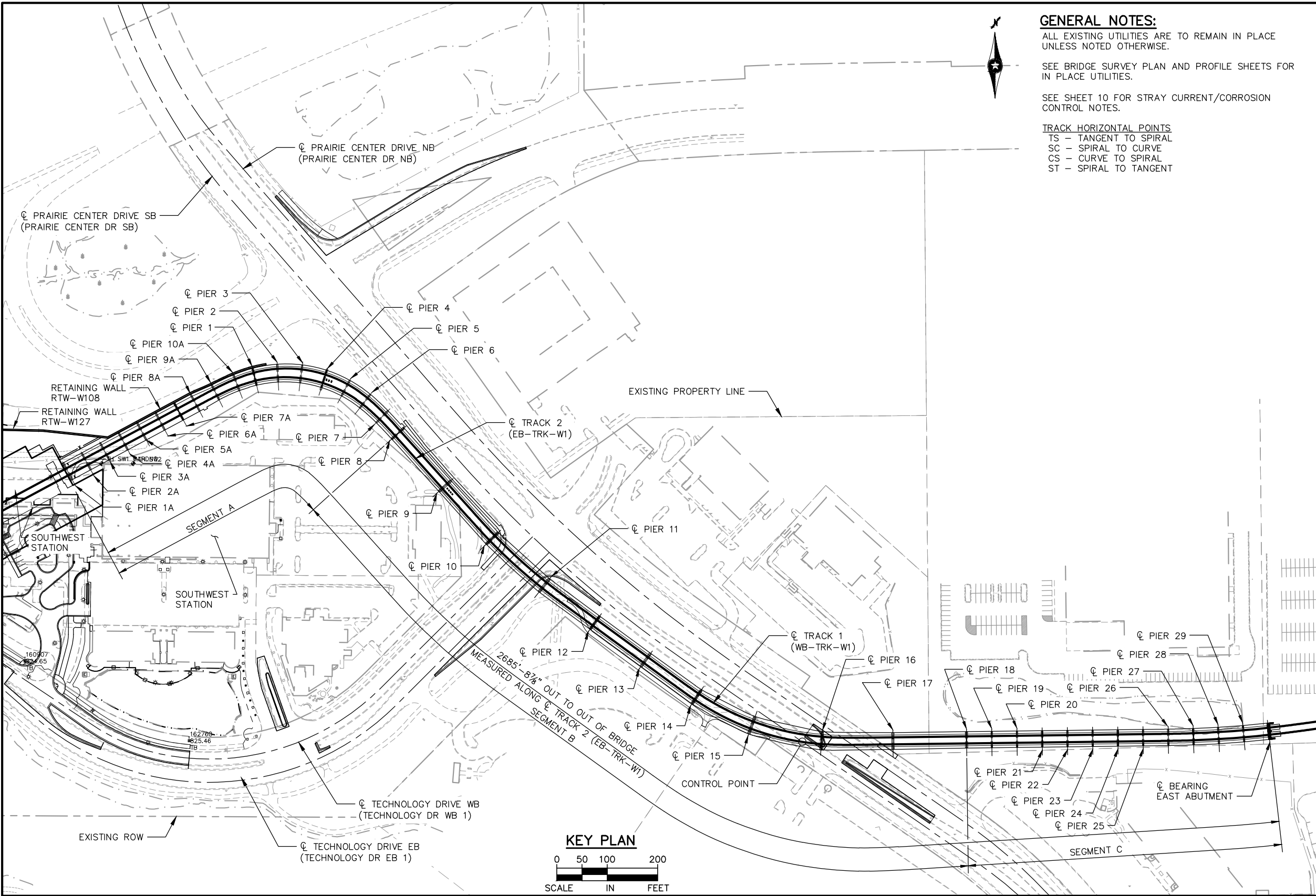
SHEET

44

OF

44

Jan, 19 2016 09:14 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-S12-001.dwg By: butterfielda



**GENERAL NOTES:**

ALL EXISTING UTILITIES ARE TO REMAIN IN PLACE UNLESS NOTED OTHERWISE.

SEE BRIDGE SURVEY PLAN AND PROFILE SHEETS FOR IN PLACE UTILITIES.

SEE SHEET 10 FOR STRAY CURRENT/CORROSION CONTROL NOTES.

**TRACK HORIZONTAL POINTS**

TS - TANGENT TO SPIRAL  
SC - SPIRAL TO CURVE  
CS - CURVE TO SPIRAL  
ST - SPIRAL TO TANGENT

**DESIGN DATA**

2014 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 7TH EDITION AND 2015 CURRENT INTERIMS.

METRO LIGHT RAIL TRANSIT DESIGN CRITERIA (REVISION 4.0).

AREMA MRE 2015

LOAD AND RESISTANCE FACTOR DESIGN METHOD.

LRV & MV LOAD DIAGRAM SHOWN ON SHEET 13.

**MATERIAL DESIGN PROPERTIES:**

REINFORCED CONCRETE:  
 $f'_c = 4000$  PSI,  $n = 8$   
 $f_y = 60000$  PSI

PRESTRESSED CONCRETE:  
 $f'_c = 9000$  PSI,  $n = 1$   
 $f_{pu} = 270$  KSI  
0.6" DIAMETER LOW RELAXATION STRANDS  
0.75  $f_{pu}$  FOR INITIAL PRESTRESS

DESIGN SPEED: OVER = 25/30/40 MPH (LRT)  
UNDER = 40 MPH (PRAIRIE CENTER DRIVE)

APPROXIMATE DECK AREA: 91,990 SQ FT

**LIST OF SHEETS**

SHEET NO.	DESCRIPTION
1	KEY PLAN
2-8	GENERAL PLAN AND ELEVATION
9-10	CONSTRUCTION NOTES & QUANTITIES
11-14	TRANSVERSE SECTION
15-22	BRIDGE LAYOUT
23-24	AESTHETICS
25-27	EAST ABUTMENT GEOMETRICS
28-31	EAST ABUTMENT REINFORCEMENT
32-106	PIER GEOMETRICS & REINFORCEMENT
107-112	FRAMING PLAN
113-117	82MW PRESTRESSED CONCRETE BEAMS
118-195	SUPERSTRUCTURE GEOM. & REINF.
196	WIRE FENCE
197-202	BRIDGE DETAILS
203-205	WATERPROOF EXPANSION DEVICE
206	STABILIZED AGGREGATE
207	AS-BUILT BRIDGE DATA
208-211	BRIDGE SURVEY
212-221	BRIDGE SURVEY PLAN
222-232	BRIDGE SURVEY PROFILE

**BRIDGE NO. 27C06**

SOUTHWEST LIGHT RAIL OVER PRAIRIE CENTER DRIVE AND TECHNOLOGY DRIVE  
0.1 MI SOUTHEAST OF THE INTERSECTION OF TH 212 AND PRAIRIE CENTER DRIVE IN EDEN PRAIRIE

140' PRESTRESSED CONCRETE BEAM SPANS  
45' SLAB SPANS  
32'-6" GUIDEWAY  
0'-0'-0" SKEW

BRIDGE ID NO. 209 SEGMENTS A & C  
BRIDGE ID NO. 501 SEGMENT B

**KEY PLAN**

SEC 14/15 T 116N R 22W  
CITY OF EDEN PRAIRIE HENNEPIN COUNTY

JOB NO: T9N635

STATE PROJECT NO: 9909-01

MNDOT REVIEW: JOE NIEFELD

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB  
CHECKED BY: ATN  
CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16

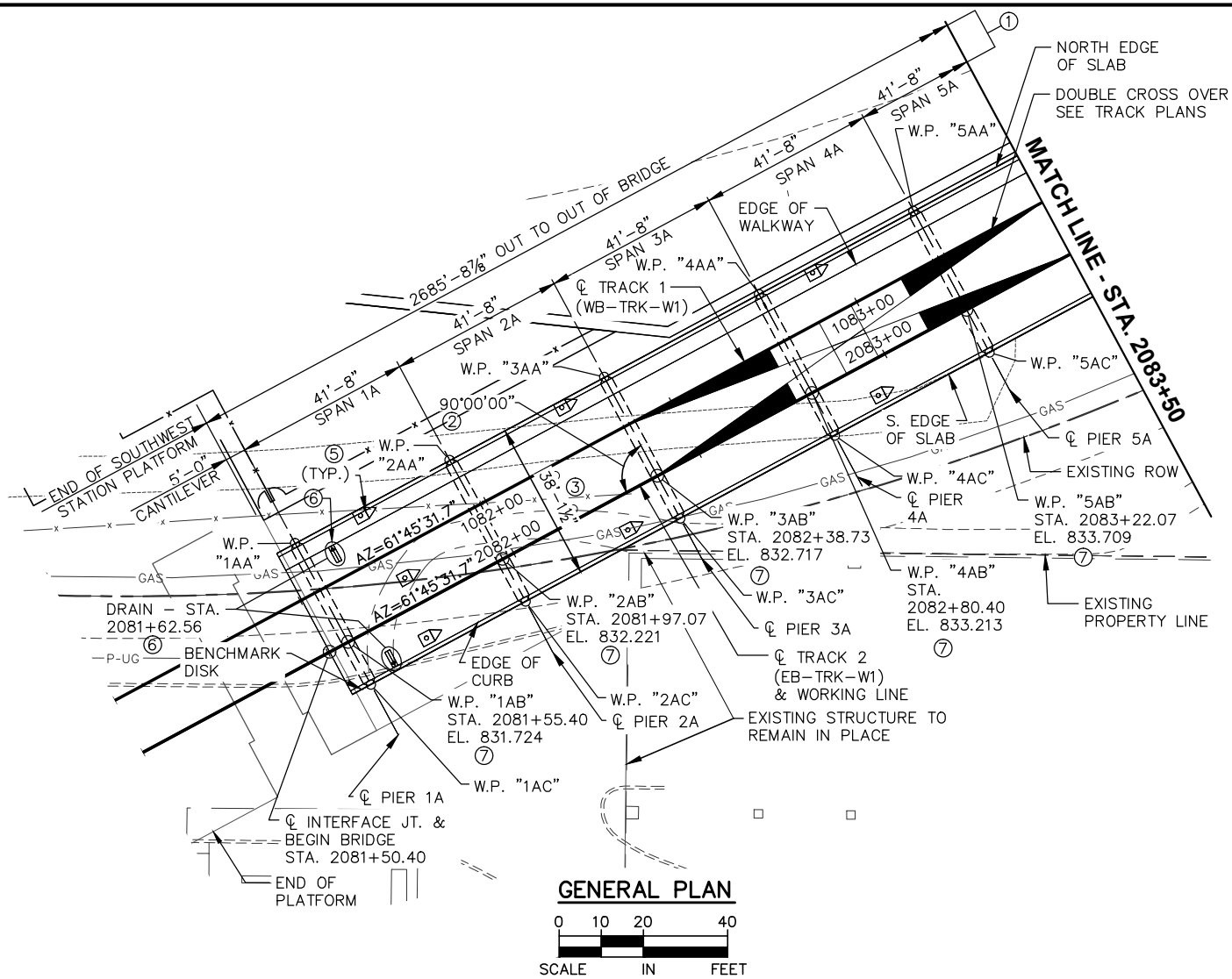


**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**KEY PLAN**

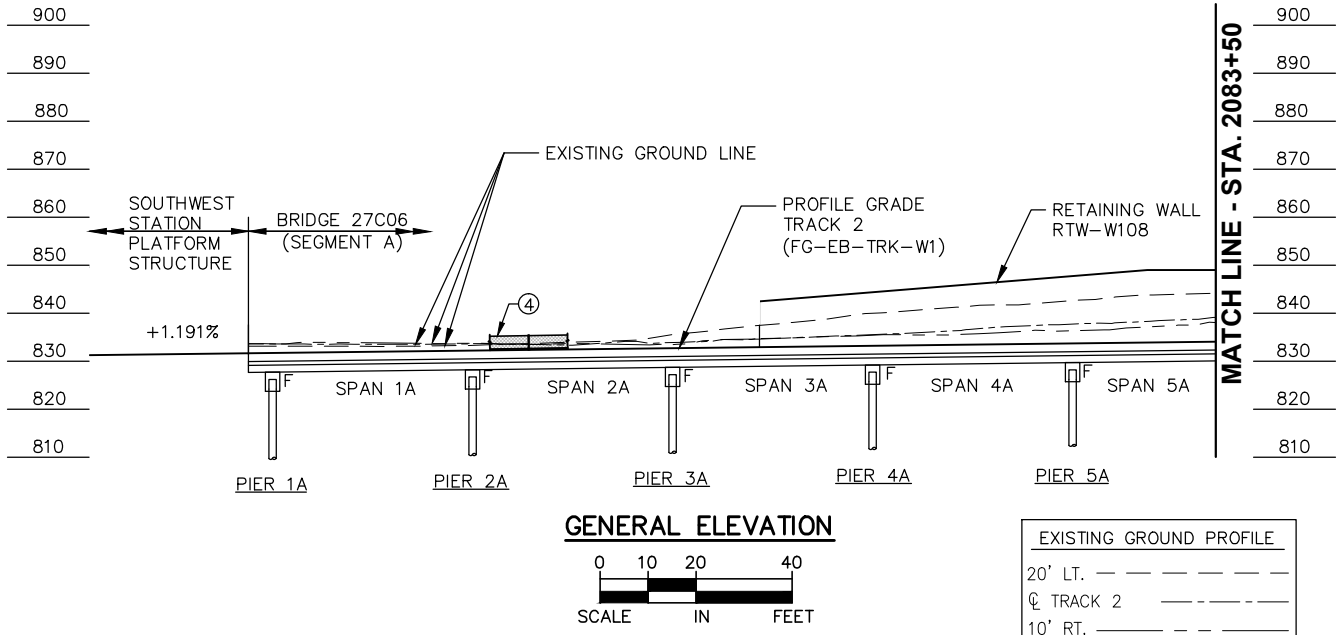
DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C06-BRG-KEY-001**

**SHEET**  
**1**  
**OF**  
**232**



- NOTES:**  
SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES.
- ① MEASURED ALONG  $\phi$  TRACK 2 (EB-TRK-W1).
  - ② TYPICAL UNLESS SHOWN OTHERWISE.
  - ③ BRIDGE WIDTH 38'-1 1/2" SPANS 1A - 7A.
  - ④ 42" MIN. HEIGHT WIRE FENCE (DESIGN W-1). SEE FIG. 5-397.119 (MOD) WIRE FENCE ON SHEET 196.
  - ⑤ OCS POLE AND PEDESTAL. SEE SHEET 186 FOR PEDESTAL DETAILS.
  - ⑥ 50"x 15 3/4" SCUPPER. SEE SHEET 189 FOR DETAILS.
  - ⑦ PROFILE GRADE TRACK 2 (FG-EB-TRK-W1).



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN

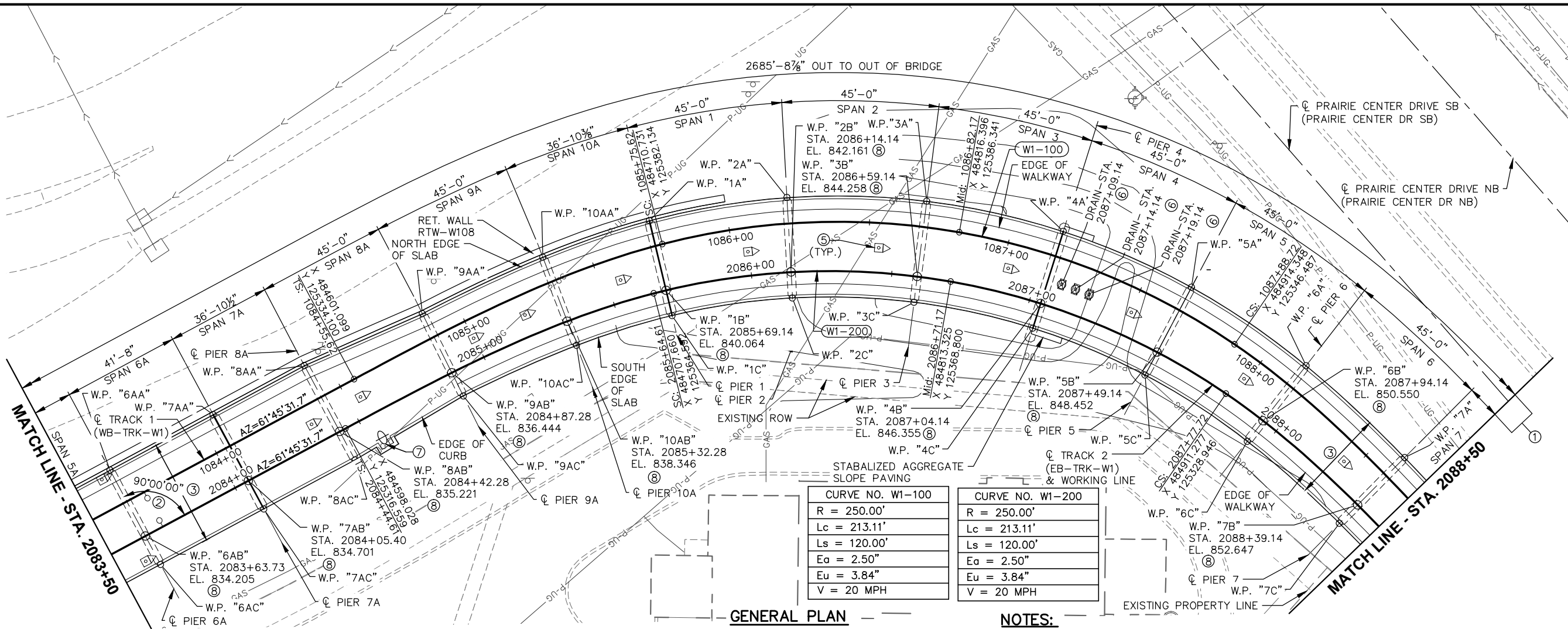
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
GENERAL PLAN AND ELEVATION 1

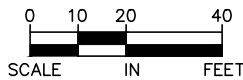
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-GPE-001

Jan, 19 2016 09:17 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-S12-003.dwg By: butterfielda

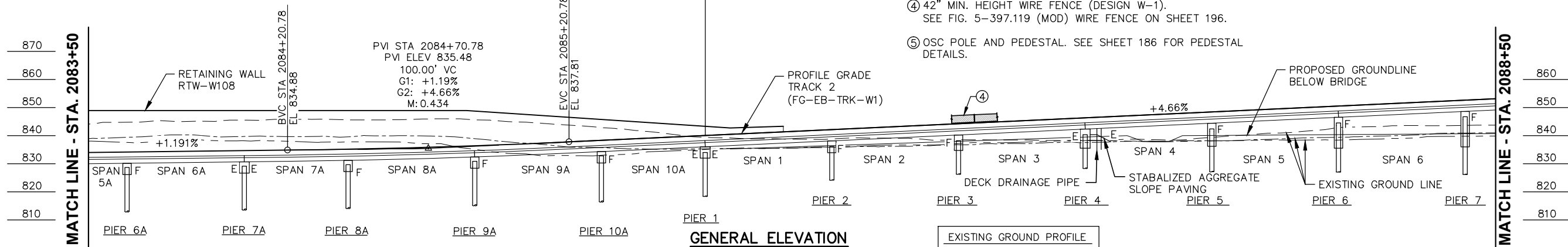


GENERAL PLAN

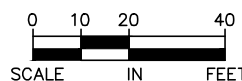


LAND BRIDGE  
SPAN 1A - SPAN 10A  
(SEGMENT A)

SLAB SPANS  
SPAN 1 - SPAN 7  
(SEGMENT A)



GENERAL ELEVATION



EXISTING GROUND PROFILE	
20' LT.	---
CL TRACK 2	---
10' RT.	---

NOTES:

- SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES. ⑥ 43½"x25½" SCUPPER. SEE SHEET 190 FOR DETAILS.
- ① MEASURED ALONG CL TRACK 2 (EB-TRK-W1).
- ② TYPICAL UNLESS SHOWN OTHERWISE.
- ③ BRIDGE WIDTH 32'-6" MIN./ 38'-1½" MAX.
- ④ 42" MIN. HEIGHT WIRE FENCE (DESIGN W-1).  
SEE FIG. 5-397.119 (MOD) WIRE FENCE ON SHEET 196.
- ⑤ OSC POLE AND PEDESTAL. SEE SHEET 186 FOR PEDESTAL DETAILS.
- ⑦ FRICTION MODIFIER SERVICING POINT STA. 2084+55.00.  
SEE TRACK PLANS FOR CABINET DETAILS AND SHEET 187 FOR DECK BLISTER DETAILS.
- ⑧ PROFILE GRADE TRACK 2 (FG-EB-TRK-W1).

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB

CHECKED BY: ATN  
CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



**SOUTHWEST**  
Green Line LRT Extension

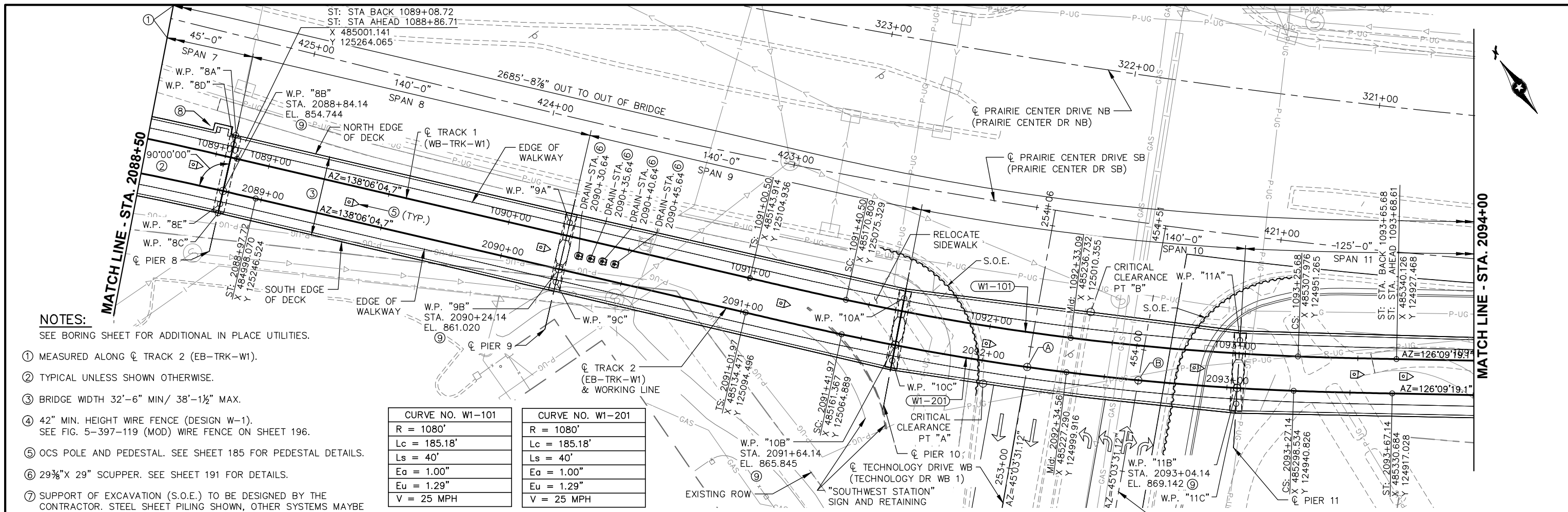


**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**GENERAL PLAN AND ELEVATION 2**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C06-BRG-GPE-002**

**SHEET**  
**3**  
**OF**  
**232**



DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN

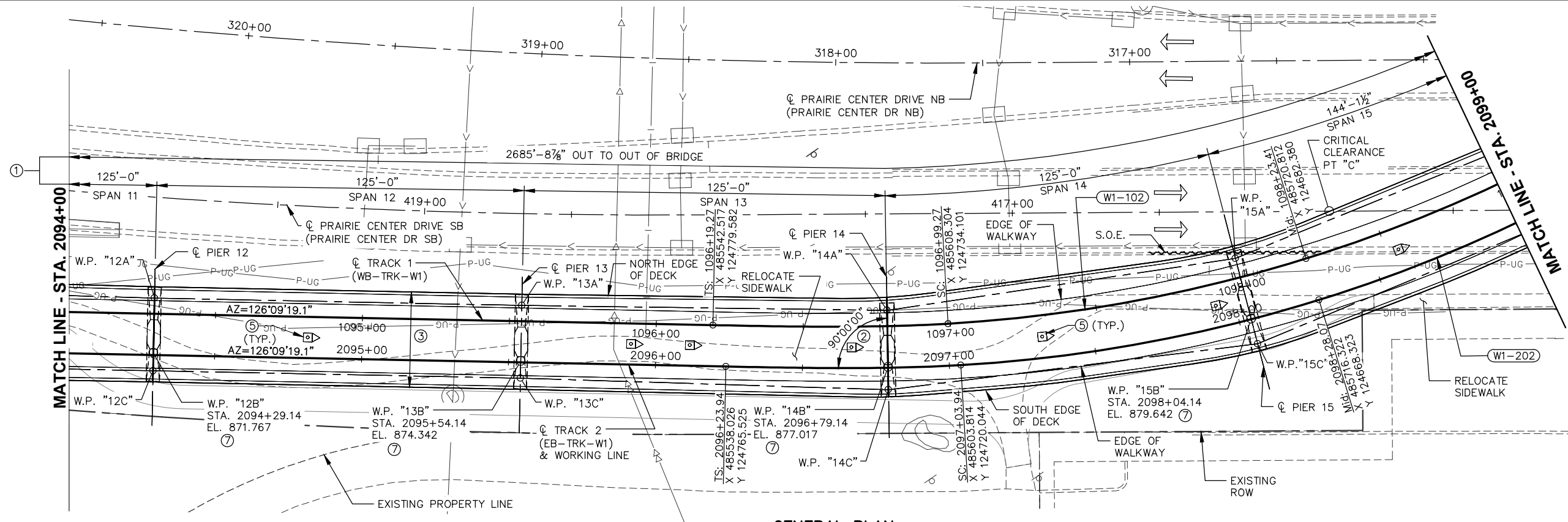
**AECOM**

**90% SUBMISSION - 01/22/16**



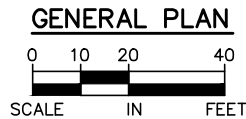
<b>CIVIL - VOLUME 4B</b> <b>PRAIRIE CENTER DRIVE</b> <b>BRIDGE 27C06</b> <b>GENERAL PLAN AND ELEVATION 3</b>		<b>SHEET</b>  <b>4</b>  <b>OF</b>  <b>232</b>
<b>DISCIPLINE:</b> <b>STRUCTURES</b>	<b>SHEET NAME:</b> <b>CBR27C06-BRG-GPE-003</b>	

Jan, 19 2016 09:20 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-S12-005.dwg By: butterfielda



CURVE NO. W1-102	
R =	510'
Lc =	248.27'
Ls =	80'
Ea =	2.25"
Eu =	2.60"
V =	25 MPH

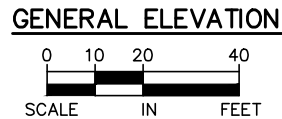
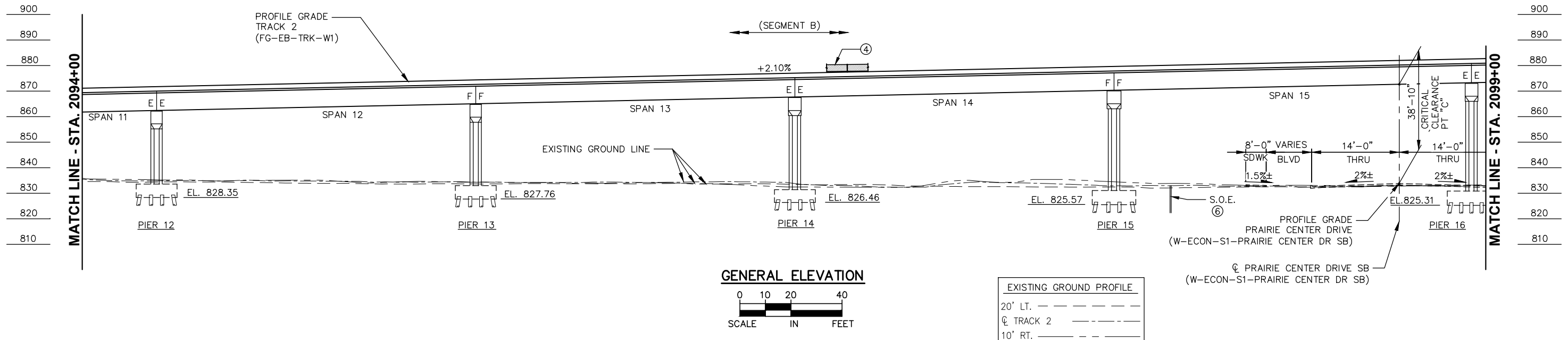
CURVE NO. W1-202	
R =	510'
Lc =	248.27'
Ls =	80'
Ea =	2.25"
Eu =	2.60"
V =	25 MPH



NOTES:

SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES.

- MEASURED ALONG  $\phi$  TRACK 2 (EB-TRK-W1).
- TYPICAL UNLESS SHOWN OTHERWISE.
- BRIDGE WIDTH 32'-6" MIN/ 38'-1 1/2" MAX.
- 42" MIN. HEIGHT WIRE FENCE (DESIGN W-1).  
SEE FIG. 5-397-119 (MOD) WIRE FENCE ON SHEET 196 .
- OCS POLE AND PEDESTAL. SEE SHEET 185 FOR PEDESTAL DETAILS.
- SUPPORT OF EXCAVATION (S.O.E.) TO BE DESIGNED BY THE CONTRACTOR. STEEL SHEET PILING SHOWN, OTHER SYSTEMS MAYBE UTILIZED AT THE CONTRACTORS OPTION. SEE SPECIAL PROVISIONS.
- PROFILE GRADE TRACK 2 (FG-EB-TRK-W1).



EXISTING GROUND PROFILE	
20' LT.	-----
$\phi$ TRACK 2	-----
10' RT.	-----

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB  
CHECKED BY: ATN  
CHECKED BY: ATN

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
GENERAL PLAN AND ELEVATION 4

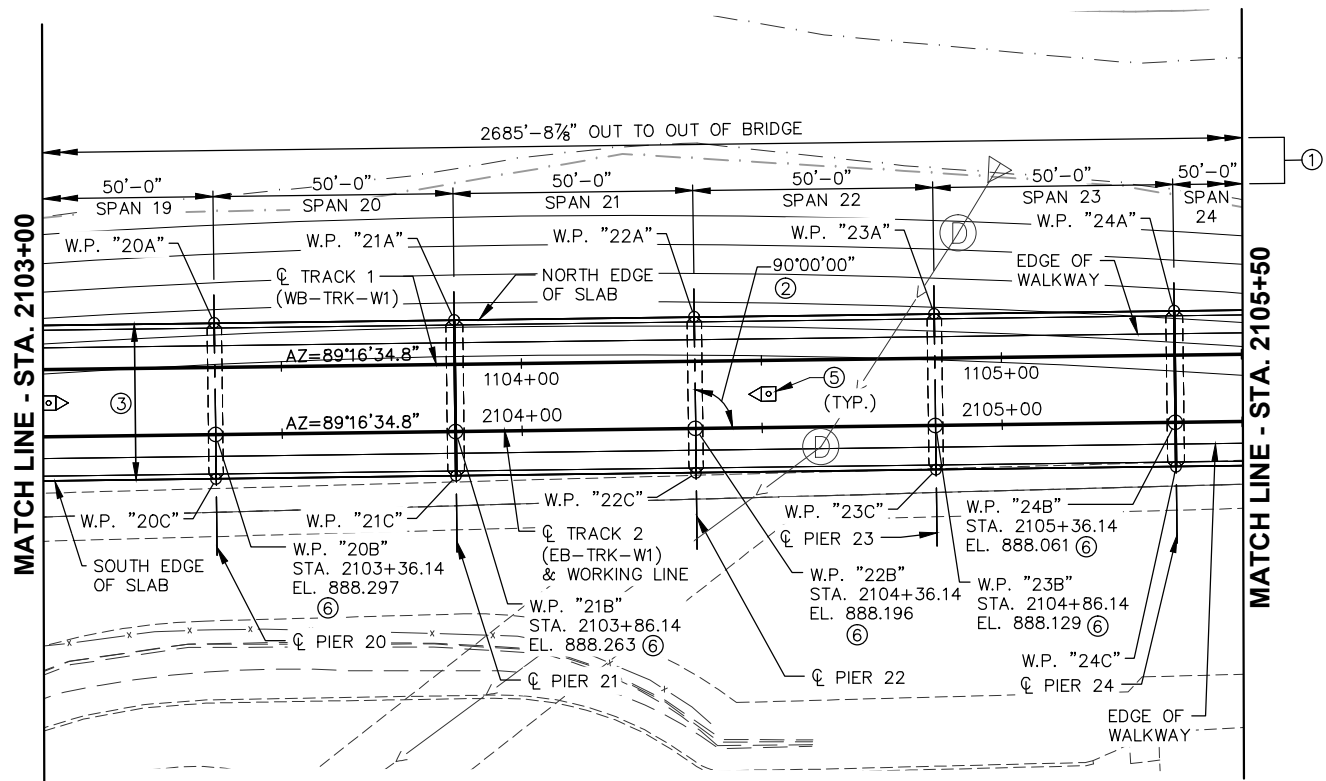
DISCIPLINE:  
STRUCTURES

SHEET NAME:  
CBR27C06-BRG-GPE-004

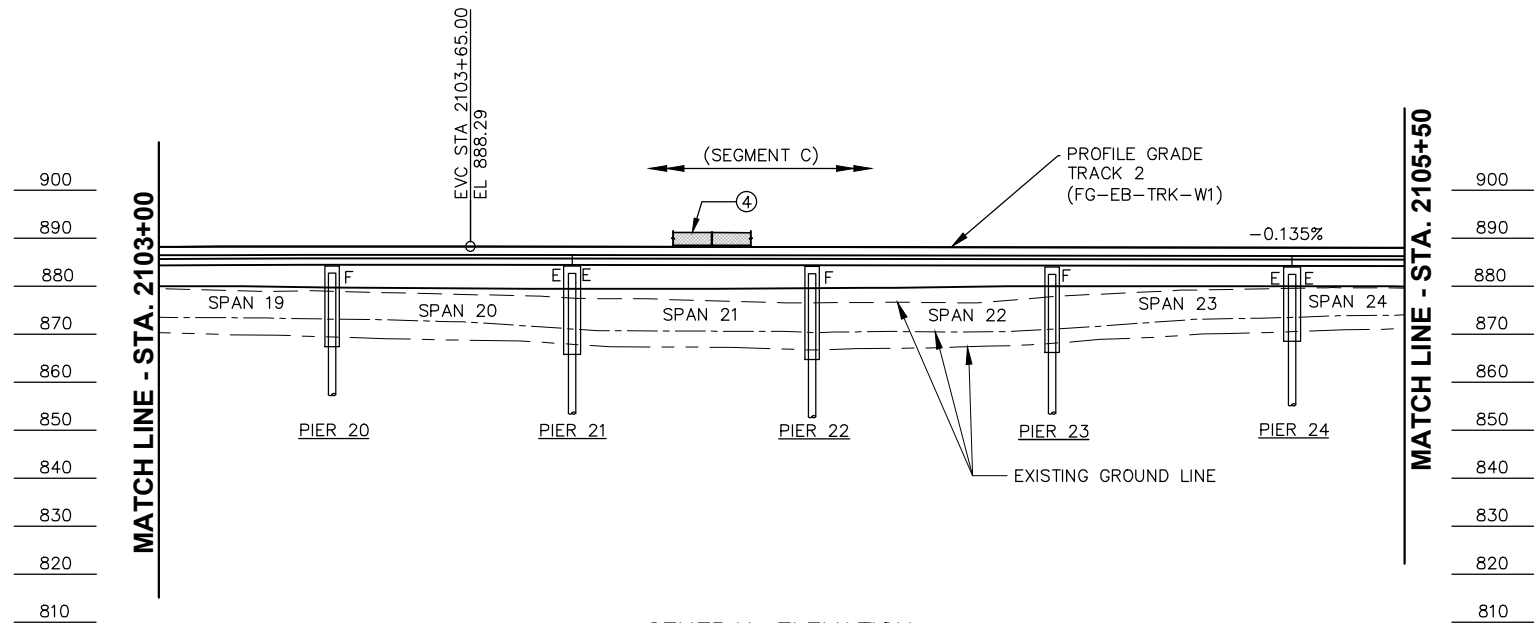
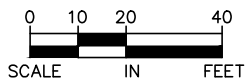
SHEET  
5  
OF  
232



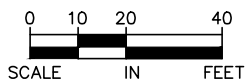
SHEET
6
OF
232



GENERAL PLAN



GENERAL ELEVATION



EXISTING GROUND PROFILE		
20' LT.	---	---
CL TRACK 2	---	---
10' RT.	---	---

NOTES:

SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES.

- ① MEASURED ALONG CL TRACK 2 (EB-TRK-W1).
- ② TYPICAL UNLESS SHOWN OTHERWISE.
- ③ BRIDGE WIDTH 32'-6" MIN/ 38'-1½" MAX.
- ④ 42" MIN. HEIGHT WIRE FENCE (DESIGN W-1).  
SEE FIG. 5-397.119 (MOD) WIRE FENCE ON SHEET 196.
- ⑤ OCS POLE AND PEDESTAL. SEE SHEET 186 FOR PEDESTAL DETAILS.
- ⑥ PROFILE GRADE TRACK 2 (FG-EB-TRK-W1).

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB

CHECKED BY: ATN  
CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**GENERAL PLAN AND ELEVATION 6**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C06-BRG-GPE-006**

**SHEET**  
**7**  
**OF**  
**232**

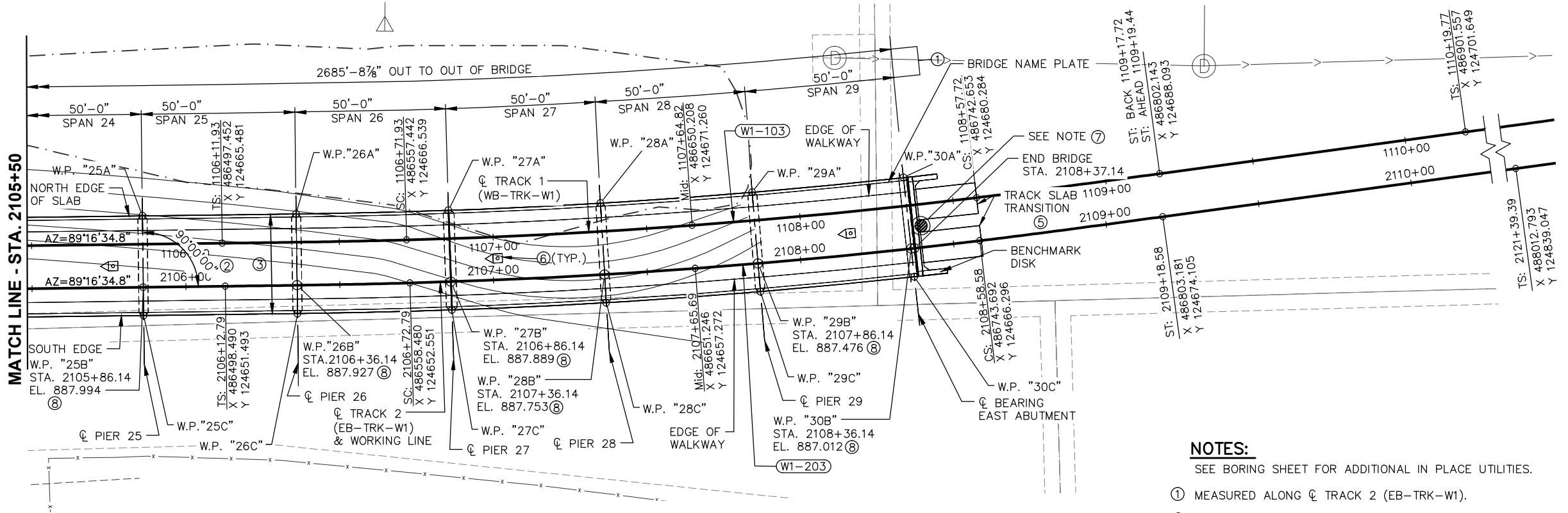


Jan, 19 2016 09:24 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-S12-008.dwg By: butterfielda

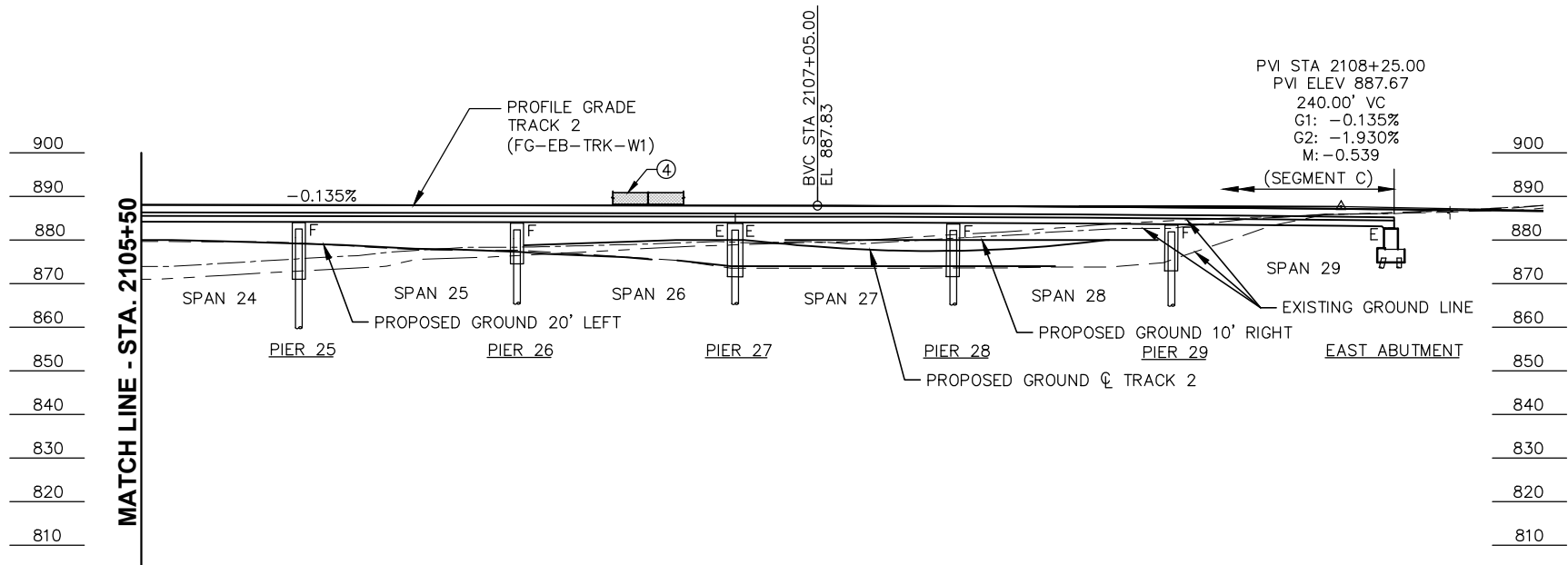


CURVE NO. W1-103
R = 2000.00'
Lc = 185.79'
Ls = 60'
Ea = 1.00"
Eu = 1.43"
V = 35 MPH

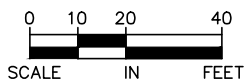
CURVE NO. W1-203
R = 2000.00'
Lc = 185.79'
Ls = 60'
Ea = 1.00"
Eu = 1.43"
V = 35 MPH



GENERAL PLAN



GENERAL ELEVATION



EXISTING GROUND PROFILE
20' LT. ————
CL TRACK 2 ————
10' RT. ————

NOTES:

SEE BORING SHEET FOR ADDITIONAL IN PLACE UTILITIES.

- ① MEASURED ALONG CL TRACK 2 (EB-TRK-W1).
- ② TYPICAL UNLESS SHOWN OTHERWISE.
- ③ BRIDGE WIDTH 32'-6" MIN/ 38'-1½" MAX.
- ④ 42" MIN. HEIGHT WIRE FENCE (DESIGN W-1).  
SEE FIG. 5-397.119 (MOD) WIRE FENCE ON SHEET 196.
- ⑤ TRANSITION SLABS. SEE TRACK PLANS FOR DETAILS.
- ⑥ OCS POLE AND PEDESTAL. SEE SHEET 186 FOR PEDESTAL DETAILS.
- ⑦ SPECIAL DESIGN DRAINAGE STRUCTURE AT ABUTMENT.  
SEE DRAINAGE PLANS FOR DETAILS.
- ⑧ PROFILE GRADE TRACK 2 (FG-EB-TRK-W1).

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**GENERAL PLAN AND ELEVATION 7**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C06-BRG-GPE-007**

**SHEET**  
**8**  
**OF**  
**232**

Jan, 19 2016 09:24 am V:\3400\_ADC\CAD\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-TRN-001.dwg By: butterfield

SCHEDULE OF QUANTITIES			
SPEC. SECTION	ITEM	UNIT	QUANTITY
—	CONSTRUCT BRIDGE 27C06	LUMP SUM	LS

COMPONENT ITEM SUMMARY (BRIDGE 27C06)			
SPEC. SECTION ③	COMPONENT ITEM	UNIT ②	QUANTITY ②
④ ①	2401 SUPERSTRUCTURE EXCAVATION CLASS E	CU. YD.	2,381
	2401 STRUCTURAL CONCRETE (1G52)	CU. YD.	888
	2401 STRUCTURAL CONCRETE (3B52)	CU. YD.	1,790
	2401 SIDEWALK CONCRETE (3F52)	SQ. FT.	25,291
	2401 BRIDGE SLAB CONCRETE (3YHPC-M), SEGMENTS A & C	CU. YD.	3,842
	2401 BRIDGE SLAB CONCRETE (3YHPC-M), SEGMENT B	SQ. FT.	45,611
	2401 REINFORCEMENT BARS	POUND	133,200
	2401 REINFORCEMENT BARS (EPOXY COATED)	POUND	1,128,520
	2402 ELASTOMERIC BEARING PAD TYPE 1	EACH	135
	2402 EXPANSION JOINT DEVICES TYPE 4	LIN. FT.	376
	2402 EXPANSION JOINT DEVICES TYPE 5	LIN. FT.	31
	2402 BEARING ASSEMBLY	EACH	80
	2402 FLOOR DRAIN, TYPE R-3951	EACH	2
	2402 FLOOR DRAIN, TYPE R-3949-B	EACH	3
	2402 FLOOR DRAIN, TYPE R-3956	EACH	4
	2405 PRESTRESSED CONCRETE BEAMS 82MW	LIN. FT.	5,360
	2405 DIAPHRAGMS FOR TYPE 82MW PREST BEAMS	LIN. FT.	981
	2411 ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM)	SQ. FT.	xxxxx
	2411 ARCHITECTURAL CONCRETE TEXTURE (LIMESTONE)	SQ. FT.	xxxxx
	2411 ARCHITECTURAL SURFACE FINISH (SINGLE COLOR)	SQ. FT.	10,974
	2452 C-I-P CONCRETE PILING DELIVERED 16"	LIN. FT.	25,024
	2452 C-I-P CONCRETE PILING DRIVEN 16"	LIN. FT.	25,024
	2452 C-I-P CONCRETE TEST PILE 55 FT LONG 16"	EACH	3
	2452 C-I-P CONCRETE TEST PILE 60 FT LONG 16"	EACH	5
	2452 C-I-P CONCRETE TEST PILE 65 FT LONG 16"	EACH	14
	2452 C-I-P CONCRETE TEST PILE 70 FT LONG 16"	EACH	7
	2452 C-I-P CONCRETE TEST PILE 75 FT LONG 16"	EACH	2
	2452 C-I-P CONCRETE TEST PILE 76 FT LONG 16"	EACH	1
	2452 C-I-P CONCRETE TEST PILE 80 FT LONG 16"	EACH	3
	2452 C-I-P CONCRETE TEST PILE 90 FT LONG 16"	EACH	2
	2452 C-I-P CONCRETE TEST PILE 95 FT LONG 16"	EACH	3
	2452 PILE ANALYSIS	EACH	411
	2481 WATERPROOFING MEMBRANE	SQ. FT.	255
	2557 WIRE FENCE	LIN. FT.	5,367

SCHEDULE OR QUANTITIES AND COMPONENT ITEM SUMMARY NOTES:

- ① 2 BENCH MARK DISKS ARE REQUIRED. LOCATE ONE AT THE SOUTHEAST CORNER OF THE BRIDGE, AND THE OTHER ONE ON THE SOUTHWEST CORNER OF THE BRIDGE. STATE WILL FURNISH DISK. BEND PRONGS OUTWARD TO ANCHOR DISK IN CONCRETE. BOTTOM OF DISK TOP TO BE PLACED FLUSH WITH CONCRETE. PAYMENT FOR PLACING SHALL BE CONSIDERED INCIDENTAL TO CONCRETE PAY ITEMS.
- ② QUANTITIES LISTED FOR THE COMPONENT ITEMS OF THE LUMP SUM BRIDGE 27C06 ITEM ARE FOR INFORMATIONAL PURPOSES. ANY ADDITIONAL ITEMS OR CHANGES IN QUANTITIES REQUIRED SHALL BE PROVIDED BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION.
- ③ MEASUREMENT AND PAYMENT FOR COMPONENT ITEMS SHALL BE PART OF THE LUMP SUM PAYMENT FOR THE BRIDGE 27C06. REFER TO MnDOT STANDARD SPECIFICATION OR SPECIAL PROVISION FOR TECHNICAL SPECIFICATION REQUIREMENTS FOR ALL PROVISIONS OTHER THAN MEASUREMENT & PAYMENT REQUIREMENTS.
- ④ STRUCTURAL EXCAVATIONS INCLUDES TEMPORARY SUPPORT OF EXCAVATION (S.O.E.).

CONSTRUCTION NOTES:




THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

BRIDGE SEAT REINFORCEMENT SHALL BE CAREFULLY PLACED TO AVOID INTERFERENCE WITH DRILLING HOLES FOR ANCHOR RODS. THE BEAMS SHALL BE ERECTED IN FINAL POSITION PRIOR TO DRILLING HOLES FOR AND PLACING ANCHOR RODS.

THE FIRST DIGIT OF A THREE DIGIT BAR MARK OR THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK INDICATE THE BAR SIZE. BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.

THE PILE LOADS SHOWN IN THE PLANS AND THE CORRESPONDING NOMINAL PILE BEARING RESISTANCE (R<sub>n</sub>) WERE COMPUTED USING LRFD METHODOLGY. PILE BEARING RESISTANCE DETERMINED IN THE FIELD SHALL INCORPORATE THE METHODS AND/OR FORMULAS DESCRIBED IN THE SPECIAL PROVISIONS.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	<div></div>		<div></div>		<div>CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 CONSTRUCTION NOTES &amp; QUANTITIES</div>		SHEET 9 OF 232
						DESIGNED BY: RJH	CHECKED BY: ATN	90% SUBMISSION - 01/22/16		DISCIPLINE:	SHEET NAME:	
						DRAWN BY: ALB	CHECKED BY: ATN			STRUCTURES	CBR27C06-BRG-TRN-001	

Jan, 19 2016 09:24 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-TRN-001.dwg By: butterfielda

STRAY CURRENT / CORROSION CONTROL NOTES PRAIRIE CENTER DRIVE BRIDGE:

1. ALL EPOXY COATED REBAR SHALL BE TIED TOGETHER USING NON-METALLIC OR NON-METALLIC COATED TIES. ALL EPOXY COATED REBAR SHALL BE ISOLATED FROM BLACK BARS. EPOXY COATED DOWELS SHOULD EXTEND OUT OF ABUTMENT FOOTING INTO THE EAST ABUTMENT.
2. ALL HORIZONTAL BLACK REBARS IN THE ABUTMENT FOOTING SHALL BE MADE ELECTRICALLY CONTINUOUS WITHIN FOOTING. STEEL SHELLS OF CIP PILES IN ABUTMENT FOOTING SHALL BE MADE ELECTRICALLY CONTINUOUS WITH WELDED BLACK REBAR IN FOOTING. SEE DETAILS ON SHEETS EO-SYS-CORR-DTL-001 AND 008 AND DETAIL 2 ON SHEET EO-SYS-CORR-DTL-013.
3. THE BEARINGS AT ALL PIERS SHALL PROVIDE ELECTRICAL ISOLATION OF THE STEEL ELEMENTS IN THE PRECAST BEAMS OR DECK FROM STEEL ELEMENTS IN THE PIER CAPS AND COLUMNS.
4. A 3/8-INCH UNCOATED, GALVANIZED STEEL CABLE SHALL BE INSTALLED IN A 1" X 2" DEEP LONGITUDINAL GROOVE IN THE DECK POSITIONED DIRECTLY BELOW EACH RUNNING RAIL. THE CABLE SHALL BE POSITIONED IN THE DECK SUCH THAT IT DOES NOT INTERFERE WITH INSTALLATION OF THE PLINTH ANCHOR INSERTS. SEE SHEET EO-SYS-CORR-DTL-010.
5. AT DECK EXPANSION JOINTS, THAT DO NOT HAVE A STRAY CURRENT BOND TEST STATION, ELECTRICAL CONTINUITY OF THE GALVANIZED STEEL CABLE SHALL BE MAINTAINED ACROSS THE EXPANSION JOINT. SUFFICIENT SLACK SHALL BE AVAILABLE IN THE CABLES THAT SPAN THE EXPANSION JOINT TO ACCOUNT FOR MOVEMENT OF THE JOINT. SEE DETAIL 1 ON SHEET EO-SYS-CORR-DTL-011.
6. AT THE WEST END OF THE BRIDGE (PIER 1A) INSTALL STRAY CURRENT BOND TEST STATION HOUSING TWO INSULATED #1/0 AWG CABLES FROM GALVANIZED STEEL CABLES IN DECK, TWO #1/0 AWG CABLES FROM WELDED REBAR THROUGH STATION AREA AND 250 MCM CABLE TO GROUND ROD ARRAY AT BASE OF ABUTMENT. SEE DETAIL 2 ON SHEET EO-SYS-CORR-DTL-003 AND SHEET EO-SYS-CORR-DTL-010. SEE NOTE 13. NO REFERENCE ELECTRODE IS TO BE INSTALLED IN THE AERAIL DECK SINCE THERE IS NO BLACK REBAR IN THE DECK. SUFFICIENT SLACK SHALL BE AVAILABLE IN THE CABLES THAT SPAN THE EXPANSION JOINT TO ACCOUNT FOR MOVEMENT OF THE JOINT.
7. AT PIERS 1, 8, 14, 18 AND 24 INSTALL STRAY CURRENT BOND TEST STATION HOUSING TWO INSULATED #1/0 AWG CABLES FROM GALVANIZED STEEL CABLES ON EACH SIDE OF EXPANSION JOINT IN TRACK SLAB. SEE DETAIL 3 ON SHEET EO-SYS-CORR-DTL-003 AND SHEET EO-SYS-CORR-DTL-010. SEE NOTE 13. NO REFERENCE ELECTRODE IS TO BE INSTALLED IN THE AERIAL DECK SINCE THERE IS NO BLACK REBAR IN THE DECK.
8. AT PIER 11 INSTALL STRAY CURRENT TEST STATION HOUSING TWO INSULATED #1/0 AWG CABLES FROM GALVANIZED STEEL CABLES FROM ONE SIDE OF THE FIXED CONSTRUCTION JOINT. SEE DETAIL 4 ON SHEET EO-SYS-CORR-DTL-003 AND NOTE 11 ON SHEET EO-SYS-CORR-DTL-010. SEE NOTE 13. NO REFERENCE ELECTRODE IS TO BE INSTALLED IN THE AERIAL DECK SINCE THERE IS NO BLACK REBAR IN THE DECK.
9. AT THE EAST ABUTMENT, INSTALL A STRAY CURRENT BOND TEST STATION ALONG BRIDGE HOUSING TWO #1/0 AWG THWN CABLES FROM UNCOATED GALVANIZED STEEL CABLES IN TRACK SLAB, TWO #1/0 AWG CABLES FROM WELDED REBAR IN TRANSITION SLAB AND 250 MCM CABLE TO GROUND ROD ARRAY AT BASE OF ABUTMENT. SEE DETAIL 2 ON SHEET EO-SYS-CORR-DTL-003, DETAIL 2 ON SHEET EO-SYS-CORR-DTL-013 AND SHEET EO-SYS-CORR-DTL-010. SUFFICIENT SLACK SHALL BE AVAILABLE IN THE CABLES THAT SPAN THE EXPANSION JOINT TO ACCOUNT FOR MOVEMENT OF THE JOINT. SEE NOTE 13. NO REFERENCE ELECTRODE IS TO BE INSTALLED IN THE DECK SINCE THERE IS NO BLACK REBAR IN THE DECK.
10. INSTALL STRAY CURRENT TEST STATIONS ALONG NORTH AND SOUTH SIDES OF EAST ABUTMENT HOUSING TWO #1/0 AWG CABLES FROM WELDED REBAR/STEEL PILE SHELLS IN EAST ABUTMENT FOOTING AND #14 HMWPE CABLE FROM COPPER/COPPER SULFATE REFERENCE CELL. REFERENCE CELL SHALL BE INSTALLED IN SOIL WITHIN 1-FOOT OF PILE AND 1-FOOT BELOW BOTTOM OF FOOTING. SEE NOTE 13. SEE DETAIL 4 ON SHEET EO-SYS-CORR-DTL-003 AND DETAIL 2 ON SHEET EO-SYS-CORR-DTL-013.
11. LONGITUDINAL REBAR IN TRANSITION SLAB SHALL BE MADE ELECTRICALLY CONTINUOUS WITHIN SLAB. END TRANSVERSE COLLECTOR BARS SHALL BE WELDED TO ALL LONGITUDINAL REBARS AT EACH END AND IN EACH REBAR LAYER OF THE TRANSITION SLAB. TOP AND BOTTOM REBAR LAYERS SHALL BE WELDED TOGETHER USING 1/2" X 2" STEEL STRAPS INSTALLED 2 PER TRACK AT EACH END OF SLAB. #1/0 AWG CABLES (2 PER TRACK) SHALL BE WELDED TO END TRANSVERSE COLLECTOR BAR NEAREST ABUTMENT AND TERMINATED IN JUNCTION BOX ALONG BRIDGE THAT HOUSES WIRES FROM STEEL CABLES IN BRIDGE TRACK SLAB AND GROUND ROD(S). SEE SHEET EO-SYS-CORR-DTL-010. SUFFICIENT SLACK SHALL BE AVAILABLE IN THE CABLES THAT SPAN THE EXPANSION JOINT TO ACCOUNT FOR MOVEMENT OF THE JOINT.
12. INSTALL STRAY CURRENT GROUND ROD ARRAY NEAR BASE OF ABUTMENT. GROUND ROD ARRAY SHOULD EXHIBIT A MAXIMUM RESISTANCE TO EARTH OF 25 OHMS. USE 250 MCM THWN CABLE TO INTERCONNECT GROUND RODS AND AS GROUND CABLE TO STRAY CURRENT COLLECTION MAT TEST STATIONS AT END OF BRIDGE STRUCTURE. 250 MCM CABLE SHALL RUN INSIDE 2" SCH 80 PVC CONDUIT THAT IS EMBEDDED WITHIN ABUTMENT. SEE DETAILS 3 AND 4 ON SHEET EO-SYS-CORR-DTL-013.
13. ALL STRAY CURRENT TEST STATIONS SHALL BE INSTALLED AT LOCATIONS WHERE THEY WILL BE ACCESSIBLE AFTER COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND DURING REVENUE OPERATIONS OF THE LRT SYSTEM.
14. NO SPECIAL CORROSION CONTROL MEASURES ARE REQUIRED FOR THE PIER FOOTINGS AT PIERS 8 THROUGH 18.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JPJ		CHECKED BY: IKS	
DRAWN BY: ALB		CHECKED BY: ATN	



90% SUBMISSION - 01/22/16

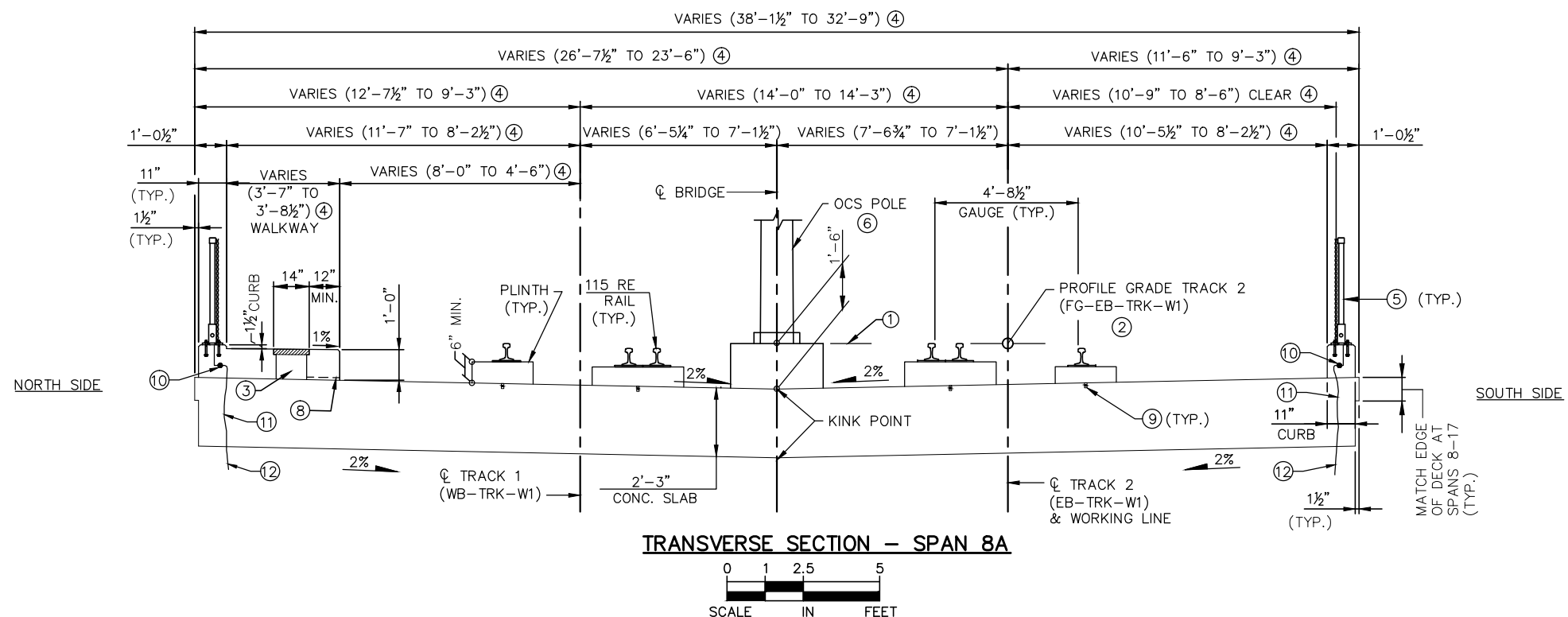
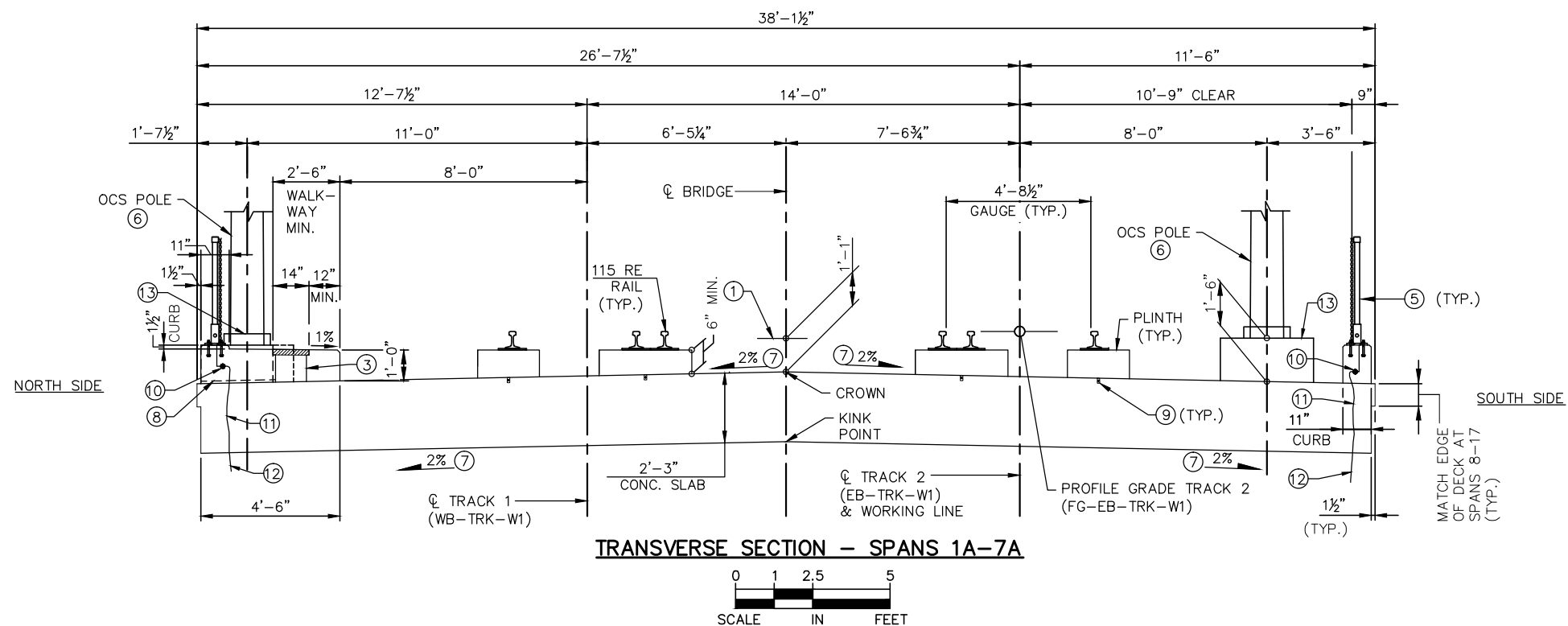


CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
STRAY CURRENT/CORROSION CONTROL NOTES

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-TRN-002

Jan, 19 2016 09:25 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-TRN-002.dwg By: butterfielda



#### NOTES:

- ① MEASURED TO TOP OF LOW RAIL.
- ② PROFILE GRADE LINE TRANSITIONS TO LOW RAIL IN SUPER ELEVATED CURVES.
- ③ EXPRESS TROUGH WITH HIGH DENSITY POLYMER COVER. CONTRACTOR TO COORDINATE FINAL BLOCKOUT AND RECESS DIMENSIONS WITH SUPPLIER. SEE SYSTEM PLANS.
- ④ SEE SUPERSTRUCTURE DETAILS ON SHEETS 118 TO 192.
- ⑤ 42" MIN. HEIGHT WIRE FENCE (DESIGN W-1) SEE FIG. 5-397.119 (MOD) WIRE FENCE ON SHEET 196.
- ⑥ OCS POLE VARIES LOCATION IN SPANS 1A-8A. SEE SHEET 2, SHEET 3 AND SYSTEM PLANS.
- ⑦ SPANS 1A - 6A ONLY. VARIES IN SPAN 7A. SEE SUPERELEVATION TRANSITION DETAILS ON SHEET 174.
- ⑧ FURNISH A 1" HIGH X 6" WIDE BLOCKOUT TO DRAIN THE EXPRESS TROUGH EVERY 10' ALONG WALKWAY.
- ⑨ STRAY CURRENT COLLECTOR CABLE. SEE NOTE 4 ON SHEET 10.
- ⑩ GROUND WIRE.
- ⑪ GROUND WIRE PLACED WITHIN THE SLAB AT PIERS.
- ⑫ CONNECT TO GROUND WIRE IN PIERS.
- ⑬ SEE SHEETS 185 AND 186 FOR PEDESTAL DETAILS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB  
CHECKED BY: ATN  
CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
TRANSVERSE SECTION 1**

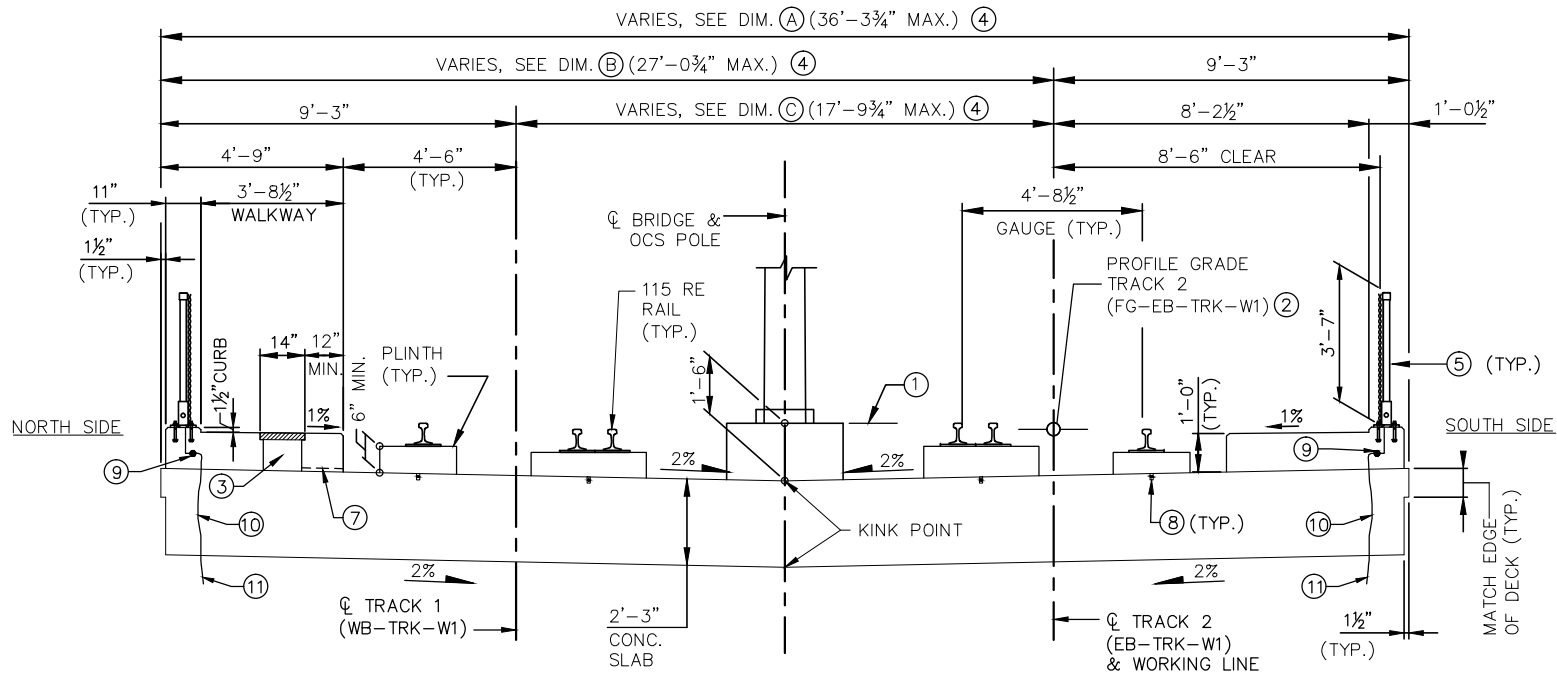
DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C06-BRG-TRN-003**

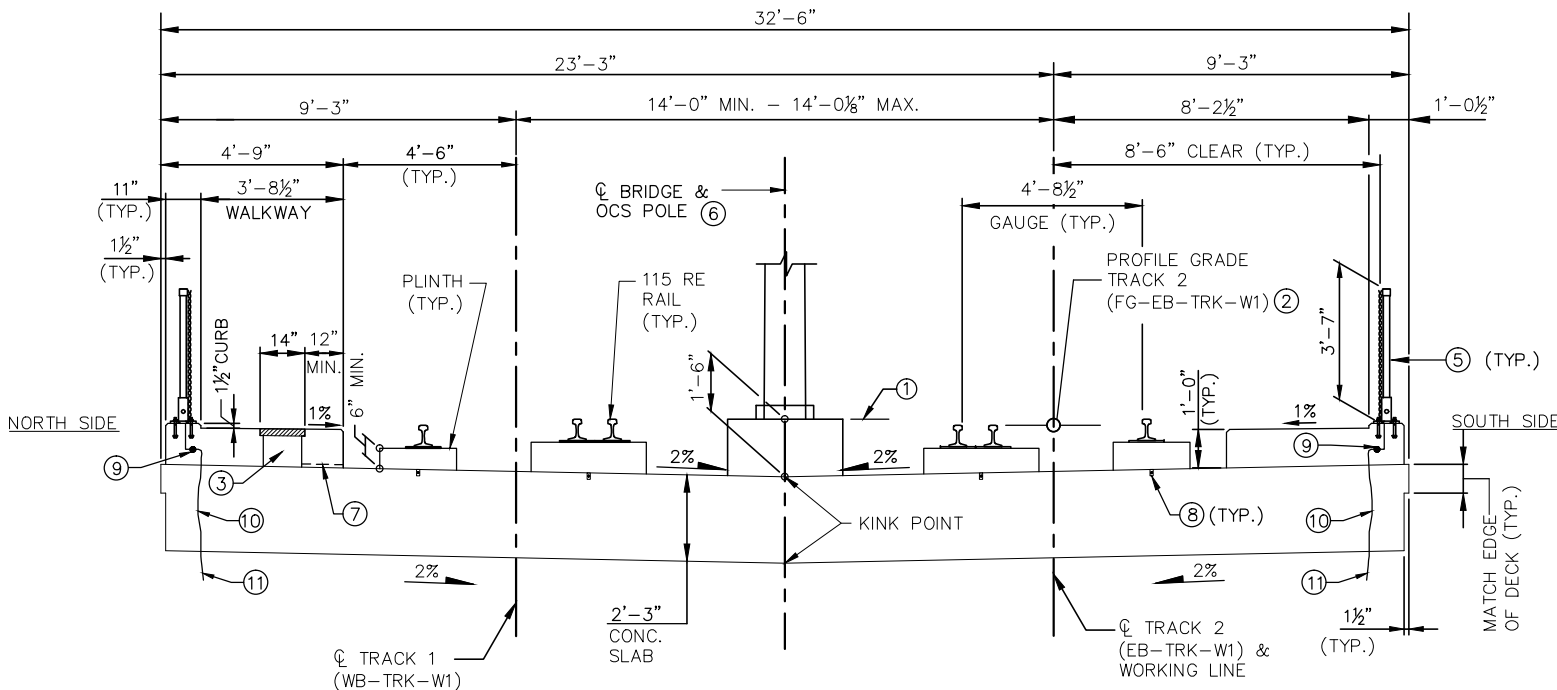
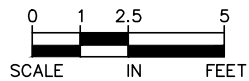
**SHEET  
11  
OF  
232**

Jan, 19 2016 09:25 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-TRN-002.dwg By: butterfielda

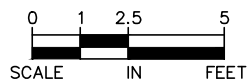
AT CL PIER	DIM. (A)	DIM. (B)	DIM. (C)
9A	32'-9"	23'-6"	14'-3"
10A	33'-8 $\frac{1}{8}$ "	24'-5 $\frac{1}{8}$ "	15'-2 $\frac{1}{8}$ "
1	34'-9"	25'-6"	16'-3"
2	35'-9 $\frac{3}{4}$ "	26'-6 $\frac{3}{4}$ "	17'-3 $\frac{3}{4}$ "
3	36'-3 $\frac{3}{8}$ "	27'-0 $\frac{3}{8}$ "	17'-9 $\frac{3}{8}$ "
4	36'-1 $\frac{1}{4}$ "	26'-10 $\frac{3}{4}$ "	17'-7 $\frac{3}{4}$ "
5	35'-4 $\frac{3}{4}$ "	26'-1 $\frac{3}{4}$ "	16'-10 $\frac{3}{4}$ "
6	34'-1 $\frac{1}{2}$ "	24'-10 $\frac{1}{2}$ "	15'-7 $\frac{1}{2}$ "
7	33'-0 $\frac{1}{8}$ "	23'-9 $\frac{1}{8}$ "	14'-6 $\frac{1}{8}$ "
8	32'-6 $\frac{1}{4}$ "	23'-3 $\frac{1}{4}$ "	14'-0 $\frac{1}{4}$ "



TRANSVERSE SECTION - SPANS 9A -7



TRANSVERSE SECTION - SPANS 18-29



**NOTES:**

- 1'-6" MEASURED TO TOP OF LOW RAIL.
- PROFILE GRADE LINE TRANSITIONS TO LOW RAIL IN SUPER ELEVATED CURVES.
- EXPRESS TROUGH WITH HIGH DENSITY POLYMER COVER. CONTRACTOR TO COORDINATE FINAL BLOCKOUT AND RECESS DIMENSIONS WITH SUPPLIER. SEE SYSTEM PLANS.
- SEE SUPERSTRUCTURE DETAILS ON SHEETS 118 TO 192.
- 42" MIN. HEIGHT WIRE FENCE (DESIGN W-1) FIG. 5-397.119 (MOD) WIRE FENCE ON SHEET 196.
- OCS POLE VARIES LOCATION IN SPANS 1A-8A. SEE SHEET 2, SHEET 3 AND SYSTEM PLANS.
- FURNISH A 1" X 6" WIDE BLOCKOUT TO DRAIN THE EXPRESS TROUGH EVERY 10' ALONG WALKWAY.
- STRAY CURRENT COLLECTOR CABLE. SEE NOTE 4 ON SHEET 10.
- GROUND WIRE.
- GROUND WIRE PLACED WITHIN THE SLAB AT PIERS.
- CONNECT TO GROUND WIRE IN PIERS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN

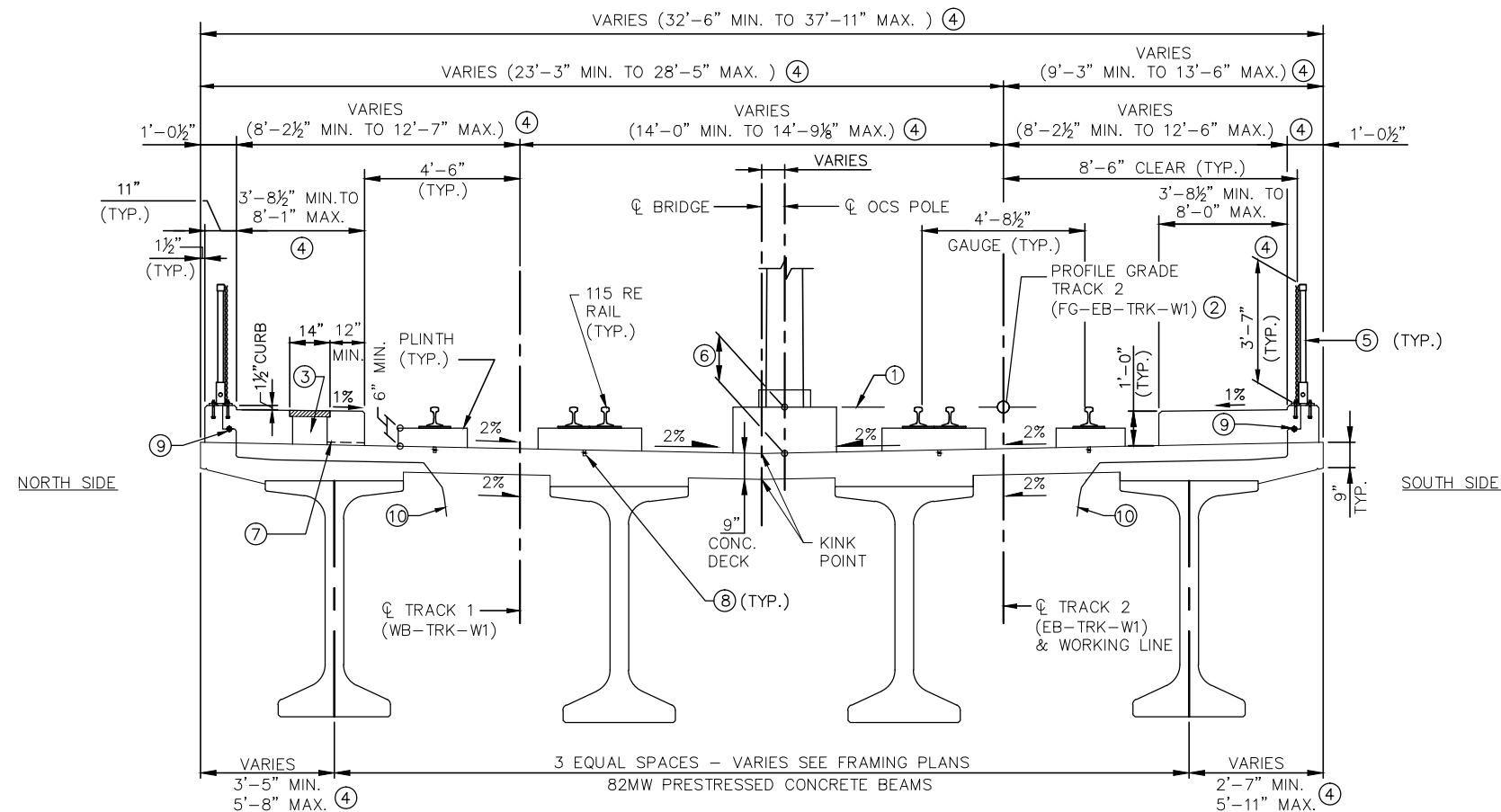


90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
TRANSVERSE SECTION 2

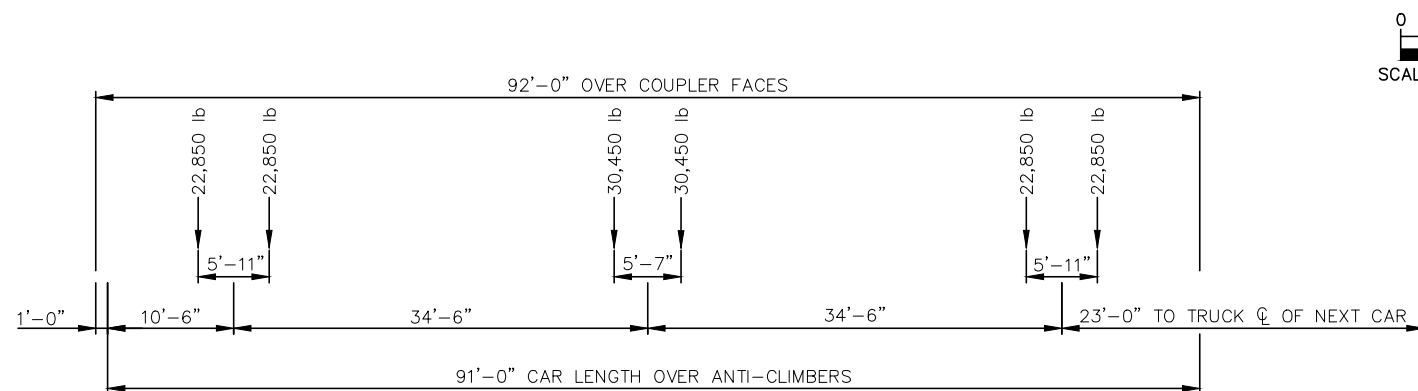
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-TRN-004



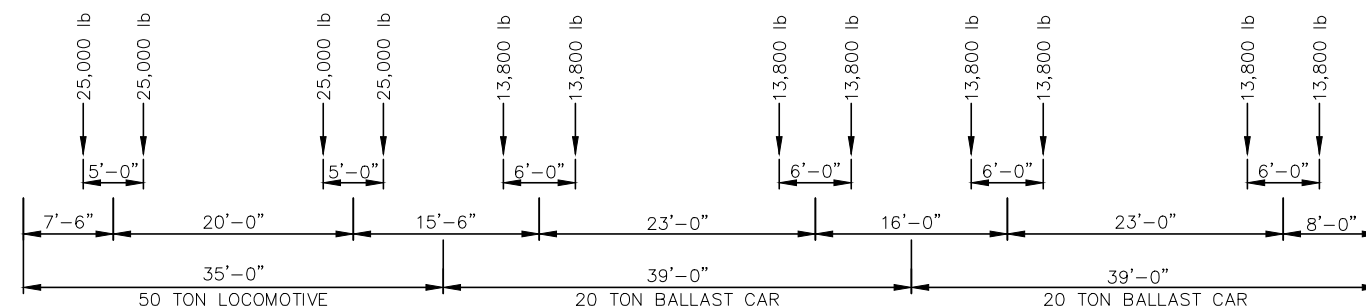
- ## NOTES:
- ① MEASURED TO TOP OF LOW RAIL.
  - ② PROFILE GRADE LINE TRANSITIONS TO LOW RAIL IN SUPER ELEVATED CURVES.
  - ③ EXPRESS TROUGH WITH HIGH DENSITY POLYMER COVER. CONTRACTOR TO COORDINATE FINAL BLOCKOUT AND RECESS DIMENSIONS WITH SUPPLIER. SEE SYSTEM PLANS.
  - ④ SEE SUPERSTRUCTURE DETAILS ON SHEETS 118 TO 192.
  - ⑤ 42" MIN. HEIGHT WIRE FENCE (DESIGN W-1) SEE FIG. 5-397.119 (MOD) WIRE FENCE ON SHEET 196 .
  - ⑥ VARIES. 1'-6" MAXIMUM WHEN OCS POLE IS AT  $\frac{1}{4}$  OF BRIDGE.
  - ⑦ FURNISH A 1" HIGH X 6" WIDE BLOCKOUT TO DRAIN THE EXPRESS TROUGH EVERY 10' ALONG WALKWAY.
  - ⑧ STRAY CURRENT COLLECTOR CABLE. SEE NOTE 4 ON SHEET 10
  - ⑨ GROUND WIRE.
  - ⑩ GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE DECK AT PIERS.

TRANSVERSE SECTION - SPANS 8-17






## LIGHT RAIL VEHICLE LOADING DIAGRAM

- NOTES:**
1. THE LRT TRAIN SHALL CONSIST OF EITHER ONE, TWO OR THREE CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.



### MAINTENANCE TRAIN LOADING DIAGRAM

- NOTES:**
1. THE MAINTENANCE TRAIN SHALL CONSIST OF ONE LOCOMOTIVE AND ONE, TWO, THREE OR FOUR BALLAST CARS, WHICHEVER PRODUCES THE MAXIMUM LOAD FOR THE ELEMENT UNDER CONSIDERATION.
  2. WEIGHT OF EMPTY BALLAST CAR IS 15,000 POUNDS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	<div></div>	<div></div>	<div>CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 TRANSVERSE SECTION 3</div>		<div>SHEET 13 OF 232</div>
<div>DESIGNED BY: RJH      CHECKED BY: ATN DRAWN BY: ALB      CHECKED BY: ATN</div>						90% SUBMISSION - 01/22/16	<div>DISCIPLINE: STRUCTURES      SHEET NAME: CBR27C06-BRG-TRN-005</div>			

[illegible]

1"

6 1/2"

1/4"

1/4" (TYP)

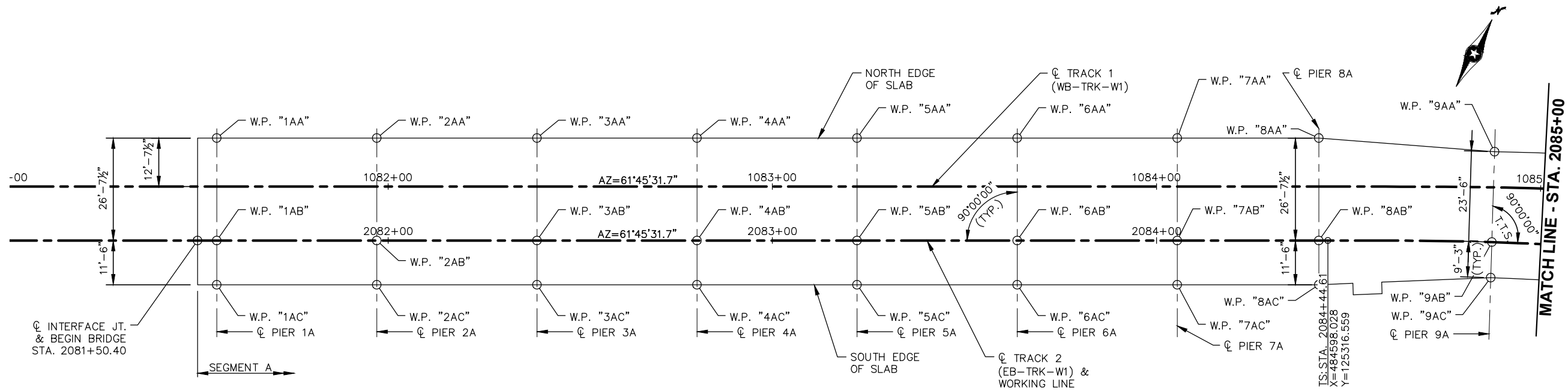
RECESS BEARING PAD 1/4" INTO CONCRETE PAD

**INSET A**

**AECOM**

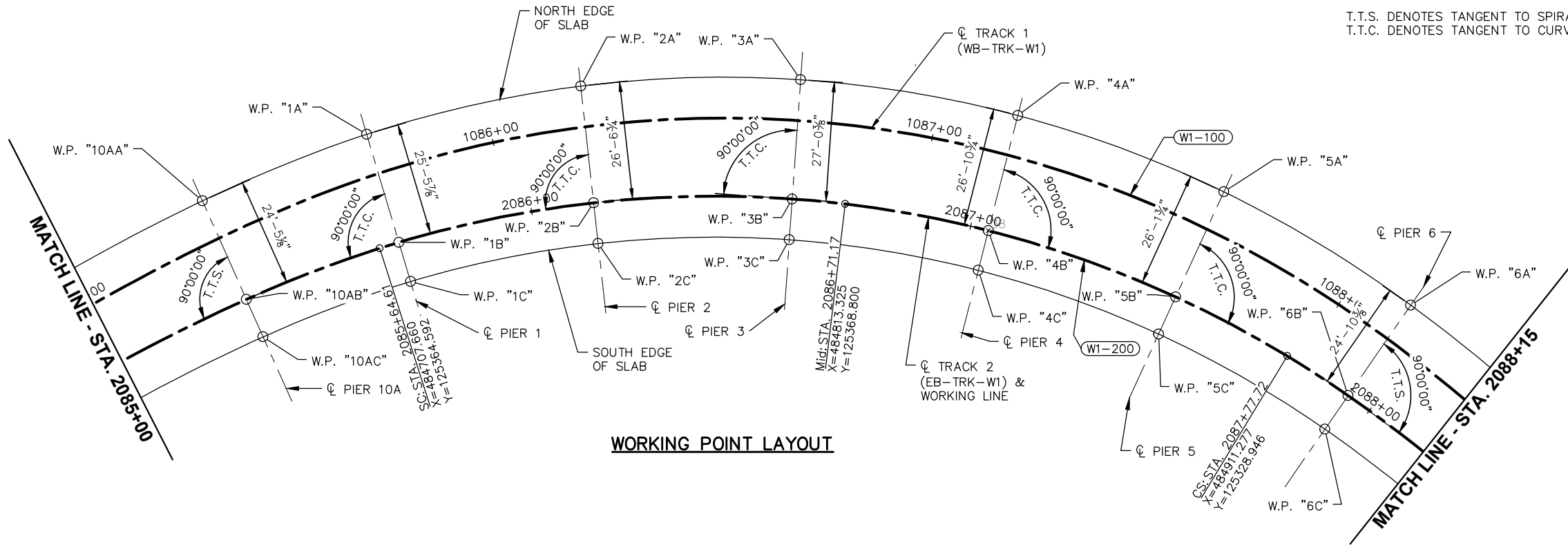
DISCIPLINE:	SHEET NAME:
<b>STRUCTURES</b>	<b>CBR27C06-BRG-SUP-039</b>

Jan, 19 2016 09:25 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-003.dwg By: butterfielda



WORKING POINT LAYOUT

CURVE NO. W1-100
R = 250.00'
Lc = 213.11'
Ls = 120.00'
Ea = 2.50"
Eu = 3.84"
V = 20 MPH



WORKING POINT LAYOUT

NOTES:

T.T.S. DENOTES TANGENT TO SPIRAL.  
T.T.C. DENOTES TANGENT TO CURVE.

CURVE NO. W1-200
R = 250.00'
Lc = 213.11'
Ls = 120.00'
Ea = 2.50"
Eu = 3.84"
V = 20 MPH

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN



90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
BRIDGE LAYOUT 1

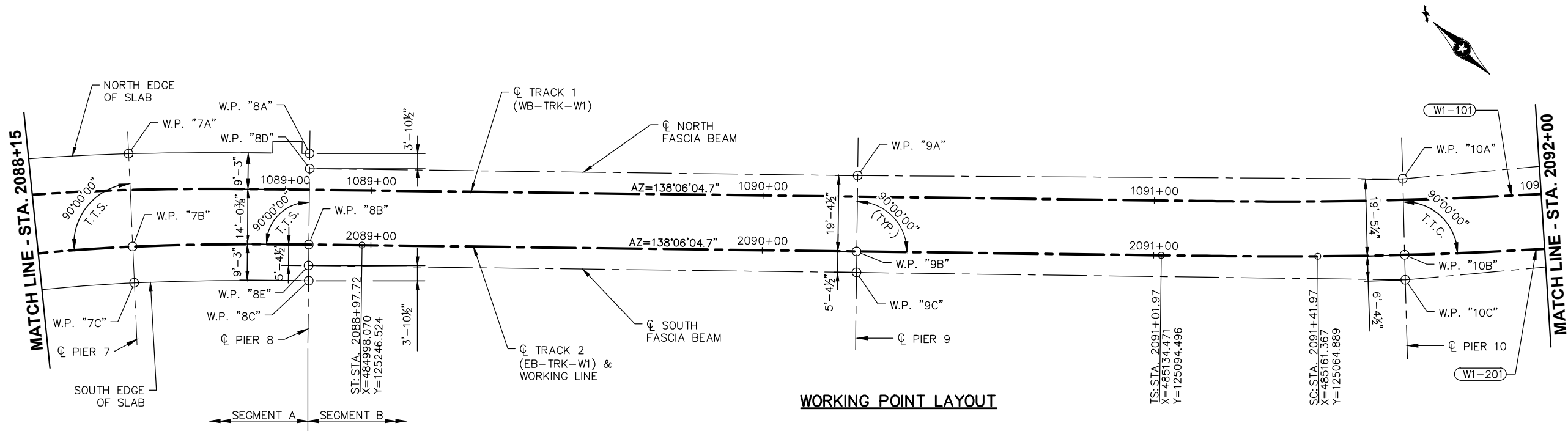
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-001

SHEET  
15  
OF  
232

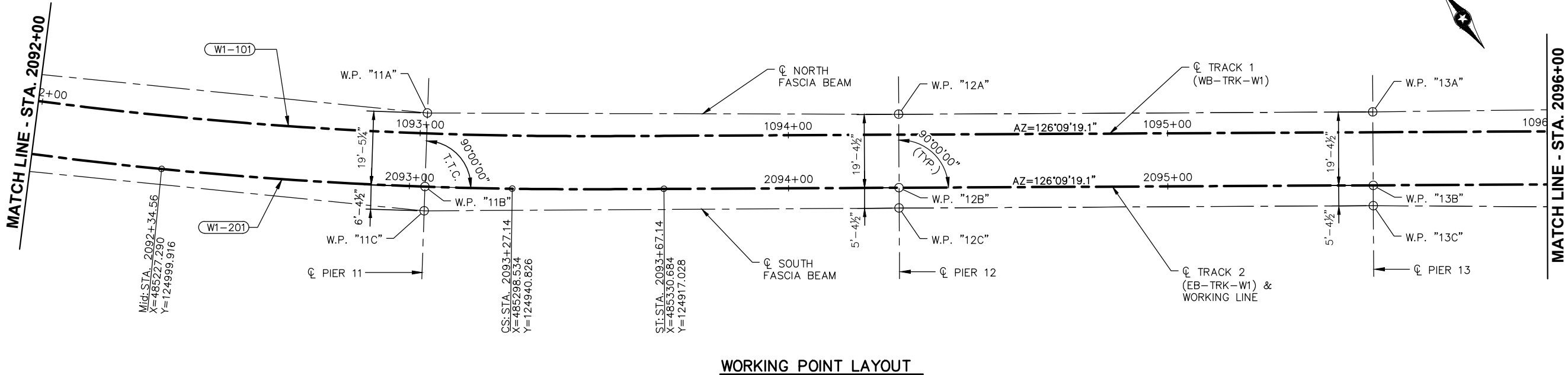


Jan, 19 2016 09:26 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-003.dwg By: butterfielda



WORKING POINT LAYOUT

CURVE NO. W1-101
R = 1080'
Lc = 185.18'
Ls = 40'
Ea = 1.00"
Eu = 1.29"
V = 25 MPH



WORKING POINT LAYOUT

NOTES:

T.T.S. DENOTES TANGENT TO SPIRAL.  
T.T.C. DENOTES TANGENT TO CURVE.

CURVE NO. W1-201
R = 1080'
Lc = 185.18'
Ls = 40'
Ea = 1.00"
Eu = 1.29"
V = 25 MPH

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN



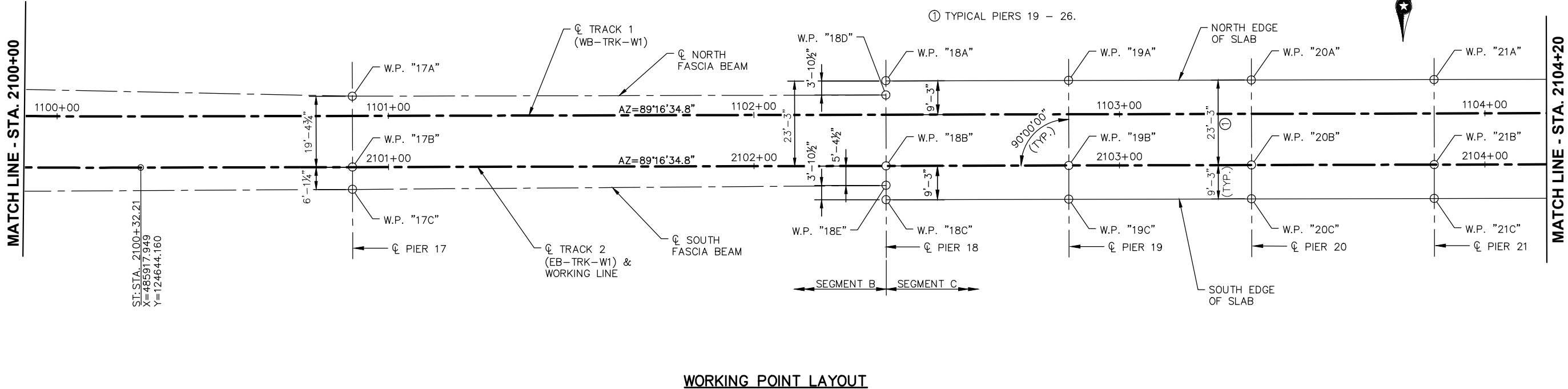
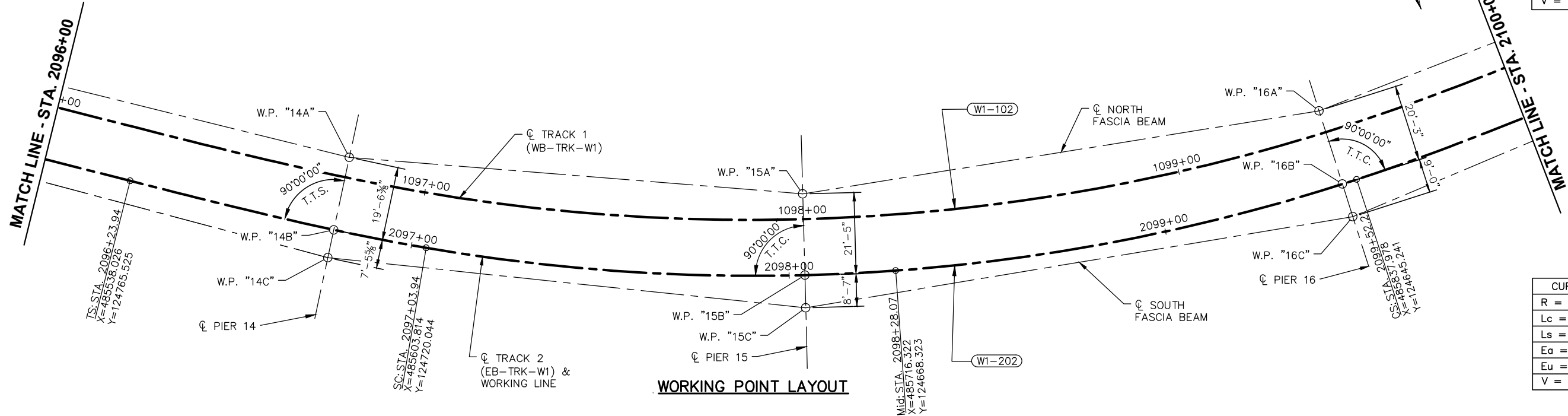
90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 BRIDGE LAYOUT 2	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-SUP-002

SHEET
16
OF
232

Jan, 19 2016 09:26 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-003.dwg By: butterfield



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN

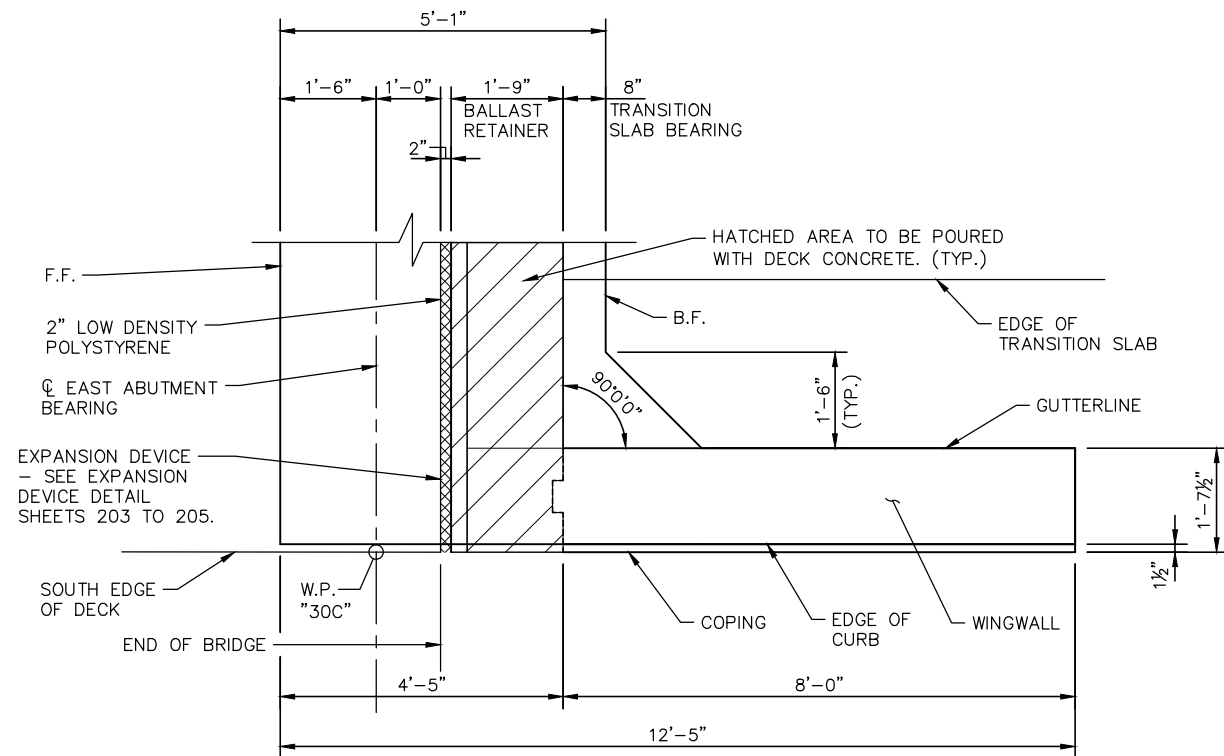
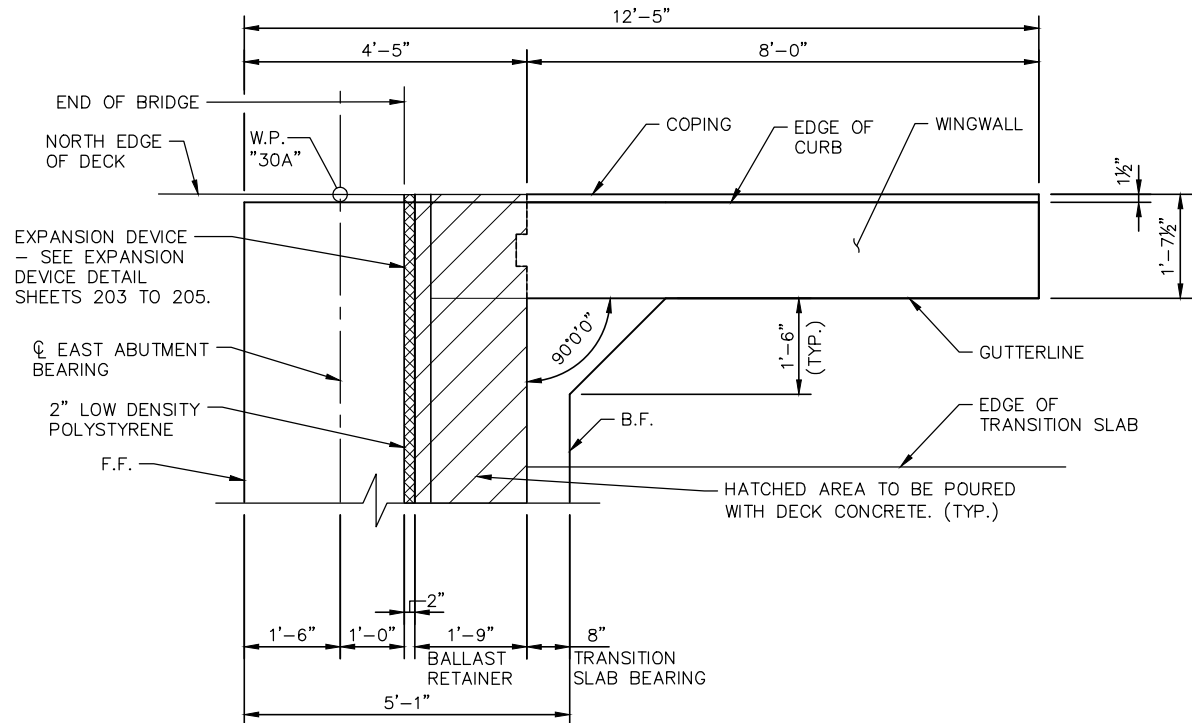
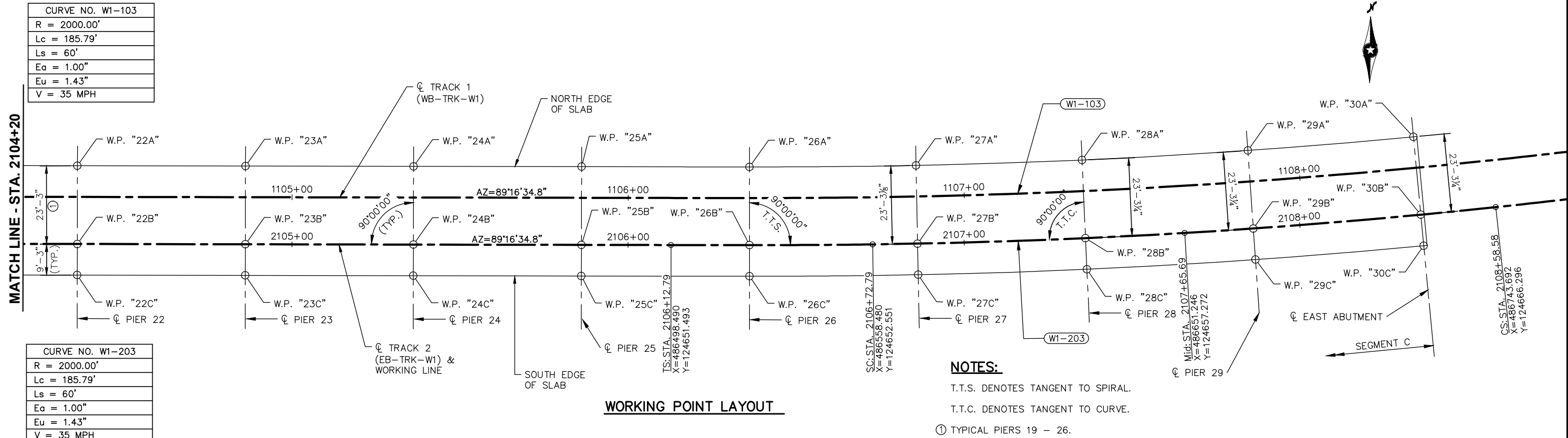
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
BRIDGE LAYOUT 3

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-SUP-003

SHEET 17 OF 232

Jan, 19 2016 09:26 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-003.dwg By: butterfielda



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB

CHECKED BY: ATN  
CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
BRIDGE LAYOUT 4**

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-SUP-004

**SHEET  
18  
OF  
232**

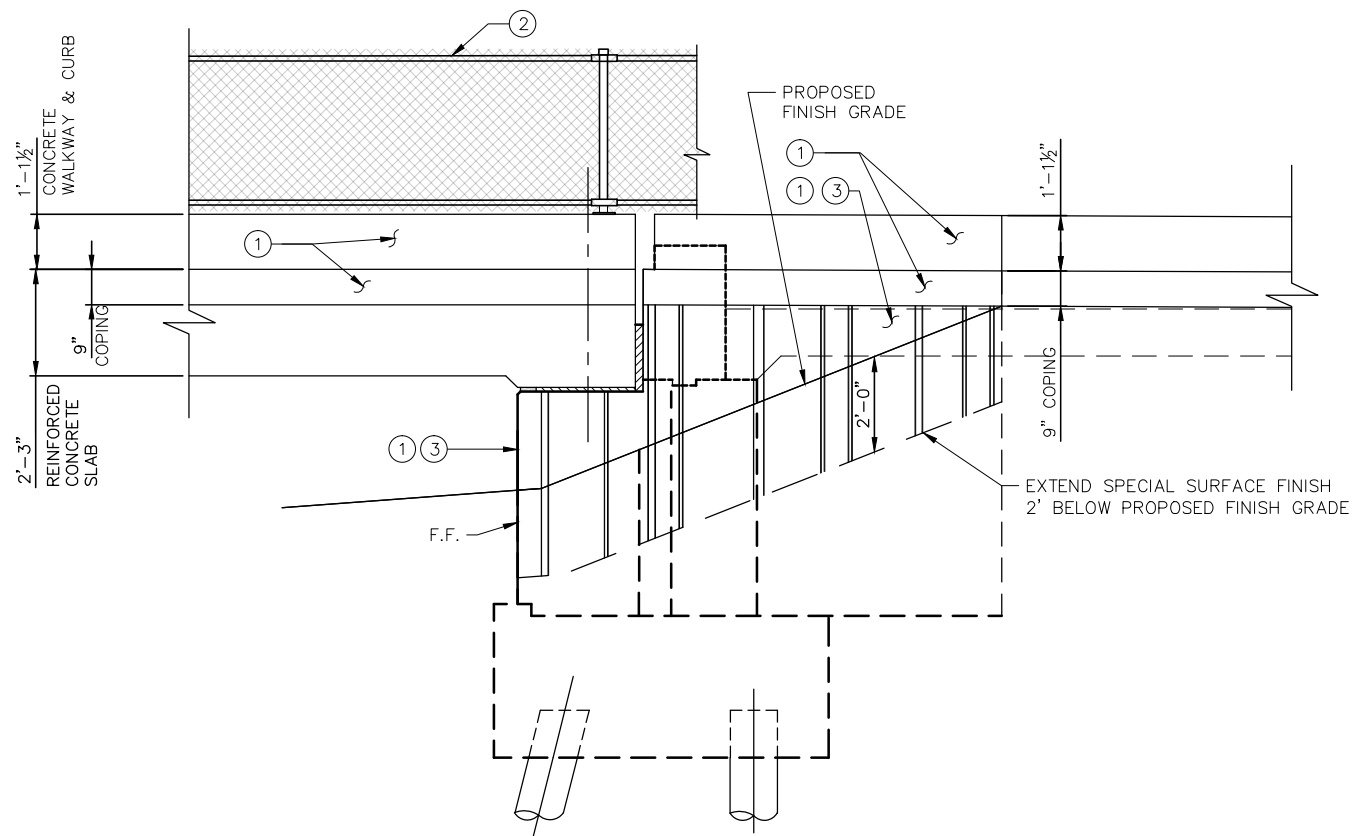




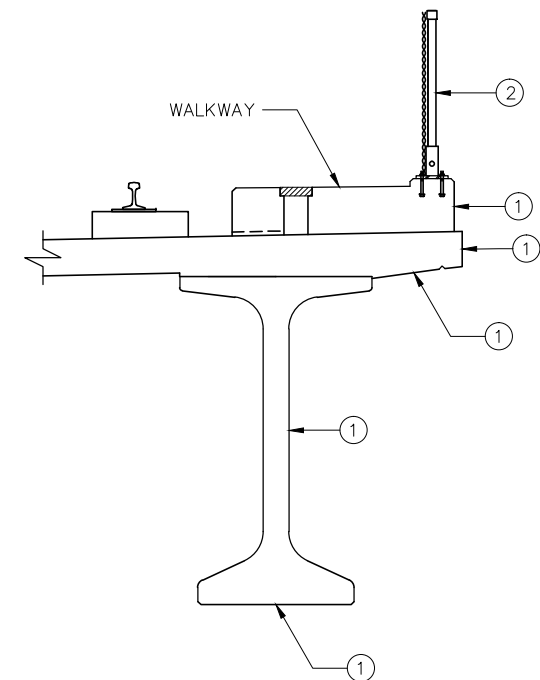




Jan, 19 2016 09:26 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-AES.dwg By: butterfielda



PARTIAL ELEVATION AT EAST ABUTMENT



PARTIAL TRANSVERSE SECTION AT BRIDGE

NOTES:

F.F. DENOTES FRONT FACE

① ARCHITECTURAL SURFACE FINISH (SINGLE COVER) -SEE SPECIAL PROVISIONS.

② 42" MIN. HEIGHT WIRE FENCE (DESIGN W-1).  
SEE FIG. 5-397.119 (MOD) WIRE FENCE ON SHEET 196.

③ ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM).

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL




DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 AESTHETICS DETAILS 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-AES-001

SHEET  
23  
OF  
232



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL					 		CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 AESTHETICS DETAILS 2		SHEET 24  OF  232

Jan, 19 2016 09:59 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-ABUT-001.dwg By: sharbonoj



EAST ABUTMENT REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES $R_n$ - TONS/PILE		
FIELD CONTROL METHOD	$\phi_{dyn}$	* $R_n$
PDA	0.65	104.9

\*  $R_n = (\text{FACTORED DESIGN LOAD}) / \phi_{dyn}$


EAST ABUTMENT COMPUTED PILE LOAD - TONS/PILE	
FACTORED DEAD LOAD + EARTH PRESSURE	65.6
FACTORED LIVE LOAD	2.6
* FACTORED DESIGN LOAD	68.2

\* BASED ON STRENGTH I LOAD COMBINATION

**PILE NOTES**

1 CAST-IN-PLACE CONC. TEST PILE 75 FT. LONG  
8 CAST-IN-PLACE CONC. PILES EST. LENGTH 65 FT.  
9 CAST-IN-PLACE CONC. PILES REQ'D FOR EAST ABUT.

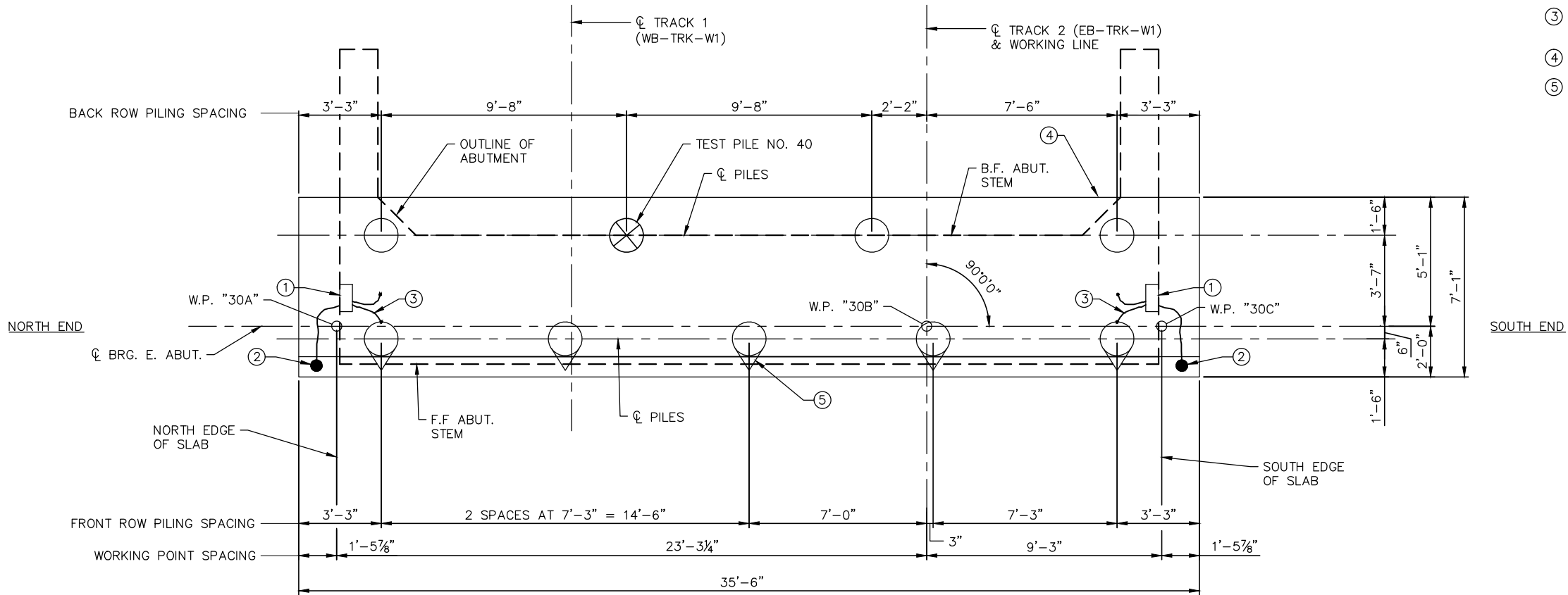
PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED  TO BE BATTERED 3" PER FOOT IN DIRECTION SHOWN.




PILES TO HAVE A NOMINAL DIAMETER OF 16" AND A MINIMUM WALL THICKNESS OF 0.3125".

FOR PILE SPLICE DETAILS SEE DETAIL B201.

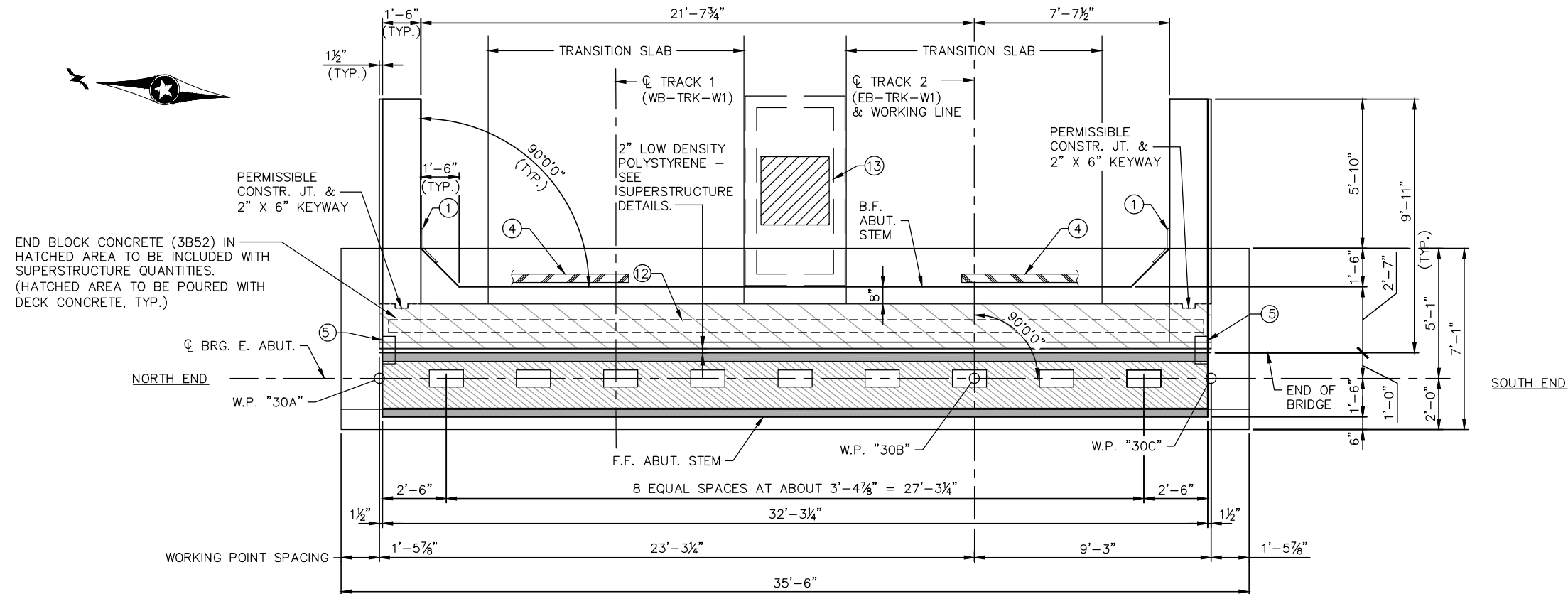
- NOTES:**
- F.F. DENOTES FRONT FACE.  
B.F. DENOTES BACK FACE.
- ① STRAY CURRENT TEST STATION.  
SEE NOTE 9 AND 12 ON SHEET 10.
- ② COPPER/COPPER SULFATE REFERENCE CELL.  
SEE NOTE 10 ON SHEET 10.
- ③ #1/0 CABLE WELDED ONTO CORNER PILE.  
SEE NOTE 10 ON SHEET 10.
- ④ ABUTMENT FOOTING. SEE NOTE 2 ON SHEET 10.
- ⑤ C.I.P. PILE. SEE NOTE 2 ON SHEET 10.



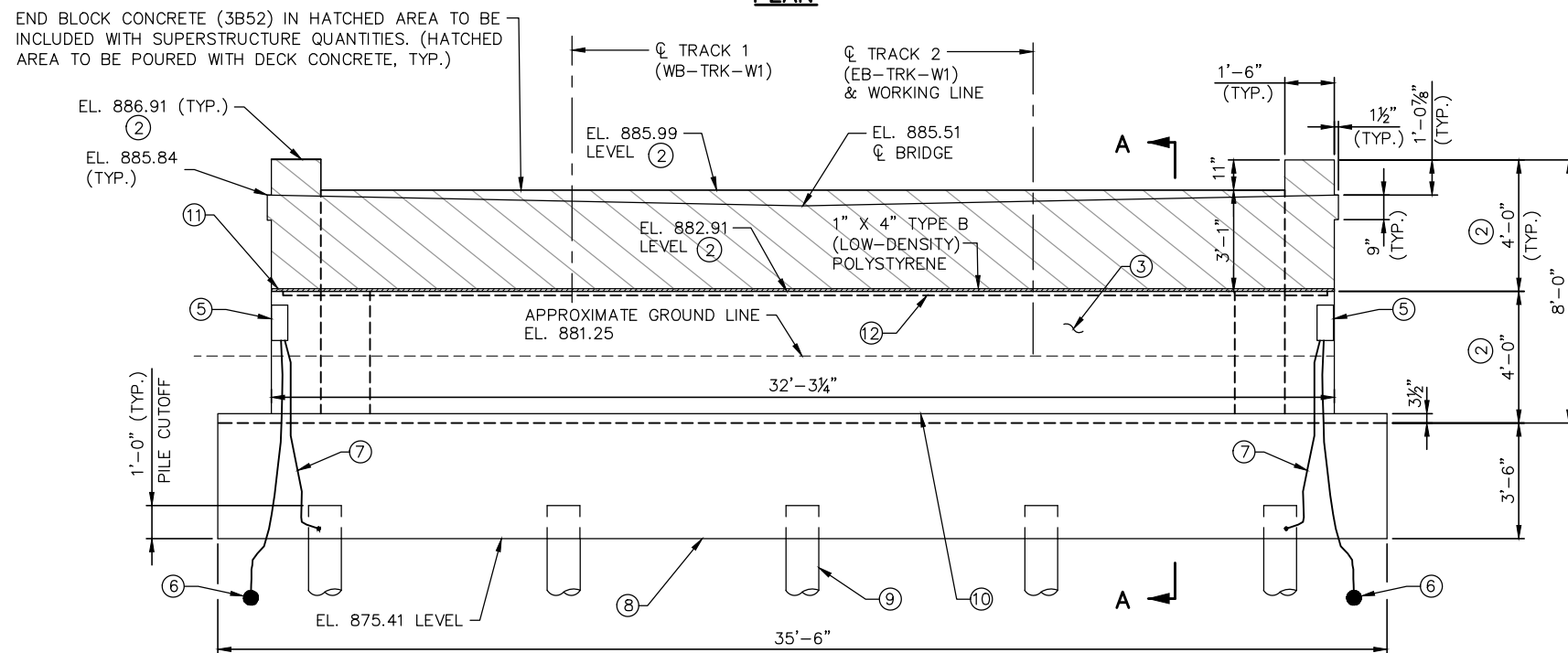
FOOTING PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL							 		CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 EAST ABUTMENT GEOMETRICS 1		SHEET 25 OF 232
			</													

Jan, 19 2016 09:59 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-ABUT-001.dwg By: sharbonoj



PLAN



ELEVATION

**NOTES:**

F.F. DENOTES FRONT FACE.

B.F. DENOTES BACK FACE.

FOR SECTION A-A AND WINGWALL DETAILS, SEE SHEET 27.

- ① MEMBRANE WATERPROOFING SYSTEM PER MN/DOT 2184.3B. (SEAL ALL HORIZONTAL & VERTICAL JOINTS ON THE BACK FACE).
- ② ELEVATIONS & DIMENSIONS ARE GIVEN AT THE CL BEARING.
- ③ ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM).
- ④ PERFORATED PIPE, SEE DETAIL B910 FOR DRAINAGE DETAILS.
- ⑤ STRAY CURRENT TEST STATION. SEE NOTE 9 AND 12 ON SHEET 10.
- ⑥ COPPER/COPPER SULFATE REFERENCE CELL. SEE NOTE 10 ON SHEET 10.
- ⑦ #1/0 CABLE WELDED ONTO CORNER PILE. SEE NOTE 10 ON SHEET 10.
- ⑧ ABUTMENT FOOTING. SEE NOTE 2 ON SHEET 10.
- ⑨ C.I.P. PILE. SEE NOTE 2 ON SHEET 10.
- ⑩ FOOTING/WALL INTERFACE. SEE NOTE 1 ON SHEET 10.
- ⑪ ABUTMENT WALLS AND WING WALLS. SEE NOTE 1 ON SHEET 10.
- ⑫ PERMISSIBLE CONSTRUCTION JOINT AND 2"x6" KEYWAY.
- ⑬ CATCH BASIN - SEE DRAINAGE PLANS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB  
CHECKED BY: AMA  
CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16

**METROPOLITAN**  
C O U N C I L

**SOUTHWEST**  
Green Line LRT Extension



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**EAST ABUTMENT GEOMETRICS 2**

DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C06-BRG-ABT-002**

**SHEET**  
**26**  
**OF**  
**232**

END BLOCK CONCRETE (3B52) IN HATCHED AREA TO BE INCLUDED WITH SUPERSTRUCTURE QUANTITIES. (HATCHED AREA TO BE POURED WITH DECK CONCRETE, TYP.)

EL. 886.91 (3)

EL. 885.84 (3)

APPROX. FINISHED GROUND LINE

EL. 886.91 (3)

CL BRG. E. ABUT.

EL. 882.91

EL. 881.25

F.F.

2'-0" MIN.

B.F.

1'-6"

5'-1"

6"

3 1/2"

5'-10"

8'-0"

2'-2"

1'-6"

4'-1"

1'-6"

7'-1"

1'-0" (TYP.) PILE CUTOFF

EL. 875.41 LEVEL

12

3

3'-0"

3'-8 1/2"

3'-9 1/2"

4'-0"

COPING

[illegible]

**NOTES:**

F.F. DENOTES FRONT FACE.

B.F. DENOTES BACK FACE.

THE TOP PORTION OF THE WINGWALL MAY BE PLACED WITH THE SLAB AND END DIAPHRAGM CONCRETE. USE OF PERMISSIBLE CONSTRUCTION JOINTS IS AT THE CONTRACTORS DISCRETION WITH THE APPROVAL OF THE ENGINEER IN THE FIELD.

① MEMBRANE WATERPROOFING SYSTEM PER MN/DOT 2184.3B. (SEAL ALL HORIZONTAL & VERTICAL JOINTS ON THE BACK FACE).

② SLOPE 1% ± DOWN TOWARDS FRONT FACE

③ ELEVATIONS ARE AT THE BACK FACE OF WINGWALL (POLYSTYRENE JOINT).

④ PERMISSIBLE CONSTRUCTION JOINT AND 2"x6" KEYWAY.

⑤ ARCHITECTURAL CONCRETE TEXTURE (BOARD FORM).

⑥ STRAY CURRENT TEST STATION. SEE NOTE 9 AND 12 ON SHEET 10.

⑦ ARCHITECTURAL SURFACE FINISH (SINGLE COVER)  
-SEE SPECIAL PROVISIONS.

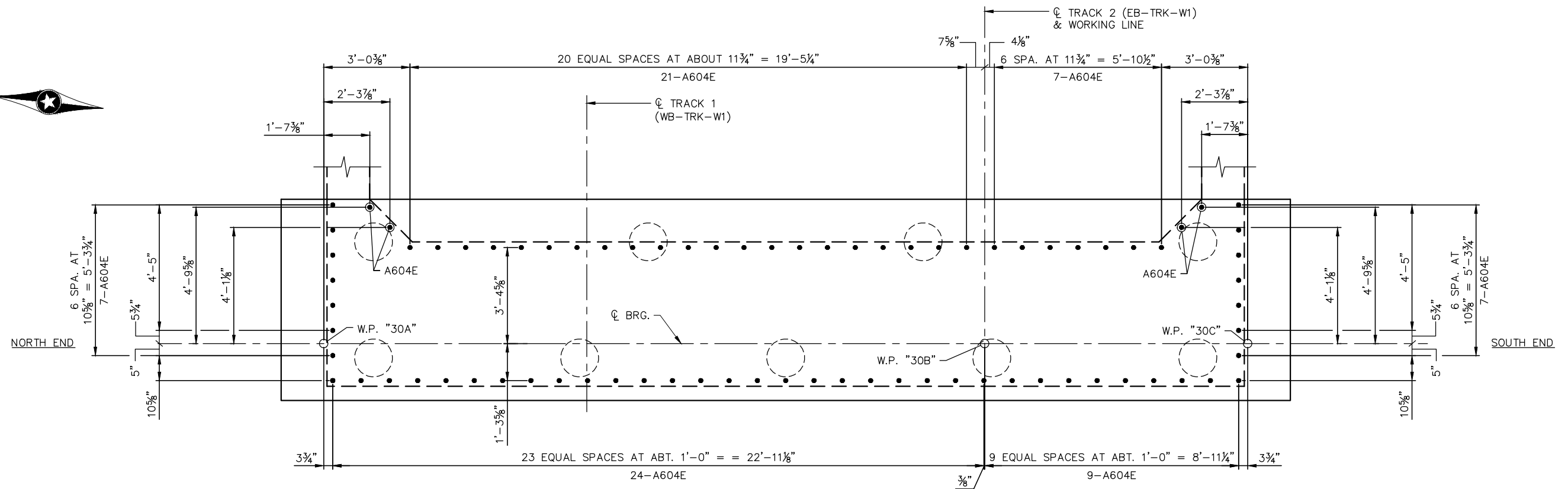
[illegible]**AECOM**

**METROPOLITAN**  
COUNCIL

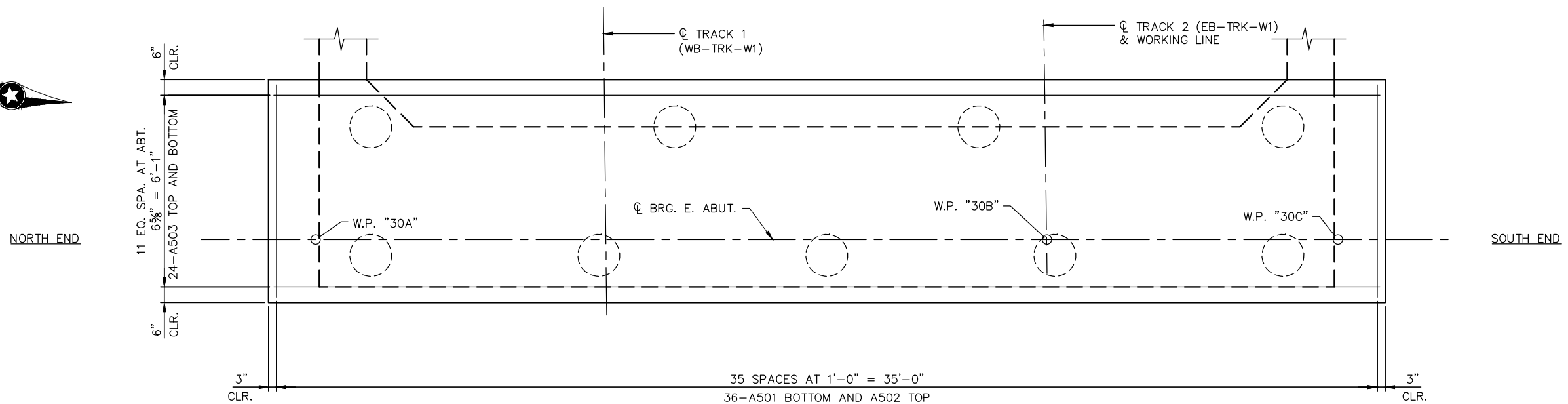
**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
EAST ABUTMENT GEOMETRICS 3**

SHEET NAME:	CBR27C06-BRG-ABT-003
-------------	----------------------

Jan, 19 2016 10:00 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-ABUT-002.dwg By: sharbonoj



FOOTING DOWEL PLAN



FOOTING PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

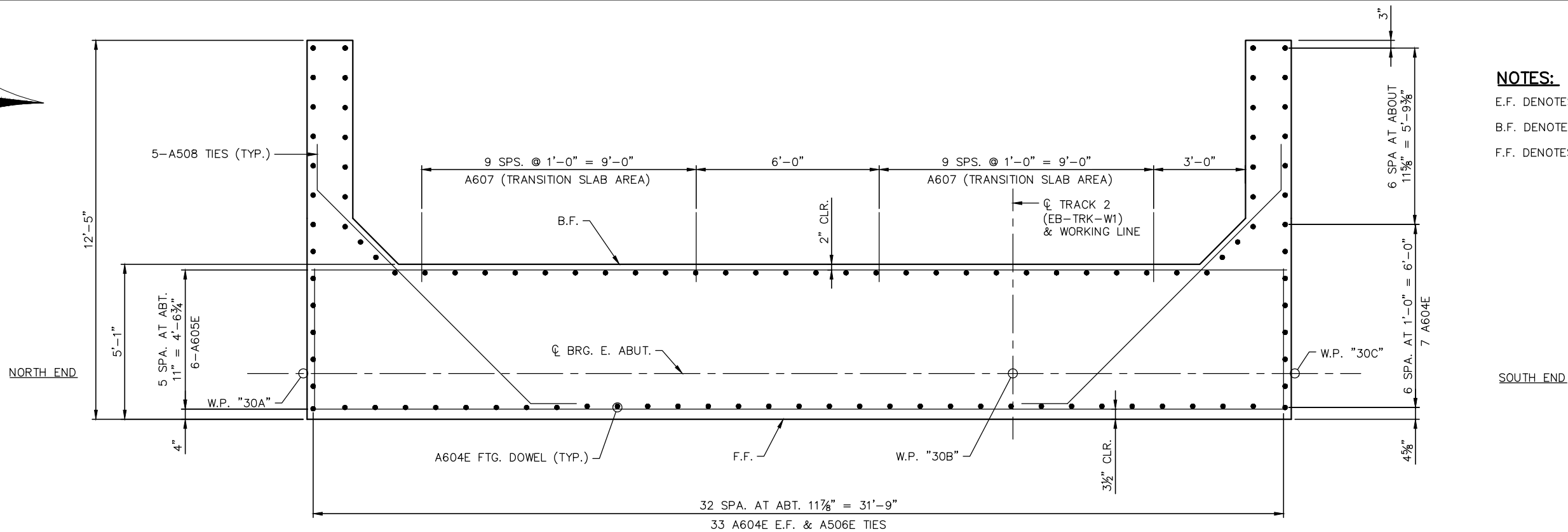
DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 EAST ABUTMENT REINFORCEMENT 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-ABT-004

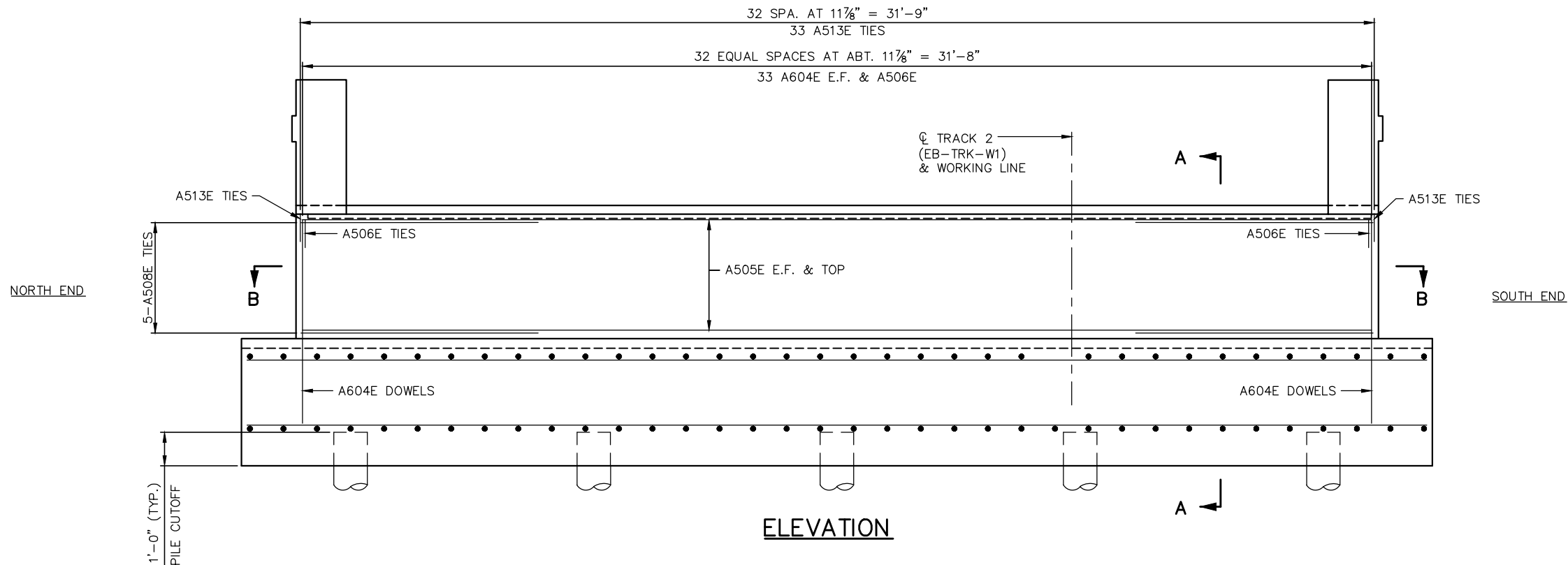
SHEET
28
OF
232

Jan, 19 2016 10:00 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-ABUT-002.dwg By: sharbonoj



**NOTES:**  
E.F. DENOTES EACH.  
B.F. DENOTES BACK FACE.  
F.F. DENOTES FRONT FACE.

**SECTION B-B**



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN





90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
EAST ABUTMENT REINFORCEMENT 2

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-ABT-005



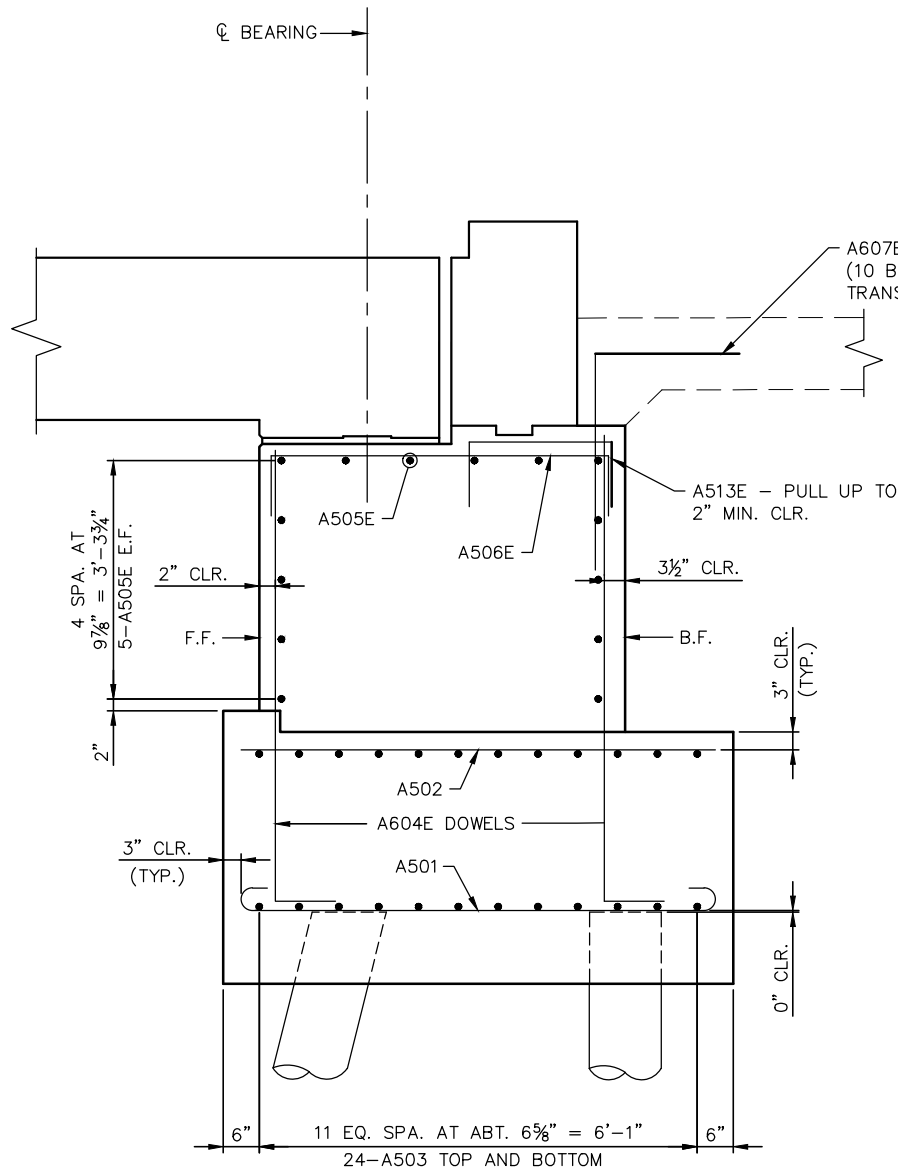
E.F. DENOTES EACH FACE  
F.F. DENOTES FRONT FACE  
B.F. DENOTES BACK FACE

**AECOM**

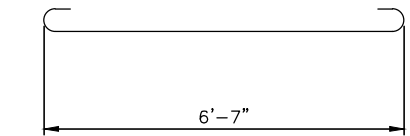
**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
EAST ABUTMENT REINFORCEMENT 3**

**SHEET**  
**30**  
**OF**  
**232**

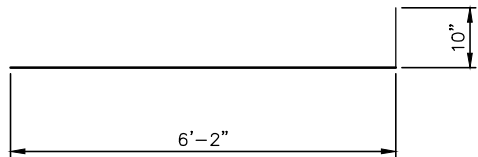
Jan, 19 2016 10:00 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-ABUT-002.dwg By: sharbonoj



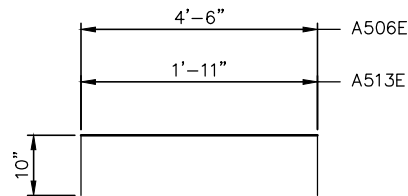
SECTION C-C



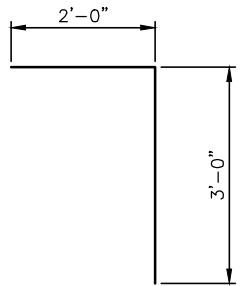
A501



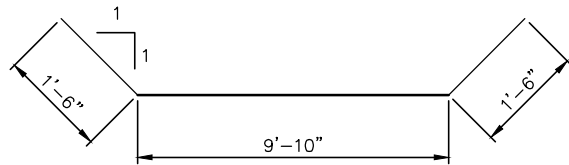
A604E



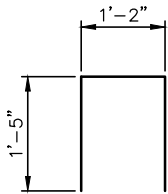
A506E, A513E



A607E



A508E



A512E

BILL OF REINFORCEMENT FOR EAST ABUTMENT					
BAR	NO.	LENGTH	SHAPE	LOCATION	
A501	36	8'- 8"		FOOTING - TRANS. BOTTOM	
A502	36	6'- 7"		FOOTING - TRANS. TOP	
A503E	24	35'- 0"		FOOTING - LONGIT. TOP & BOTTOM	
A604E	80	7'- 0"		FOOTING - DOWELS	
A505E	14	31'- 11"		ABUTMENT - LONGIT.	
A506E	33	6'- 2"		ABUTMENT - TIES	
A607E	20	5'- 0"		TRANSITION SLAB	
A508E	10	12'- 10"		ABUTMENT - TIES	
A509E	36	7'- 5"		WINGWALLS - VERT.	
A510E	20	12'- 0"		WINGWALLS - HORIZ.	
A511E	16	7'- 7"		WINGWALLS - HORIZ.	
A512E	18	4'- 0"		WINGWALLS - TIES	
A513E	33	3'- 7"		ABUTMENT - TIES	

NOTES:

- E.F. DENOTES EACH FACE
- F.F. DENOTES FRONT FACE
- B.F. DENOTES BACK FACE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	RJH	CHECKED BY:	AMA
DRAWN BY:	JAS	CHECKED BY:	ATN

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
EAST ABUTMENT REINFORCEMENT 4

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-ABT-007



Jan, 19 2016 09:30 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-001.dwg By: butterfielda

PIERS 1A – 6A, 8A REQUIRED NOMINAL PILE BEARING RESISTANCE FOR C-I-P PILES R <sub>n</sub> – TONS/PILE								
FIELD CONTROL METHOD	ϕ <sub>dyn</sub>	PIER 1A	PIER 2A	PIER 3A	PIER 4A	PIER 5A	PIER 6A	PIER 8A
		* R <sub>n</sub>	* R <sub>n</sub>	* R <sub>n</sub>	* R <sub>n</sub>	* R <sub>n</sub>	* R <sub>n</sub>	* R <sub>n</sub>
PDA	0.65	89.0	137.1	163.7	128.8	125.1	137.7	152.0

\* R<sub>n</sub> = (FACTORED DESIGN LOAD) / ϕ<sub>dyn</sub>

PIERS 1A – 6A, 8A COMPUTED PILE LOAD – TONS/PILE								
FACTORED DEAD LOAD	PIER 1A	PIER 2A	PIER 3A	PIER 4A	PIER 5A	PIER 6A	PIER 8A	
	31.2	62.4	62.8	57.1	54.6	62.9	69.2	
FACTORED LIVE LOAD	8.6	10.5	8.6	8.6	8.6	8.6	9.6	
FACTORED OVERTURNING	18.0	16.2	35.0	18.0	18.1	18.0	20.0	
* FACTORED DESIGN LOAD	57.8	89.1	106.4	83.7	81.3	89.5	98.8	

\* BASED ON ④ LOAD COMBINATION

PILE NOTES

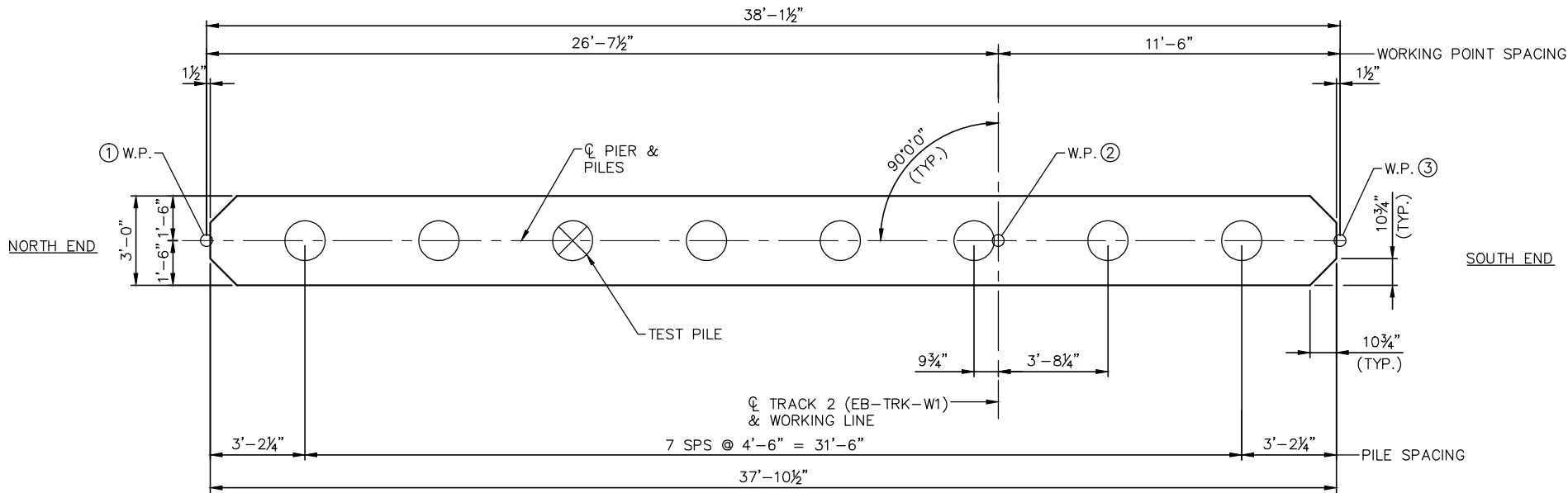
- 1 CAST-IN-PLACE CONCRETE TEST PILE ⑫ FT. LONG.
- 7 CAST-IN-PLACE CONCRETE PILES EST. LENGTH ⑬ FT.
- 8 CAST-IN-PLACE CONCRETE PILES REQ'D FOR EACH PIER (1A – 6A & 8A).
- PILES TO HAVE A NOMINAL DIAMETER OF 16" AND WALL THICKNESS OF 0.500".
- FOR PILE SPLICE DETAILS SEE DETAIL B201.
- PILE SPACING IS SHOWN AT BOTTOM OF WALL PIER.
- NOMINAL PILE BEARING RESISTANCE SHALL BE DETERMINED BY THE USE OF A PILE DRIVING ANALYZER (PDA). PILE LENGTHS SHOWN ARE BASED ON USING A PDA.
- ALL PILES TO BE DRIVEN TO A MINIMUM TIP ELEVATION OF ⑭ .

	⑫ (FT.)	⑬ (FT.)	⑭ (EL.)
PIER 1A	70	60	763.81
PIER 2A	70	60	764.3
PIER 3A	70	60	764.7
PIER 4A	70	60	765.3
PIER 5A	65	55	770.79
PIER 6A	65	55	771.29
PIER 8A	65	55	772.27

NOTES:

- ALL REBAR AND PILES SHALL BE WELDED PER DETAILS ON SHEETS E0-SYS-CORR-DTL.001 & .008.
- NORTH ARROW NOT SHOWN DUE TO MULTIPLE PIERS. SEE GENERAL PLAN AND ELEVATION SHEETS.

- ①②③ SEE SHEET 33 FOR WORKING POINT TABLE.
- ④ PIER 1A – 6A & 8A : EXTREME III.



WALL PIER FOOTING PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	<div><div></div><div>AECOM</div></div>		<div><div><div></div><div>METROPOLITAN</div><div>C O U N C I L</div></div><div><div>SOUTHWEST</div><div>Green Line LRT Extension</div><div></div></div></div>		CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 1A - 6A, 8A GEOMETRICS 1		SHEET 32 OF 232	
						DESIGNED BY: KL	CHECKED BY: AMA	90% SUBMISSION - 01/22/16		DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-001		
						DRAWN BY: ALB	CHECKED BY: ATN						

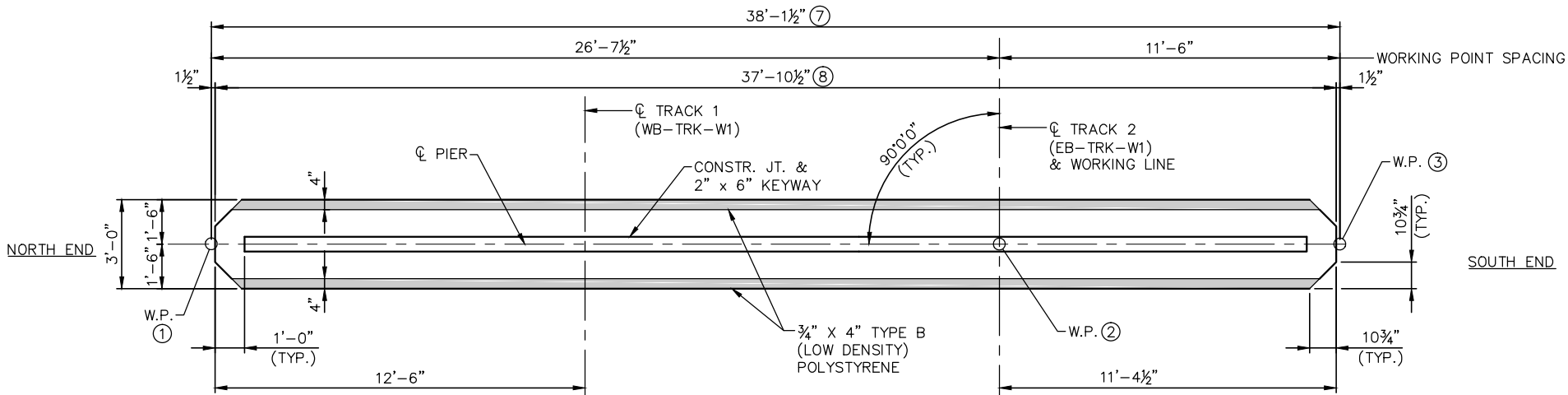
Jan, 19 2016 09:31 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-001.dwg By: butterfielda

WORKING POINT TABLE

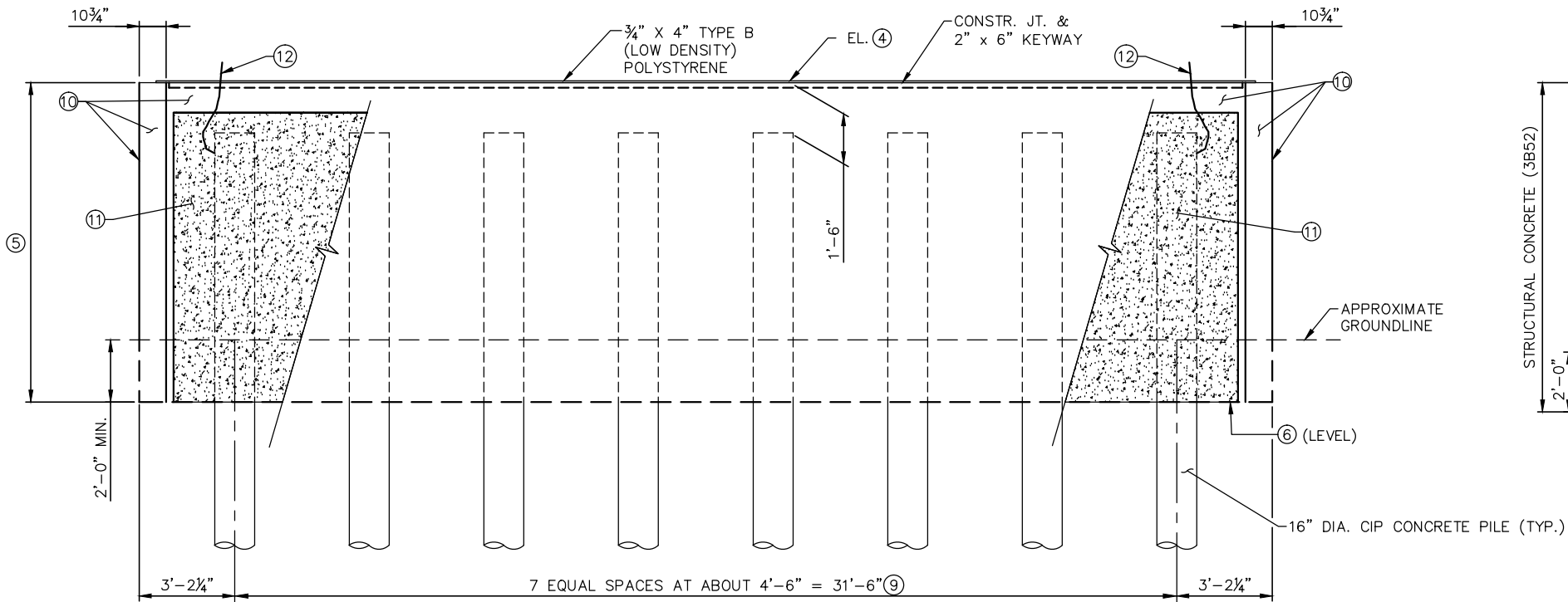
	WORKING POINT ①	WORKING POINT ②	WORKING POINT ③
PIER 1A	"1AA"	"1AB"	"1AC"
PIER 2A	"2AA"	"2AB"	"2AC"
PIER 3A	"3AA"	"3AB"	"3AC"
PIER 4A	"4AA"	"4AB"	"4AC"
PIER 5A	"5AA"	"5AB"	"5AC"
PIER 6A	"6AA"	"6AB"	"6AC"
PIER 8A	"8AA"	"8AB"	"8AC"

PIER GEOMETRIC TABLE

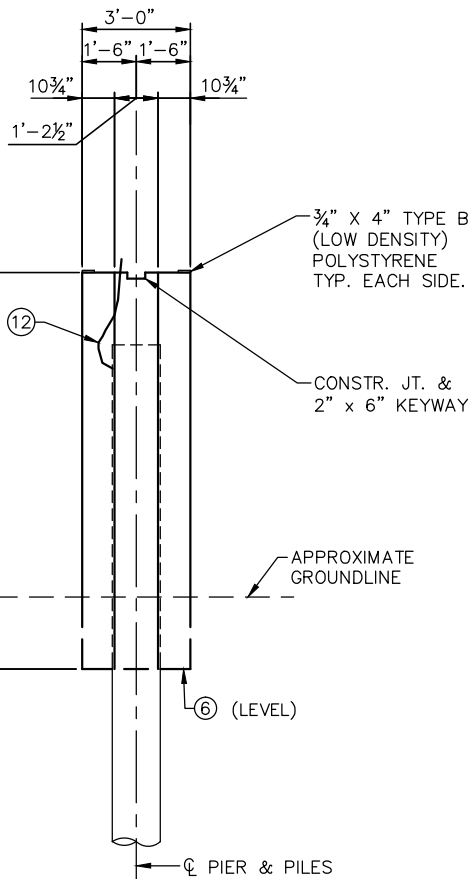
	TOP OF WALL PIER ELEV. ④	TOTAL PIER HEIGHT ⑤	BOTTOM OF PIER ELEV. ⑥	WORKING POINT SPACING ⑦	PIER WIDTH ⑧	⑨
PIER 1A	827.81	4'-0"	823.81	38'-1 1/2"	37'-10 1/2"	31'-6"
PIER 2A	828.30	4'-0"	824.30	38'-1 1/2"	37'-10 1/2"	31'-6"
PIER 3A	828.80	4'-0"	824.80	38'-1 1/2"	37'-10 1/2"	31'-6"
PIER 4A	829.30	4'-0"	825.30	38'-1 1/2"	37'-10 1/2"	31'-6"
PIER 5A	829.79	4'-0"	825.79	38'-1 1/2"	37'-10 1/2"	31'-6"
PIER 6A	830.29	4'-0"	826.29	38'-1 1/2"	37'-10 1/2"	31'-6 "
PIER 8A	831.27	4'-0"	827.27	38'-1 1/2"	37'-10 1/2"	31'-6"



WALL PIER PLAN



WALL PIER ELEVATION



END VIEW

NOTES:

- ⑩ ARCHITECTURAL SURFACE FINISH (SINGLE COLOR).  
- SEE SPECIAL PROVISIONS.
- ⑪ ARCHITECTURAL CONCRETE TEXTURE (LIMESTONE) WITH  
ARCHITECTURAL SURFACE FINISH (SINGLE COLOR)  
- SEE SPECIAL PROVISIONS.
- ⑫ GROUND WIRE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: KL	CHECKED BY: AMA
DRAWN BY: ALB	CHECKED BY: ATN



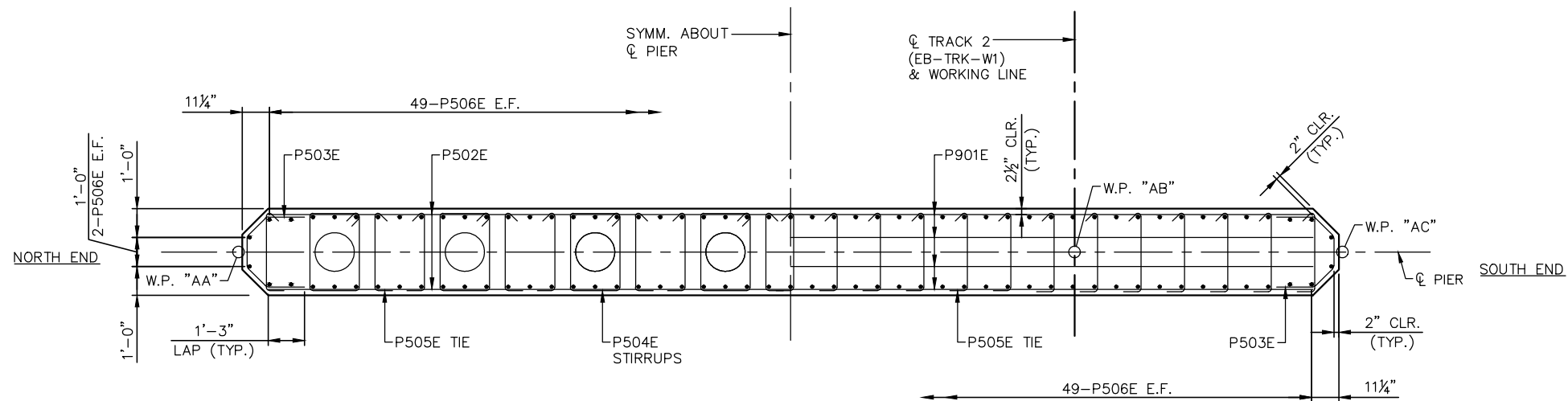
90% SUBMISSION - 01/22/16



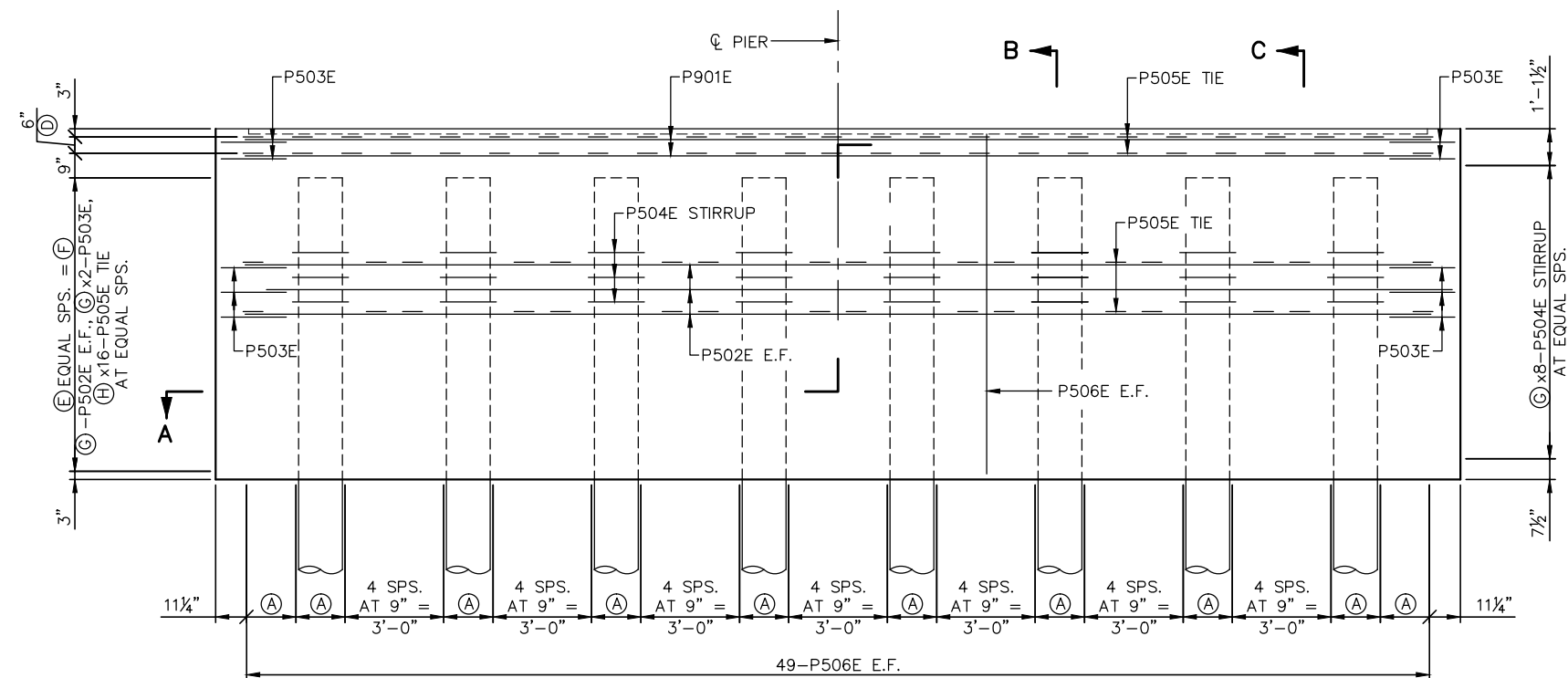
CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 1A -6A, 8A GEOMETRICS 2	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-002

SHEET
33
OF
232

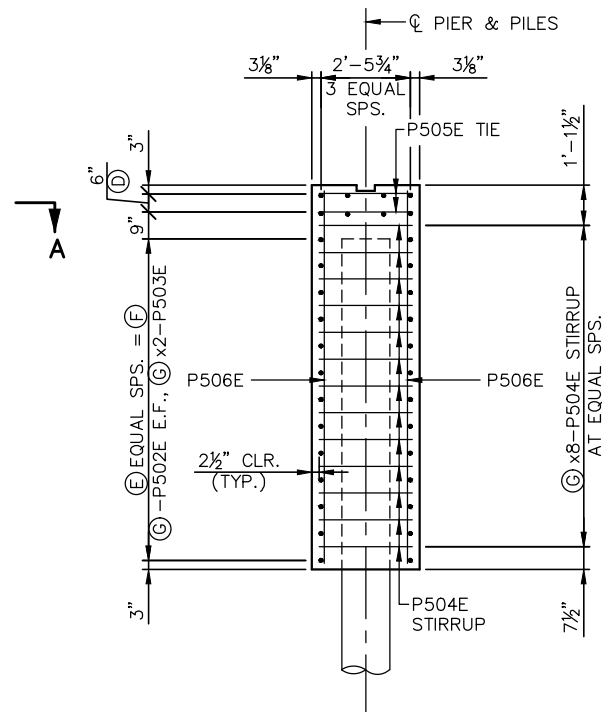
Jan, 19 2016 09:31 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-016.dwg By: butterfielda



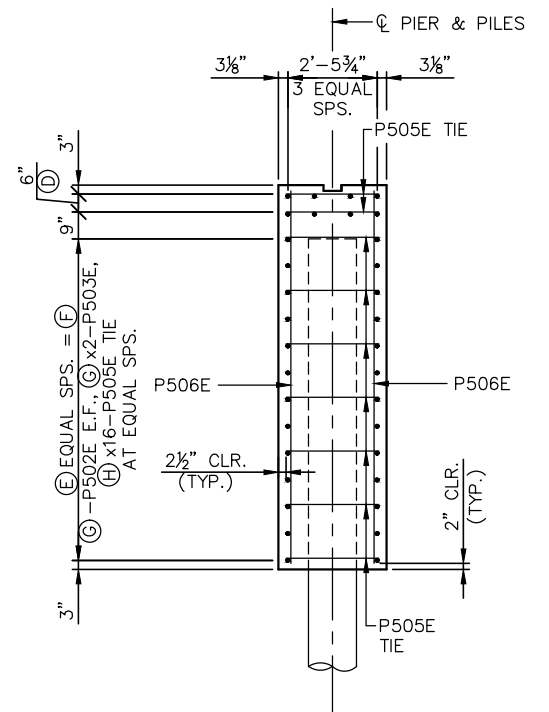
SECTION A-A



WALL PIER ELEVATION



SECTION B-B



SECTION C-C

**NOTES:**

F.F. DENOTES FRONT FACE.

B.F. DENOTES BACK FACE.

E.F. DENOTES EACH FACE.

FOR GEOMETRICS PLAN SEE SHEETS 32 AND 33.

(A) 2 SPS. AT 9" = 1'-6".

(D) 2x4-P901E, 2X2-P503E, 2x25-P505E TIES.

PIER	(E)	(F)	(G)	(H)
1A	4	2'-3"	5	3
2A	4	2'-3"	5	3
3A	4	2'-3"	5	3
4A	4	2'-3"	5	3
5A	4	2'-3"	5	3
6A	4	2'-3"	5	3
8A	4	2'-3"	5	3

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ZA  
DRAWN BY: CL  
CHECKED BY: BC  
CHECKED BY: ZA

**AECOM**

90% SUBMISSION - 01/22/16



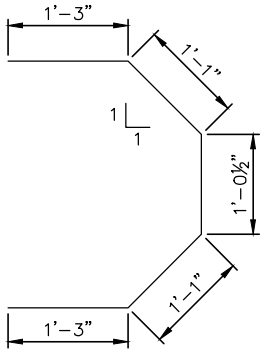
**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 1A - 6A, 8A REINFORCEMENT 1**

DISCIPLINE: STRUCTURES

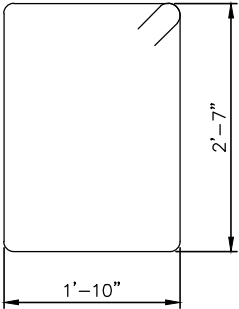
SHEET NAME: CBR27C06-BRG-PIR-003

**SHEET**  
**34**  
**OF**  
**232**

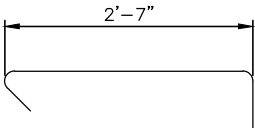
Jan, 19 2016 09:31 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-016.dwg By: butterfielda



P503E



P504E



P505E

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 1A				
BAR	NO.	LENGTH	SHAPE	LOCATION
1AP901E	8	36'-1"		PIER WALL TOP
1AP502E	10	36'-1"		PIER WALL HORIZONTAL E.F.
1AP503E	14	5'-9"		PIER WALL HORIZONTAL
1AP504E	40	9'-10"		PIER WALL STIRRUP
1AP505E	98	3'-7"		PIER WALL TIE
1AP506E	102	3'-8"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 2A				
BAR	NO.	LENGTH	SHAPE	LOCATION
2AP901E	8	36'-1"		PIER WALL TOP
2AP502E	10	36'-1"		PIER WALL HORIZONTAL E.F.
2AP503E	14	5'-9"		PIER WALL HORIZONTAL
2AP504E	40	9'-10"		PIER WALL STIRRUP
2AP505E	98	3'-7"		PIER WALL TIE
2AP506E	102	3'-8"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 3A				
BAR	NO.	LENGTH	SHAPE	LOCATION
3AP901E	8	36'-1"		PIER WALL TOP
3AP502E	10	36'-1"		PIER WALL HORIZONTAL E.F.
3AP503E	14	5'-9"		PIER WALL HORIZONTAL
3AP504E	40	9'-10"		PIER WALL STIRRUP
3AP505E	98	3'-7"		PIER WALL TIE
3AP506E	102	3'-8"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 4A				
BAR	NO.	LENGTH	SHAPE	LOCATION
4AP901E	8	36'-1"		PIER WALL TOP
4AP502E	10	36'-1"		PIER WALL HORIZONTAL E.F.
4AP503E	14	5'-9"		PIER WALL HORIZONTAL
4AP504E	40	9'-10"		PIER WALL STIRRUP
4AP505E	98	3'-7"		PIER WALL TIE
4AP506E	102	3'-8"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 5A				
BAR	NO.	LENGTH	SHAPE	LOCATION
5AP901E	8	36'-1"		PIER WALL TOP
5AP502E	10	36'-1"		PIER WALL HORIZONTAL E.F.
5AP503E	14	5'-9"		PIER WALL HORIZONTAL
5AP504E	40	9'-10"		PIER WALL STIRRUP
5AP505E	98	3'-7"		PIER WALL TIE
5AP506E	102	3'-8"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 6A				
BAR	NO.	LENGTH	SHAPE	LOCATION
6AP901E	8	36'-1"		PIER WALL TOP
6AP502E	10	36'-1"		PIER WALL HORIZONTAL E.F.
6AP503E	14	5'-9"		PIER WALL HORIZONTAL
6AP504E	40	9'-10"		PIER WALL STIRRUP
6AP505E	98	3'-7"		PIER WALL TIE
6AP506E	102	3'-8"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 8A				
BAR	NO.	LENGTH	SHAPE	LOCATION
8AP901E	8	36'-1"		PIER WALL TOP
8AP502E	10	36'-1"		PIER WALL HORIZONTAL E.F.
8AP503E	14	5'-9"		PIER WALL HORIZONTAL
8AP504E	40	9'-10"		PIER WALL STIRRUP
8AP505E	98	3'-7"		PIER WALL TIE
8AP506E	102	3'-8"		PIER WALL VERTICAL E.F.

**NOTES:**  
F.F. DENOTES FRONT FACE.  
B.F. DENOTES BACK FACE.  
E.F. DENOTES EACH FACE.  
FOR PIER REINFORCEMENT SEE SHEET 34.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	ZA	CHECKED BY:	BC
DRAWN BY:	CL	CHECKED BY:	ZA

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 1A - 6A, 8A REINFORCEMENT 2

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-PIR-004

Jan, 19 2016 09:31 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-002.dwg By: butterfielda

PIERS 9A, 10A, 2, 3, 5, 6, 7  
REQUIRED NOMINAL PILE BEARING  
RESISTANCE FOR C-I-P PILES  
 $R_n$  – TONS/PILE

FIELD CONTROL METHOD	$\phi_{dyn}$	PIER 9A	PIER 10A	PIER 2	PIER 3	PIER 5	PIER 6	PIER 7
		* $R_n$	* $R_n$	* $R_n$	* $R_n$	* $R_n$	* $R_n$	* $R_n$
PDA	0.65	152.0	151.9	198.4	194.5	211.4	181.6	201.6

\*  $R_n$  = (FACTORED DESIGN LOAD) /  $\phi_{dyn}$

PIERS 9A, 10A, 2, 3, 5, 6, 7  
COMPUTED PILE LOAD – TONS/PILE

	PIER 9A	PIER 10A	PIER 2	PIER 3	PIER 5	PIER 6	PIER 7
FACTORED DEAD LOAD	64.1	66.2	89.1	81.7	94.6	78.4	89.0
FACTORED LIVE LOAD	10.4	9.9	24.5	22.5	25.0	24.2	23.7
FACTORED OVERTURNING	24.3	22.6	15.3	22.2	17.8	15.4	18.3
* FACTORED DESIGN LOAD	98.8	98.7	128.9	126.4	137.4	118.0	131.0

\* BASED ON ④ LOAD COMBINATION

PILE NOTES

1 CAST-IN-PLACE CONCRETE TEST PILE ⑫ FT. LONG.

6 CAST-IN-PLACE CONCRETE PILES EST. LENGTH ⑬ FT.

7 CAST-IN-PLACE CONCRETE PILES REQ'D FOR EACH PIER  
(9A, 10A, 2, 3, 5, 6, 7).

PILES TO HAVE A NOMINAL DIAMETER OF 16" AND WALL THICKNESS OF 0.500".

FOR PILE SPLICE DETAILS SEE DETAIL B201.

PILE SPACING IS SHOWN AT BOTTOM OF WALL PIER.

NOMINAL PILE BEARING RESISTANCE SHALL BE DETERMINED BY THE USE OF A PILE  
DRIVING ANALYZER (PDA). PILE LENGTHS SHOWN ARE BASED ON USING A PDA.

ALL PILES TO BE DRIVEN TO A MINIMUM TIP ELEVATION OF ⑭.

	⑫ (FT.)	⑬ (FT.)	⑭ (EL.)
PIER 9A	70	60	768.45
PIER 10A	70	60	770.34
PIER 2	75	65	768.82
PIER 3	80	70	764.58
PIER 5	90	80	756.12
PIER 6	90	80	756.46
PIER 7	65	55	782.97

NOTES:

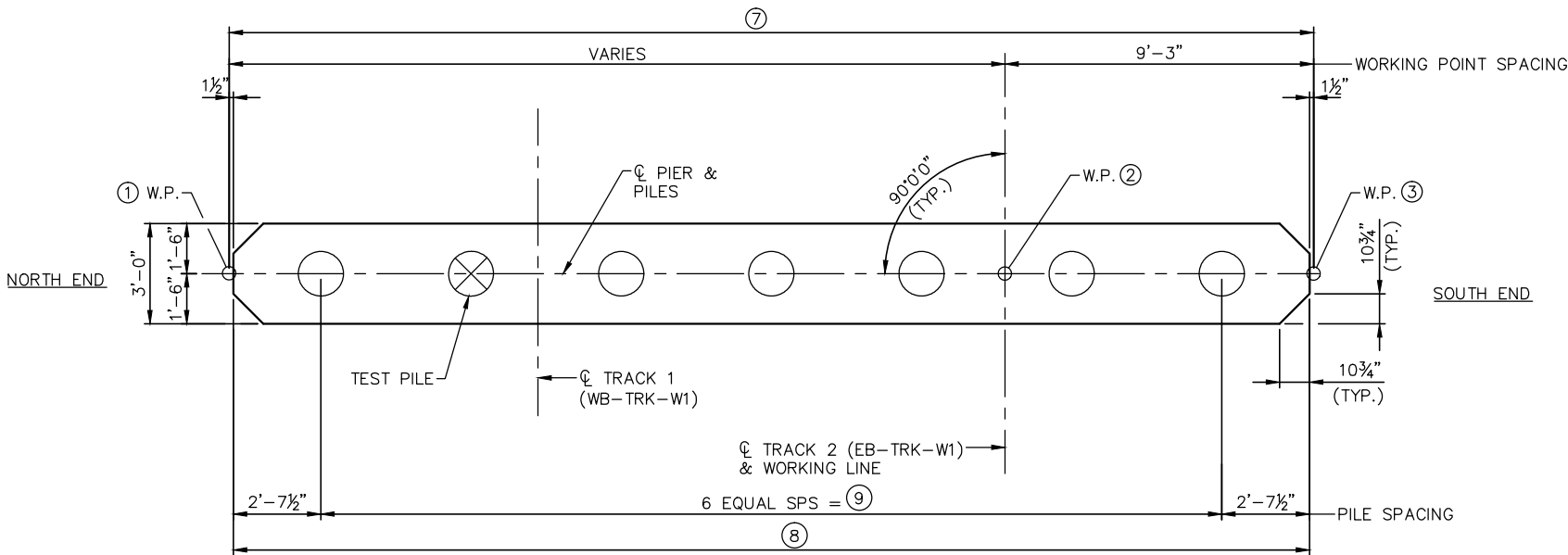
ALL REBAR AND PILES SHALL BE WELDED PER DETAILS ON SHEETS  
E0-SYS-CORR-DTL.001 & .008.

NORTH ARROW NOT SHOWN DUE TO MULTIPLE PIERS.  
SEE GENERAL PLAN AND ELEVATION SHEETS.

①②③ SEE SHEET 37 FOR WORKING POINT TABLE.

④ PIER 9A: EXTREME III  
PIER 10A: EXTREME III  
PIER 2: STRENGTH V  
PIER 3: STRENGTH V  
PIER 5: STRENGTH V  
PIER 6: STRENGTH V  
PIER 7: STRENGTH V

⑦⑧⑨ SEE SHEET 37 FOR PIER GEOMETRIC TABLE.



WALL PIER FOOTING PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	KL	CHECKED BY:	AMA
DRAWN BY:	ALB	CHECKED BY:	ATN

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 9A, 10A, 2, 3, 5, 6, 7 GEOMETRICS 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-005

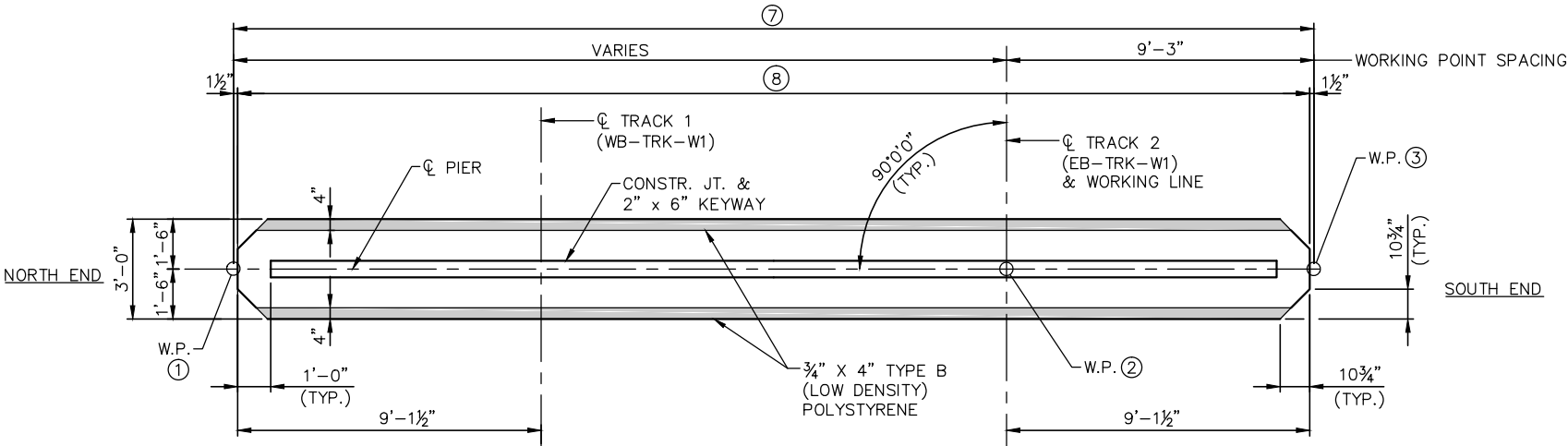
SHEET
36
OF
232

WORKING POINT TABLE

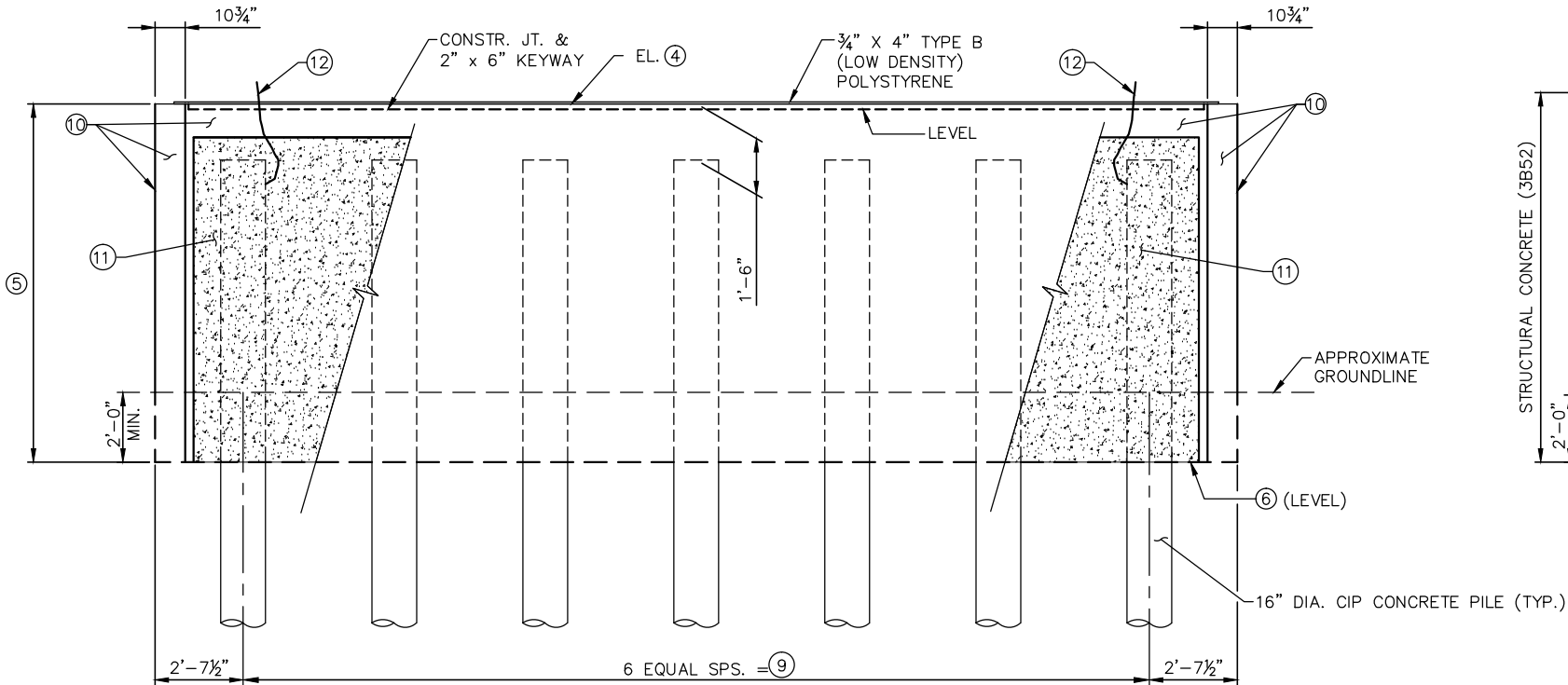
	WORKING POINT ①	WORKING POINT ②	WORKING POINT ③
PIER 9A	"9AA"	"9AB"	"9AC"
PIER 10A	"10AA"	"10AB"	"10AC"
PIER 2	"2A"	"2B"	"2C"
PIER 3	"3A"	"3B"	"3C"
PIER 5	"5A"	"5B"	"5C"
PIER 6	"6A"	"6B"	"6C"
PIER 7	"7A"	"7B"	"7C"

PIER GEOMETRIC TABLE

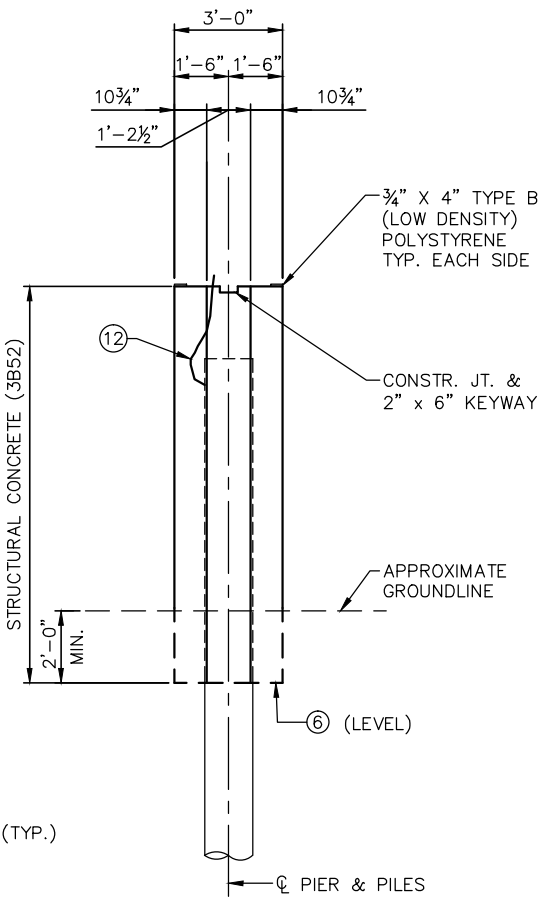
	TOP OF WALL PIER ELEV. ④	TOTAL PIER HEIGHT ⑤	BOTTOM OF PIER ELEV. ⑥	WORKING POINT SPACING ⑦	PIER WIDTH ⑧	⑨
PIER 9A	832.45	4'-0"	828.45	32'-9"	32'-6"	27'-3"
PIER 10A	834.34	4'-0"	830.34	33'-8 1/8"	33'-5 1/8"	28'-2 1/8"
PIER 2	838.15	4'-4"	833.82	35'-9 3/4"	35'-6 3/4"	30'-3 3/4"
PIER 3	840.25	5'-8"	834.58	36'-3 3/8"	36'-0 3/8"	30'-9 3/8"
PIER 5	844.45	8'-4 "	836.12	35'-4 3/4"	35'-1 3/4"	29'-10 3/4"
PIER 6	846.54	10'-1 "	836.46	34'-1 1/2"	33'-10 1/2"	28'-7 1/2"
PIER 7	848.64	10'-8"	837.97	33'-0 1/8"	32'-9 1/8"	27'-6 1/8"



WALL PIER PLAN



WALL PIER ELEVATION



END VIEW

NOTES:

- ⑩ ARCHITECTURAL SURFACE FINISH (SINGLE COLOR) - SEE SPECIAL PROVISIONS.
- ⑪ ARCHITECTURAL CONCRETE TEXTURE (LIMESTONE) WITH ARCHITECTURAL SURFACE FINISH (SINGLE COLOR). - SEE SPECIAL PROVISIONS.
- ⑫ GROUND WIRE.

Jan, 19 2016 09:31 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-002.dwg By: butterfield

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: KL	CHECKED BY: AMA
DRAWN BY: ALB	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

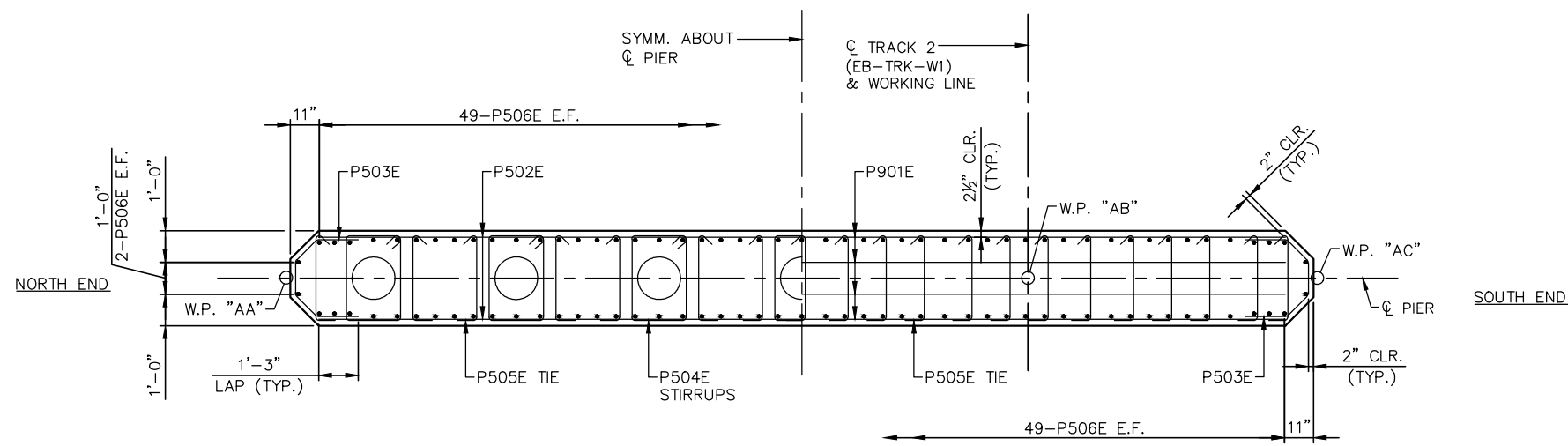
DISCIPLINE: STRUCTURES

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 9A, 10A, 2, 3, 5, 6, 7 GEOMETRICS 2

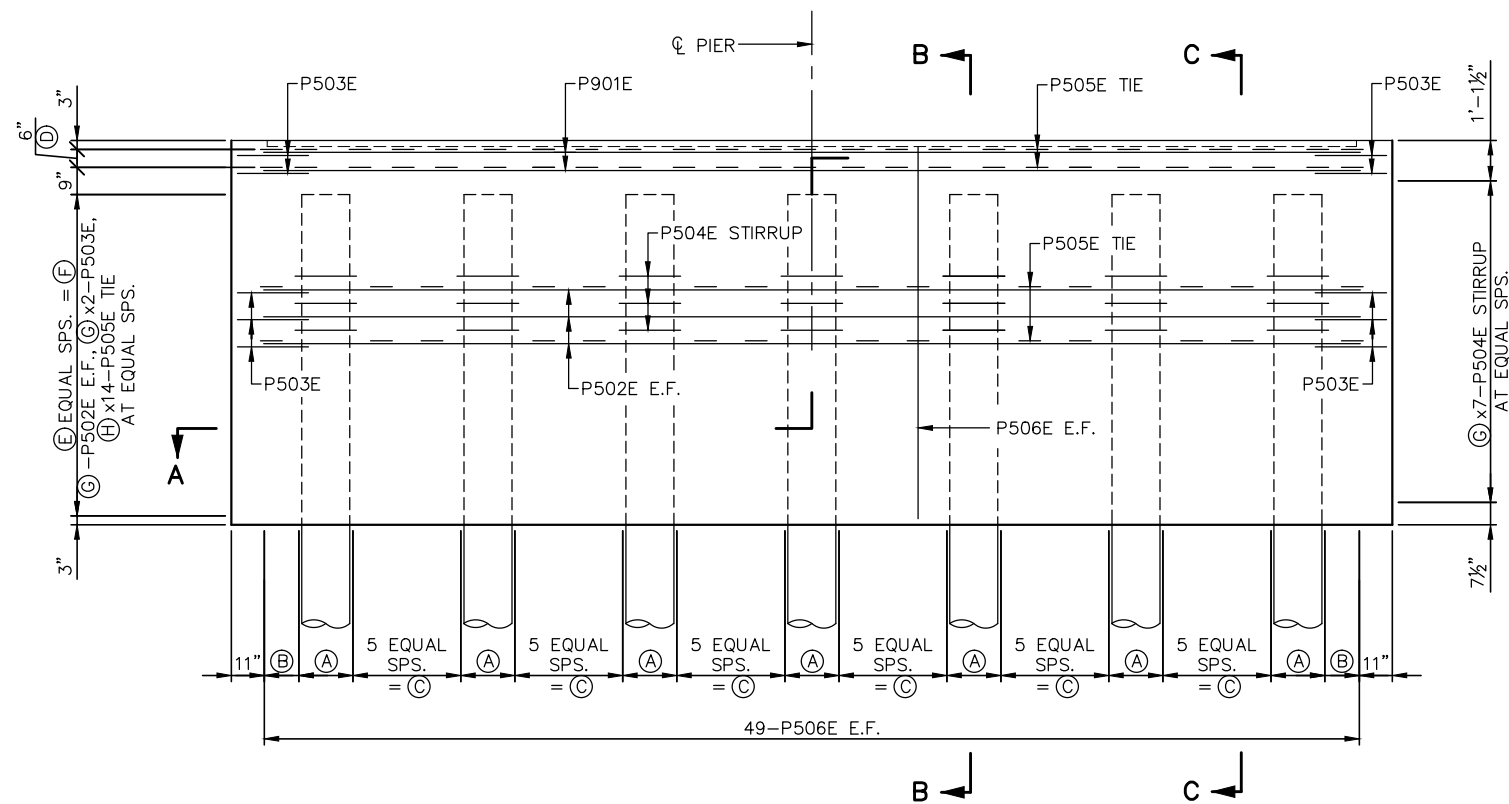
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-PIR-006

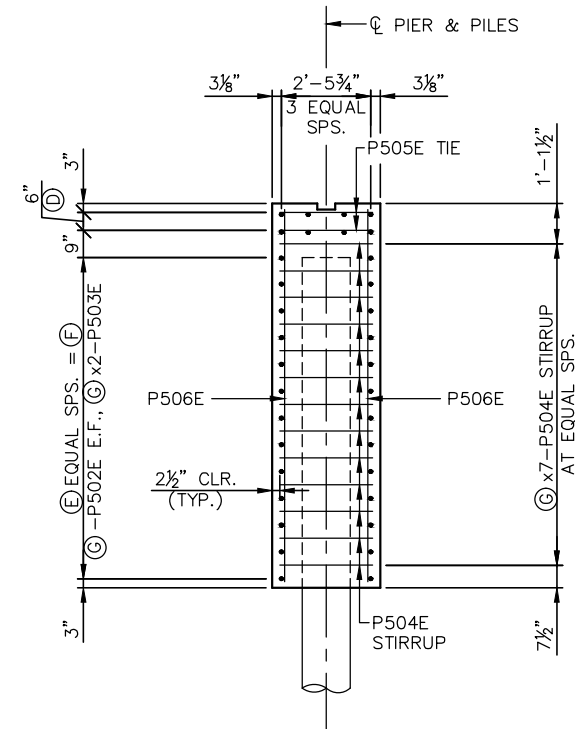
Jan, 19 2016 09:31 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-017.dwg By: butterfielda



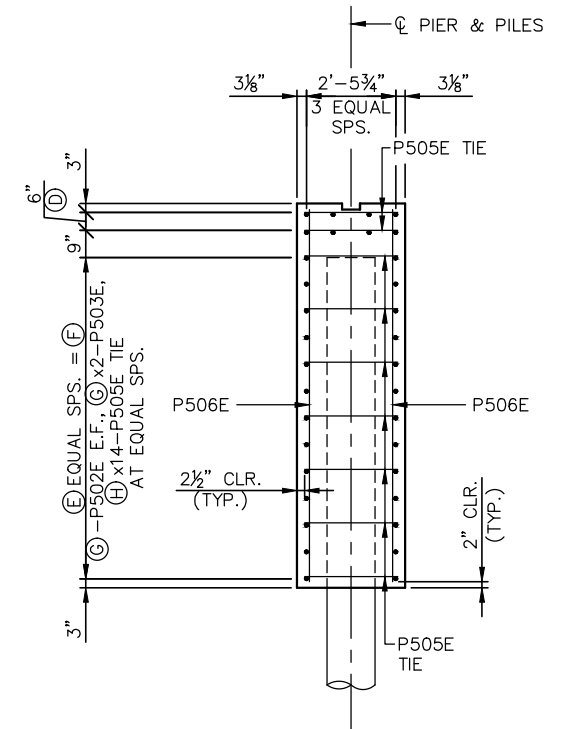
SECTION A-A



WALL PIER ELEVATION



SECTION B-B



SECTION C-C

**NOTES:**

F.F. DENOTES FRONT FACE.

B.F. DENOTES BACK FACE.

E.F. DENOTES EACH FACE.

FOR GEOMETRICS PLAN SEE SHEETS 36 AND 37.

Ⓐ 2 SPS. AT 9" = 1'-6".

Ⓑ 2 SPS. AT 5 3/4" = 11 1/2".

Ⓓ 2x4-P901E, 2x2-P503E, 2x25-P505E TIES.

PIER	Ⓒ	Ⓔ	Ⓕ	Ⓖ	Ⓗ
9A	3'-0 1/2"	4	2'-3"	5	3
10A	3'-2 3/8"	4	2'-3"	5	3
2	3'-6 5/8"	4	2'-7"	5	3
3	3'-7 7/8"	6	3'-11"	7	4
5	3'-5 3/4"	10	5'-7"	11	6
6	3'-3 1/4"	12	8'-4"	13	7
7	3'-1"	12	8'-11"	13	7

**AECOM**



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**PIER 9A, 10A, 2, 5, 6, 7 REINFORCEMENT 1**

DISCIPLINE:

STRUCTURES

SHEET NAME:

CBR27C06-BRG-PIR-007

SHEET

38

OF

232

DESIGNED BY: ZA

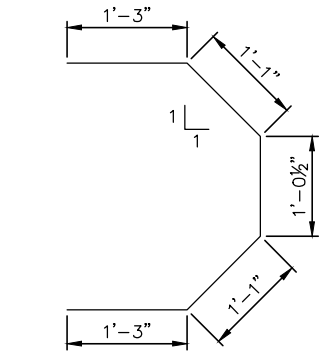
CHECKED BY: BC

DRAWN BY: CL

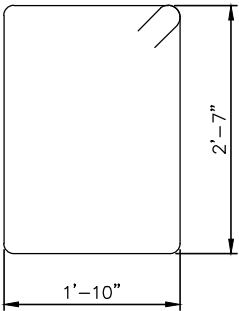
CHECKED BY: ZA

90% SUBMISSION - 01/22/16

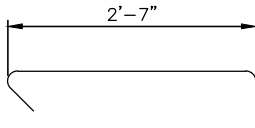
Jan, 19 2016 09:32 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-017.dwg By: butterfielda



P503E



P504E



P505E

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 9A

BAR	NO.	LENGTH	SHAPE	LOCATION
9AP901E	8	30'-8"		PIER WALL TOP
9AP502E	10	30'-8"		PIER WALL HORIZONTAL E.F.
9AP503E	14	5'-9"		PIER WALL HORIZONTAL
9AP504E	35	9'-10"		PIER WALL STIRRUP
9AP505E	92	3'-7"		PIER WALL TIE
9AP506E	102	3'-8"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 10A

BAR	NO.	LENGTH	SHAPE	LOCATION
10AP901E	8	30'-7"		PIER WALL TOP
10AP502E	10	30'-7"		PIER WALL HORIZONTAL E.F.
10AP503E	14	5'-9"		PIER WALL HORIZONTAL
10AP504E	35	9'-10"		PIER WALL STIRRUP
10AP505E	92	3'-7"		PIER WALL TIE
10AP506E	102	3'-8"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 2

BAR	NO.	LENGTH	SHAPE	LOCATION
2P901E	8	33'-9"		PIER WALL TOP
2P502E	10	33'-9"		PIER WALL HORIZONTAL E.F.
2P503E	14	5'-9"		PIER WALL HORIZONTAL
2P504E	35	9'-10"		PIER WALL STIRRUP
2P505E	92	3'-7"		PIER WALL TIE
2P506E	102	4'-0"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 3

BAR	NO.	LENGTH	SHAPE	LOCATION
3P901E	8	34'-3"		PIER WALL TOP
3P502E	14	34'-3"		PIER WALL HORIZONTAL E.F.
3P503E	18	5'-9"		PIER WALL HORIZONTAL
3P504E	49	9'-10"		PIER WALL STIRRUP
3P505E	106	3'-7"		PIER WALL TIE
3P506E	102	5'-4"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 5

BAR	NO.	LENGTH	SHAPE	LOCATION
5P901E	8	33'-4"		PIER WALL TOP
5P502E	22	33'-4"		PIER WALL HORIZONTAL E.F.
5P503E	26	5'-9"		PIER WALL HORIZONTAL
5P504E	77	9'-10"		PIER WALL STIRRUP
5P505E	134	3'-7"		PIER WALL TIE
5P506E	102	8'-0"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 6

BAR	NO.	LENGTH	SHAPE	LOCATION
6P901E	8	32'-1"		PIER WALL TOP
6P502E	26	32'-1"		PIER WALL HORIZONTAL E.F.
6P503E	30	5'-9"		PIER WALL HORIZONTAL
6P504E	91	9'-10"		PIER WALL STIRRUP
6P505E	148	3'-7"		PIER WALL TIE
6P506E	102	9'-9"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 7

BAR	NO.	LENGTH	SHAPE	LOCATION
7P901E	8	30'-11"		PIER WALL TOP
7P502E	26	30'-11"		PIER WALL HORIZONTAL E.F.
7P503E	30	5'-9"		PIER WALL HORIZONTAL
7P504E	91	9'-10"		PIER WALL STIRRUP
7P505E	148	3'-7"		PIER WALL TIE
7P506E	102	10'-4"		PIER WALL VERTICAL E.F.

NOTES:

F.F. DENOTES FRONT FACE.

B.F. DENOTES BACK FACE.

E.F. DENOTES EACH FACE.

FOR PIER REINFORCEMENT SEE SHEET 38.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	ZA	CHECKED BY:	BC
DRAWN BY:	CL	CHECKED BY:	ZA

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 9A, 10A, 2, 5, 6, 7 REINFORCEMENT 2

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-PIR-008



Jan, 19 2016 09:32 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-032.dwg By: butterfielda

PIER 4 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR C-I-P PILES R <sub>n</sub> – TONS/PILE		
FIELD CONTROL METHOD	Φ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	141.6

\* R<sub>n</sub> = (FACTORED DESIGN LOAD) / Φ<sub>dyn</sub>

PIER 4 COMPUTED PILE LOAD – TONS/PILE	
FACTORED DEAD LOAD	57.2
FACTORED LIVE LOAD	14.9
FACTORED OVERTURNING	19.9
* FACTORED DESIGN LOAD	92.0

\* BASED ON STRENGTH V LOAD COMBINATION

PILE NOTES

1 CAST-IN-PLACE CONCRETE TEST PILE 95 FT. LONG.

8 CAST-IN-PLACE CONCRETE PILES EST. LENGTH 85 FT.

9 CAST-IN-PLACE CONCRETE PILES REQ'D FOR PIER 4.

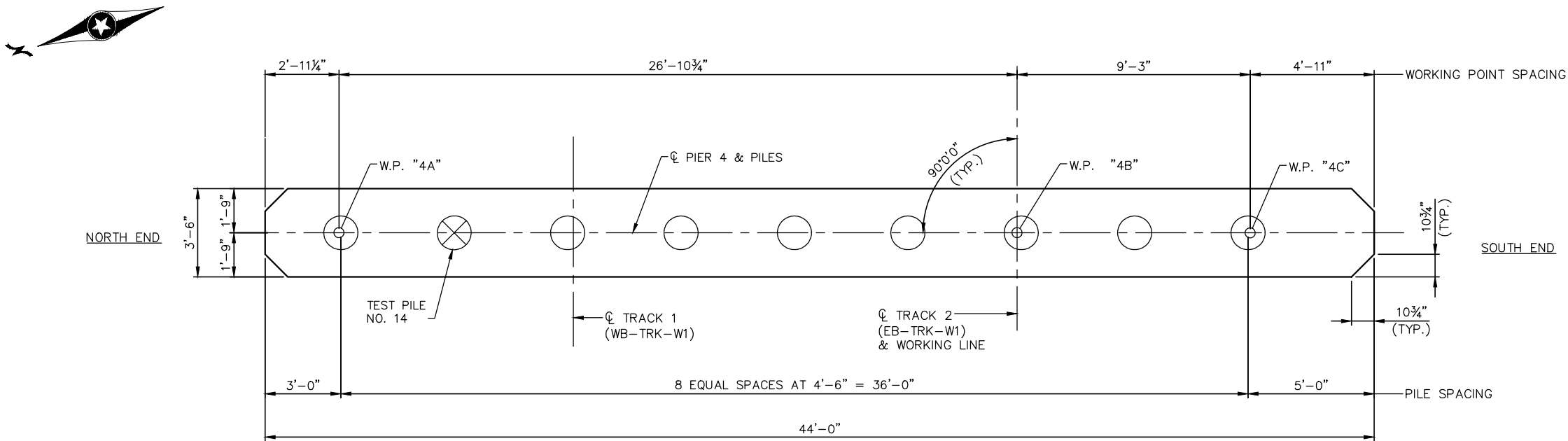
PILES TO HAVE A NOMINAL DIAMETER OF 16" AND WALL THICKNESS OF 0.500".

FOR PILE SPLICE DETAILS SEE DETAIL B201.

PILE SPACING IS SHOWN AT BOTTOM OF WALL PIER.

NOMINAL PILE BEARING RESISTANCE SHALL BE DETERMINED BY THE USE OF A PILE DRIVING ANALYZER (PDA). PILE LENGTHS SHOWN ARE BASED ON USING A PDA.

ALL PILES TO BE DRIVEN TO A MINIMUM TIP ELEVATION OF 750.44.



WALL PIER FOOTING PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	KL	CHECKED BY:	AMA
DRAWN BY:	ALB	CHECKED BY:	ATN

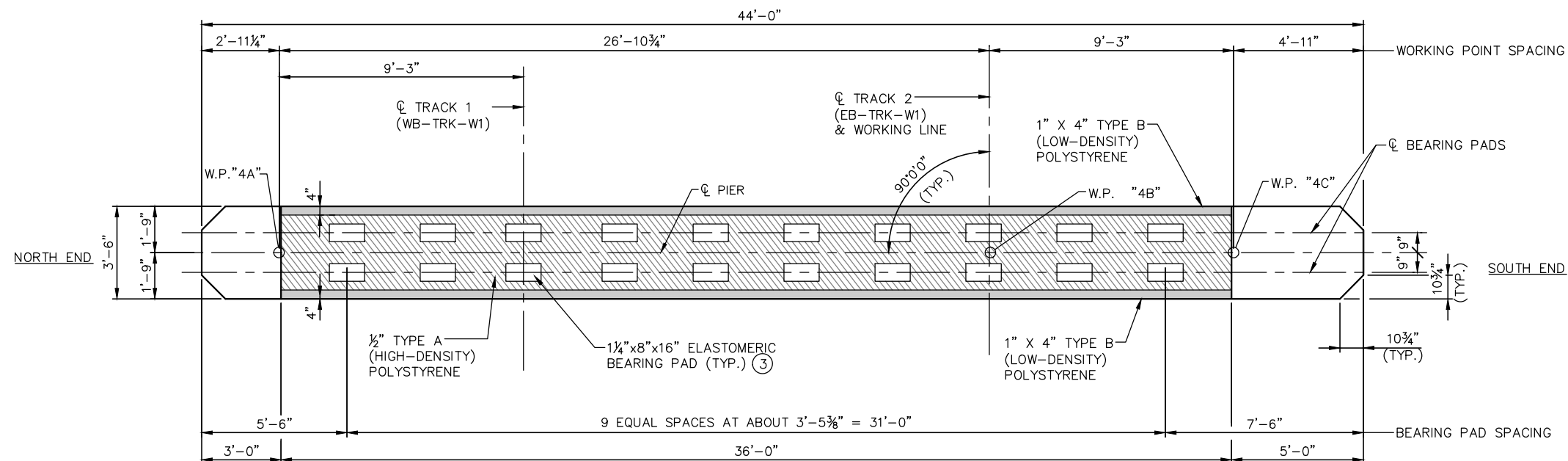
  
90% SUBMISSION - 01/22/16



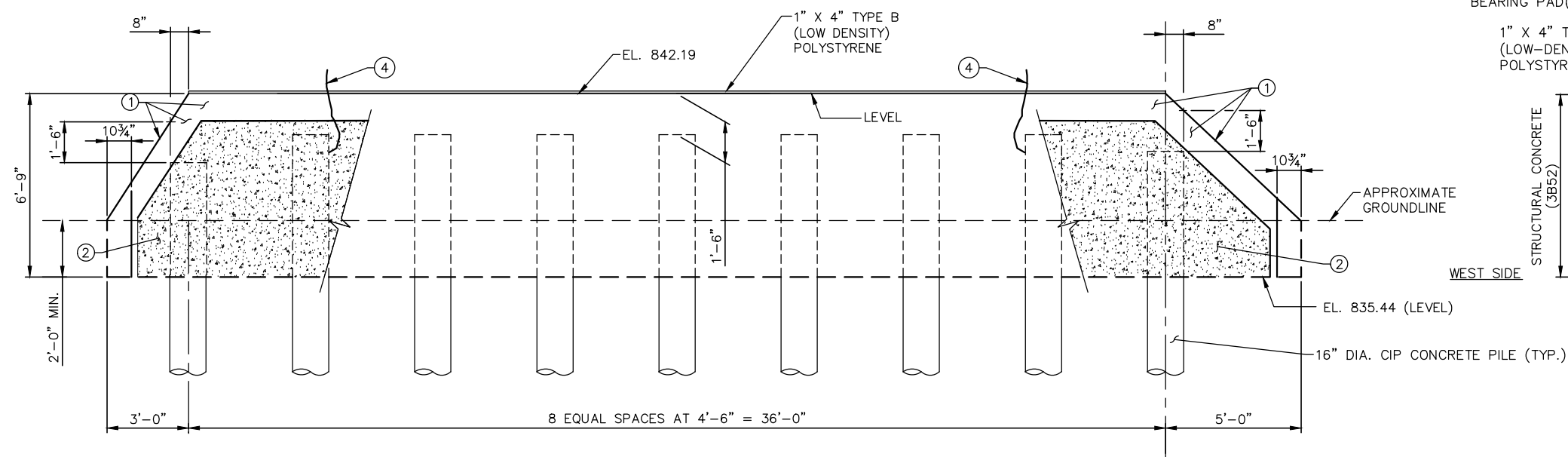
CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 4 GEOMETRICS 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-009

SHEET
40
OF
232

Jan, 19 2016 09:32 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-032.dwg By: butterfielda



WALL PIER PLAN

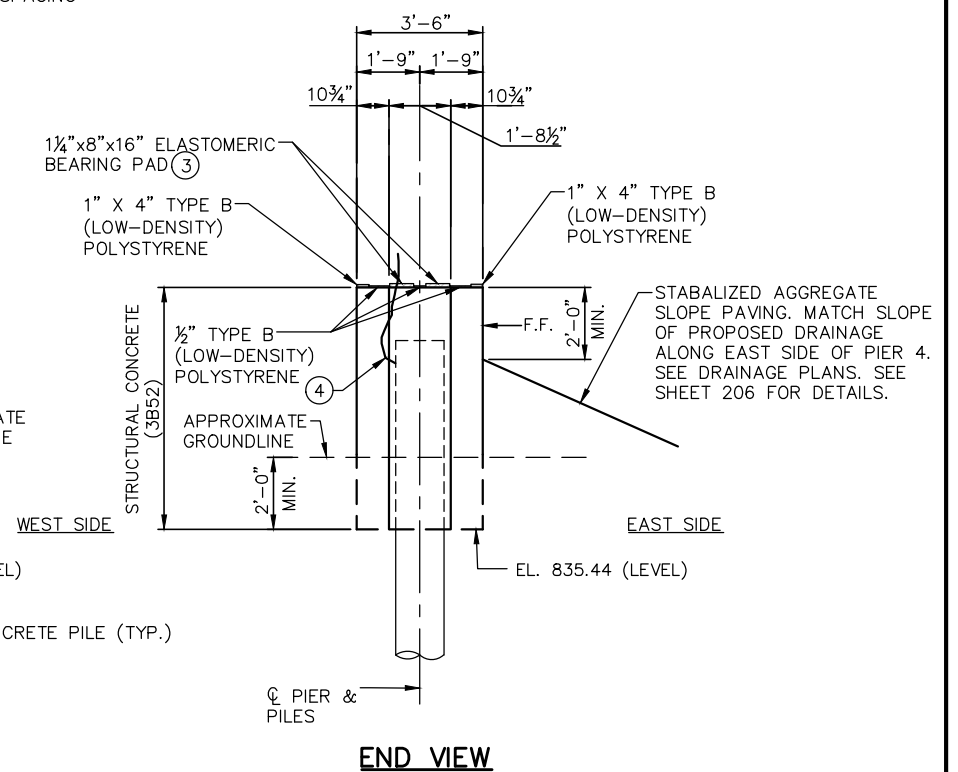


WALL PIER ELEVATION

NOTES:

F.F. DENOTES FRONT FACE.

- ① ARCHITECTURAL SURFACE FINISH (SINGLE COLOR)  
- SEE SPECIAL PROVISIONS.
- ② ARCHITECTURAL CONCRETE TEXTURE (LIMESTONE) WITH  
ARCHITECTURAL SURFACE FINISH (SINGLE COLOR).  
- SEE SPECIAL PROVISIONS.
- ③ EPOXY PAD TO TOP OF CONCRETE WALL PIER. CAST SLAB  
DIRECTLY ON BEARING PAD WITH TOP 1/4" OF BEARING  
PAD RECESSED INTO SLAB (1" EXPOSED).
- ④ GROUND WIRE.



END VIEW

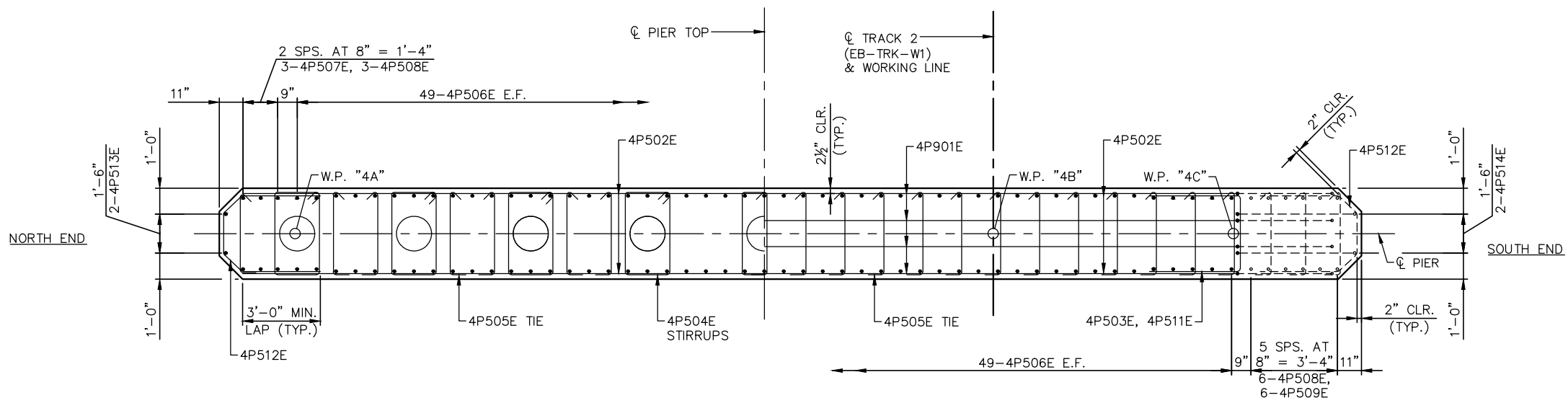
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: KL	CHECKED BY: AMA
DRAWN BY: ALB	CHECKED BY: ATN

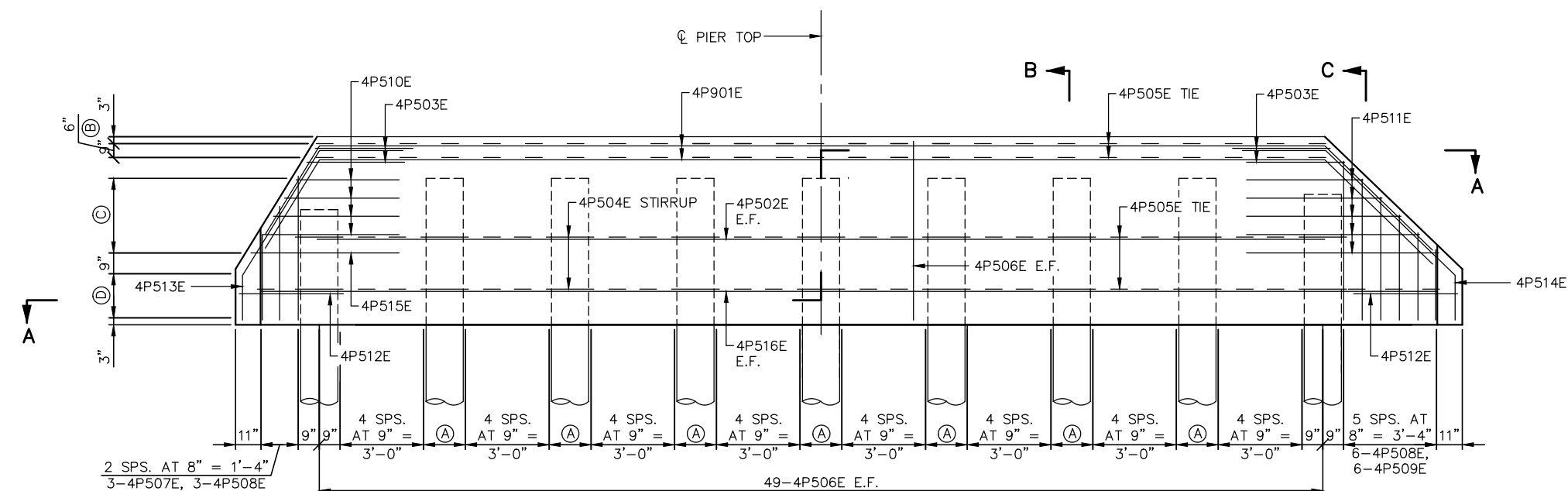
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 4 GEOMETRICS 2	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-010

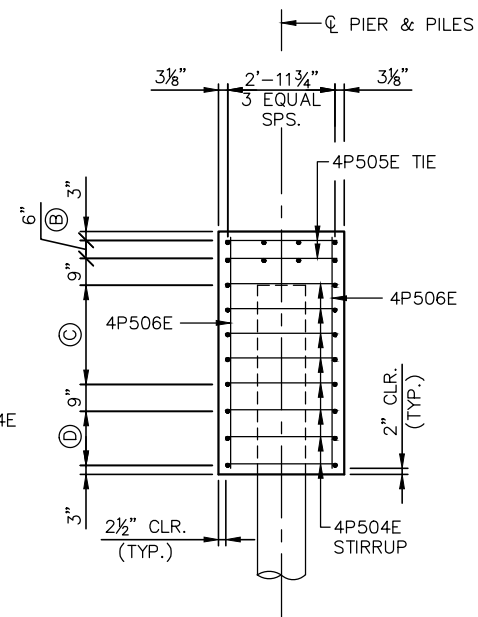
Jan, 19 2016 09:32 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-033.dwg By: butterflyda



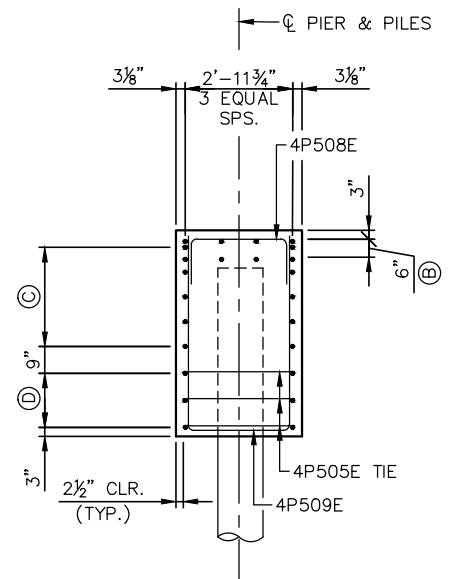
SECTION A-A



WALL PIER ELEVATION



SECTION B-B



SECTION C-C

**NOTES:**

F.F. DENOTES FRONT FACE.

B.F. DENOTES BACK FACE.

E.F. DENOTES EACH FACE.

FOR GEOMETRICS PLAN SEE SHEETS 40 AND 41.

- (A) 2 SPS. AT 9" = 1'-6".
- (B) 2x4-4P901E, 2X2-4P503E, 2x25-4P505E TIE.
- (C) 4 SPS. AT 8 1/4" = 2'-9", 5-4P502E E.F., 4-4P510E, 1-4P514E, 5-4P511E, 5x9-4P504E STIRRUP, 5x16-4P505E TIE.
- (D) 2 SPS. AT 9" = 1'-6", 3-4P516E E.F., 3X2-4P512E, 3x9-4P504E STIRRUP, 3x20-4P505E TIE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	ZA	CHECKED BY:	BC
DRAWN BY:	CL	CHECKED BY:	ZA

**AECOM**

90% SUBMISSION - 01/22/16



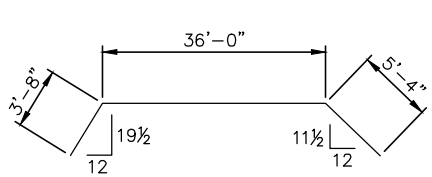
**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 4 REINFORCEMENT 1**

DISCIPLINE: **STRUCTURES**

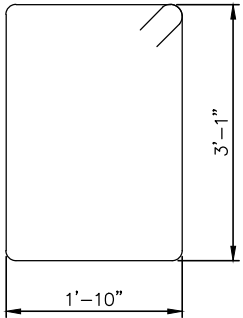
SHEET NAME: **CBR27C06-BRG-PIR-011**

**SHEET  
42  
OF  
232**

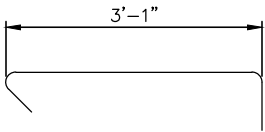
Jan, 19 2016 09:32 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-033.dwg By: butterfielda



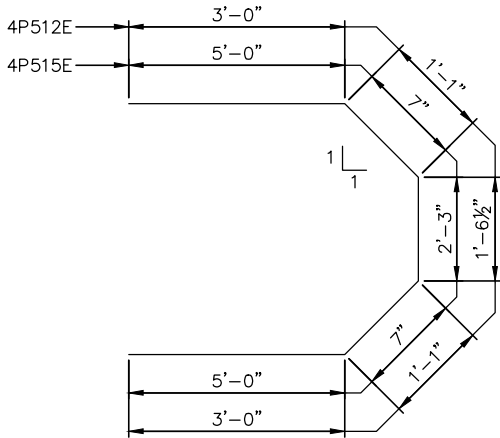
4P901E



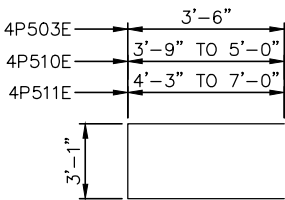
4P504E



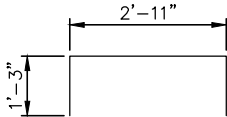
4P505E



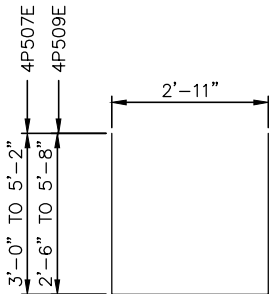
4P512E  
4P515E



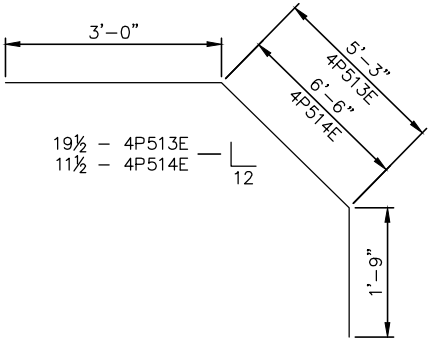
4P503E  
4P510E  
4P511E



4P508E



4P507E  
4P509E



4P513E  
4P514E

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 3

BAR	NO.	LENGTH	SHAPE	LOCATION
4P901E	8	43'-10"		PIER WALL TOP
4P502E	10	36'-2"		PIER WALL HORIZONTAL E.F.
4P503E	4	10'-1"		PIER WALL HORIZONTAL
4P504E	72	10'-10"		PIER WALL STIRRUP
4P505E	190	4'-1"		PIER WALL TIE
4P506E	98	6'-5"		PIER WALL VERTICAL E.F.
4P507E	(A)	8'-11" TO 13'-3"		PIER WALL VERTICAL
4P508E	9	5'-5"		PIER WALL VERTICAL
4P509E	(B)	7'-11" TO 14'-3"		PIER WALL VERTICAL
4P510E	(C)	10'-7" TO 13'-1"		PIER WALL HORIZONTAL
4P511E	(D)	11'-7" TO 17'-1"		PIER WALL HORIZONTAL
4P512E	6	9'-9"		PIER WALL HORIZONTAL
4P513E	2	10'-0"		PIER WALL VERTICAL
4P514E	2	11'-3"		PIER WALL VERTICAL
4P515E	1	13'-5"		PIER WALL HORIZONTAL
4P516E	6	42'-2"		PIER WALL HORIZONTAL E.F.

NO.	SERIES OF BARS
(A)	1 SERIES OF 3 BARS
(B)	1 SERIES OF 6 BARS
(C)	1 SERIES OF 4 BARS
(D)	1 SERIES OF 5 BARS

**NOTES:**  
F.F. DENOTES FRONT FACE.  
B.F. DENOTES BACK FACE.  
E.F. DENOTES EACH FACE.  
FOR PIER REINFORCEMENT SEE SHEET 42.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ZA	CHECKED BY: BC
DRAWN BY: CL	CHECKED BY: ZA

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 4 REINFORCEMENT 2	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-012

SHEET  
43  
OF  
232

Jan, 19 2016 09:32 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-003.dwg By: butterfielda

PIER 8 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR C-I-P PILES R <sub>n</sub> – TONS/PILE		
FIELD CONTROL METHOD	Φ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	143.70

\* R<sub>n</sub> = (FACTORED DESIGN LOAD) / Φ<sub>dyn</sub>

PIER 8 COMPUTED PILE LOAD – TONS/PILE	
FACTORED DEAD LOAD	63.22
FACTORED LIVE LOAD	14.20
FACTORED OVERTURNING	15.99
* FACTORED DESIGN LOAD	93.40

\* BASED ON STRENGTH V LOAD COMBINATION

PILE NOTES

1 CAST-IN-PLACE CONCRETE TEST PILE 60 FT. LONG.

19 CAST-IN-PLACE CONCRETE PILES EST. LENGTH 50 FT.

20 CAST-IN-PLACE CONCRETE PILES REQ'D FOR PIER 8.

PILES TO HAVE A NOMINAL DIAMETER OF 16" AND WALL THICKNESS OF 5/16".

FOR PILE SPLICE DETAILS SEE DETAIL B201.

PILE SPACING IS SHOWN AT BOTTOM OF FOOTING.

NOMINAL PILE BEARING RESISTANCE SHALL BE DETERMINED BY THE USE OF A PILE DRIVING ANALYZER (PDA). PILE LENGTHS SHOWN ARE BASED ON USING A PDA.

ALL PILES TO BE DRIVEN TO A MINIMUM TIP ELEVATION OF 783.79.

PILES MARKED THUS ⊙ TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.

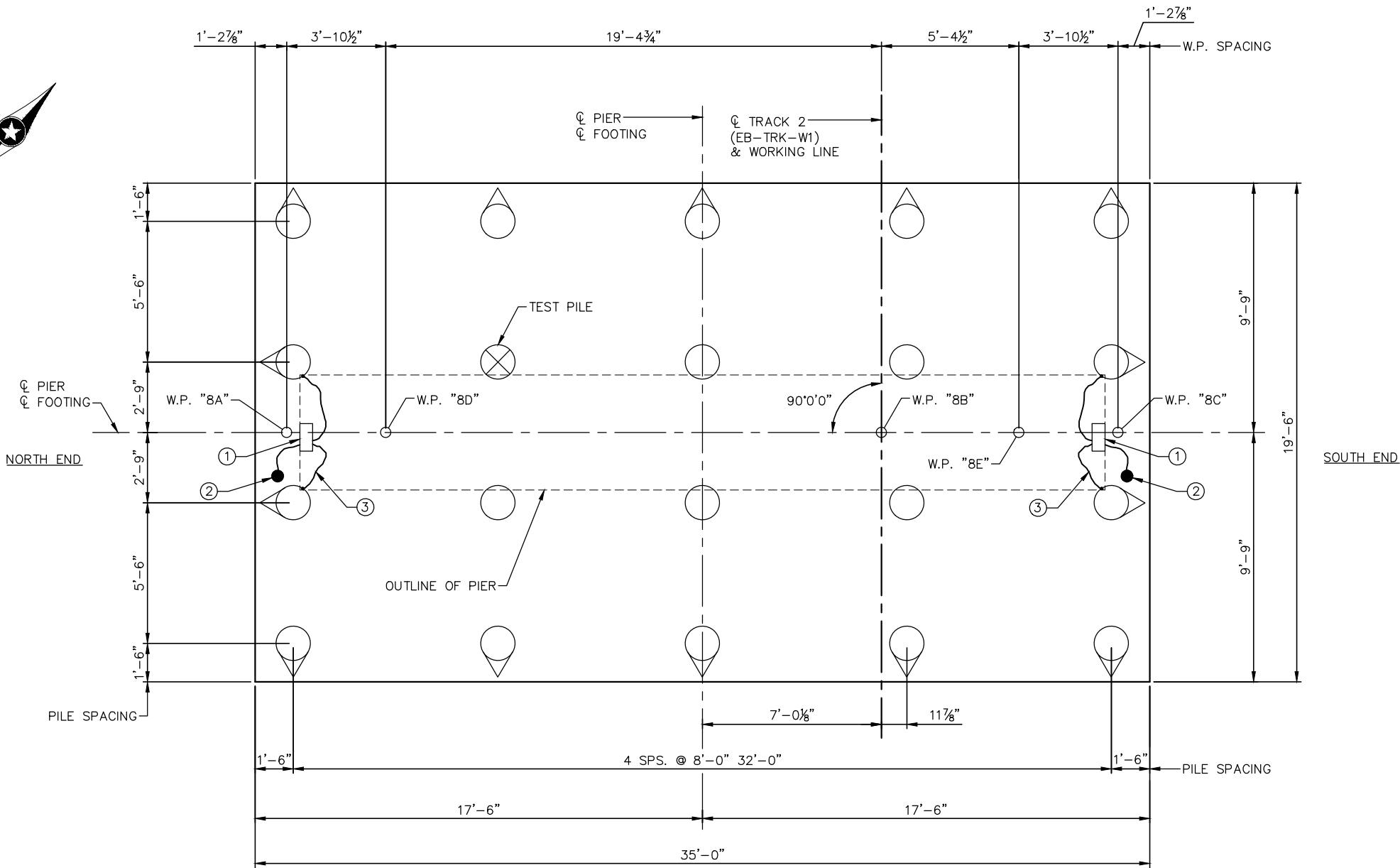
① STRAY CURRENT TEST STATION. SEE NOTE 9 AND 12 ON SHEET 10.

② COPPER/COPPER SULFATE REFERENCE CELL. SEE NOTE 10 ON SHEET 10.

③ #1/0 CABLE WELDED ONTO CORNER PILE. SEE NOTE 10 ON SHEET 10.

NOTES:

ALL REBAR AND PILES SHALL BE WELDED PER DETAILS ON SHEETS E0-SYS-CORR-DTL.001 & .008.



FOOTING PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: AV	CHECKED BY: KL
DRAWN BY: ALB	CHECKED BY: KL

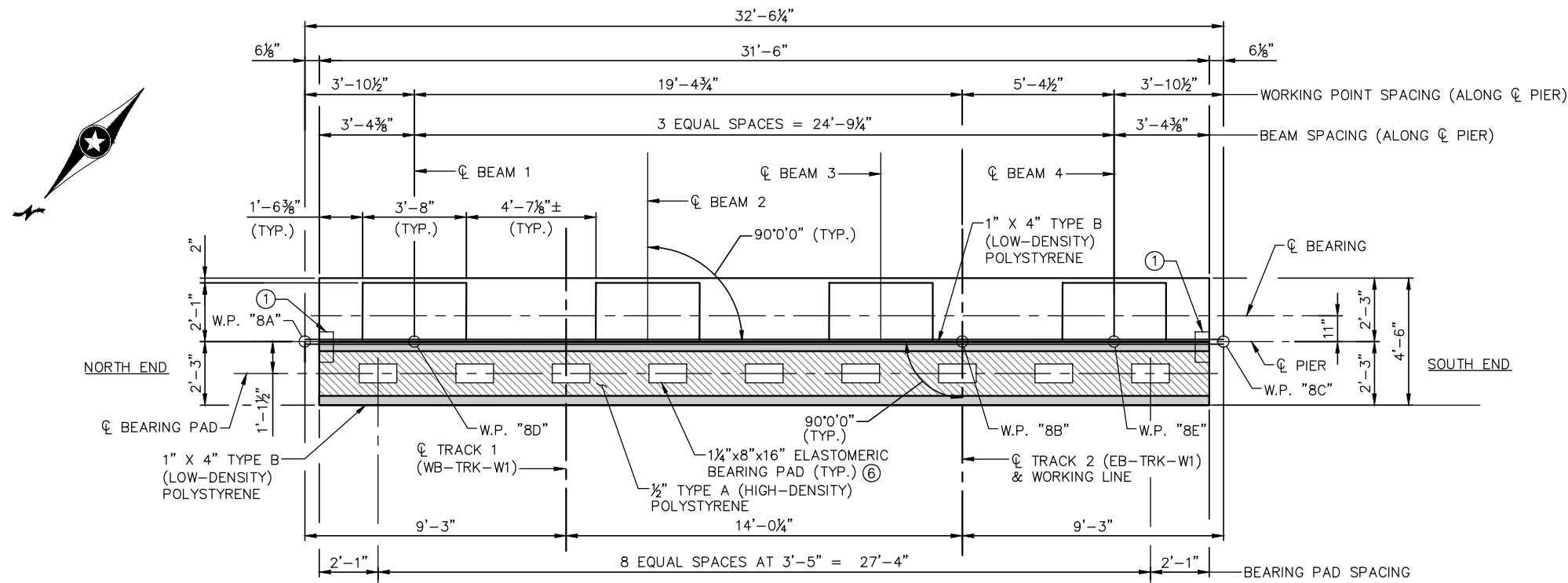
90% SUBMISSION - 01/22/16

DISCIPLINE: STRUCTURES

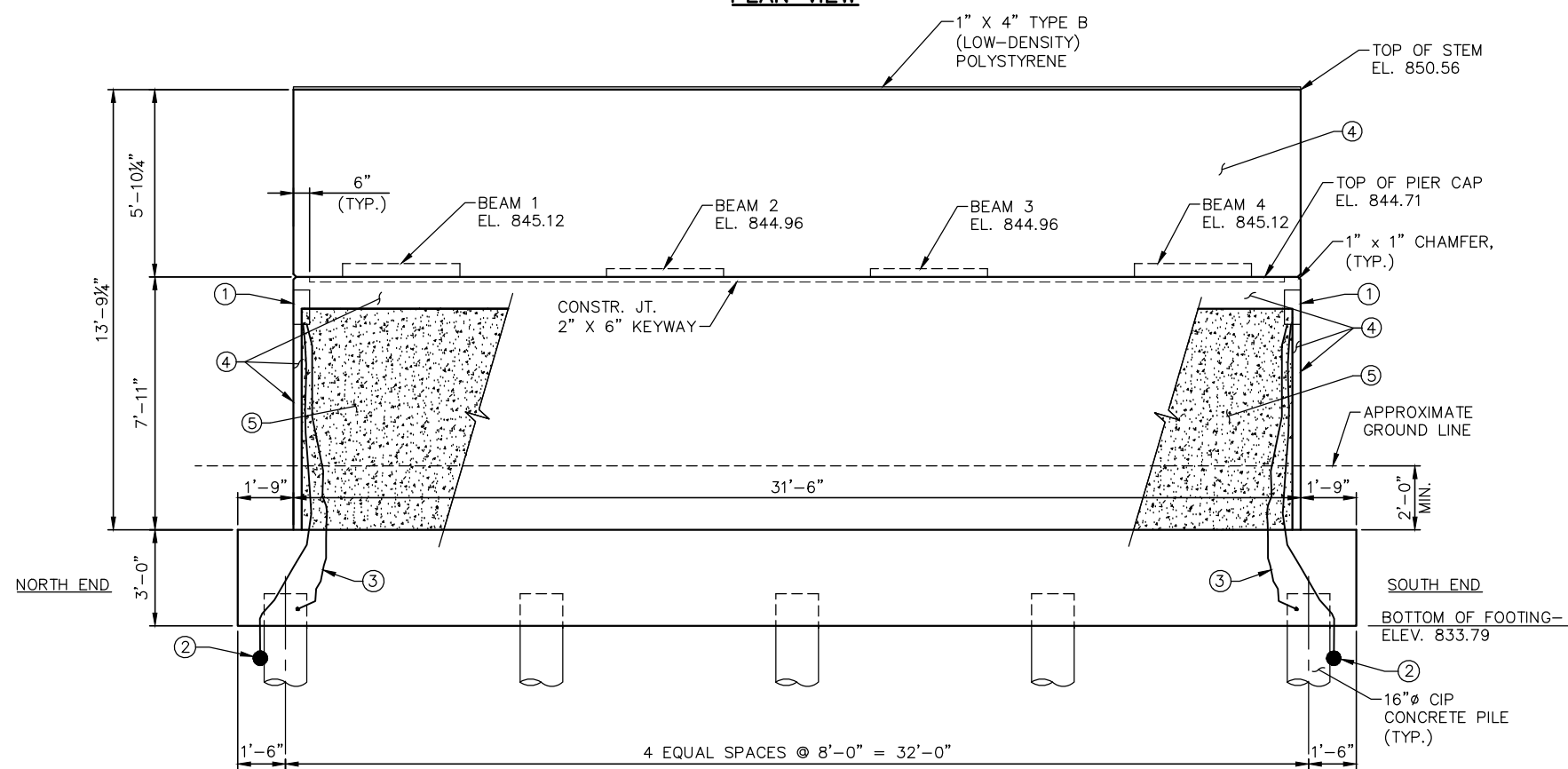
SHEET NAME: CBR27C06-BRG-PIR-013

CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 8 GEOMETRICS 1		SHEET
		44
		OF
		232

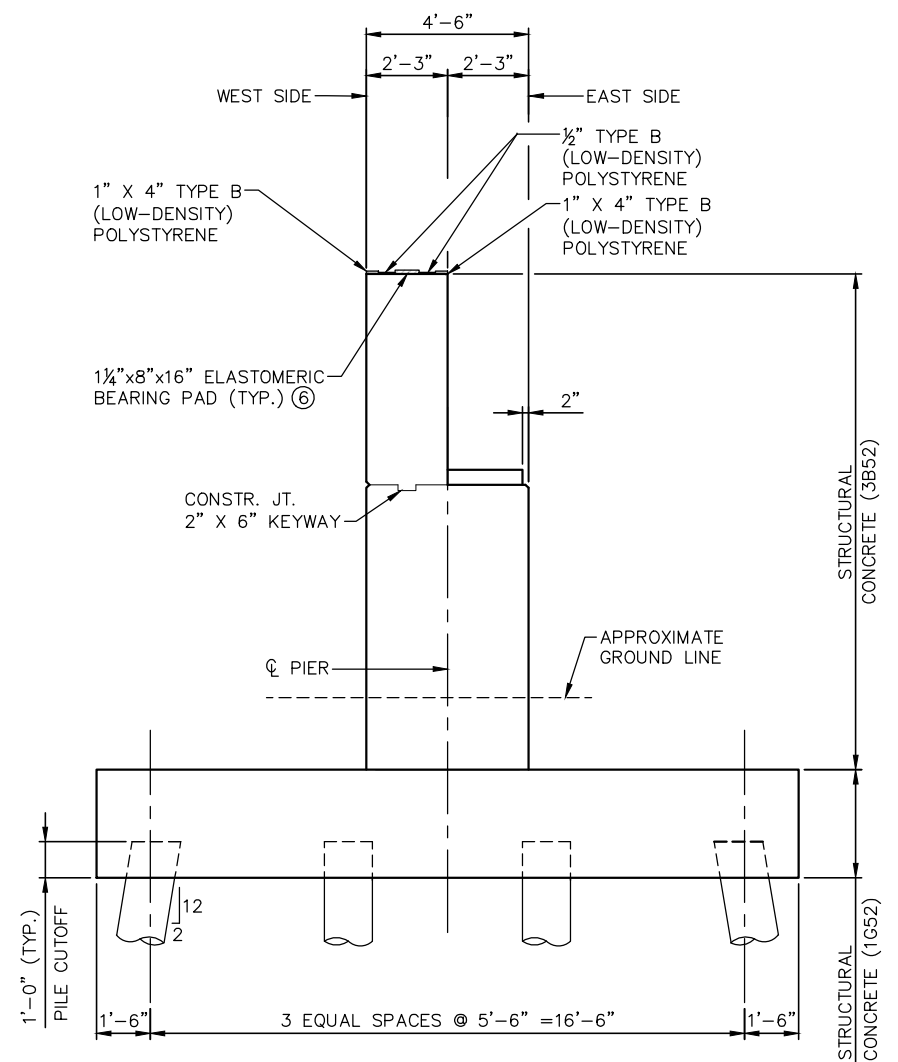
Jan, 19 2016 09:33 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-003.dwg By: butterfielda



PLAN VIEW



ELEVATION VIEW




SECTION THRU INTERIOR PILES

NOTES:

- ① STRAY CURRENT TEST STATION. SEE NOTE 9 AND 12 ON SHEET 10.
- ② COPPER/COPPER SULFATE REFERENCE CELL. SEE NOTE 10 ON SHEET 10.
- ③ #1/0 CABLE WELDED ONTO CORNER PILE. SEE NOTE 10 ON SHEET 10.
- ④ ARCHITECTURAL SURFACE FINISH (SINGLE COLOR).  
- SEE SPECIAL PROVISIONS.
- ⑤ ARCHITECTURAL CONCRETE TEXTURE (LIMESTONE) WITH ARCHITECTURAL SURFACE FINISH (SINGLE COLOR).  
- SEE SPECIAL PROVISIONS.
- ⑥ EPOXY PAD TO TOP OF CONCRETE WALL PIER. CAST SLAB DIRECTLY ON BEARING PAD WITH TOP 1/4" OF BEARING PAD RECESSED INTO SLAB (1" EXPOSED).

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	AV	CHECKED BY:	KL
DRAWN BY:	CL	CHECKED BY:	KL



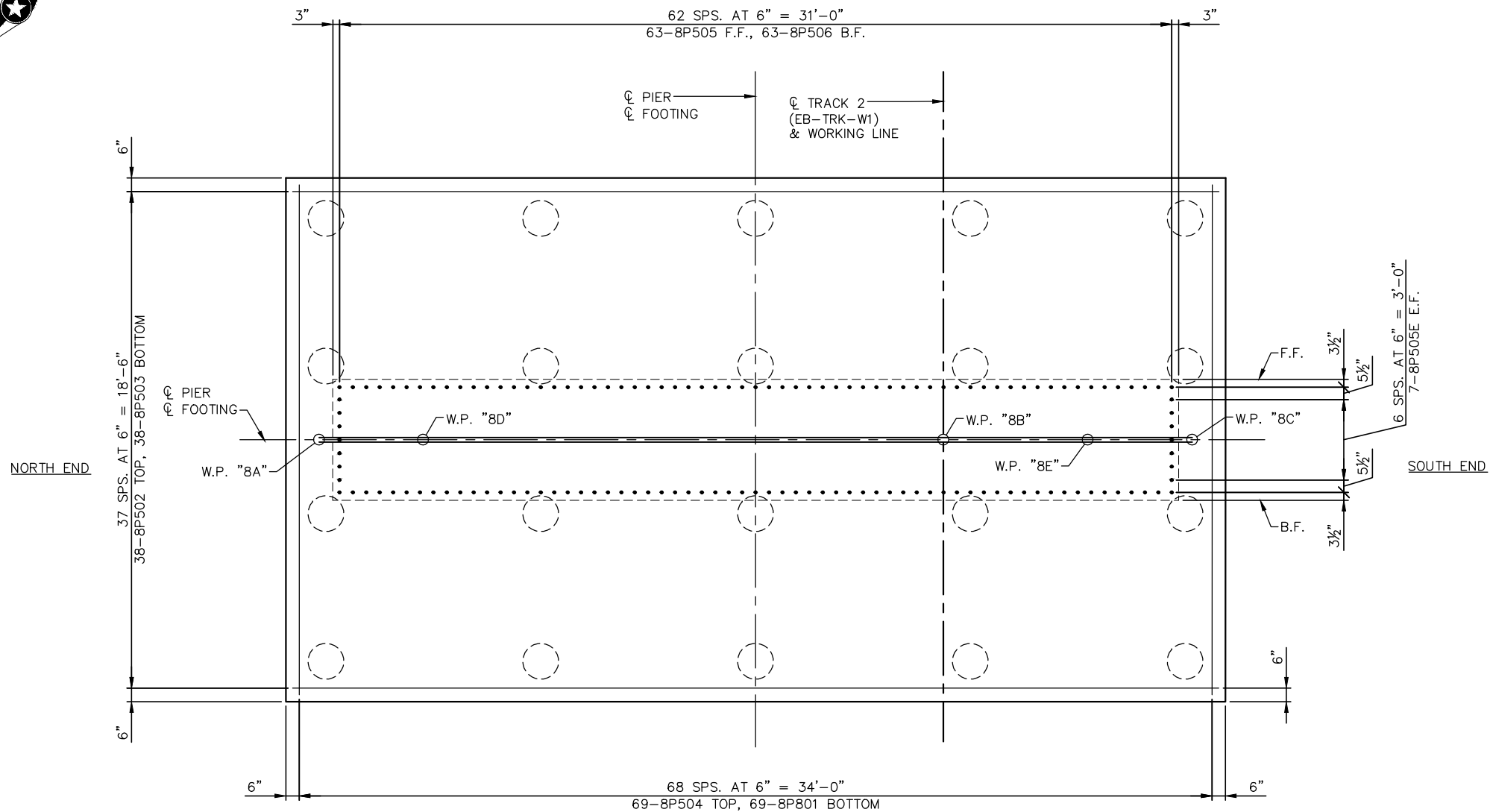
90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 8 GEOMETRICS 2	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-014

SHEET
45
OF
232

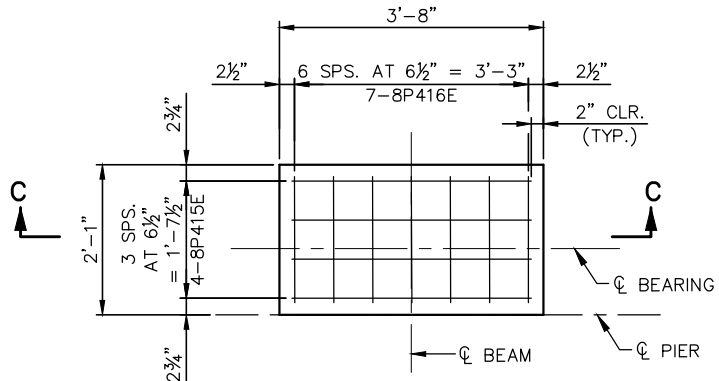
Jan, 19 2016 09:33 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-018.dwg By: butterfielda



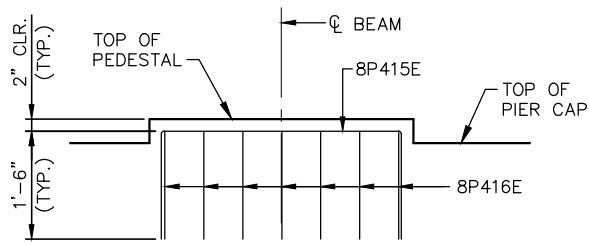
FOOTING PLAN

NOTES:

- F.F. DENOTES FRONT FACE.
- B.F. DENOTES BACK FACE.
- E.F. DENOTES EACH FACE.
- FOR GEOMETRICS PLAN SEE SHEETS 44 AND 45.



PEDESTAL PLAN VIEW



SECTION C-C

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	AV	CHECKED BY:	KL
DRAWN BY:	CL	CHECKED BY:	KL

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 8 REINFORCEMENT 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-015

② 3 EQUAL SPS. = 3'-4", 4-8P513E.

62 SPS. AT 6" = 31'-0"

63-8P505E AND 8P507E F.F., 63-8P506E B.F., 63-8P508E AND 8P509E

3"

6 1/4"

11 SPS. AT 6" = 5'-6"

12-8P512E E.F., 2X12-8P511E

8P511E

8P509E

8P507E F.F.

8P512E E.F.

8P511E

2'-0" (TYP)

3"

6"

14 SPS. AT 6" = 7'-0"

15-8P512E E.F., 2X15-8P510E

8P510E

8P505E F.F.

8P508E

8P512E E.F.

8P510E

3 1/2"

3"

6"

68 SPS. AT 6" = 34'-0"

69-8P504 TOP, 69-8P801 BOTTOM

8P502

8P503

SOUTH END

[illegible]**AECOM**

**METROPOLITAN**  
COUNCIL

## SOUTHWEST



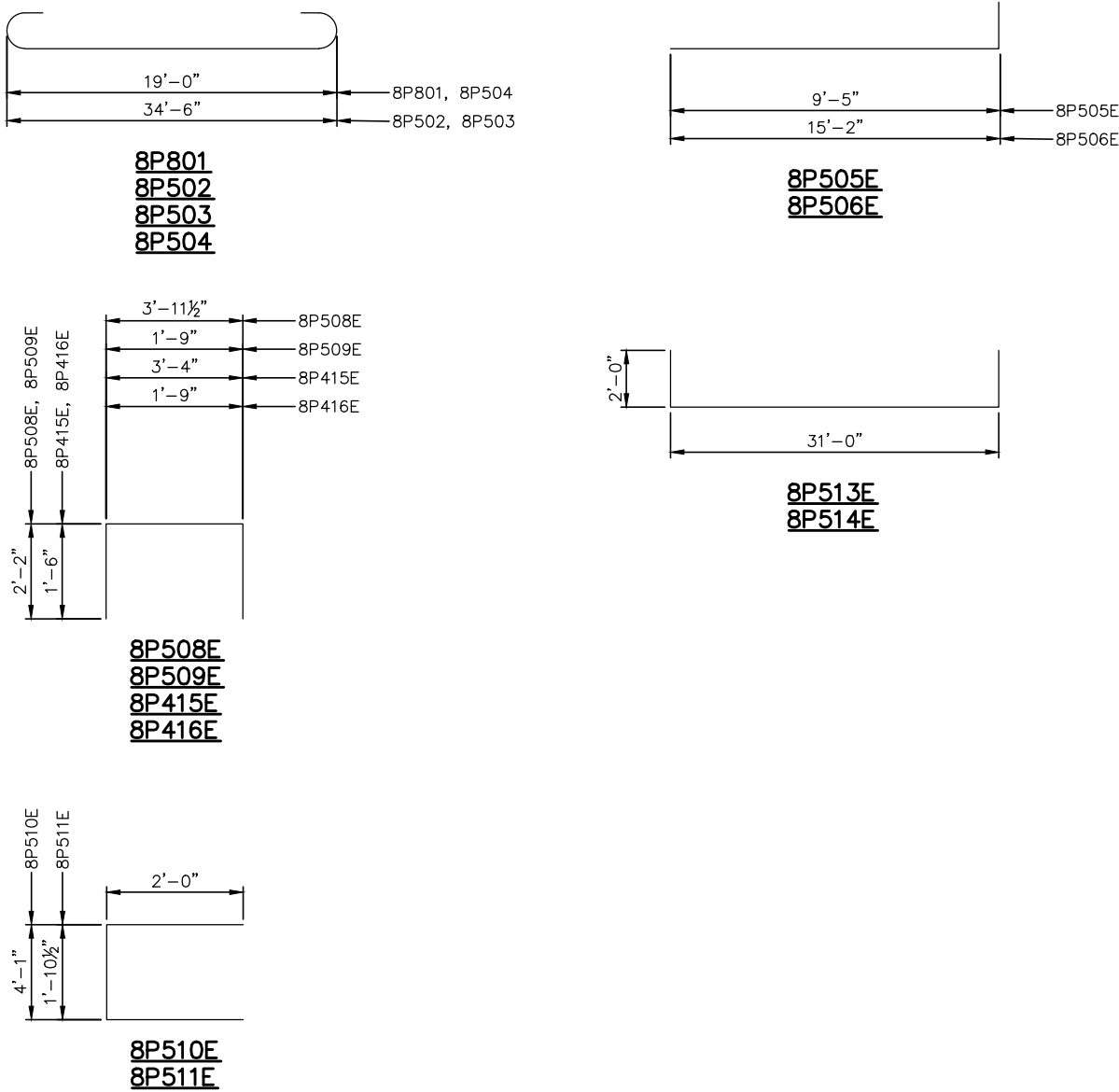
DISCIPLINE: **STRUCTURES**

SHEET NAME:	CBR27C06-BRG-PIR-016
-------------	----------------------

**SHEET**  
**47**  
**OF**  
**232**



Jan, 19 2016 09:33 am V:\3400\_ADC\CAD\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-018.dwg By: butterfielda



BILL OF REINFORCEMENT SUBSTRUCTURE PIER 8				
BAR	NO.	LENGTH	SHAPE	LOCATION
8P801	69	20'-10"		FOOTING BOTTOM TRANSVERSE
8P502	38	35'-8"		FOOTING TOP LONGITUDINAL
8P503	38	35'-8"		FOOTING BOTTOM LONGITUDINAL
8P504	69	20'-2"		FOOTING TOP TRANSVERSE
8P505E	77	10'-2"		PIER VERTICAL F.F.
8P506E	63	15'-11"		PIER VERTICAL B.F.
8P507E	67	7'-7"		PIER VERTICAL F.F.
8P508E	63	8'-4"		PIER BACK WALL TOP TRANSVERSE
8P509E	63	6'-1"		PIER PEDESTAL SEAT TOP TRANSVERSE
8P510E	30	8'-1"		PIER HORIZONTAL
8P511E	24	5'-11"		PIER HORIZONTAL
8P512E	54	31'-2"		PIER HORIZONTAL E.F.
8P513E	4	35'-0"		PIER PEDESTAL SEAT TOP LONGITUDINAL
8P514E	3	35'-0"		PIER BACK WALL TOP LONGITUDINAL
8P415E	16	6'-4"		PEDESTAL TOP LONGITUDINAL
8P416E	28	4'-9"		PEDESTAL TOP TRANSVERSE

**NOTES:**  
F.F. DENOTES FRONT FACE.  
B.F. DENOTES BACK FACE.  
E.F. DENOTES EACH FACE.  
FOR PIER REINFORCEMENT SEE SHEETS 46 AND 47.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	AV	CHECKED BY:	KL
DRAWN BY:	CL	CHECKED BY:	KL

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 8 REINFORCEMENT 3	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-017

SHEET  
48  
OF  
232

PIER 9 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR C-I-P PILES R <sub>n</sub> - TONS/PILE		
FIELD CONTROL METHOD	φ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	196.9


\* R<sub>n</sub> = (FACTORED DESIGN LOAD) / φ<sub>dyn</sub>

PIER 9 COMPUTED PILE LOAD - TONS/PILE		
FACTORED DEAD LOAD	71.4	50.7
FACTORED LIVE LOAD	17.9	0.0
FACTORED OVERTURNING	38.7	-52.8
FACTORED DESIGN LOAD	128	-
FACTORED DESIGN UPLIFT	-	-2.1
LOAD COMBINATION	STRENGTH V	EXTREME EVENT II

**PILE NOTES**


1 CAST-IN-PLACE CONC. TEST PILE 65 FT. LONG.  
19 CAST-IN-PLACE CONC. PILES EST. LENGTH 55 FT.  
20 CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 9 FOOTING.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THUS  TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.

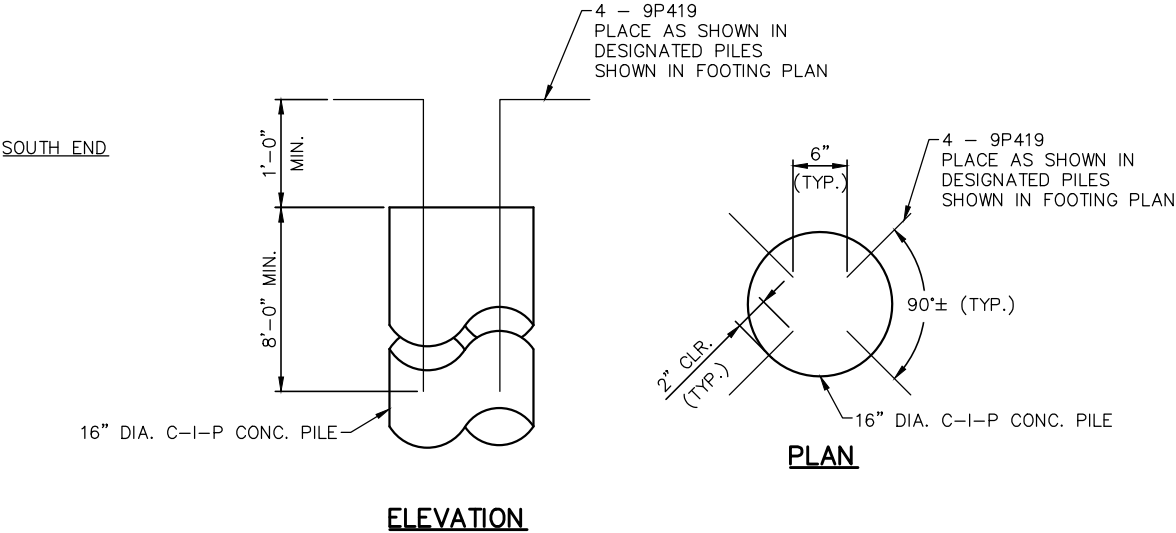
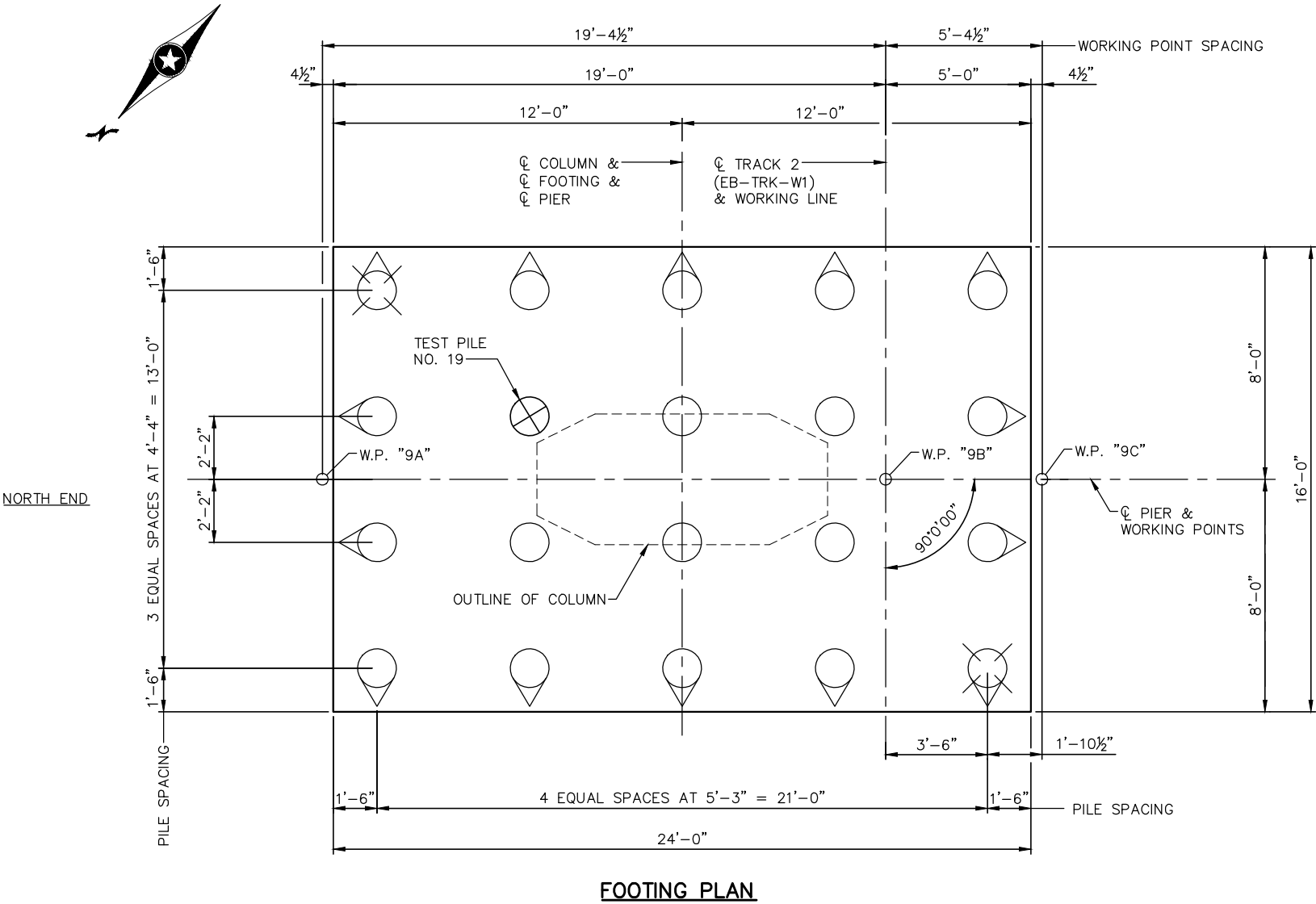
PILES TO HAVE A NOMINAL DIAMETER OF 16" AND A MINIMUM WALL THICKNESS OF 0.3125".

FOR PILE SPLICE DETAILS SEE DETAIL B201, SHEET 197.

PILES MARKED THUS  ARE SUBJECT TO UPLIFT AND ARE TO BE REINFORCED PER PILE REINFORCEMENT DETAIL.

CONTRACTOR TO ORIENT PILE REINFORCEMENT TO MAINTAIN 3" CLEAR TO EDGE OF FOOTING. CONTRACTOR MAY FIELD ADJUST BOTTOM REINFORCEMENT BARS TO ACCOMODATE PILE REINFORCEMENT DETAIL.

ALL PILES TO BE DRIVEN TO A MINIMUM TIP ELEVATION OF 779.4.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN



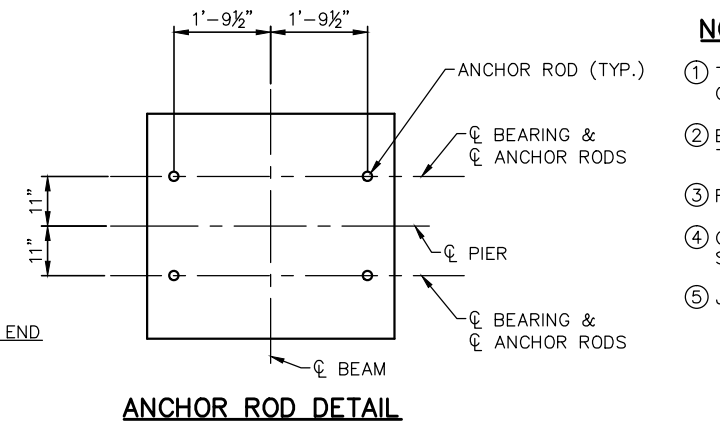
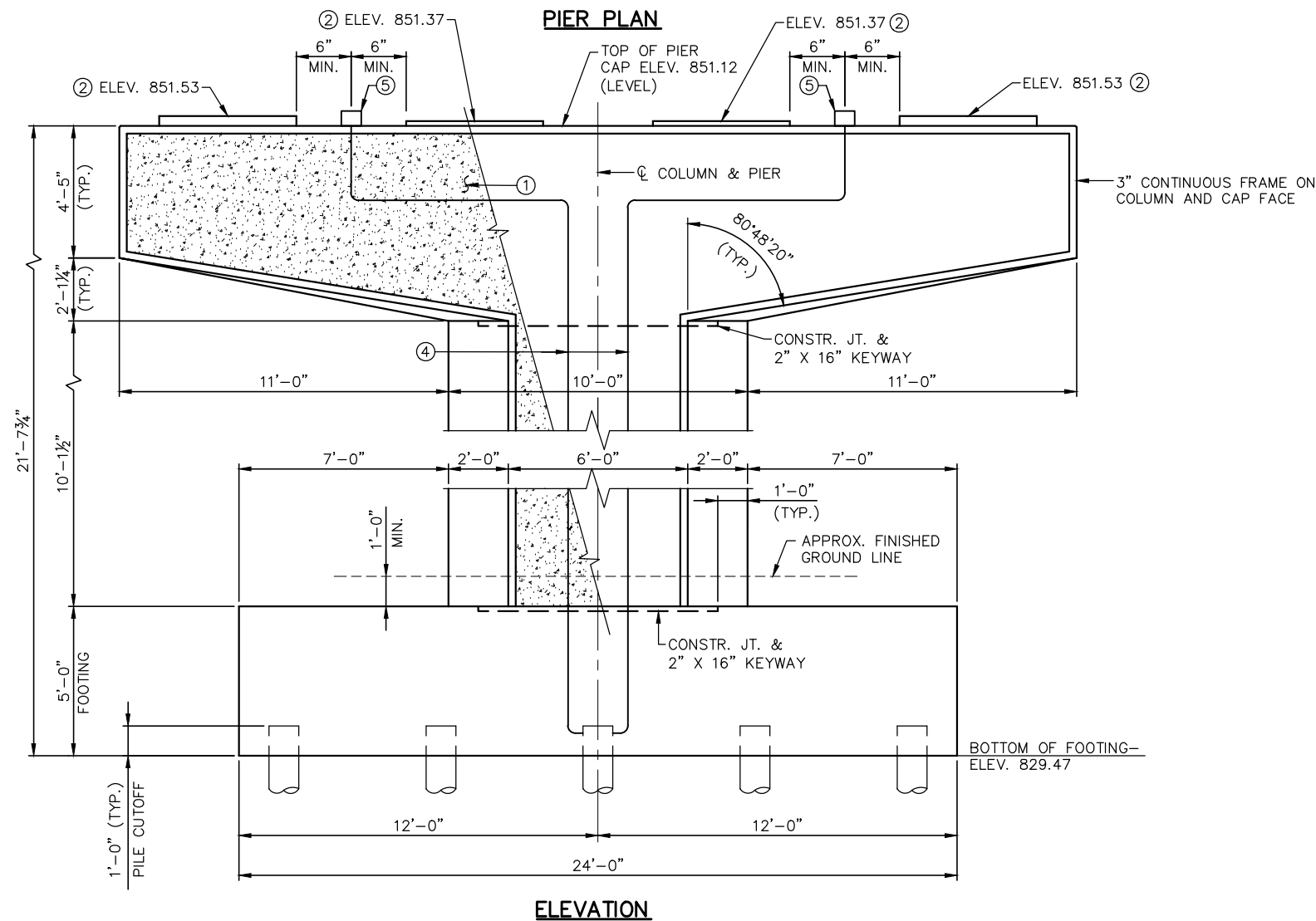
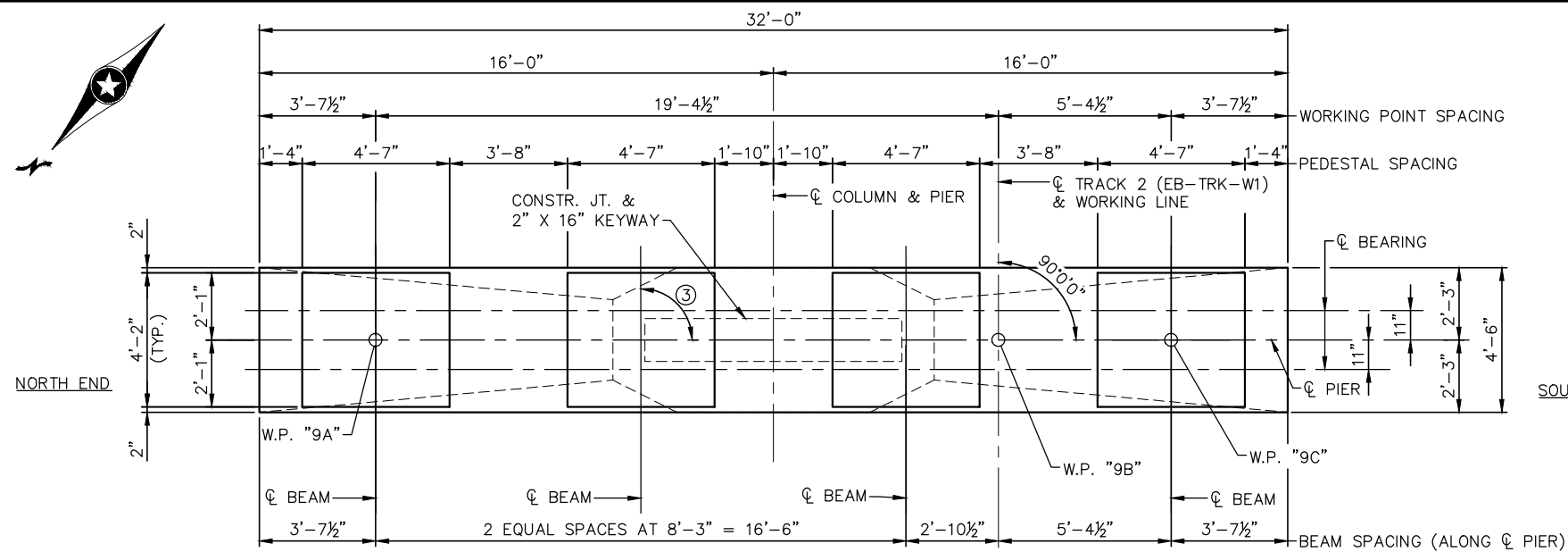
90% SUBMISSION - 01/22/16



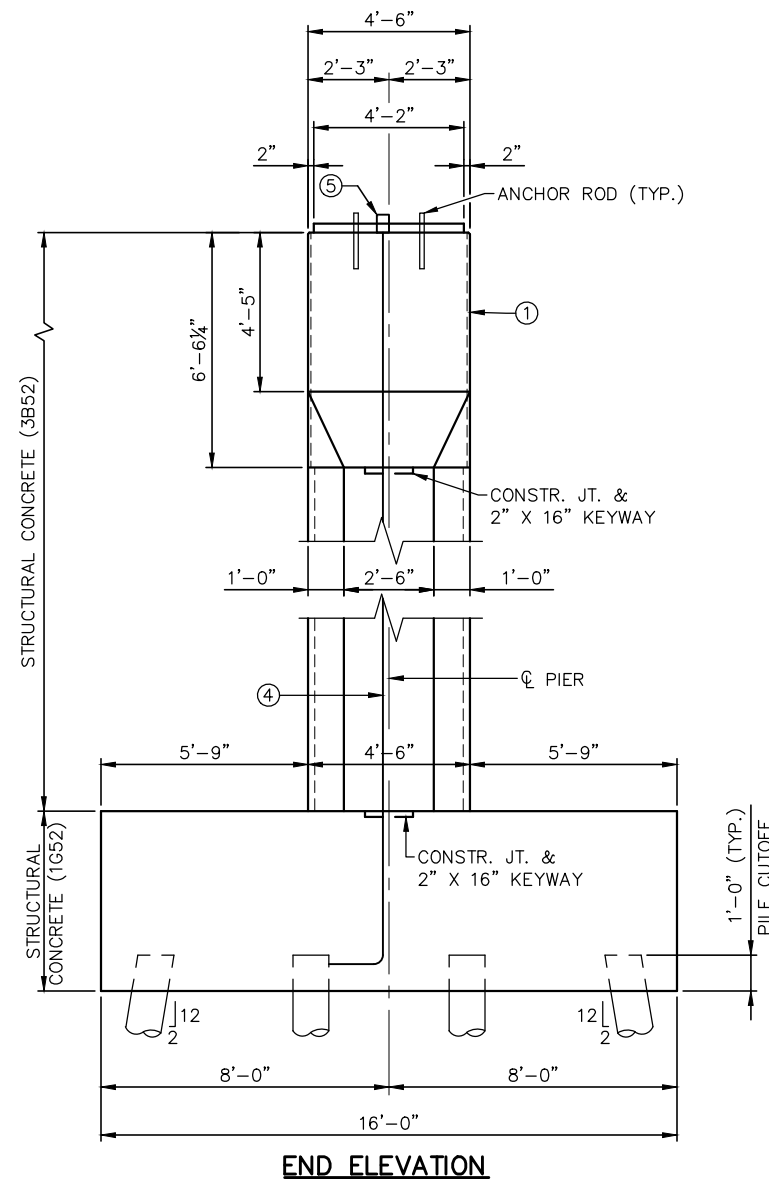
CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 9 GEOMETRICS 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-018

Jan, 19 2016 09:33 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-004.dwg By: butterfielda

Jan, 19 2016 09:33 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-004.dwg By: butterfielda



- NOTES:**
- TEXTURED RECESSED PANEL ON FACE OF PIERS, SEE SHEET 24.
  - ELEVATIONS DETERMINED AT CL OF BEARING ON THE LOW SIDE OF THE PROFILE GRADE LINE.
  - FOR BEAM ANGLES SEE SHEET 110.
  - GROUND WIRE PLACED INSIDE 1" PVC CONDUIT, SEE SHEET ELE-SITE-DTL-600.
  - JUNCTION BOX, SEE SHEET ELE-SITE-DTL-600.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN

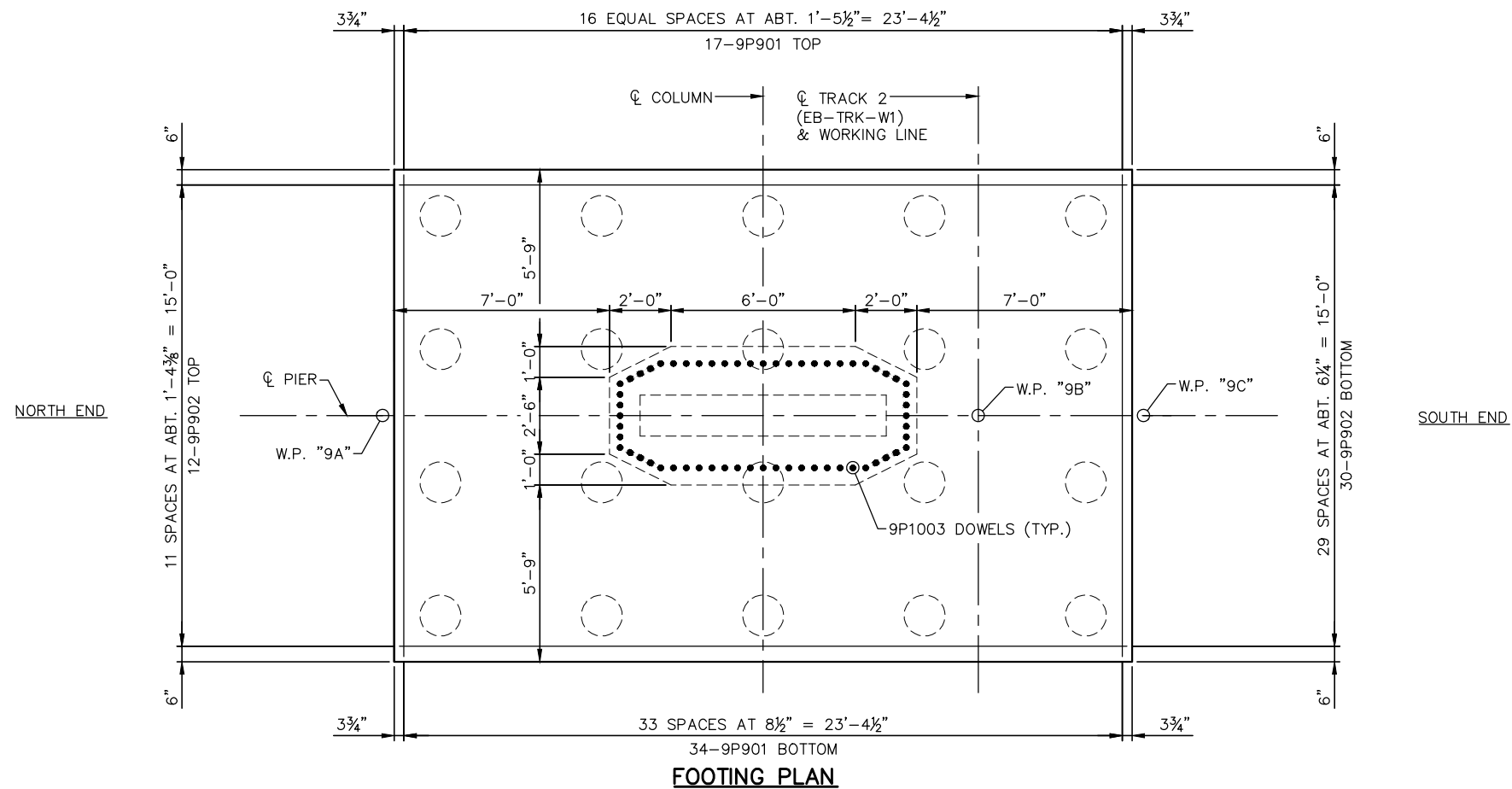
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 9 GEOMETRICS 2

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-PIR-019

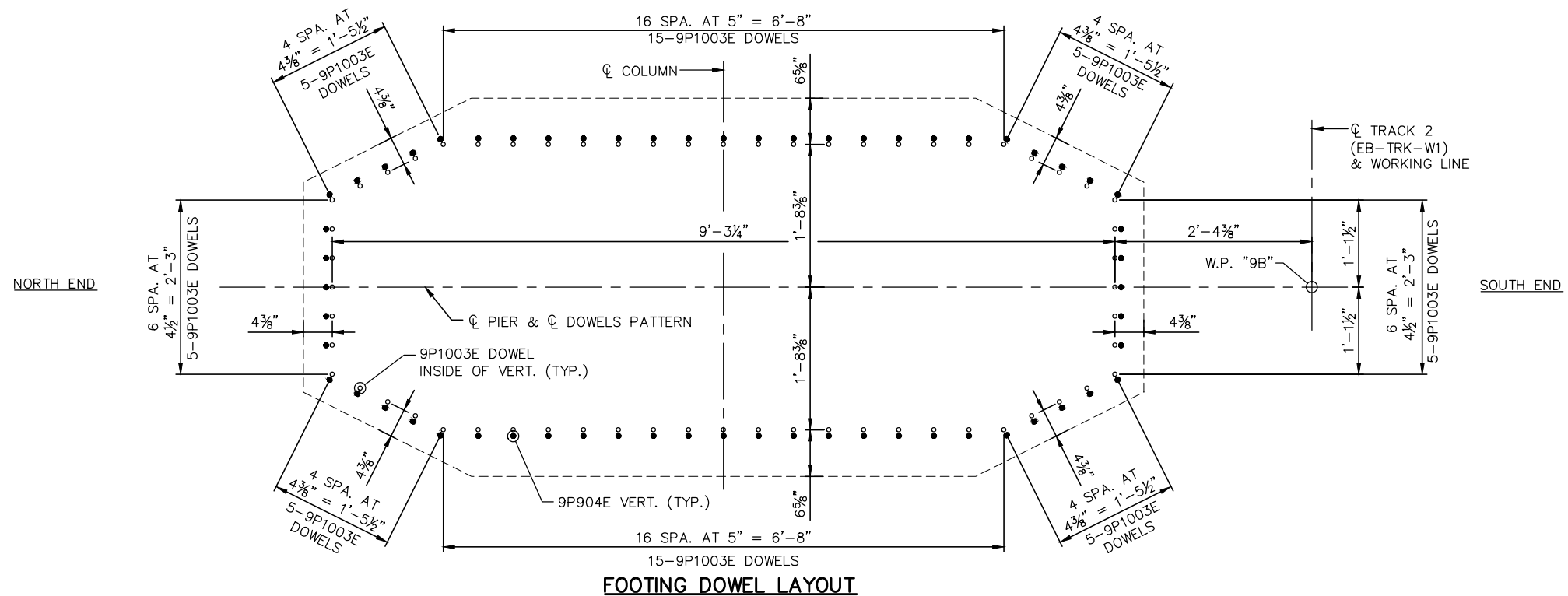
SHEET  
50  
OF  
232

Jan, 19 2016 09:34 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-019.dwg By: butterfielda



**NOTES:**

- DENOTES COLUMN BAR
- DENOTES FOOTING DOWEL



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN

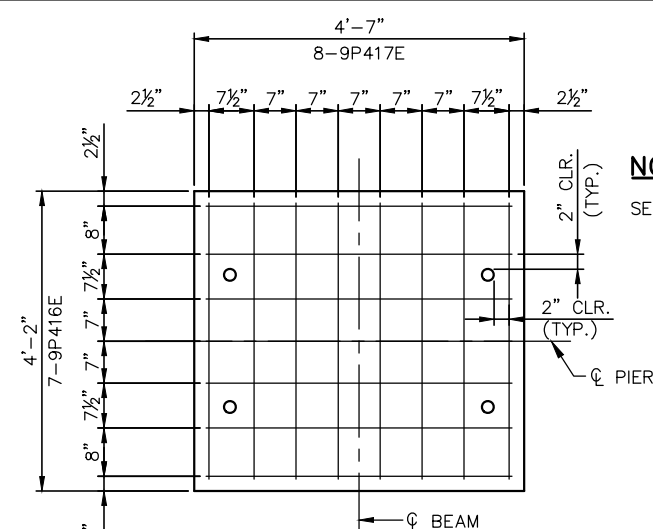
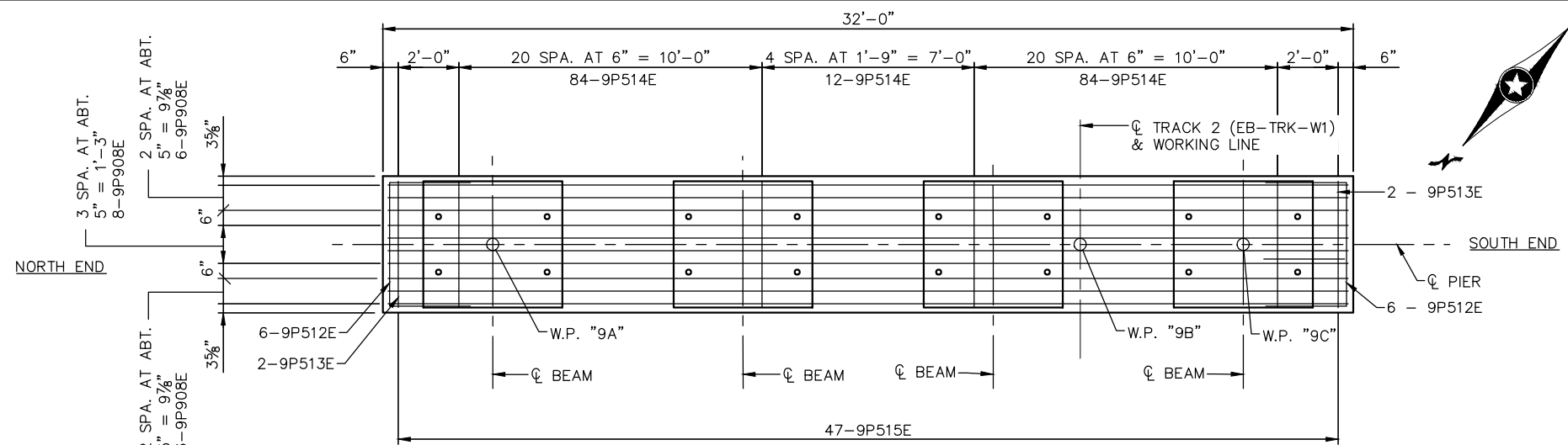
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 9 REINFORCEMENT 1

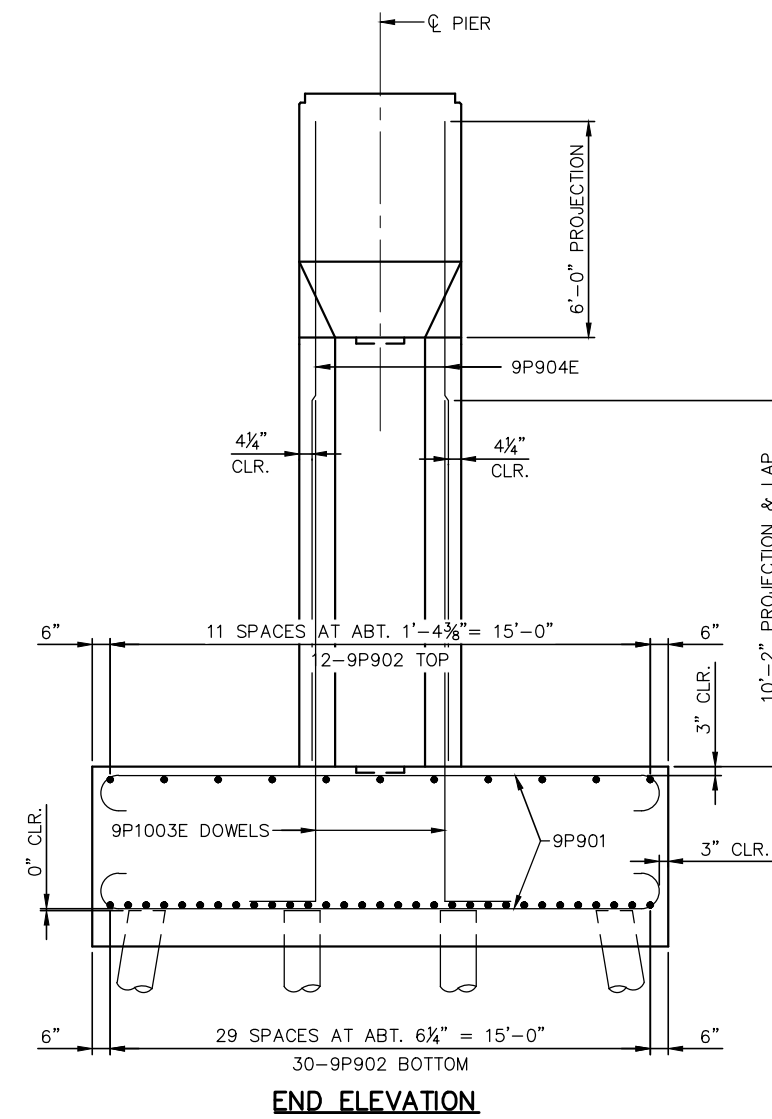
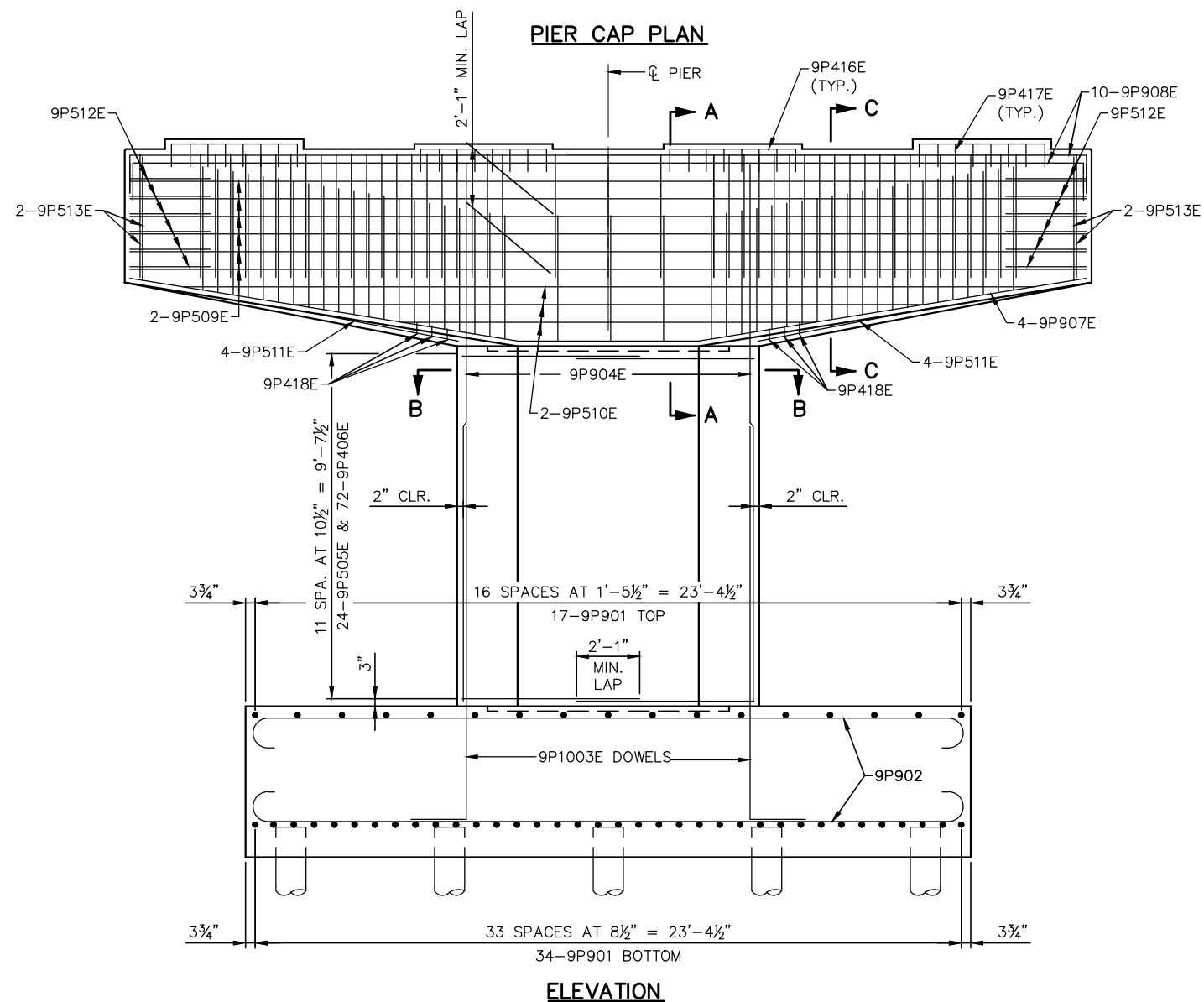
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-PIR-020

Jan, 19 2016 09:34 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-019.dwg By: butterfielda



**NOTES:**  
SEE SHEET 53 FOR SECTIONS A-A, B-B & C-C.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

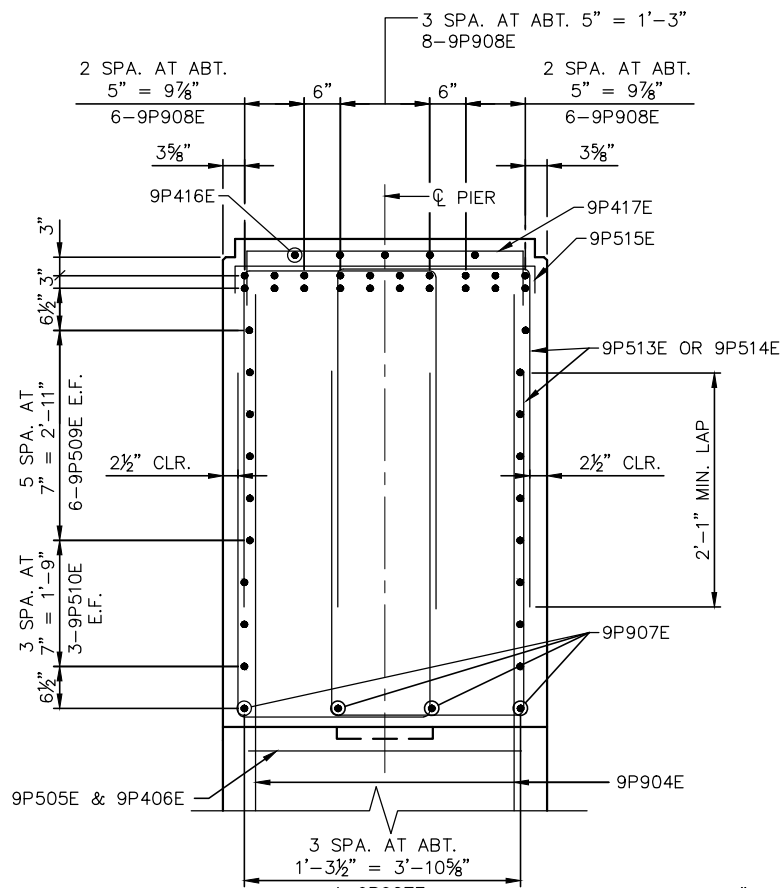
DESIGNED BY:	RJH	CHECKED BY:	AMA
DRAWN BY:	JAS	CHECKED BY:	ATN

90% SUBMISSION - 01/22/16

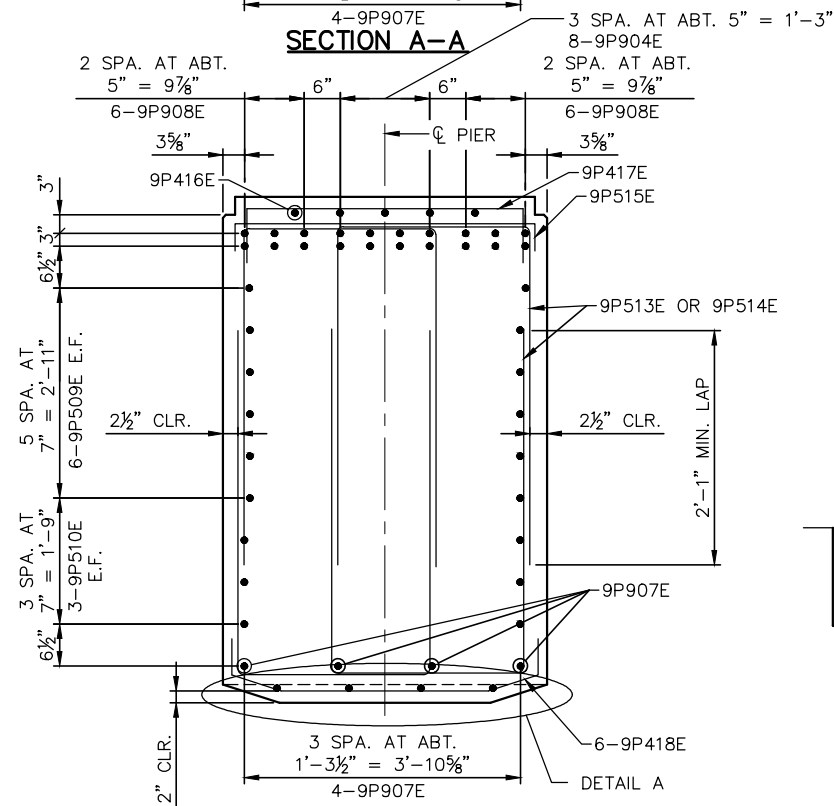
CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 9 REINFORCEMENT 2

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-PIR-021

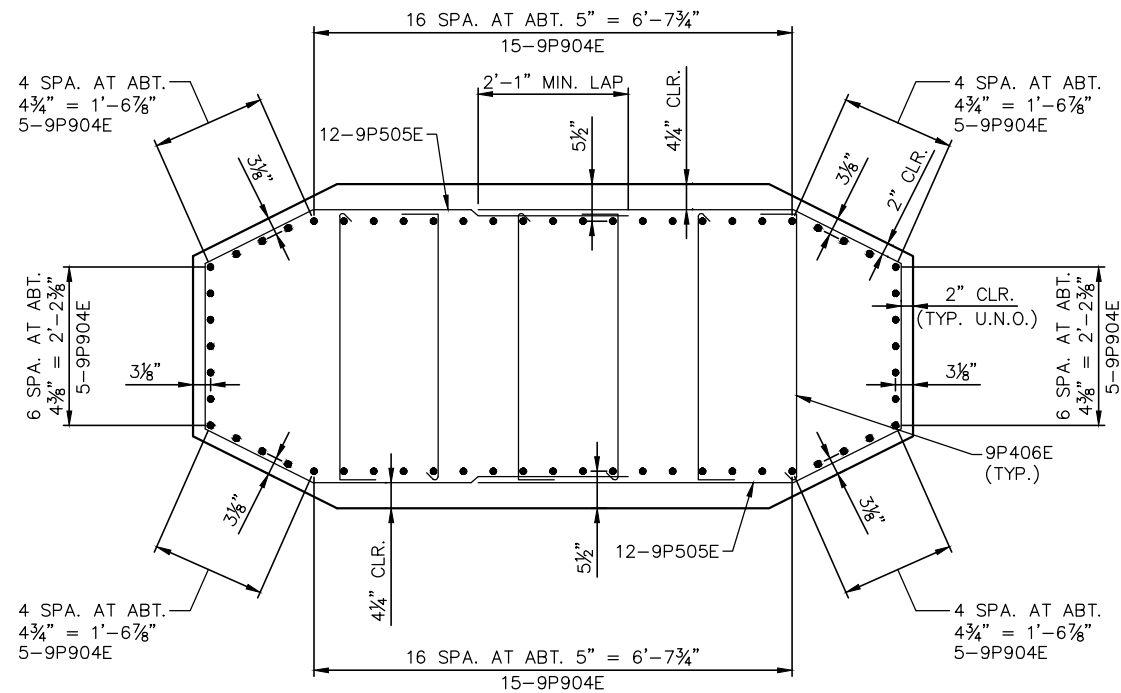
Jan, 19 2016 09:34 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-019.dwg By: butterfielda



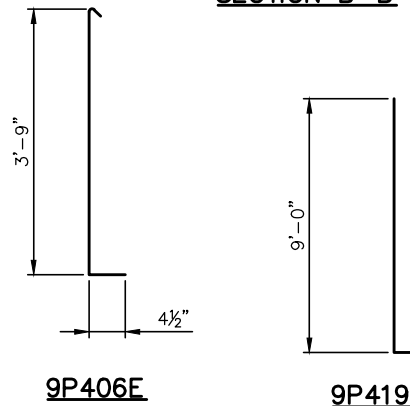
SECTION A-A



SECTION C-C



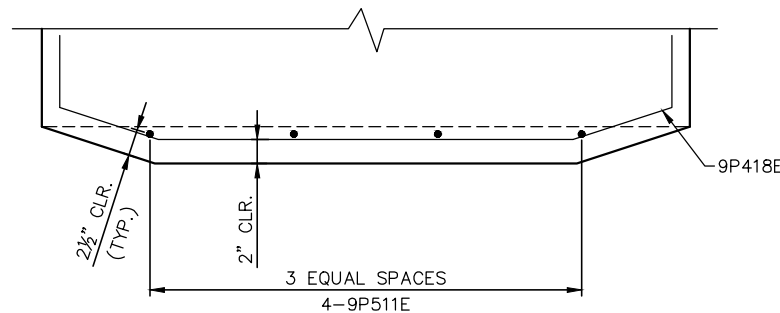
SECTION B-B



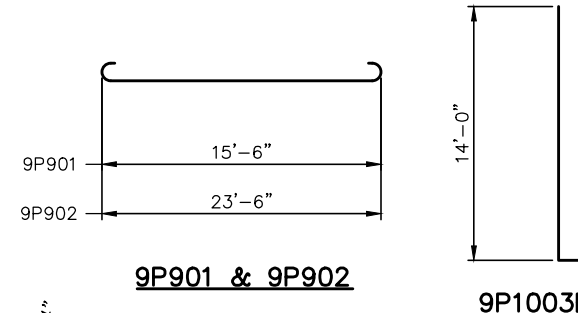
9P406E

9P419

9P418E

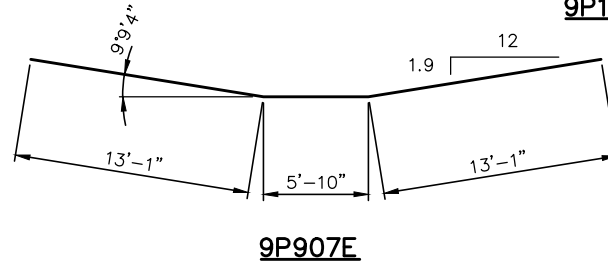


DETAIL A

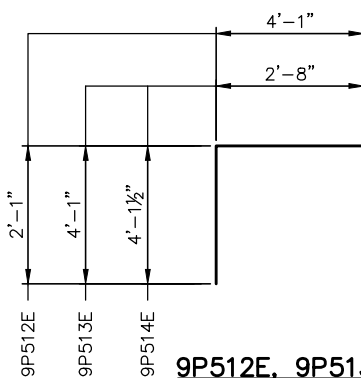


9P901 & 9P902

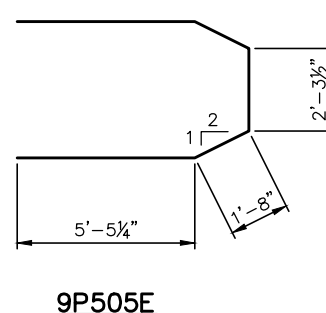
9P1003E



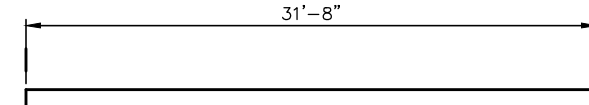
9P907E



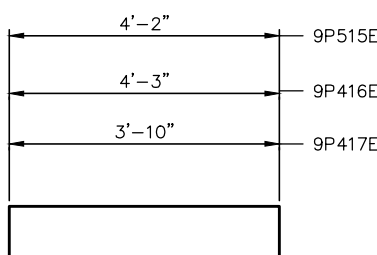
9P512E, 9P513E, 9P514E



9P505E



9P908E



9P515E, 9P416E, 9P417E

BILL OF REINFORCEMENT FOR PIER 9

BAR	NO.	LENGTH	SHAPE	LOCATION
9P901	51	18'- 0"		FOOTING - TRANSVERSE
9P902	42	26'- 0"		FOOTING - LONGITUDINAL
9P1003E	60	15'- 10"		FOOTING - DOWELS
9P904E	60	15'- 11"		COLUMN - VERTICAL
9P505E	24	16'- 6"		COLUMN - HORIZONTAL
9P406E	72	4'- 6"		COLUMN - STIRRUPS
9P907E	4	32'- 0"		CAP - LONGITUDINAL
9P908E	20	34'- 10"		CAP - LONGITUDINAL
9P509E	12	31'- 8"		CAP - LONGITUDINAL
9P510E	2 SERIES OF 3	13'-4" TO 25'-6"		CAP - LONGITUDINAL
9P511E	8	6'- 0"		CAP - LONGITUDINAL
9P512E	12	8'- 3"		CAP - TIES
9P513E	8	10'- 10"		CAP - STIRRUPS
9P514E	180	10'- 11"		CAP - STIRRUPS
9P515E	47	5'- 2"		CAP - TIES
9P416E	28	5'- 9"		PEDESTAL - TIES
9P417E	32	5'- 4"		PEDESTAL - TIES
9P418E	6	4'- 4"		CAP - STIRRUPS
9P419	8	9'- 10"		PILES

NOTES:

SEE SHEET 52 FOR SECTIONS A-A, B-B & C-C.

E.F. DENOTES EACH FACE.

U.N.O. DENOTES UNLESS OTHERWISE NOTED.

AECOM

METROPOLITAN  
C O U N C I L

SOUTHWEST  
Green Line LRT Extension

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 9 REINFORCEMENT 3

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-PIR-022

SHEET  
53  
OF  
232

90% SUBMISSION - 01/22/16

DESIGNED BY: RJH  
DRAWN BY: JAS  
CHECKED BY: AMA  
CHECKED BY: ATN

PIER 10 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR C-I-P PILES R <sub>n</sub> – TONS/PILE		
FIELD CONTROL METHOD	ϕ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	196.6


\* R<sub>n</sub> = (FACTORED DESIGN LOAD) / ϕ<sub>dyn</sub>

PIER 10 COMPUTED PILE LOAD – TONS/PILE		
FACTORED DEAD LOAD	74.5	52.5
FACTORED LIVE LOAD	0.0	0.0
FACTORED OVERTURNING	53.3	–53.0
FACTORED DESIGN LOAD	127.8	–
FACTORED DESIGN UPLIFT	–	–0.5
LOAD COMBINATION	STRENGTH V	EXTREME EVENT II

PILE NOTES


- 1 CAST-IN-PLACE CONC. TEST PILE 76 FT. LONG.  
19 CAST-IN-PLACE CONC. PILES EST. LENGTH 66 FT.  
20 CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 10 FOOTING.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THUS  TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.

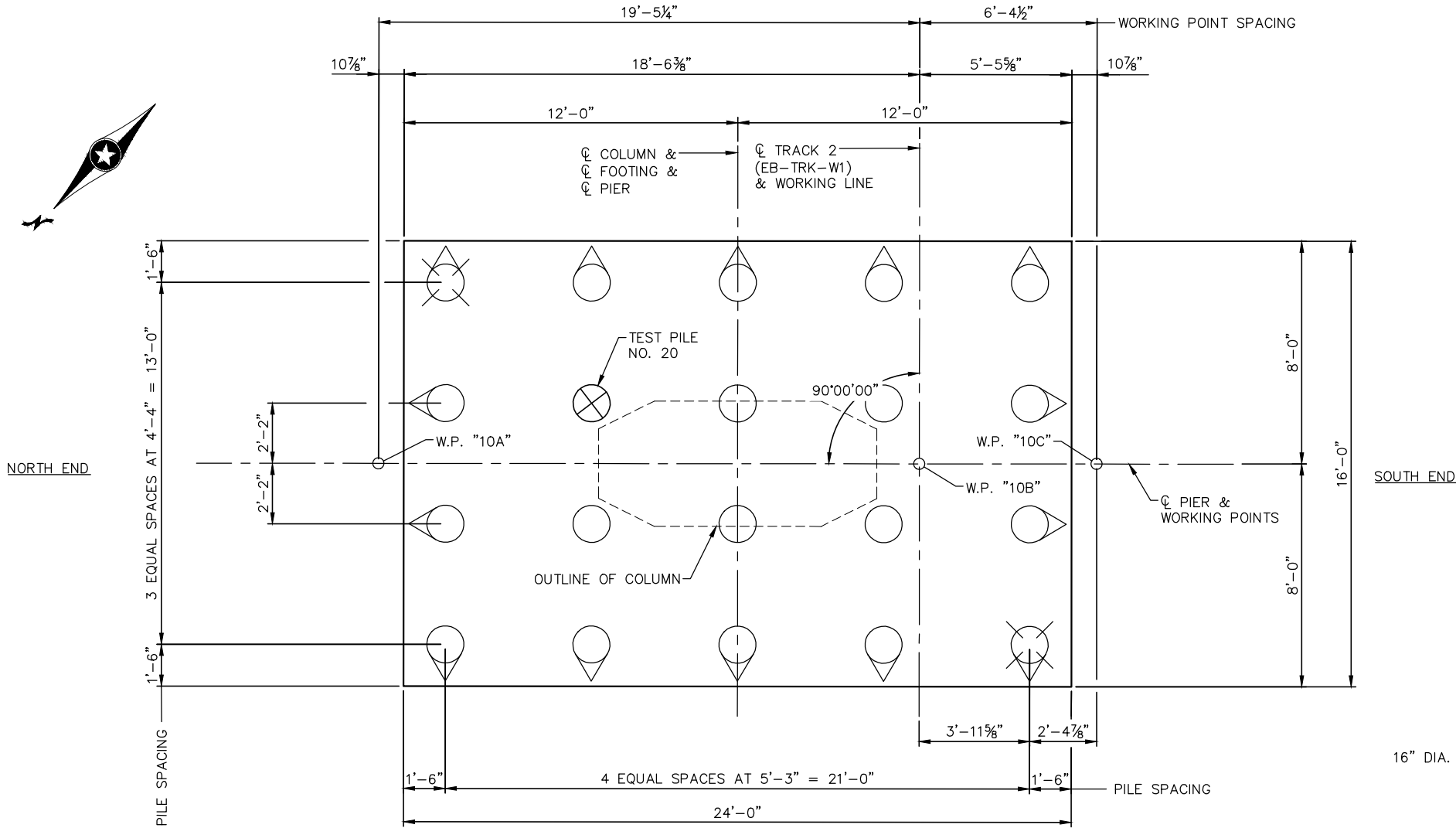
PILES TO HAVE A NOMINAL DIAMETER OF 16" AND A MINIMUM WALL THICKNESS OF 0.3125".

FOR PILE SPLICE DETAILS SEE DETAIL B201, SHEET 197.

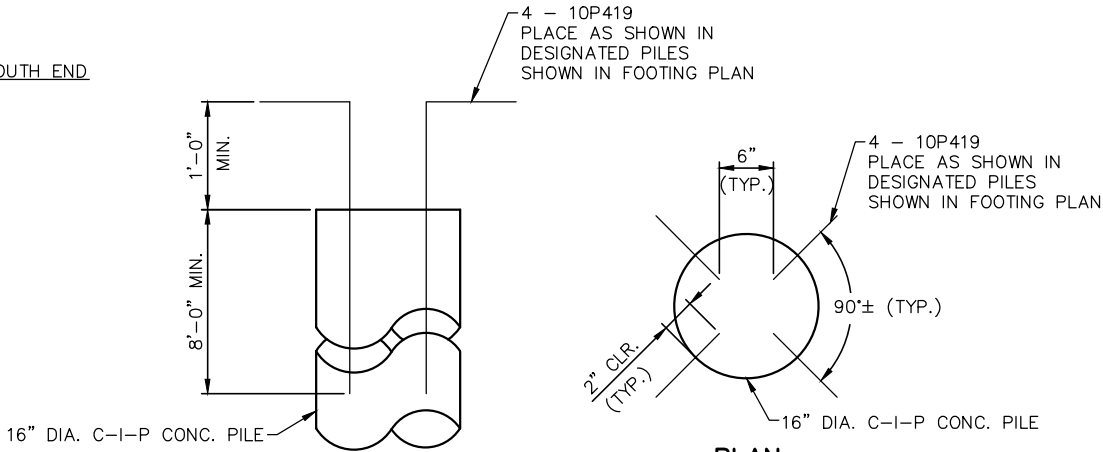
PILES MARKED THUS  ARE SUBJECT TO UPLIFT AND ARE TO BE REINFORCED PER PILE REINFORCEMENT DETAIL.

CONTRACTOR TO ORIENT PILE REINFORCEMENT TO MAINTAIN 3" CLEAR TO EDGE OF FOOTING. CONTRACTOR MAY FIELD ADJUST BOTTOM REINFORCEMENT BARS TO ACCOMMODATE PILE REINFORCEMENT DETAIL.

ALL PILES TO BE DRIVEN TO A MINIMUM TIP ELEVATION OF 775.7.



FOOTING PLAN



ELEVATION

PLAN

PILE REINFORCEMENT DETAIL

Jan, 19 2016 09:34 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-005.dwg By: butterfielda

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN



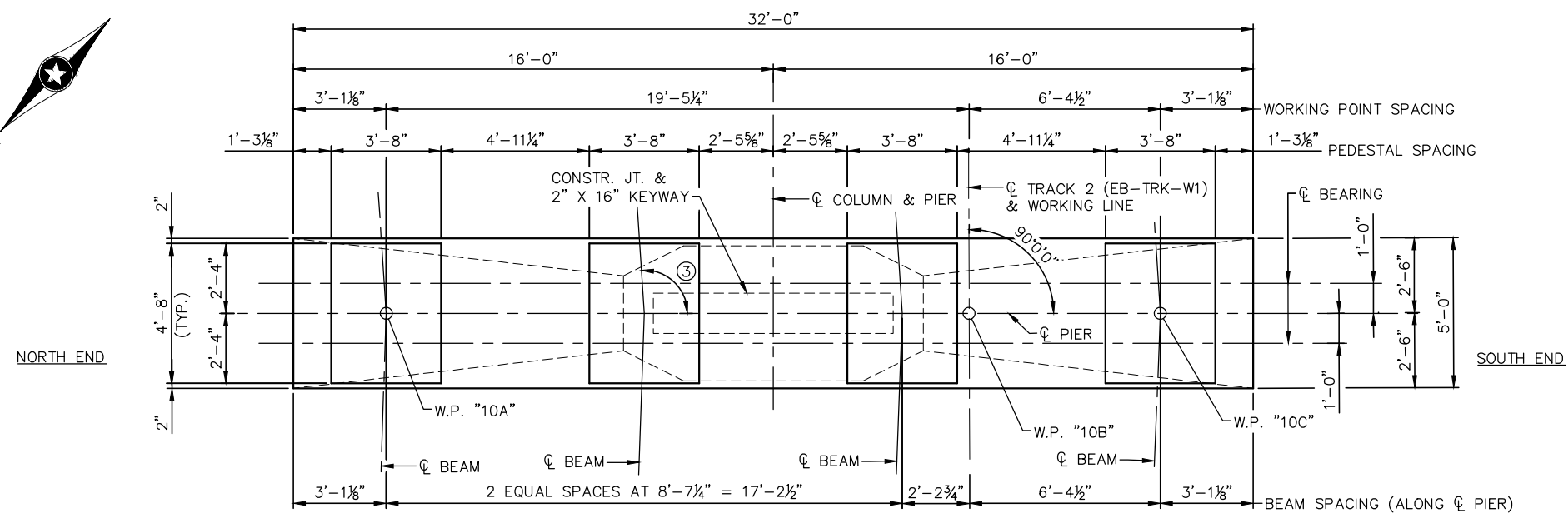
90% SUBMISSION - 01/22/16



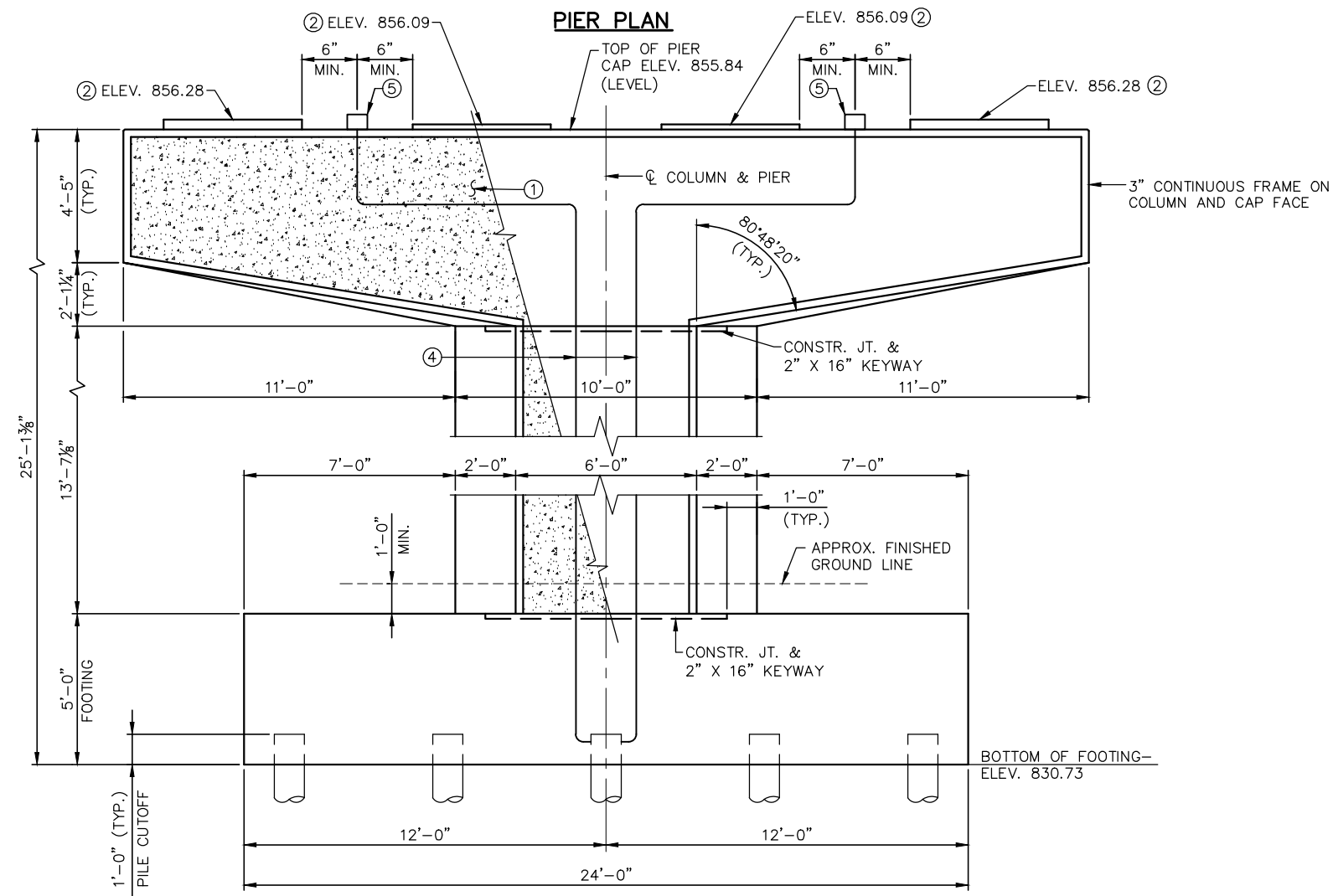
CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 10 GEOMETRICS 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-023

SHEET
54
OF
232

Jan, 19 2016 09:34 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-005.dwg By: butterfielda



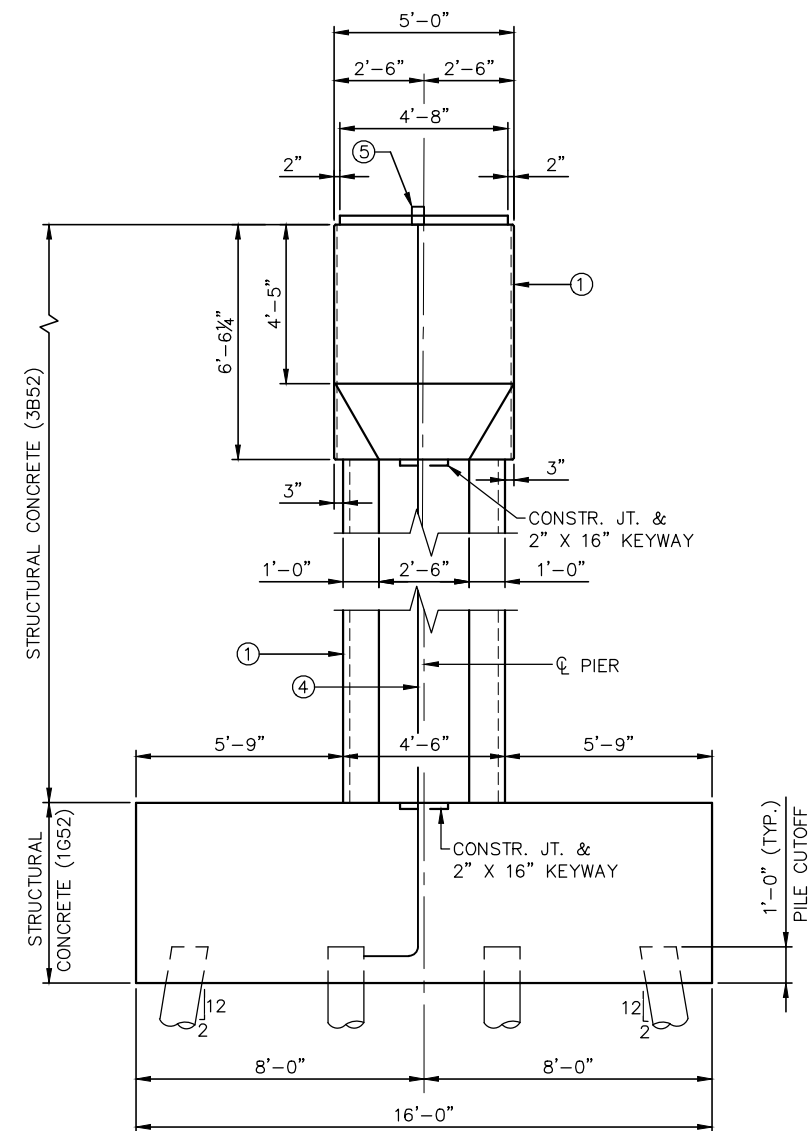
PIER PLAN



ELEVATION

NOTES:

- ① TEXTURED RECESSED PANEL ON FACE OF PIERS, SEE SHEET 24.
- ② ELEVATIONS DETERMINED AT CL OF BEARING ON THE LOW SIDE OF THE PROFILE GRADE LINE.
- ③ FOR BEAM ANGLES SEE SHEET 110.
- ④ GROUND WIRE PLACED INSIDE 1" PVC CONDUIT, SEE SHEET ELE-SITE-DTL-600.
- ⑤ JUNCTION BOX, SEE SHEET ELE-SITE-DTL-600.



END ELEVATION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: JAS  
CHECKED BY: AMA  
CHECKED BY: ATN

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 10 GEOMETRICS 2

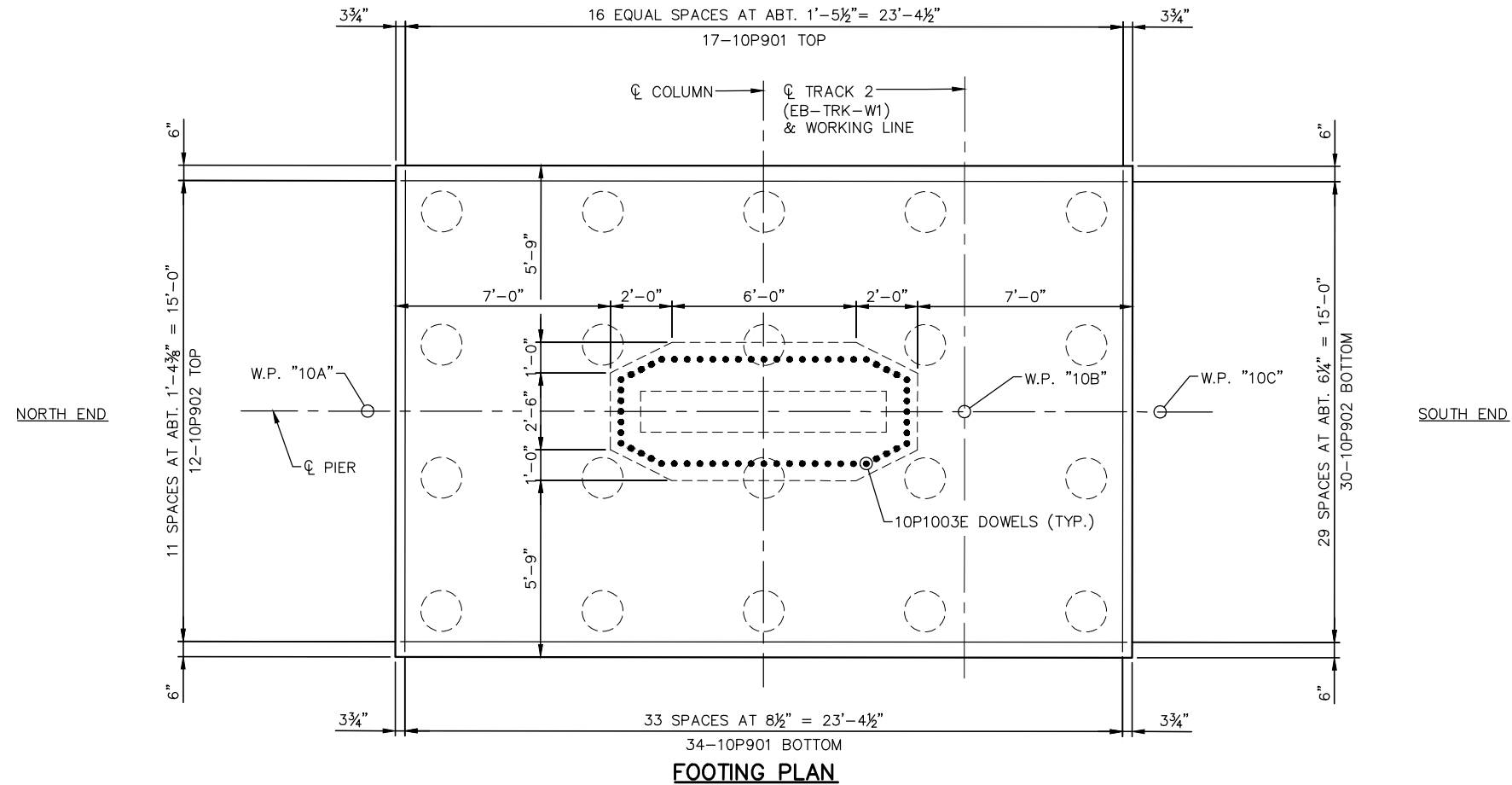
DISCIPLINE:  
STRUCTURES

SHEET NAME:  
CBR27C06-BRG-PIR-024

SHEET  
55  
OF  
232

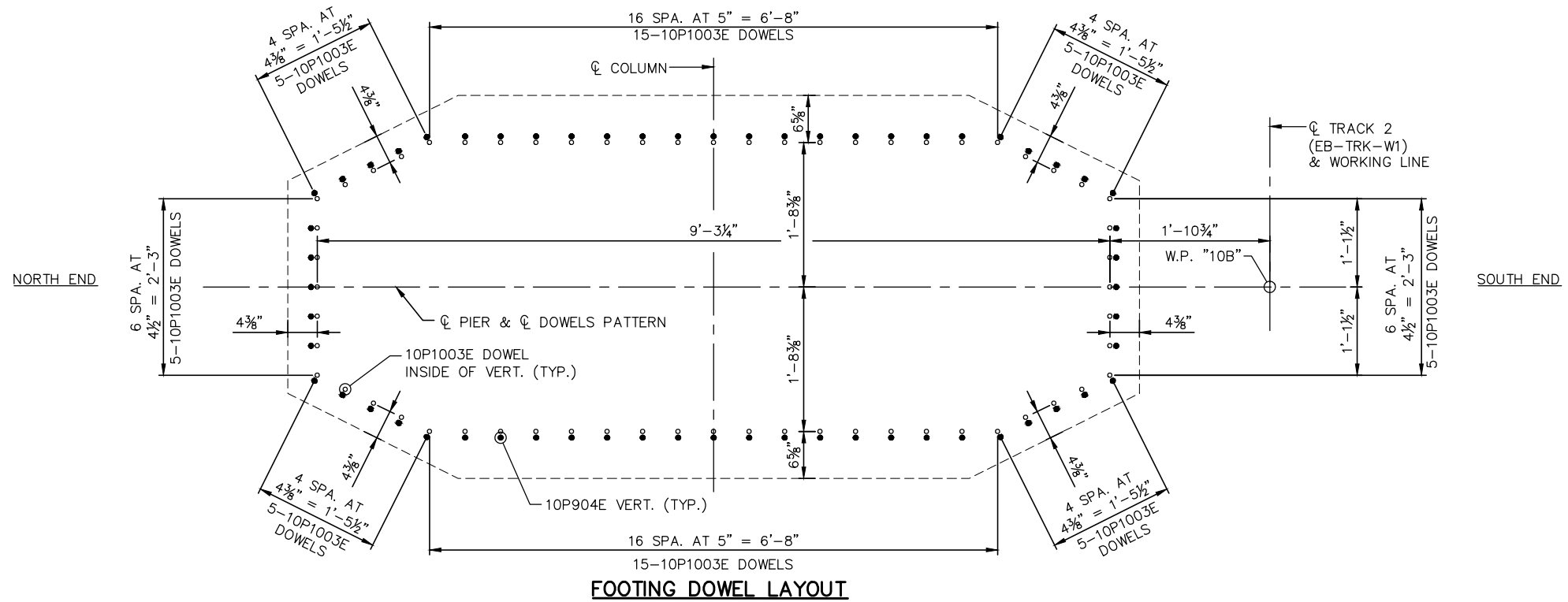


Jan, 19 2016 09:34 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-020.dwg By: butterfielda



**NOTES:**

- DENOTES COLUMN BAR
- DENOTES FOOTING DOWEL



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN



90% SUBMISSION - 01/22/16

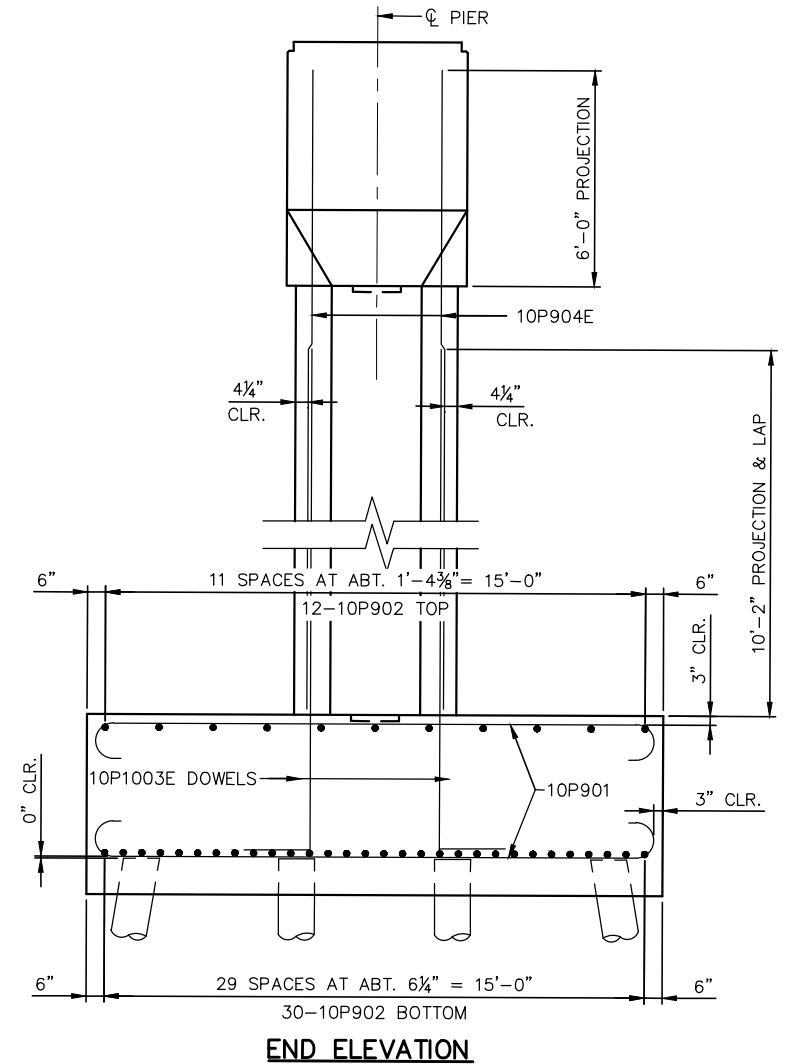
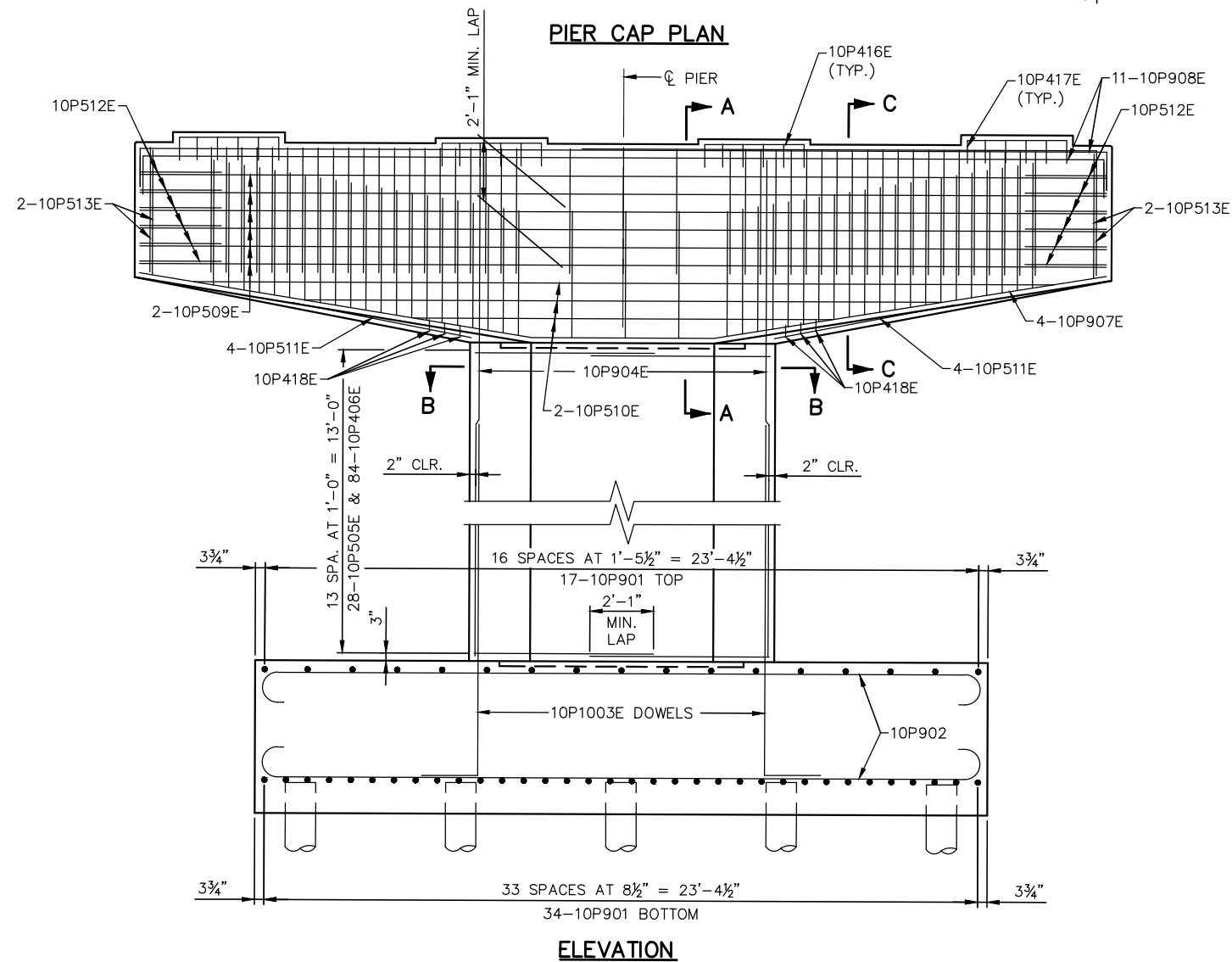
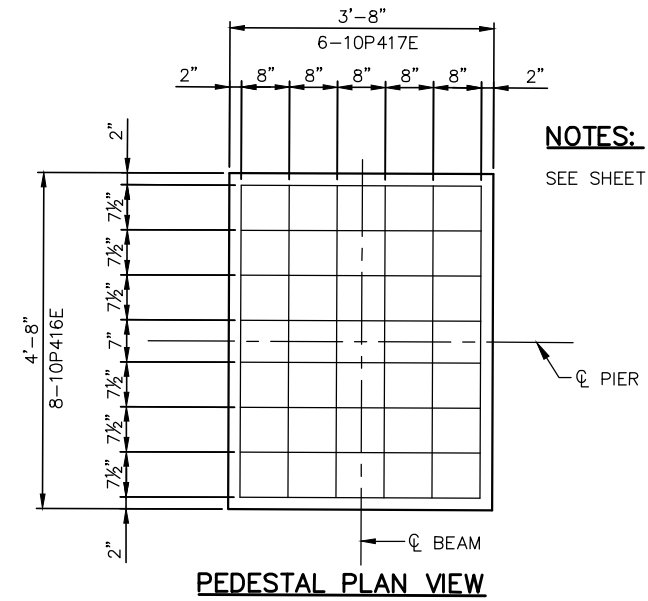
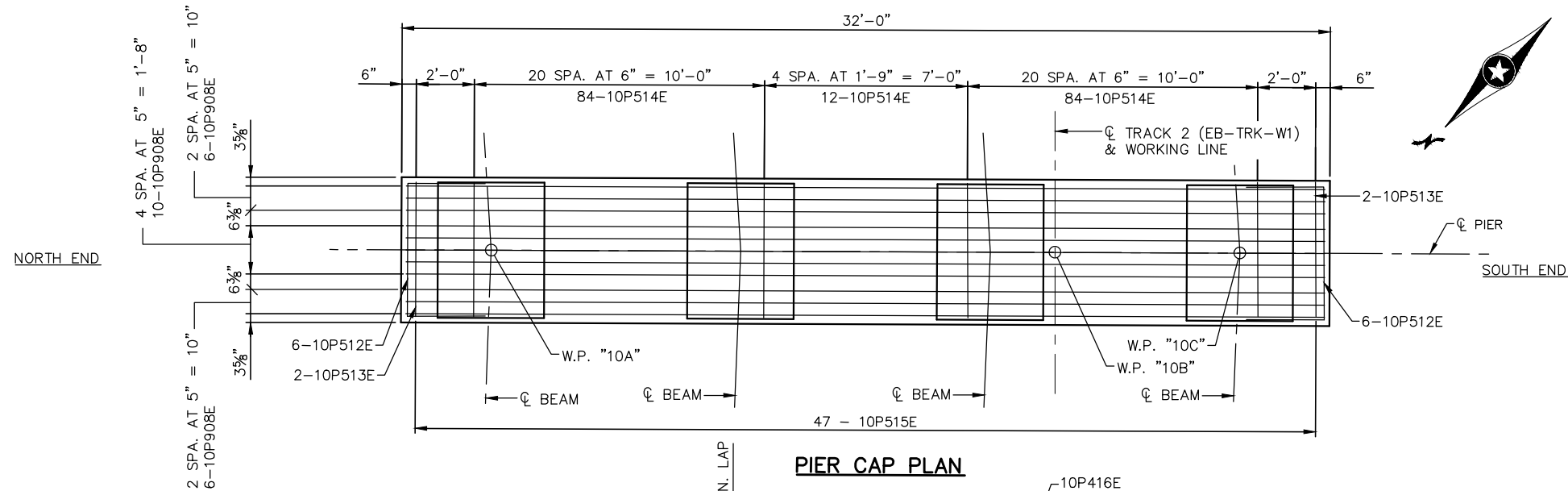


**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**PIER 10 REINFORCEMENT 1**

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-PIR-025

Jan, 19 2016 09:35 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-020.dwg By: butterfielda



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16

**METROPOLITAN**  
C O U N C I L

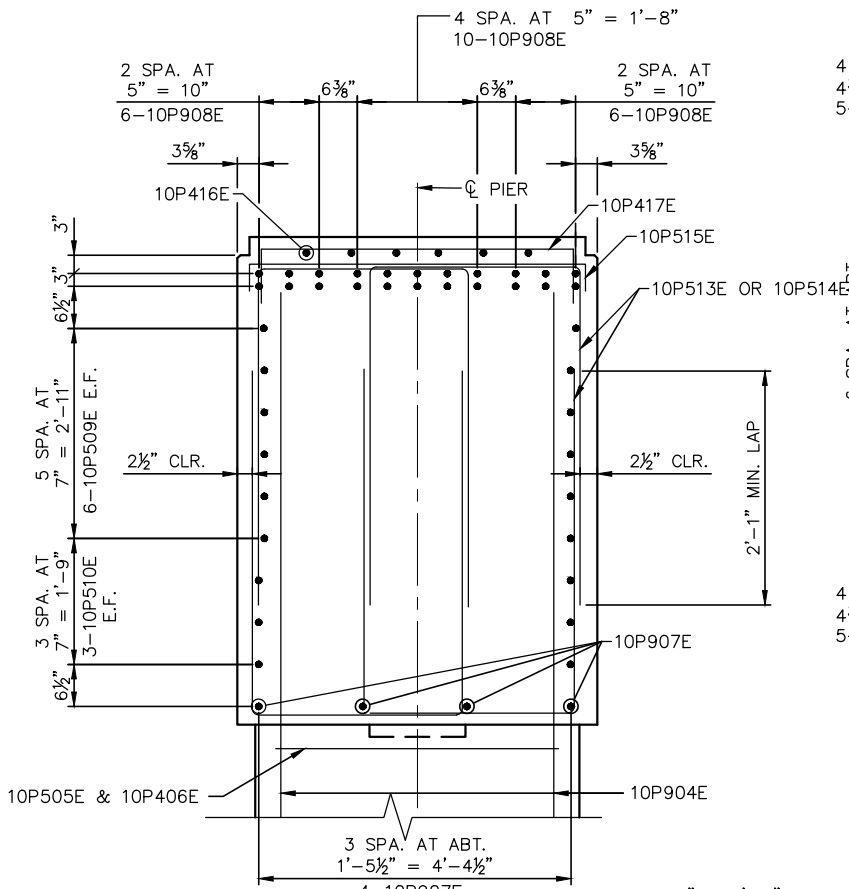
**SOUTHWEST**  
Green Line LRT Extension



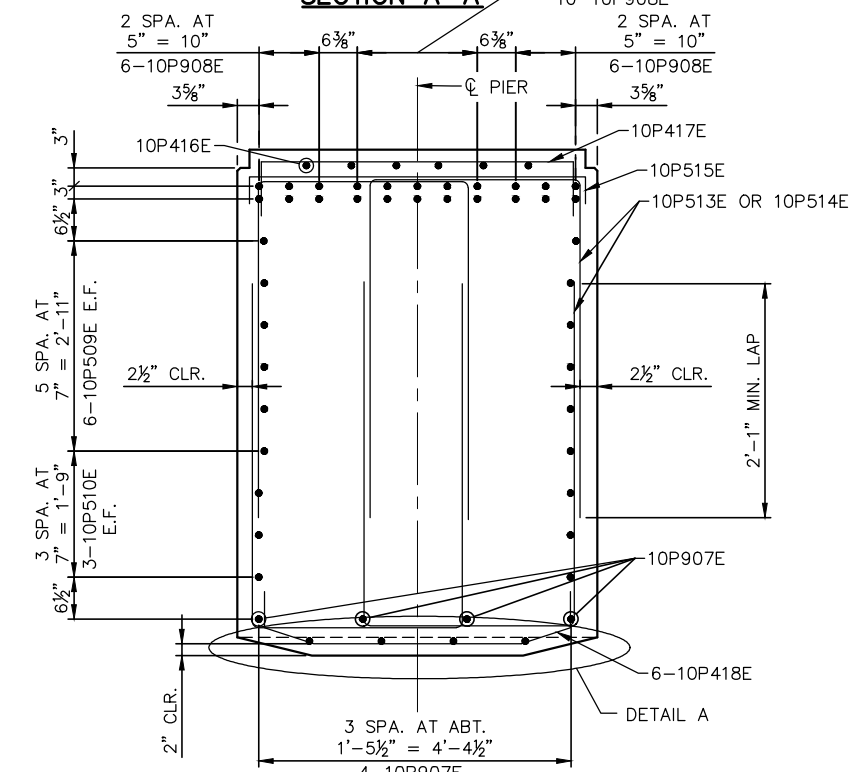
**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**PIER 10 REINFORCEMENT 2**

DISCIPLINE: **STRUCTURES** SHEET NAME: **CBR27C06-BRG-PIR-026**

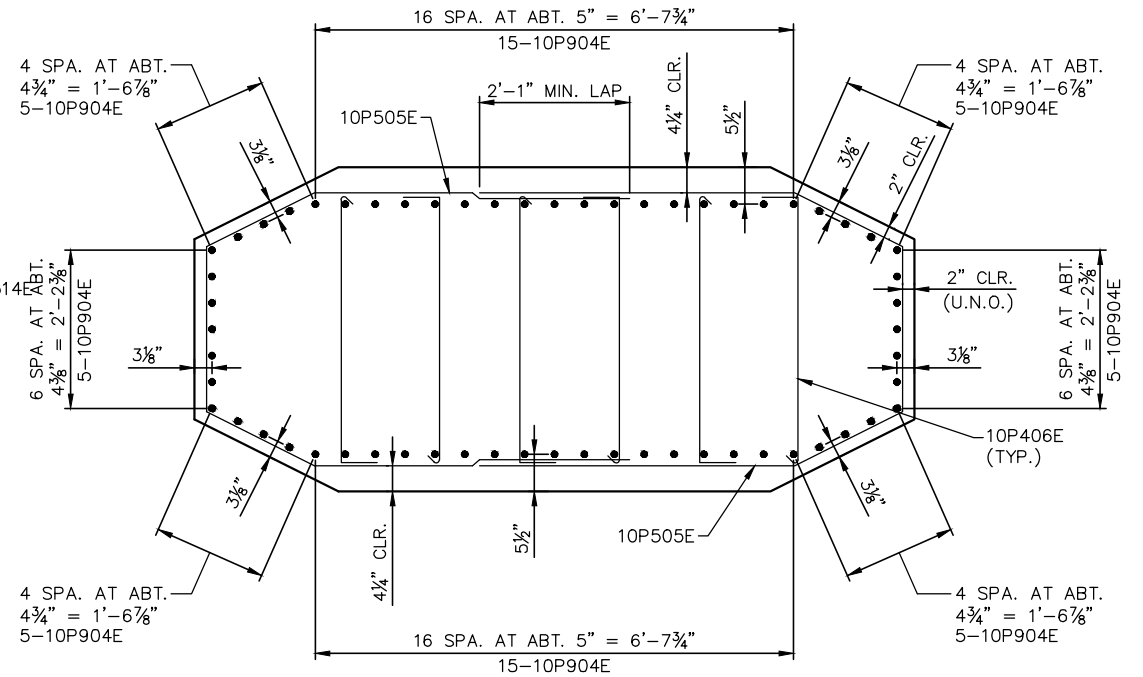
Jan, 19 2016 09:35 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-020.dwg By: butterfielda



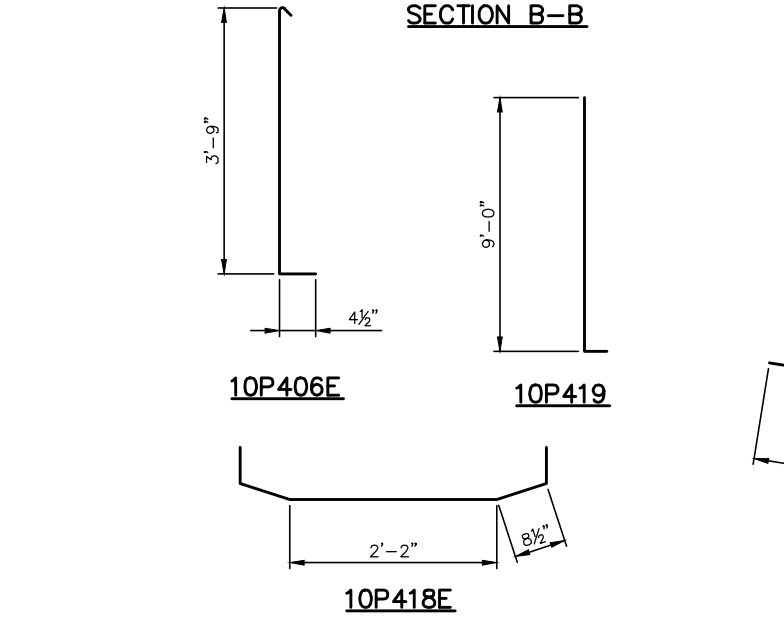
SECTION A-A



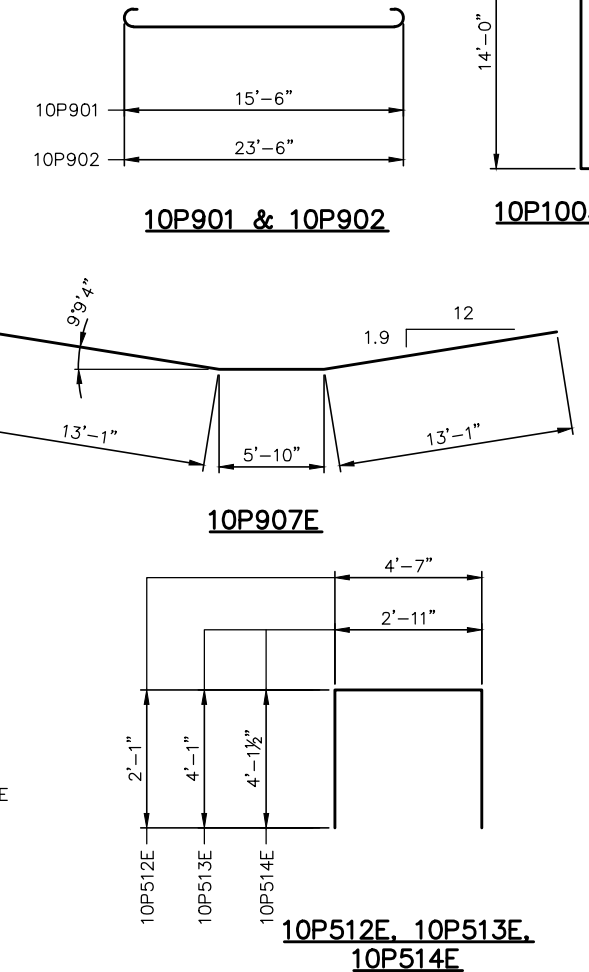
SECTION C-C



SECTION B-B



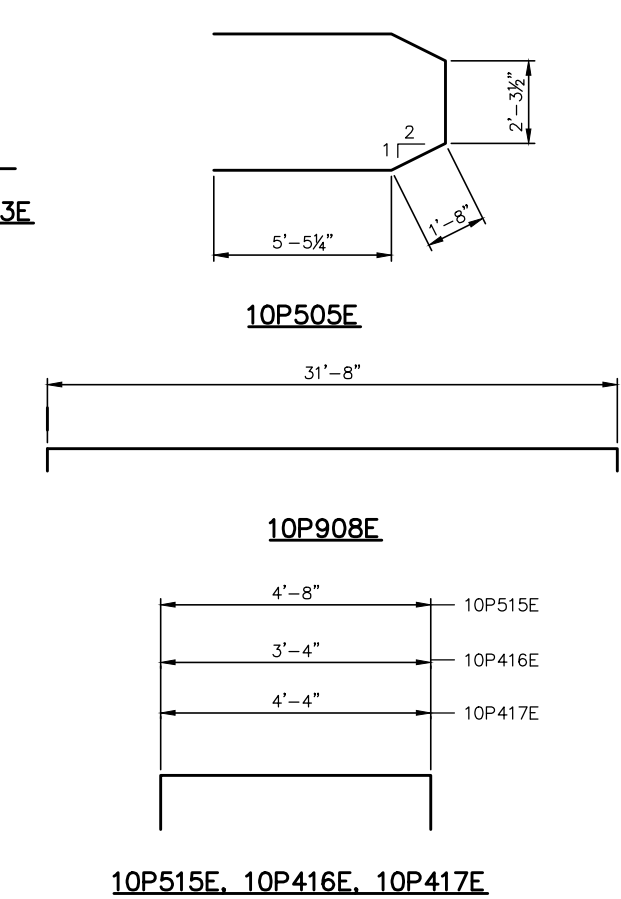
DETAIL A



DETAIL B

BILL OF REINFORCEMENT FOR PIER 10				
BAR	NO.	LENGTH	SHAPE	LOCATION
10P901	51	18'- 0"		FOOTING - TRANSVERSE
10P902	42	26'- 0"		FOOTING - LONGITUDINAL
10P1003E	60	15'- 10"		FOOTING - DOWELS
10P904E	60	19'- 5"		COLUMN - VERTICAL
10P505E	32	16'- 6"		COLUMN - HORIZONTAL
10P406E	96	4'- 6"		COLUMN - STIRRUPS
10P907E	4	32'- 0"		CAP - LONGITUDINAL
10P908E	22	34'- 10"		CAP - LONGITUDINAL
10P509E	12	31'- 8"		CAP - LONGITUDINAL
10P510E	2 SERIES OF 3	13'-4" TO 25'-6"		CAP - LONGITUDINAL
10P511E	8	6'- 0"		CAP - LONGITUDINAL
10P512E	12	8'- 9"		CAP - TIES
10P513E	8	11'- 1"		CAP - STIRRUPS
10P514E	180	11'- 2"		CAP - STIRRUPS
10P515E	47	5'- 8"		CAP - TIES
10P416E	32	5'- 0"		PEDESTAL - TIES
10P417E	24	6'- 0"		PEDESTAL - TIES
10P418E	6	4'- 4"		CAP - STIRRUPS
10P419	8	9'- 10"		PILES

**NOTES:**  
SEE SHEET 57 FOR SECTIONS A-A, B-B & C-C.  
E.F. DENOTES EACH FACE.  
U.N.O. DENOTES UNLESS NOTED OTHERWISE.



**AECOM**



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 10 REINFORCEMENT 3**

DISCIPLINE: STRUCTURES SHEET NAME: CBR27C06-BRG-PIR-027

SHEET  
58  
OF  
232

DESIGNED BY: RJH CHECKED BY: AMA  
DRAWN BY: JAS CHECKED BY: ATN

90% SUBMISSION - 01/22/16

Jan, 19 2016 09:35 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-006.dwg By: butterfielda

PIER 11 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR C-I-P PILES R <sub>n</sub> – TONS/PILE		
FIELD CONTROL METHOD	Φ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	2018


\* R<sub>n</sub> = (FACTORED DESIGN LOAD) / Φ<sub>dyn</sub>

PIER 11 COMPUTED PILE LOAD – TONS/PILE		
FACTORED DEAD LOAD	74.0	49.9
FACTORED LIVE LOAD	17.7	0.0
FACTORED OVERTURNING	39.5	-53.5
FACTORED DESIGN LOAD	131.2	-
FACTORED DESIGN UPLIFT	-	-3.6
LOAD COMBINATION	STRENGTH V	EXTREME EVENT II

PILE NOTES


- 1 CAST-IN-PLACE CONC. TEST PILE 80 FT. LONG.  
19 CAST-IN-PLACE CONC. PILES EST. LENGTH 70 FT.  
20 CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 11 FOOTING.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THUS  TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.

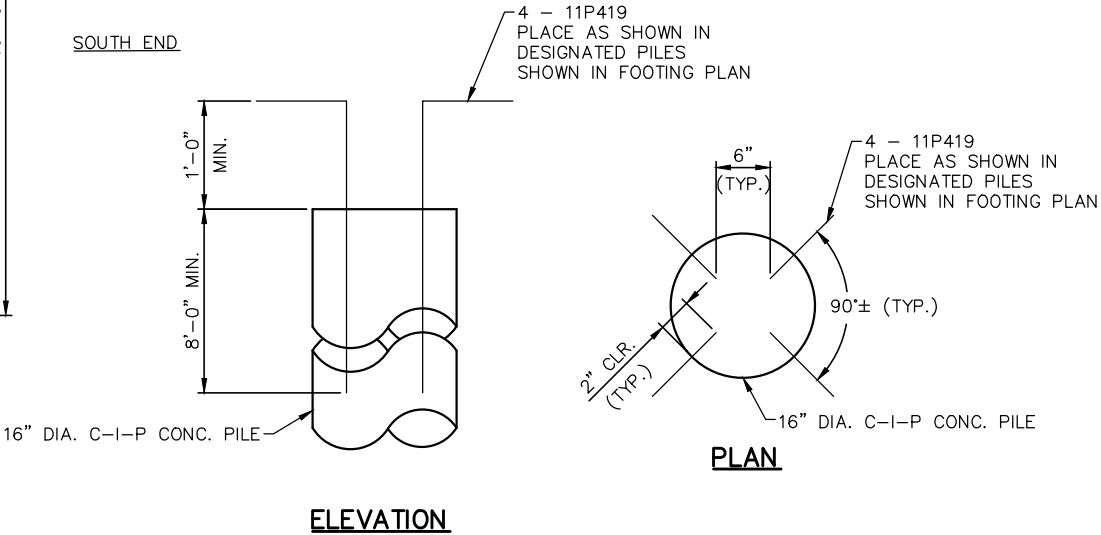
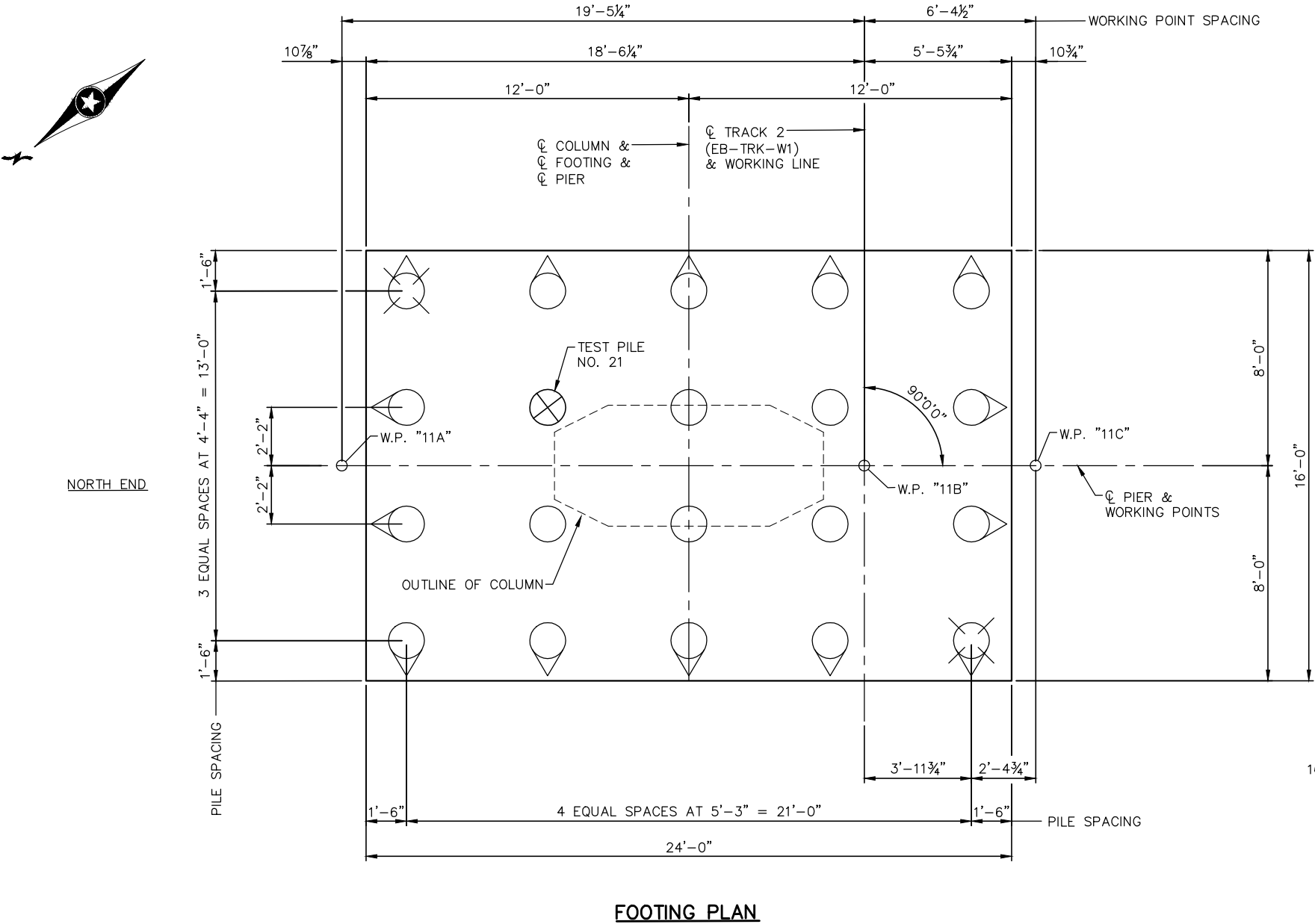
PILES TO HAVE A NOMINAL DIAMETER OF 16" AND A MINIMUM WALL THICKNESS OF 0.3125".

FOR PILE SPLICE DETAILS SEE DETAIL B201, SHEET 197.

PILES MARKED THUS  ARE SUBJECT TO UPLIFT AND ARE TO BE REINFORCED PER PILE REINFORCEMENT DETAIL.

CONTRACTOR TO ORIENT PILE REINFORCEMENT TO MAINTAIN 3" CLEAR TO EDGE OF FOOTING. CONTRACTOR MAY FIELD ADJUST BOTTOM REINFORCEMENT BARS TO ACCOMODATE PILE REINFORCEMENT DETAIL.

ALL PILES TO BE DRIVEN TO A MINIMUM TIP ELEVATION OF 773.3.




NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN



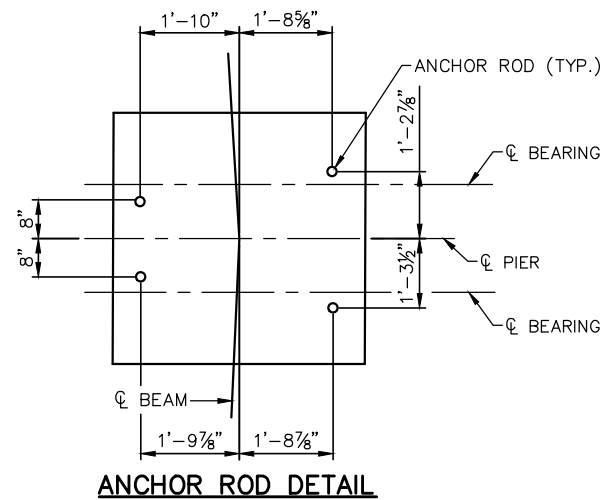
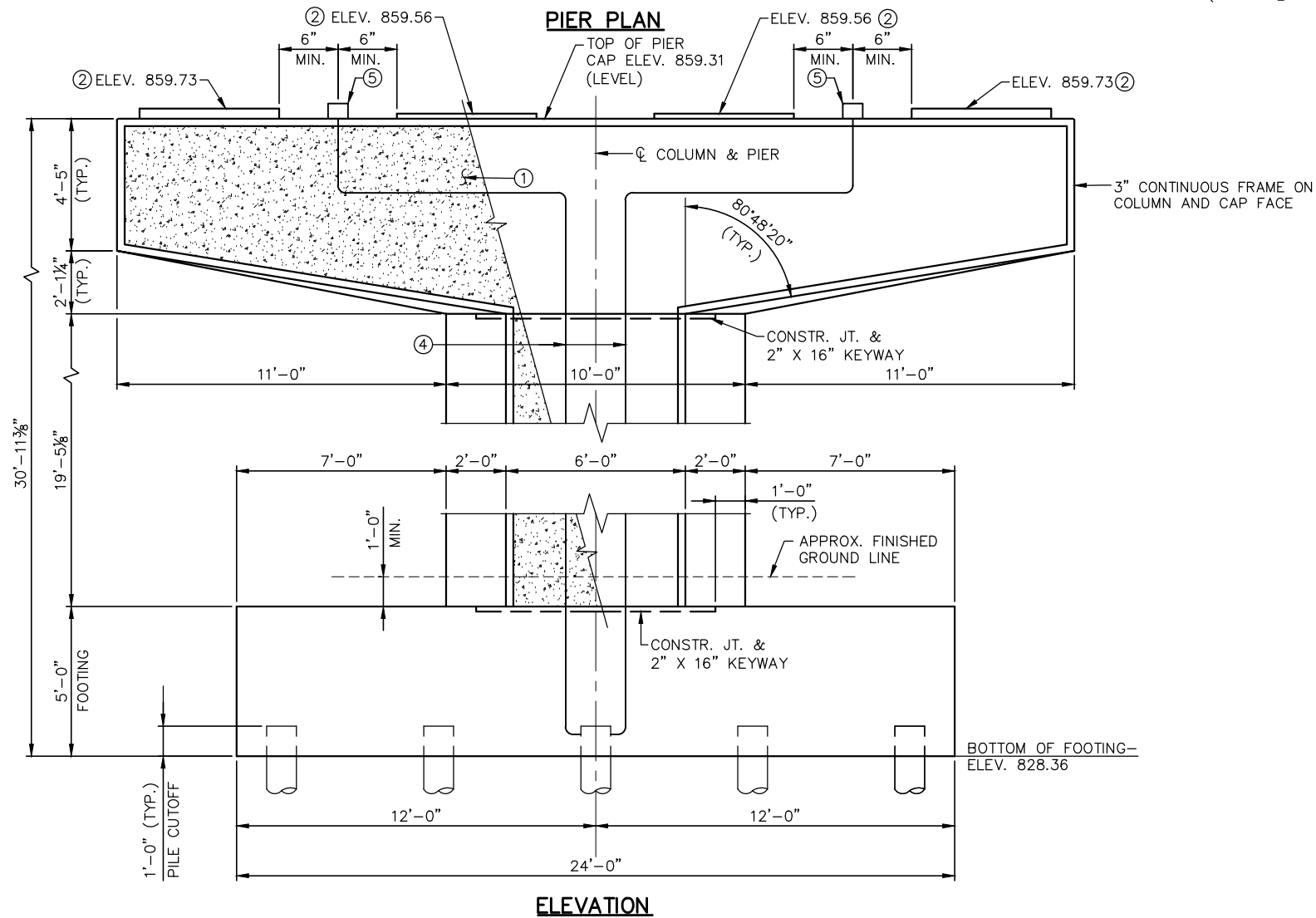
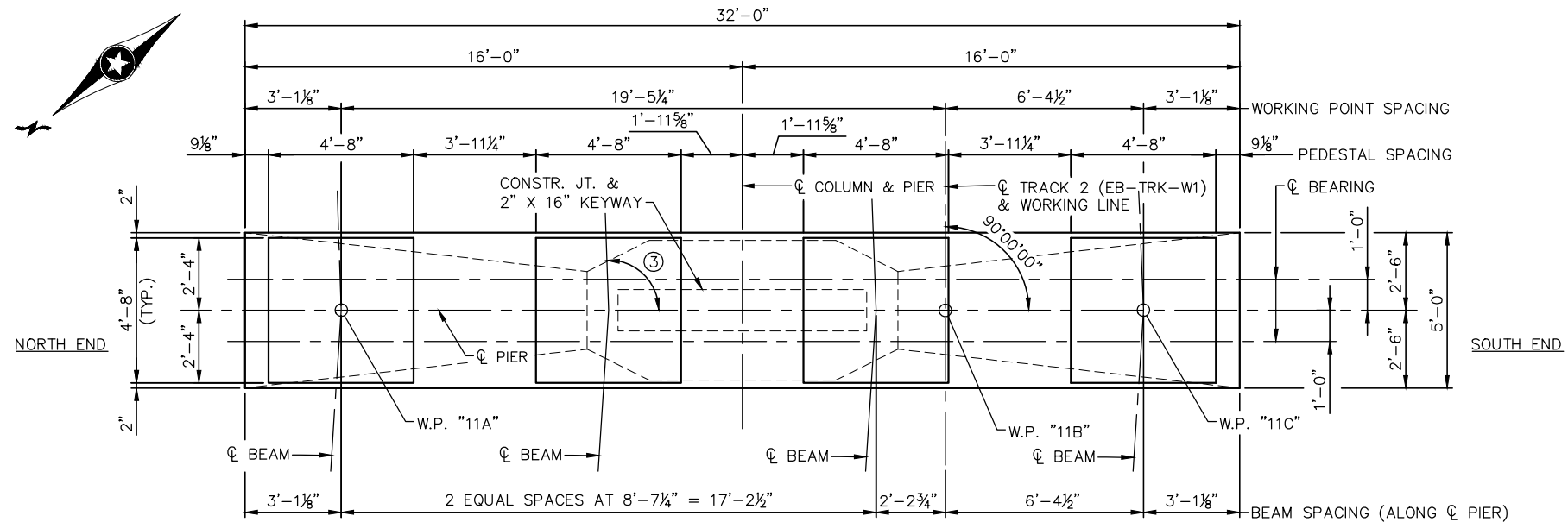
90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 11 GEOMETRICS 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-028

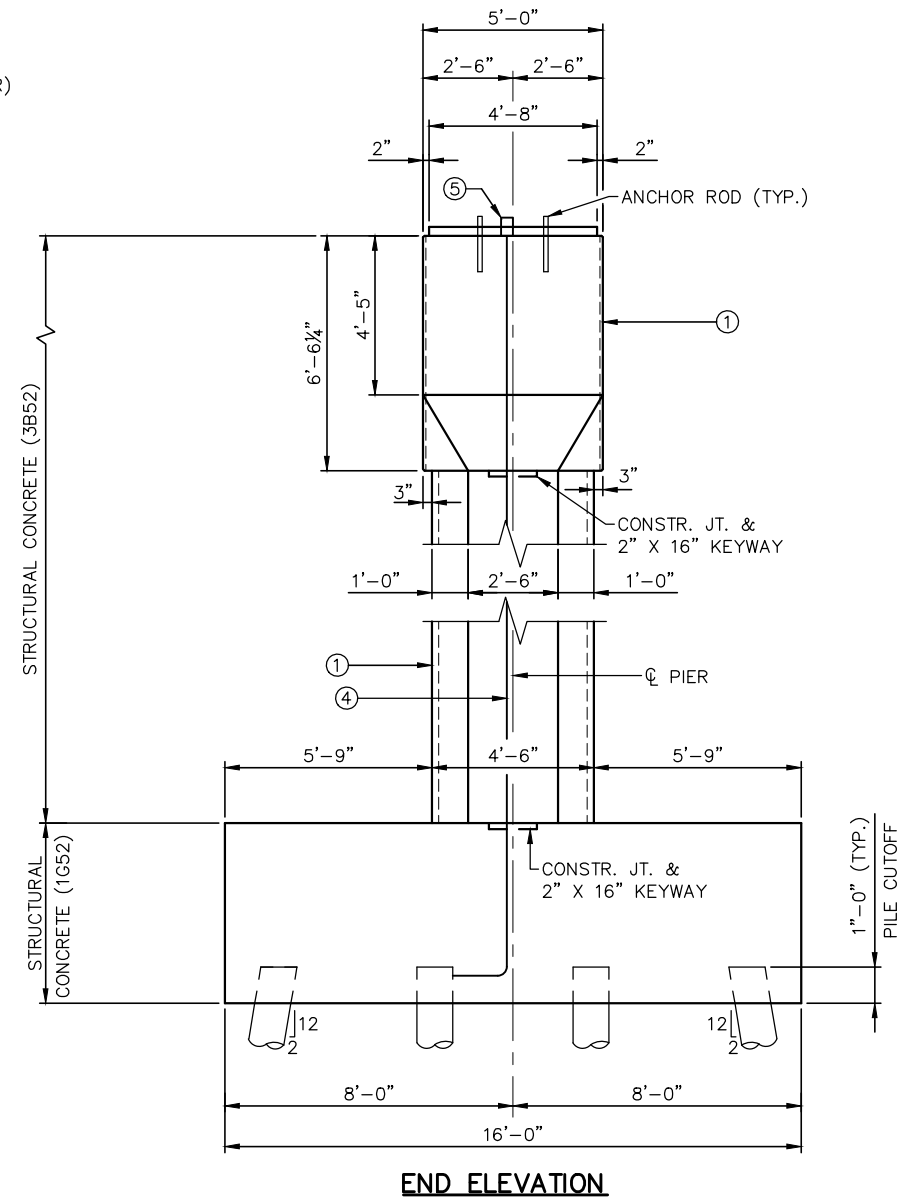
SHEET
59
OF
232

Jan, 19 2016 09:35 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-006.dwg By: butterfielda



#### NOTES:

- ① TEXTURED RECESSED PANEL ON FACE OF PIERS, SEE SHEET 24.
- ② ELEVATIONS DETERMINED AT CL OF BEARING ON THE LOW SIDE OF THE PROFILE GRADE LINE.
- ③ FOR BEAM ANGLES SEE SHEET 110.
- ④ GROUND WIRE PLACED INSIDE 1" PVC CONDUIT, SEE SHEET ELE-SITE-DTL-600.
- ⑤ JUNCTION BOX, SEE SHEET ELE-SITE-DTL-600.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 11 GEOMETRICS 2

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-PIR-029

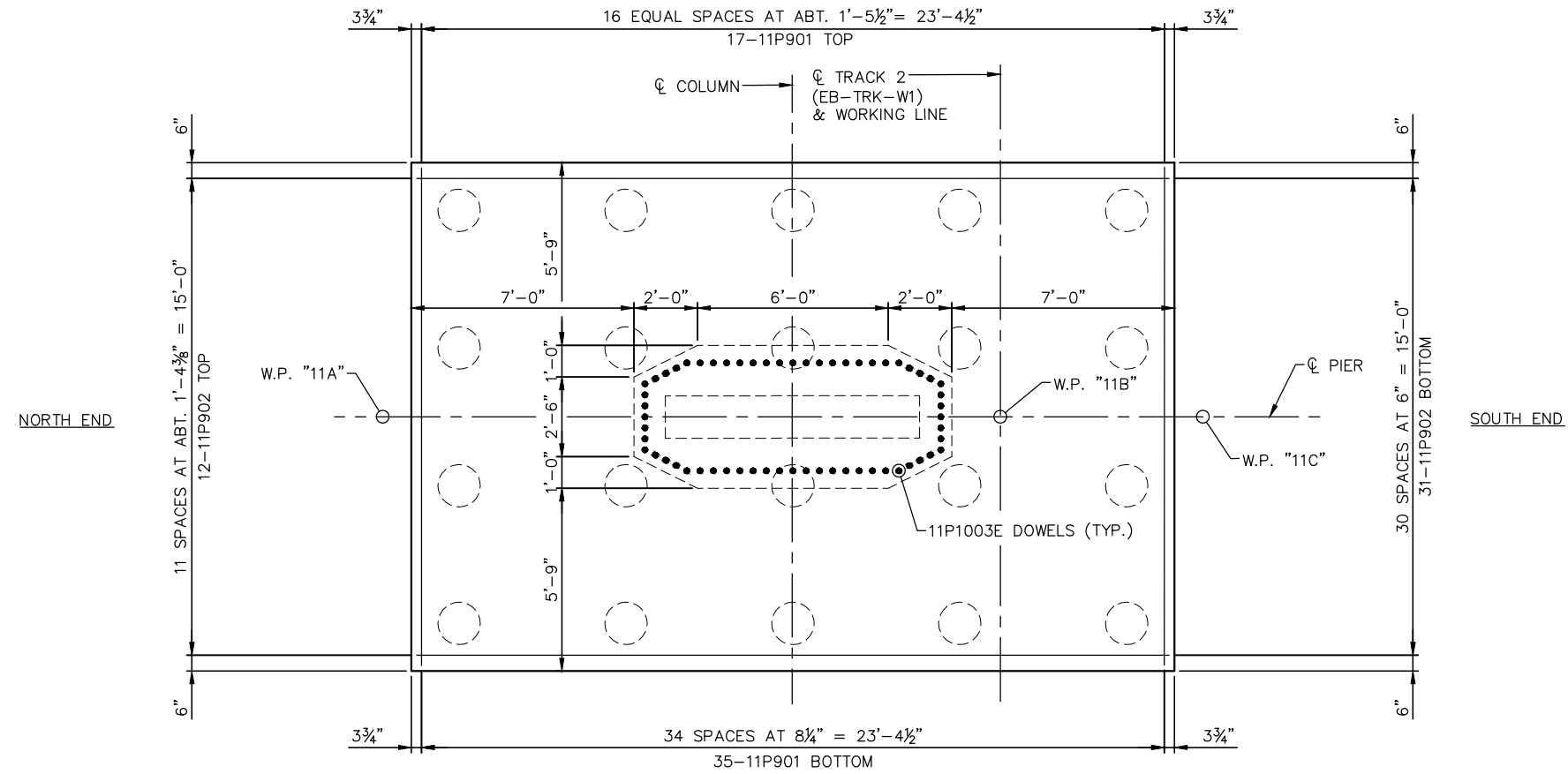
SHEET

60

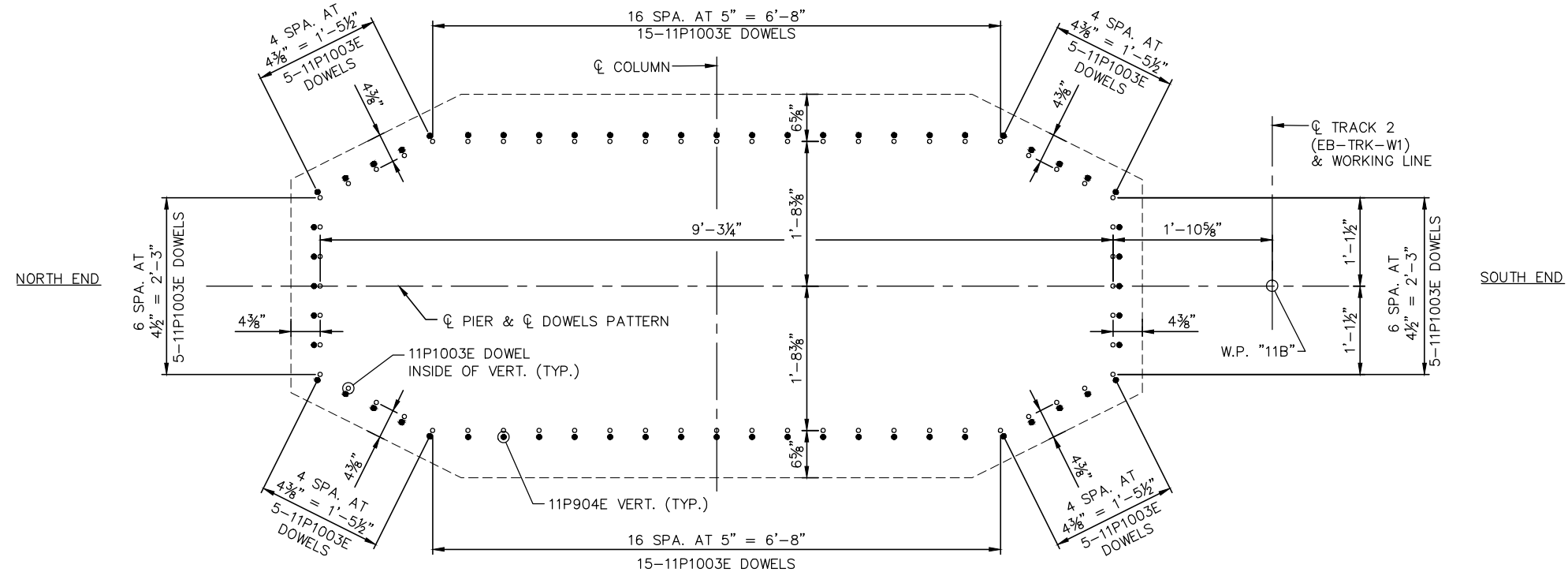
OF

232

Jan, 19 2016 09:35 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-021.dwg By: butterfielda



FOOTING PLAN



FOOTING DOWEL LAYOUT

**NOTES:**

- DENOTES COLUMN BAR
- DENOTES FOOTING DOWEL

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN





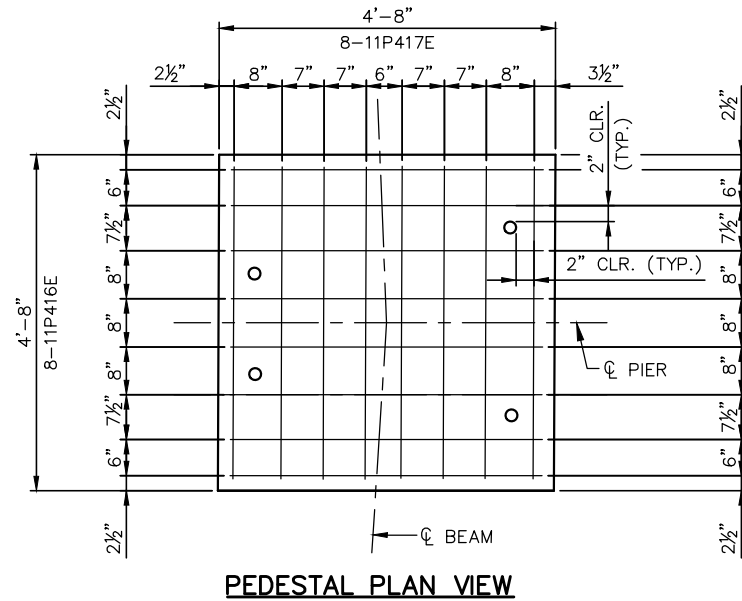
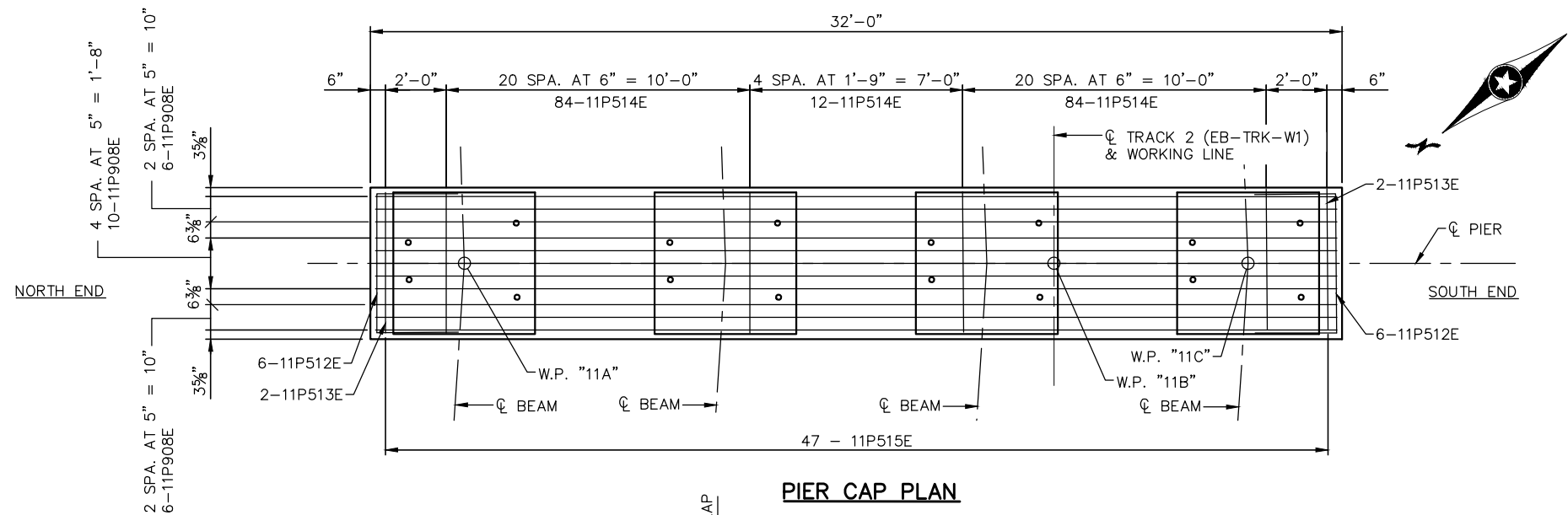
90% SUBMISSION - 01/22/16



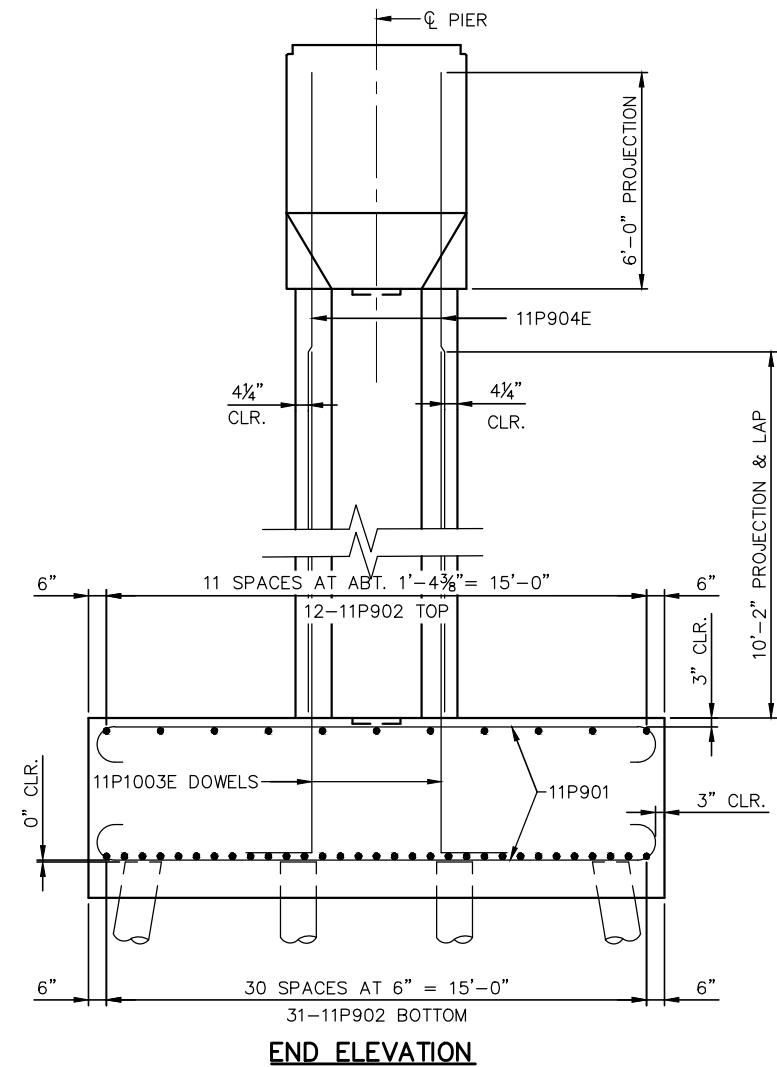
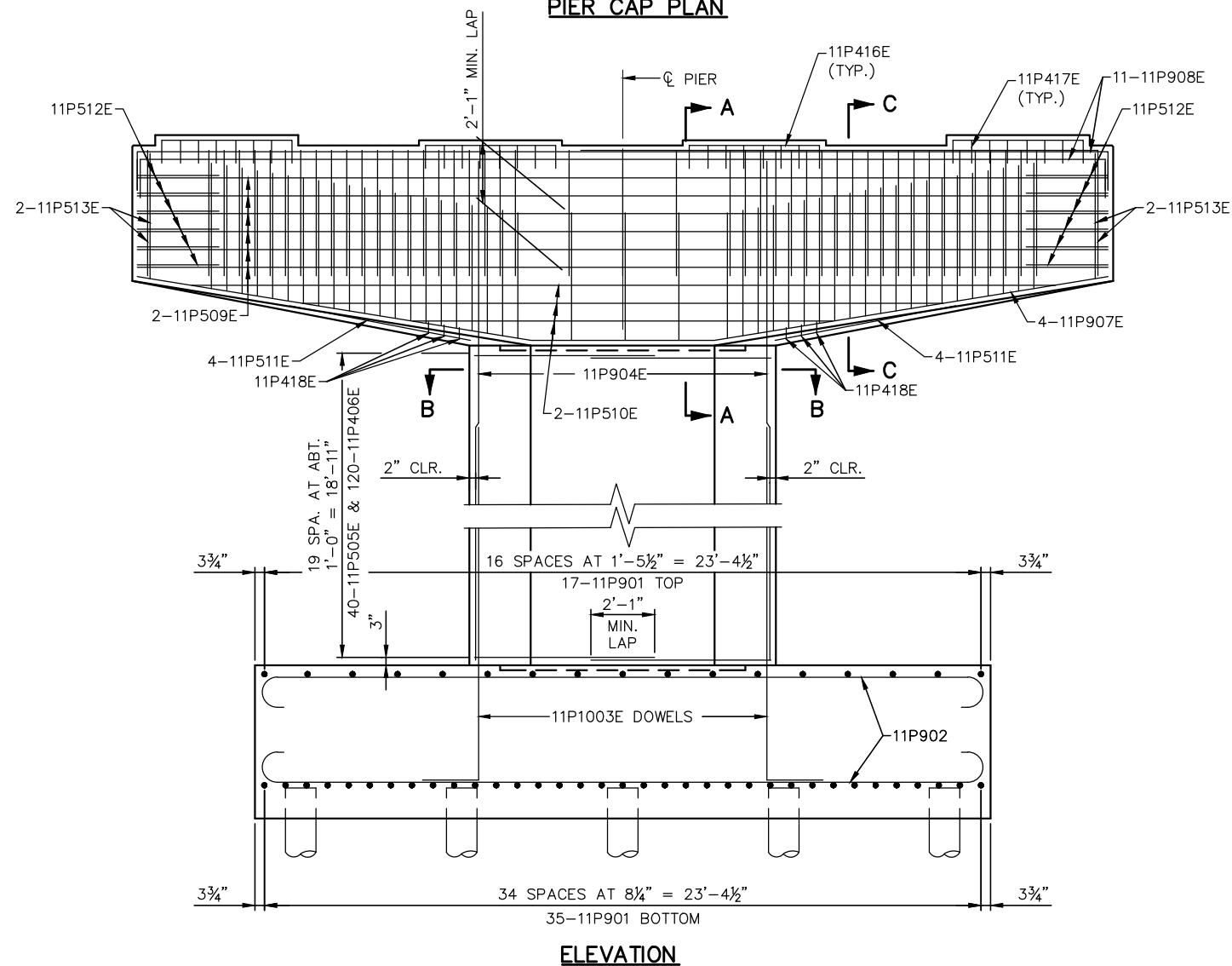
CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 11 REINFORCEMENT 1

DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-030
------------------------	----------------------------------

Jan, 19 2016 09:35 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-021.dwg By: butterfielda



**NOTES:**  
SEE SHEET 63 FOR SECTIONS A-A, B-B & C-C.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	RJH	CHECKED BY:	AMA
DRAWN BY:	JAS	CHECKED BY:	ATN

**AECOM**

90% SUBMISSION - 01/22/16

**METROPOLITAN COUNCIL**

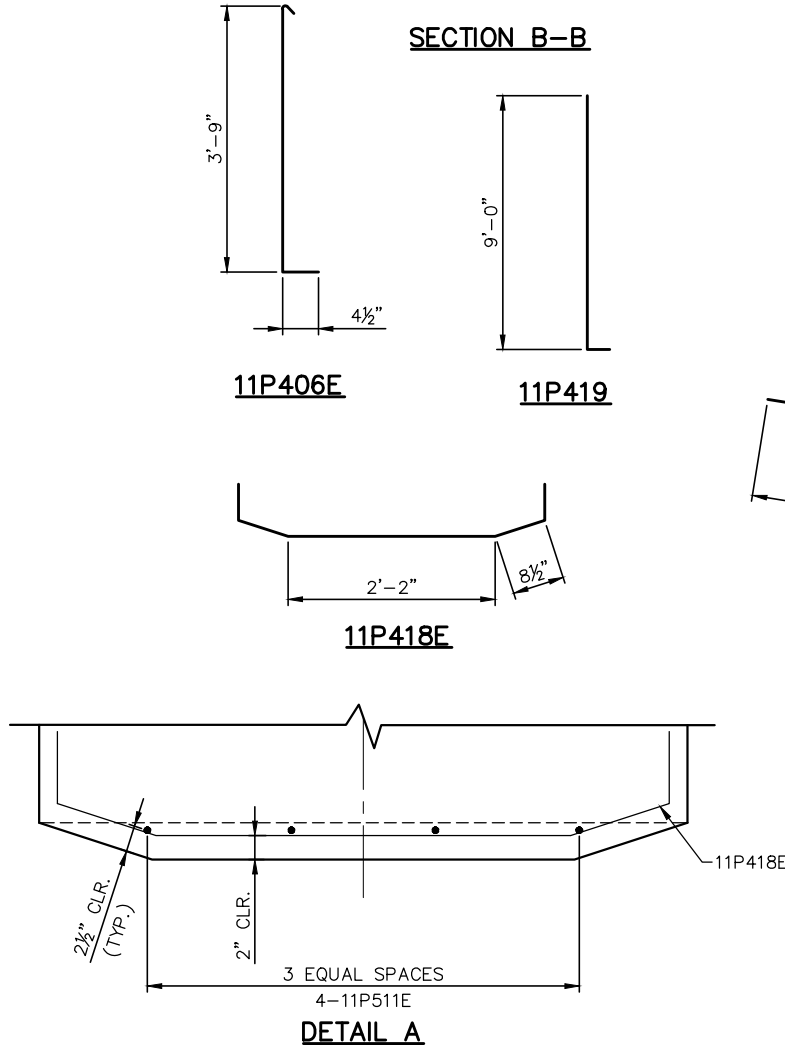
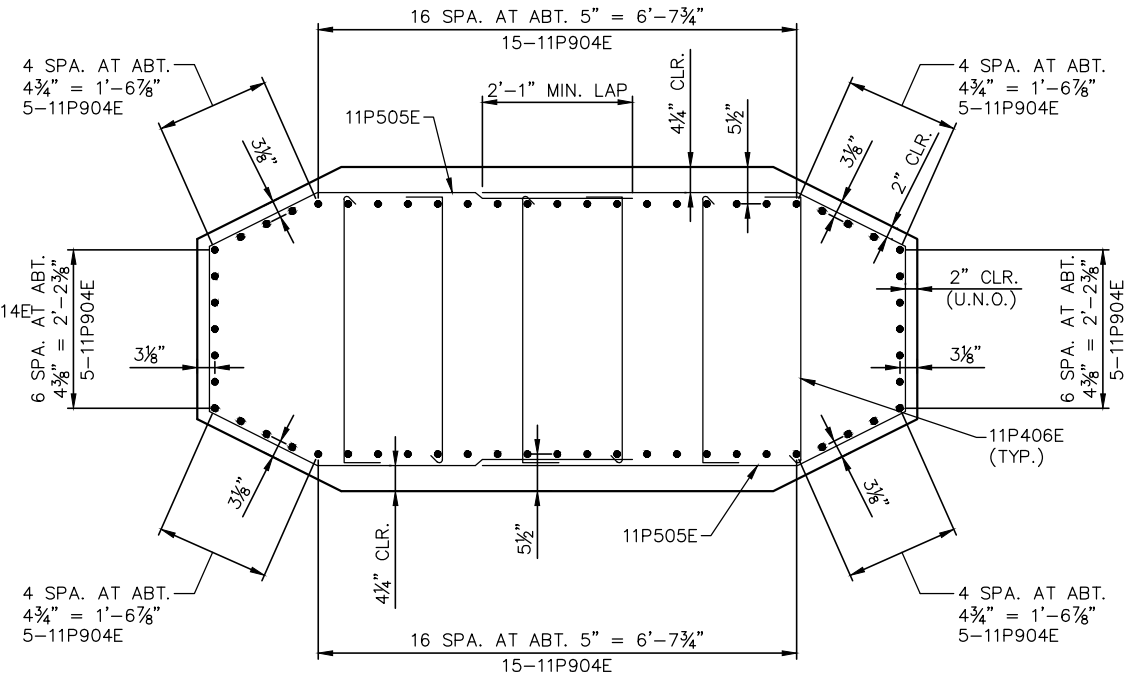
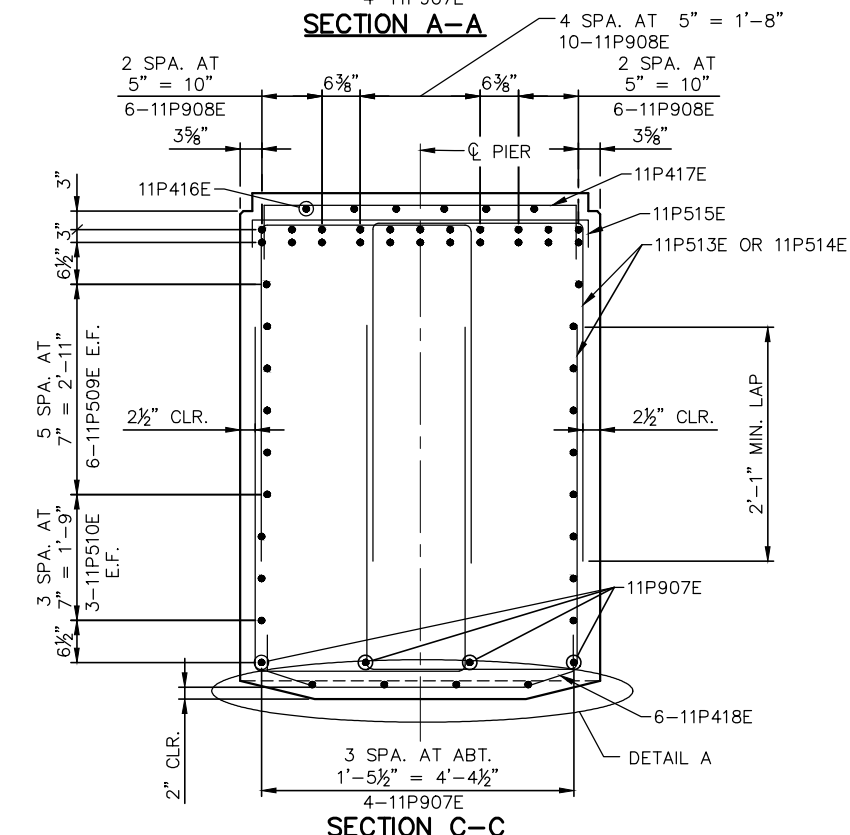
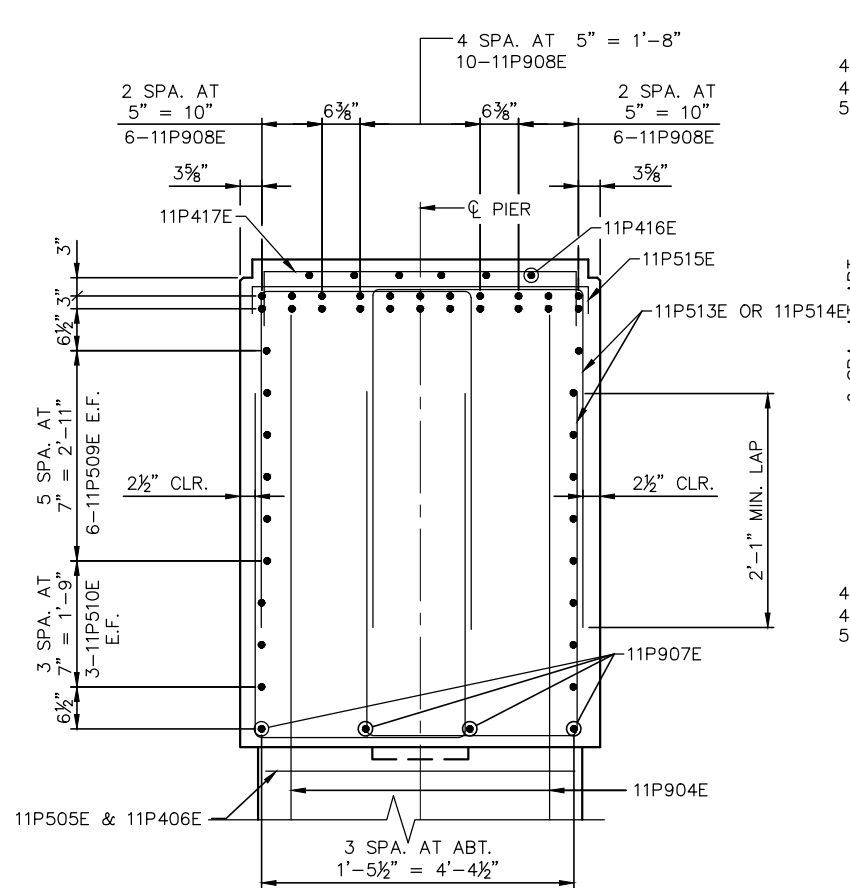
**SOUTHWEST**  
Green Line LRT Extension

**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**PIER 11 REINFORCEMENT 2**

DISCIPLINE: **STRUCTURES** SHEET NAME: **CBR27C06-BRG-PIR-031**

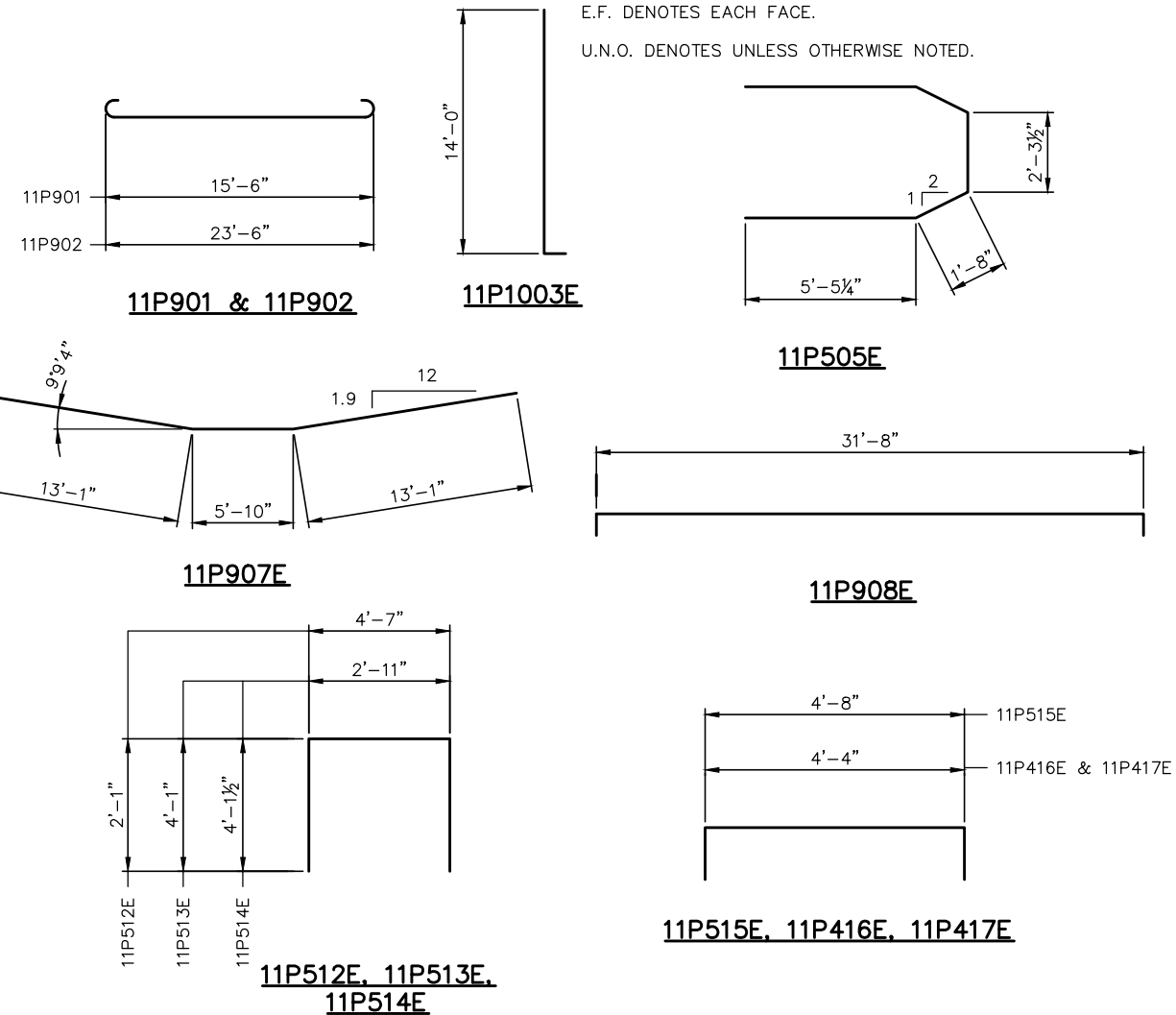
SHEET
62
OF
232

Jan, 19 2016 09:35 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-021.dwg By: butterfielda



BILL OF REINFORCEMENT FOR PIER 11				
BAR	NO.	LENGTH	SHAPE	LOCATION
11P901	52	18'- 0"		FOOTING - TRANSVERSE
11P902	43	26'- 0"		FOOTING - LONGITUDINAL
11P1003E	60	15'- 10"		FOOTING - DOWELS
11P904E	60	25'- 3"		COLUMN - VERTICAL
11P505E	40	16'- 6"		COLUMN - HORIZONTAL
11P406E	120	4'- 6"		COLUMN - STIRRUPS
11P907E	4	32'- 0"		CAP - LONGITUDINAL
11P908E	22	34'- 10"		CAP - LONGITUDINAL
11P509E	12	31'- 8"		CAP - LONGITUDINAL
11P510E	2 SERIES OF 3	13'-4" TO 25'-6"		CAP - LONGITUDINAL
11P511E	8	6'- 0"		CAP - LONGITUDINAL
11P512E	12	8'- 9"		CAP - TIES
11P513E	8	11'- 1"		CAP - STIRRUPS
11P514E	180	11'- 2"		CAP - STIRRUPS
11P515E	47	5'- 8"		CAP - TIES
11P416E	32	6'- 0"		PEDESTAL - TIES
11P417E	32	6'- 0"		PEDESTAL - TIES
11P418E	6	4'- 4"		CAP - STIRRUPS
11P419	8	9'- 10"		PILES

**NOTES:**  
SEE SHEET 62 FOR SECTIONS A-A, B-B & C-C.  
E.F. DENOTES EACH FACE.  
U.N.O. DENOTES UNLESS OTHERWISE NOTED.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: <b>RJH</b>	CHECKED BY: <b>AMA</b>
DRAWN BY: <b>JAS</b>	CHECKED BY: <b>ATN</b>

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 11 REINFORCEMENT 2

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C06-BRG-PIR-032**



PIER 12 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR C-I-P PILES R <sub>n</sub> – TONS/PILE		
FIELD CONTROL METHOD	ϕ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	190.6


\* R<sub>n</sub> = (FACTORED DESIGN LOAD) / ϕ<sub>dyn</sub>

PIER 12 COMPUTED PILE LOAD – TONS/PILE		
FACTORED DEAD LOAD	69.5	48.9
FACTORED LIVE LOAD	0.0	0.0
FACTORED OVERTURNING	54.4	–53.7
FACTORED DESIGN LOAD	123.9	–
FACTORED DESIGN UPLIFT	–	–4.8
LOAD COMBINATION	STRENGTH V	EXTREME EVENT II

PILE NOTES


- 1 CAST-IN-PLACE CONC. TEST PILE 70 FT. LONG.  
19 CAST-IN-PLACE CONC. PILES EST. LENGTH 60 FT.  
20 CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 12 FOOTING.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THUS  TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.

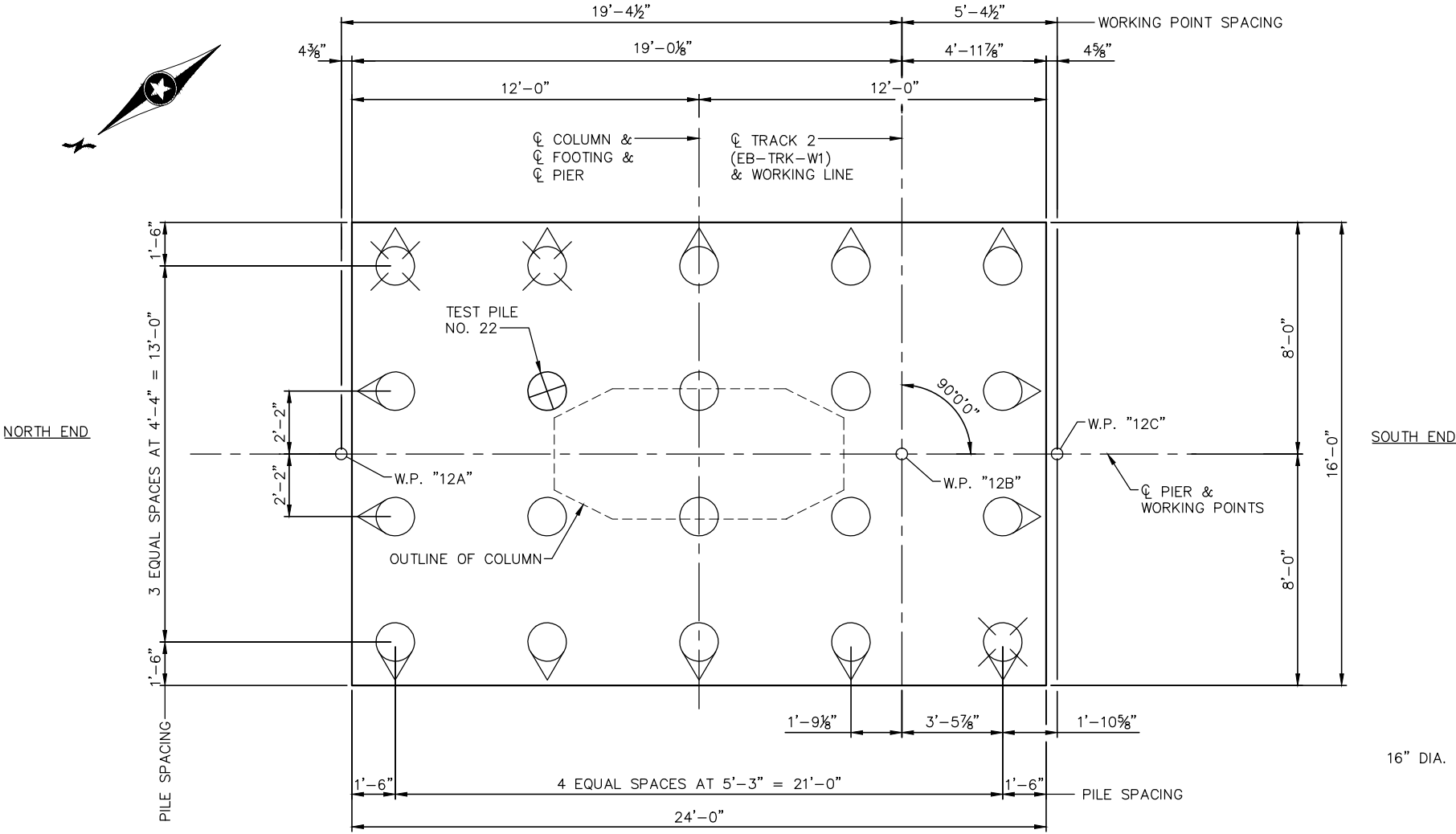
PILES TO HAVE A NOMINAL DIAMETER OF 16" AND A MINIMUM WALL THICKNESS OF 0.3125".

FOR PILE SPLICE DETAILS SEE DETAIL B201, SHEET 197.

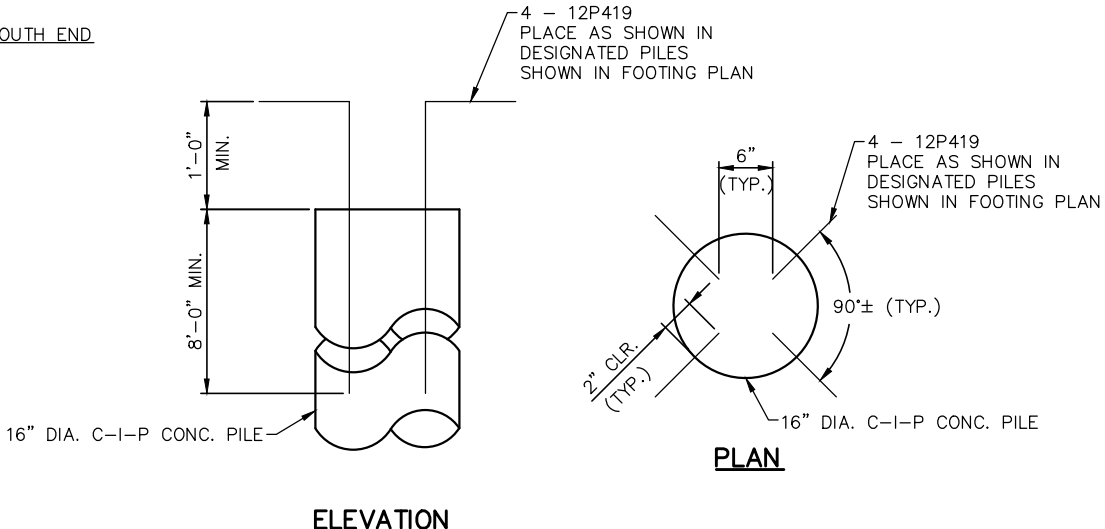
PILES MARKED THUS  ARE SUBJECT TO UPLIFT AND ARE TO BE REINFORCED PER PILE REINFORCEMENT DETAIL.

CONTRACTOR TO ORIENT PILE REINFORCEMENT TO MAINTAIN 3" CLEAR TO EDGE OF FOOTING. CONTRACTOR MAY FIELD ADJUST BOTTOM REINFORCEMENT BARS TO ACCOMMODATE PILE REINFORCEMENT DETAIL.

ALL PILES TO BE DRIVEN TO A MINIMUM TIP ELEVATION OF 773.3.



FOOTING PLAN



ELEVATION

PLAN

PILE REINFORCEMENT DETAIL

Jan, 19 2016 09:36 am V:\3400\_ADC\CAD\SEGEMT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-007.dwg By: butterfielda

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN



90% SUBMISSION - 01/22/16



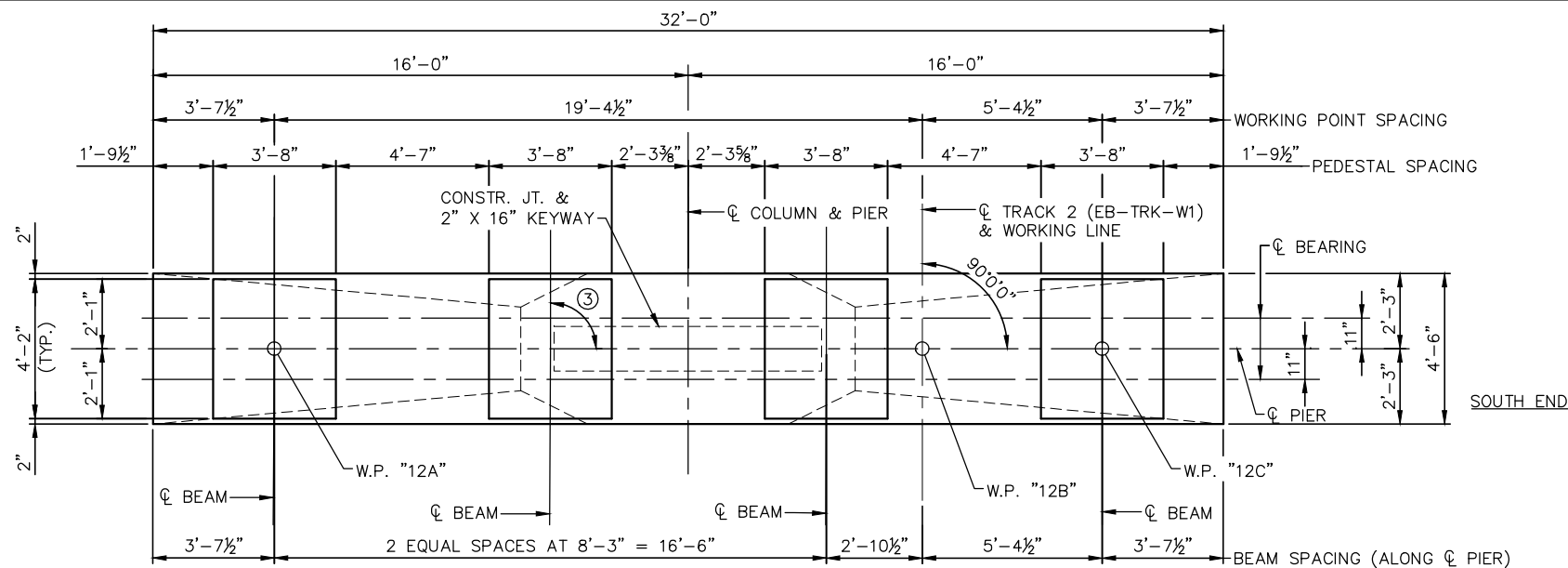
CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 12 GEOMETRICS 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-033

SHEET
64
OF
232

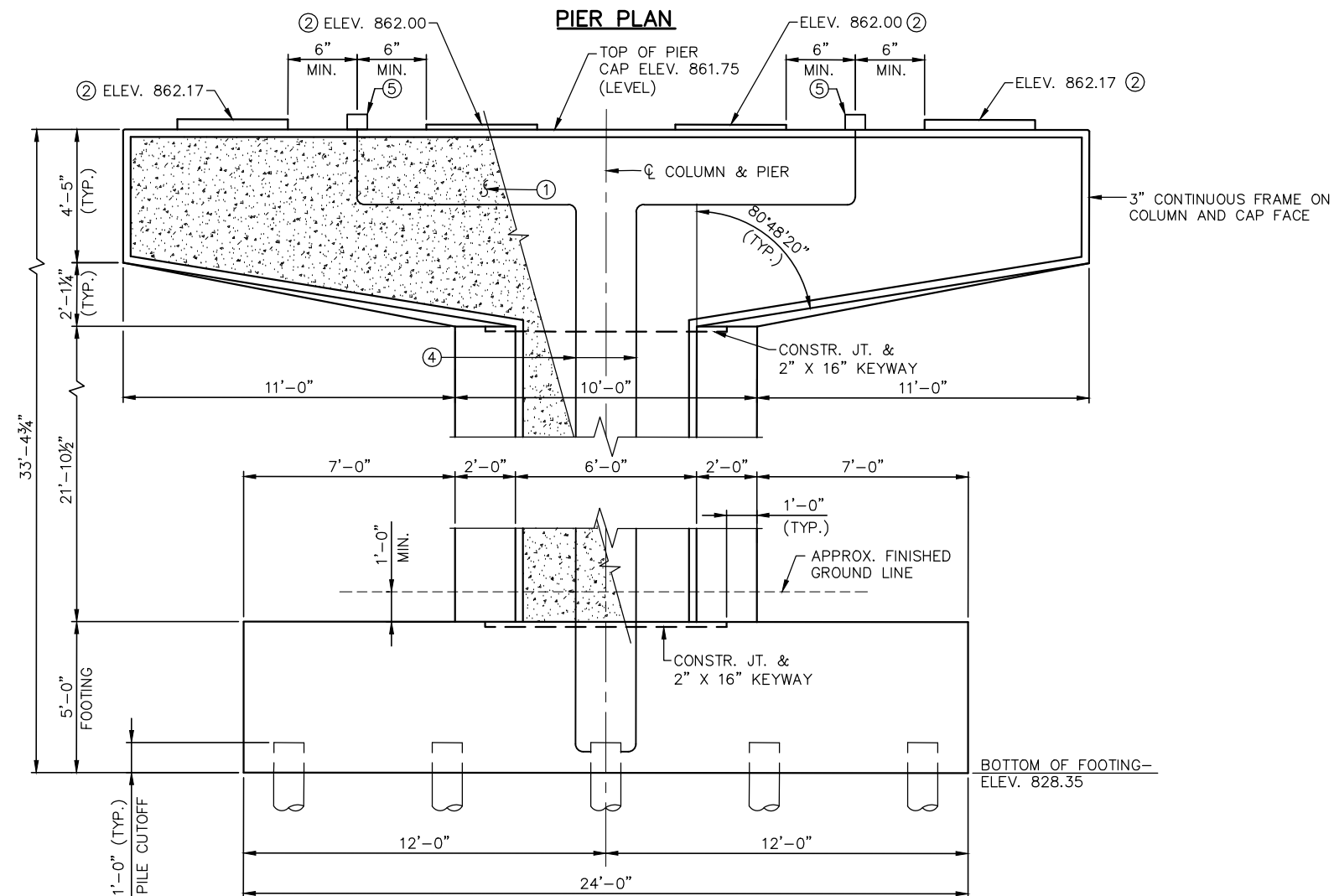
Jan, 19 2016 09:36 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-007.dwg By: butterfielda



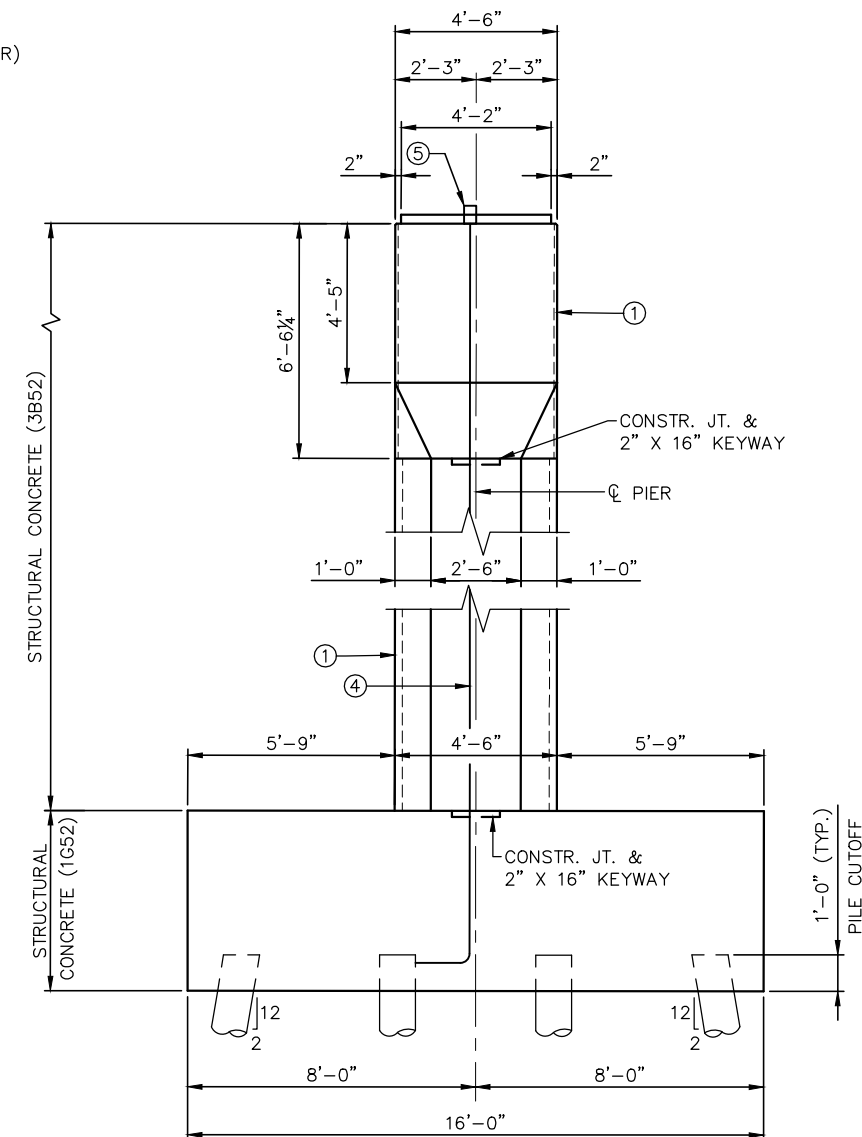
NORTH END



PIER PLAN



ELEVATION



END ELEVATION

NOTES:

- ① TEXTURED RECESSED PANEL ON FACE OF PIERS, SEE SHEET 24.
- ② ELEVATIONS DETERMINED AT  $\phi$  OF BEARING ON THE LOW SIDE OF THE PROFILE GRADE LINE.
- ③ FOR BEAM ANGLES SEE SHEET 111.
- ④ GROUND WIRE PLACED INSIDE 1" PVC CONDUIT, SEE SHEET ELE-SITE-DTL-600.
- ⑤ JUNCTION BOX, SEE SHEET ELE-SITE-DTL-600.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: JAS  
CHECKED BY: AMA  
CHECKED BY: ATN

AECOM

90% SUBMISSION - 01/22/16



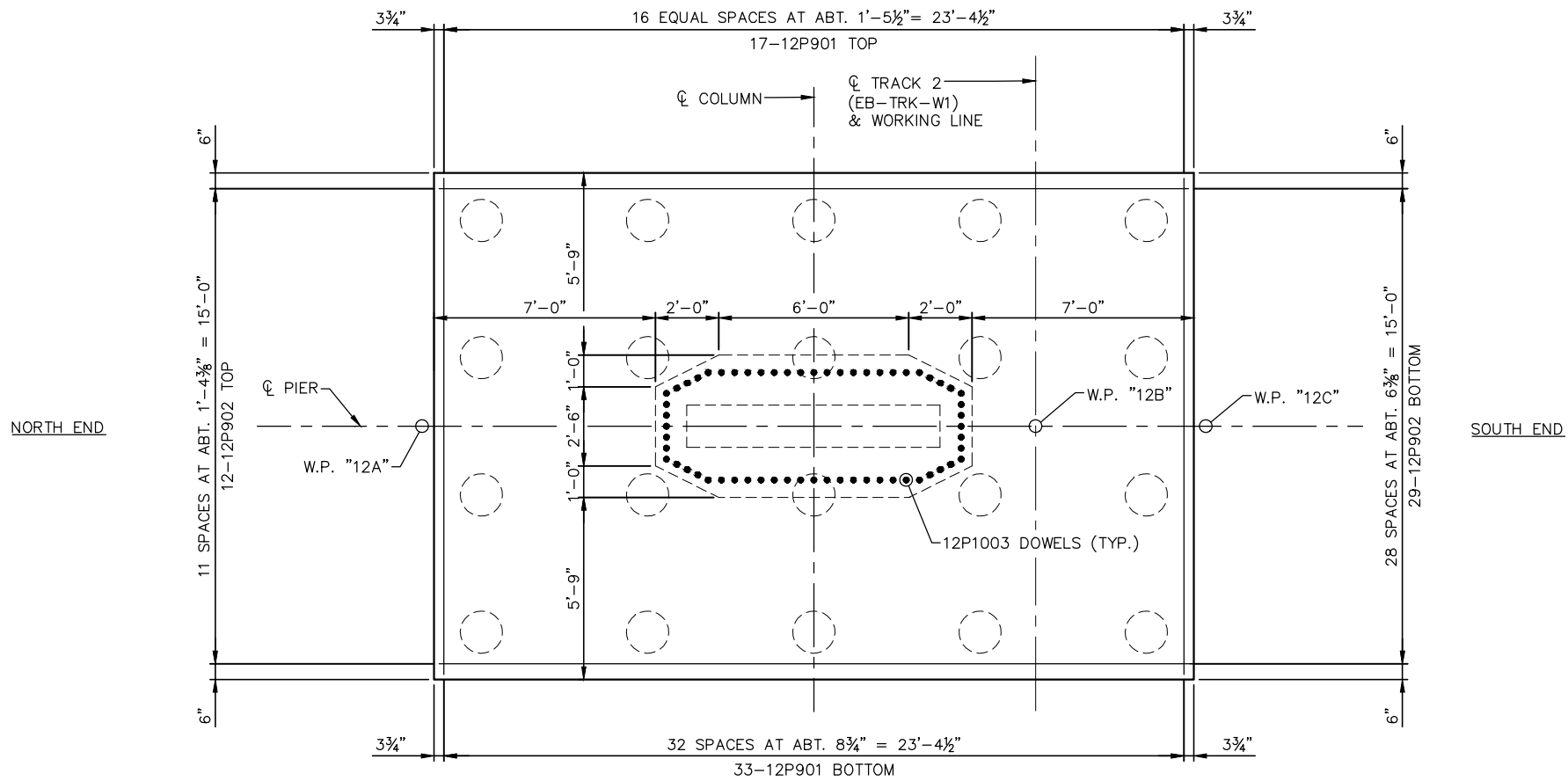
CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 12 GEOMETRICS 2

DISCIPLINE:  
STRUCTURES

SHEET NAME:  
CBR27C06-BRG-PIR-034

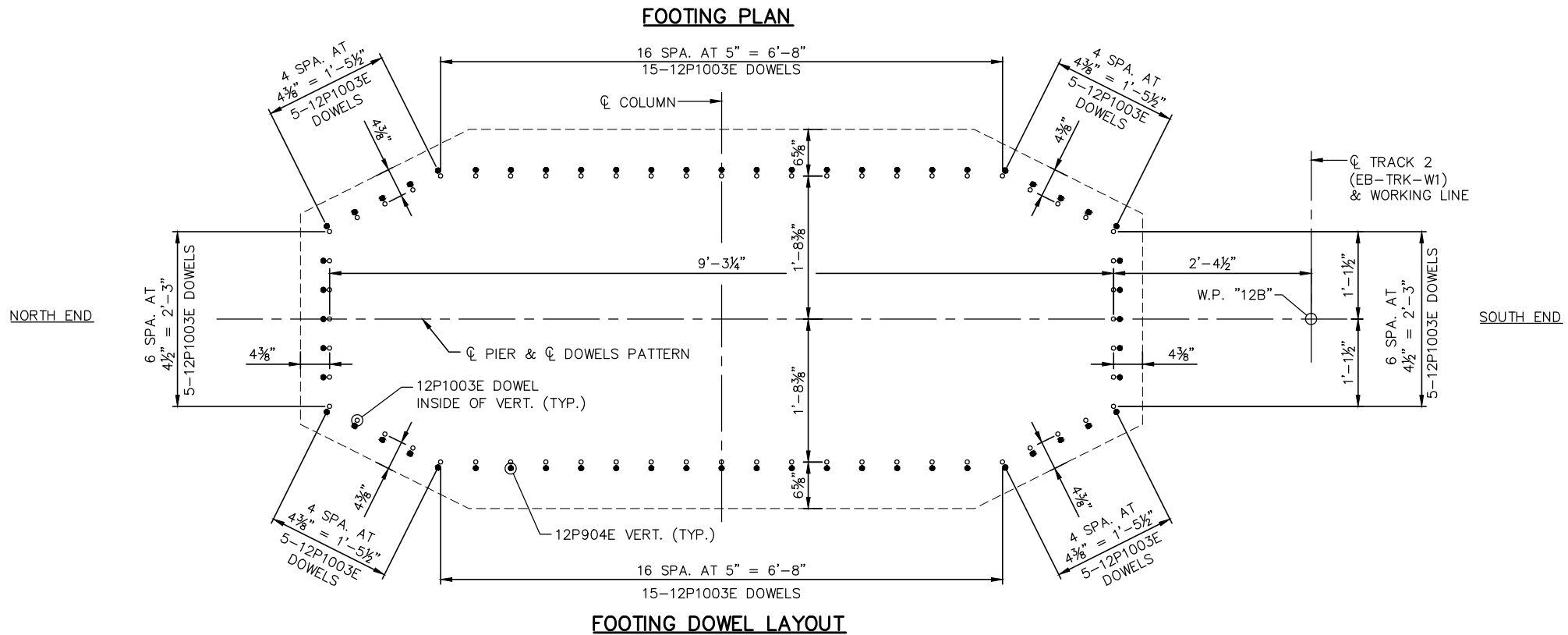
SHEET  
65  
OF  
232

Jan, 19 2016 09:36 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-022.dwg By: butterfielda



**NOTES:**

- DENOTES COLUMN BAR
- DENOTES FOOTING DOWEL



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	RJH	CHECKED BY:	AMA
DRAWN BY:	JAS	CHECKED BY:	ATN



90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 12 REINFORCEMENT 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-035

**PIER CAP PLAN**

This diagram illustrates the reinforcement layout for a pier cap. Key features include:

- Reinforcement Bars:**
  - Top Deck: 12P512E, 2-12P513E, 2-12P509E, 4-12P511E, 12P418E, 12P416E (TYP.), 12P417E (TYP.), 10-12P908E, 12P512E, 2-12P513E, 4-12P907E.
  - Internal Deck: 12P904E, 2-12P510E.
  - Bottom Deck: 12P1003E DOWELS, 12P902.
- Dimensions and Spacing:**
  - Top Deck: 22 SPA. AT ABT.  $11\frac{3}{8}" = 21'-4"$  (46-12P505E & 138-12P406E).
  - Internal Deck: 16 SPACES AT  $1'-5\frac{1}{2}" = 23'-4\frac{1}{2}"$  (17-12P901 TOP).
  - Bottom Deck: 32 SPACES AT ABT.  $8\frac{3}{4}" = 23'-4\frac{1}{2}"$  (33-12P901 BOTTOM).
  - Clearance: 2" CLR. on both sides of the internal deck.
  - Section Markers: A, B, and C are indicated at various points along the cap.
- Other Details:**
  - 2'-1" MIN. LAP (Minimum Lap) is specified for the top deck reinforcement.
  - 3" dimension is shown for the bottom deck reinforcement.
  - 3 3/4" dimension is shown for the bottom deck reinforcement.

Technical drawing showing the reinforcement details for a bridge pier and abutment.

**Pier Section:**

- Projection: 6'-0" PROJECTION
- Reinforcement: 12P904E
- Clearance: 4 1/4" CLR.

**Abutment Section:**

- Reinforcement: 12-12P902 TOP
- Reinforcement: 12P1003E DOWELS
- Reinforcement: 12P901
- Reinforcement: 29-12P902 BOTTOM
- Dimensions: 11 SPACES AT ABT. 1'-4 3/8" = 15'-0"
- Dimensions: 28 SPACES AT ABT. 6 3/8" = 15'-0"
- Clearance: 6" (top and bottom)
- Clearance: 3" CLR. (middle)
- Clearance: 0" CLR. (bottom)
- Projection & Lap: 10'-2"

**NOTES:**  
SEE SHEET 68 FOR SECTIONS A-A, B-B & C-C.

[illegible]**AECOM**

**METROPOLITAN**  
COUNCIL

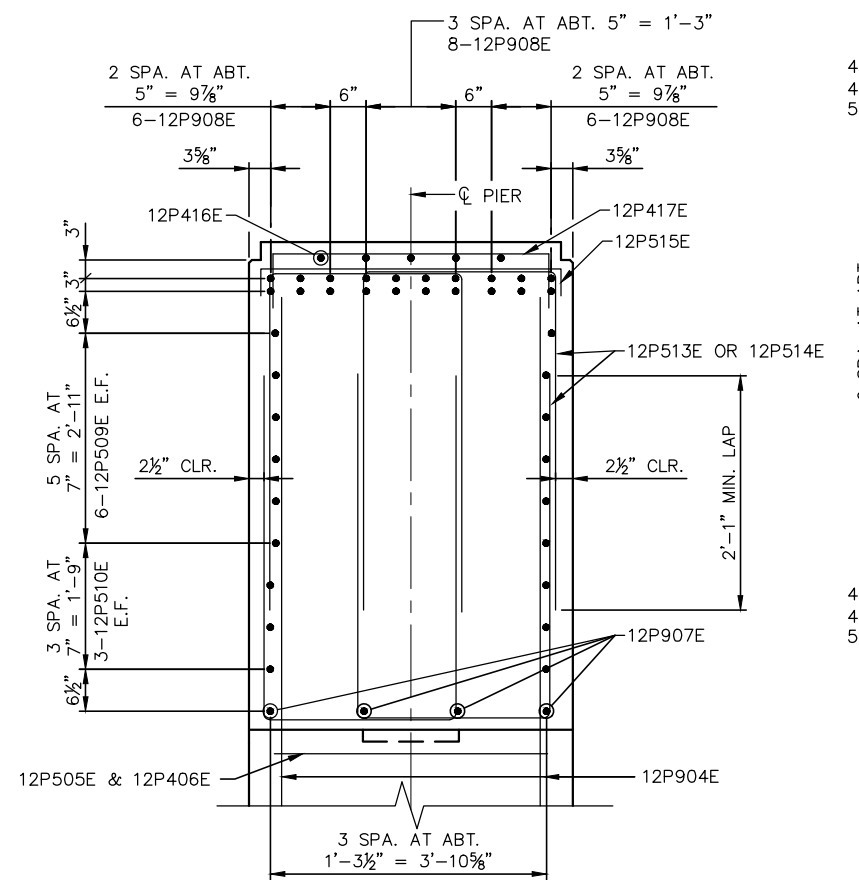
## SOUTHWEST



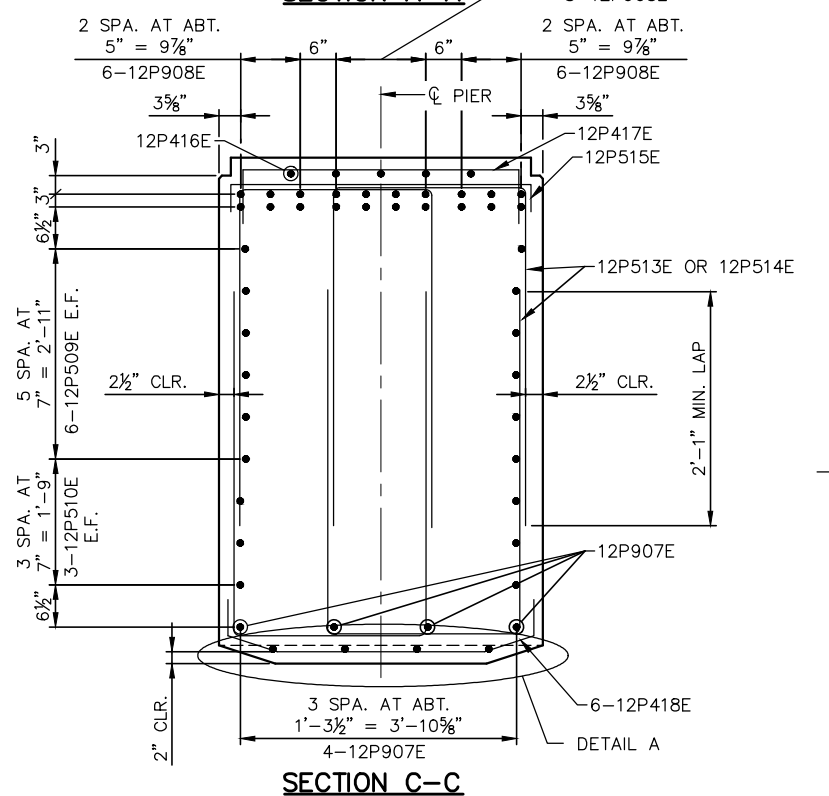
**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 12 REINFORCEMENT 2**

DISCIPLINE: **STRUCTURES**

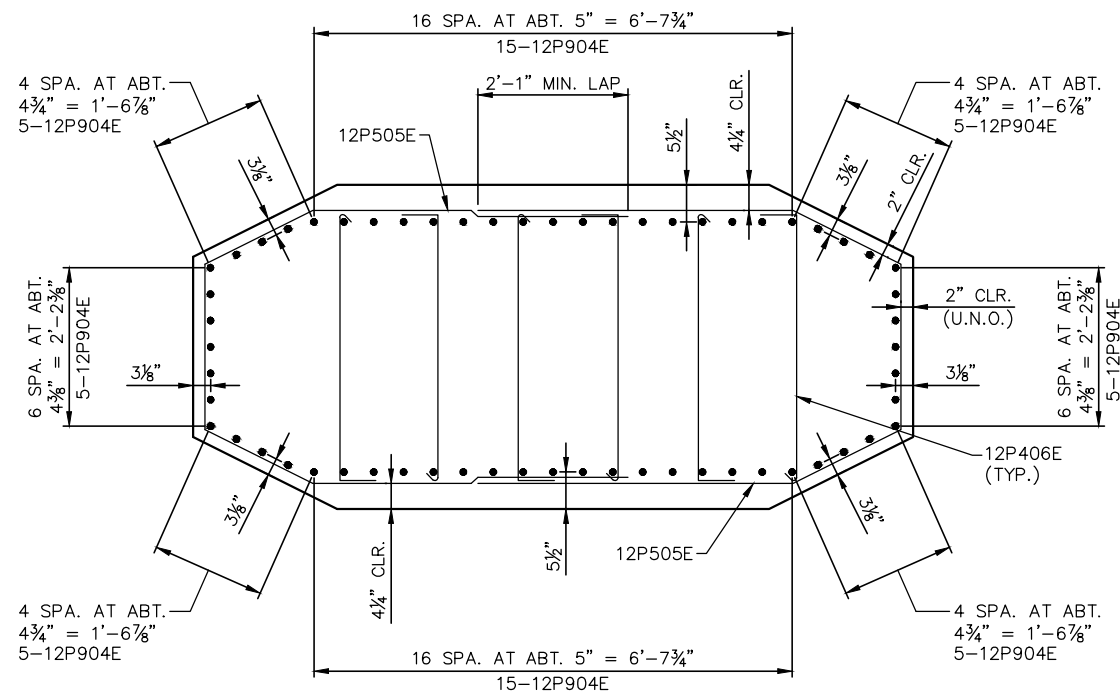
SHEET NAME:	CBR27C06-BRG-PIR-036	2
-------------	----------------------	---



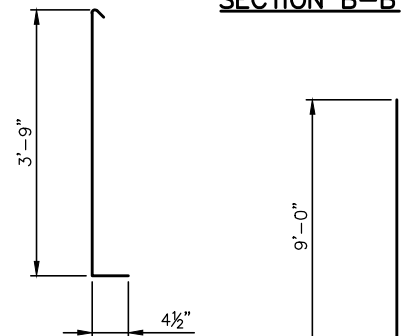
SECTION A-A



SECTION C-C

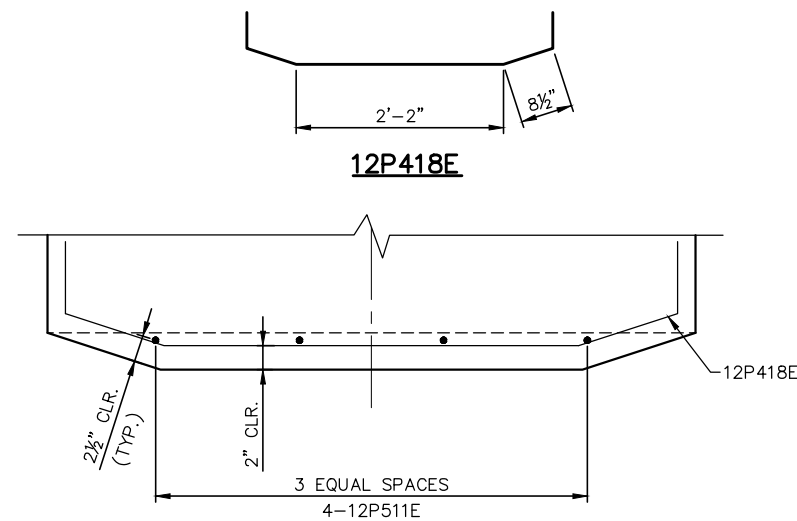


SECTION B-B



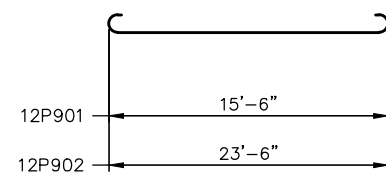
12P406E

12P419

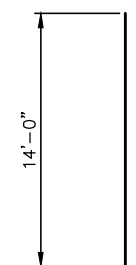


12P418E

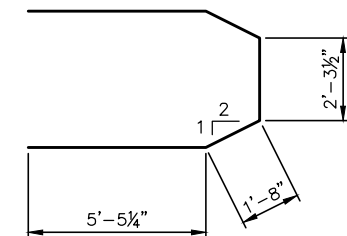
DETAIL A



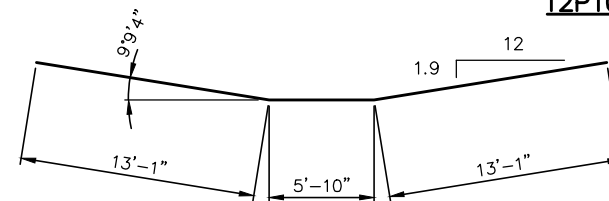
12P901 & 12P902



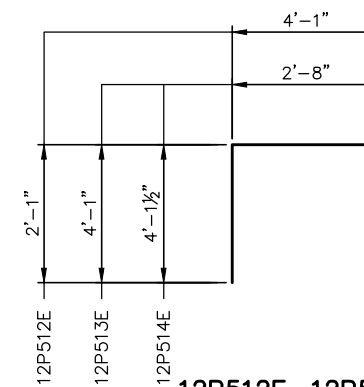
12P1003E



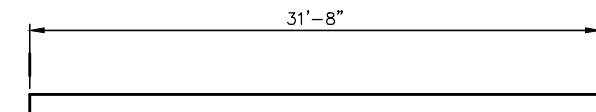
12P505E



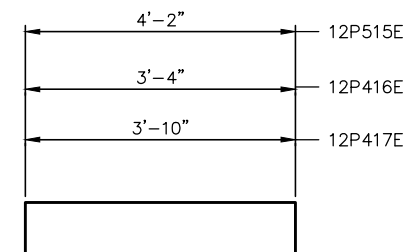
12P907E






















<sup>12</sup>  
12P512E, 12P513E,  
12P514E



12P908E



12P515E, 12P416E, 12P417E

BILL OF REINFORCEMENT FOR PIER 12				
BAR	NO.	LENGTH	SHAPE	LOCATION
12P901	50	18'- 0"		FOOTING - TRANSVERSE
12P902	41	26'- 0"		FOOTING - LONGITUDINAL
12P1003E	60	15'- 10"		FOOTING - DOWELS
12P904E	60	27'- 8"		COLUMN - VERTICAL
12P505E	46	16'- 6"		COLUMN - HORIZONTAL
12P406E	138	4'- 6"		COLUMN - STIRRUPS
12P907E	4	32'- 0"		CAP - LONGITUDINAL
12P908E	20	34'- 10"		CAP - LONGITUDINAL
12P509E	12	31'- 8"		CAP - LONGITUDINAL
12P510E	2 SERIES OF 3	13'-4" TO 25'-6"		CAP - LONGITUDINAL
12P511E	8	6'- 0"		CAP - LONGITUDINAL
12P512E	12	8'- 3"		CAP - TIES
12P513E	8	10'- 10"		CAP - STIRRUPS
12P514E	180	10'- 11"		CAP - STIRRUPS
12P515E	47	5'- 2"		CAP - TIES
12P416E	32	5'- 0"		PEDESTAL - TIES
12P417E	24	5'- 6"		PEDESTAL - TIES
12P418E	6	4'- 4"		CAP - STIRRUPS
12P419	12	9'- 10"		PILES

NOTES:

SEE SHEET 67 FOR SECTIONS A-A, B-B & C-C.

E.F. DENOTES EACH FACE.

U.N.O. DENOTES UNLESS OTHERWISE NOTED.

[illegible]

DESIGNED BY: <b>RJH</b>	CHECKED BY: <b>AMA</b>
DRAWN BY: <b>JAS</b>	CHECKED BY: <b>ATN</b>

**90% SUBMISSION - 01/22/16**



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 12 REINFORCEMENT 3**

DISCIPLINE: **STRUCTURES**

SHEET NAME:	CBR27C06-BRG-PIR-037
-------------	----------------------

SHEET
68
OF
232

PIER 13 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR C-I-P PILES R <sub>n</sub> – TONS/PILE		
FIELD CONTROL METHOD	Φ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	197.4


\* R<sub>n</sub> = (FACTORED DESIGN LOAD) / Φ<sub>dyn</sub>

PIER 12 COMPUTED PILE LOAD – TONS/PILE		
FACTORED DEAD LOAD	70.7	48.5
FACTORED LIVE LOAD	15.0	0.0
FACTORED OVERTURNING	42.9	–54.7
FACTORED DESIGN LOAD	128.3	–
FACTORED DESIGN UPLIFT	–	–5.7
LOAD COMBINATION	STRENGTH V	EXTREME EVENT II

PILE NOTES


- 1 CAST-IN-PLACE CONC. TEST PILE 80 FT. LONG.  
19 CAST-IN-PLACE CONC. PILES EST. LENGTH 70 FT.  
20 CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 13 FOOTING.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THUS  TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.

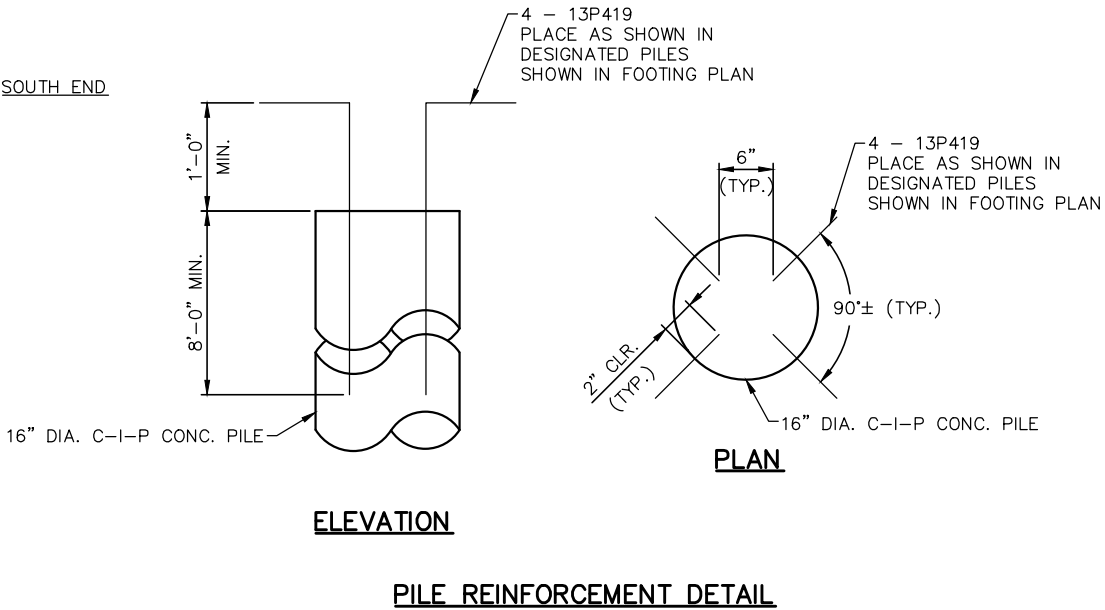
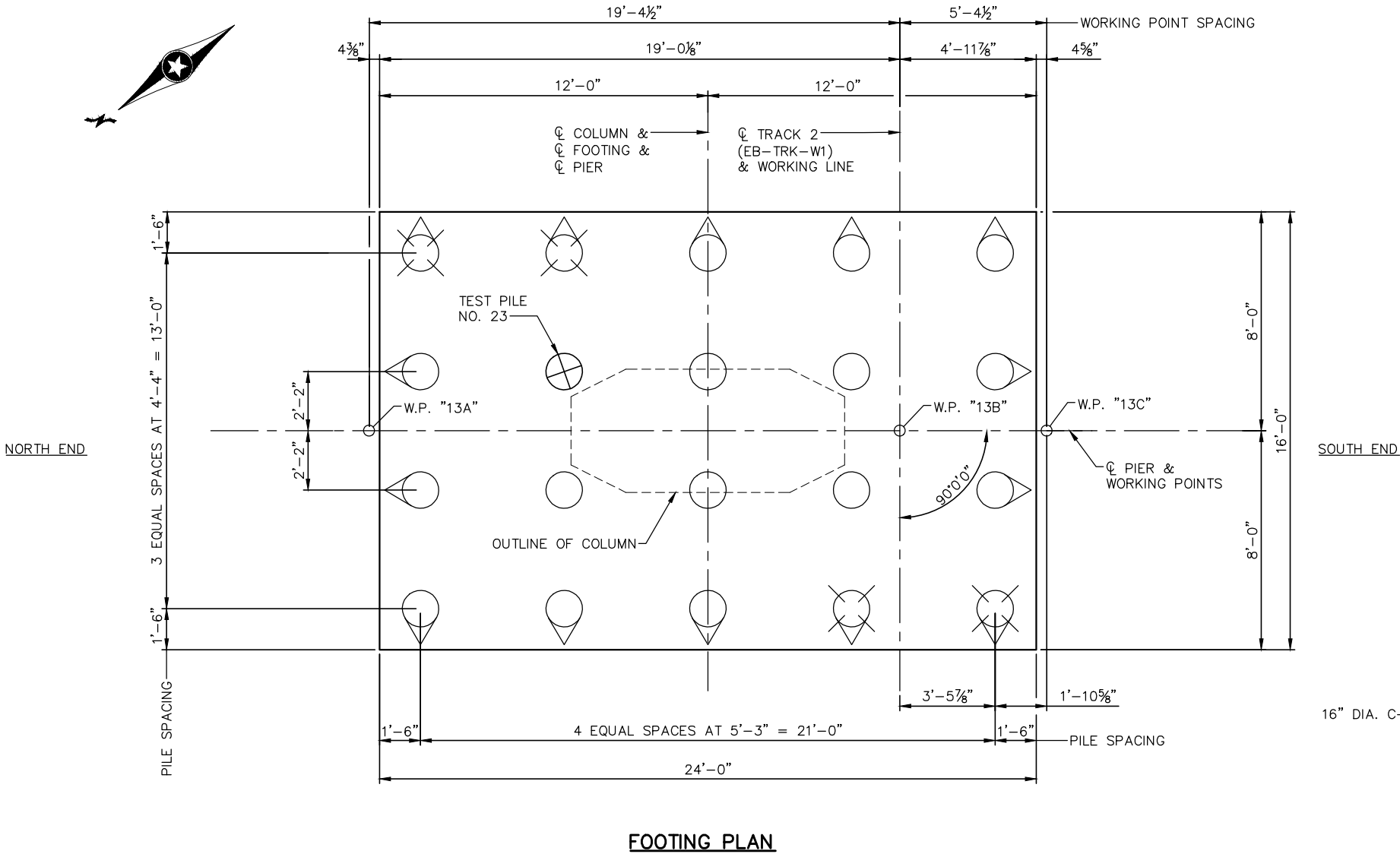
PILES TO HAVE A NOMINAL DIAMETER OF 16" AND A MINIMUM WALL THICKNESS OF 0.3125".

FOR PILE SPLICE DETAILS SEE DETAIL B201, SHEET 197.

PILES MARKED THUS  ARE SUBJECT TO UPLIFT AND ARE TO BE REINFORCED PER PILE REINFORCEMENT DETAIL.

CONTRACTOR TO ORIENT PILE REINFORCEMENT TO MAINTAIN 3" CLEAR TO EDGE OF FOOTING. CONTRACTOR MAY FIELD ADJUST BOTTOM REINFORCEMENT BARS TO ACCOMODATE PILE REINFORCEMENT DETAIL.

ALL PILES TO BE DRIVEN TO A MINIMUM TIP ELEVATION OF 772.7.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN



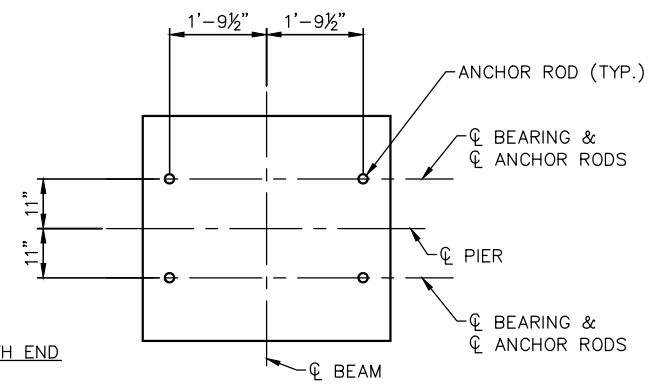
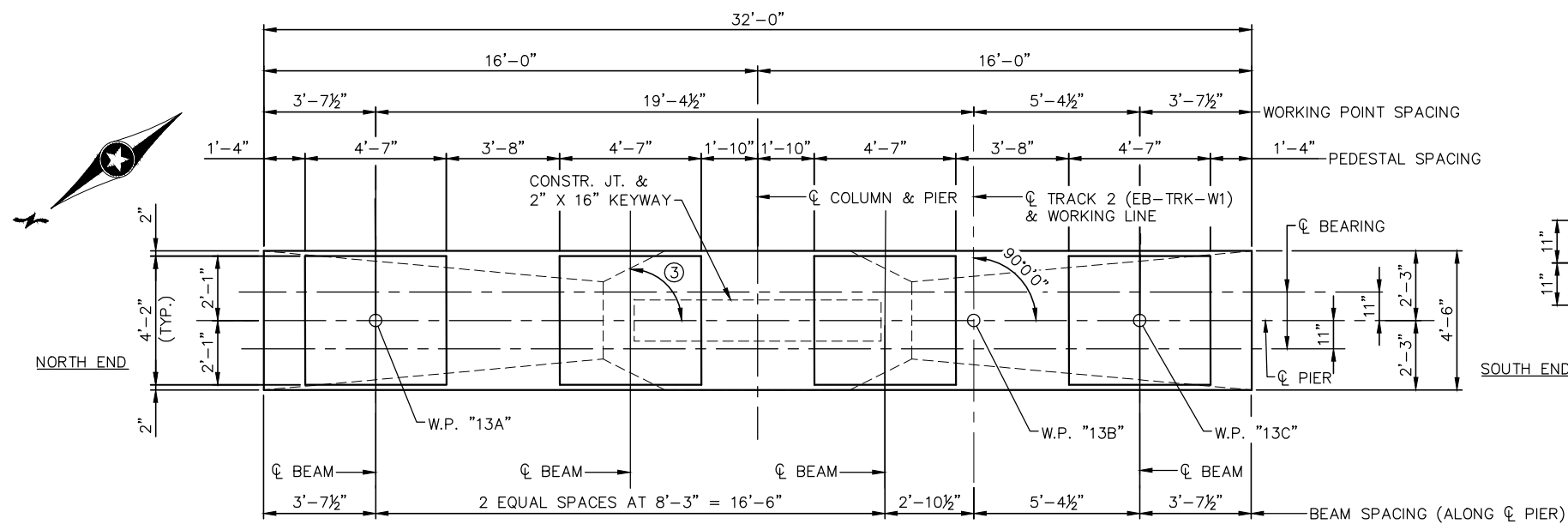
90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 13 GEOMETRICS 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-038

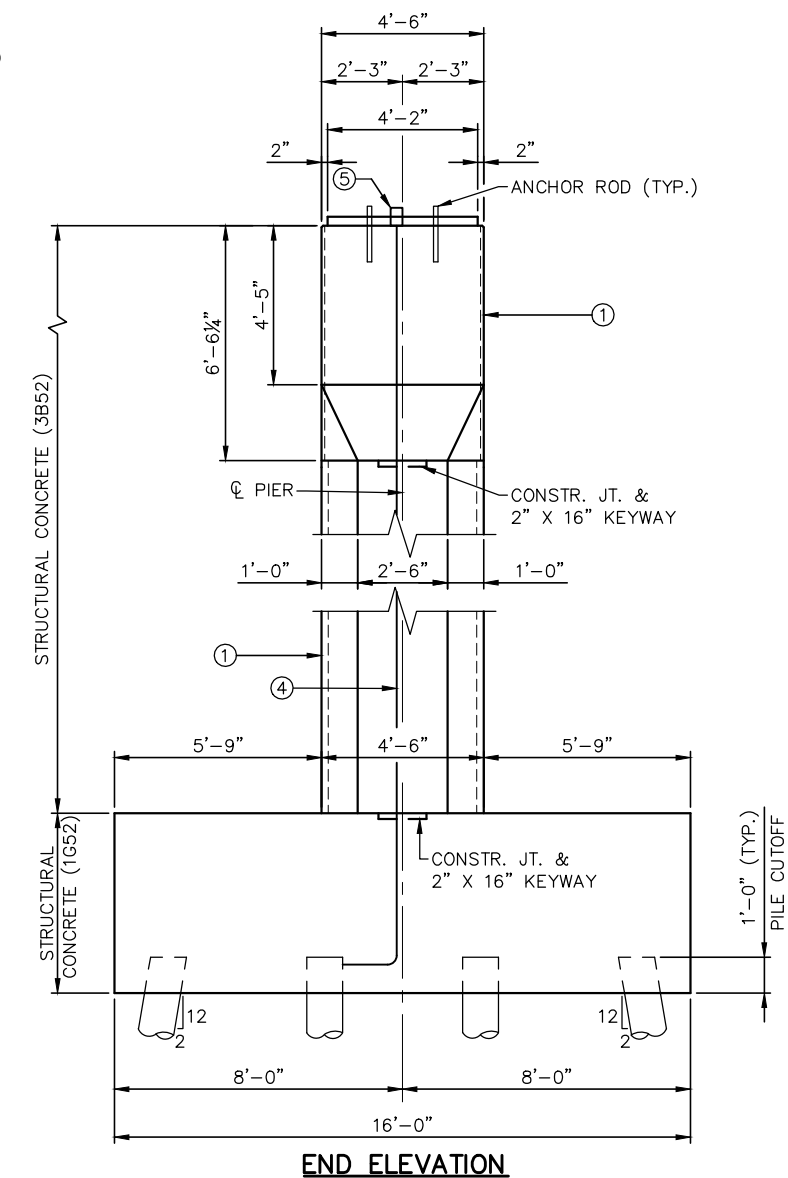
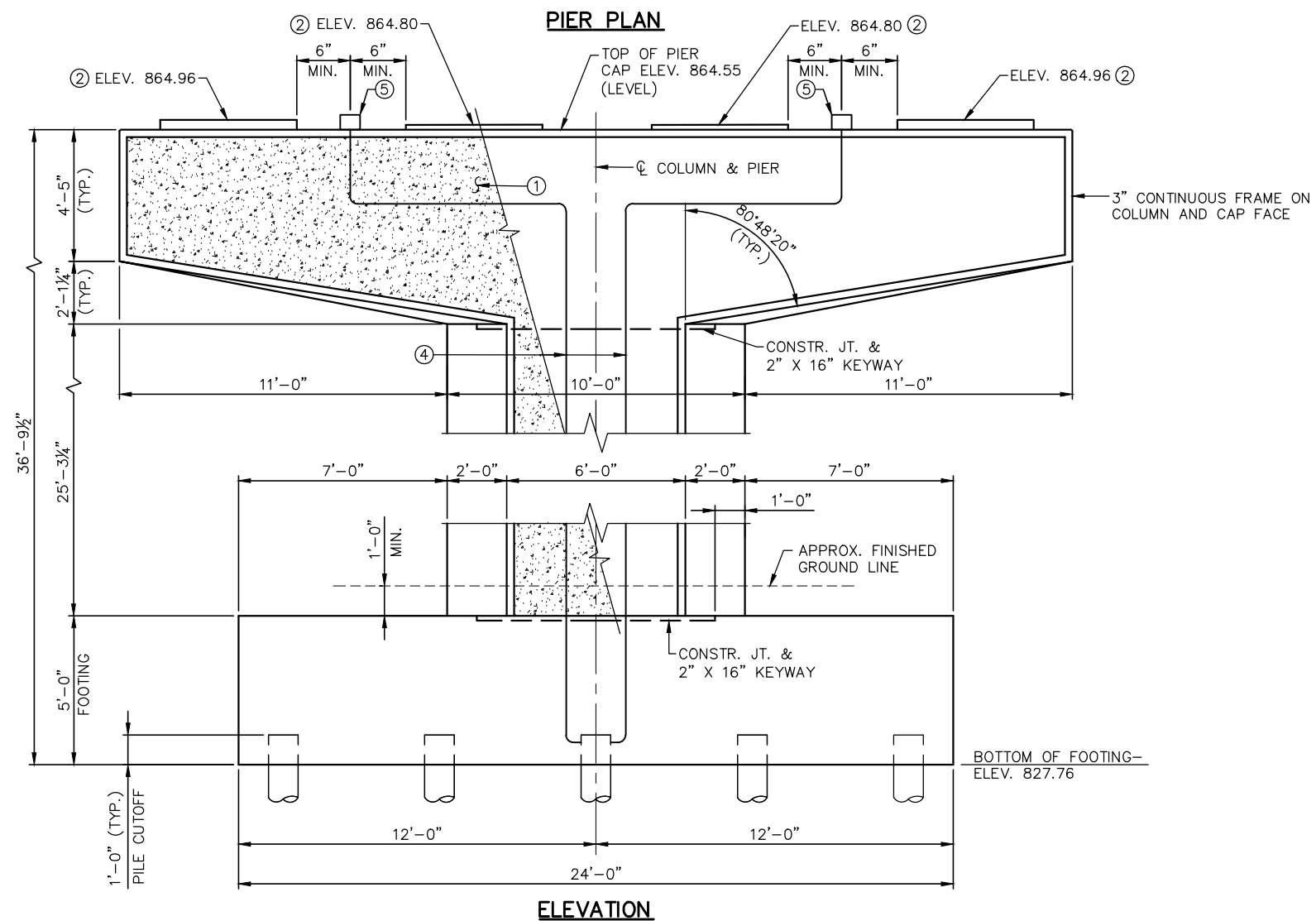
SHEET
69
OF
232

Jan, 19 2016 09:36 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-008.dwg By: butterfielda



- NOTES:

- ① TEXTURED RECESSED PANEL ON FACE OF PIERS, SEE SHEET 24.
- ② ELEVATIONS DETERMINED AT  $\frac{1}{2}$  OF BEARING ON THE LOW SIDE OF THE PROFILE GRADE LINE.
- ③ FOR BEAM ANGLES SEE SHEET 111.
- ④ GROUND WIRE PLACED INSIDE 1" PVC CONDUIT, SEE SHEET ELE-SITE-DTL-600.
- ⑤ JUNCTION BOX, SEE SHEET ELE-SITE-DTL-600.

[illegible]

DESIGNED BY: <b>RJH</b>	CHECKED BY: <b>AMA</b>
DRAWN BY: <b>JAS</b>	CHECKED BY: <b>ATN</b>

CHECKED BY:	AMA
CHECKED BY:	ATN

DRAWN BY:	JAS
-----------	-----

CHECKED BY: ATN

**AECOM**

**90% SUBMISSION - 01/22/16**



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 13 GEOMETRICS 2**

**BRIDGE 27C06**  
**PIER 13 GEOMETRICS 2**

## PIER 13 GEOMETRICS 2

## PIER 13 GEOMETRICS 2

DISCIPLINE:

## STRUCTURES

<b>SHEET NAME:</b>
--------------------

CBR27C06-BRG-PIR-039

SHEET

70

OF

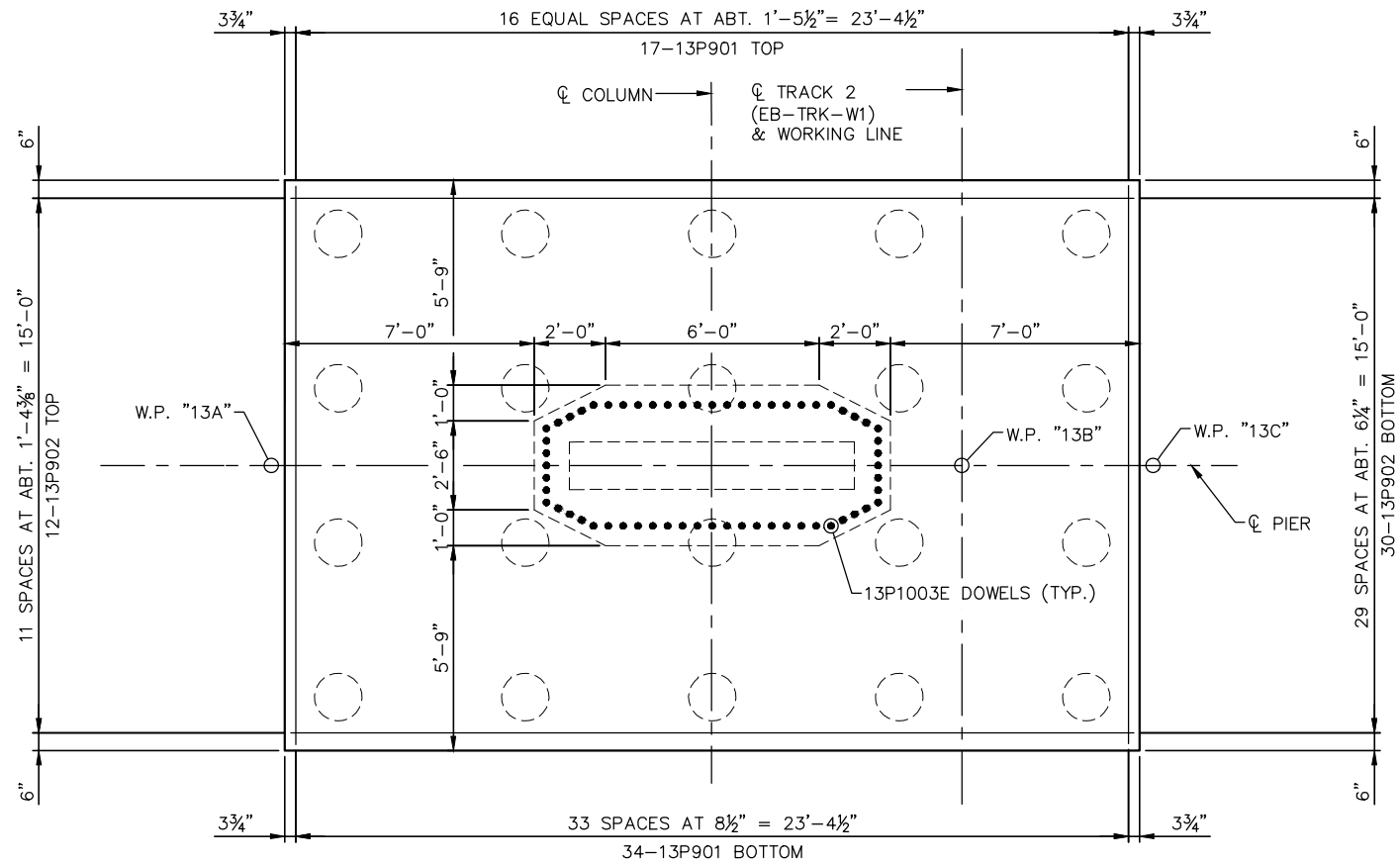
32

Jan, 19 2016 09:36 am V:\3400\_ADC\CAD\SEGEMNT WI\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-008.dwg By: butterfielda

Jan, 19 2016 09:37 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-023.dwg By: butterfielda

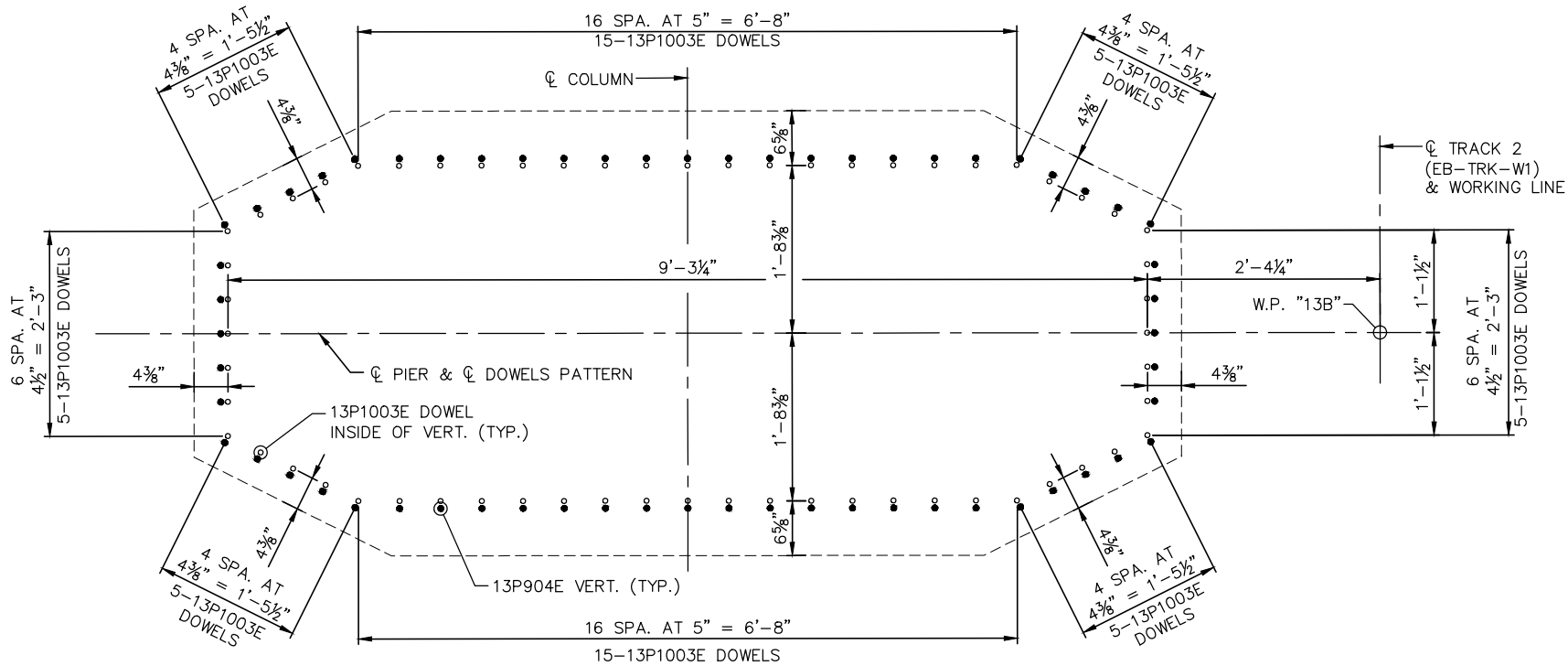


NORTH END



SOUTH END

NORTH END



SOUTH END

NOTES:

- DENOTES COLUMN BAR
- DENOTES FOOTING DOWEL

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

DISCIPLINE: STRUCTURES

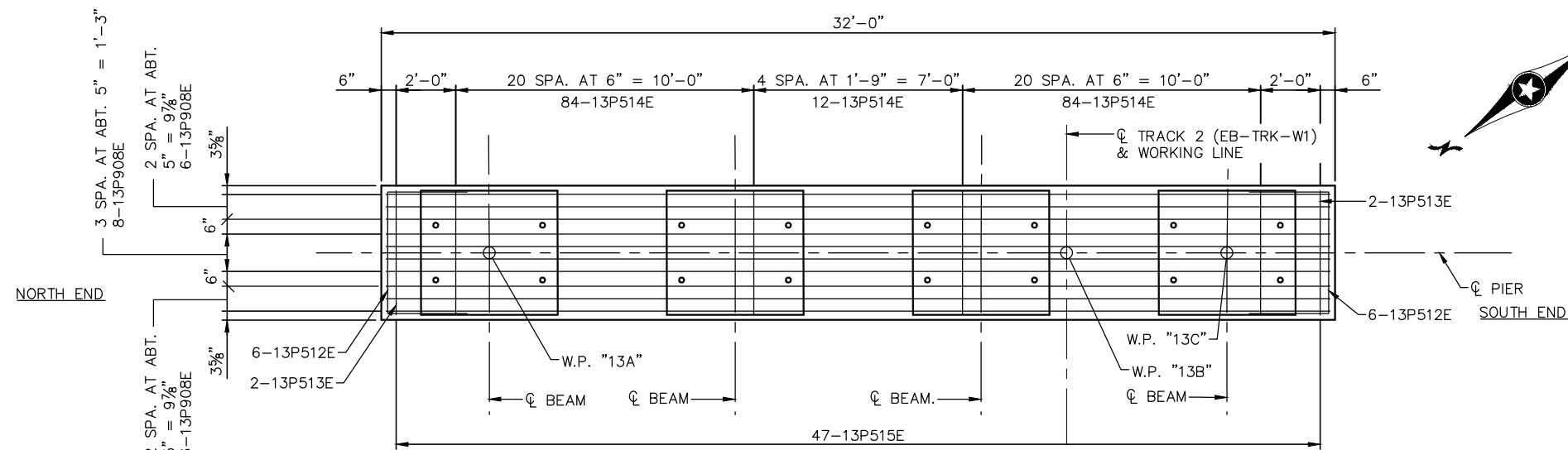
SHEET NAME: CBR27C06-BRG-PIR-040

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 13 REINFORCEMENT 1

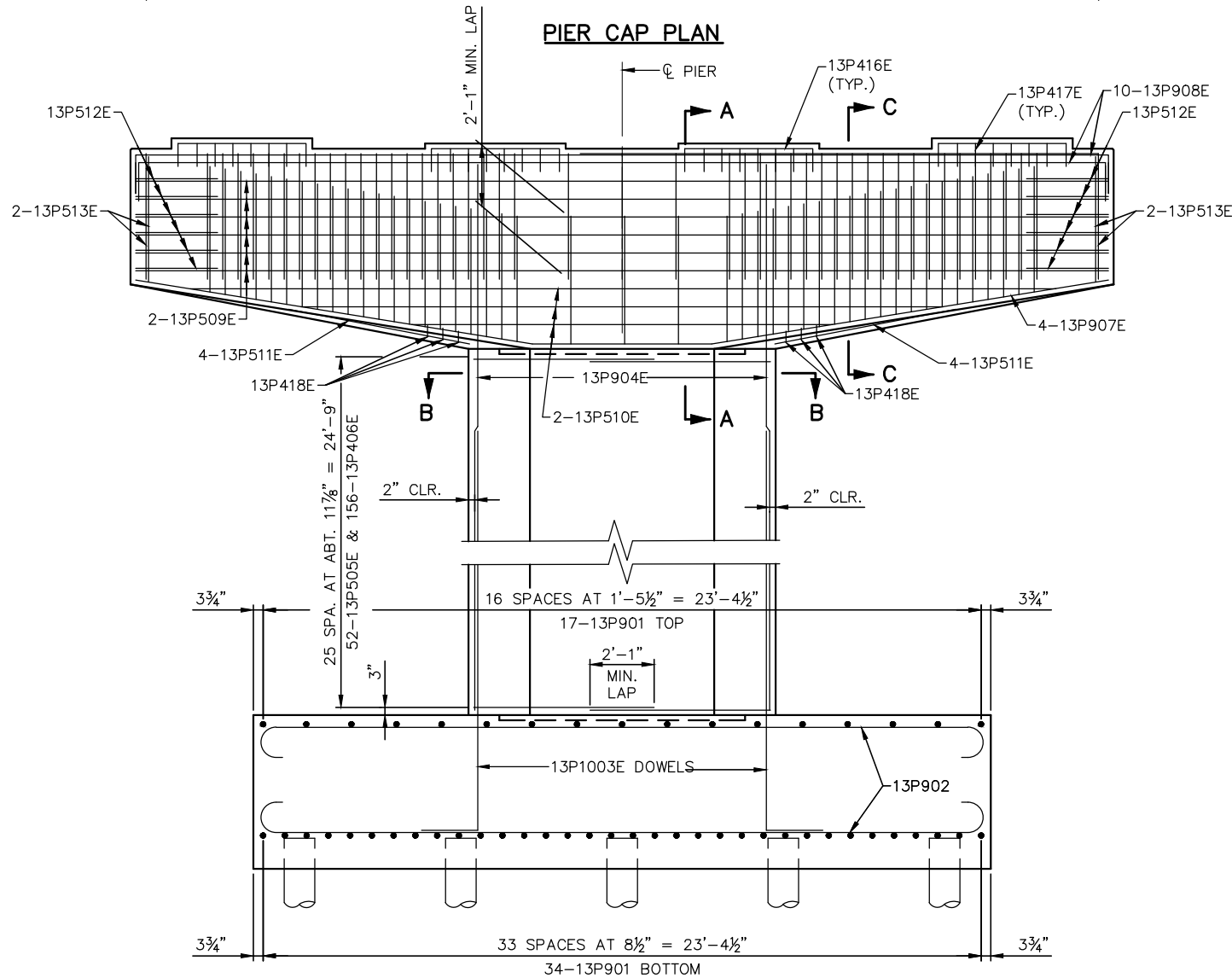
SHEET  
71  
OF  
232



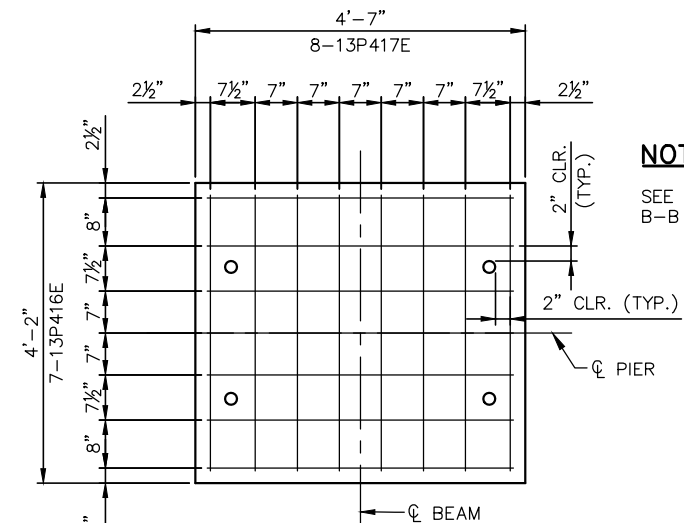
Jan, 19 2016 09:37 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-023.dwg By: butterfielda



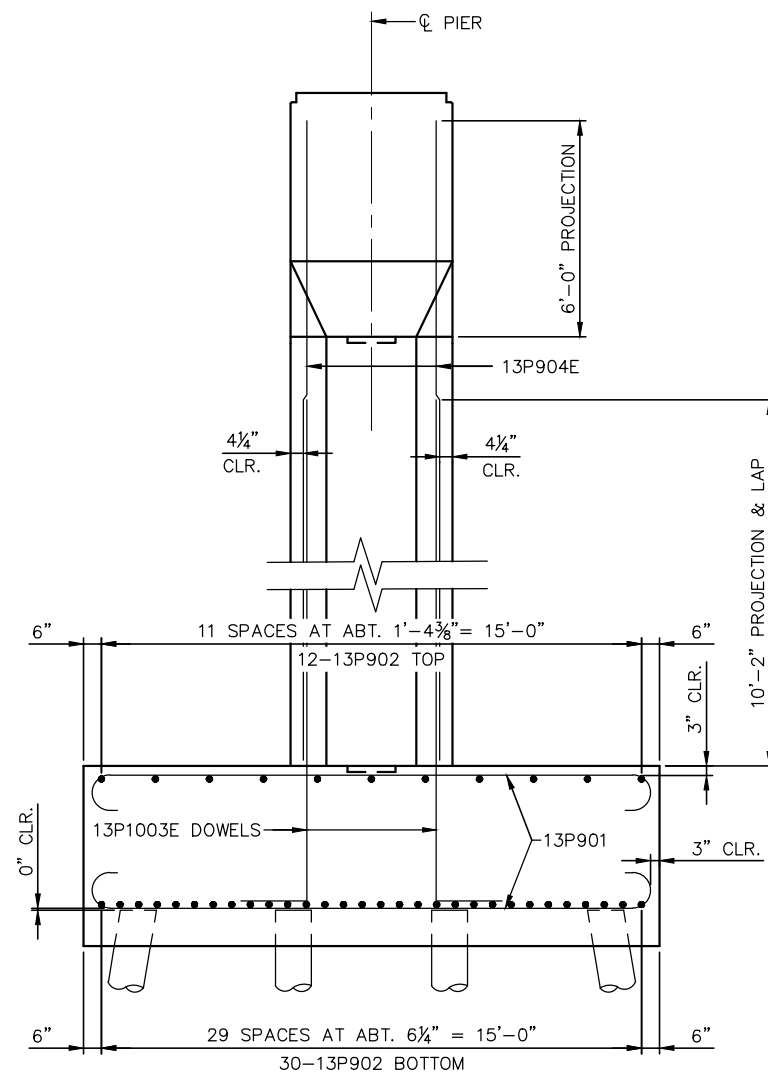
PIER CAP PLAN



ELEVATION



PEDESTAL PLAN VIEW



END ELEVATION


**NOTES:**  
SEE SHEET 73 FOR SECTIONS A-A,  
B-B & C-C.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN



90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**PIER 13 REINFORCEMENT 2**

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-PIR-041



PIER 14 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR C-I-P PILES R <sub>n</sub> – TONS/PILE		
FIELD CONTROL METHOD	ϕ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	189.4


\* R<sub>n</sub> = (FACTORED DESIGN LOAD) / ϕ<sub>dyn</sub>

PIER 14 COMPUTED PILE LOAD – TONS/PILE		
FACTORED DEAD LOAD	66.9	46.1
FACTORED LIVE LOAD	14.9	0.0
FACTORED OVERTURNING	41.3	–47.6
FACTORED DESIGN LOAD	123.1	–
FACTORED DESIGN UPLIFT	–	–1.5
LOAD COMBINATION	STRENGTH V	EXTREME EVENT II

PILE NOTES

- 1
- 21
- 22
- CAST-IN-PLACE CONC. TEST PILE 95 FT. LONG.
- CAST-IN-PLACE CONC. PILES EST. LENGTH 85 FT.
- CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 14 FOOTING.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THUS  TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.

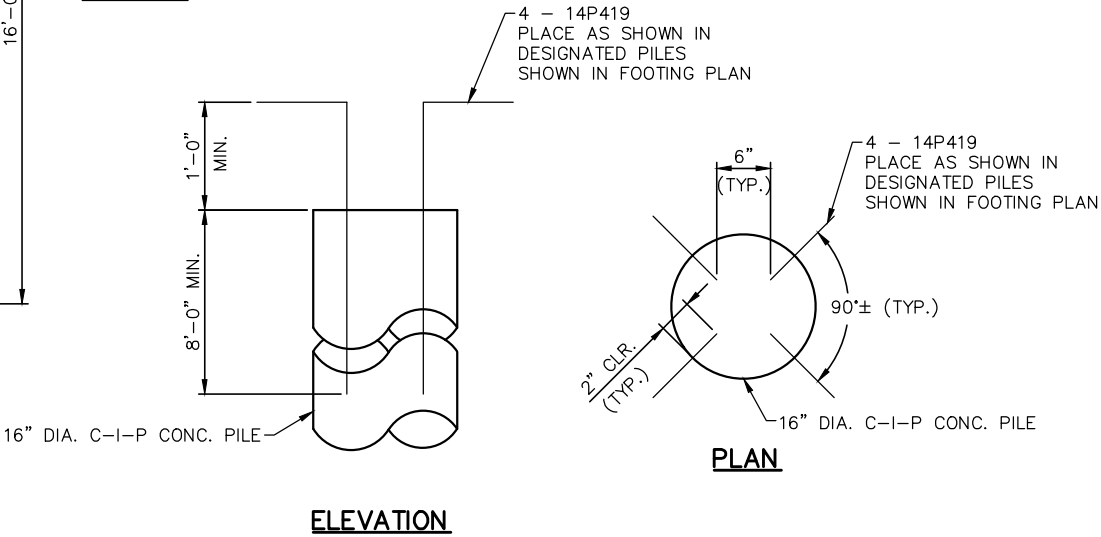
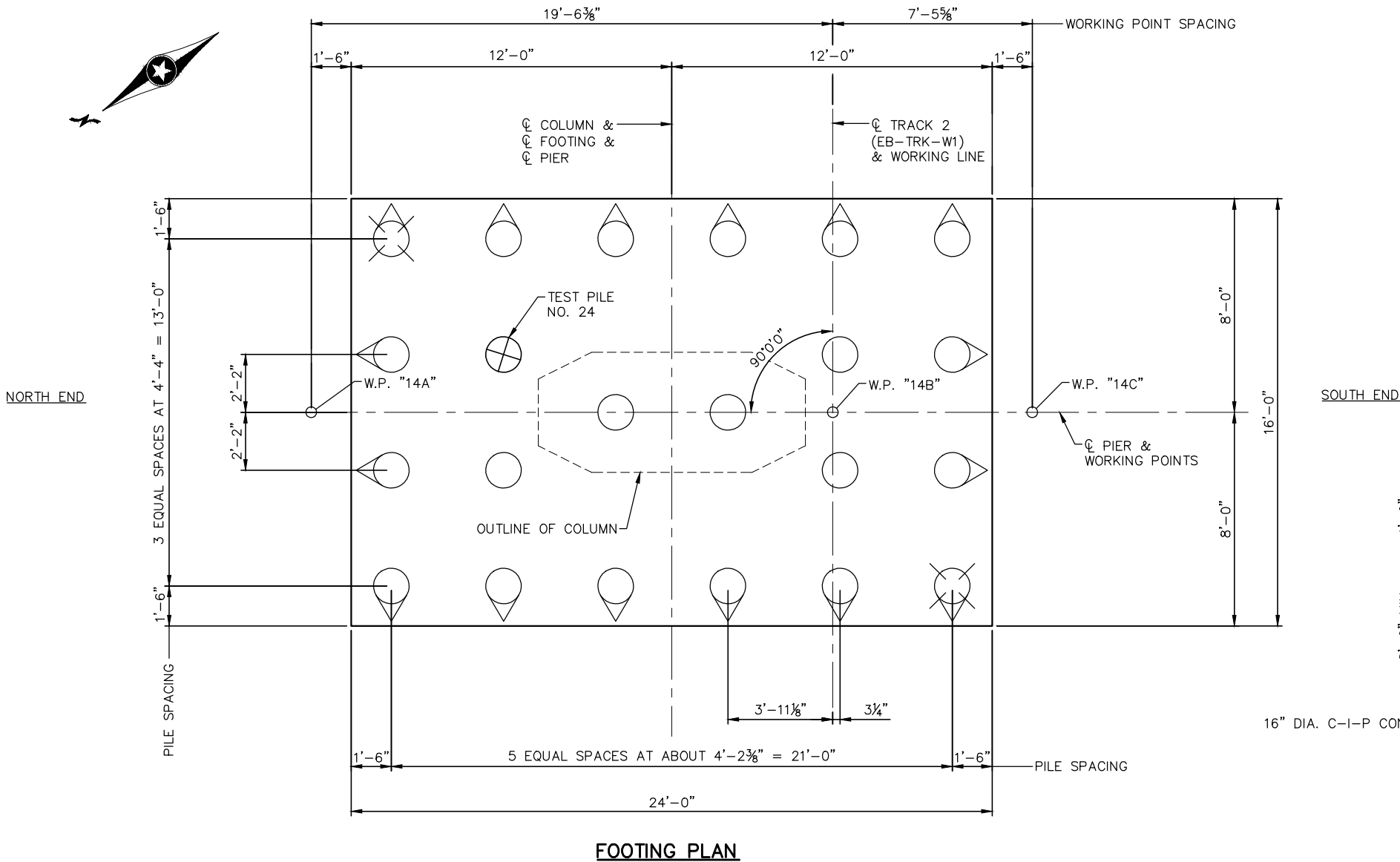
PILES TO HAVE A NOMINAL DIAMETER OF 16" AND A MINIMUM WALL THICKNESS OF 0.3125".

FOR PILE SPLICE DETAILS SEE DETAIL B201, SHEET 197.

PILES MARKED THUS  ARE SUBJECT TO UPLIFT AND ARE TO BE REINFORCED PER PILE REINFORCEMENT DETAIL.

CONTRACTOR TO ORIENT PILE REINFORCEMENT TO MAINTAIN 3" CLEAR TO EDGE OF FOOTING. CONTRACTOR MAY FIELD ADJUST BOTTOM REINFORCEMENT BARS TO ACCOMODATE PILE REINFORCEMENT DETAIL.

ALL PILES TO BE DRIVEN TO A MINIMUM TIP ELEVATION OF 771.4..



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN





90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 14 GEOMETRICS 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-043

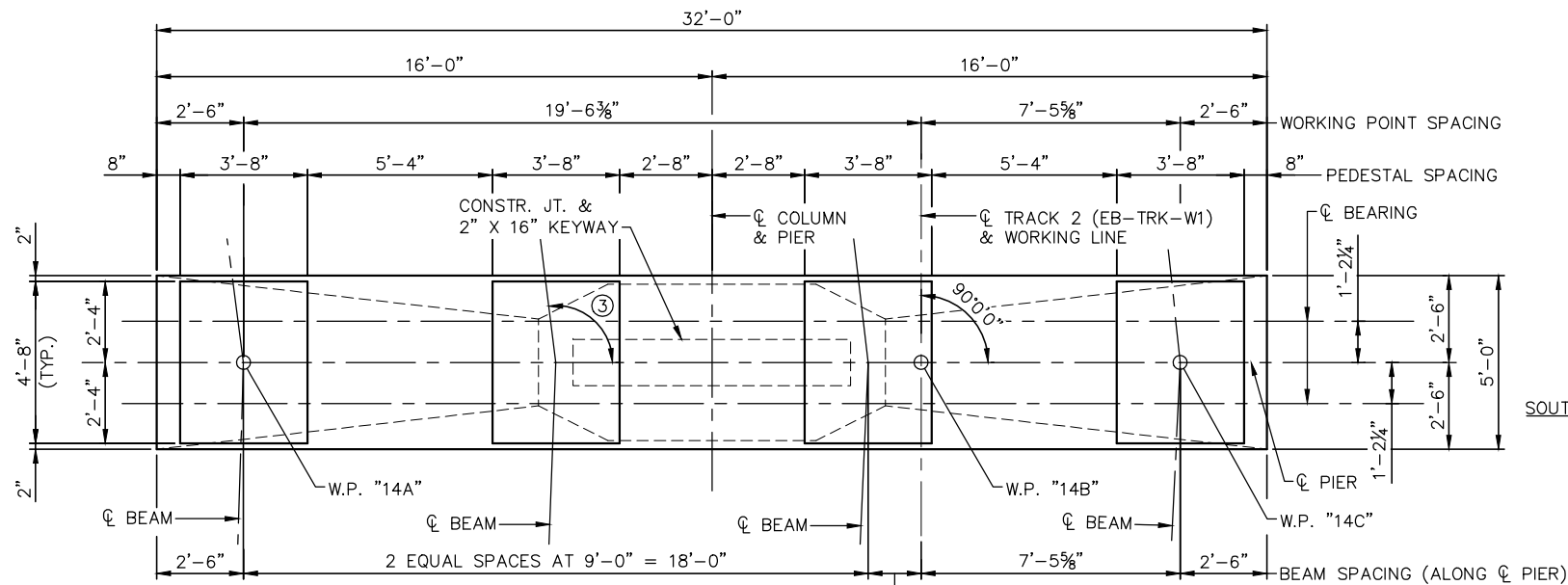
SHEET
74
OF
232

Jan, 19 2016 09:37 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-009.dwg By: butterfielda

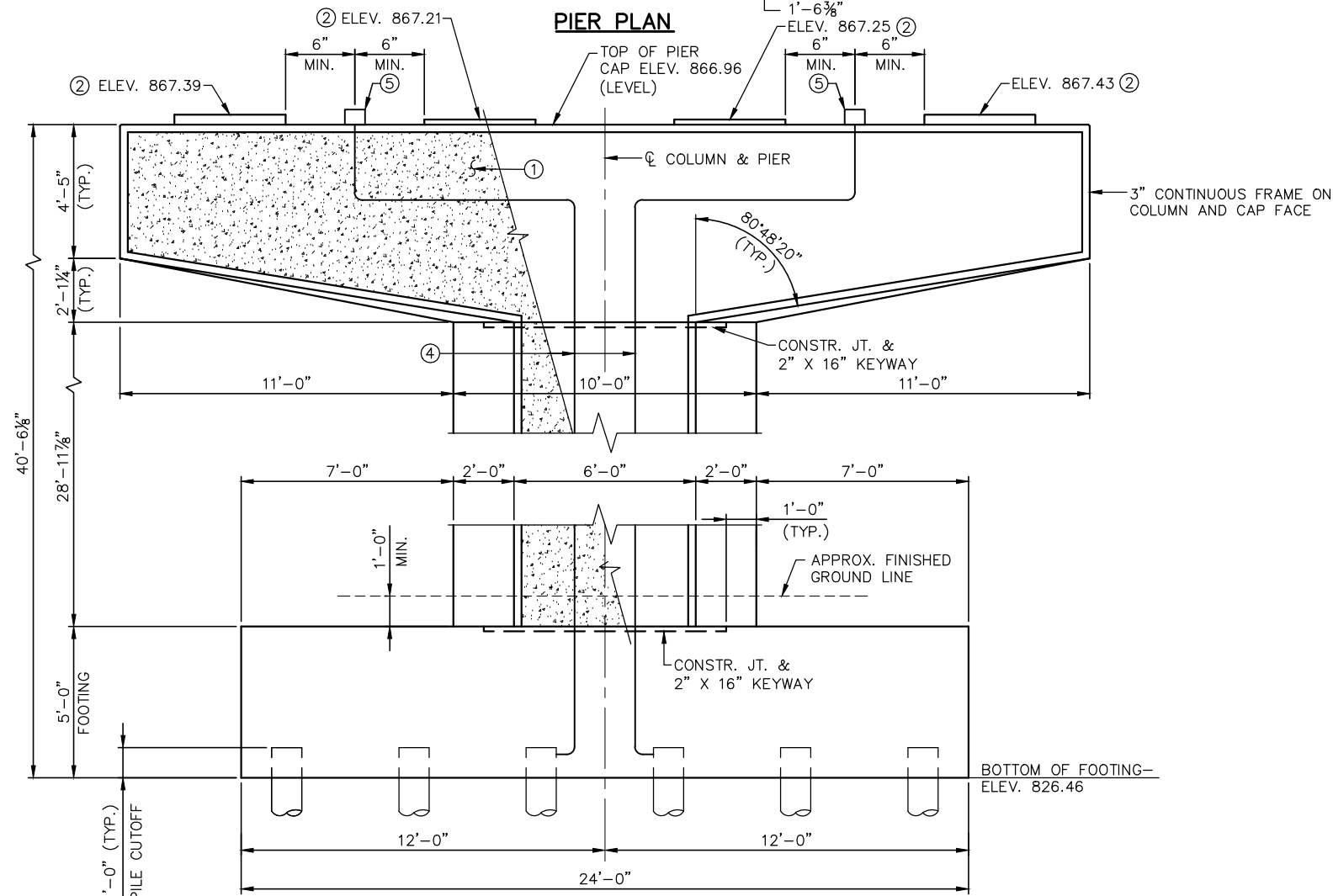


NORTH END

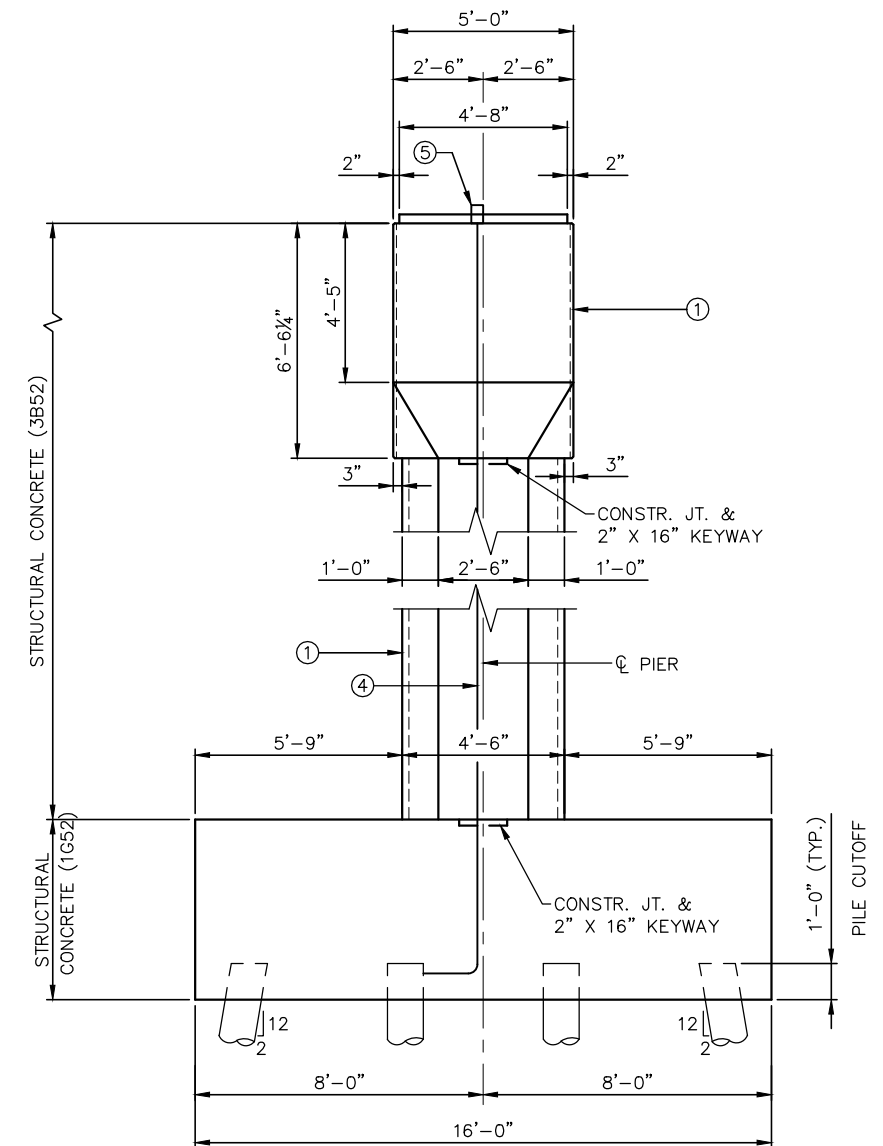
SOUTH END



PIER PLAN



ELEVATION



END ELEVATION

NOTES:

- ① TEXTURED RECESSED PANEL ON FACE OF PIERS, SEE SHEET 24.
- ② ELEVATIONS DETERMINED AT  $\phi$  OF BEARING ON THE LOW SIDE OF THE PROFILE GRADE LINE.
- ③ FOR BEAM ANGLES SEE SHEET 111.
- ④ GROUND WIRE PLACED INSIDE 1" PVC CONDUIT, SEE SHEET ELE-SITE-DTL-600.
- ⑤ JUNCTION BOX, SEE SHEET ELE-SITE-DTL-600.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: JAS  
CHECKED BY: AMA  
CHECKED BY: ATN

AECOM

90% SUBMISSION - 01/22/16



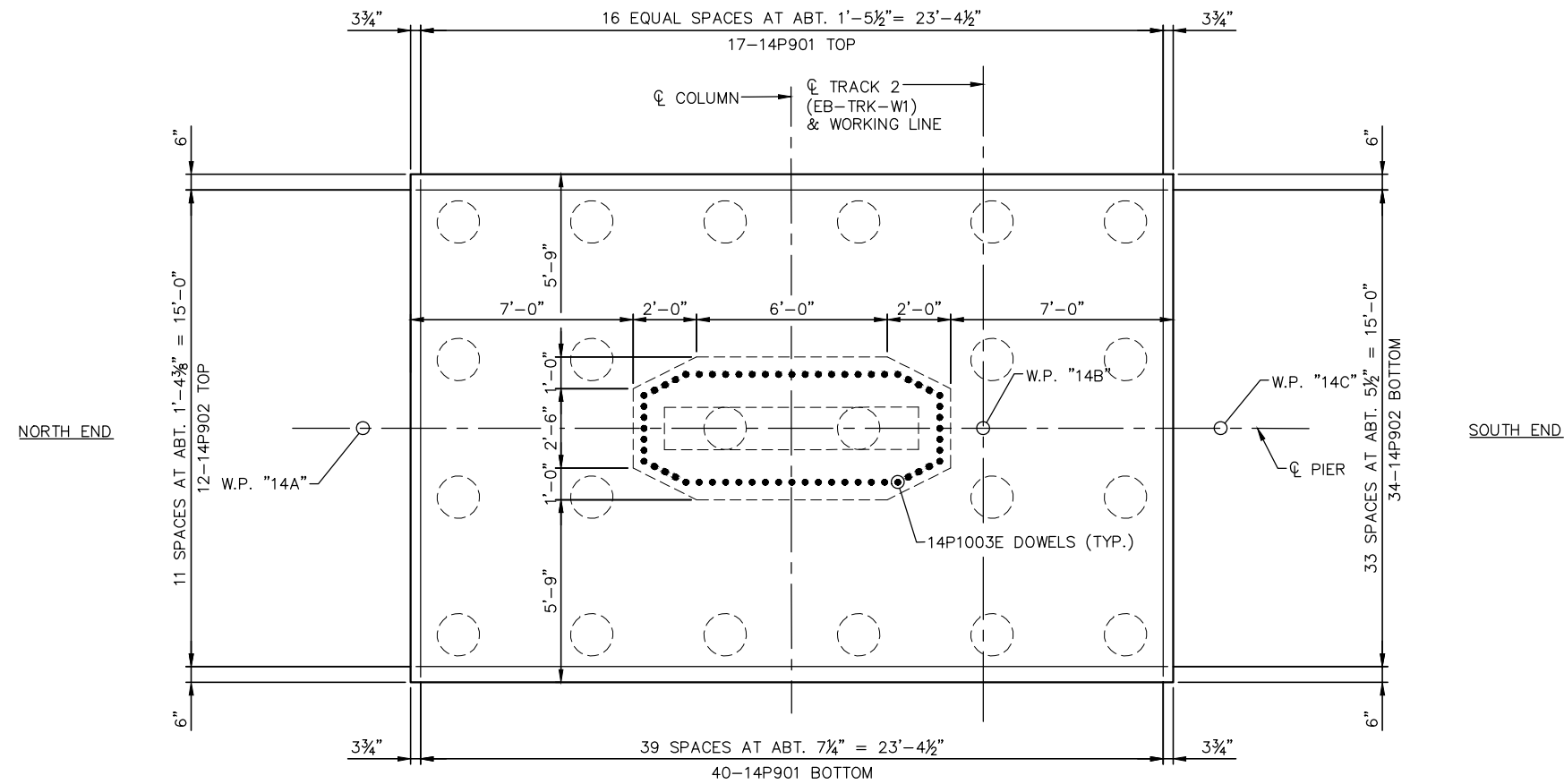
CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 14 GEOMETRICS 2

DISCIPLINE:  
STRUCTURES

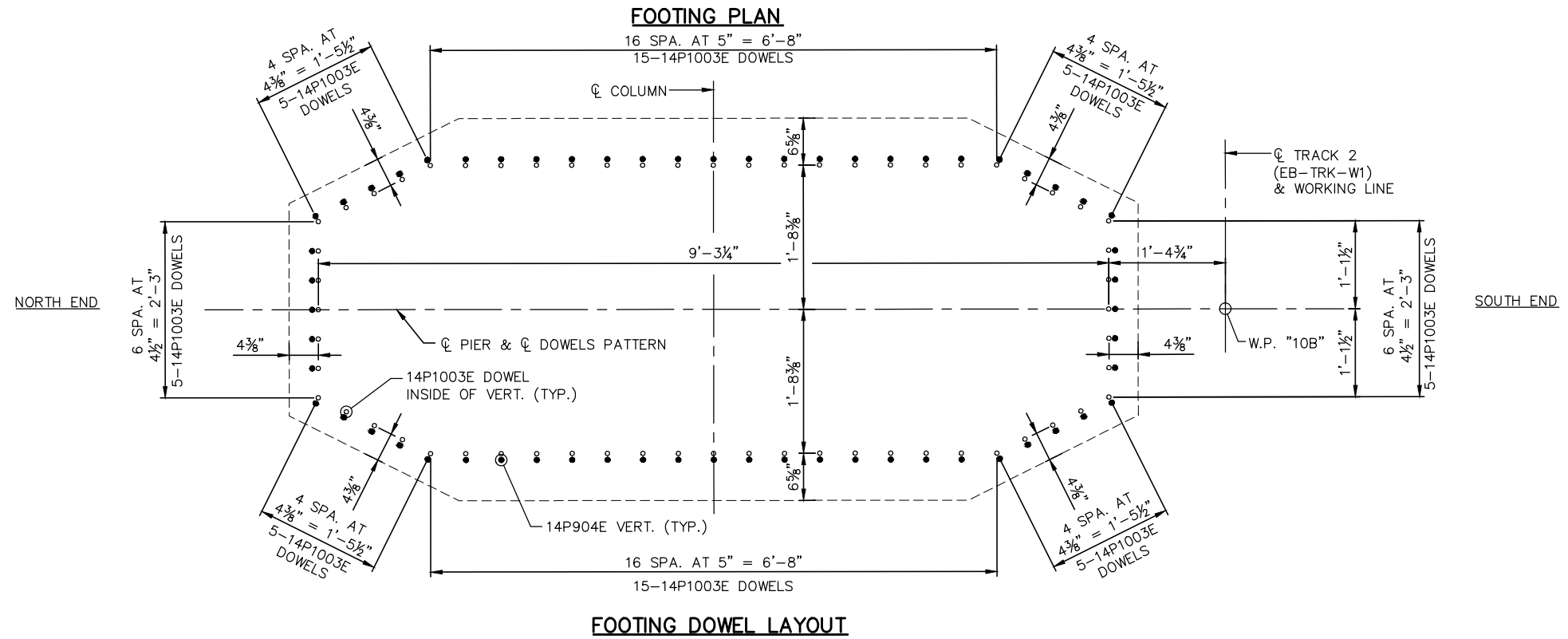
SHEET NAME:  
CBR27C06-BRG-PIR-044

SHEET  
75  
OF  
232

Jan, 19 2016 09:37 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-024.dwg By: butterfielda



- NOTES:**
- DENOTES COLUMN BAR
  - DENOTES FOOTING DOWEL



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN



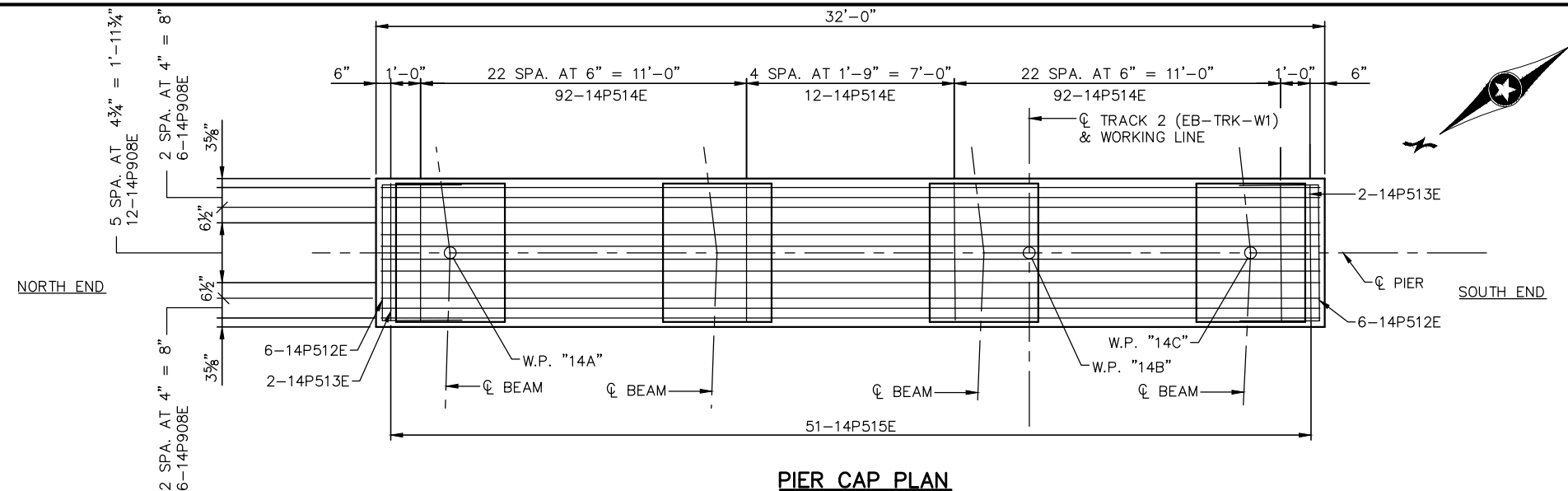
90% SUBMISSION - 01/22/16



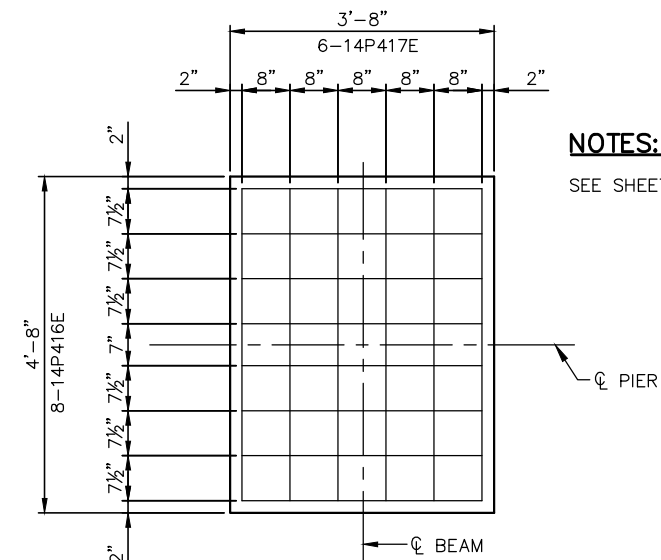
CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 14 REINFORCEMENT 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-045

SHEET
76
OF
232

Jan, 19 2016 09:38 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-024.dwg By: butterfielda



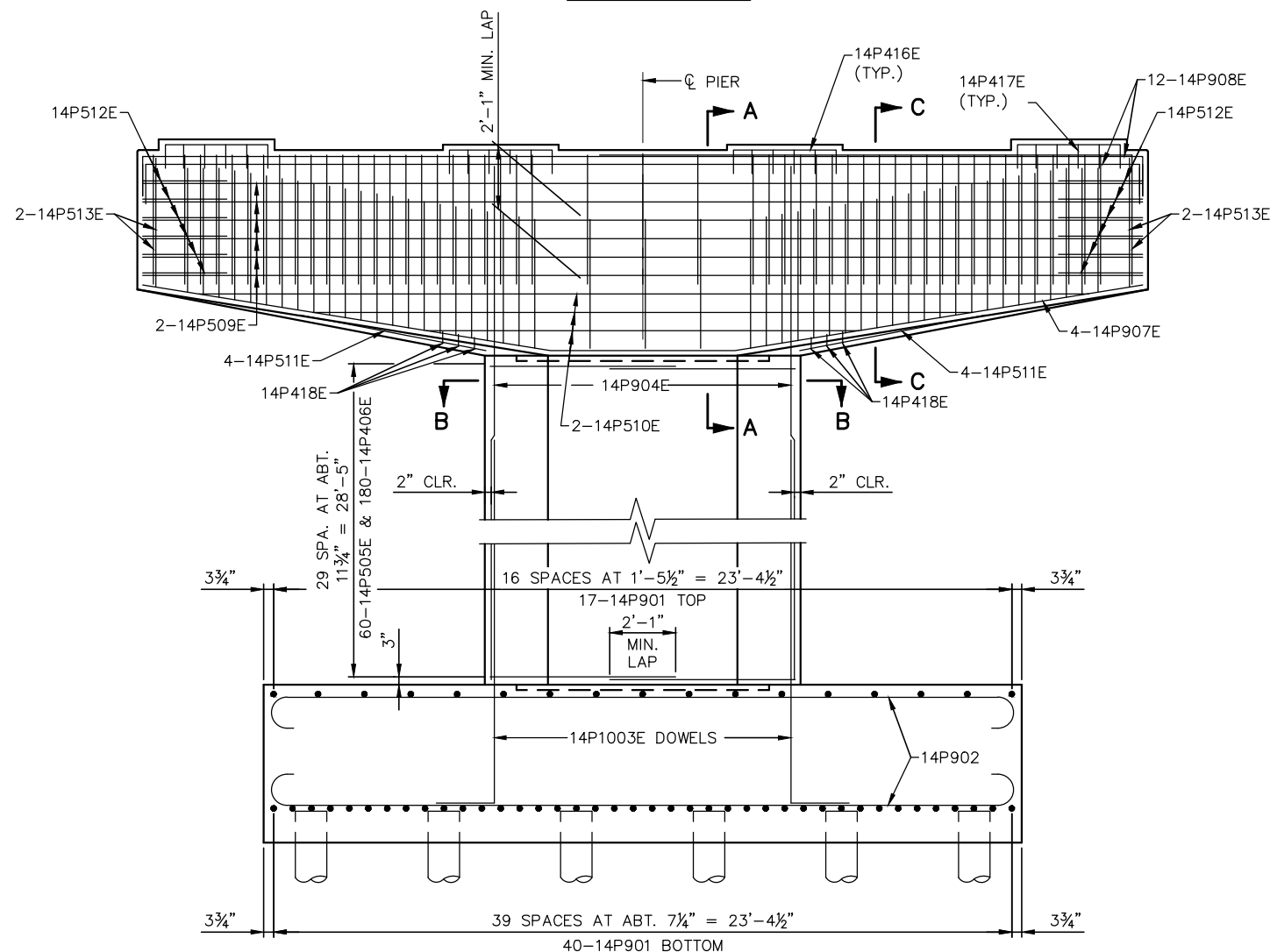
PIER CAP PLAN



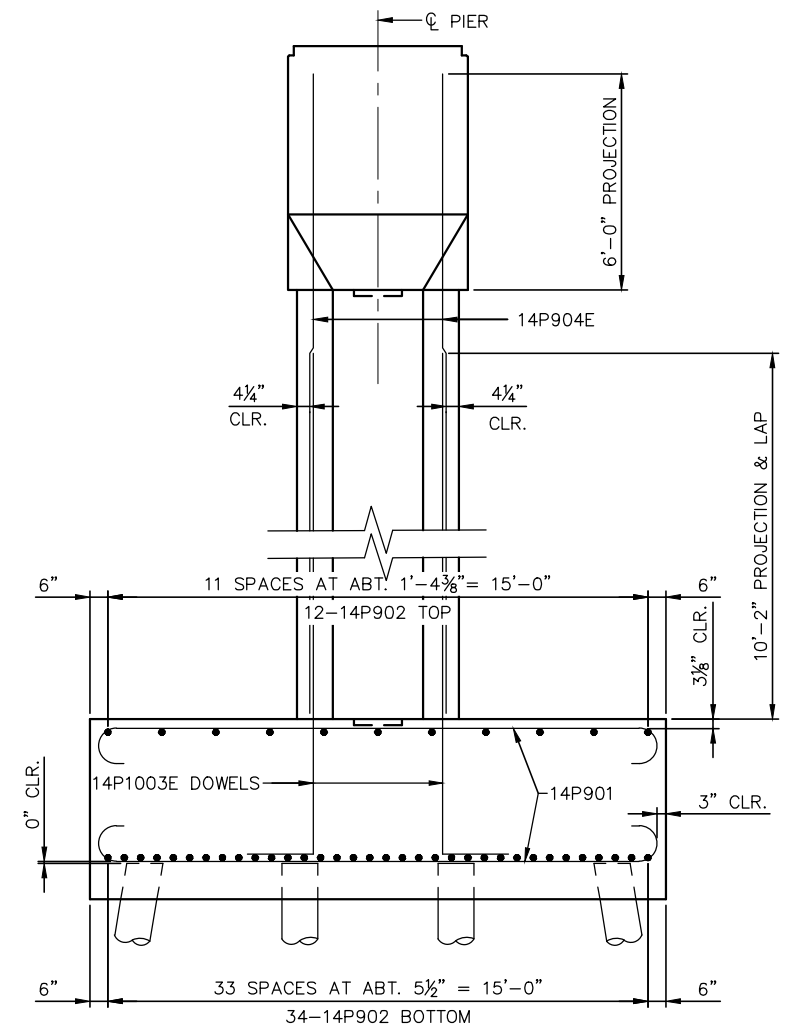
PEDESTAL PLAN VIEW

NOTES:

SEE SHEET 78 FOR SECTIONS A-A, B-B & C-C.



ELEVATION



END ELEVATION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	RJH	CHECKED BY:	AMA
DRAWN BY:	JAS	CHECKED BY:	ATN



90% SUBMISSION - 01/22/16

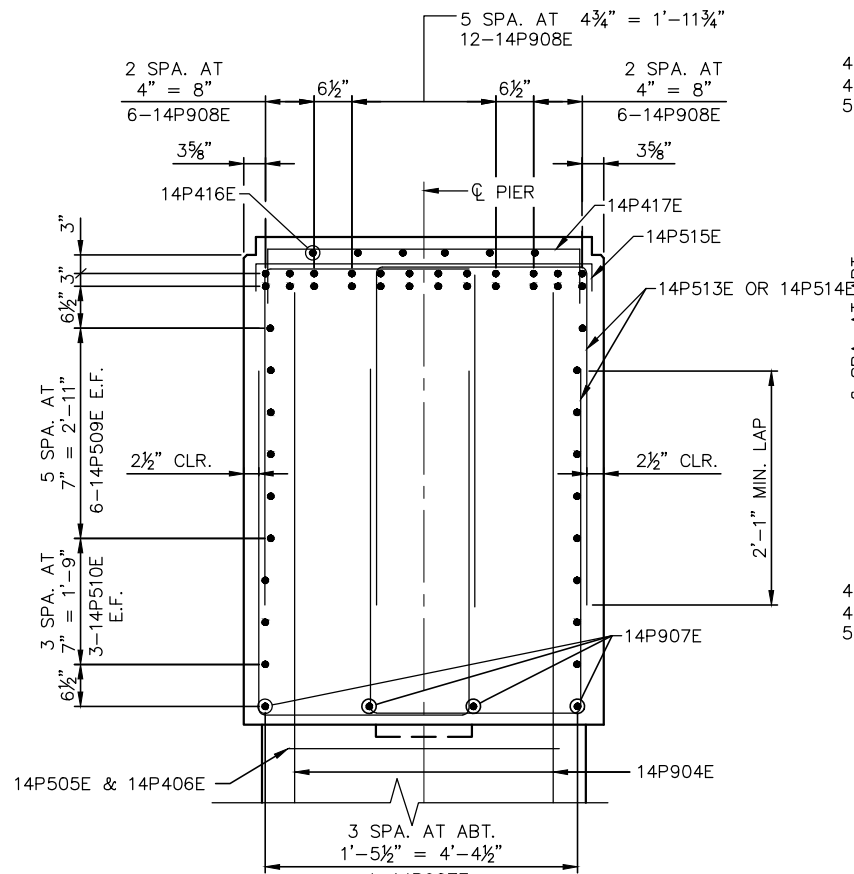


CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 14 REINFORCEMENT 2

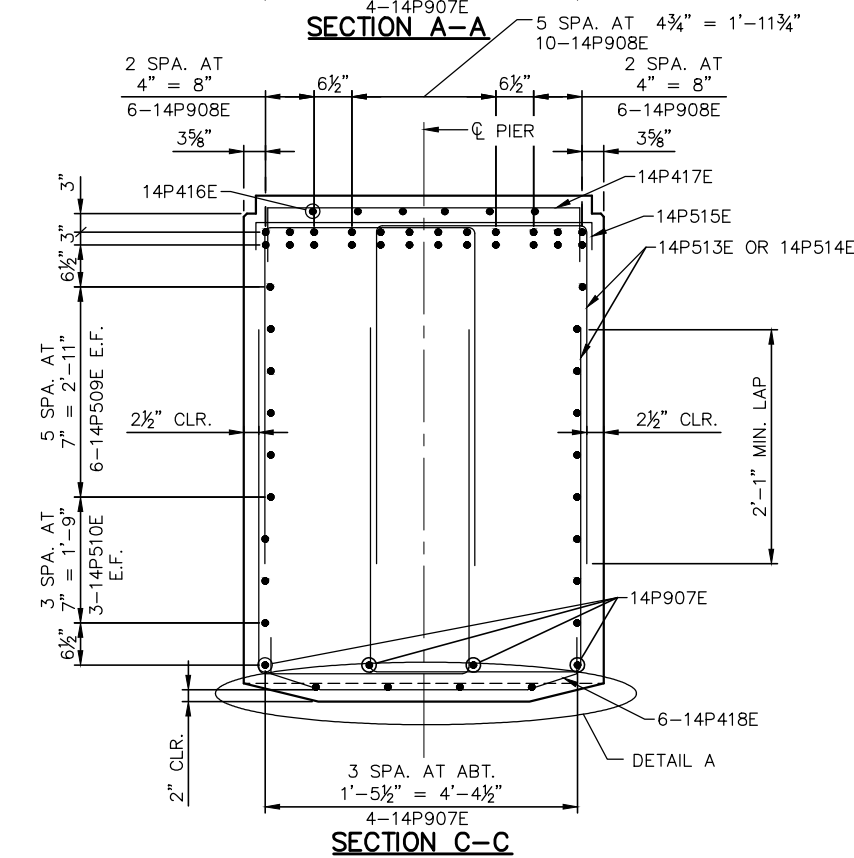
DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-PIR-046

SHEET  
77  
OF  
232

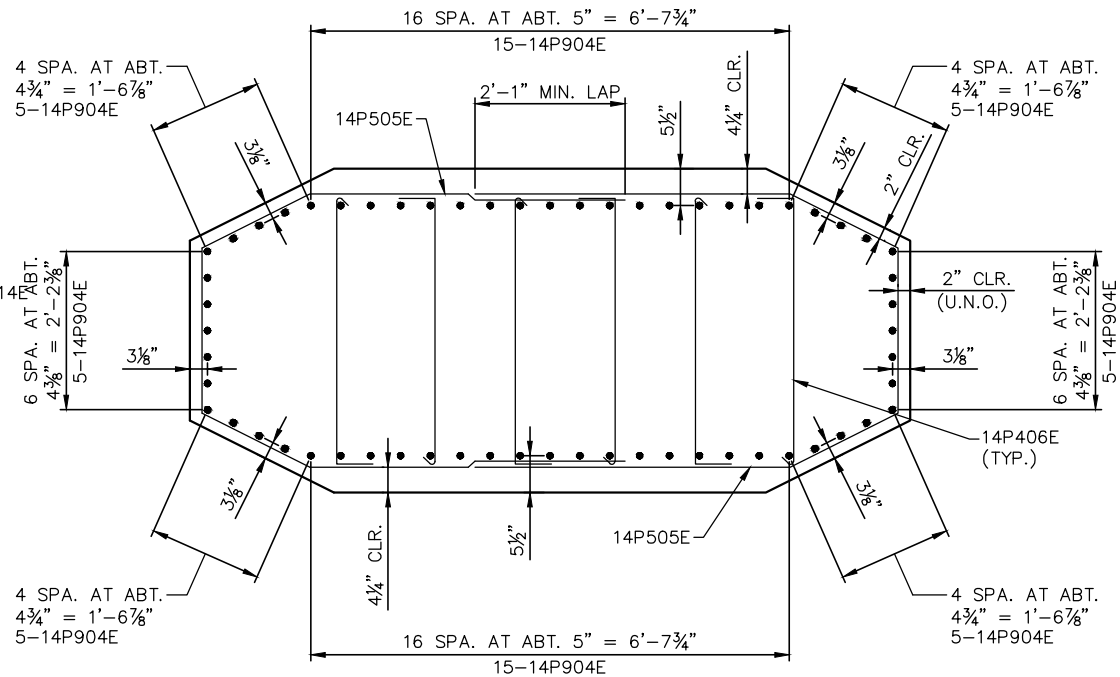
Jan, 19 2016 09:38 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-024.dwg By: butterfielda



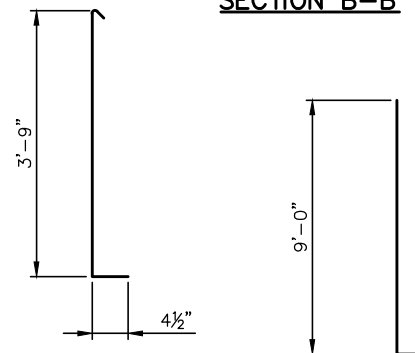
SECTION A-A



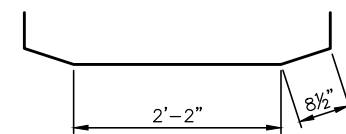
SECTION C-C



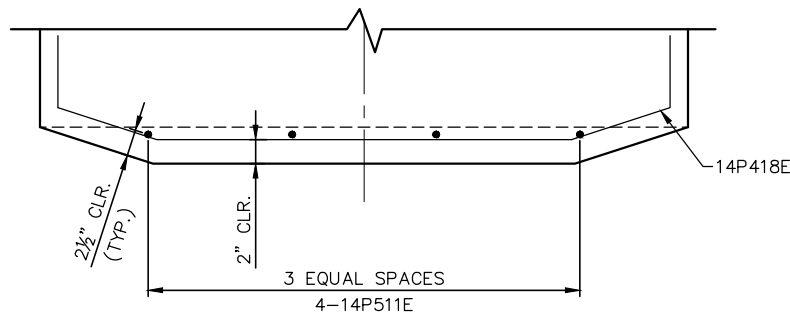
SECTION B-B



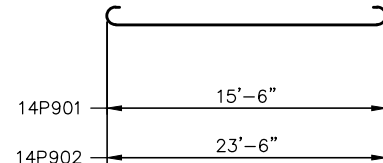
14P406E



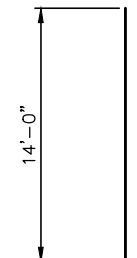
14P418E



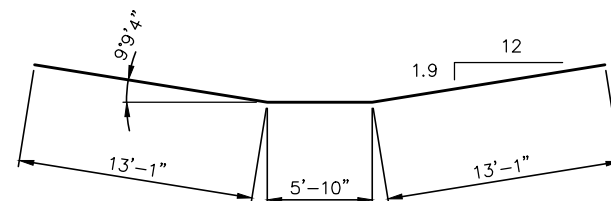
DETAIL A



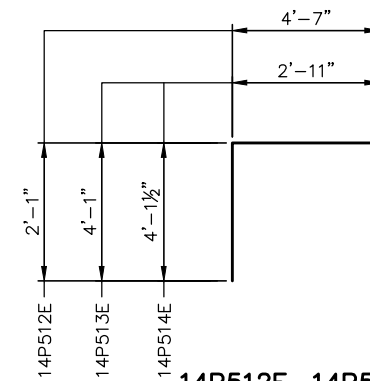
14P901 & 14P902



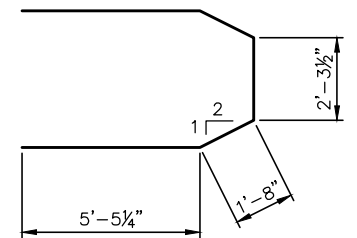
14P1003E



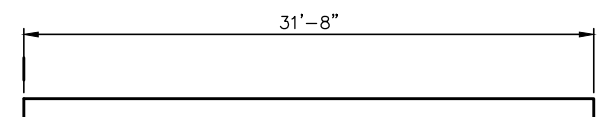
14P907E



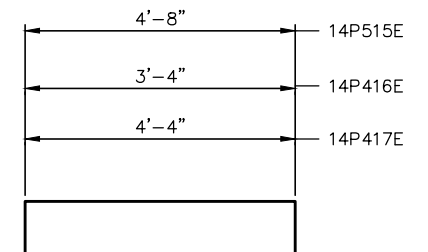
14P512E, 14P513E, 14P514E



14P505E



14P908E



14P515E, 14P416E, 14P417E

BILL OF REINFORCEMENT FOR PIER 14

BAR	NO.	LENGTH	SHAPE	LOCATION
14P901	57	18'- 0"		FOOTING - TRANSVERSE
14P902	46	26'- 0"		FOOTING - LONGITUDINAL
14P1003E	60	15'- 10"		FOOTING - DOWELS
14P904E	60	34'- 10"		COLUMN - VERTICAL
14P505E	60	16'- 6"		COLUMN - HORIZONTAL
14P406E	180	4'- 6"		COLUMN - STIRRUPS
14P907E	4	32'- 0"		CAP - LONGITUDINAL
14P908E	24	34'- 10"		CAP - LONGITUDINAL
14P509E	12	31'- 8"		CAP - LONGITUDINAL
14P510E	2 SERIES OF 3	13'-4" TO 25'-6"		CAP - LONGITUDINAL
14P511E	8	6'- 0"		CAP - LONGITUDINAL
14P512E	12	8'- 9"		CAP - TIES
14P513E	8	11'- 1"		CAP - STIRRUPS
14P514E	196	11'- 2"		CAP - STIRRUPS
14P515E	51	5'- 8"		CAP - TIES
14P416E	32	5'- 0"		PEDESTAL - TIES
14P417E	24	6'- 0"		PEDESTAL - TIES
14P418E	6	4'- 4"		CAP - STIRRUPS
14P419	8	9'- 10"		PILES

NOTES:

SEE SHEET 77 FOR SECTIONS A-A, B-B & C-C.

E.F. DENOTES EACH FACE.

U.N.O. DENOTES UNLESS NOTED OTHERWISE.

AECOM



90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 14 REINFORCEMENT 3

DISCIPLINE:  
STRUCTURES

SHEET NAME:  
CBR27C06-BRG-PIR-047

SHEET  
78  
OF  
232

DESIGNED BY: RJH  
DRAWN BY: JAS  
CHECKED BY: AMA  
CHECKED BY: ATN

PIER 15 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR C-I-P PILES R <sub>n</sub> - TONS/PILE		
FIELD CONTROL METHOD	Φ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	206.8


\* R<sub>n</sub> = (FACTORED DESIGN LOAD) / Φ<sub>dyn</sub>

PIER 15 COMPUTED PILE LOAD - TONS/PILE		
FACTORED DEAD LOAD	64.5	43.7
FACTORED LIVE LOAD	17.2	0.0
FACTORED OVERTURNING	52.7	-54.3
FACTORED DESIGN LOAD	134.4	-
FACTORED DESIGN UPLIFT	-	-10.6
LOAD COMBINATION	STRENGTH V	STRENGTH III

PILE NOTES


- 1
- 25
- 26
- CAST-IN-PLACE CONC. TEST PILE 95 FT. LONG.
- CAST-IN-PLACE CONC. PILES EST. LENGTH 85 FT.
- CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 15 FOOTING.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THUS  TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.

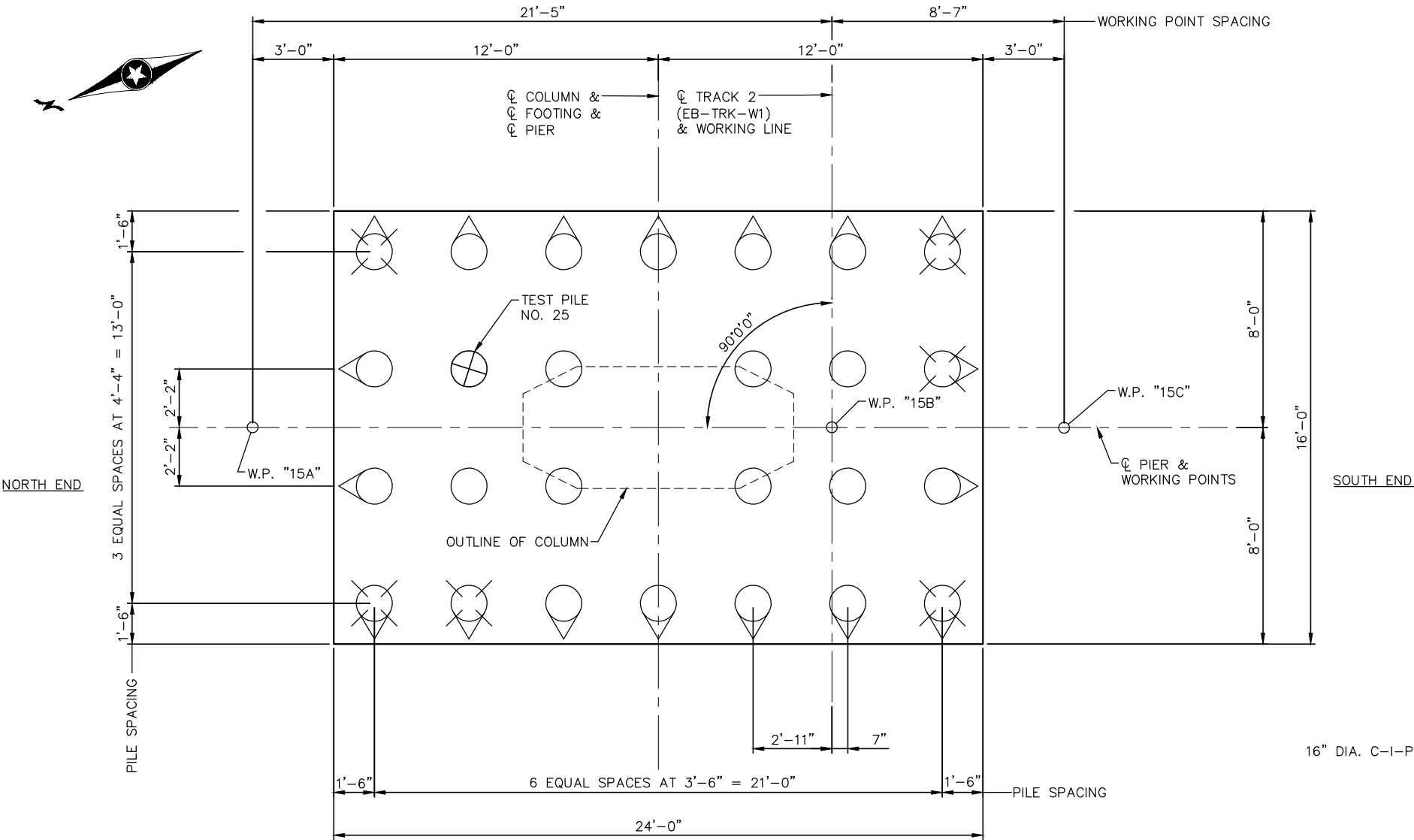
PILES TO HAVE A NOMINAL DIAMETER OF 16" AND A MINIMUM WALL THICKNESS OF 0.3125".

FOR PILE SPLICE DETAILS SEE DETAIL B201, SHEET 197.

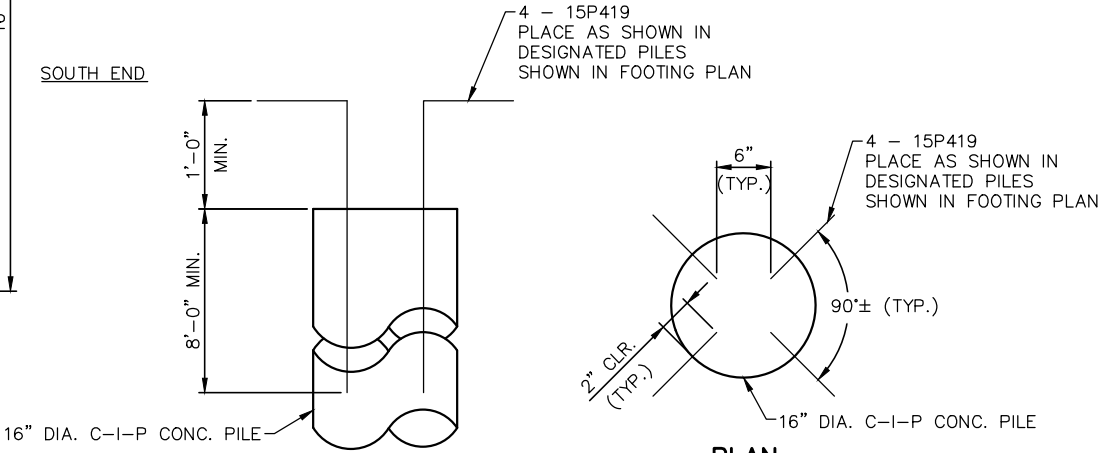
PILES MARKED THUS  ARE SUBJECT TO UPLIFT AND ARE TO BE REINFORCED PER PILE REINFORCEMENT DETAIL.

CONTRACTOR TO ORIENT PILE REINFORCEMENT TO MAINTAIN 3" CLEAR TO EDGE OF FOOTING. CONTRACTOR MAY FIELD ADJUST BOTTOM REINFORCEMENT BARS TO ACCOMODATE PILE REINFORCEMENT DETAIL.

ALL PILES TO BE DRIVEN TO A MINIMUM TIP ELEVATION OF 770.5.



FOOTING PLAN



ELEVATION

PILE REINFORCEMENT DETAIL

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN



90% SUBMISSION - 01/22/16

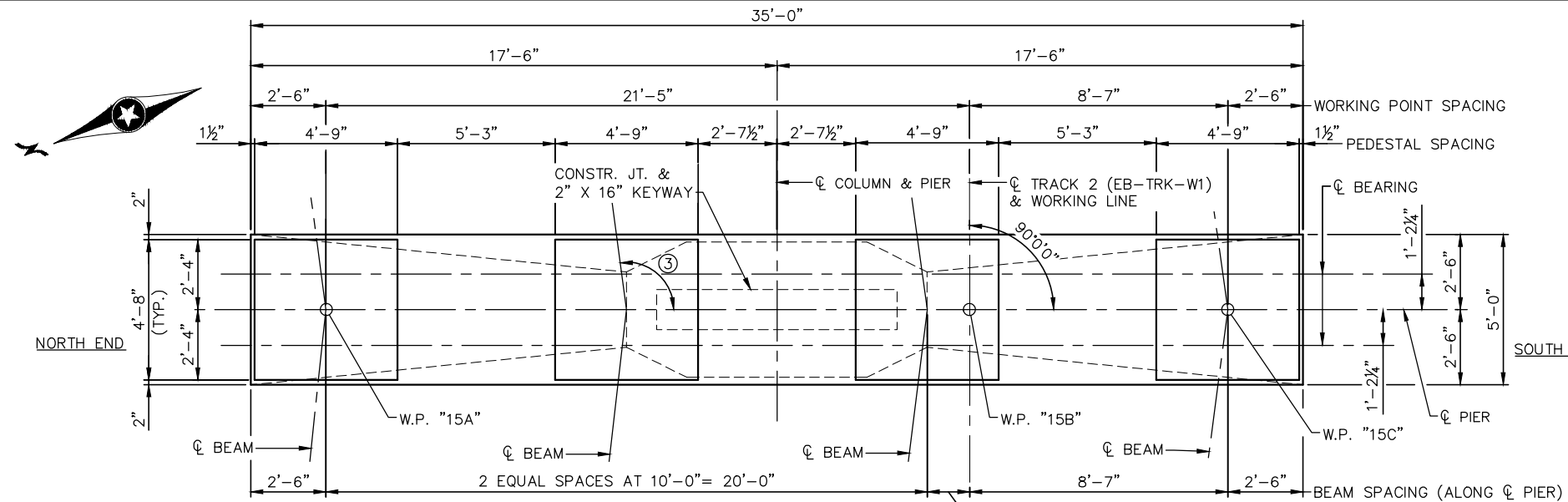


CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 15 GEOMETRICS 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-048

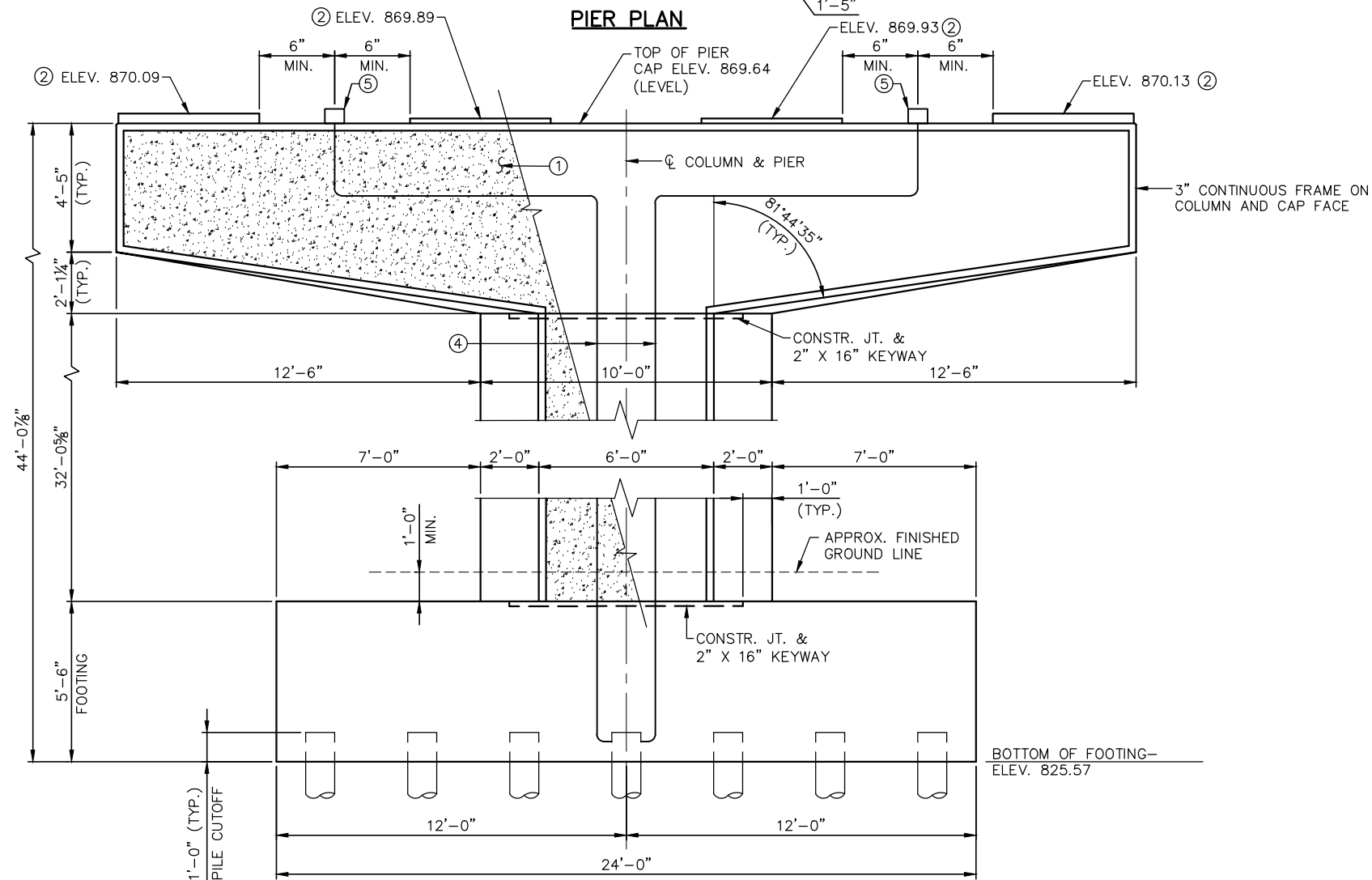
SHEET
79
OF
232



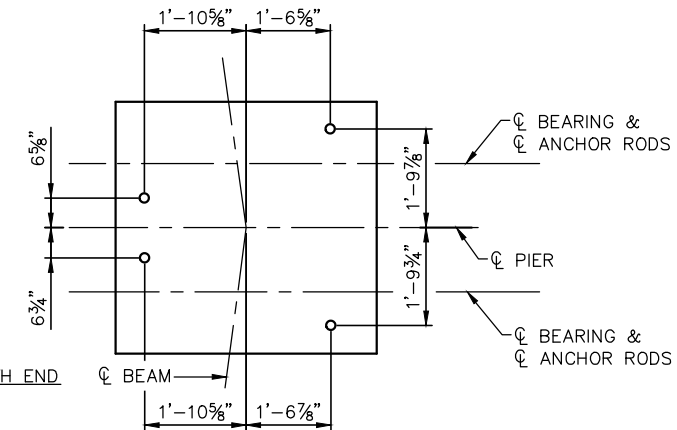
Jan, 19 2016 09:38 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-010.dwg By: butterfielda



PIER PLAN



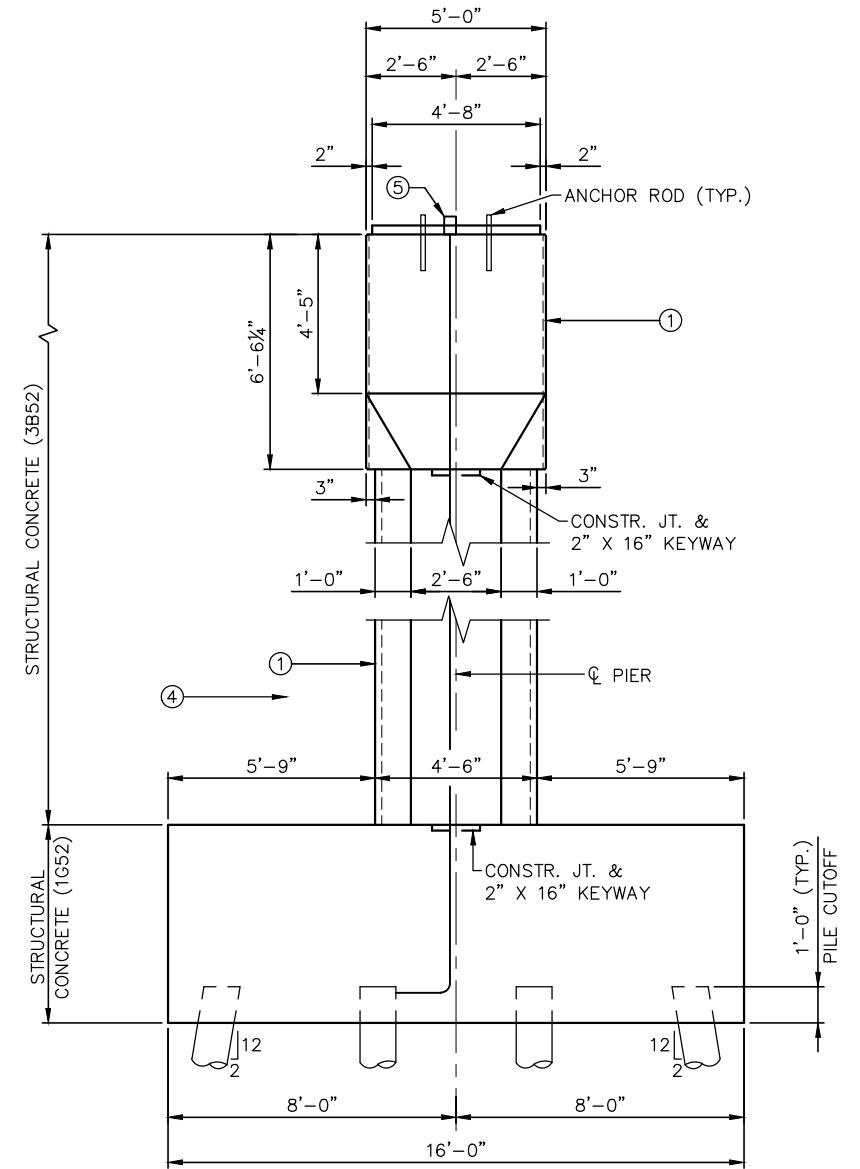
ELEVATION



ANCHOR ROD DETAIL

NOTES:

- ① TEXTURED RECESSED PANEL ON FACE OF PIERS, SEE SHEET 24.
- ② ELEVATIONS DETERMINED AT CL OF BEARING ON THE LOW SIDE OF THE PROFILE GRADE LINE.
- ③ FOR BEAM ANGLES SEE SHEET 111.
- ④ GROUND WIRE PLACED INSIDE 1" PVC CONDUIT, SEE SHEET ELE-SITE-DTL-600.
- ⑤ JUNCTION BOX, SEE SHEET ELE-SITE-DTL-600.



END ELEVATION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	RJH	CHECKED BY:	AMA
DRAWN BY:	JAS	CHECKED BY:	ATN



90% SUBMISSION - 01/22/16

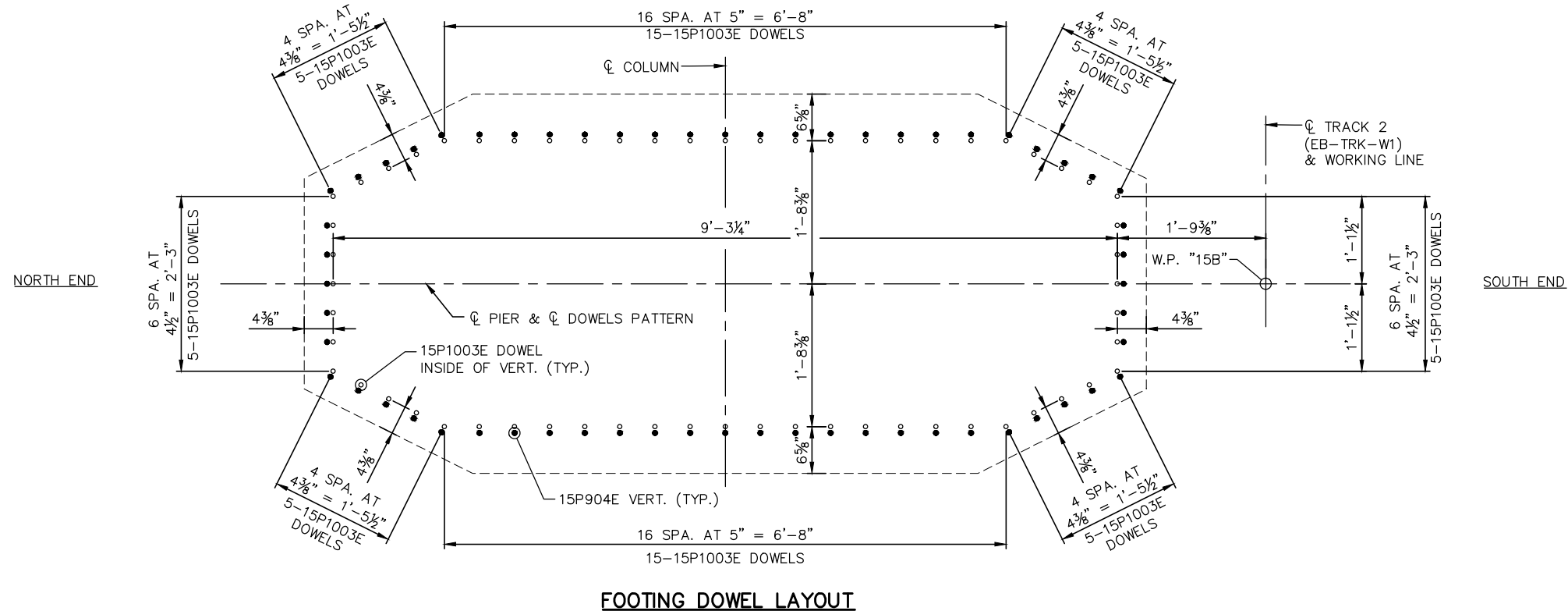
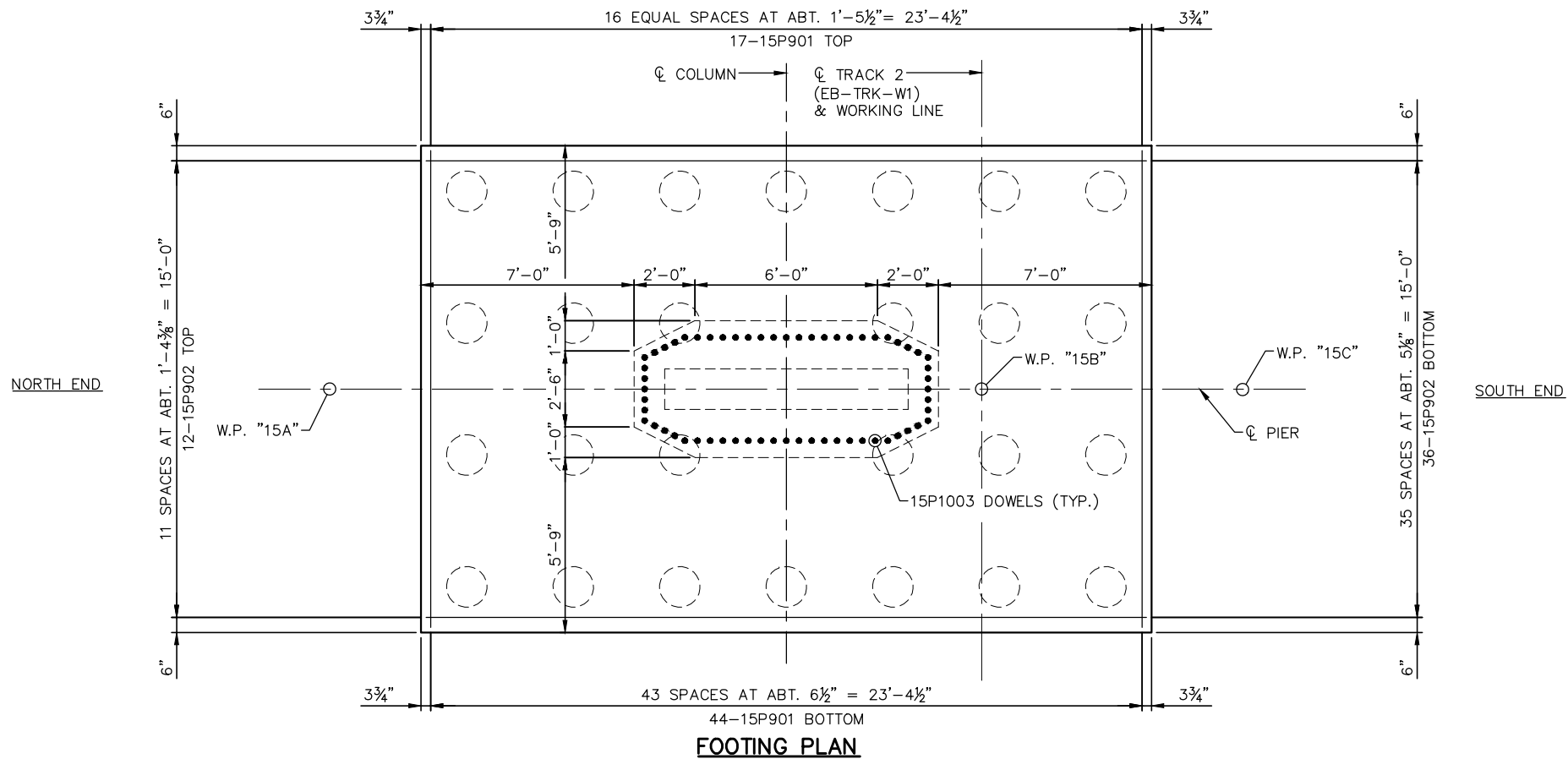


CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 15 GEOMETRICS 2

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-PIR-049

SHEET  
80  
OF  
232

Jan, 19 2016 09:38 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-025.dwg By: butterfielda



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

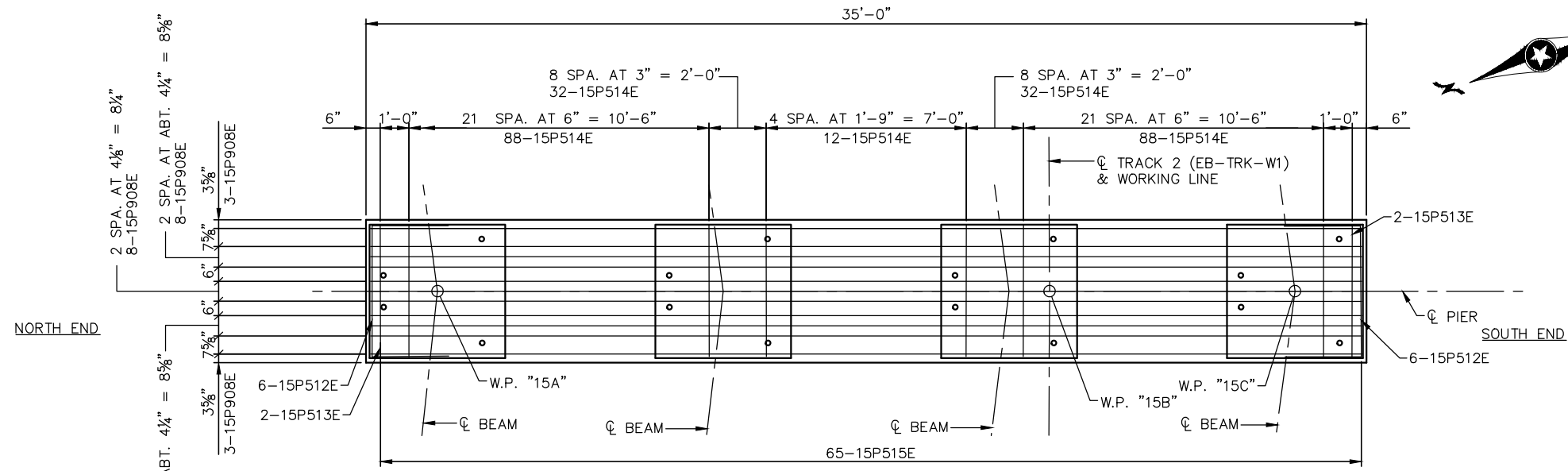
DESIGNED BY:	RJH	CHECKED BY:	AMA
DRAWN BY:	JAS	CHECKED BY:	ATN

90% SUBMISSION - 01/22/16

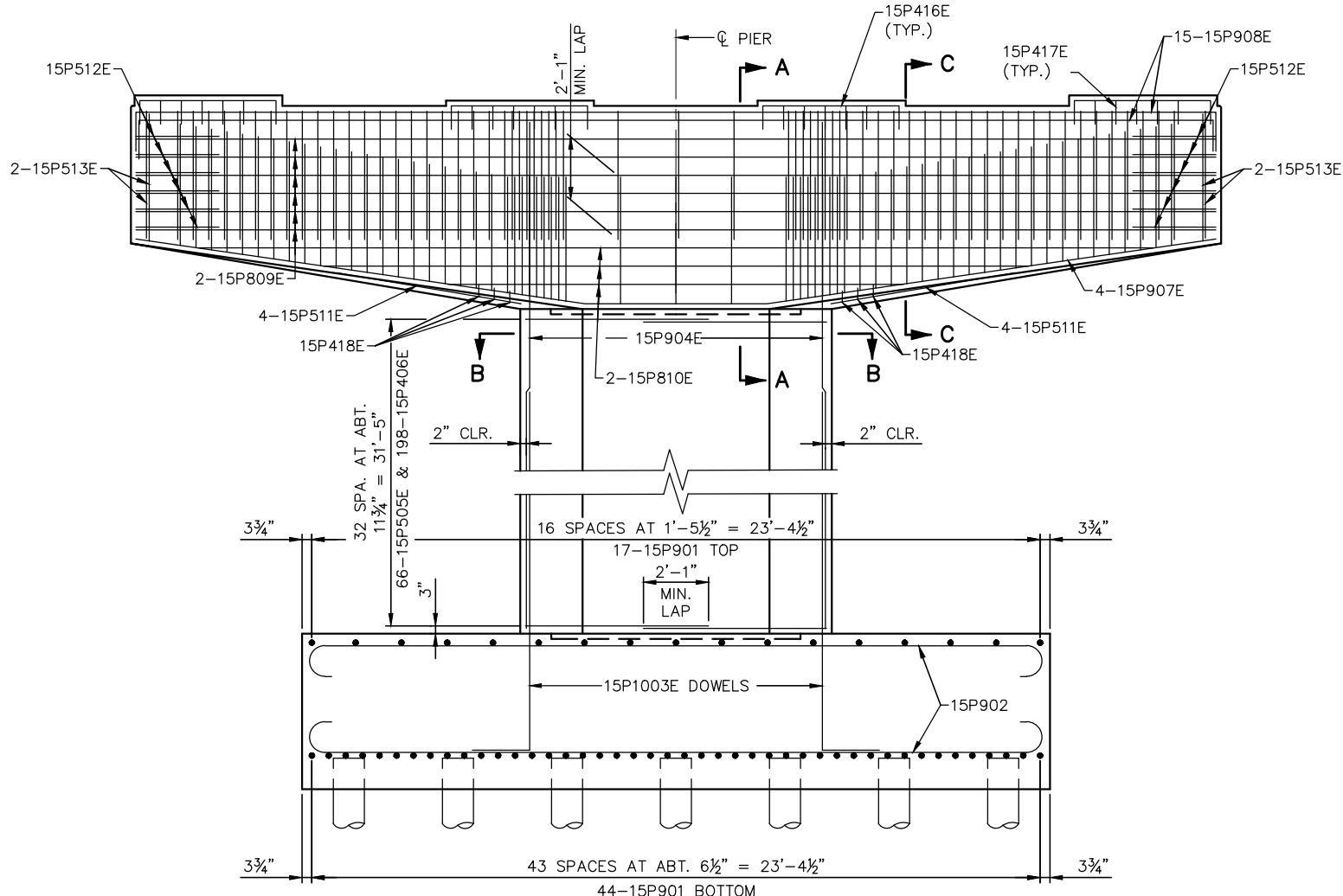
CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 15 REINFORCEMENT 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-050

SHEET  
81  
OF  
232

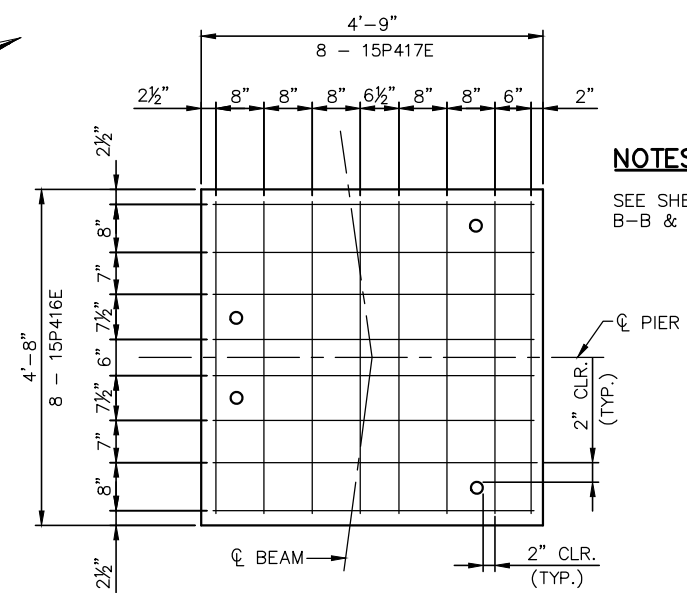
Jan, 19 2016 09:38 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-025.dwg By: butterfielda



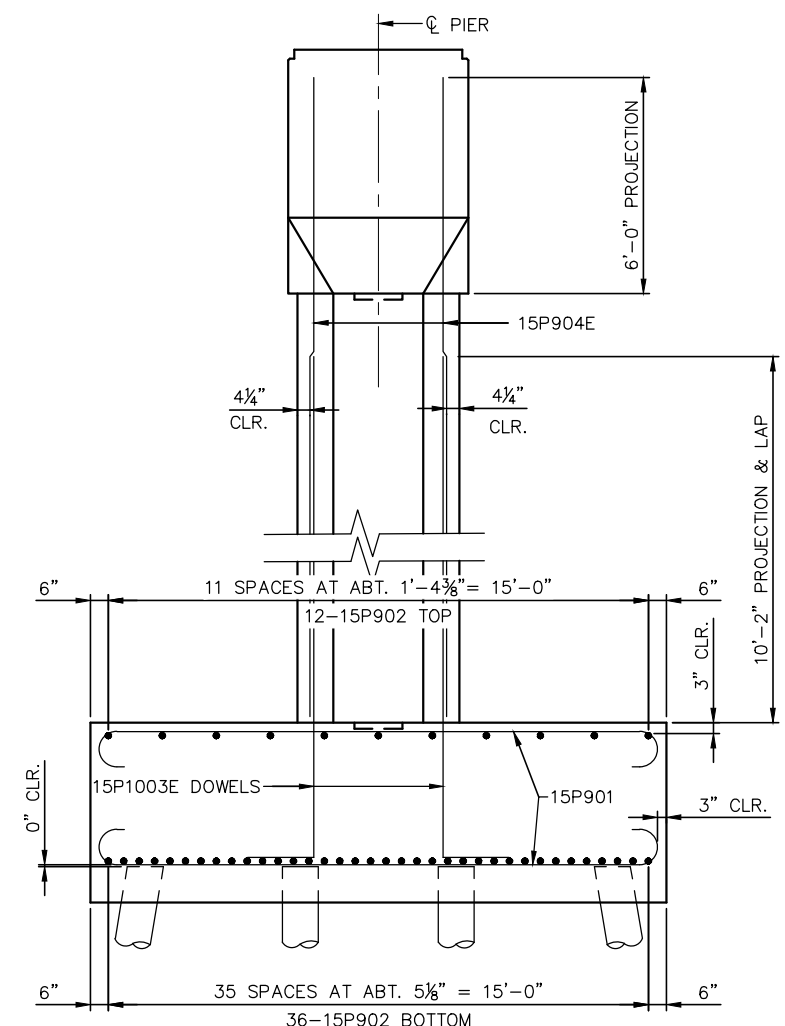
PIER CAP PLAN



ELEVATION



PEDESTAL PLAN VIEW



END ELEVATION

NOTES:  
SEE SHEET 83 FOR SECTIONS A-A,  
B-B & C-C.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	RJH	CHECKED BY:	AMA
DRAWN BY:	JAS	CHECKED BY:	ATN



90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 15 REINFORCEMENT 2

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-PIR-051

SHEET  
82  
OF  
232

2' - 2"

8 1/2"

15P418E

2" CLR.

2 1/2" CLR. (TYP.)

3 EQUAL SPACES

4-15P511E

DETAIL A

15P418E

15P515E, 15P416E, 15P417E

HEET  
83  
OF  
232

PIER 16 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR C-I-P PILES R <sub>n</sub> – TONS/PILE		
FIELD CONTROL METHOD	Φ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	193.4


\* R<sub>n</sub> = (FACTORED DESIGN LOAD) / Φ<sub>dyn</sub>

PIER 16 COMPUTED PILE LOAD – TONS/PILE		
FACTORED DEAD LOAD	67.9	35.5
FACTORED LIVE LOAD	15.4	0.0
FACTORED OVERTURNING	42.4	–39.4
FACTORED DESIGN LOAD	125.7	–
FACTORED DESIGN UPLIFT	–	–3.9
LOAD COMBINATION	STRENGTH V	EXTREME EVENT II

PILE NOTES


- 1 CAST-IN-PLACE CONC. TEST PILE 60 FT. LONG.  
29 CAST-IN-PLACE CONC. PILES EST. LENGTH 50 FT.  
30 CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 16 FOOTING.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THUS  TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.

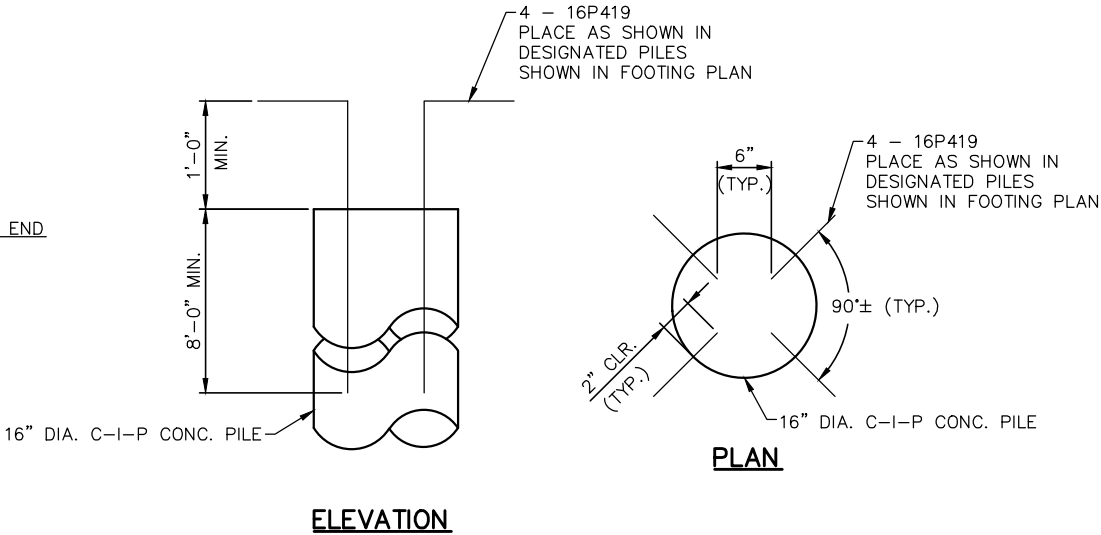
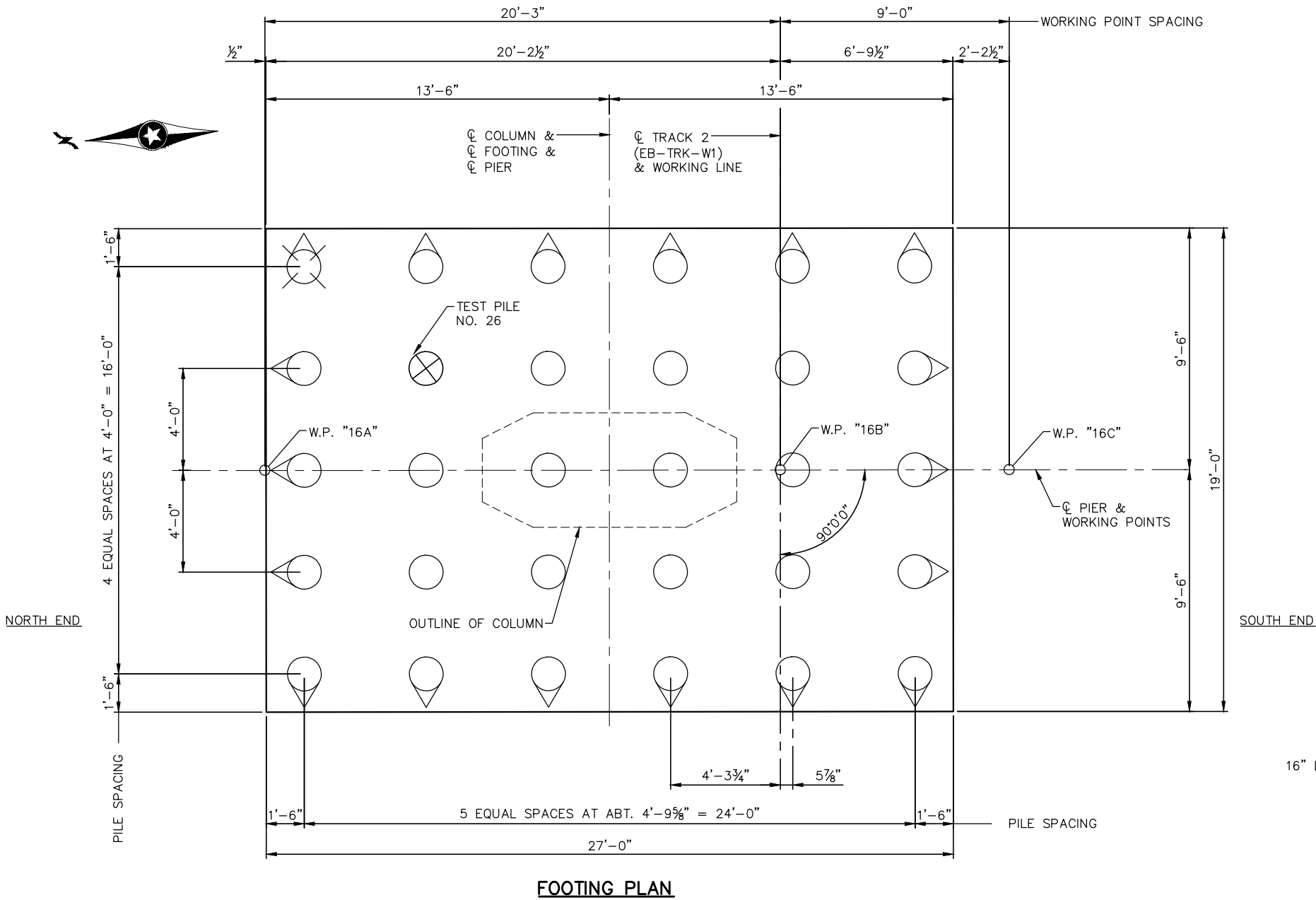
PILES TO HAVE A NOMINAL DIAMETER OF 16" AND A MINIMUM WALL THICKNESS OF 0.3125".

FOR PILE SPLICE DETAILS SEE DETAIL B201, SHEET 197.

PILES MARKED THUS  ARE SUBJECT TO UPLIFT AND ARE TO BE REINFORCED PER PILE REINFORCEMENT DETAIL.

CONTRACTOR TO ORIENT PILE REINFORCEMENT TO MAINTAIN 3" CLEAR TO EDGE OF FOOTING. CONTRACTOR MAY FIELD ADJUST BOTTOM REINFORCEMENT BARS TO ACCOMMODATE PILE REINFORCEMENT DETAIL.

ALL PILES TO BE DRIVEN TO A MINIMUM TIP ELEVATION OF 770.3.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN



90% SUBMISSION - 01/22/16

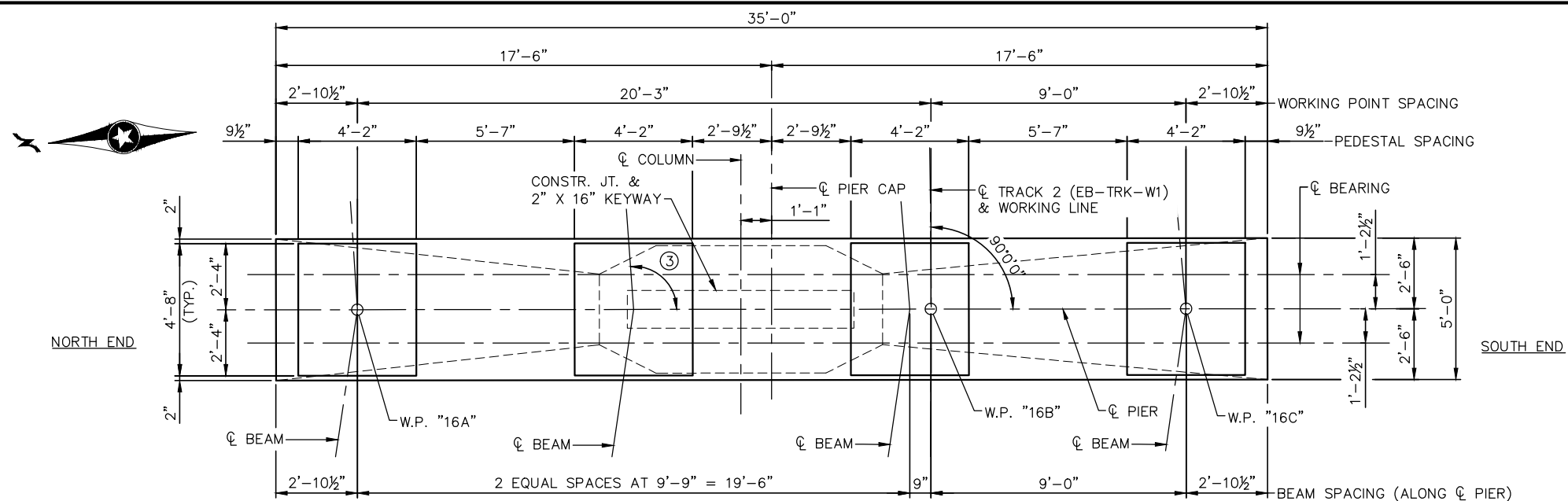


CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 16 GEOMETRICS 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-053

SHEET
84
OF
232

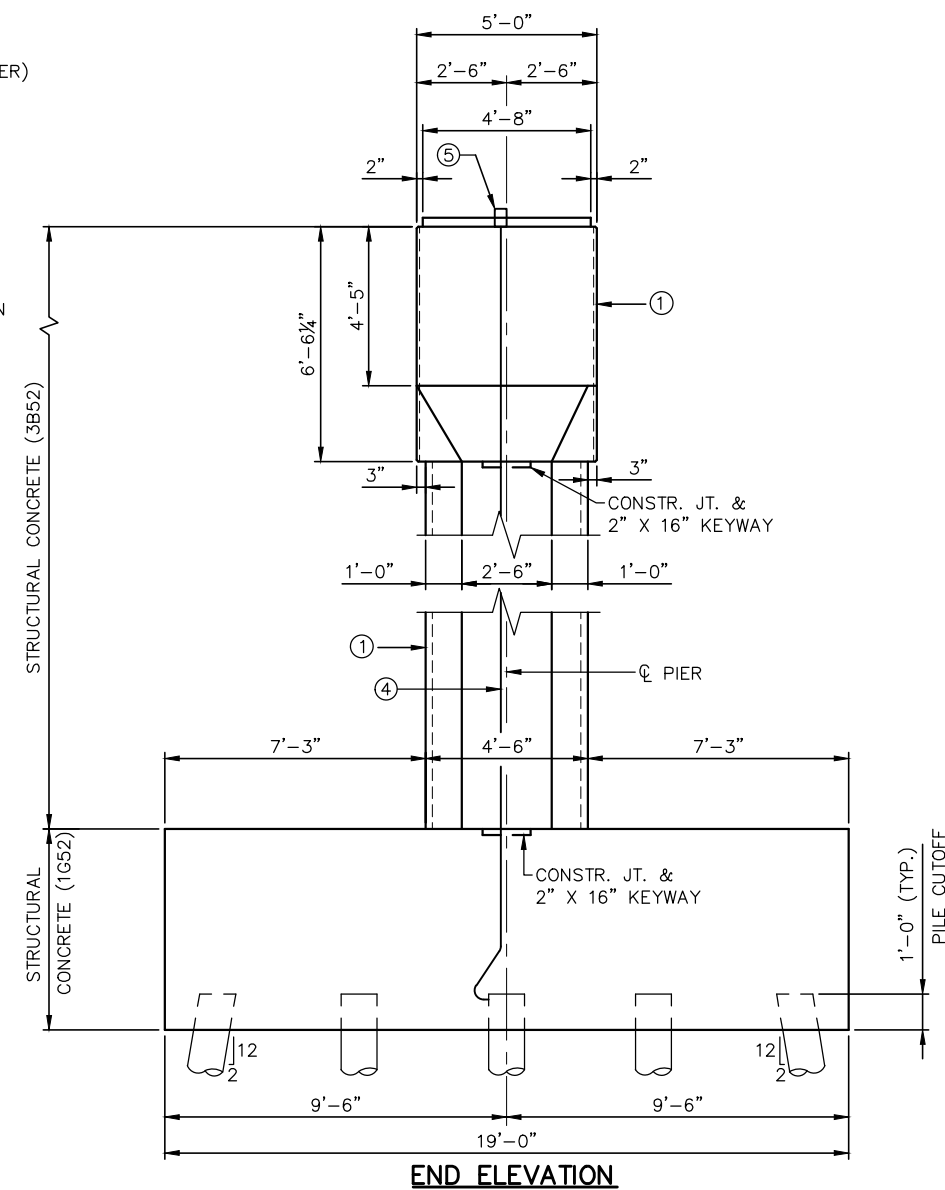
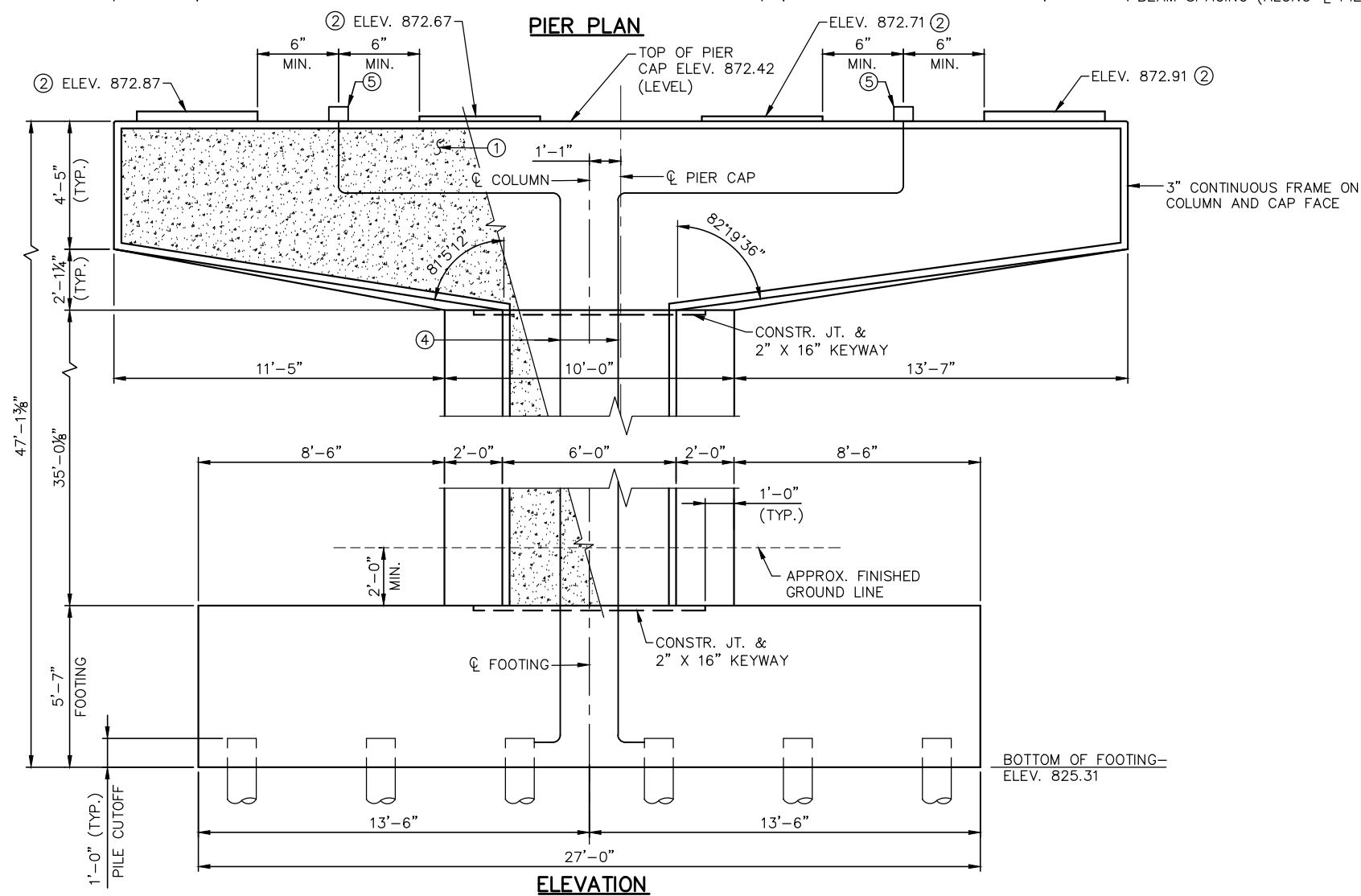
Jan, 19 2016 09:39 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-011.dwg By: butterfielda

Jan, 19 2016 09:39 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-011.dwg By: butterfielda



#### NOTES:

- ① TEXTURED RECESSED PANEL ON FACE OF PIERS, SEE SHEET 24.
- ② ELEVATIONS DETERMINED AT CL OF BEARING ON THE LOW SIDE OF THE PROFILE GRADE LINE.
- ③ FOR BEAM ANGLES SEE SHEET 112.
- ④ GROUND WIRE PLACED INSIDE 1" PVC CONDUIT, SEE SHEET ELE-SITE-DTL-600.
- ⑤ JUNCTION BOX, SEE SHEET ELE-SITE-DTL-600.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN



90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 16 GEOMETRICS 2

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-PIR-054

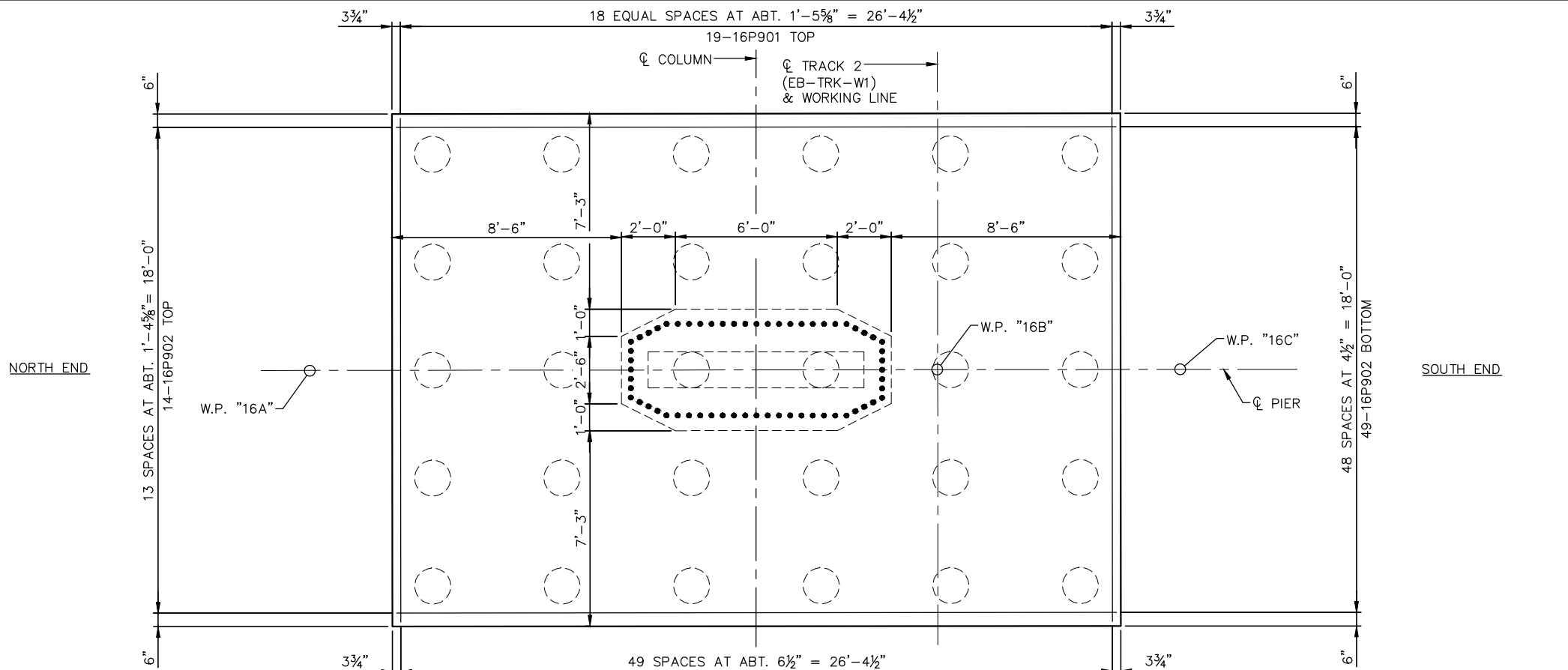
SHEET

85

OF

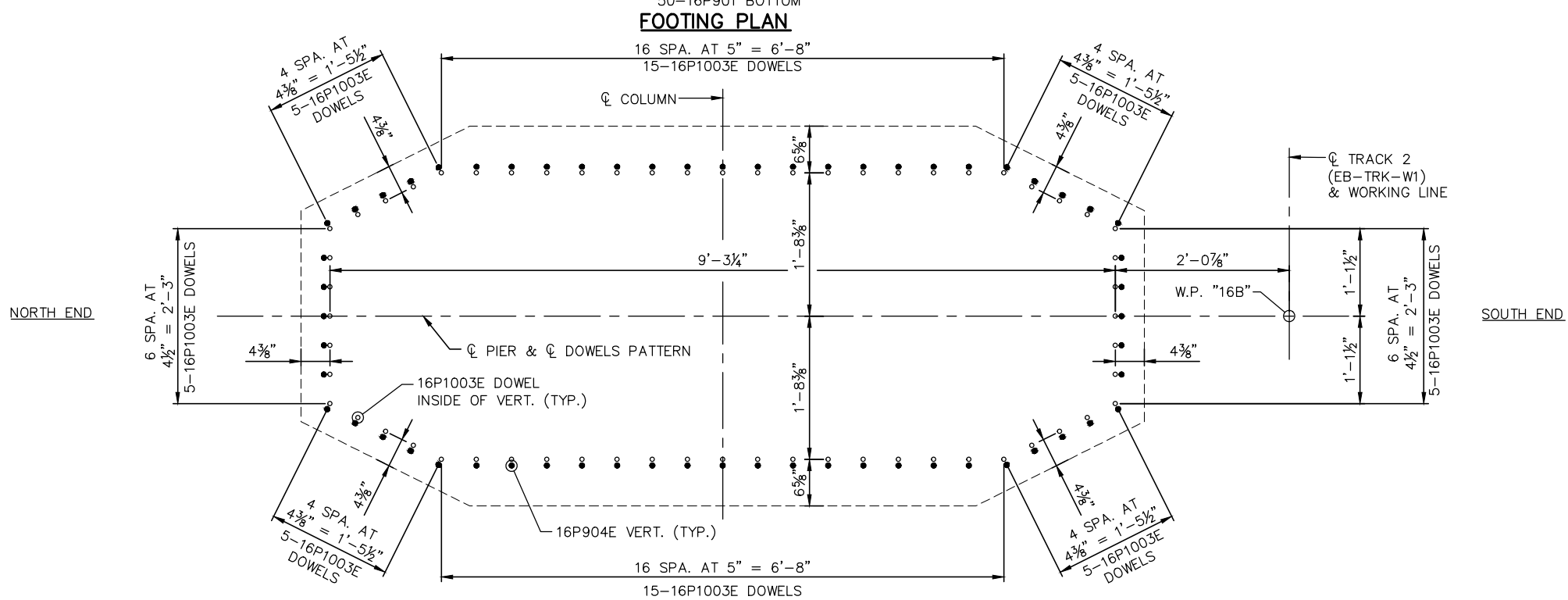
232

Jan, 19 2016 09:39 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-026.dwg By: butterfielda



**NOTES:**

- DENOTES COLUMN BAR
- DENOTES FOOTING DOWEL



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL




DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 16 REINFORCEMENT 1

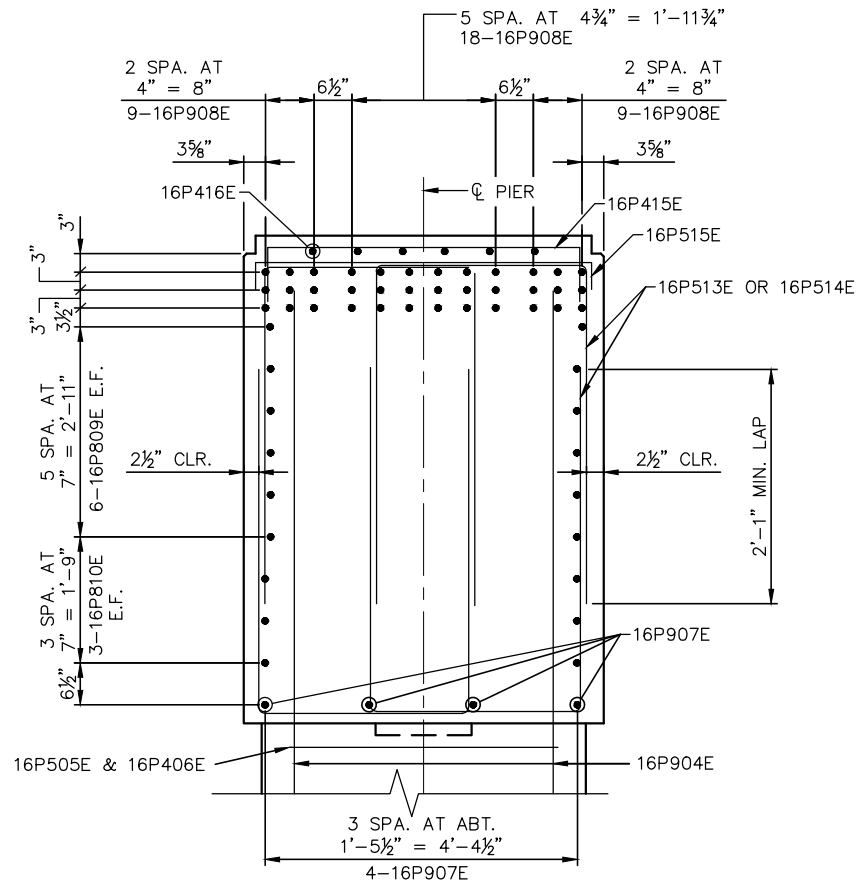
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-PIR-055

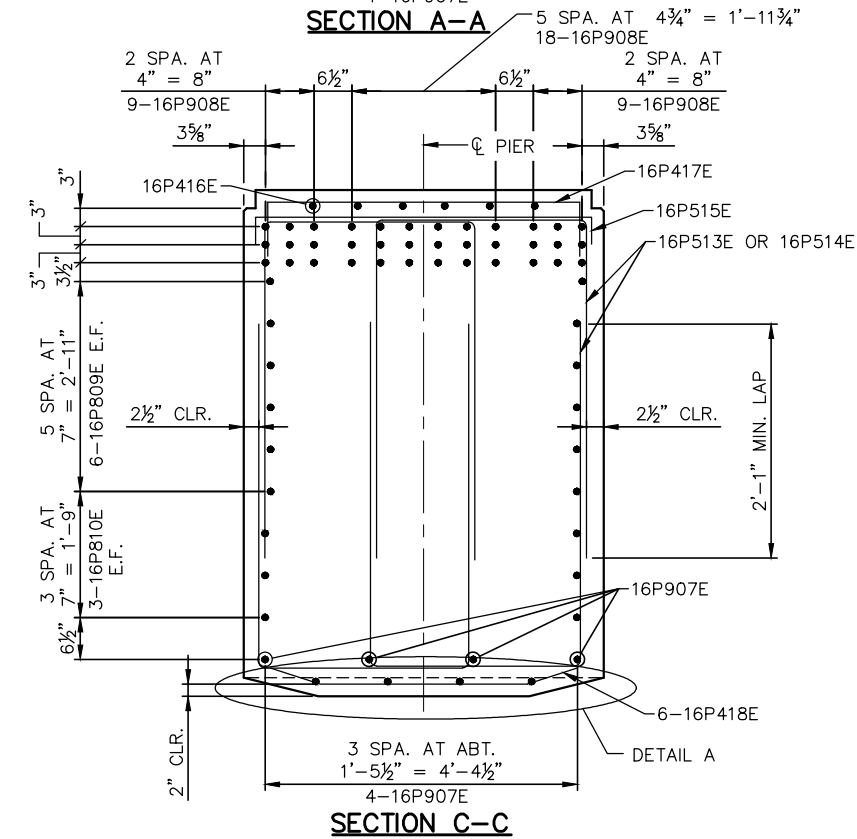
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL			 	CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 16 REINFORCEMENT 2	SHEET 87 OF 232
DESIGNED BY: RJH      CHECKED BY: AMA						90% SUBMISSION - 01/22/16			DISCIPLINE: STRUCTURES      SHEET NAME: CBR27C06-BRG-PIR-056	
DRAWN BY: JAS      CHECKED BY: ATN										



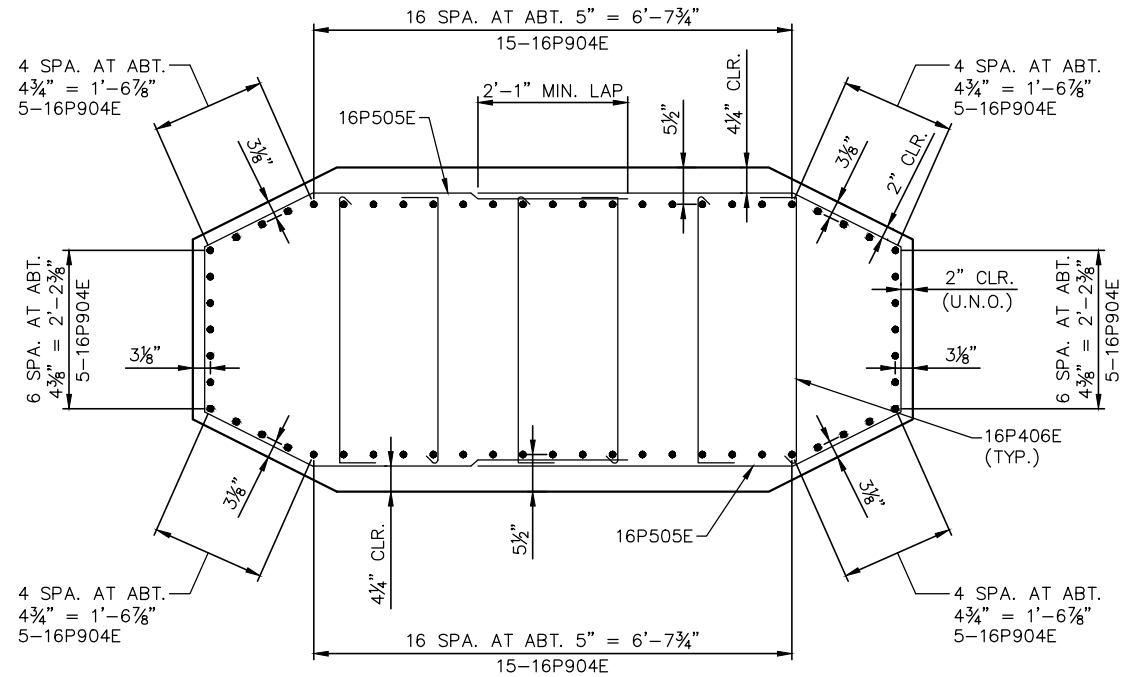
Jan, 19 2016 09:39 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-026.dwg By: butterfielda



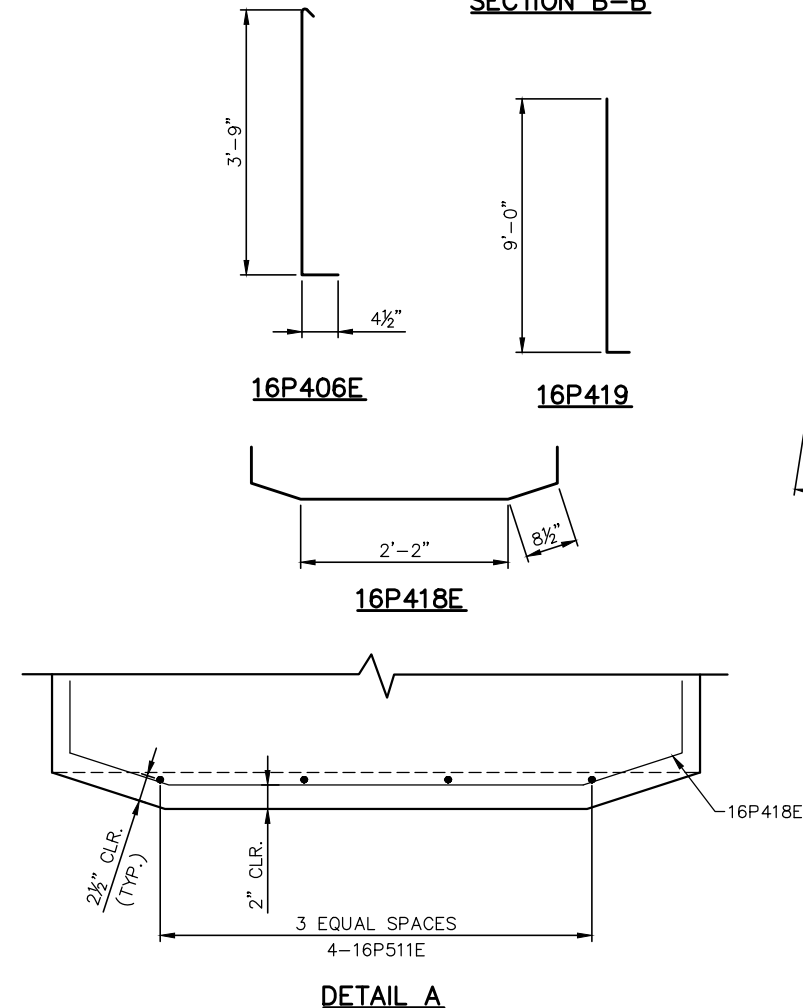
SECTION A-A



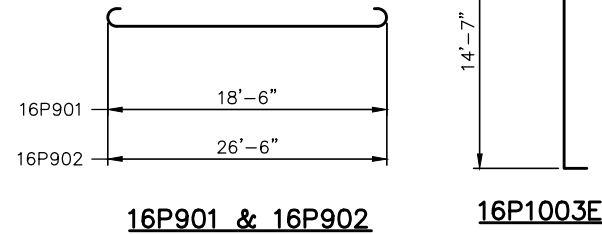
SECTION C-C



SECTION B-B

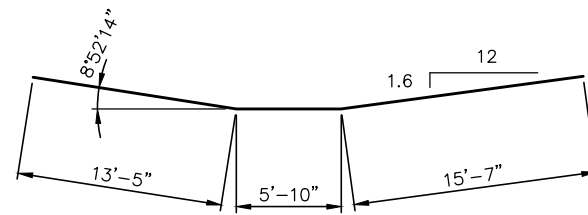


DETAIL A

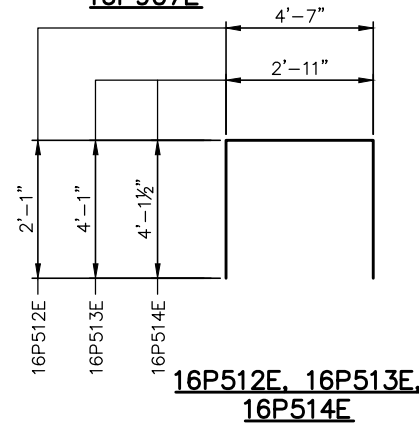


16P901 & 16P902

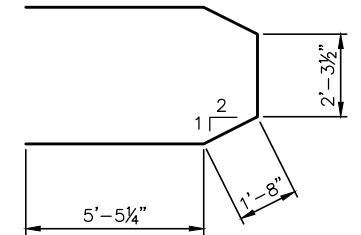
16P1003E



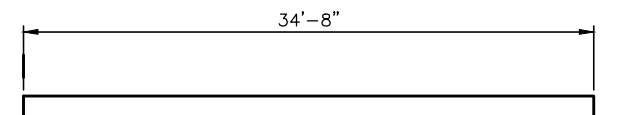
16P907E



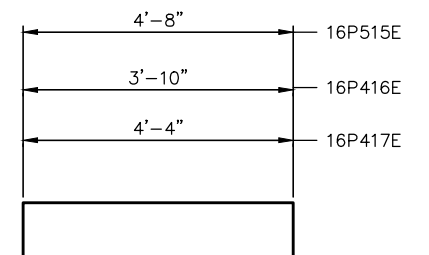
16P512E, 16P513E, 16P514E



16P505E



16P908E



16P515E, 16P416E, 16P417E

BILL OF REINFORCEMENT FOR PIER 16

BAR	NO.	LENGTH	SHAPE	LOCATION
16P901	69	21'- 0"		FOOTING - TRANSVERSE
16P902	63	29'- 0"		FOOTING - LONGITUDINAL
16P1003E	60	16'- 5"		FOOTING - DOWELS
16P904E	60	40'- 10"		COLUMN - VERTICAL
16P505E	72	16'- 6"		COLUMN - HORIZONTAL
16P406E	216	4'- 6"		COLUMN - STIRRUPS
16P907E	4	34'- 10"		CAP - LONGITUDINAL
16P908E	36	37'- 10"		CAP - LONGITUDINAL
16P809E	12	34'- 8"		CAP - LONGITUDINAL
16P810E	2 SERIES OF 3	13'-10" TO 27'-9"		CAP - LONGITUDINAL
16P511E	8	6'- 0"		CAP - LONGITUDINAL
16P512E	12	8'- 9"		CAP - TIES
16P513E	8	11'- 1"		CAP - TIES
16P514E	260	11'- 2"		CAP - STIRRUPS
16P515E	67	5'- 8"		CAP - STIRRUPS
16P416E	32	5'- 6"		PEDESTAL - TIES
16P417E	28	6'- 0"		PEDESTAL - TIES
16P418E	6	4'- 4"		CAP - STIRRUPS
16P419	4	9'- 10"		PILES

NOTES:

SEE SHEET 87 FOR SECTIONS A-A, B-B & C-C.

E.F. DENOTES EACH FACE.

U.N.O. DENOTES UNLESS NOTED OTHERWISE.

PIER 17 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR C-I-P PILES $R_n$ - TONS/PILE		
FIELD CONTROL METHOD	$\phi_{dyn}$	$* R_n$
PDA	0.65	2111


$* R_n = (\text{FACTORED DESIGN LOAD}) / \phi_{dyn}$

PIER 17 COMPUTED PILE LOAD - TONS/PILE		
FACTORED DEAD LOAD	74.2	51.2
FACTORED LIVE LOAD	16.0	0.0
FACTORED OVERTURNING	47.0	-51.2
FACTORED DESIGN LOAD	137.2	-
FACTORED DESIGN UPLIFT	-	0.0
LOAD COMBINATION	STRENGTH V	STRENGTH III

PILE NOTES


- 1 CAST-IN-PLACE CONC. TEST PILE 60 FT. LONG.  
21 CAST-IN-PLACE CONC. PILES EST. LENGTH 50 FT.  
22 CAST-IN-PLACE CONC. PILES REQ'D FOR PIER 17 FOOTING.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THUS  TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.

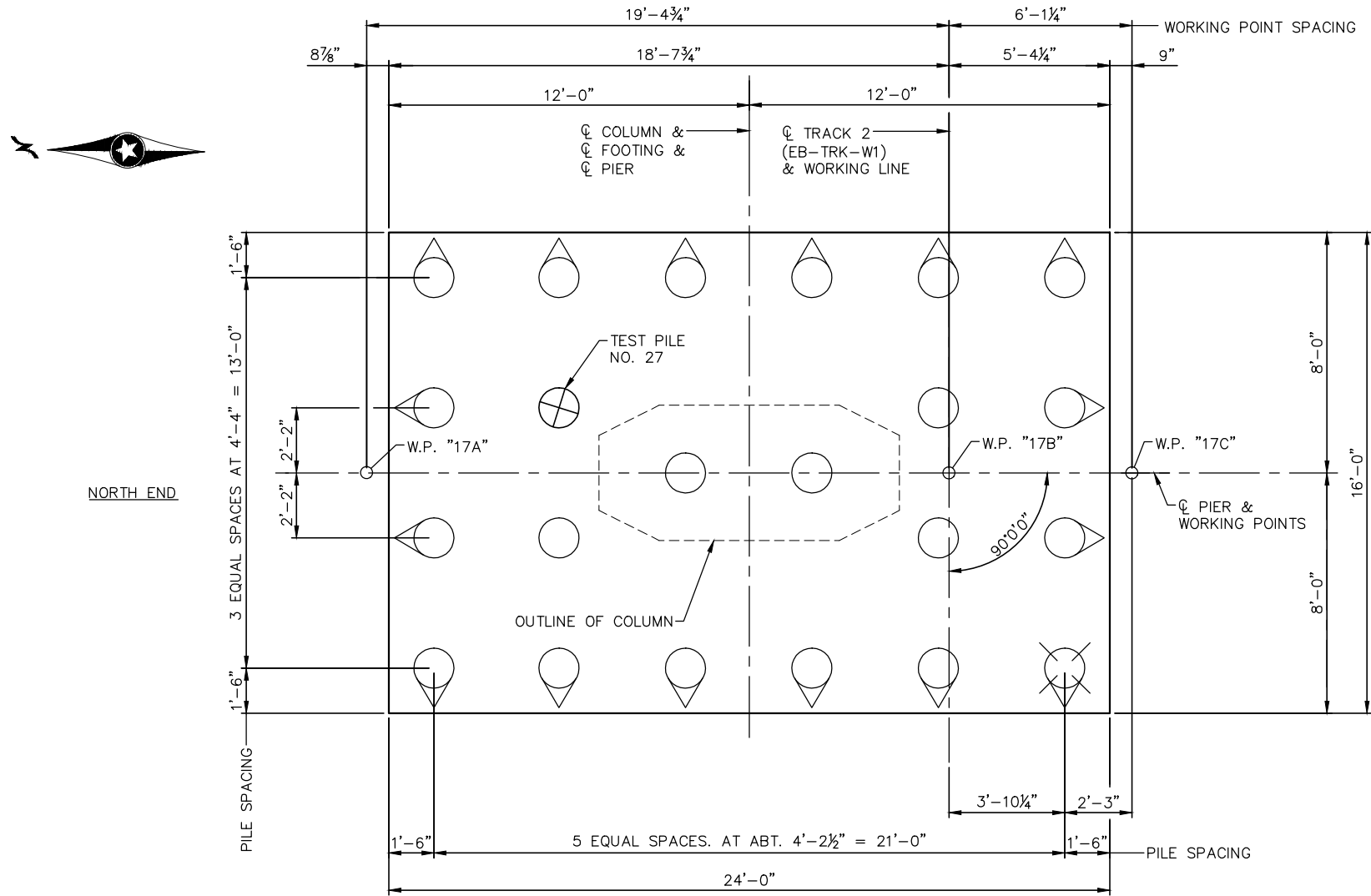
PILES TO HAVE A NOMINAL DIAMETER OF 16" AND A MINIMUM WALL THICKNESS OF 0.3125".

FOR PILE SPLICE DETAILS SEE DETAIL B201, SHEET 197.

PILES MARKED THUS  ARE SUBJECT TO UPLIFT AND ARE TO BE REINFORCED PER PILE REINFORCEMENT DETAIL.

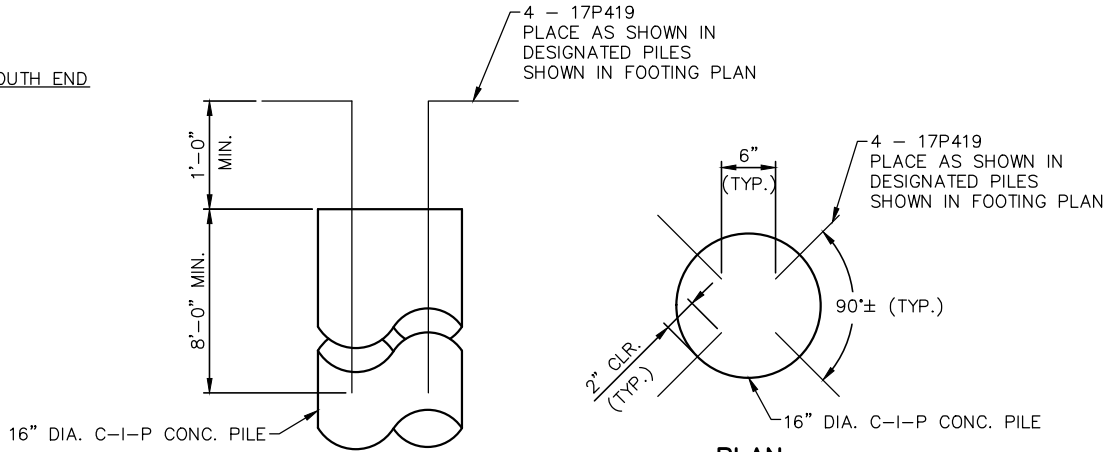
CONTRACTOR TO ORIENT PILE REINFORCEMENT TO MAINTAIN 3" CLEAR TO EDGE OF FOOTING. CONTRACTOR MAY FIELD ADJUST BOTTOM REINFORCEMENT BARS TO ACCOMMODATE PILE REINFORCEMENT DETAIL.

ALL PILES TO BE DRIVEN TO A MINIMUM TIP ELEVATION OF 772.8.



FOOTING PLAN

SOUTH END



ELEVATION


PLAN

PILE REINFORCEMENT DETAIL

Jan, 19 2016 09:39 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-012.dwg By: butterfielda

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN



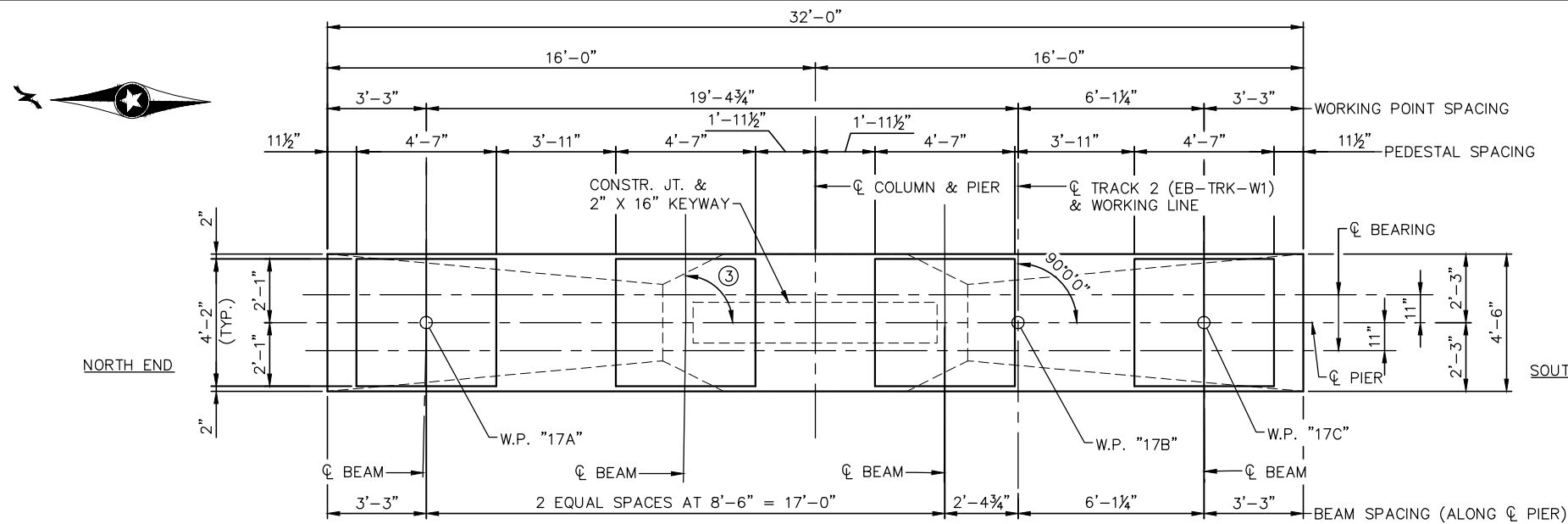
90% SUBMISSION - 01/22/16



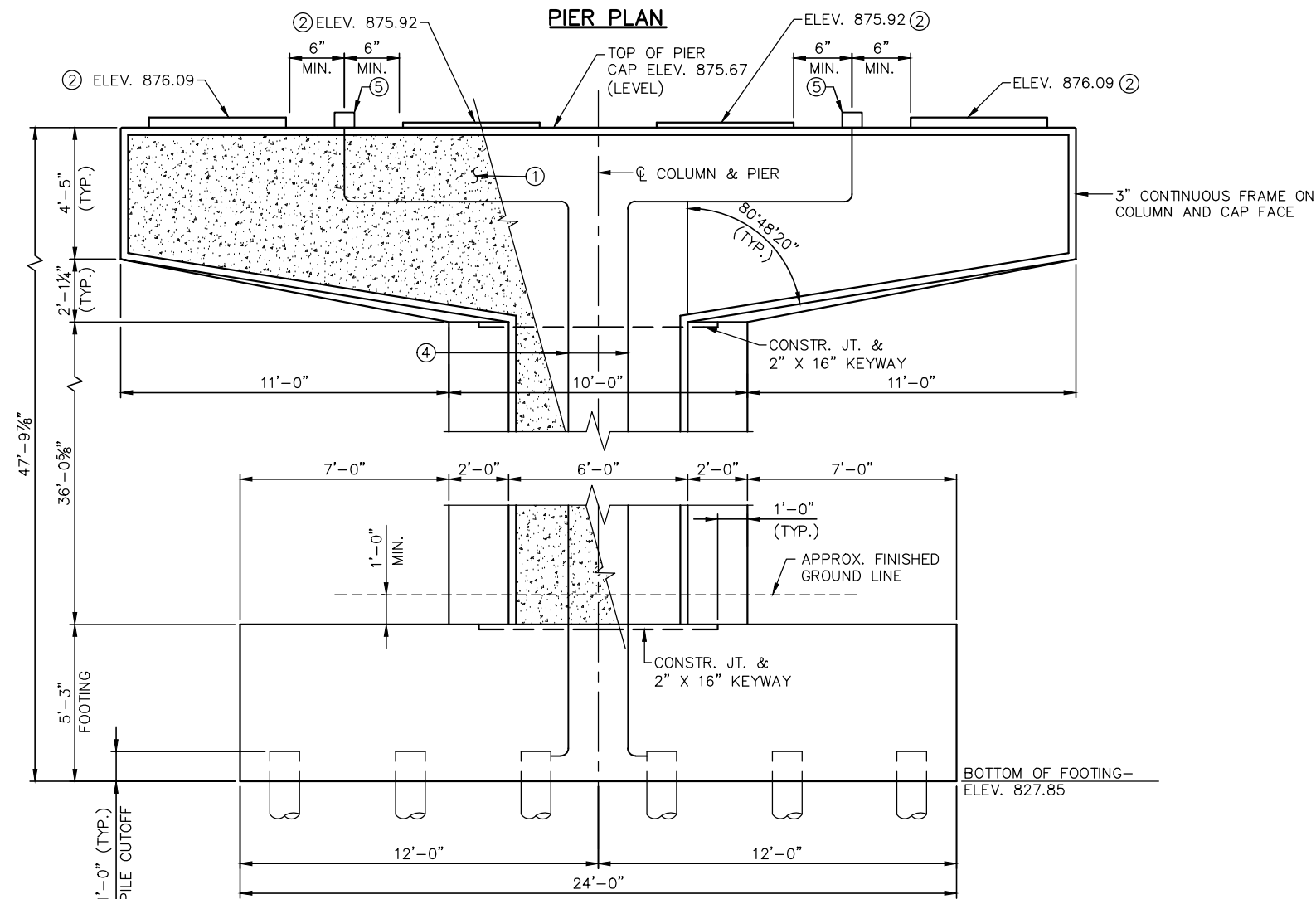
CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 17 GEOMETRICS 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-058

SHEET
89
OF
232

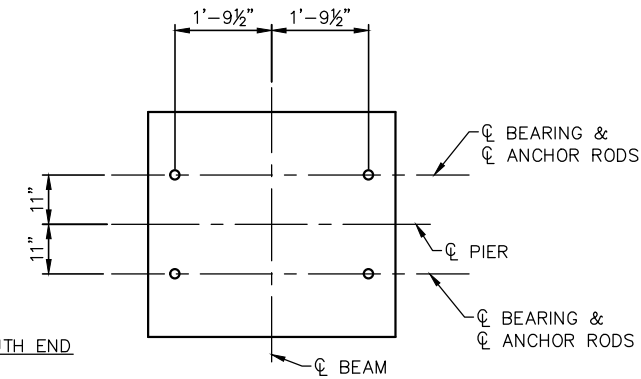
Jan, 19 2016 09:39 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-012.dwg By: butterfielda



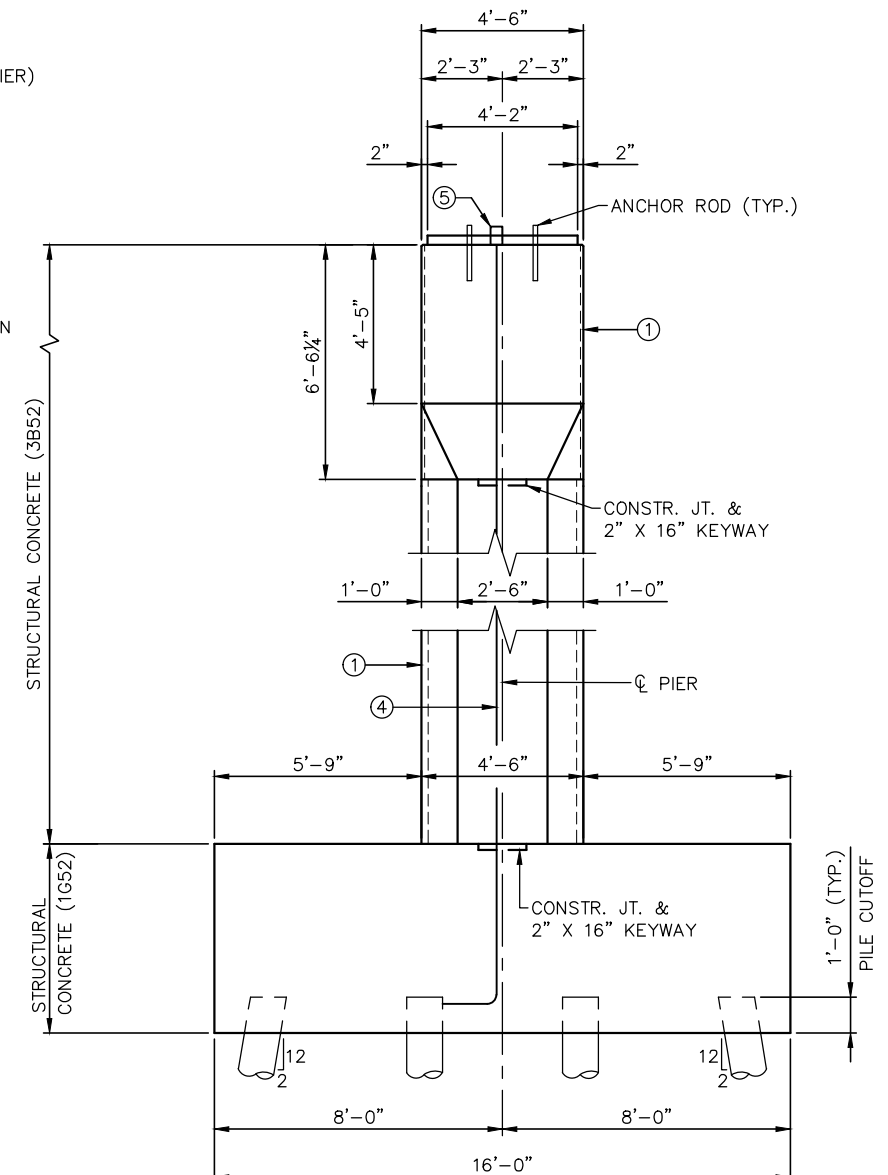
PIER PLAN



ELEVATION



ANCHOR ROD DETAIL



END ELEVATION

NOTES:

- ① TEXTURED RECESSED PANEL ON FACE OF PIERS, SEE SHEET 24.
- ② ELEVATIONS DETERMINED AT CL OF BEARING ON THE LOW SIDE OF THE PROFILE GRADE LINE.
- ③ FOR BEAM ANGLES SEE SHEET 112.
- ④ GROUND WIRE PLACED INSIDE 1" PVC CONDUIT, SEE SHEET ELE-SITE-DTL-600.
- ⑤ JUNCTION BOX, SEE SHEET ELE-SITE-DTL-600.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: JAS  
CHECKED BY: AMA  
CHECKED BY: ATN

AECOM

90% SUBMISSION - 01/22/16



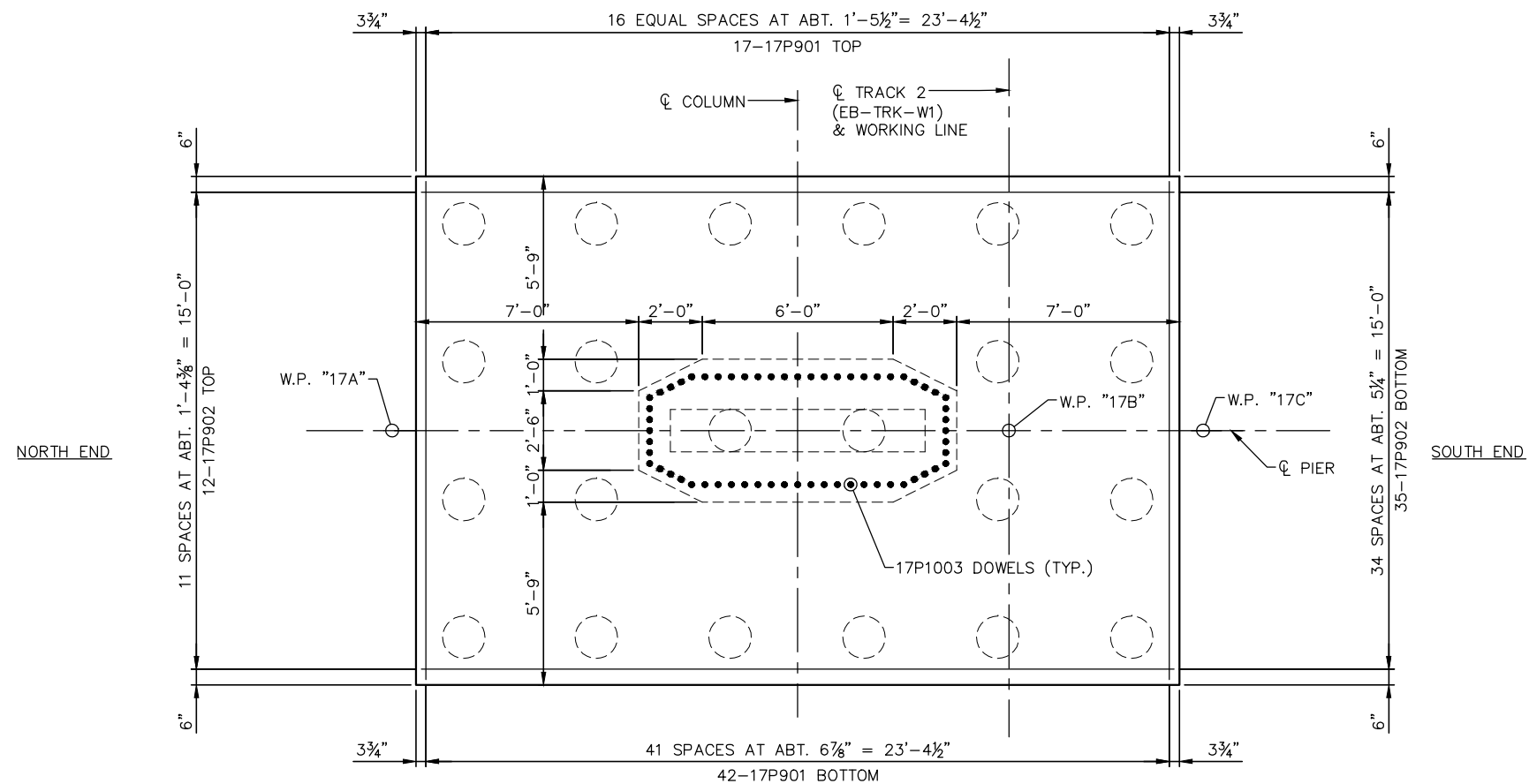
CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 17 GEOMETRICS 2

DISCIPLINE:  
STRUCTURES

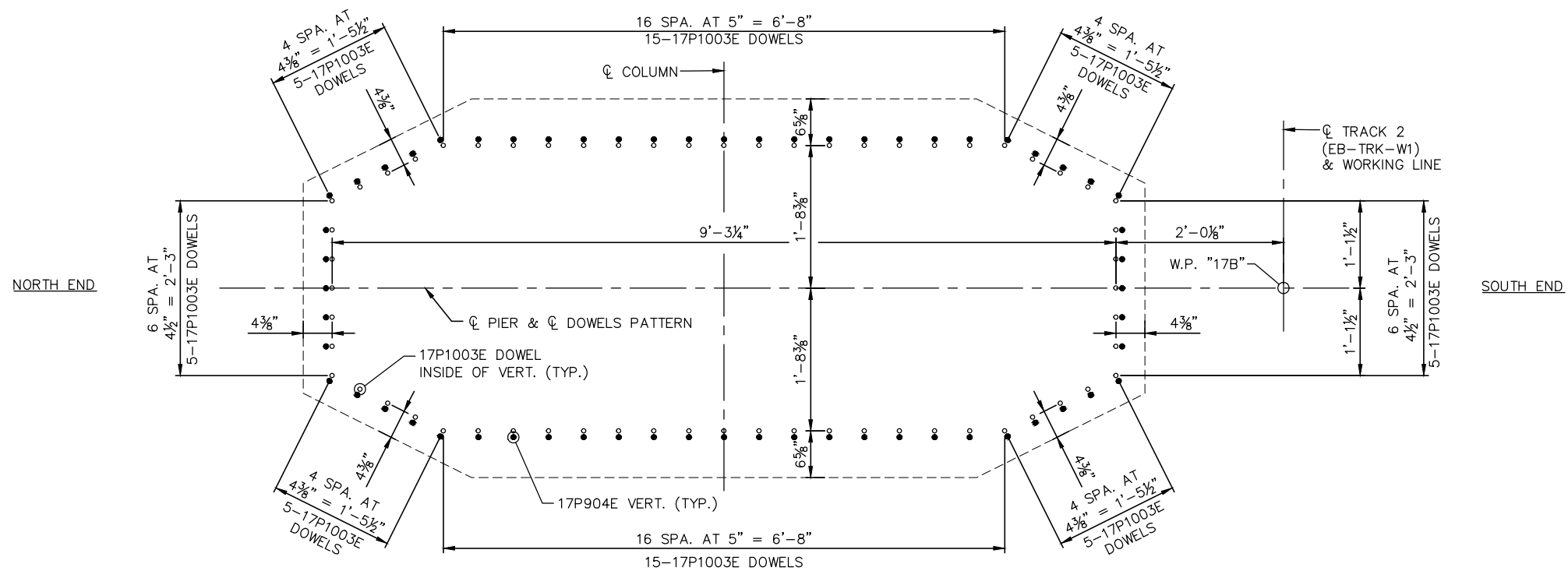
SHEET NAME:  
CBR27C06-BRG-PIR-059

SHEET  
90  
OF  
232

Jan, 19 2016 09:40 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-027.dwg By: butterfielda



FOOTING PLAN



FOOTING DOWEL LAYOUT

- NOTES:**
- DENOTES COLUMN BAR
  - DENOTES FOOTING DOWEL

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

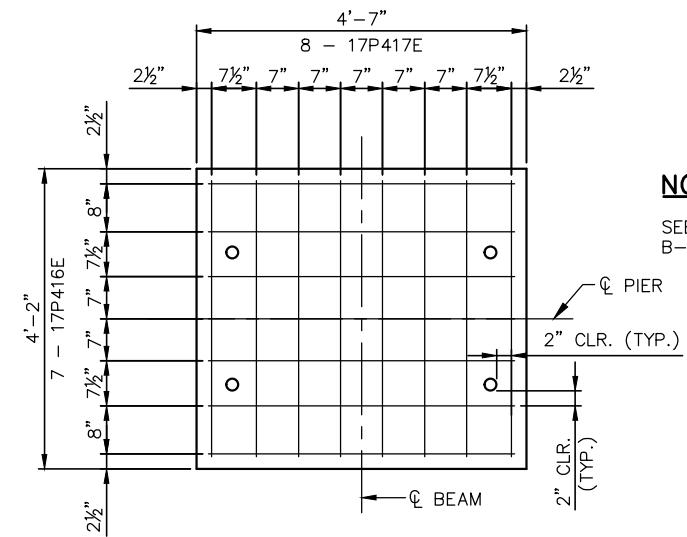
DESIGNED BY: <b>RJH</b>	CHECKED BY: <b>AMA</b>
DRAWN BY: <b>JAS</b>	CHECKED BY: <b>ATN</b>



**90% SUBMISSION - 01/22/16**



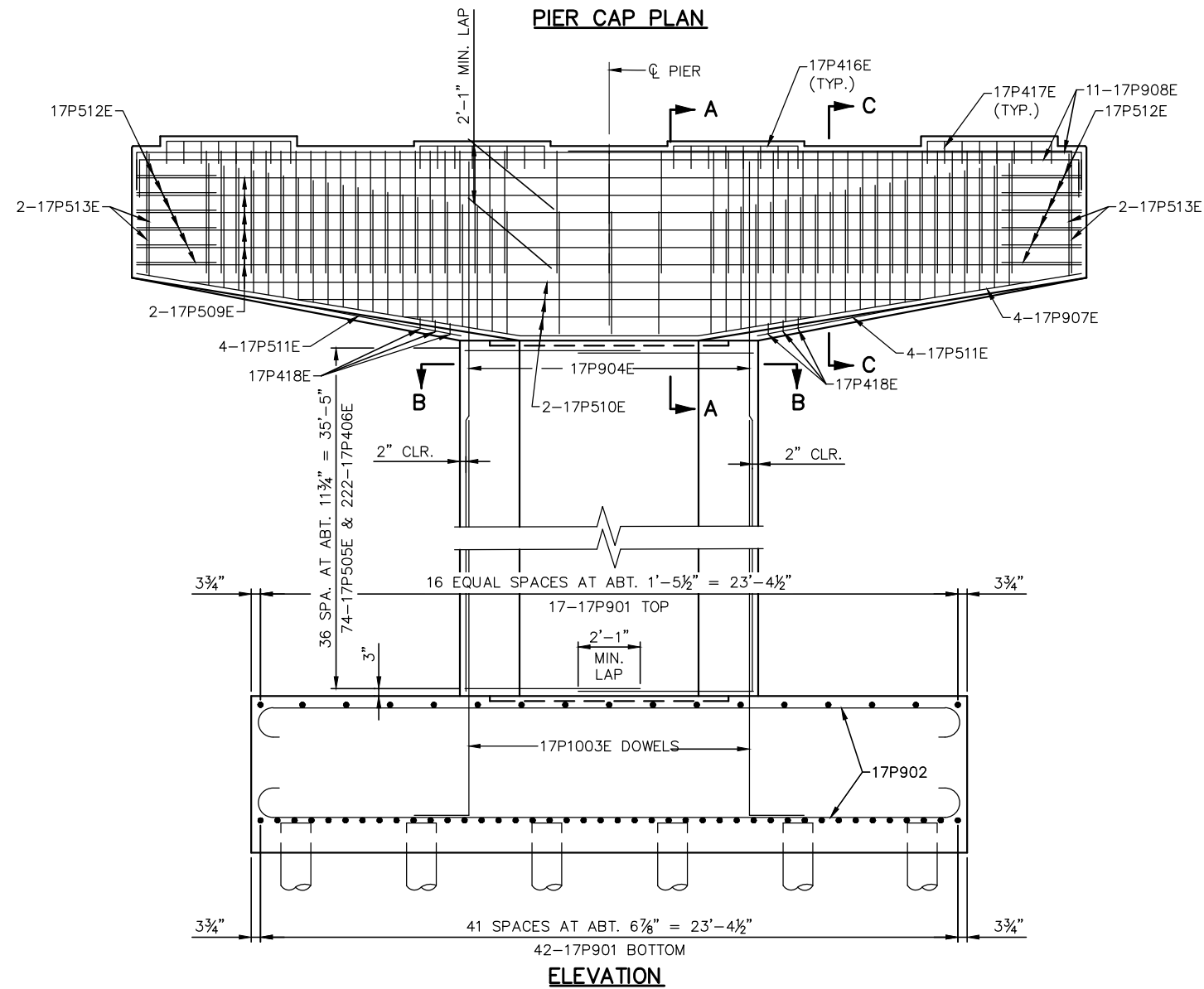
<b>CIVIL - VOLUME 4B</b>	
<b>PRAIRIE CENTER DRIVE</b>	
<b>BRIDGE 27C06</b>	
<b>PIER 17 REINFORCEMENT 1</b>	
DISCIPLINE: <b>STRUCTURES</b>	SHEET NAME: <b>CBR27C06-BRG-PIR-060</b>



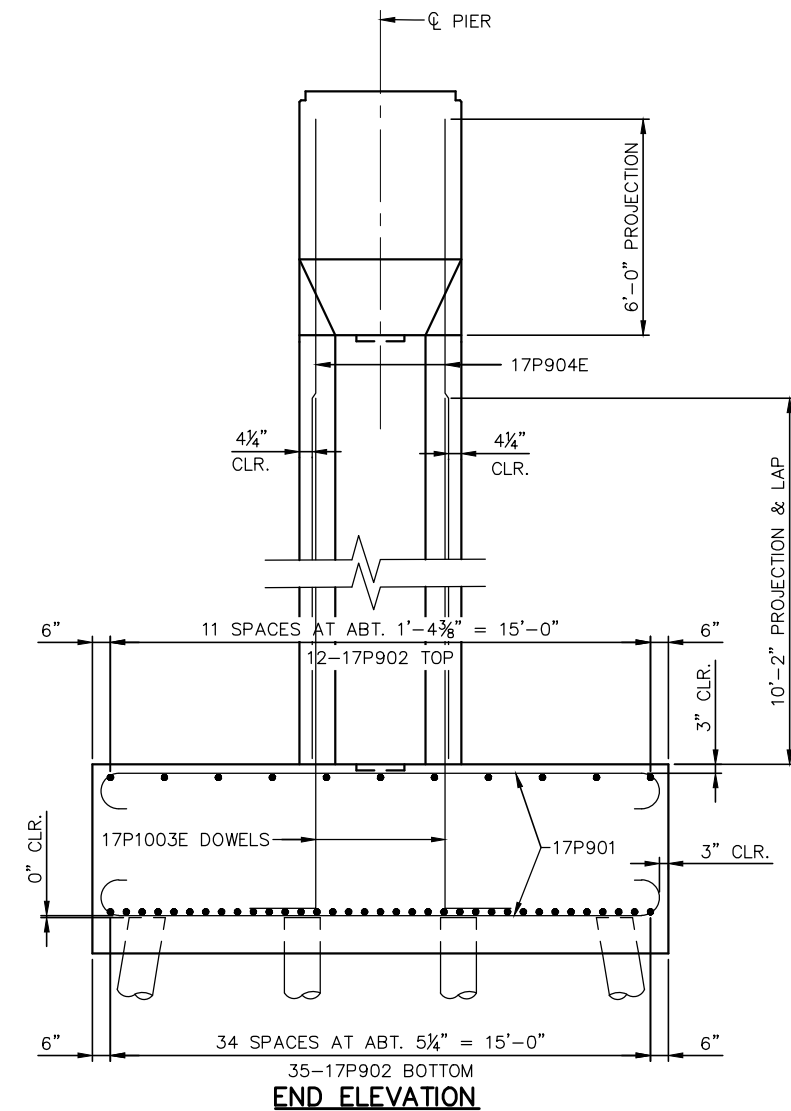
**NOTES:**

SEE SHEET 93 FOR SECTIONS A-A,  
B-B & C-C.

PIER CAP PLAN



PEDESTAL PLAN VIEW

[illegible]

DESIGNED BY: <b>RJH</b>	CHECKED BY: <b>AMA</b>
DRAWN BY: <b>JAS</b>	CHECKED BY: <b>ATN</b>

**AECOM**

**90% SUBMISSION - 01/22/16**



## SOUTHWEST



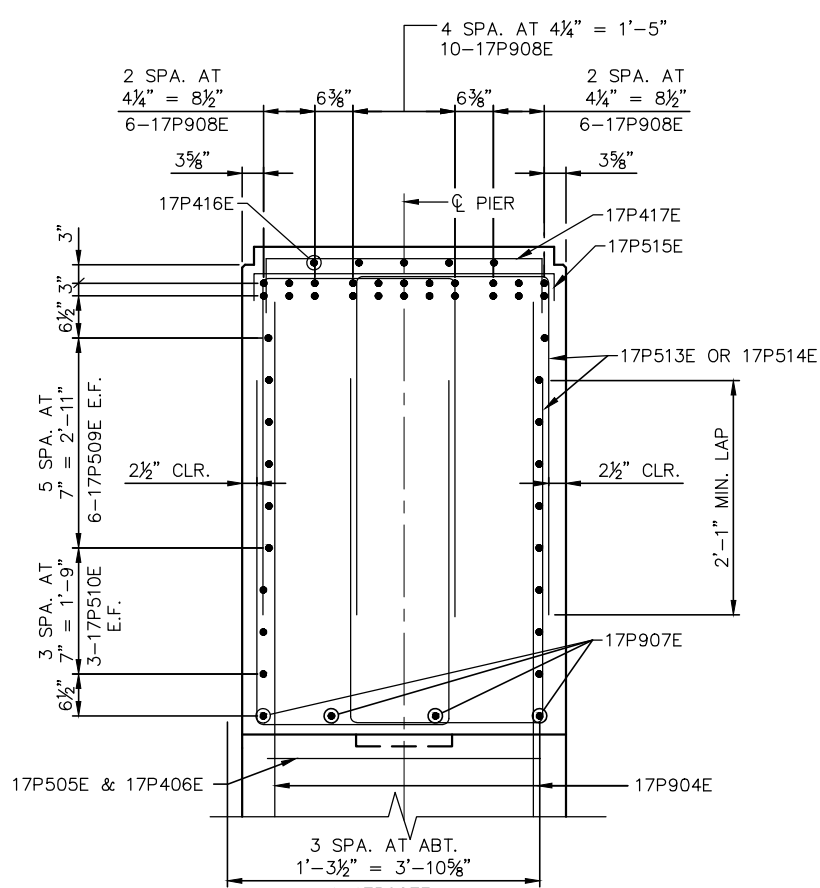
**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 17 REINFORCEMENT 2**

DISCIPLINE: **STRUCTURES**

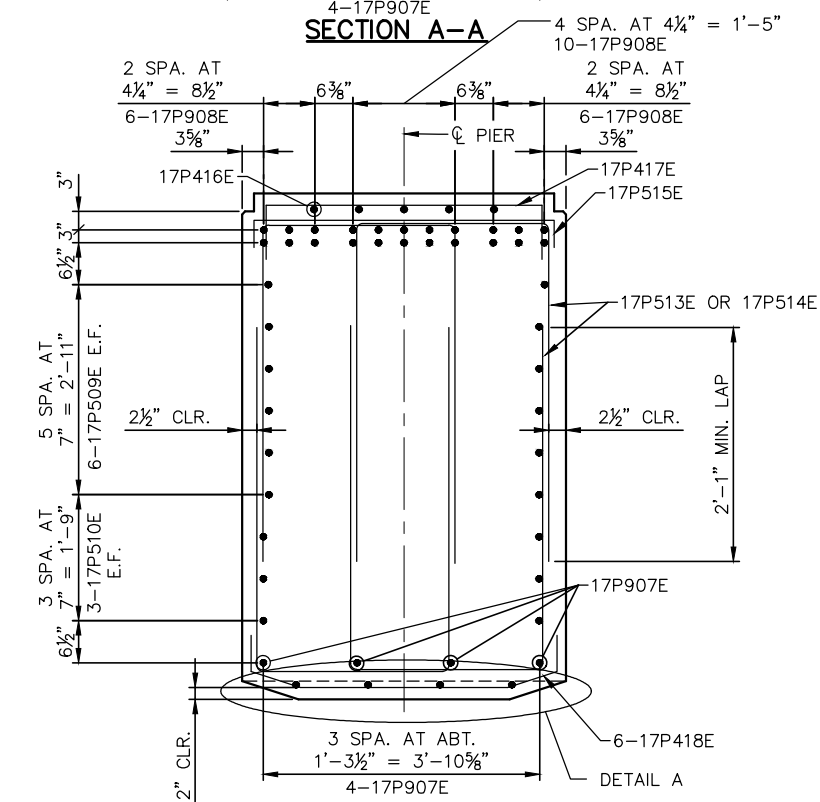
SHEET NAME:	CBR27C06-BRG-PIR-061	2
-------------	----------------------	---

HEET  
92  
OF  
232

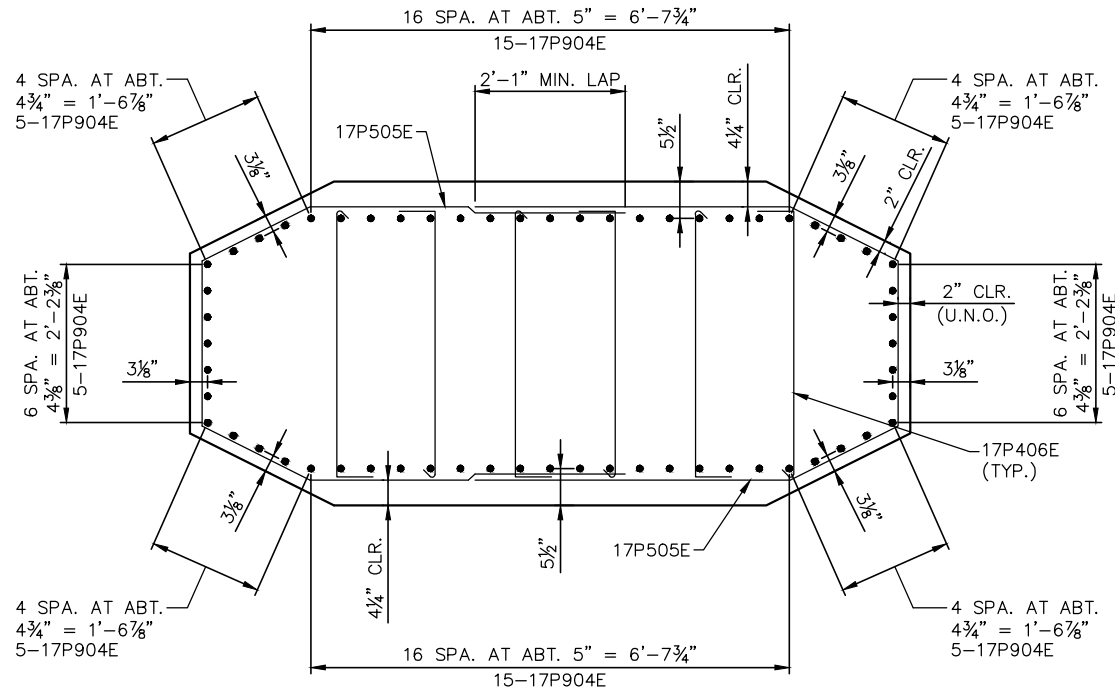
Jan, 19 2016 09:40 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-027.dwg By: butterfielda



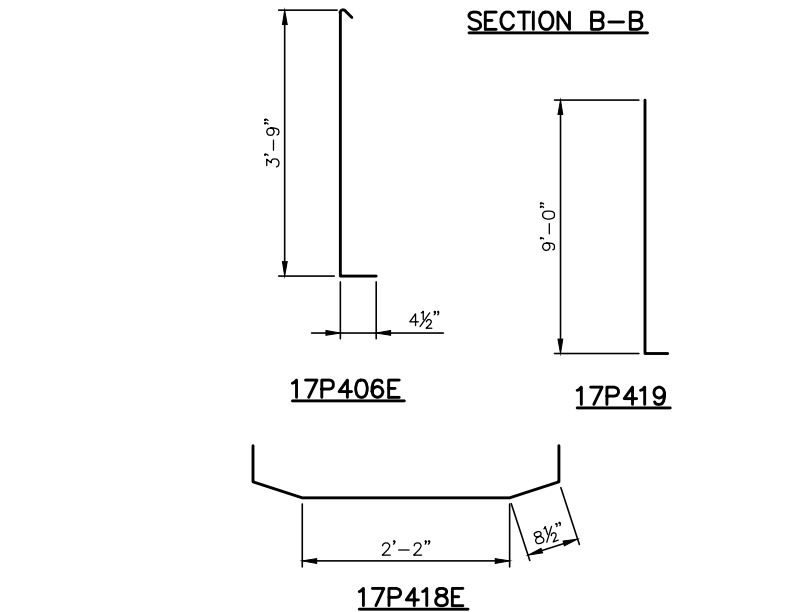
SECTION A-A



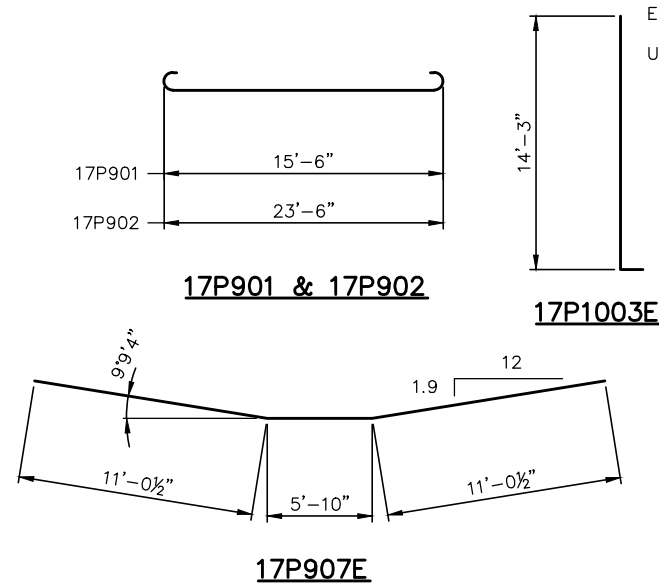
SECTION C-C



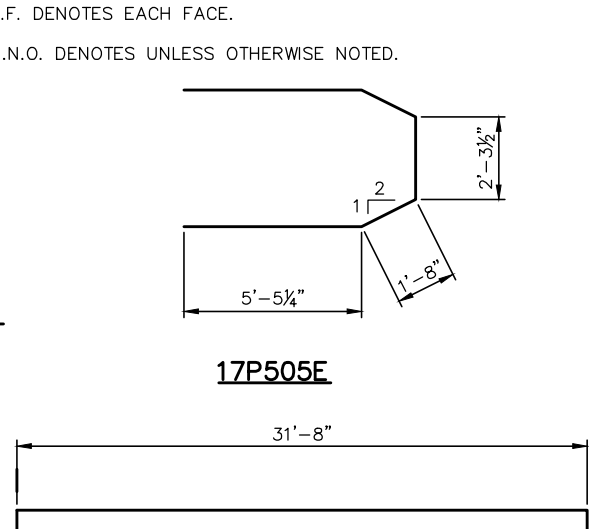
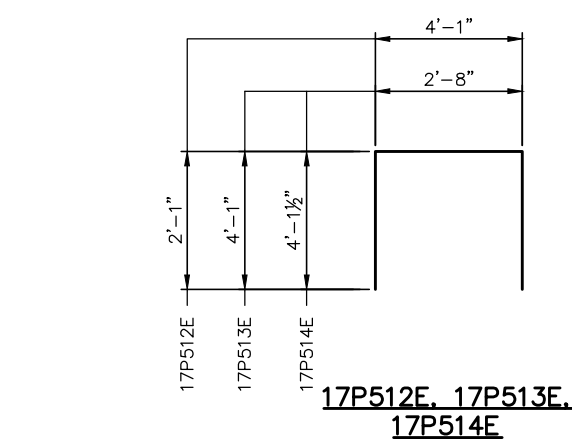
SECTION B-B



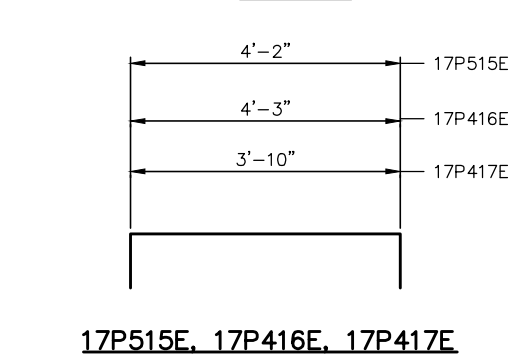
DETAIL A



17P907E



17P908E



17P515E, 17P416E, 17P417E

BILL OF REINFORCEMENT FOR PIER 17				
BAR	NO.	LENGTH	SHAPE	LOCATION
17P901	59	18'- 0"		FOOTING - TRANSVERSE
17P902	47	26'- 0"		FOOTING - LONGITUDINAL
17P1003E	60	16'- 1"		FOOTING - DOWELS
17P904E	60	41'- 11"		COLUMN - VERTICAL
17P505E	74	16'- 6"		COLUMN - HORIZONTAL
17P406E	222	4'- 6"		COLUMN - STIRRUPS
17P907E	4	32'- 0"		CAP - LONGITUDINAL
17P908E	22	34'- 10"		CAP - LONGITUDINAL
17P509E	12	31'- 8"		CAP - LONGITUDINAL
17P510E	2 SERIES OF 3	13'-4" TO 25'-6"		CAP - LONGITUDINAL
17P511E	8	6'- 0"		CAP - LONGITUDINAL
17P512E	12	8'- 3"		CAP - TIES
17P513E	8	10'- 10"		CAP - STIRRUPS
17P514E	180	10'- 11"		CAP - STIRRUPS
17P515E	47	5'- 2"		CAP - TIES
17P416E	28	5'- 11"		PEDESTAL - TIES
17P417E	32	5'- 6"		PEDESTAL - TIES
17P418E	6	4'- 4"		CAP - STIRRUPS
17P419	4	9'- 10"		PILES

NOTES:

SEE SHEET 92 FOR SECTIONS A-A, B-B & C-C.

E.F. DENOTES EACH FACE.

U.N.O. DENOTES UNLESS OTHERWISE NOTED.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: AMA
DRAWN BY: JAS	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 17 REINFORCEMENT 3	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-062

SHEET
93
OF
232

Jan, 19 2016 09:40 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-013.dwg By: butterfielda

PIER 18 REQUIRED NOMINAL PILE BEARING RESISTANCE FOR C-I-P PILES R <sub>n</sub> – TONS/PILE		
FIELD CONTROL METHOD	Φ <sub>dyn</sub>	* R <sub>n</sub>
PDA	0.65	129.9


\* R<sub>n</sub> = (FACTORED DESIGN LOAD) / Φ<sub>dyn</sub>

PIER 18 COMPUTED PILE LOAD – TONS/PILE	
FACTORED DEAD LOAD	54.3
FACTORED LIVE LOAD	14.7
FACTORED OVERTURNING	15.4
* FACTORED DESIGN LOAD	84.4

\* BASED ON STRENGTH V LOAD COMBINATION

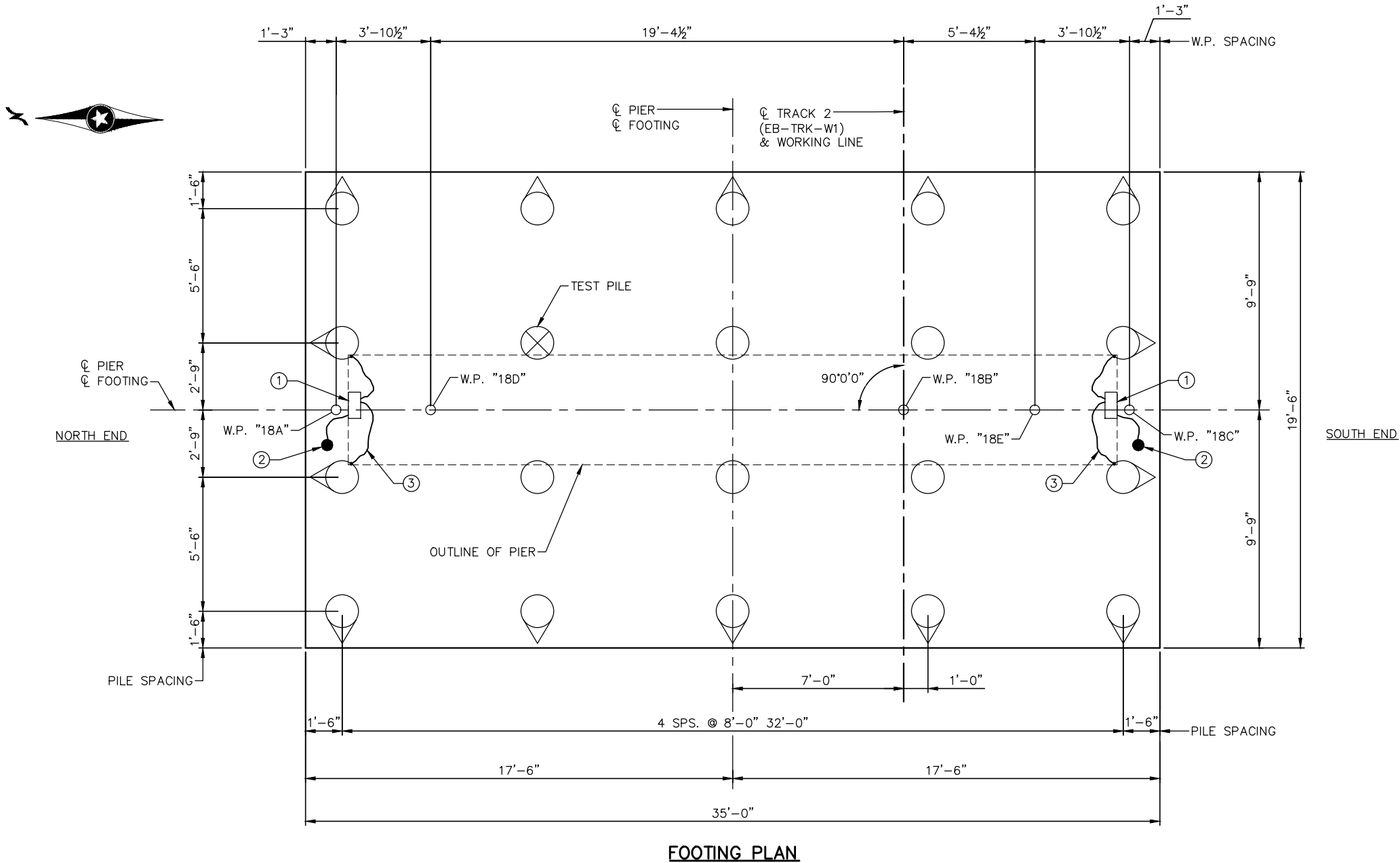
PILE NOTES

- 1 CAST-IN-PLACE CONCRETE TEST PILE 55 FT. LONG.
- 19 CAST-IN-PLACE CONCRETE PILES EST. LENGTH 45 FT.
- 20 CAST-IN-PLACE CONCRETE PILES REQ'D FOR PIER 8.
- PILES TO HAVE A NOMINAL DIAMETER OF 16" AND WALL THICKNESS OF 5/16".
- FOR PILE SPLICE DETAILS SEE DETAIL B201.
- PILE SPACING IS SHOWN AT BOTTOM OF FOOTING.
- NOMINAL PILE BEARING RESISTANCE SHALL BE DETERMINED BY THE USE OF A PILE DRIVING ANALYZER (PDA). PILE LENGTHS SHOWN ARE BASED ON USING A PDA.

- ALL PILES TO BE DRIVEN TO A MINIMUM TIP ELEVATION OF 821.95.
- PILES MARKED THIS  TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.
- ① STRAY CURRENT TEST STATION. SEE NOTE 9 AND 12 ON SHEET 10.
- ② COPPER/COPPER SULFATE REFERENCE CELL. SEE NOTE 10 ON SHEET 10.
- ③ #1/0 CABLE WELDED ONTO CORNER PILE. SEE NOTE 10 ON SHEET 10.

NOTES:

ALL REBAR AND PILES SHALL BE WELDED PER DETAILS ON SHEETS E0-SYS-CORR-DTL.001 & .008.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: AV	CHECKED BY: KL
DRAWN BY: ALB	CHECKED BY: KL





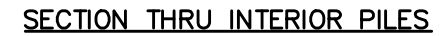
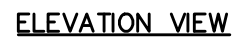
90% SUBMISSION - 01/22/16



DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-PIR-063

CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 18 GEOMETRICS 1		SHEET
		94
		OF
		232



- ① STRAY CURRENT TEST STATION. SEE NOTE 9 AND 12 ON SHEET 10.
- ② COPPER/COPPER SULFATE REFERENCE CELL. SEE NOTE 10 ON SHEET 10.
- ③ #1/0 CABLE WELDED ONTO CORNER PILE. SEE NOTE 10 ON SHEET 10.
- ④ ARCHITECTURAL SURFACE FINISH (SINGLE COLOR).
  - SEE SPECIAL PROVISIONS.
- ⑤ ARCHITECTURAL CONCRETE TEXTURE (LIMESTONE) WITH ARCHITECTURAL SURFACE FINISH (SINGLE COLOR)
  - SEE SPECIAL PROVISIONS.
- ⑥ EPOXY PAD TO TOP OF CONCRETE WALL PIER. CAST SLAB DIRECTLY ON BEARING PAD WITH TOP ¼" OF BEARING PAD RECESSED INTO SLAB (1" EXPOSED).

[illegible]**AECOM**

**METROPOLITAN**  
COUNCIL

## SOUTHWEST



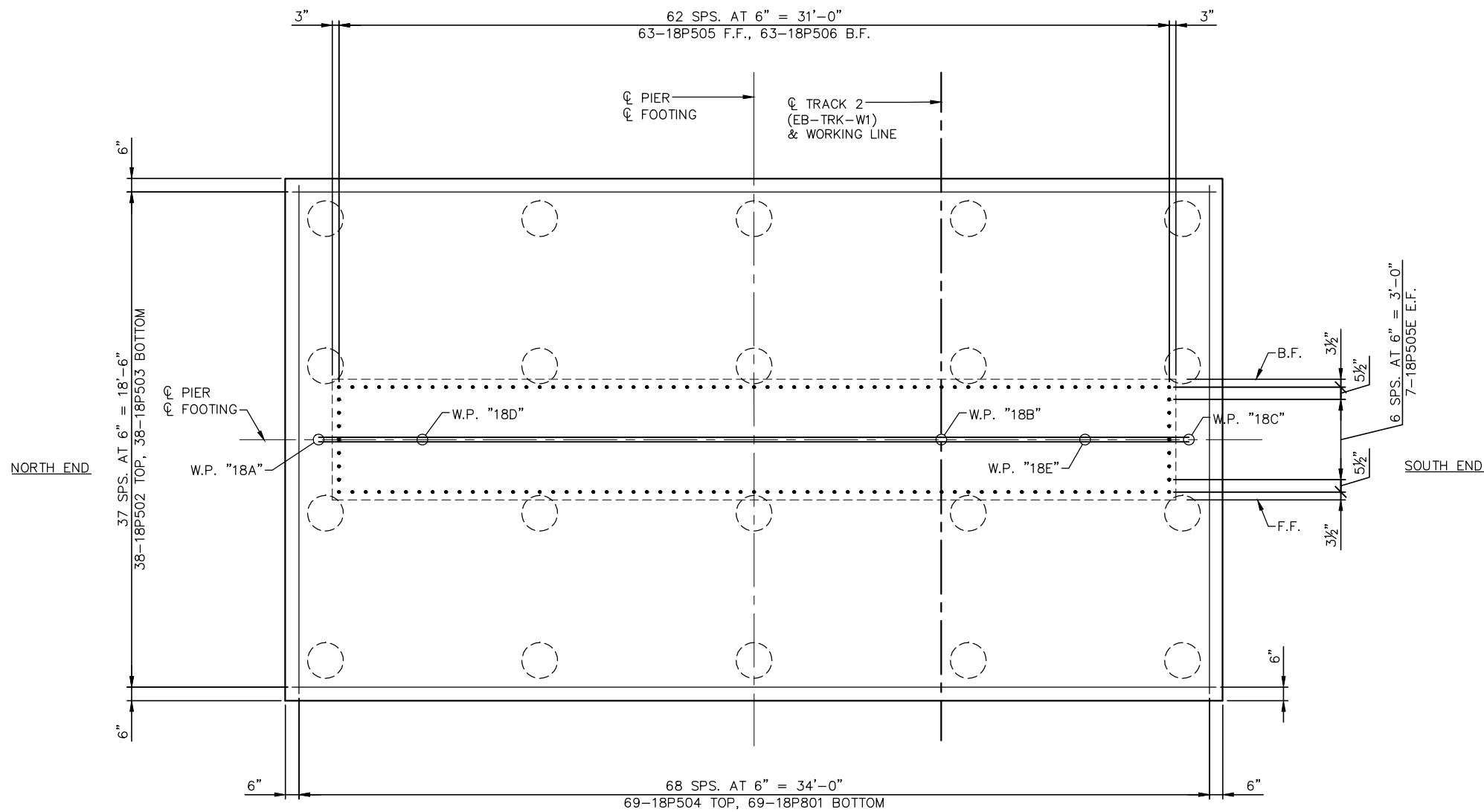
**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 18 GEOMETRICS 2**

SHEET NAME:	CBR27C06-BRG-PIR-064
-------------	----------------------

**SHEET**  
**95**  
**OF**  
**232**



Jan, 19 2016 09:40 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-028.dwg By: butterfielda



FOOTING PLAN

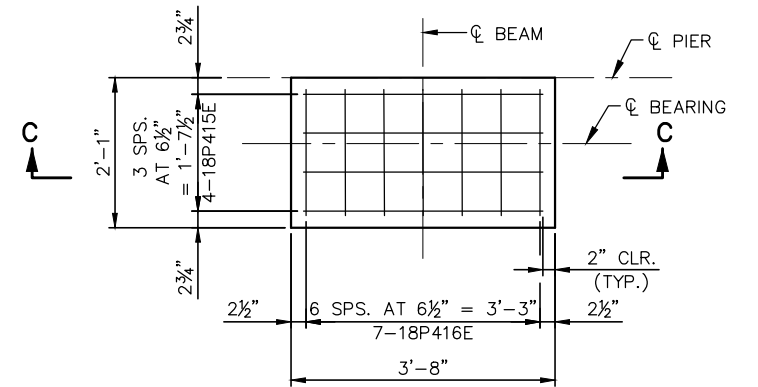
**NOTES:**

F.F. DENOTES FRONT FACE.

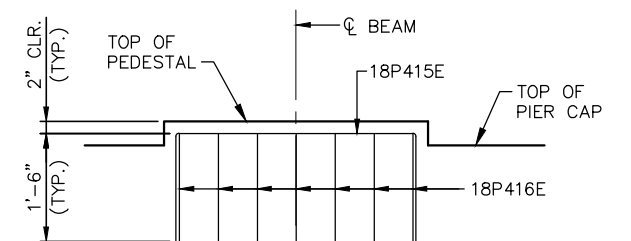
B.F. DENOTES BACK FACE.

E.F. DENOTES EACH FACE.

FOR GEOMETRICS PLAN SEE SHEETS 94 AND 95.



PEDESTAL PLAN VIEW



SECTION C-C

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

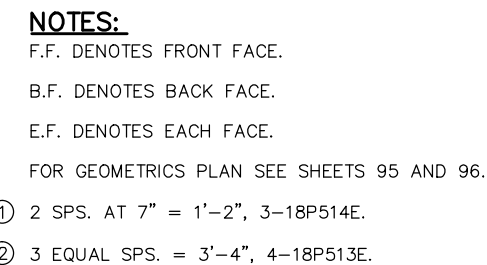
DESIGNED BY:	AV	CHECKED BY:	KL
DRAWN BY:	CL	CHECKED BY:	KL



90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 18 REINFORCEMENT 1	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-065

[illegible]

SECTION A-A

[illegible]**AECOM**

**METROPOLITAN**  
COUNCIL

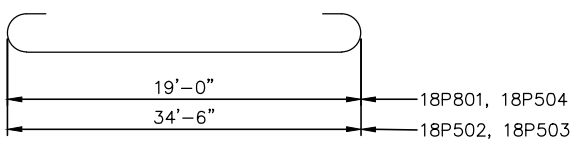


**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 18 REINFORCEMENT 2**

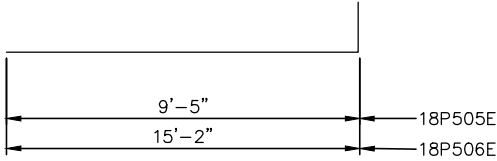
SHEET NAME:	CBR27C06-BRG-PIR-066
-------------	----------------------

	<b>SHEET</b>
	<b>97</b>
	<b>OF</b>
	<b>232</b>

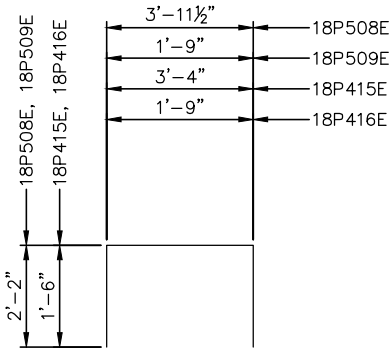
Jan, 19 2016 09:41 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-PIR-028.dwg By: butterfielda



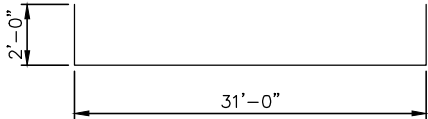
**18P801**  
**18P502**  
**18P503**  
**18P504**



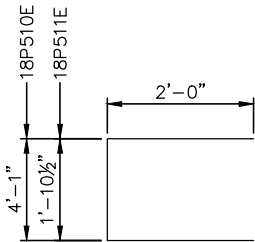
**18P505E**  
**18P506E**



**18P508E**  
**18P509E**  
**18P415E**  
**18P416E**



**18P513E**  
**18P514E**



**18P510E**  
**18P511E**

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 18				
BAR	NO.	LENGTH	SHAPE	LOCATION
18P801	69	20'-10"		FOOTING BOTTOM TRANSVERSE
18P502	38	35'-8"		FOOTING TOP LONGITUDINAL
18P503	38	35'-8"		FOOTING BOTTOM LONGITUDINAL
18P504	69	20'-2"		FOOTING TOP TRANSVERSE
18P505E	77	10'-2"		PIER VERTICAL F.F.
18P506E	63	15'-11"		PIER VERTICAL B.F.
18P507E	67	7'-7"		PIER VERTICAL F.F.
18P508E	63	8'-4"		PIER BACK WALL TOP TRANSVERSE
18P509E	63	6'-1"		PIER PEDESTAL SEAT TOP TRANSVERSE
18P510E	30	8'-1"		PIER HORIZONTAL
18P511E	24	5'-11"		PIER HORIZONTAL
18P512E	54	31'-2"		PIER HORIZONTAL E.F.
18P513E	4	35'-0"		PIER PEDESTAL SEAT TOP LONGITUDINAL
18P514E	3	35'-0"		PIER BACK WALL TOP LONGITUDINAL
18P415E	16	6'-4"		PEDESTAL TOP LONGITUDINAL
18P416E	28	4'-9"		PEDESTAL TOP TRANSVERSE

**NOTES:**  
F.F. DENOTES FRONT FACE.  
B.F. DENOTES BACK FACE.  
E.F. DENOTES EACH FACE.  
FOR REINFORCEMENT SEE SHEETS 96 AND 97.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	AV	CHECKED BY:	KL
DRAWN BY:	CL	CHECKED BY:	KL

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 18 REINFORCEMENT 3	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-067

SHEET  
98  
OF  
232

Jan, 19 2016 09:41 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-014.dwg By: butterfielda

PIERS 19, 20, 22, 23, 25, 26, 28, 29  
REQUIRED NOMINAL PILE BEARING  
RESISTANCE FOR C-I-P PILES  
 $R_n$  – TONS/PILE

FIELD CONTROL METHOD	$\phi_{dyn}$	PIER 19	PIER 20	PIER 22	PIER 23	PIER 25	PIER 26	PIER 28	PIER 29
		* $R_n$	* $R_n$	* $R_n$	* $R_n$	* $R_n$	* $R_n$	* $R_n$	* $R_n$
PDA	0.65	203.1	206.8	209.4	206.4	199.9	202.2	208.7	175.3

\*  $R_n$  = (FACTORED DESIGN LOAD) /  $\phi_{dyn}$

PIERS 19, 20, 22, 23, 25, 26, 28, 29  
COMPUTED PILE LOAD – TONS/PILE

	PIER 19	PIER 20	PIER 22	PIER 23	PIER 25	PIER 26	PIER 28	PIER 29
FACTORED DEAD LOAD	97.5	99.7	101.0	99.1	94.4	93.8	94.6	77.6
FACTORED LIVE LOAD	24.3	24.2	24.2	11.4	24.7	11.4	27.4	11.4
FACTORED OVERTURNING	10.2	10.5	10.9	23.6	10.8	26.2	13.6	24.9
* FACTORED DESIGN LOAD	132.0	134.4	136.1	134.1	129.9	131.4	135.6	113.9

\* BASED ON ④ LOAD COMBINATION

PILE NOTES

1 CAST-IN-PLACE CONCRETE TEST PILE ⑫ FT. LONG.

6 CAST-IN-PLACE CONCRETE PILES EST. LENGTH ⑬ FT.

7 CAST-IN-PLACE CONCRETE PILES REQ'D FOR EACH PIER (19, 20, 22, 23, 25, 26, 28, 29).

PILES TO HAVE A NOMINAL DIAMETER OF 16" AND WALL THICKNESS OF 0.500".

FOR PILE SPLICE DETAILS SEE DETAIL B201.

PILE SPACING IS SHOWN AT BOTTOM OF WALL PIER.

NOMINAL PILE BEARING RESISTANCE SHALL BE DETERMINED BY THE USE OF A PILE DRIVING ANALYZER (PDA). PILE LENGTHS SHOWN ARE BASED ON USING A PDA.

ALL PILES TO BE DRIVEN TO A MINIMUM TIP ELEVATION OF ⑭.

	⑫ (FT.)	⑬ (FT.)	⑭ (EL.)	⑮ (FT.)
PIER 19	55	45	823.78	2'-7 1/2"
PIER 20	55	45	822.69	2'-7 1/2"
PIER 22	60	50	815.01	2'-7 1/2"
PIER 23	65	55	811.27	2'-7 1/2"
PIER 25	65	55	816.08	2'-7 1/2"
PIER 26	65	55	819.24	2'-7 1/2"
PIER 28	65	55	816.56	2'-7 5/8"
PIER 29	65	55	817.28	2'-7 5/8"

NOTES:

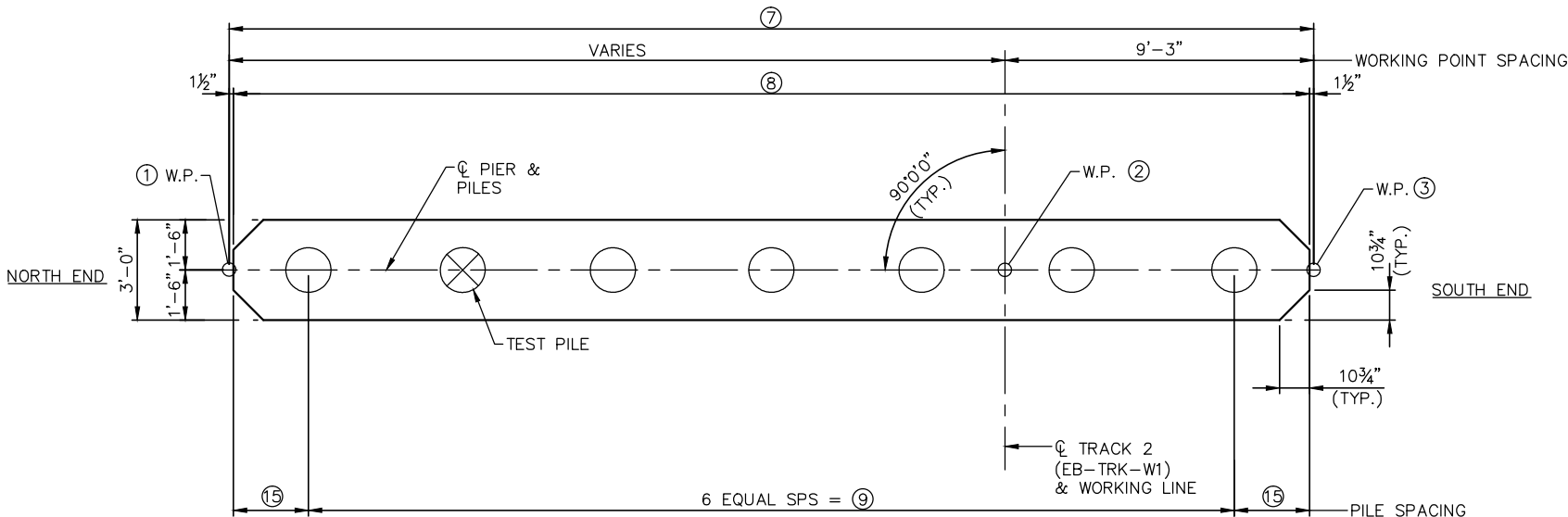
ALL REBAR AND PILES SHALL BE WELDED PER DETAILS ON SHEETS E0-SYS-CORR-DTL.001 & .008.

NORTH ARROW NOT SHOWN DUE TO MULTIPLE PIERS. SEE GENERAL PLAN AND ELEVATION SHEETS.

①②③ SEE SHEET 100 FOR WORKING POINT TABLE.

④ PIERS 19, 20, 22, 25, 28: STRENGTH V.  
PIERS 23, 26, 29: EXTREME III.

⑦⑧⑨ SEE SHEET 100 FOR PIER GEOMETRIC TABLE.



WALL PIER FOOTING PLAN

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: KL	CHECKED BY: AMA
DRAWN BY: ALB	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 19,20,22,23,25,26,28 & 29 GEOMETRICS 1

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-PIR-068

SHEET

99

OF

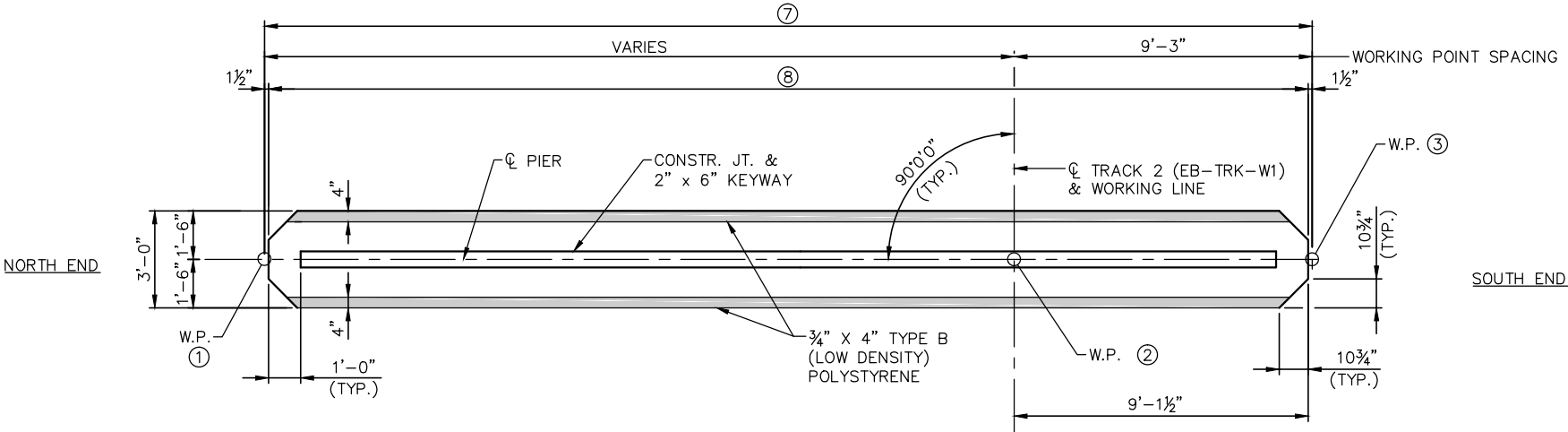
232

WORKING POINT TABLE

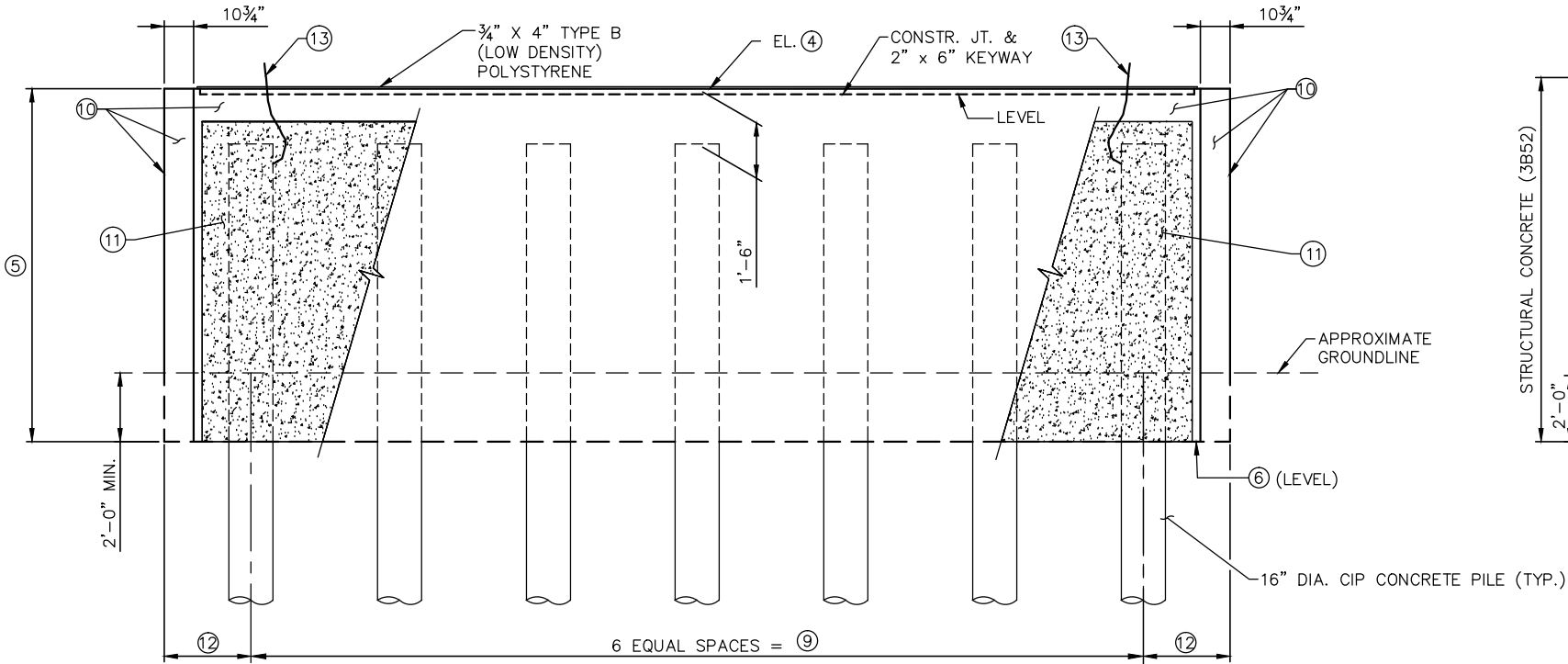
	WORKING POINT ①	WORKING POINT ②	WORKING POINT ③
PIER 19	"19A"	"19B"	"19C"
PIER 20	"20A"	"20B"	"20C"
PIER 22	"22A"	"22B"	"22C"
PIER 23	"23A"	"23B"	"23C"
PIER 25	"25A"	"25B"	"25C"
PIER 26	"26A"	"26B"	"26C"
PIER 28	"28A"	"28B"	"28C"
PIER 29	"29A"	"29B"	"29C"

PIER GEOMETRIC TABLE

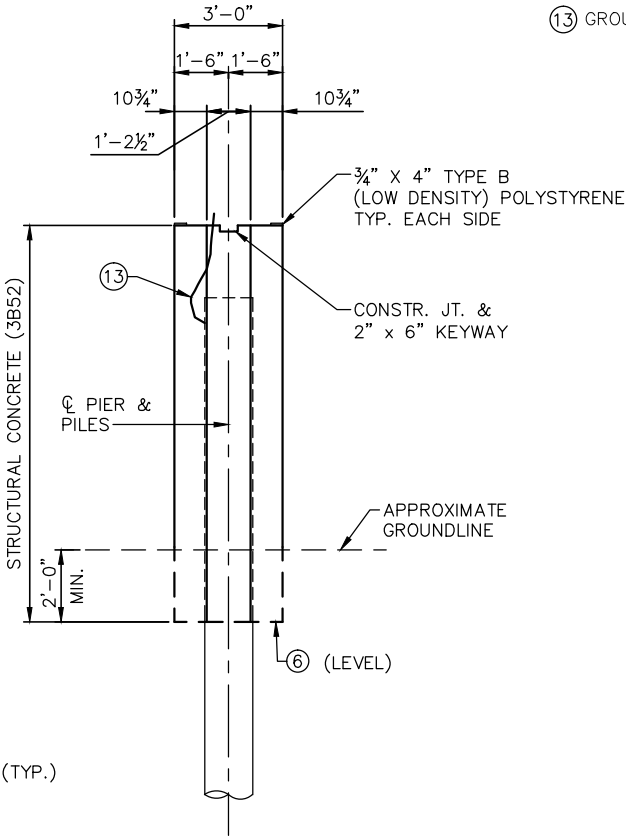
	TOP OF WALL PIER ELEV. ④	TOTAL PIER HEIGHT ⑤	BOTTOM OF PIER ELEV. ⑥	WORKING POINT SPACING ⑦	PIER WIDTH ⑧	⑨
PIER 19	884.20	15'-5"	868.78	32'-6"	32'-3"	27'-0"
PIER 20	884.36	16'-8"	867.69	32'-6"	32'-3"	27'-0"
PIER 22	884.26	19'-3"	865.01	32'-6"	32'-3"	27'-0"
PIER 23	884.19	17'-11"	866.27	32'-6"	32'-3"	27'-0"
PIER 25	884.05	13'-0"	871.05	32'-6"	32'-3"	27'-0"
PIER 26	883.99	9'-9"	874.24	32'-6"	32'-3"	27'-0"
PIER 28	883.81	12'-3"	871.56	32'-6 1/4"	32'-3 1/4"	27'-0"
PIER 29	883.53	11'-3"	872.28	32'-6 1/4"	32'-3 1/4"	27'-0"



WALL PIER PLAN



WALL PIER ELEVATION



END VIEW

NOTES:

- ⑩ ARCHITECTURAL SURFACE FINISH (SINGLE COLOR) - SEE SPECIAL PROVISIONS.
- ⑪ ARCHITECTURAL CONCRETE TEXTURE (LIMESTONE) WITH ARCHITECTURAL SURFACE FINISH (SINGLE COLOR). - SEE SPECIAL PROVISIONS.
- ⑫ 2'-7 1/2" (PIERS 19, 20, 22, 23, 25, 26). 2'-7 5/8" (PIERS 28 AND 29).
- ⑬ GROUND WIRE.

Jan, 19 2016 09:41 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-014.dwg By: butterfielda

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: KL	CHECKED BY: AMA
DRAWN BY: ALB	CHECKED BY: ATN



90% SUBMISSION - 01/22/16

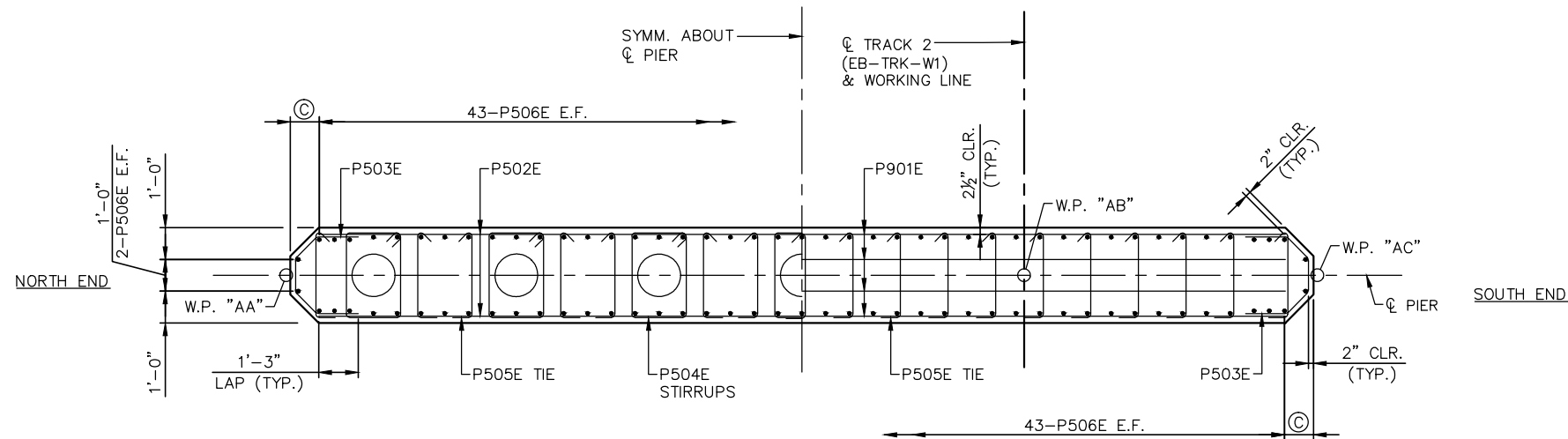


CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 19,20,22,23,25,26,28 & 29 GEOMETRICS 2

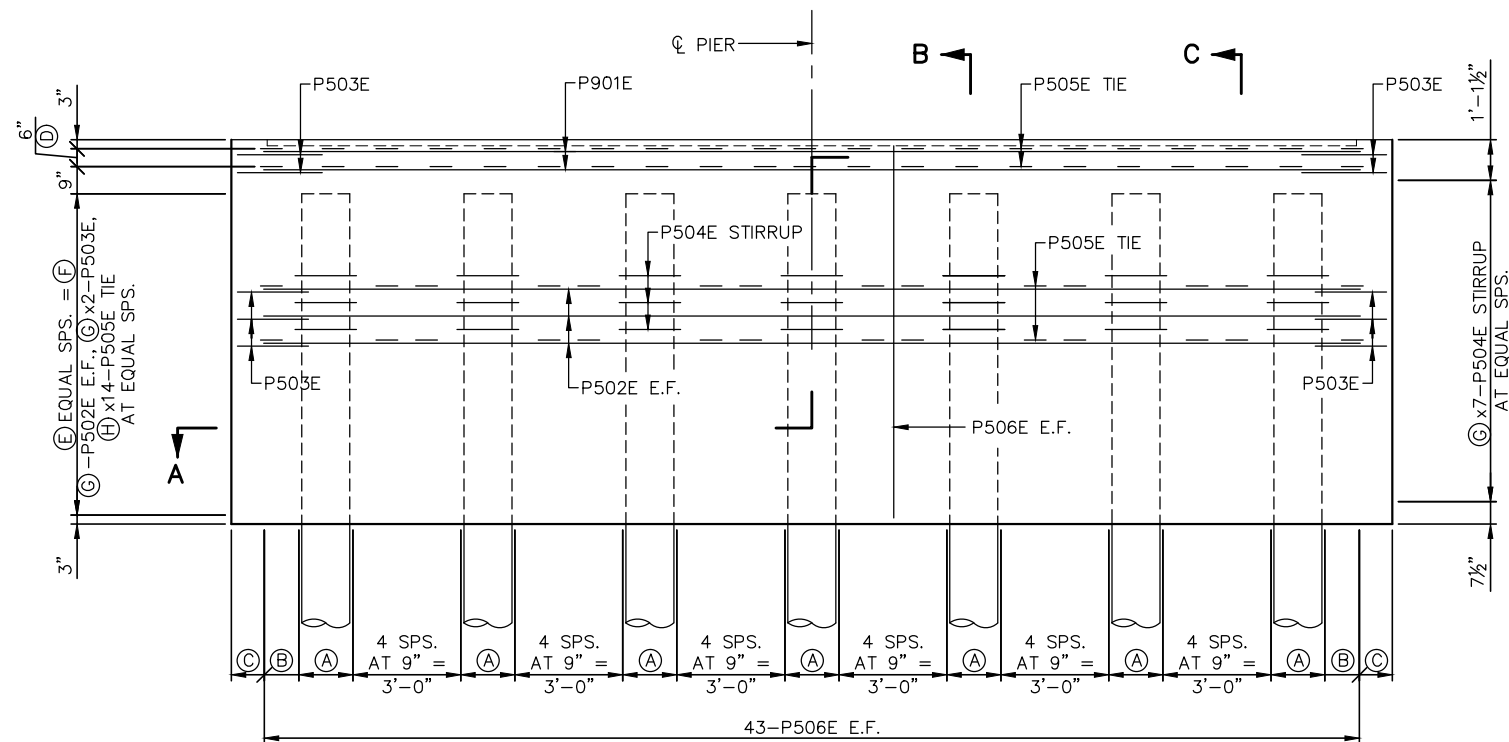
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-PIR-069

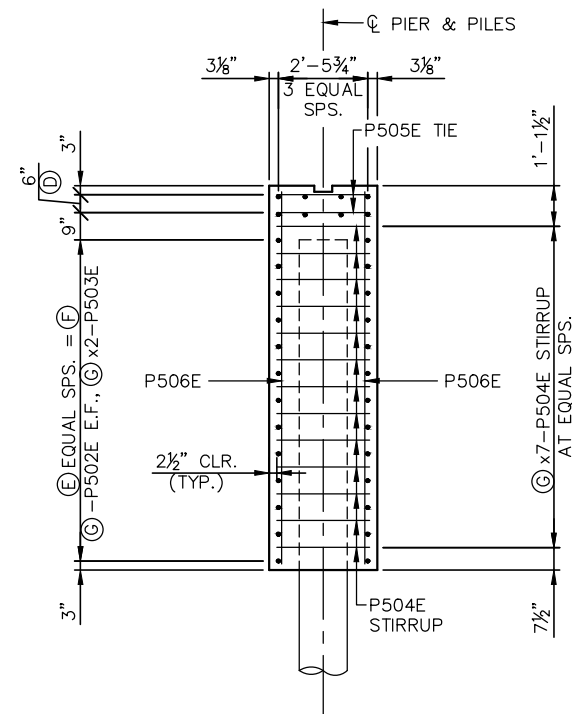
Jan, 19 2016 09:41 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-029.dwg By: butterfielda



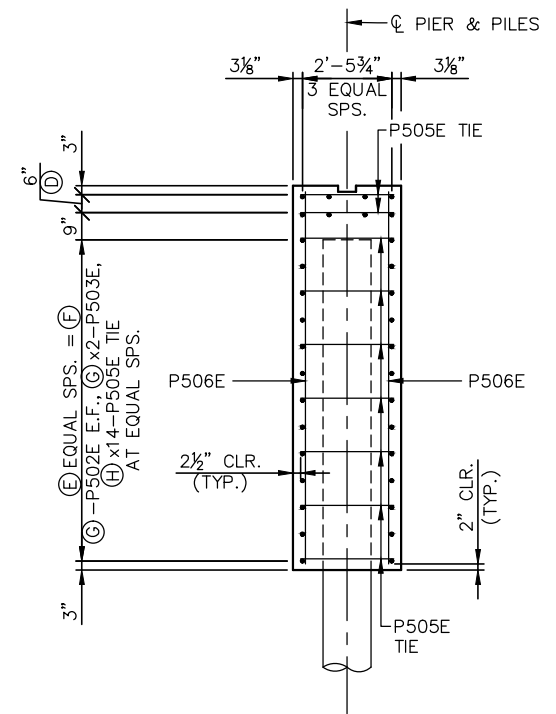
SECTION A-A



WALL PIER ELEVATION



SECTION B-B



SECTION C-C

**NOTES:**

F.F. DENOTES FRONT FACE.

B.F. DENOTES BACK FACE.

E.F. DENOTES EACH FACE.

FOR GEOMETRICS PLAN SEE SHEETS 99 AND 100.

- (A) 2 SPS. AT 9" = 1'-6".
- (B) 2 SPS. AT 5 3/4" = 11 1/2".
- (C) 11" - FOR PIER 19, 20, 22, 23, 25 AND 26.  
11 1/2" - FOR PIER 28 AND 29.
- (D) 2x4-P901E, 2x2-P503E, 2x21-P505E TIES.

PIER	(E)	(F)	(G)	(H)
19	18	13'-8"	19	10
20	20	14'-11"	21	11
22	24	17'-6"	25	13
23	22	16'-2"	23	12
25	16	11'-3"	17	9
26	12	8'-0"	13	7
28	14	10'-6"	15	8
29	14	9'-6"	15	8

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: BC	CHECKED BY: ZA
DRAWN BY: CL	CHECKED BY: BC



90% SUBMISSION - 01/22/16

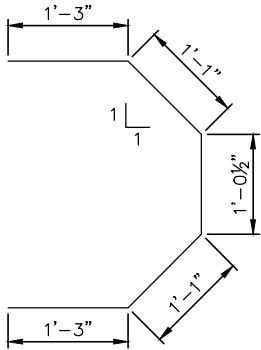


**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**PIER 19,20,22,23,25,26,28,29 REINF. 1**

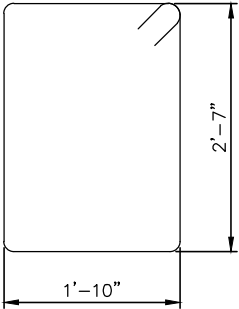
DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-PIR-070

**SHEET**  
**101**  
**OF**  
**232**

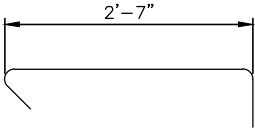
Jan, 19 2016 09:41 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-029.dwg By: butterfielda



P503E



P504E



P505E

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 19				
BAR	NO.	LENGTH	SHAPE	LOCATION
19P901E	8	30'-5"		PIER WALL TOP
19P502E	38	30'-5"		PIER WALL HORIZONTAL E.F.
19P503E	42	5'-9"		PIER WALL HORIZONTAL
19P504E	133	9'-10"		PIER WALL STIRRUP
19P505E	182	3'-7"		PIER WALL TIE
19P506E	90	15'-1"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 20				
BAR	NO.	LENGTH	SHAPE	LOCATION
20P901E	8	30'-5"		PIER WALL TOP
20P502E	42	30'-5"		PIER WALL HORIZONTAL E.F.
20P503E	46	5'-9"		PIER WALL HORIZONTAL
20P504E	147	9'-10"		PIER WALL STIRRUP
20P505E	196	3'-7"		PIER WALL TIE
20P506E	90	16'-4"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 22				
BAR	NO.	LENGTH	SHAPE	LOCATION
22P901E	8	30'-5"		PIER WALL TOP
22P502E	50	30'-5"		PIER WALL HORIZONTAL E.F.
22P503E	54	5'-9"		PIER WALL HORIZONTAL
22P504E	175	9'-10"		PIER WALL STIRRUP
22P505E	224	3'-7"		PIER WALL TIE
22P506E	90	18'-11"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 23				
BAR	NO.	LENGTH	SHAPE	LOCATION
23P901E	8	30'-5"		PIER WALL TOP
23P502E	46	30'-5"		PIER WALL HORIZONTAL E.F.
23P503E	50	5'-9"		PIER WALL HORIZONTAL
23P504E	161	9'-10"		PIER WALL STIRRUP
23P505E	210	3'-7"		PIER WALL TIE
23P506E	90	17'-7"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 25				
BAR	NO.	LENGTH	SHAPE	LOCATION
25P901E	8	30'-5"		PIER WALL TOP
25P502E	34	30'-5"		PIER WALL HORIZONTAL E.F.
25P503E	38	5'-9"		PIER WALL HORIZONTAL
25P504E	119	9'-10"		PIER WALL STIRRUP
25P505E	168	3'-7"		PIER WALL TIE
25P506E	90	12'-8"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 26				
BAR	NO.	LENGTH	SHAPE	LOCATION
26P901E	8	30'-5"		PIER WALL TOP
26P502E	26	30'-5"		PIER WALL HORIZONTAL E.F.
26P503E	30	5'-9"		PIER WALL HORIZONTAL
26P504E	91	9'-10"		PIER WALL STIRRUP
26P505E	140	3'-7"		PIER WALL TIE
26P506E	90	9'-5"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 28				
BAR	NO.	LENGTH	SHAPE	LOCATION
28P901E	8	30'-5"		PIER WALL TOP
28P502E	30	30'-5"		PIER WALL HORIZONTAL E.F.
28P503E	34	5'-9"		PIER WALL HORIZONTAL
28P504E	105	9'-10"		PIER WALL STIRRUP
28P505E	154	3'-7"		PIER WALL TIE
28P506E	90	11'-11"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 29				
BAR	NO.	LENGTH	SHAPE	LOCATION
29P901E	8	30'-5"		PIER WALL TOP
29P502E	30	30'-5"		PIER WALL HORIZONTAL E.F.
29P503E	34	5'-9"		PIER WALL HORIZONTAL
29P504E	105	9'-10"		PIER WALL STIRRUP
29P505E	154	3'-7"		PIER WALL TIE
29P506E	90	10'-11"		PIER WALL VERTICAL E.F.

**NOTES:**  
F.F. DENOTES FRONT FACE.  
B.F. DENOTES BACK FACE.  
E.F. DENOTES EACH FACE.  
FOR PIER REINFORCEMENT SEE SHEET 101.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	<div></div>		<div></div>		<div>CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 PIER 19,20,22,23,25,26,28,29 REINF. 2</div>		DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PIR-071	SHEET 102 OF 232			
						DESIGNED BY: BC	CHECKED BY: ZA	90% SUBMISSION - 01/22/16									
						DRAWN BY: CL	CHECKED BY: BC										





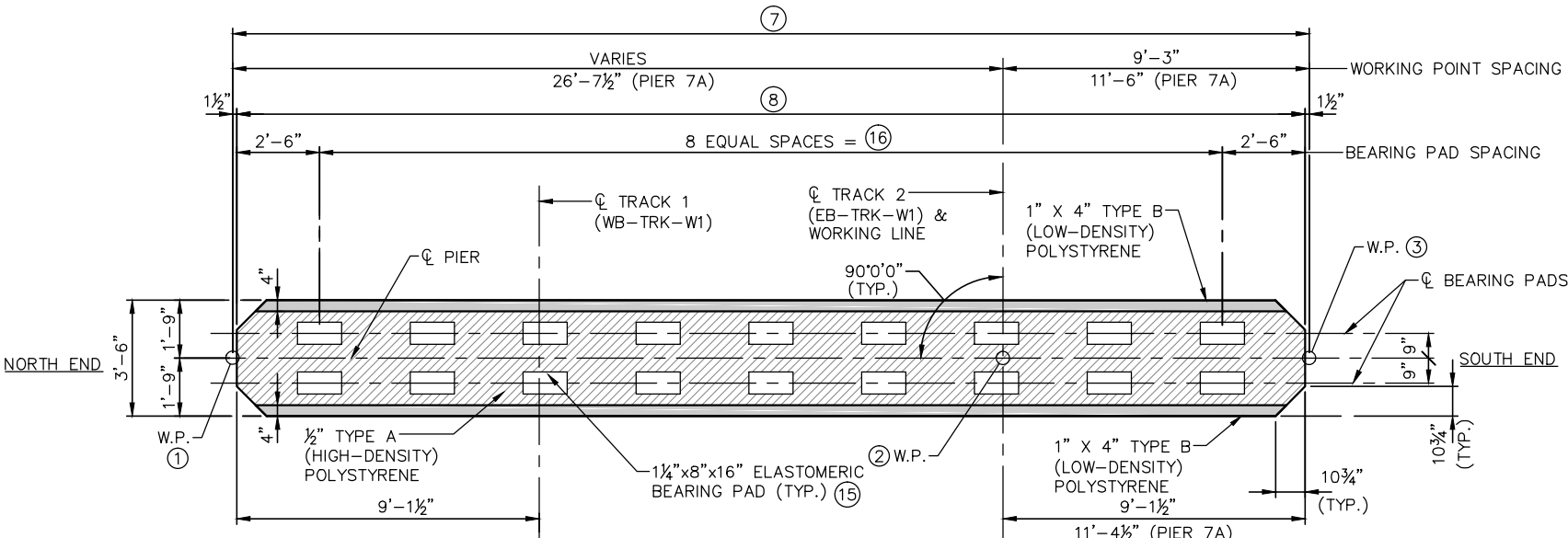
Jan, 19 2016 09:41 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-015.dwg By: butterfield

WORKING POINT TABLE

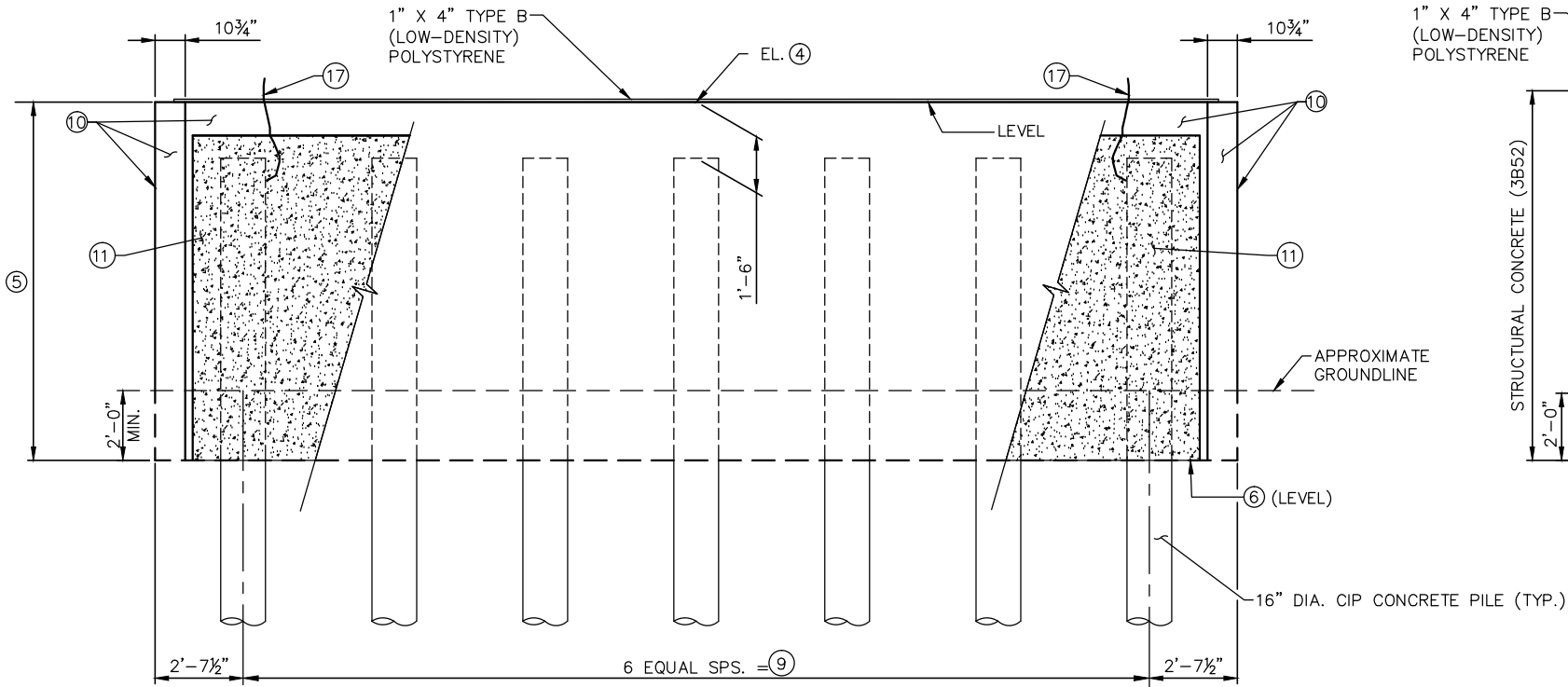
	WORKING POINT ①	WORKING POINT ②	WORKING POINT ③
PIER 7A	"7A"	"7B"	"7AC"
PIER 1	"1A"	"1B"	"1C"
PIER 21	"21A"	"26B"	"26C"
PIER 24	"24A"	"24B"	"24C"
PIER 27	"27A"	"27B"	"27C"

PIER GEOMETRIC TABLE

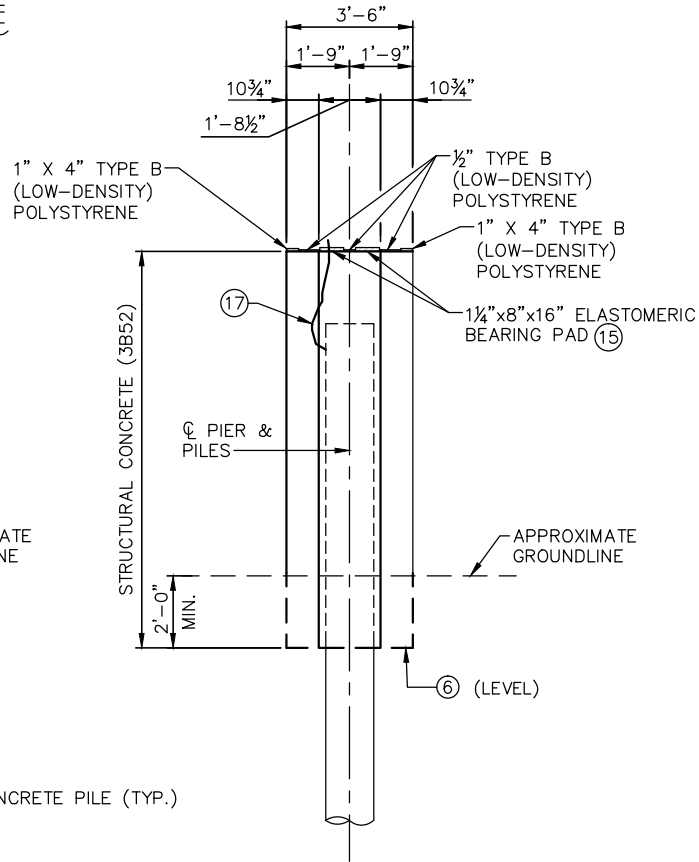
	TOP OF WALL PIER ELEV. ④	TOTAL PIER HEIGHT ⑤	BOTTOM OF PIER ELEV. ⑥	WORKING POINT SPACING ⑦	PIER WIDTH ⑧	⑨	⑩
PIER 7A	830.64	4'-0"	826.64	38'-1 1/2"	37'-10 1/2"	32'-7 1/2"	32'-10 1/2"
PIER 1	835.90	4'-0"	831.90	34'-9 "	34'-6 "	29'-3 "	29'-6 "
PIER 21	884.18	18'-1 "	866.10	32'-6 "	32'-3 "	27'-0 "	27'-3 "
PIER 24	883.98	15'-3 "	868.73	32'-6 "	32'-3 "	27'-0 "	27'-3 "
PIER 27	883.77	12'-3"	871.52	32'-6 1/8"	32'-3 1/8"	27'-0 1/8"	27'-3 1/8"



WALL PIER PLAN



WALL PIER ELEVATION



END VIEW

NOTES:

- ⑩ ARCHITECTURAL SURFACE FINISH (SINGLE COLOR) - SEE SPECIAL PROVISIONS.
- ⑪ ARCHITECTURAL CONCRETE TEXTURE (LIMESTONE) WITH ARCHITECTURAL SURFACE FINISH (SINGLE COLOR). - SEE SPECIAL PROVISIONS.
- ⑮ EPOXY PAD TO TOP OF CONCRETE WALL PIER. CAST SLAB DIRECTLY ON BEARING PAD WITH TOP 1/4" OF BEARING PAD RECESSED INTO SLAB (1" EXPOSED).
- ⑰ GROUND WIRE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: KL	CHECKED BY: AMA
DRAWN BY: ALB	CHECKED BY: ATN

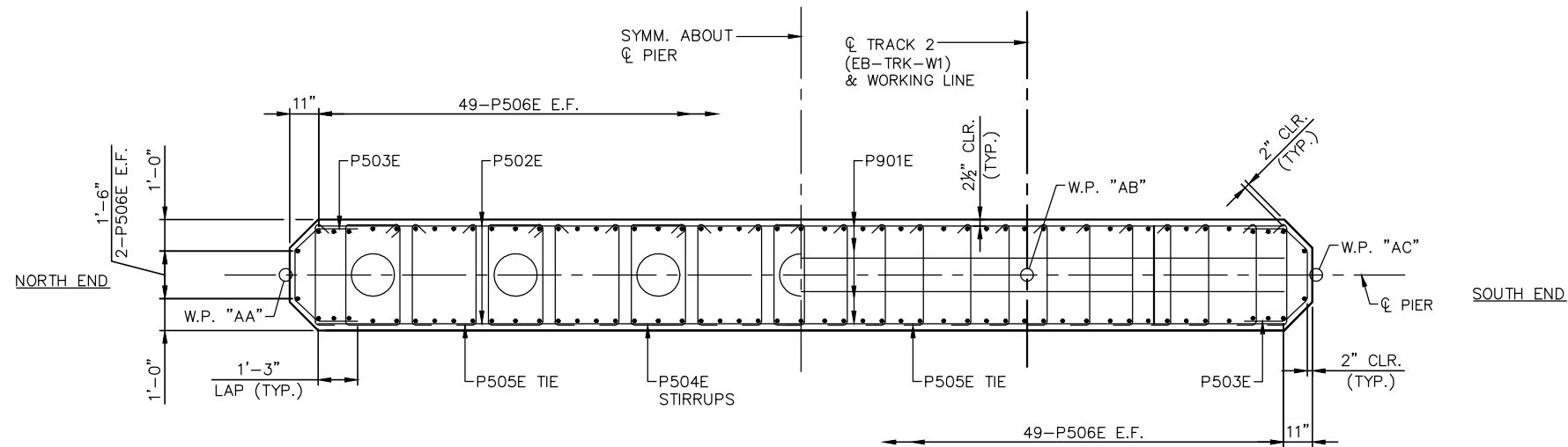
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 7A, 1, 21, 24, 27 GEOMETRICS 2

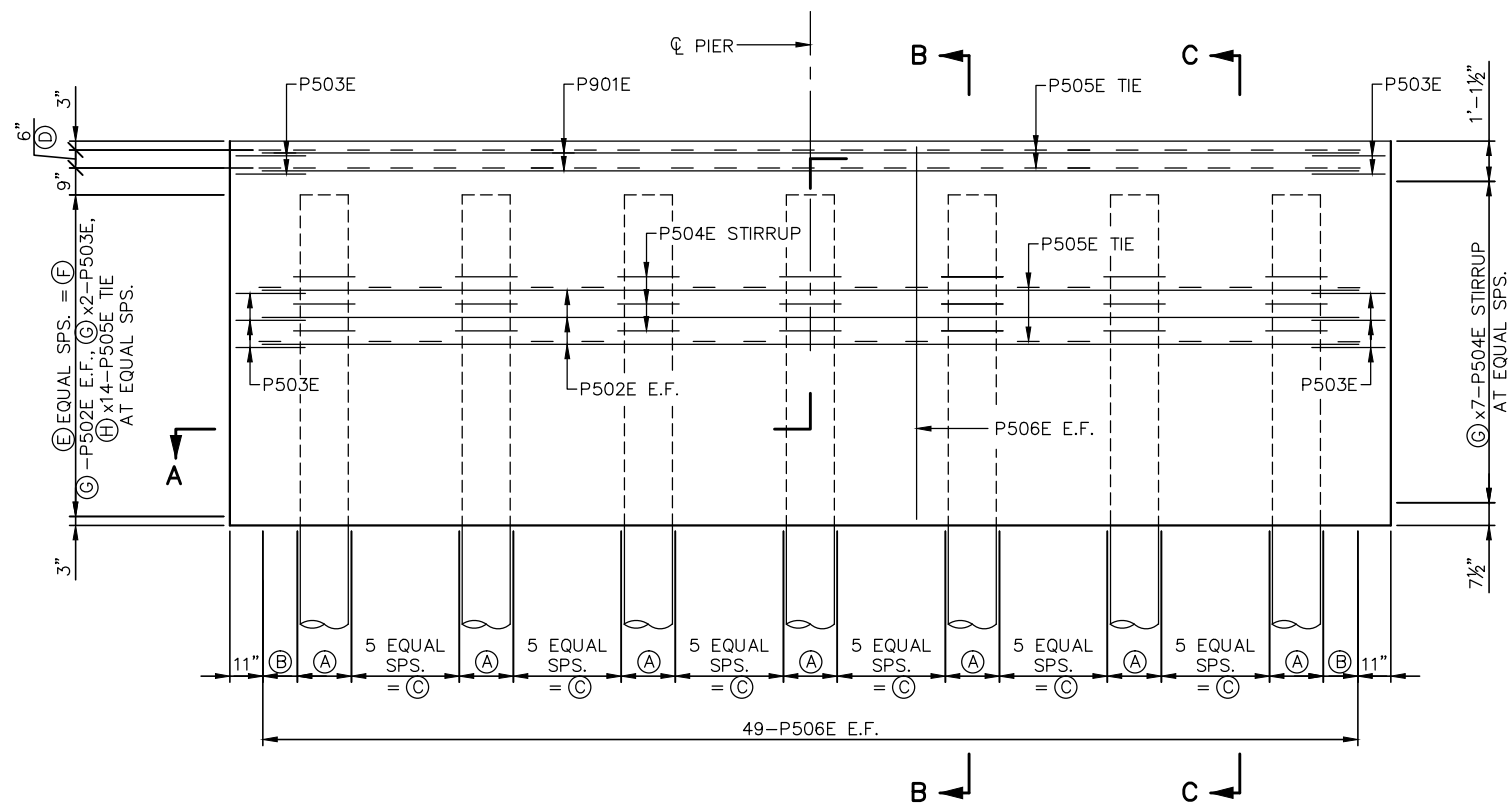
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-PIR-073

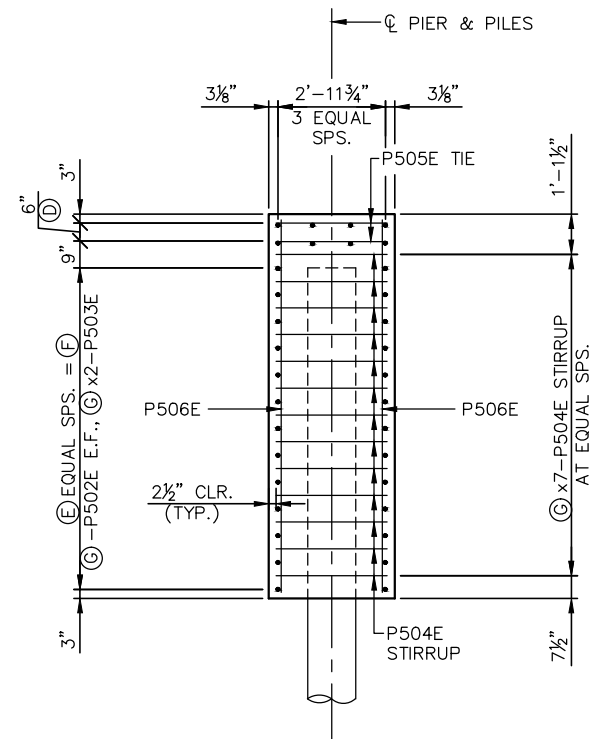
Jan, 19 2016 09:42 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PIR-030.dwg By: butterfielda



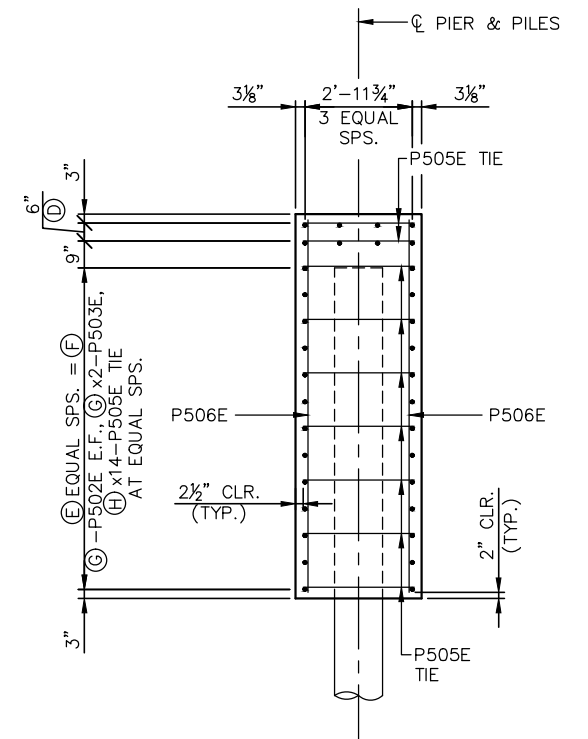
SECTION A-A



WALL PIER ELEVATION



SECTION B-B



SECTION C-C

**NOTES:**

F.F. DENOTES FRONT FACE.

B.F. DENOTES BACK FACE.

E.F. DENOTES EACH FACE.

FOR GEOMETRICS PLAN SEE SHEETS 103 AND 104.

Ⓐ 2 SPS. AT 9" = 1'-6".

Ⓑ 2 SPS. AT 5 3/4" = 11 1/2".

Ⓓ 2x4-P901E, 2x2-P503E, 2x25-P505E TIES.

PIER	Ⓒ	Ⓔ	Ⓕ	Ⓖ	Ⓗ
7A	3'-11 1/4"	4	2'-3"	5	3
1	3'-4 1/2"	4	2'-3"	5	3
21	3'-0"	22	16'-4"	23	12
24	3'-0"	18	13'-6"	19	10
27	3'-0"	14	10'-6"	15	8

**AECOM**



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 7A, 1, 21, 24, 27 REINF. 1**

DISCIPLINE:

**STRUCTURES**

SHEET NAME:

**CBR27C06-BRG-PIR-074**

**SHEET**

**105**

**OF**

**232**

DESIGNED BY: BC

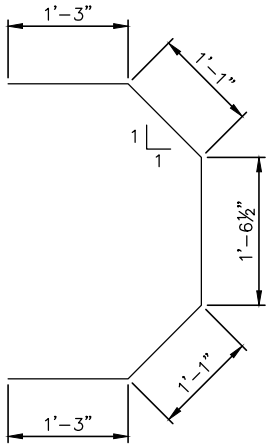
CHECKED BY: ZA

DRAWN BY: CL

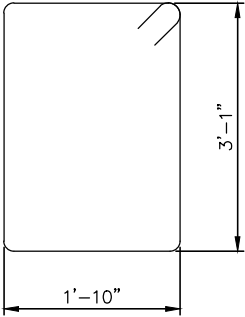
CHECKED BY: BC

**90% SUBMISSION - 01/22/16**

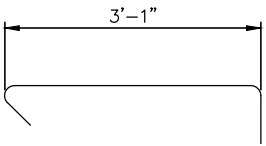
Jan, 19 2016 09:42 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-PIR-030.dwg By: butterfielda



P503E



P504E



P505E

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 7A				
BAR	NO.	LENGTH	SHAPE	LOCATION
7AP901E	8	36'-1"		PIER WALL TOP
7AP502E	10	36'-1"		PIER WALL HORIZONTAL E.F.
7AP503E	14	6'-3"		PIER WALL HORIZONTAL
7AP504E	35	10'-10"		PIER WALL STIRRUP
7AP505E	92	4'-1"		PIER WALL TIE
7AP506E	102	3'-8"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 1				
BAR	NO.	LENGTH	SHAPE	LOCATION
1P901E	8	32'-8"		PIER WALL TOP
1P502E	10	32'-8"		PIER WALL HORIZONTAL E.F.
1P503E	14	6'-3"		PIER WALL HORIZONTAL
1P504E	35	10'-10"		PIER WALL STIRRUP
1P505E	92	4'-1"		PIER WALL TIE
1P506E	102	3'-8"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 21				
BAR	NO.	LENGTH	SHAPE	LOCATION
21P901E	8	30'-5"		PIER WALL TOP
21P502E	46	30'-5"		PIER WALL HORIZONTAL E.F.
21P503E	50	6'-3"		PIER WALL HORIZONTAL
21P504E	161	10'-10"		PIER WALL STIRRUP
21P505E	218	4'-1"		PIER WALL TIE
21P506E	102	17'-9"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 24				
BAR	NO.	LENGTH	SHAPE	LOCATION
24P901E	8	30'-5"		PIER WALL TOP
24P502E	38	30'-5"		PIER WALL HORIZONTAL E.F.
24P503E	42	6'-3"		PIER WALL HORIZONTAL
24P504E	133	10'-10"		PIER WALL STIRRUP
24P505E	190	4'-1"		PIER WALL TIE
24P506E	102	14'-11"		PIER WALL VERTICAL E.F.

BILL OF REINFORCEMENT SUBSTRUCTURE PIER 27				
BAR	NO.	LENGTH	SHAPE	LOCATION
27P901E	8	30'-5"		PIER WALL TOP
27P502E	30	30'-5"		PIER WALL HORIZONTAL E.F.
27P503E	34	6'-3"		PIER WALL HORIZONTAL
27P504E	105	10'-10"		PIER WALL STIRRUP
27P505E	162	4'-1"		PIER WALL TIE
27P506E	102	11'-11"		PIER WALL VERTICAL E.F.

**NOTES:**  
F.F. DENOTES FRONT FACE.  
B.F. DENOTES BACK FACE.  
E.F. DENOTES EACH FACE.  
FOR PIER REINFORCEMENT SEE SHEET 105.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

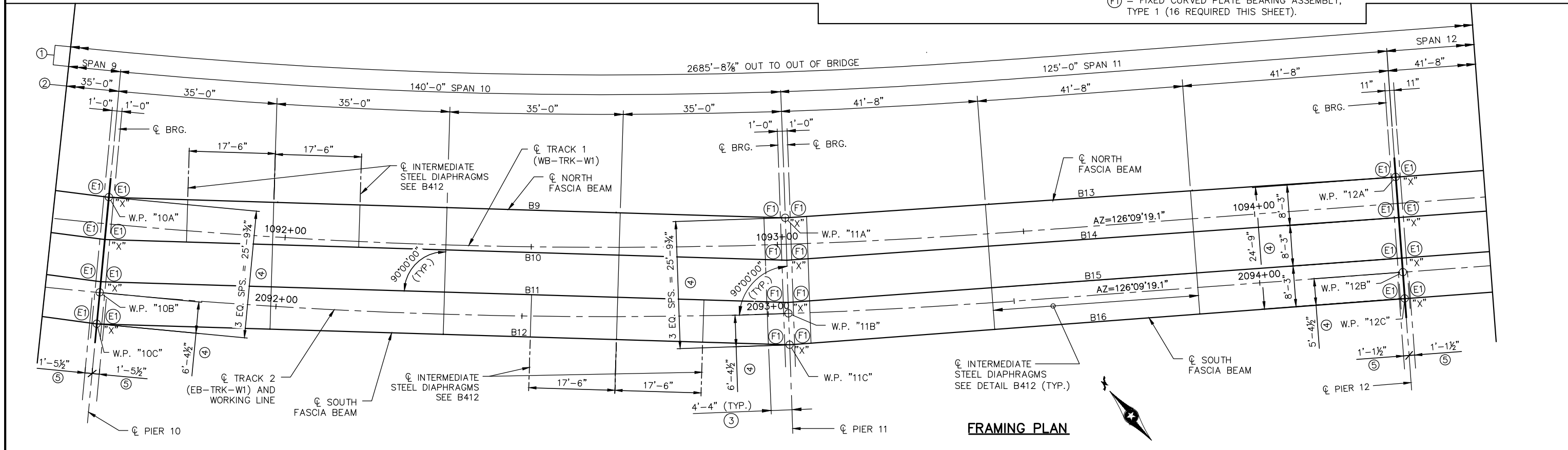
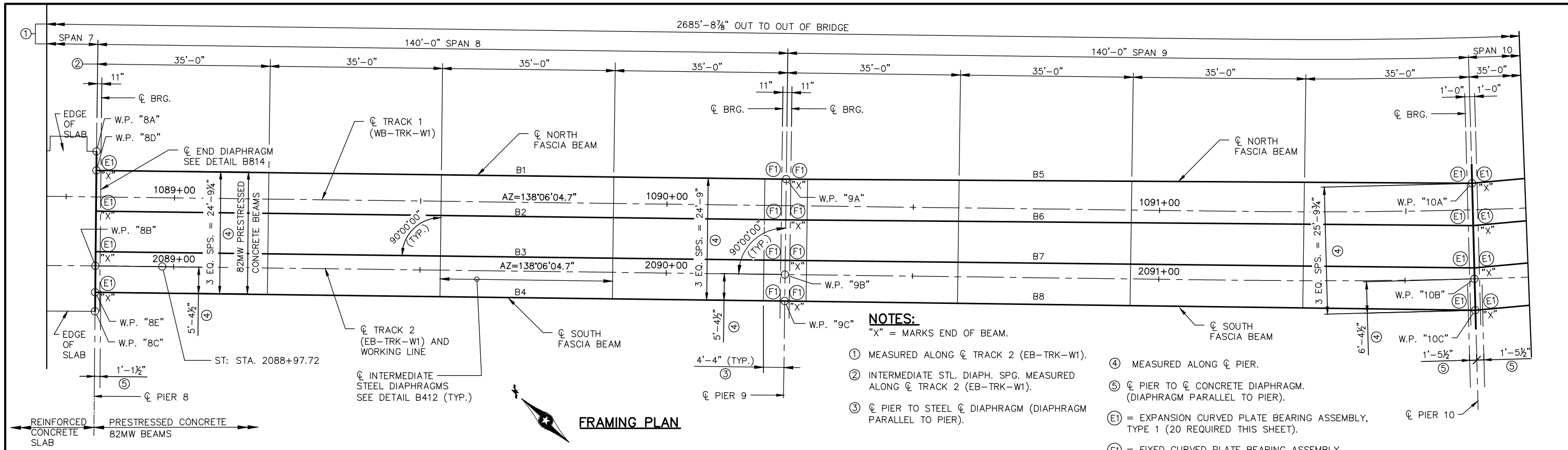
DESIGNED BY:	BC	CHECKED BY:	ZA
DRAWN BY:	CL	CHECKED BY:	BC

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
PIER 7A, 1, 21, 24, 27 REINF. 2

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-PIR-075

[illegible]

DESIGNED BY: <b>RJH</b>	CHECKED BY: <b>ATN</b>
DRAWN BY: <b>ALB</b>	CHECKED BY: <b>ATN</b>

**90% SUBMISSION - 01/22/16**

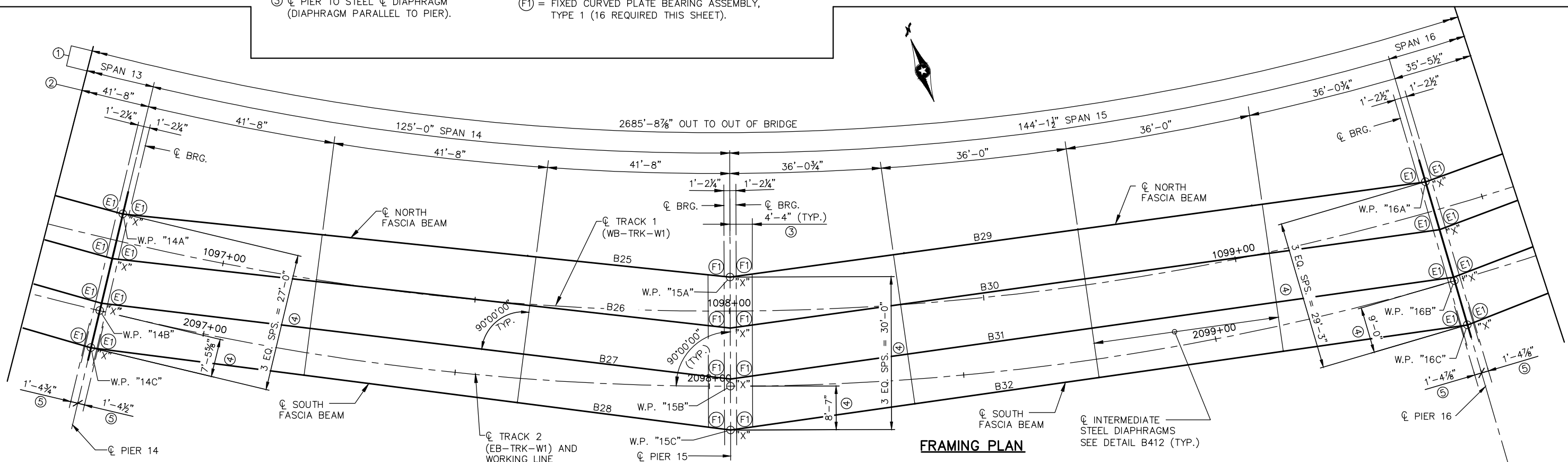
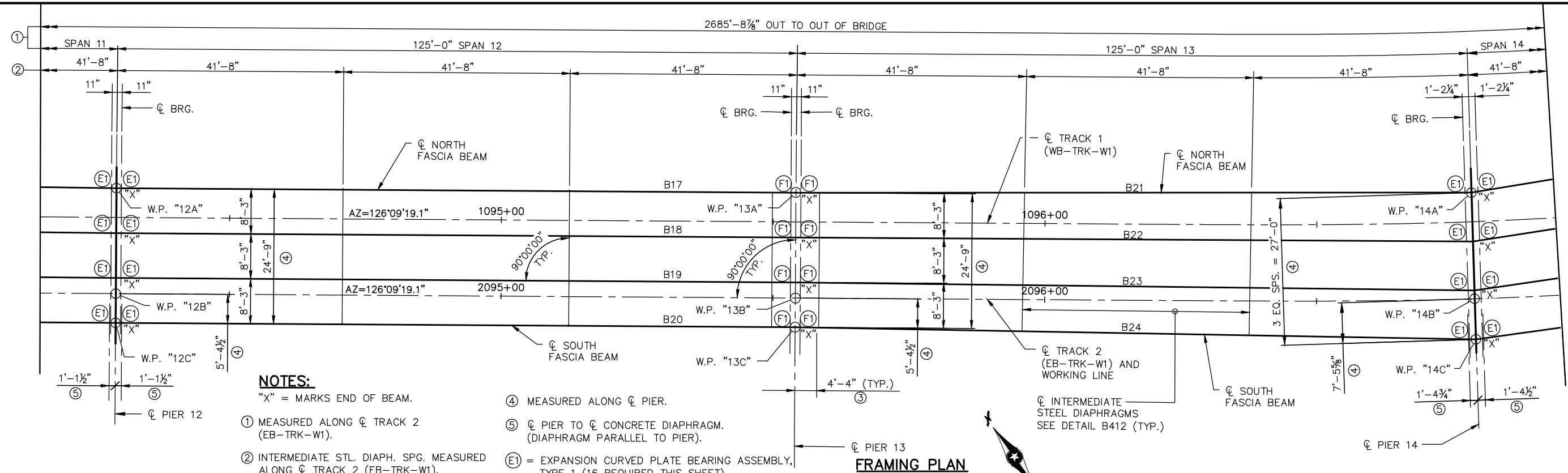


**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
FRAMING PLAN 1**

DISCIPLINE: **STRUCTURES**

SHEET NAME:	CBR27C06-BRG-SUP-009
-------------	----------------------

SHEET  
107  
OF  
232

[illegible]

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN

**AECOM**

**90% SUBMISSION - 01/22/16**



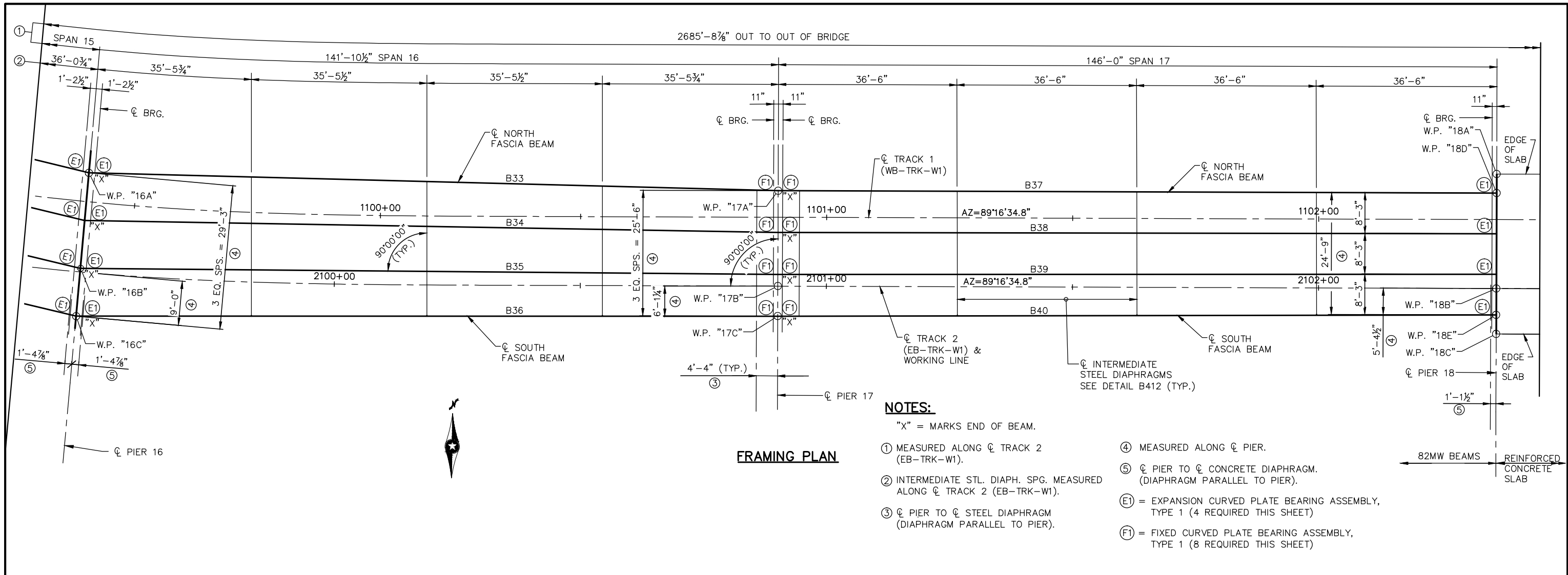
**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
FRAMING PLAN 2**

DISCIPLINE: **STRUCTURES**

SHEET NAME:	CBR27C06-BRG-SUP-010
-------------	----------------------

**SHEET**  
**108**  
**OF**  
**232**

Jan, 19 2016 10:11 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-005.dwg By: butterfielda



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN

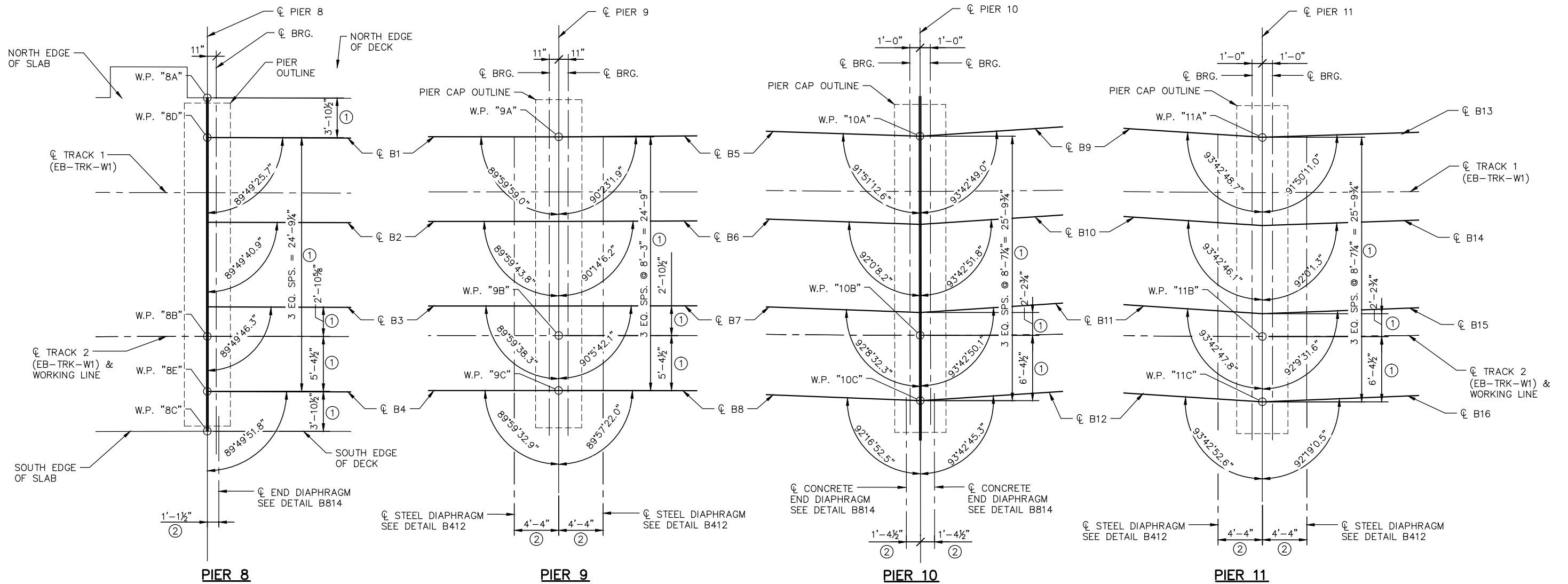
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
FRAMING PLAN 3

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-SUP-011

SHEET 109 OF 232

Jan, 19 2016 10:12 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-011.dwg By: butterfielda



**NOTES:**

- DIMENSIONS BETWEEN BEAMS ARE ALONG  $\phi$  OF BEARING.
- ANGLES SHOWN ARE FROM  $\phi$  BEAM TO  $\phi$  OF BEARING.
- ① MEASURED ALONG  $\phi$  PIER.
- ②  $\phi$  PIER TO  $\phi$  DIAPHRAGM (DIAPHRAGM PARALLEL TO PIER).

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB

CHECKED BY: ATN  
CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



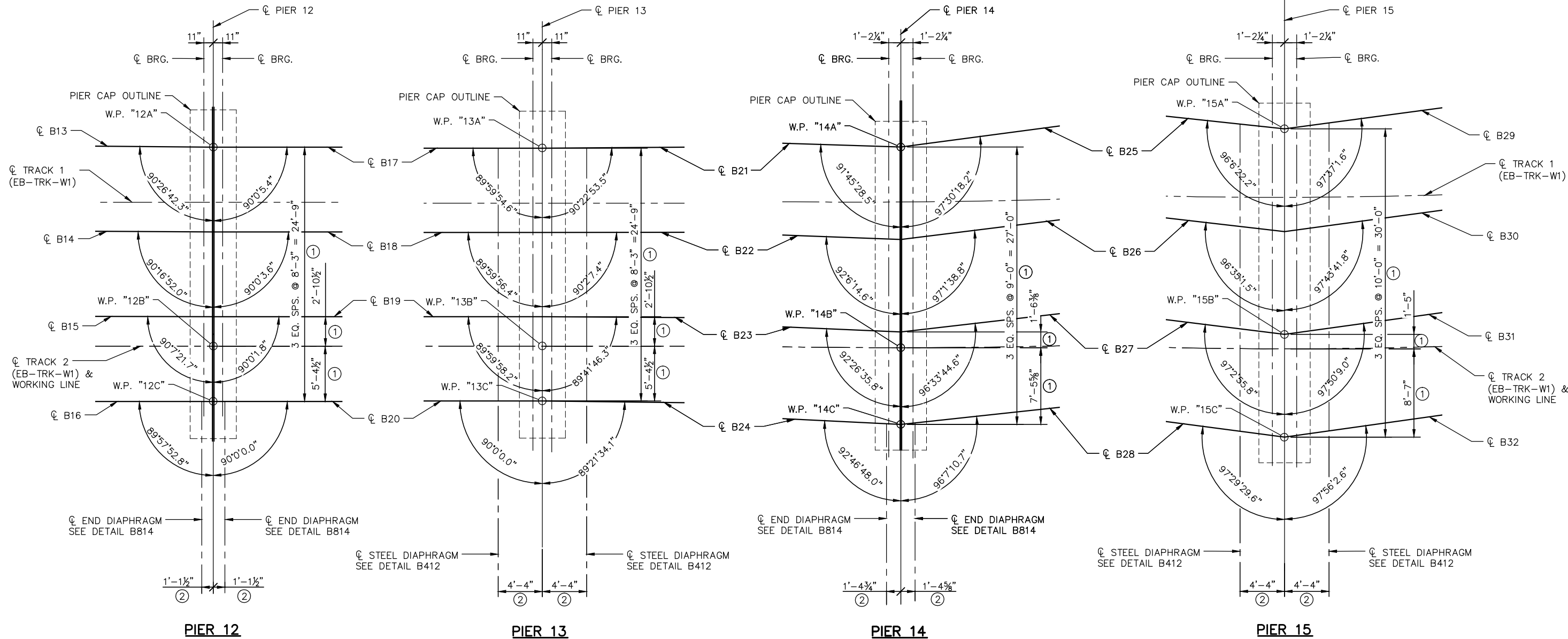
**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
FRAMING DETAILS 1**

DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C06-BRG-SUP-012**

**SHEET  
110  
OF  
232**

Jan, 19 2016 10:12 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-011.dwg By: butterfielda



**NOTES:**

DIMENSIONS BETWEEN BEAMS ARE ALONG  $\phi$  OF BEARING.

ANGLES SHOWN ARE FROM  $\phi$  BEAM TO  $\phi$  OF BEARING.

① MEASURED ALONG  $\phi$  PIER.

②  $\phi$  PIER TO  $\phi$  DIAPHRAGM (DIAPHRAGM PARALLEL TO PIER).

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB

CHECKED BY: ATN  
CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
FRAMING DETAILS 2**

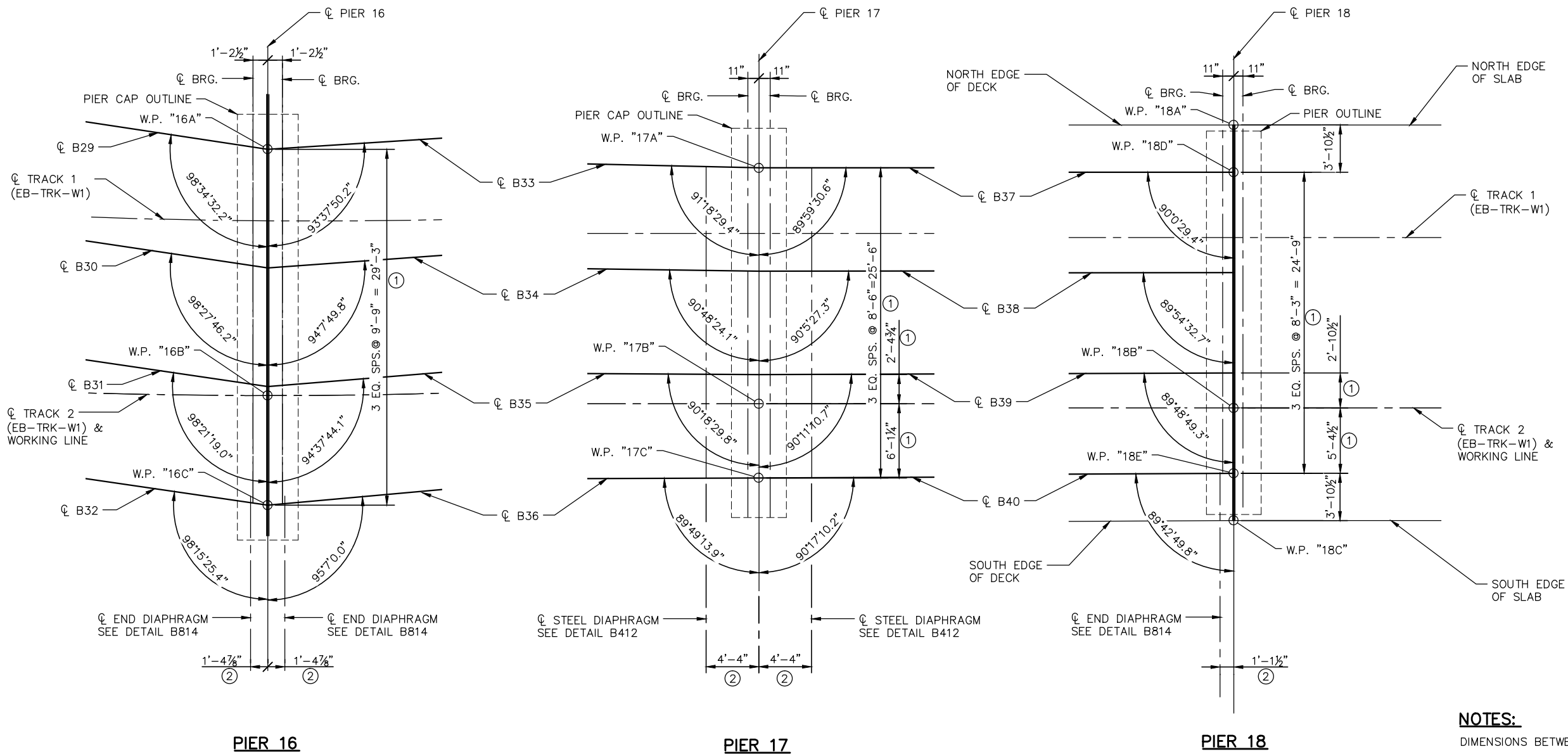
DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C06-BRG-SUP-013**

**SHEET**  
**111**  
**OF**  
**232**



Jan, 19 2016 10:12 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-011.dwg By: butterfielda



**NOTES:**

DIMENSIONS BETWEEN BEAMS ARE ALONG  $\phi$  OF BEARING.

ANGLES SHOWN ARE FROM  $\phi$  BEAM TO  $\phi$  OF BEARING.

① MEASURED ALONG  $\phi$  PIER.

②  $\phi$  PIER TO  $\phi$  DIAPHRAGM (DIAPHRAGM PARALLEL TO PIER).

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB

CHECKED BY: ATN  
CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



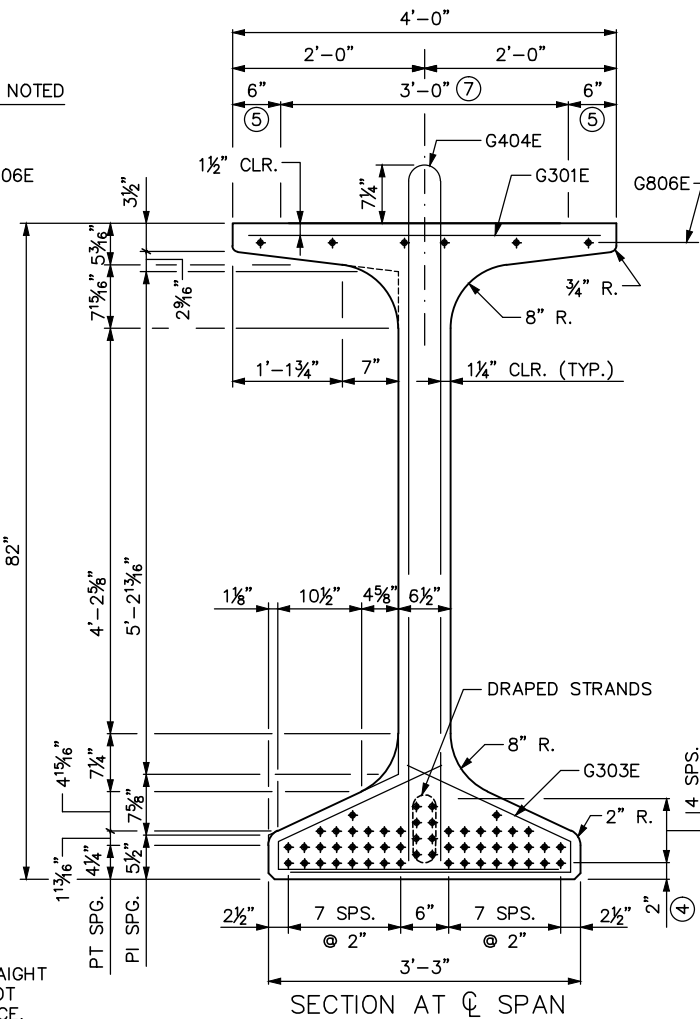
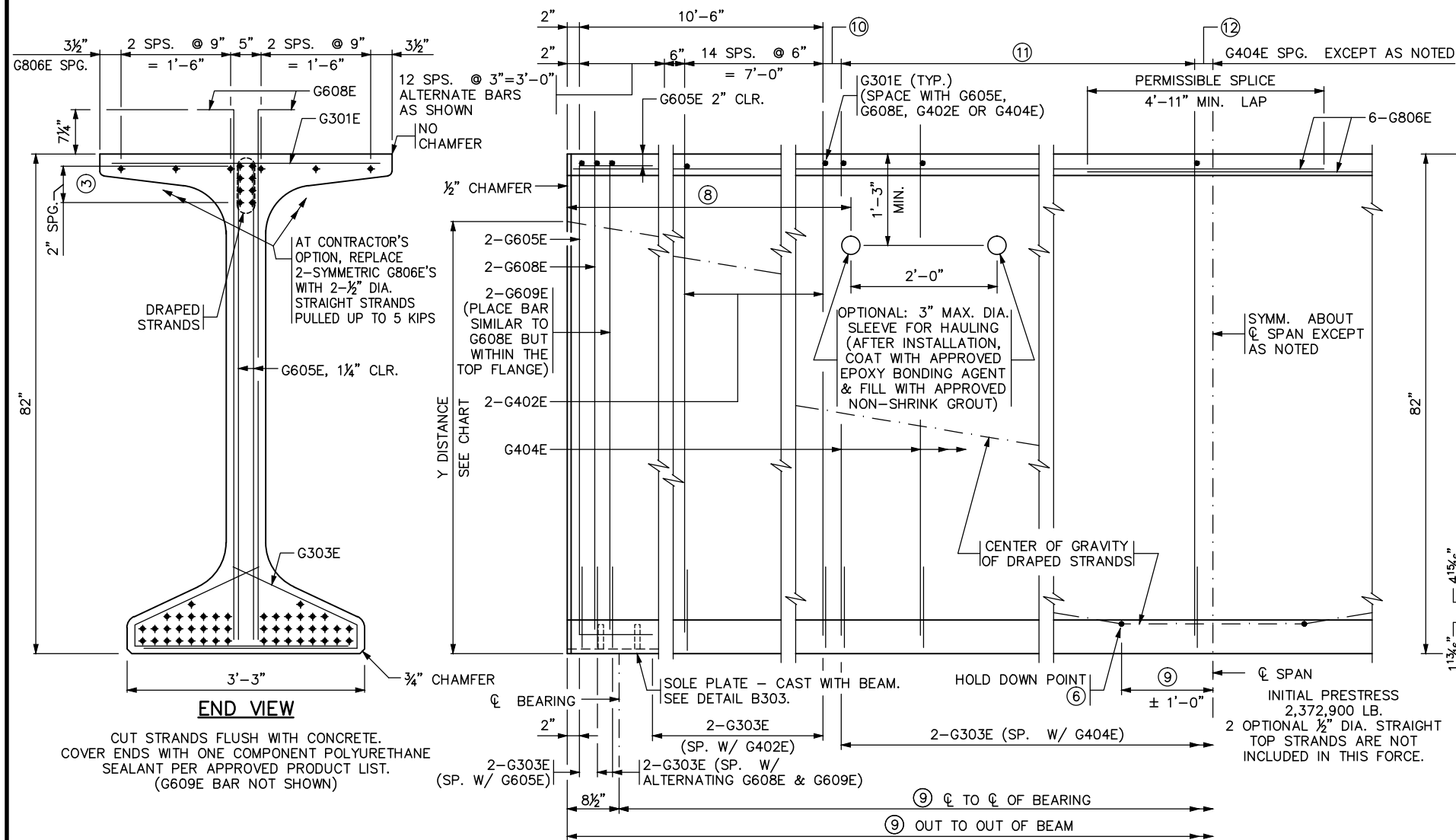
**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**FRAMING DETAILS 3**

DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C06-BRG-SUP-014**

**SHEET**  
**112**  
**OF**  
**232**



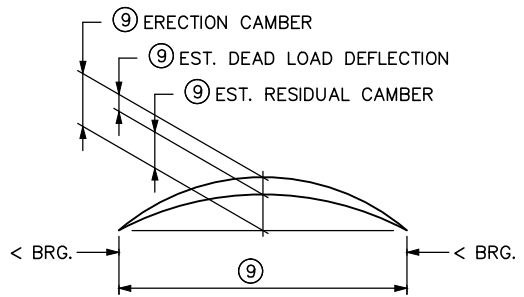


Y DISTANCES (INCHES)			
	NO.	< SPAN	END
STRAIGHT STRANDS	46	4.00	
DRAPED STRANDS	8	6.00	76.00
TOTAL STRANDS	54	4.30	

Y = DISTANCE TO CENTER OF GRAVITY OF STRANDS FROM BOTTOM OF BEAM. ALL STRANDS SPACED 2" CENTER TO CENTER, HORIZONTALLY AND VERTICALLY, EXCEPT AS NOTED.

2 OPTIONAL " DIA. STRAIGHT STRANDS ARE NOT INCLUDED IN THIS TABLE.

A TOLERANCE OF " 1" WILL BE PERMITTED IN THIS DIMENSION.



### CAMBER DIAGRAM

ERECTION CAMBER SHOWN IS AFTER DIAPHRAGMS ARE IN PLACE.

DEAD LOAD DEFLECTION SHOWN IS FOR WEIGHT OF SLAB, WEARING COURSE, BARRIER, SIDEWALK AND MEDIAN WHERE APPLICABLE.

CONTRACTOR WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE BUILDING FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS. PROVIDE COPY OF ELEVATIONS TO THE ENGINEER.

### GENERAL NOTES

- PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.
- MARK EACH BEAM SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS ON THE FACE OF THE BEAM, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. MARK FASCIA BEAMS ON THE INSIDE FACE. ENSURE ALL MARKINGS ARE STENCILLED AND CLEARLY LEGIBLE. FOR LOCATION OF BEAMS, SEE FRAMING PLAN.
- ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET IS INCLUDED IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE SPEC. 2405.
- SEE FRAMING PLAN FOR BEAM END MARKED "X" AND DIAPHRAGM SPACING.
- APPROXIMATE WEIGHT OF BEAM IS 9 TONS.
- AS AN ALTERNATE TO THE END DIAPHRAGM ANCHORAGES SHOWN, THE CONTRACTOR MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR APPROVAL. ANCHORAGE MUST PROVIDE AN ULTIMATE PULL OUT STRENGTH OF 24 KIPS PER ANCHORAGE.
- PRESTRESSING STRANDS SHALL BE 0.6" DIAMETER, 7-WIRE LOW RELAXATION STRAND, CONFORMING TO ASTM A416, GRADE 270.
- APPLY AN APPROVED SEALER TO THE SIDES OF THE BEAM NEAR EACH END PER THE SPECIAL PROVISIONS.
- MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.
- MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.
- DRAPED STRANDS.
- STRAIGHT STRANDS.
- STEEL TROWEL TO SMOOTH FINISH AND APPLY BOND BREAKER PER APPROVED PRODUCTS LIST.
- CENTER OF GRAVITY OF HOLD DOWNS WHEN MULTIPLE HOLD DOWNS ARE USED.
- ROUGH FLOAT AND BROOM TRANSVERSELY FOR BOND PER SPEC. 2405.3D.
- DIMENSION DETERMINED BY CONTRACTOR. MAINTAIN 2" MINIMUM CLEAR FROM STRANDS.
- SEE 82MW PRESTRESSED BEAM DETAILS SHEET 116.
- SEE TABLE SHEET 117.

### BEAM ELEVATION

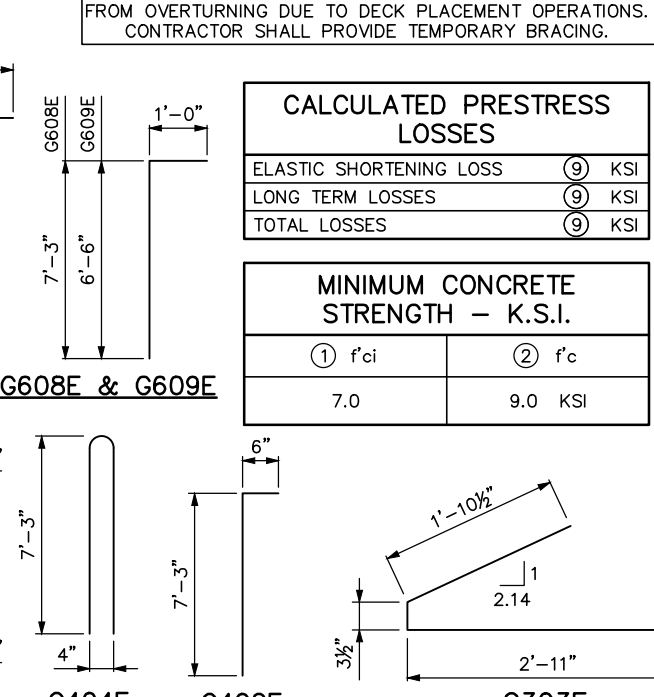
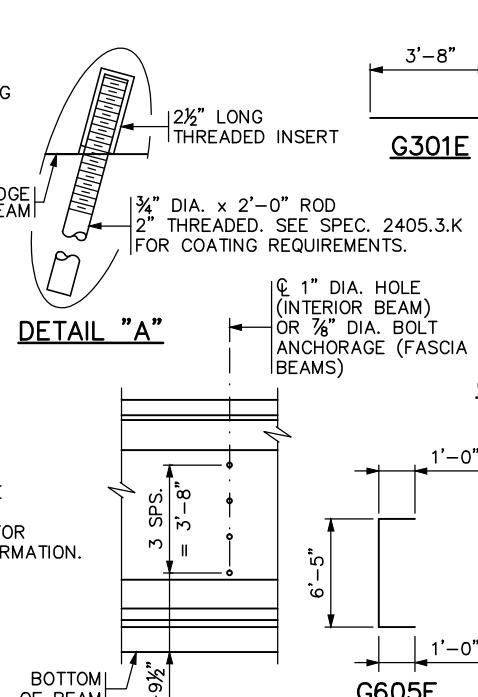
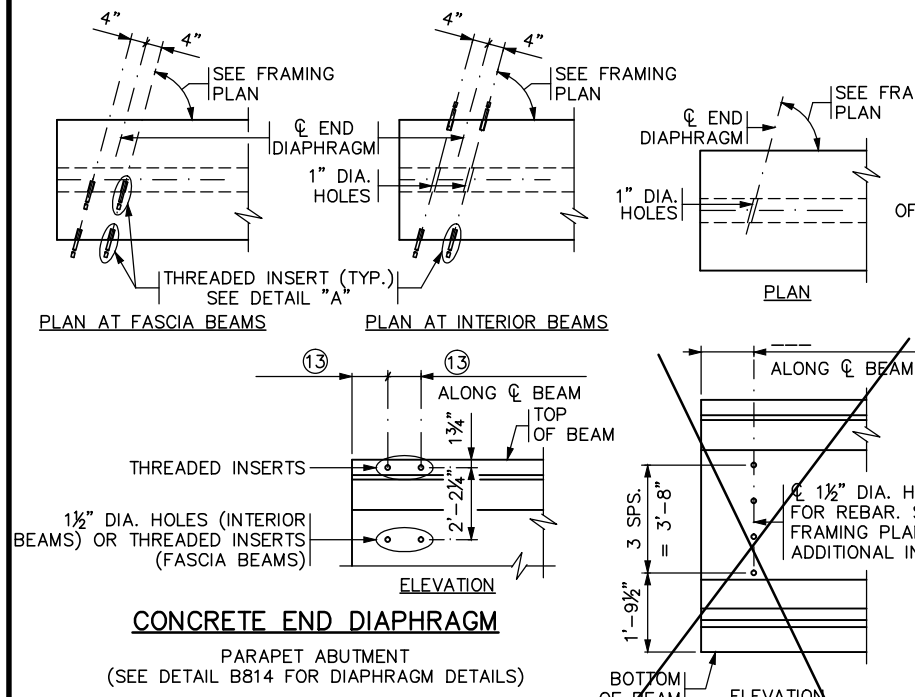
CONTRACTOR SHALL VERIFY STABILITY OF FASCIA BEAMS FROM OVERTURNING DUE TO DECK PLACEMENT OPERATIONS. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING.

### CALCULATED PRESTRESS LOSSES

ELASTIC SHORTENING LOSS	9 KSI
LONG TERM LOSSES	9 KSI
TOTAL LOSSES	9 KSI

### MINIMUM CONCRETE STRENGTH - K.S.I.

1 f'ci	2 f'c
7.0	9.0 KSI



REVISED:  
APPROVED: JANUARY 13, 2015  
Nancy S. Wittenberger  
STATE BRIDGE ENGINEER

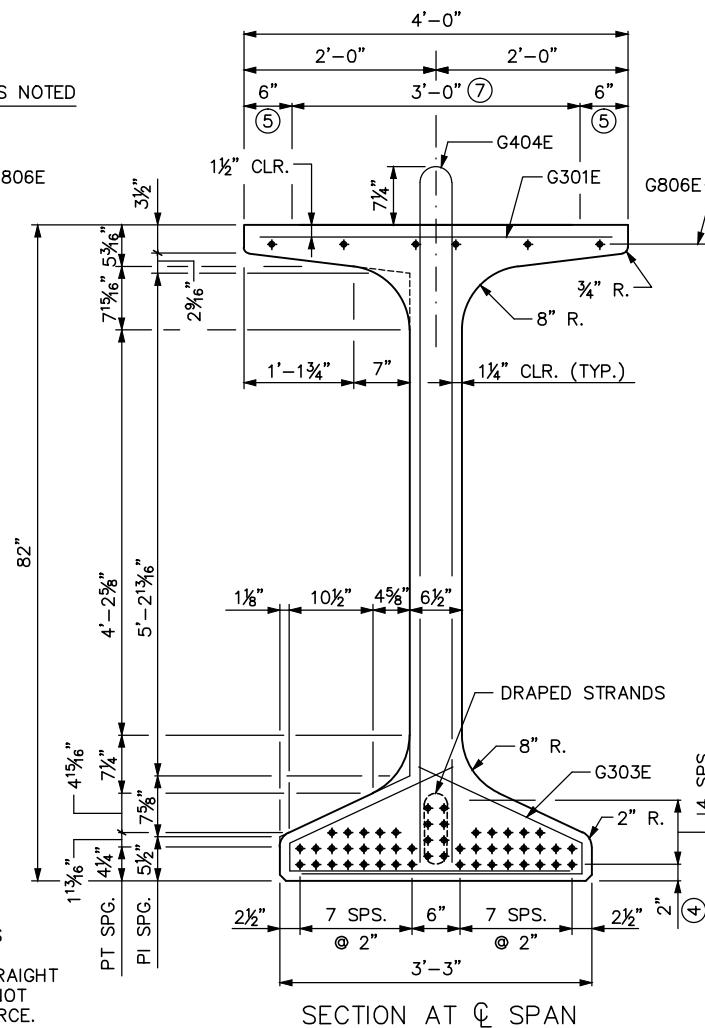
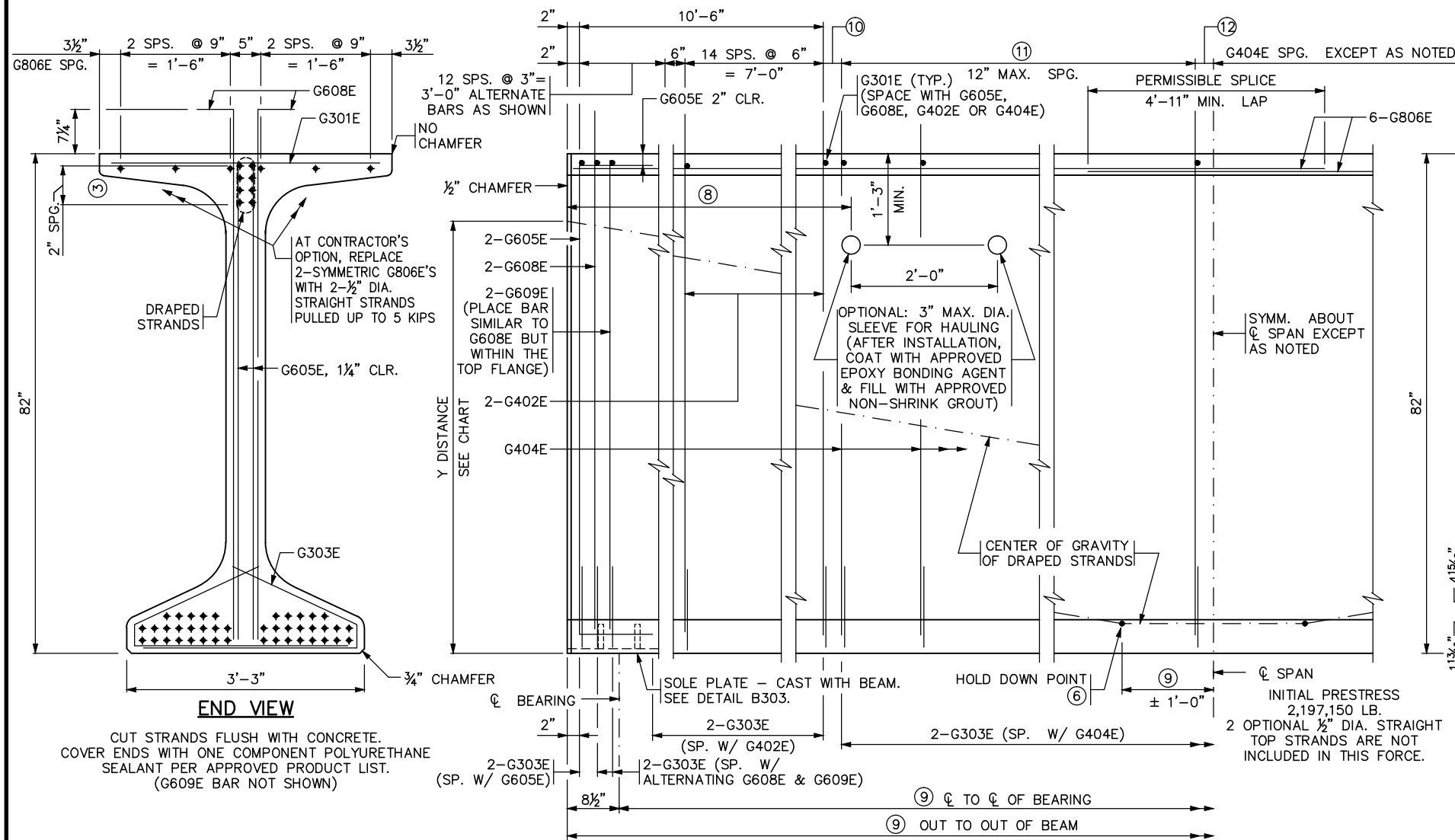
CONCRETE END DIAPHRAGM  
SEMI-INTEGRAL ABUTMENT  
SEE SUPERSTRUCTURE DETAILS AND REINFORCEMENT FOR DIAPHRAGM DETAILS.

STEEL INTERMEDIATE DIAPHRAGM  
(SEE DETAIL B412 FOR DIAPHRAGM DETAILS)

CERTIFIED BY \_\_\_\_\_  
LICENSED PROFESSIONAL ENGINEER  
NAME: \_\_\_\_\_ LIC. NO. \_\_\_\_\_

TITLE: 82MW PRESTRESSED  
CONCRETE BEAM 2  
(PRETENSIONED) 82MW-145

BEAMS B29 - B40  
FIG. 5-397.531  
DES: JLB DR: ALB  
CHK: JCF CHK: JCF  
APPROVED: \_\_\_\_\_  
BRIDGE NO. 27C06  
SHEET NO. 114 OF 232 SHEETS

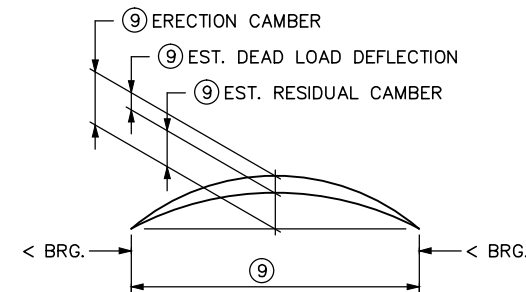


Y DISTANCES (INCHES)			
	NO.	< SPAN	END
STRAIGHT STRANDS	42	3.71	
DRAPED STRANDS	8	6.00	76.00 <sup>a</sup>
TOTAL STRANDS	50	4.08	

Y = DISTANCE TO CENTER OF GRAVITY OF STRANDS FROM BOTTOM OF BEAM. ALL STRANDS SPACED 2" CENTER TO CENTER, HORIZONTALLY AND VERTICALLY, EXCEPT AS NOTED.

2 OPTIONAL " DIA. STRAIGHT STRANDS ARE NOT INCLUDED IN THIS TABLE.

<sup>a</sup> A TOLERANCE OF ' 1" WILL BE PERMITTED IN THIS DIMENSION.



#### CAMBER DIAGRAM

ERECTION CAMBER SHOWN IS AFTER DIAPHRAGMS ARE IN PLACE.

DEAD LOAD DEFLECTION SHOWN IS FOR WEIGHT OF SLAB, WEARING COURSE, BARRIER, SIDEWALK AND MEDIAN WHERE APPLICABLE.

CONTRACTOR WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE BUILDING FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS. PROVIDE COPY OF ELEVATIONS TO THE ENGINEER.

#### SECTION AT CL SPAN

#### GENERAL NOTES

PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.

MARK EACH BEAM SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS ON THE FACE OF THE BEAM, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. MARK FASCIA BEAMS ON THE INSIDE FACE. ENSURE ALL MARKINGS ARE STENCILLED AND CLEARLY LEGIBLE. FOR LOCATION OF BEAMS, SEE FRAMING PLAN.

ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET IS INCLUDED IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE SPEC. 2405.

SEE FRAMING PLAN FOR BEAM END MARKED "X" AND DIAPHRAGM SPACING.

APPROXIMATE WEIGHT OF BEAM IS ⑨ TONS.

AS AN ALTERNATE TO THE END DIAPHRAGM ANCHORAGES SHOWN, THE CONTRACTOR MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR APPROVAL. ANCHORAGE MUST PROVIDE AN ULTIMATE PULL OUT STRENGTH OF 24 KIPS PER ANCHORAGE.

PRESTRESSING STRANDS SHALL BE 0.6" DIAMETER, 7-WIRE LOW RELAXATION STRAND, CONFORMING TO ASTM A416, GRADE 270.

APPLY AN APPROVED SEALER TO THE SIDES OF THE BEAM NEAR EACH END PER THE SPECIAL PROVISIONS.

① MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.

② MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.

③ DRAPED STRANDS.

④ STRAIGHT STRANDS.

⑤ STEEL TROWEL TO SMOOTH FINISH AND APPLY BOND BREAKER PER APPROVED PRODUCTS LIST.

⑥ CENTER OF GRAVITY OF HOLD DOWNS WHEN MULTIPLE HOLD DOWNS ARE USED.

⑦ ROUGH FLOAT AND BROOM TRANSVERSELY FOR BOND PER SPEC. 2405.3D.

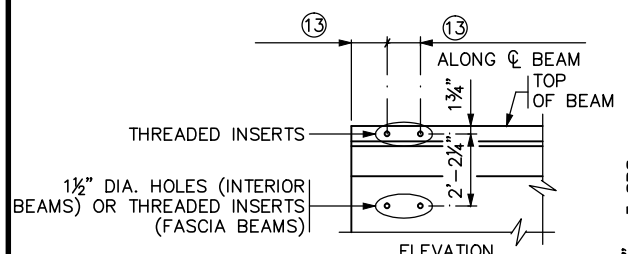
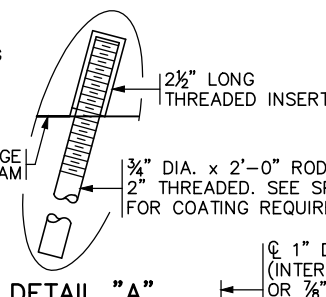
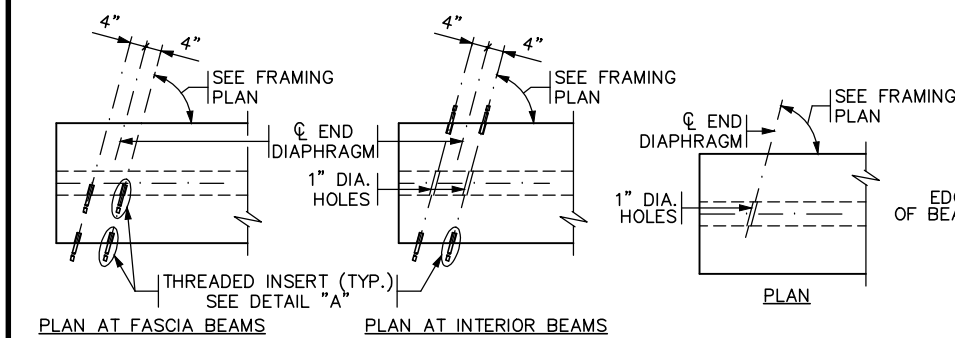
⑧ DIMENSION DETERMINED BY CONTRACTOR. MAINTAIN 2" MINIMUM CLEAR FROM STRANDS.

⑨ SEE 82MW PRESTRESSED BEAM DETAILS SHEET 116.

⑩ ⑪ ⑫ ⑬ SEE TABLE SHEET 117.

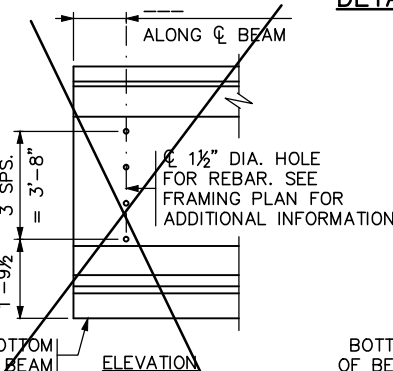
#### BEAM ELEVATION

CONTRACTOR SHALL VERIFY STABILITY OF FASCIA BEAMS FROM OVERTURNING DUE TO DECK PLACEMENT OPERATIONS. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING.



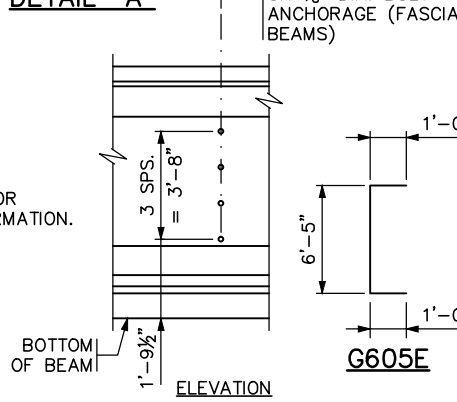
#### CONCRETE END DIAPHRAGM

PARAPET ABUTMENT  
(SEE DETAIL B814 FOR DIAPHRAGM DETAILS)



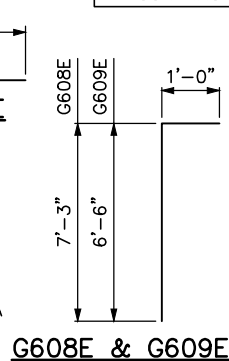
#### CONCRETE END DIAPHRAGM

SEMI-INTEGRAL ABUTMENT  
SEE SUPERSTRUCTURE DETAILS AND REINFORCEMENT FOR DIAPHRAGM DETAILS.

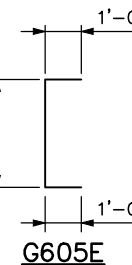


#### STEEL INTERMEDIATE DIAPHRAGM

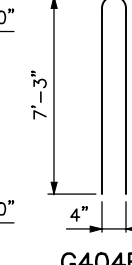
(SEE DETAIL B412 FOR DIAPHRAGM DETAILS)



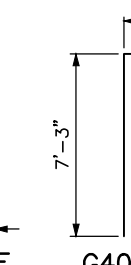
#### G608E & G609E



#### G605E



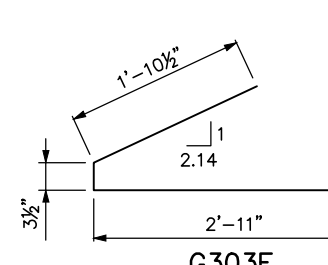
#### G404E



#### G402E

CALCULATED PRESTRESS LOSSES	
ELASTIC SHORTENING LOSS	⑨ KSI
LONG TERM LOSSES	⑨ KSI
TOTAL LOSSES	⑨ KSI

MINIMUM CONCRETE STRENGTH - K.S.I.	
① f'ci	② f'c
7.0 KSI	9.0 KSI



#### G303E




REVISED:  
APPROVED: JANUARY 13, 2015  
*Nancy S. Rubenberger*  
STATE BRIDGE ENGINEER

CERTIFIED BY \_\_\_\_\_ DATE \_\_\_\_\_  
LICENSED PROFESSIONAL ENGINEER  
NAME: \_\_\_\_\_ LIC. NO. \_\_\_\_\_

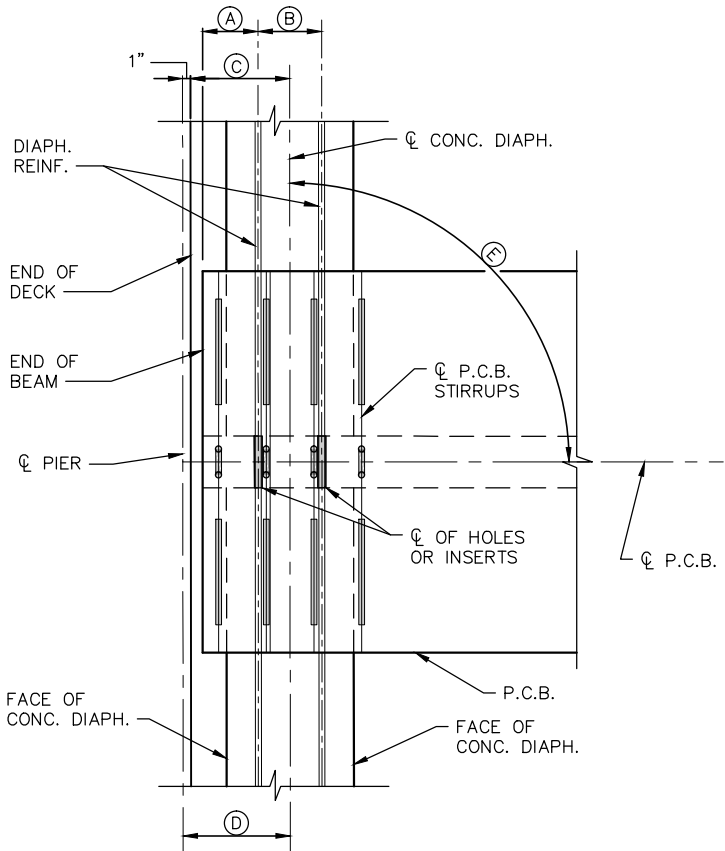
TITLE: 82MW PRESTRESSED  
CONCRETE BEAM 3  
(PRETENSIONED) 82MW-140

117. BEAMS B1-B12			FIG. 5-397.531	
DES: JLB		DR: ALB	APPROVED:	BRIDGE NO. <b>27C06</b>
CHK: JCF		CHK: JCF		
SHEET NO. 115 OF 232 SHEETS				

	PRESTRESSED CONCRETE BEAM INFORMATION					CALCULATED PRESTRESS LOSSES			CAMBER										
	BEAM NO.	CL-TO-CL OF BEARING	OUT-TO-OUT OF BEAM	WEIGHT (TONS)	HOLD DOWN POINT	ELASTIC SHORTENING LOSS (KSI)	LONG TERM LOSSES (KSI)	TOTAL LOSSES (KSI)	ERECTION CAMBER (30 DAYS)	ERECTION CAMBER (60 DAYS)	ERECTION CAMBER (90 DAYS)	ERECTION CAMBER (120 DAYS)	ERECTION CAMBER (180 DAYS)	EST. DEAD LOAD DEFLECTION	EST. RESIDUAL CAMBER (30 DAYS)	EST. RESIDUAL CAMBER (60 DAYS)	EST. RESIDUAL CAMBER (90 DAYS)	EST. RESIDUAL CAMBER (120 DAYS)	EST. RESIDUAL CAMBER (180 DAYS)
SPAN 8	B1	138'-2 3/4"	139'-7 3/4"	79.9	13'-9 7/8"	19.89	22.22	42.11	4 3/8"	4 7/8"	5 1/8"	5 3/8"	5 1/2"	2 3/8"	2 "	2 1/2"	2 3/4"	3 "	3 1/8"
	B2	138'-2 3/8"	139'-7 3/8"	79.8	13'-9 7/8"	19.90	22.22	42.12	4 3/8"	4 7/8"	5 1/8"	5 3/8"	5 1/2"	2 3/8"	1 7/8"	2 3/8"	2 3/4"	2 7/8"	3 1/8"
	B3	138'-2 1/8"	139'-7 1/8"	79.8	13'-9 3/4"	19.90	22.22	42.12	4 3/8"	4 7/8"	5 1/8"	5 3/8"	5 1/2"	2 3/8"	1 7/8"	2 3/8"	2 3/4"	2 7/8"	3 1/8"
	B4	138'-1 7/8"	139'-6 7/8"	79.8	13'-9 3/4"	19.90	22.22	42.12	4 3/8"	4 7/8"	5 1/8"	5 3/8"	5 1/2"	2 3/8"	2 "	2 1/2"	2 3/4"	3 "	3 1/8"
SPAN 9	B5	137'-3 3/4"	138'-8 3/4"	79.3	13'-8 3/4"	19.97	22.22	42.19	4 3/8"	4 7/8"	5 1/8"	5 3/8"	5 1/2"	2 3/8"	2 "	2 1/2"	2 3/4"	3 "	3 1/8"
	B6	137'-7 3/4"	139'-0 3/4"	79.5	13'-9 1/8"	19.94	22.22	42.16	4 1/4"	4 7/8"	5 1/8"	5 1/4"	5 1/2"	2 1/2"	1 7/8"	2 3/8"	2 3/4"	2 7/8"	3"
	B7	137'-11 7/8"	139'-4 7/8"	79.7	13'-9 5/8"	19.91	22.22	42.13	4 3/8"	4 7/8"	5 1/8"	5 3/8"	5 1/2"	2 1/2"	1 7/8"	2 3/8"	2 5/8"	2 7/8"	3"
	B8	138'-3 7/8"	139'-8 7/8"	79.9	13'-10 "	19.88	22.22	42.10	4 3/8"	4 7/8"	5 1/8"	5 3/8"	5 1/2"	2 3/8"	1 7/8"	2 1/2"	2 3/4"	2 7/8"	3 1/8"
SPAN 10	B9	135'-4 5/8"	136'-9 5/8"	78.2	13'-6 1/2"	20.14	22.22	42.36	4 1/4"	4 7/8"	5 1/8"	5 1/4"	5 1/2"	2 3/8"	2 "	2 1/2"	2 3/4"	3 "	3 1/8"
	B10	136'-6 "	137'-11 "	78.9	13'-7 3/4"	20.04	22.22	42.26	4 1/4"	4 7/8"	5 1/8"	5 1/4"	5 1/2"	2 1/2"	1 7/8"	2 3/8"	2 5/8"	2 7/8"	3"
	B11	137'-7 3/8"	139'-0 3/8"	79.5	13'-9 1/8"	19.94	22.22	42.16	4 1/4"	4 7/8"	5 1/8"	5 1/4"	5 1/2"	2 1/2"	1 3/4"	2 3/8"	2 5/8"	2 3/4"	3 "
	B12	138'-8 3/4"	140'-1 3/4"	80.1	13'-10 1/2"	19.83	22.22	42.05	4 3/8"	4 7/8"	5 1/8"	5 3/8"	5 1/2"	2 5/8"	1 5/8"	2 1/4"	2 1/2"	2 5/8"	2 7/8"
SPAN 11	B13	122'-3 5/8"	123'-8 5/8"	70.8	12'-2 3/4"	13.75	17.88	31.63	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 7/8"	1 1/2"	0 3/4"	1"	1 1/8"	1 1/4"	1 3/8"
	B14	122'-7 5/8"	124'-0 5/8"	70.9	12'-3 1/8"	13.72	17.88	31.60	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 7/8"	1 1/2"	0 5/8"	1 "	1 1/8"	1 1/4"	1 1/4"
	B15	122'-11 3/4"	124'-4 3/4"	71.1	12'-3 5/8"	13.69	17.88	31.57	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 7/8"	1 1/2"	0 5/8"	1 "	1 1/8"	1 1/4"	1 1/4"
	B16	123'-3 7/8"	124'-8 7/8"	71.3	12'-4 "	13.66	17.88	31.54	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 7/8"	1 1/2"	0 3/4"	1 "	1 1/8"	1 1/4"	1 3/8"
SPAN 12	B17	123'-2 "	124'-7 "	71.2	12'-3 3/4"	13.68	18.21	31.89	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 7/8"	1 1/2"	0 3/4"	1"	1 1/8"	1 1/4"	1 3/8"
	B18	123'-2 "	124'-7 "	71.2	12'-3 3/4"	13.68	18.21	31.89	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 7/8"	1 1/2"	0 3/4"	1 "	1 1/8"	1 1/4"	1 3/8"
	B19	123'-2 "	124'-7 "	71.2	12'-3 3/4"	13.68	18.21	31.89	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 7/8"	1 1/2"	0 3/4"	1 "	1 1/8"	1 1/4"	1 3/8"
	B20	123'-2"	124'-7"	71.2	12'-3 3/4"	13.68	18.21	31.89	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 7/8"	1 1/2"	0 3/4"	1"	1 1/8"	1 1/4"	1 3/8"
SPAN 13	B21	122'-1 7/8"	123'-6 7/8"	70.7	12'-2 5/8"	13.77	18.21	31.98	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 7/8"	1 1/2"	0 3/4"	1"	1 1/8"	1 1/4"	1 3/8"
	B22	122'-5 7/8"	123'-10 7/8"	70.9	12'-3 "	13.74	18.21	31.95	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 7/8"	1 1/2"	0 5/8"	1 "	1 1/8"	1 1/4"	1 1/4"
	B23	122'-10 "	124'-3 "	71.1	12'-3 3/8"	13.71	18.21	31.92	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 7/8"	1 1/2"	0 5/8"	1 "	1 1/8"	1 1/4"	1 1/4"
	B24	123'-2 1/8"	124'-7 1/8"	71.3	12'-3 3/4"	13.68	18.21	31.89	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 7/8"	1 1/2"	0 3/4"	1"	1 1/4"	1 1/4"	1 3/8"
SPAN 14	B25	117'-5 1/2"	118'-10 1/2"	68.0	11'-9 "	14.17	17.88	32.05	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 7/8"	1 3/8"	0 7/8"	1 1/8"	1 1/4"	1 3/8"	1 1/2"
	B26	119'-8 3/8"	121'-1 3/8"	69.3	11'-11 5/8"	13.98	17.88	31.86	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 7/8"	1 1/2"	0 5/8"	1 "	1 1/8"	1 1/8"	1 1/4"
	B27	121'-11 1/2"	123'-4 1/2"	70.6	12'-2 3/8"	13.79	17.88	31.67	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 7/8"	1 5/8"	0 5/8"	0 7/8"	1"	1 1/8"	1 1/4"
	B28	124'-2 1/2"	125'-7 1/2"	71.8	12'-5 "	13.59	17.88	31.47	2 1/4"	2 1/2"	2 5/8"	2 3/4"	2 7/8"	1 3/4"	0 1/2"	0 7/8"	1 "	1"	1 1/8"
SPAN 15	B29	135'-4 1/4"	136'-9 1/4"	78.2	13'-6 3/8"	21.90	22.80	44.70	4 3/4"	5 3/4"	5 3/4"	5 7/8"	6 1/8"	2 1/2"	2 3/8"	3 "	3 1/4"	3 1/2"	3 5/8"
	B30	138'-1 5/8"	139'-6 5/8"	79.8	13'-9 3/4"	21.65	22.80	44.45	4 7/8"	5 1/2"	5 3/4"	6 "	6 1/8"	2 7/8"	2 "	2 5/8"	2 7/8"	3 1/8"	3 1/4"
	B31	140'-11"	142'-4"	81.4	14'-1 1/8"	21.40	22.80	44.20	4 7/8"	5 1/2"	5 7/8"	6"	6 1/4"	3"	1 7/8"	2 1/2"	2 3/4"	3 "	3 1/4"
	B32	143'-8 3/8"	145'-1 3/8"	83.0	14'-4 1/2"	21.14	22.80	43.94	5 "	5 5/8"	6 "	6 1/8"	6 3/8"	3 1/4"	1 3/4"	2 3/8"	2 5/8"	2 7/8"	3 1/8"
SPAN 16	B33	137'-11 3/4"	139'-4 3/4"	79.7	13'-9 5/8"	21.66	23.22	44.89	4 7/8"	5 1/2"	5 3/4"	6"	6 1/4"	2 1/2"	2 3/8"	3 "	3 1/4"	3 1/2"	3 3/4"
	B34	138'-9 5/8"	140'-2 5/8"	80.2	13'-10 1/2"	21.59	23.22	44.81	4 7/8"	5 1/2"	5 3/4"	6 "	6 1/4"	2 3/4"	2 1/8"	2 3/4"	3 1/8"	3 1/4"	3 1/2"
	B35	139'-7 1/2"	141'-0 1/2"	80.7	13'-11 1/2"	21.52	23.22	44.74	4 7/8"	5 1/2"	5 7/8"	6"	6 1/4"	2 3/4"	2 1/8"	2 3/4"	3"	3 1/4"	3 1/2"
	B36	140'-5 1/2"	141'-10 1/2"	81.1	14'-0 1/2"	21.44	23.22	44.66	4 7/8"	5 1/2"	5 7/8"	6 1/8"	6 1/4"	2 5/8"	2 1/4"	2 7/8"	3 1/4"	3 3/8"	3 5/8"
SPAN 17	B37	144'-2"	145'-7"	83.3	14'-5"	21.09	23.22	44.31	5"	5 5/8"	6 "	6 1/8"	6 3/8"	2 7/8"	2 1/8"	2 3/4"	3 1/8"	3 1/4"	3 1/2"
	B38	144'-2"	145'-7"	83.3	14'-5"	21.09	23.22	44.31	5 "	5 5/8"	5 7/8"	6 1/8"	6 3/8"	2 7/8"	2"	2 3/4"	3"	3 1/4"	3 3/8"
	B39	144'-2"	145'-7"	83.3	14'-5"	21.09	23.22	44.31	5 "	5 5/8"	5 7/8"	6 1/8"	6 3/8"	2 7/8"	2"	2 3/4"	3"	3 1/4"	3 3/8"
	B40	144'-2"	145'-7"	83.3	14'-5"	21.09	23.22	44.31	5"	5 5/8"	6 "	6 1/8"	6 3/8"	2 7/8"	2 1/8"	2 3/4"	3 1/8"	3 1/4"	3 1/2"

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	<div></div>		<div></div>		CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 82MW PRESTRESSED CONCRETE BEAMS 4		SHEET 116 OF 232		
						DESIGNED BY: JLB	CHECKED BY: JCF	90% SUBMISSION - 01/22/16		DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-PCB-004			
						DRAWN BY: ALB	CHECKED BY: JCF							

Jan, 19 2016 10:12 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-PCB-001.dwg By: butterfield



PLAN AT CONCRETE END DIAPHRAGM

- (A) END OF BEAM TO CL OF END DIAPHRAGM REINFORCEMENT ALONG THE CL OF BEAM.
- (B) CL OF END DIAPHRAGM REINFORCEMENT TO CL OF END DIAPHRAGM REINFORCEMENT ALONG THE CL OF BEAM.
- (C) END OF DECK TO CL OF END DIAPHRAGM (DIAPHRAGM PARALLEL TO PIER).
- (D) CL OF PIER TO CL DIAPHRAGM (DIAPHRAGM PARALLEL TO PIER) SEE FRAMING DETAILS SHEETS 110 TO 112.
- (E) CL OF BEAM TO CL OF DIAPHRAGM ANGLE DIMENSION SEE FRAMING DETAILS SHEETS 110 TO 112.

CONCRETE DIAPHRAGM REINFORCEMENT SPACING				
	BEAM NO.	(A)	(B)	(C)
PIER 8	B1	7"	8"	1'-0 1/2"
	B2	7"	8"	1'-0 1/2"
	B3	7"	8"	1'-0 1/2"
	B4	7"	8"	1'-0 1/2"
PIER 10	B5	10"	8"	1'-3 1/2"
	B6	10"	8"	1'-3 1/2"
	B7	10"	8"	1'-3 1/2"
	B8	10"	8"	1'-3 1/2"
PIER 10	B9	10"	8"	1'-3 1/2"
	B10	10"	8"	1'-3 1/2"
	B11	10"	8"	1'-3 1/2"
	B12	10"	8"	1'-3 1/2"
PIER 12	B13	7"	8"	1'-0 1/2"
	B14	7"	8"	1'-0 1/2"
	B15	7"	8"	1'-0 1/2"
	B16	7"	8"	1'-0 1/2"
PIER 12	B17	7"	8"	1'-0 1/2"
	B18	7"	8"	1'-0 1/2"
	B19	7"	8"	1'-0 1/2"
	B20	7"	8"	1'-0 1/2"
PIER 14	B21	7"	8"	1'- 3 3/4"
	B22	7"	8"	1'- 3 3/4"
	B23	7"	8"	1'- 3 3/4"
	B24	7"	8"	1'- 3 3/4"
PIER 14	B25	7"	8 1/8"	1'-3 5/8"
	B26	7"	8"	1'-3 5/8"
	B27	7"	8"	1'-3 5/8"
	B28	7"	8"	1'-3 5/8"
PIER 16	B29	7"	8 1/8"	1'-3 7/8"
	B30	7"	8 1/8"	1'-3 7/8"
	B31	7"	8 1/8"	1'-3 7/8"
	B32	7"	8 1/8"	1'-3 7/8"
PIER 16	B33	7"	8"	1'-3 7/8"
	B34	7"	8"	1'-3 7/8"
	B35	7"	8"	1'-3 7/8"
	B36	7"	8"	1'-3 7/8"
PIER 18	B37	7"	8"	1'-0 1/2"
	B38	7"	8"	1'-0 1/2"
	B39	7"	8"	1'-0 1/2"
	B40	7"	8"	1'-0 1/2"

		PRESTRESSED CONCRETE BEAM STIRRUP SPACING				
SPAN	BEAM NO.	CL TO CL OF BRG	OUT TO OUT OF BEAM	STIRRUP SPACING ⑩	STIRRUP SPACING ⑪	STIRRUP SPACING ⑫
SPAN 8	B1	138'-2 3/4"	139'-7 3/4"	9"	58 EQ. SPS. (1'-0" MAX) = 58'-0"	4 7/8"
	B2	138'-2 3/8"	139'-7 3/8"	9"	58 EQ. SPS. (1'-0" MAX) = 58'-0"	4 11/16"
	B3	138'-2 1/8"	139'-7 1/8"	9"	58 EQ. SPS. (1'-0" MAX) = 58'-0"	4 9/16"
	B4	138'-1 7/8"	139'-6 7/8"	9"	58 EQ. SPS. (1'-0" MAX) = 58'-0"	4 7/16"
SPAN 9	B5	137'-3 3/4"	138'-8 3/4"	6"	58 EQ. SPS. (1'-0" MAX) = 57'-0"	2 3/8"
	B6	137'-7 3/4"	139'-0 3/4"	7"	58 EQ. SPS. (1'-0" MAX) = 58'-0"	3 3/8"
	B7	137'-11 7/8"	139'-4 7/8"	9"	58 EQ. SPS. (1'-0" MAX) = 58'-0"	3 7/16"
	B8	138'-3 7/8"	139'-8 7/8"	9"	58 EQ. SPS. (1'-0" MAX) = 57'-0"	5 7/16"
SPAN 10	B9	135'-4 5/8"	136'-9 5/8"	5"	57 EQ. SPS. (1'-0" MAX) = 56'-0"	3 13/16"
	B10	136'-6 "	137'-11 "	11"	57 EQ. SPS. (1'-0" MAX) = 57'-0"	4 1/2"
	B11	137'-7 3/8"	139'-0 3/8"	6"	58 EQ. SPS. (1'-0" MAX) = 58'-0"	4 3/16"
	B12	138'-8 3/4"	140'-1 3/4"	1'-0"	58 EQ. SPS. (1'-0" MAX) = 58'-0"	4 7/8"
SPAN 11	B13	122'-3 5/8"	123'-8 5/8"	9"	50 EQ. SPS. (1'-0" MAX) = 49'-0"	5 5/16"
	B14	122'-7 5/8"	124'-0 5/8"	11"	50 EQ. SPS. (1'-0" MAX) = 50'-0"	5 5/16"
	B15	122'-11 3/4"	124'-4 3/4"	4"	51 EQ. SPS. (1'-0" MAX) = 50'-0"	2 3/8"
	B16	123'-3 7/8"	124'-8 7/8"	5"	51 EQ. SPS. (1'-0" MAX) = 50'-0"	3 7/16"
SPAN 12	B17	123'-2 "	124'-7 "	4"	51 EQ. SPS. (1'-0" MAX) = 51'-0"	3 1/2"
	B18	123'-2 "	124'-7 "	4"	51 EQ. SPS. (1'-0" MAX) = 51'-0"	3 1/2"
	B19	123'-2 "	124'-7 "	4"	51 EQ. SPS. (1'-0" MAX) = 51'-0"	3 1/2"
	B20	123'-2 "	124'-7 "	4"	51 EQ. SPS. (1'-0" MAX) = 51'-0"	3 1/2"
SPAN 13	B21	122'-1 7/8"	123'-6 7/8"	9"	50 EQ. SPS. (1'-0" MAX) = 50'-0"	4 7/16"
	B22	122'-5 7/8"	123'-10 7/8"	11"	50 EQ. SPS. (1'-0" MAX) = 50'-0"	4 7/16.5x
	B23	122'-10 "	124'-3 "	1'-0"	50 EQ. SPS. (1'-0" MAX) = 50'-0"	5 1/2"
	B24	123'-2 1/8"	124'-7 1/8"	4"	51 EQ. SPS. (1'-0" MAX) = 51'-0"	3 9/16"
SPAN 14	B25	117'-5 1/2"	118'-10 1/2"	6"	48 EQ. SPS. (1'-0" MAX) = 48'-0"	3 1/4"
	B26	119'-8 3/8"	121'-1 3/8"	6"	49 EQ. SPS. (1'-0" MAX) = 49'-0"	4 11/16"
	B27	121'-11 1/2"	123'-4 1/2"	9"	50 EQ. SPS. (1'-0" MAX) = 50'-0"	3 1/4"
	B28	124'-2 1/2"	125'-7 1/2"	9"	51 EQ. SPS. (1'-0" MAX) = 51'-0"	4 13/16"
SPAN 15	B29	135'-4 1/4"	136'-9 1/4"	6"	57 EQ. SPS. (1'-0" MAX) = 57'-0"	2 5/8"
	B30	138'-1 5/8"	139'-6 5/8"	8"	58 EQ. SPS. (1'-0" MAX) = 58'-0"	5 5/16"
	B31	140'-11 "	142'-4 "	4"	60 EQ. SPS. (1'-0" MAX) = 60'-0"	2"
	B32	143'-8 3/8"	145'-1 3/8"	6"	61 EQ. SPS. (1'-0" MAX) = 61'-0"	4 11/16"
SPAN 16	B33	137'-11 3/4"	139'-4 3/4"	9"	58 EQ. SPS. (1'-0" MAX) = 58'-0"	3 3/8"
	B34	138'-9 5/8"	140'-2 5/8"	1'-0"	58 EQ. SPS. (1'-0" MAX) = 58'-0"	5 5/16"
	B35	139'-7 1/2"	141'-0 1/2"	6"	59 EQ. SPS. (1'-0" MAX) = 59'-0"	4 1/4"
	B36	140'-5 1/2"	141'-10 1/2"	10"	59 EQ. SPS. (1'-0" MAX) = 59'-0"	5 1/4"
SPAN 17	B37	144'-2"	145'-7"	9"	61 EQ. SPS. (1'-0" MAX) = 61'-0"	4 1/2"
	B38	144'-2"	145'-7"	9"	61 EQ. SPS. (1'-0" MAX) = 61'-0"	4 1/2"
	B39	144'-2"	145'-7"	9"	61 EQ. SPS. (1'-0" MAX) = 61'-0"	4 1/2"
	B40	144'-2"	145'-7"	9"	61 EQ. SPS. (1'-0" MAX) = 61'-0"	4 1/2"

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: ALB	CHECKED BY: JCF

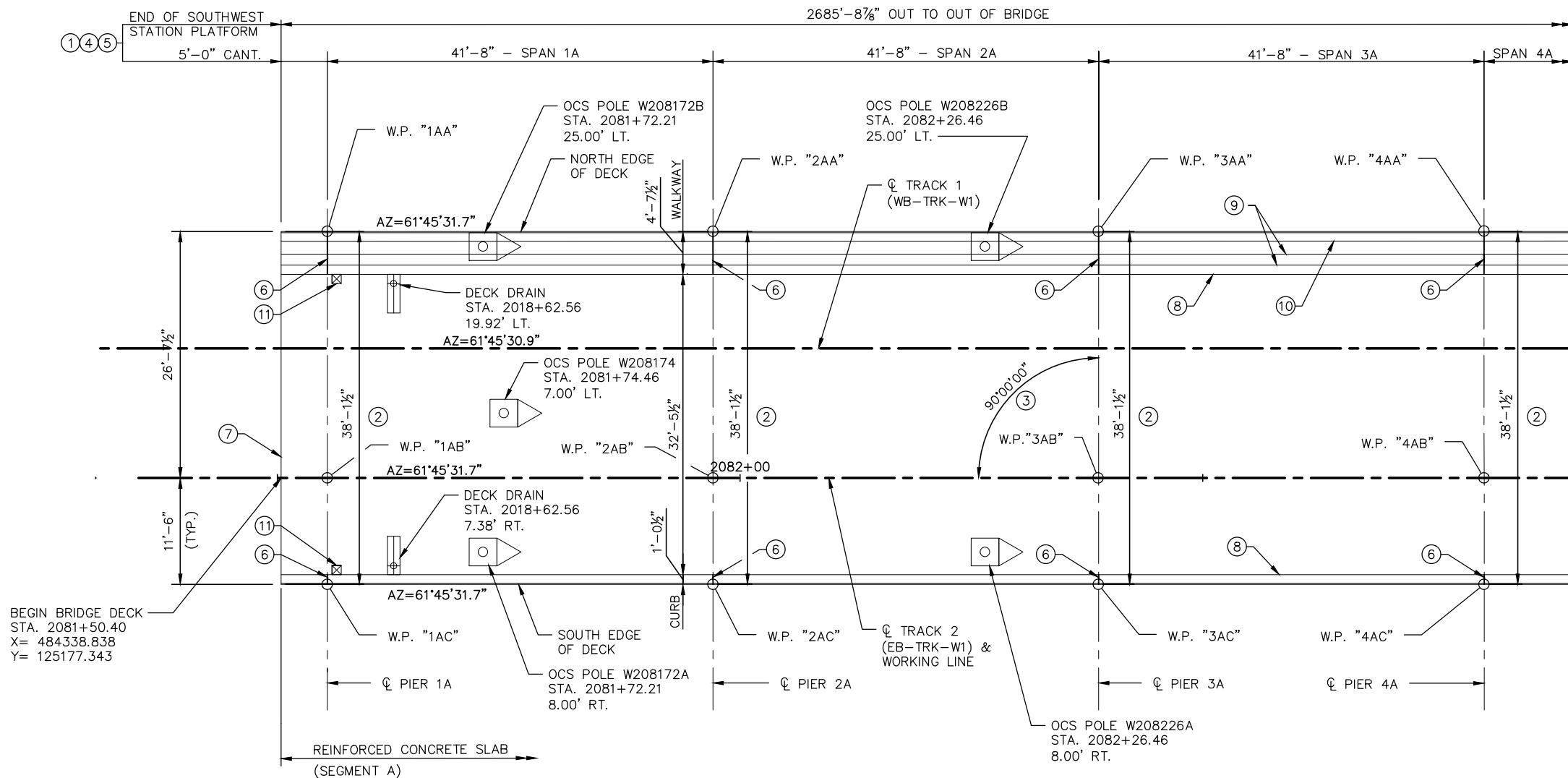
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
82MW PRESTRESSED CONCRETE BEAMS 5

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-PCB-005

Jan, 19 2016 10:16 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-007.dwg By: butterfielda



**PARTIAL DECK PLAN - SPAN 1A - 3A**  
(REINFORCED CONCRETE SLAB)

**NOTES:**

T.T.S. DENOTES TANGENT TO SPIRAL.

- ① MEASURED ALONG CL TRACK 2 (EB-TRK-W1).
- ② DECK SPAN MEASURED ALONG CL PIER.
- ③ TYPICAL UNLESS SHOWN OTHERWISE.
- ④ MEASURED ALONG NORTH EDGE OF DECK.
- ⑤ MEASURED ALONG SOUTH EDGE OF DECK.
- ⑥ WALKWAY/CURB CONTROL JOINT LOCATION AT CL PIER.
- ⑦ BRIDGE EXPANSION JOINT LOCATION AT CL PIER.
- ⑧ EDGE OF WALKWAY/CURB.
- ⑨ EDGE OF 14" EXPRESS TROUGH COVER.
- ⑩ EDGE OF 11" CURB.
- ⑪ STRAY CURRENT TEST STATION AND GROUND ARRAY. SEE NOTE 6 AND 12 ON SHEET 10.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ATN      CHECKED BY: AMA  
DRAWN BY: ALB      CHECKED BY: AMA

**AECOM**

90% SUBMISSION - 01/22/16



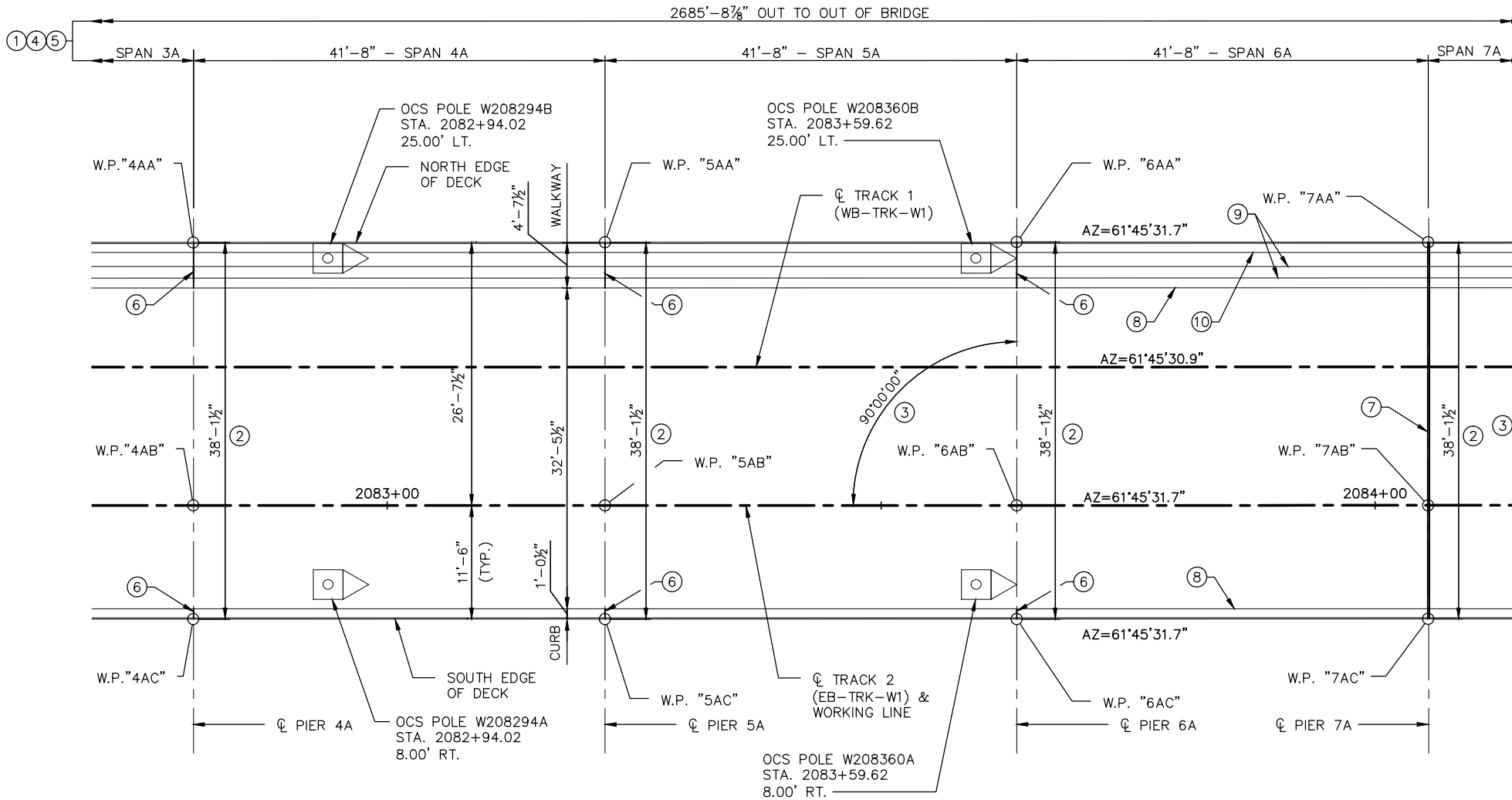
**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE GEOM. 1 (SEGMENT A)**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C06-BRG-SUP-015**

**SHEET**  
**118**  
**OF**  
**232**

Jan, 19 2016 10:16 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-007.dwg By: butterfielda



PARTIAL DECK PLAN - SPAN 4A - 6A  
(REINFORCED CONCRETE SLAB)

NOTES:

T.T.S. DENOTES TANGENT TO SPIRAL.

- ① MEASURED ALONG  $\varnothing$  TRACK 2 (EB-TRK-W1).

② DECK SPAN MEASURED ALONG  $\varnothing$  PIER.

③ TYPICAL UNLESS SHOWN OTHERWISE.

④ MEASURED ALONG NORTH EDGE OF DECK.

⑤ MEASURED ALONG SOUTH EDGE OF DECK.
- ⑥ WALKWAY/CURB CONTROL JOINT LOCATION AT  $\varnothing$  PIER.

⑦ BRIDGE EXPANSION JOINT LOCATION AT  $\varnothing$  PIER.

⑧ EDGE OF WALKWAY/CURB.

⑨ EDGE OF 14" EXPRESS TROUGH COVER.

⑩ EDGE OF 11" CURB.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ATN	CHECKED BY: AMA
DRAWN BY: ALB	CHECKED BY: AMA

90% SUBMISSION - 01/22/16

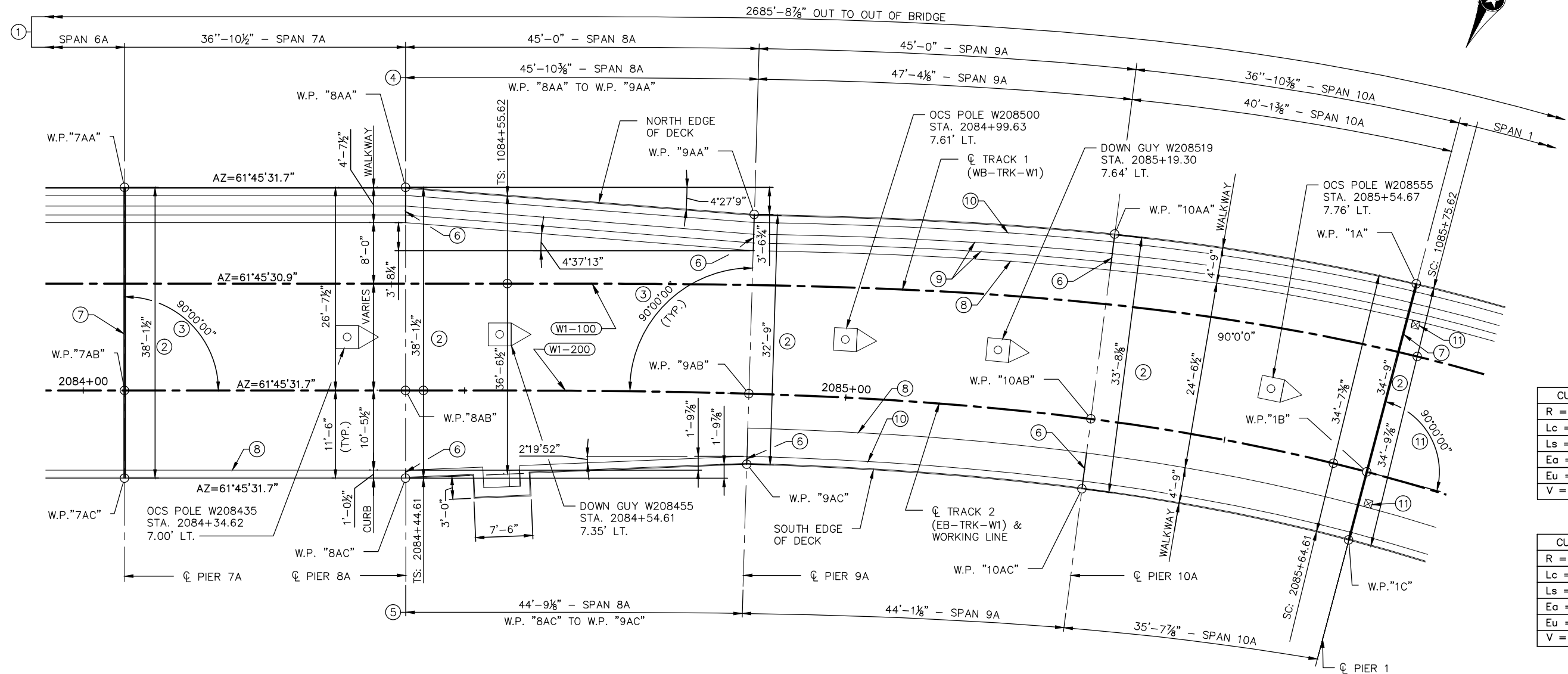
CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE GEOM. 2 (SEGMENT A)

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-016



Jan, 19 2016 10:17 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-007.dwg By: butterfly



CURVE NO. W1-100
R = 250.00'
Lc = 213.11'
Ls = 120.00'
Ea = 3.50"
Eu = 2.84"
V = 20 MPH

CURVE NO. W1-200
R = 250.00'
Lc = 213.11'
Ls = 120.00'
Ea = 3.50"
Eu = 2.84"
V = 20 MPH

PARTIAL DECK PLAN - SPAN 7A - 10A  
(REINFORCED CONCRETE SLAB)

NOTES:

T.T.S. DENOTES TANGENT TO SPIRAL.

T.T.C. DENOTES TANGENT TO CURVE.

- ① MEASURED ALONG  $\phi$  TRACK 2 (EB-TRK-W1).  
② DECK SPAN MEASURED ALONG  $\phi$  PIER.  
③ TYPICAL UNLESS SHOWN OTHERWISE.  
④ MEASURED ALONG NORTH EDGE OF DECK.  
⑤ MEASURED ALONG SOUTH EDGE OF DECK.

- ⑥ WALKWAY/CURB CONTROL JOINT LOCATION AT  $\phi$  PIER.  
⑦ BRIDGE EXPANSION JOINT LOCATION AT  $\phi$  PIER.  
⑧ EDGE OF WALKWAY/CURB.  
⑨ EDGE OF 14" EXPRESS TROUGH COVER.  
⑩ EDGE OF 11" CURB.  
⑪ STRAY CURRENT TEST STATION. SEE NOTE 7 ON SHEET 10.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ATN	CHECKED BY: AMA
DRAWN BY: ALB	CHECKED BY: AMA

AECOM

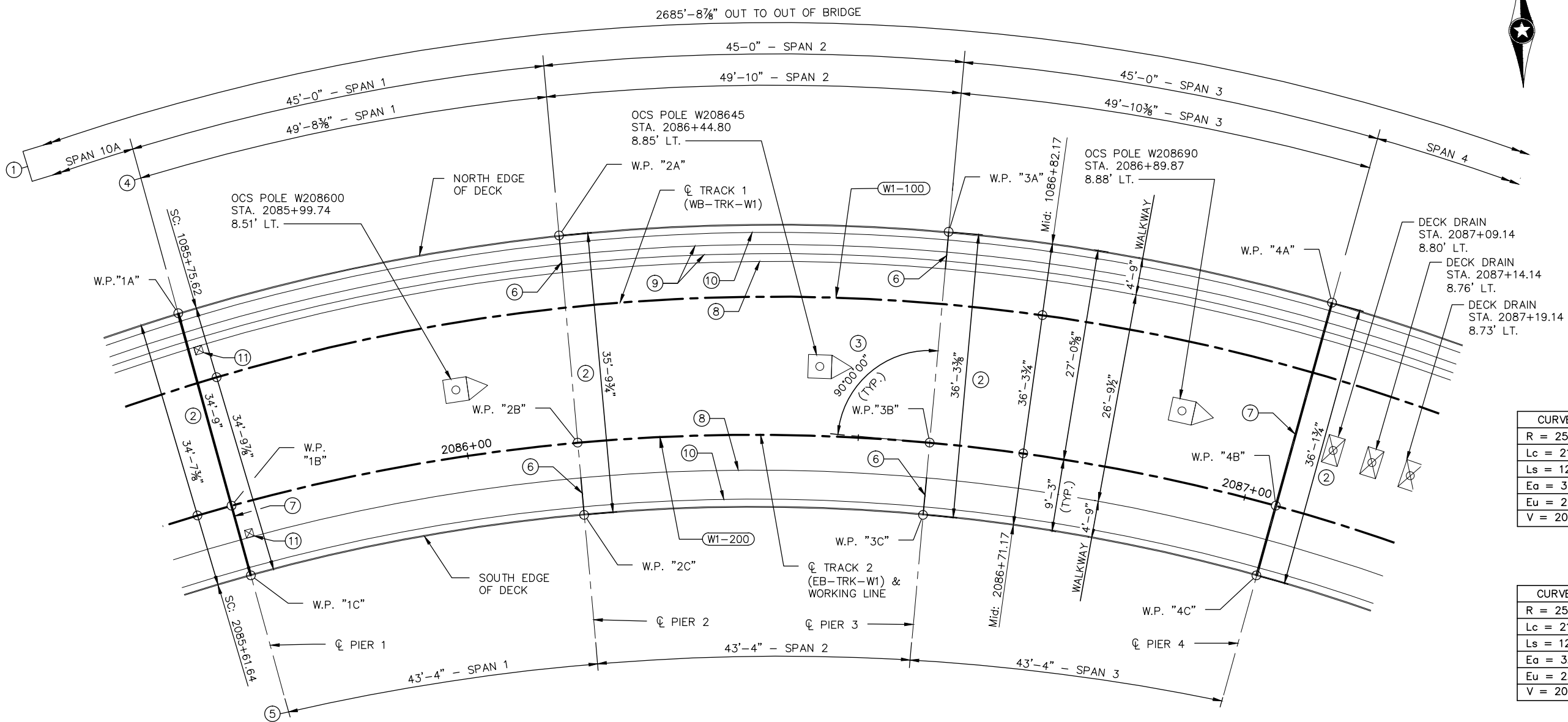
90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 SUPERSTRUCTURE GEOM. 3 (SEGMENT A)	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-SUP-017

SHEET  
120  
OF  
232

Jan, 19 2016 10:17 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-009.dwg By: butterfielda



CURVE NO. W1-100
R = 250.00'
Lc = 213.11'
Ls = 120.00'
Ea = 3.50"
Eu = 2.84"
V = 20 MPH

CURVE NO. W1-200
R = 250.00'
Lc = 213.11'
Ls = 120.00'
Ea = 3.50"
Eu = 2.84"
V = 20 MPH

PARTIAL DECK PLAN - SPAN 1 - 3  
(REINFORCED CONCRETE SLAB)

NOTES:

T.T.C. DENOTES TANGENT TO CURVE.

- ① MEASURED ALONG  $\phi$  TRACK 2 (EB-TRK-W1).

② DECK SPAN MEASURED ALONG  $\phi$  PIER.

③ T.T.C. TYPICAL UNLESS SHOWN OTHERWISE.

④ MEASURED ALONG NORTH EDGE OF DECK.

⑤ MEASURED ALONG SOUTH EDGE OF DECK.
- ⑥ WALKWAY CONTROL JOINT LOCATION AT  $\phi$  PIER.

⑦ BRIDGE EXPANSION JOINT LOCATION AT  $\phi$  PIER.

⑧ EDGE OF WALKWAY.

⑨ EDGE OF 14" EXPRESS TROUGH COVER.

⑩ EDGE OF 11" CURB.

⑪ STRAY CURRENT TEST STATION. SEE NOTE 7 ON SHEET 10.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ATN	CHECKED BY: AMA
DRAWN BY: ALB	CHECKED BY: AMA

AECOM

90% SUBMISSION - 01/22/16



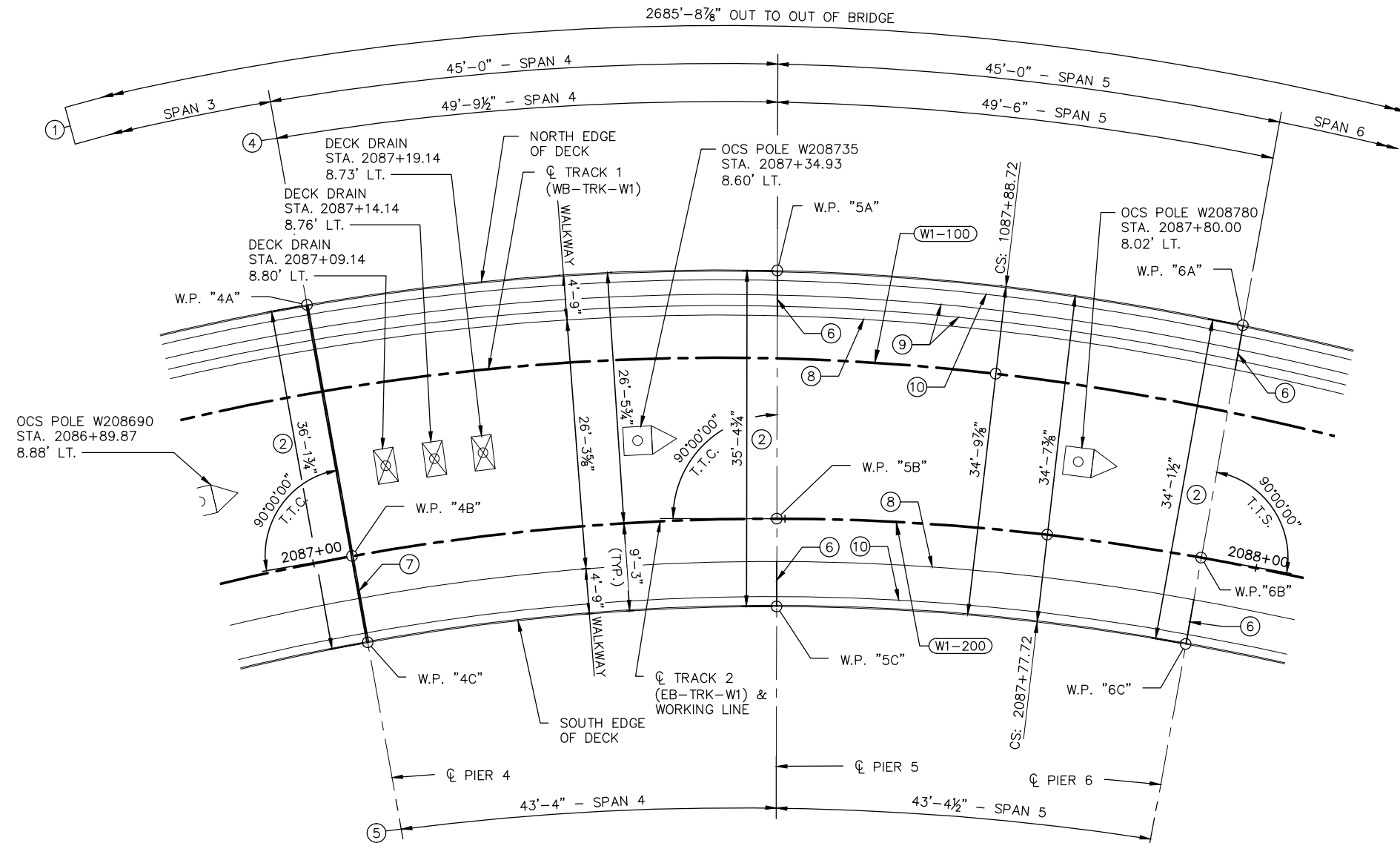
CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE GEOM. 4 (SEGMENT A)

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-018

SHEET  
121  
OF  
232

Jan, 19 2016 10:17 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-009.dwg By: butterfielda



CURVE NO. W1-100
R = 250.00'
Lc = 213.11'
Ls = 120.00'
Ea = 3.50"
Eu = 2.84"
V = 20 MPH

CURVE NO. W1-200
R = 250.00'
Lc = 213.11'
Ls = 120.00'
Ea = 3.50"
Eu = 2.84"
V = 20 MPH

**PARTIAL DECK PLAN - SPAN 4 - 5**  
(REINFORCED CONCRETE SLAB)

**NOTES:**

T.T.S. DENOTES TANGENT TO SPIRAL.  
T.T.C. DENOTES TANGENT TO CURVE.

- |  |   |
|--|---|
| ① MEASURED ALONG $\phi$ TRACK 2 (EB-TRK-W1). | ⑥ WALKWAY CONTROL JOINT LOCATION AT $\phi$ PIER.  |
| ② DECK SPAN MEASURED ALONG $\phi$ PIER.      | ⑦ BRIDGE EXPANSION JOINT LOCATION AT $\phi$ PIER. |
| ③ T.T.S. TYPICAL UNLESS SHOWN OTHERWISE.     | ⑧ EDGE OF WALKWAY.                                |
| ④ MEASURED ALONG NORTH EDGE OF DECK.         | ⑨ EDGE OF 14" EXPRESS TROUGH COVER.               |
| ⑤ MEASURED ALONG SOUTH EDGE OF DECK.         | ⑩ EDGE OF 11" CURB.                               |
|  | ⑪ T.T.C. TYPICAL UNLESS SHOWN OTHERWISE.          |

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ATN	CHECKED BY: AMA
DRAWN BY: ALB	CHECKED BY: AMA

**AECOM**

90% SUBMISSION - 01/22/16



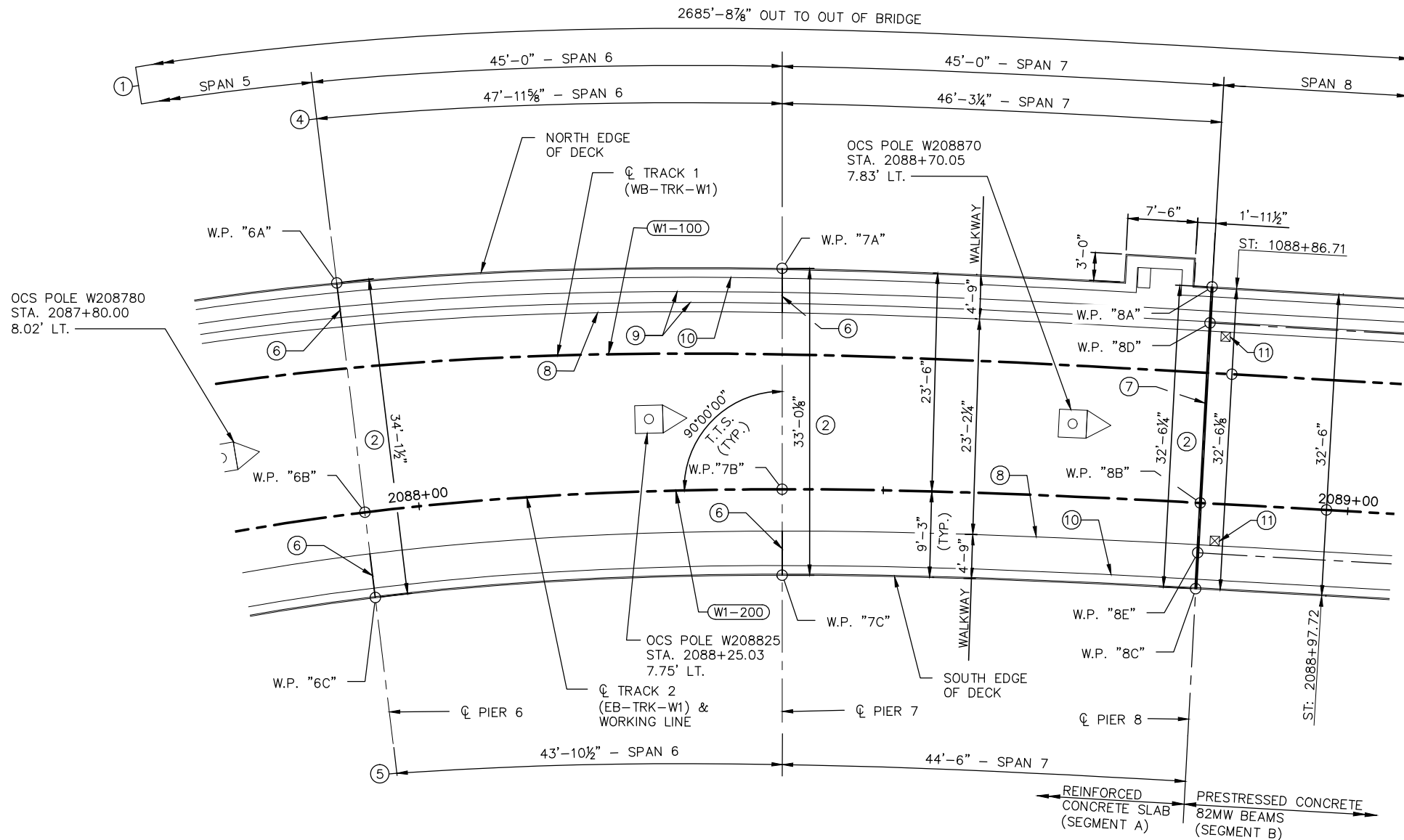
**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE GEOM. 5 (SEGMENT A)**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C06-BRG-SUP-019**

**SHEET**  
**122**  
**OF**  
**232**

Jan, 19 2016 10:17 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-009.dwg By: butterfielda



CURVE NO. W1-100	
R =	250.00'
Lc =	213.11'
Ls =	120.00'
Ea =	3.50"
Eu =	2.84"
V =	20 MPH

CURVE NO. W1-200	
R =	250.00'
Lc =	213.11'
Ls =	120.00'
Ea =	3.50"
Eu =	2.84"
V =	20 MPH

PARTIAL DECK PLAN - SPAN 6 - 7  
(REINFORCED CONCRETE SLAB)

NOTES:

T.T.S. DENOTES TANGENT TO SPIRAL.

- ① MEASURED ALONG  $\phi$  TRACK 2 (EB-TRK-W1).

② DECK SPAN MEASURED ALONG  $\phi$  PIER.

③ T.T.S. TYPICAL UNLESS SHOWN OTHERWISE.

④ MEASURED ALONG NORTH EDGE OF DECK.

⑤ MEASURED ALONG SOUTH EDGE OF DECK.
- ⑥ WALKWAY CONTROL JOINT LOCATION AT  $\phi$  PIER.

⑦ BRIDGE EXPANSION JOINT LOCATION AT  $\phi$  PIER.

⑧ EDGE OF WALKWAY.

⑨ EDGE OF 14" EXPRESS TROUGH COVER.

⑩ EDGE OF 11" CURB.

⑪ STRAY CURRENT TEST STATION. SEE NOTE 7 ON SHEET 10.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ATN	CHECKED BY: AMA
DRAWN BY: ALB	CHECKED BY: AMA

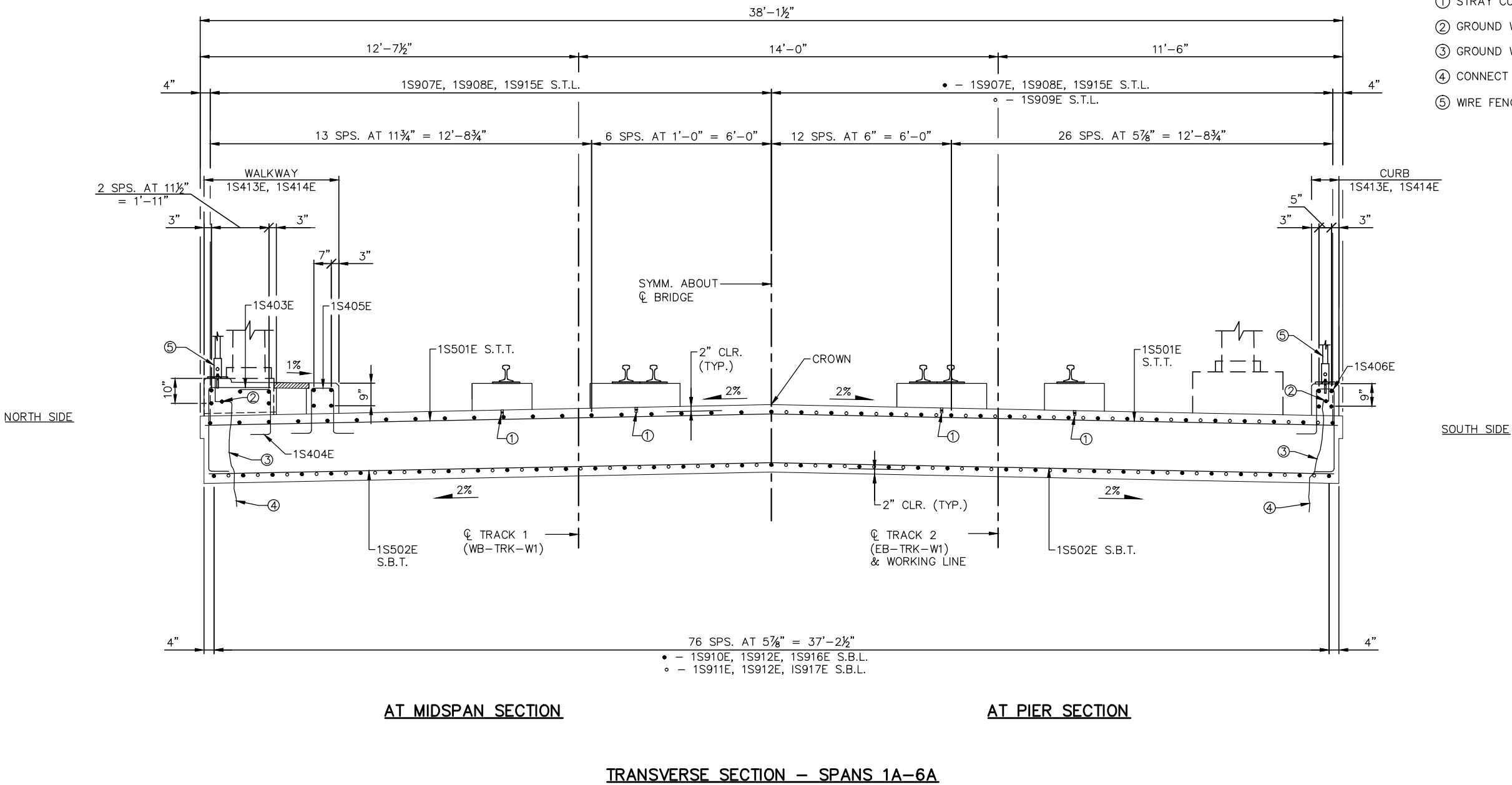
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE GEOM. 6 (SEGMENT A)

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-020

Jan, 19 2016 10:18 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-023.dwg By: butterfielda




- NOTES:**
- S.T.T. DENOTES SLAB TOP TRANSVERSE.
- S.B.T. DENOTES SLAB BOTTOM TRANSVERSE.
- S.T.L. DENOTES SLAB TOP LONGITUDINAL.
- S.B.L. DENOTES SLAB BOTTOM LONGITUDINAL.
- "1S" NOTATION IN BAR MARK DENOTES SEGMENT A.
- ① STRAY CURRENT COLLECTOR CABLE. SEE NOTE 4 ON SHEET 10.
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED WITHIN THE SLAB.
- ④ CONNECT TO GROUND WIRE IN PIER.
- ⑤ WIRE FENCE (DESIGN W-1) SEE SHEET 196.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ZA	CHECKED BY: BC
DRAWN BY: CL	CHECKED BY: AMA





90% SUBMISSION - 01/22/16

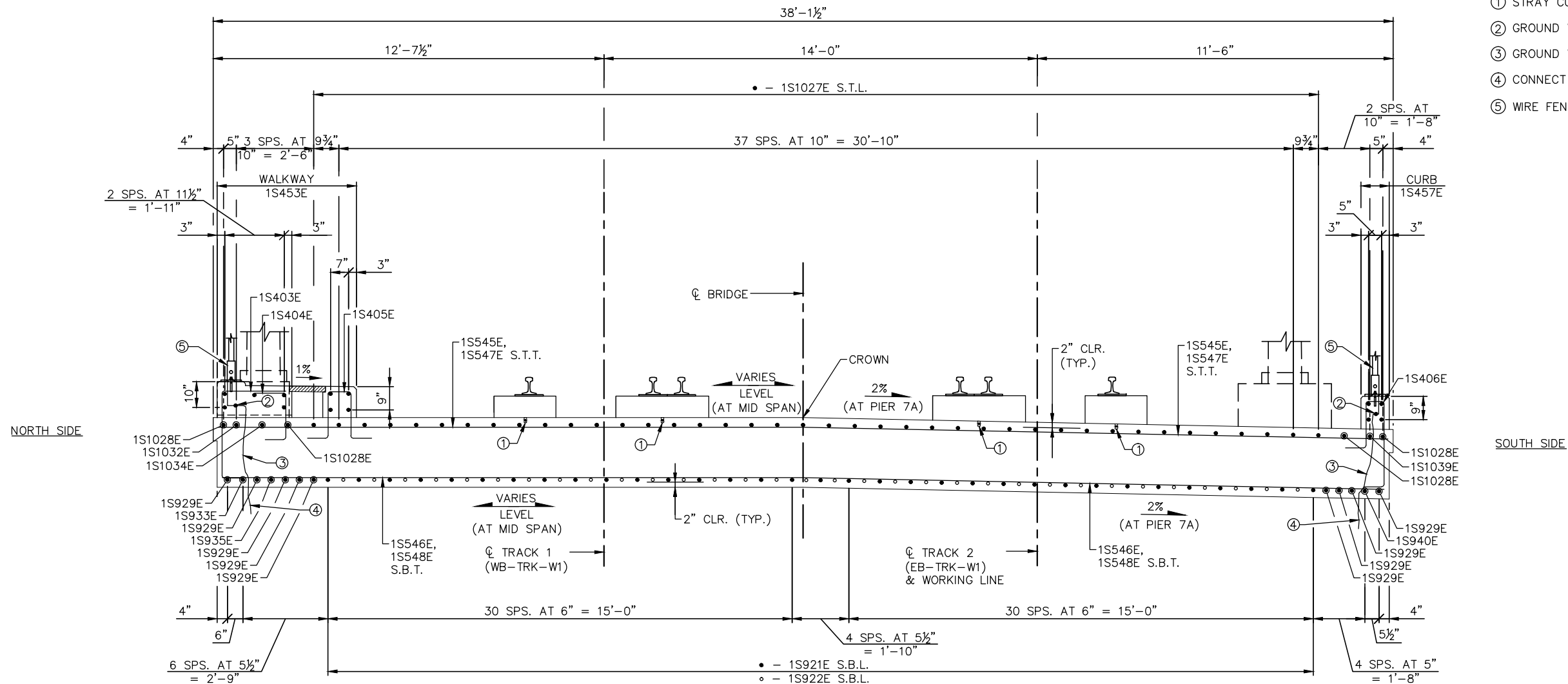
CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 1 (SEGMENT A)

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-021

SHEET 124 OF 232

Jan, 19 2016 10:18 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-023.dwg By: butterfielda



**NOTES:**

S.T.T. DENOTES SLAB TOP TRANSVERSE.

S.B.T. DENOTES SLAB BOTTOM TRANSVERSE.

S.T.L. DENOTES SLAB TOP LONGITUDINAL.

S.B.L. DENOTES SLAB BOTTOM LONGITUDINAL.

"1S" NOTATION IN BAR MARK DENOTES SEGMENT A.

① STRAY CURRENT COLLECTOR CABLE. SEE NOTE 4 ON SHEET 10.

② GROUND WIRE.

③ GROUND WIRE PLACED WITHIN THE SLAB.

④ CONNECT TO GROUND WIRE IN PIER.

⑤ WIRE FENCE (DESIGN W-1) SEE SHEET 196.

**TRANSVERSE SECTION - SPAN 7A**  
(SLAB TOP LONGITUDINAL REINFORCEMENT SHOWN AT PIER 7A)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ZA	CHECKED BY: BC
DRAWN BY: CL	CHECKED BY: AMA

**AECOM**

90% SUBMISSION - 01/22/16



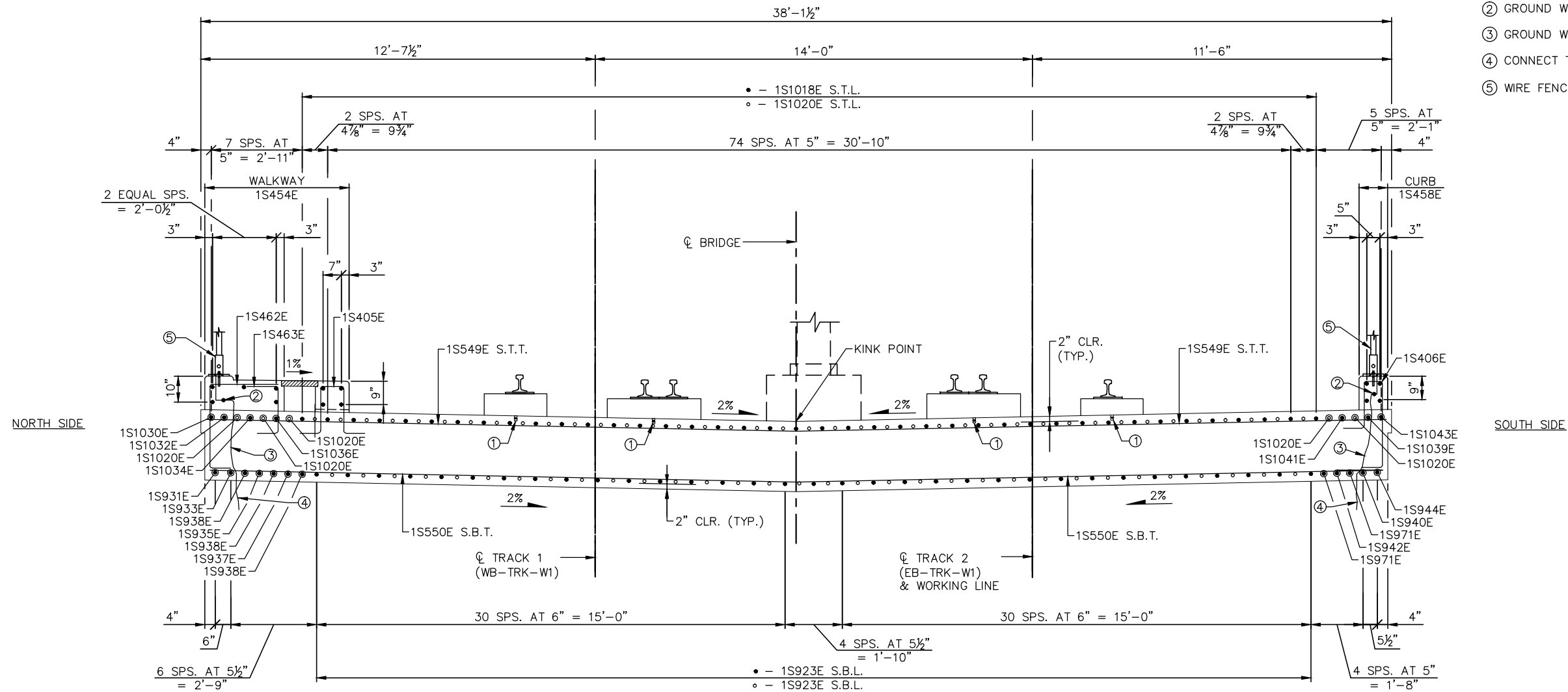
**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE REINF. 2 (SEGMENT A)**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C06-BRG-SUP-022**

**SHEET**  
**125**  
**OF**  
**232**

Jan, 19 2016 10:18 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-023.dwg By: butterfielda



**NOTES:**

- S.T.T. DENOTES SLAB TOP TRANSVERSE.  
S.B.T. DENOTES SLAB BOTTOM TRANSVERSE.  
S.T.L. DENOTES SLAB TOP LONGITUDINAL.  
S.B.L. DENOTES SLAB BOTTOM LONGITUDINAL.  
"1S" NOTATION IN BAR MARK DENOTES SEGMENT A.  
① STRAY CURRENT COLLECTOR CABLE. SEE NOTE 4 ON SHEET 10.  
② GROUND WIRE.  
③ GROUND WIRE PLACED WITHIN THE SLAB.  
④ CONNECT TO GROUND WIRE IN PIER.  
⑤ WIRE FENCE (DESIGN W-1) SEE SHEET 196.

**TRANSVERSE SECTION - SPAN 8A**  
(SLAB TOP LONGITUDINAL REINFORCEMENT SHOWN AT PIER 8A)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ZA	CHECKED BY: BC
DRAWN BY: CL	CHECKED BY: AMA

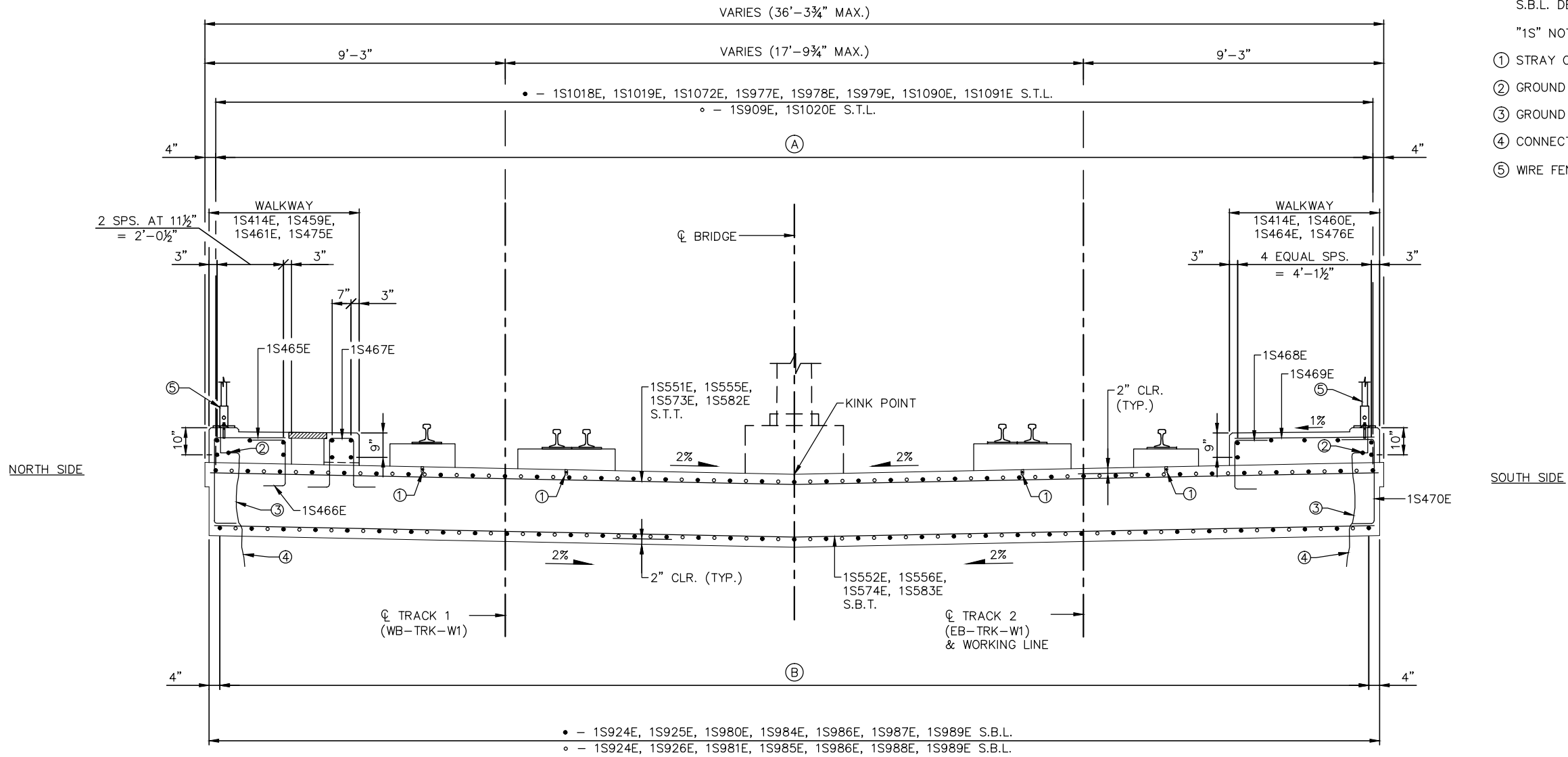
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 3 (SEGMENT A)

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-SUP-023

SHEET 126 OF 232

Jan, 19 2016 10:18 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-023.dwg By: butterflyda



AT PIER	(A)
9A	78 EQUAL SPS AT 5"± = 32'-1"
10A	80 EQUAL SPS AT 5"± = 33'-0 1/8"
1	41 EQUAL SPS AT 10"± = 34'-1"
2	84 EQUAL SPS AT 5"± = 35'-1 3/4"
3	86 EQUAL SPS AT 5"± = 35'-7 3/8"
4	43 EQUAL SPS AT 10"± = 35'-5 3/4"
5	84 EQUAL SPS AT 5"± = 34'-8 3/4"
6	80 EQUAL SPS AT 5"± = 33'-5 1/2"
7	78 EQUAL SPS AT 5"± = 32'-4 1/8"
8	38 EQUAL SPS AT 10"± = 31'-10 1/4"

TRANSVERSE SECTION - SPANS 9A-7

SPAN	(B)
9A	66 EQUAL SPS AT 6"± = 32'-9 1/8" MAX. TO 31'-10" MIN.
10A	68 EQUAL SPS AT 6"± = 33'-10" MAX. TO 32'-9 1/8" MIN.
1	70 EQUAL SPS AT 6"± = 34'-10 3/4" MAX. TO 33'-10" MIN.
2	72 EQUAL SPS AT 6"± = 35'-4 3/8" MAX. TO 34'-10 3/4" MIN.
3	72 EQUAL SPS AT 6"± = 35'-4 3/8" MAX. TO 35'-2 3/4" MIN.
4	72 EQUAL SPS AT 6"± = 35'-2 3/4" MAX. TO 34'-5 3/4" MIN.
5	70 EQUAL SPS AT 6"± = 34'-5 3/4" MAX. TO 33'-2 1/2" MIN.
6	68 EQUAL SPS AT 6"± = 33'-2 1/2" MAX. TO 32'-1 1/8" MIN.
7	64 EQUAL SPS AT 6"± = 32'-1 1/8" MAX. TO 31'-7 1/4" MIN.

NOTES:

S.T.T. DENOTES SLAB TOP TRANSVERSE.

S.B.T. DENOTES SLAB BOTTOM TRANSVERSE.

S.T.L. DENOTES SLAB TOP LONGITUDINAL.

S.B.L. DENOTES SLAB BOTTOM LONGITUDINAL.

"1S" NOTATION IN BAR MARK DENOTES SEGMENT A.

① STRAY CURRENT COLLECTOR CABLE. SEE NOTE 4 ON SHEET 10.

② GROUND WIRE.

③ GROUND WIRE PLACED WITHIN THE SLAB.

④ CONNECT TO GROUND WIRE IN PIER.

⑤ WIRE FENCE (DESIGN W-1) SEE SHEET 196.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ZA	CHECKED BY: BC
DRAWN BY: CL	CHECKED BY: AMA

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 4 (SEGMENT A)

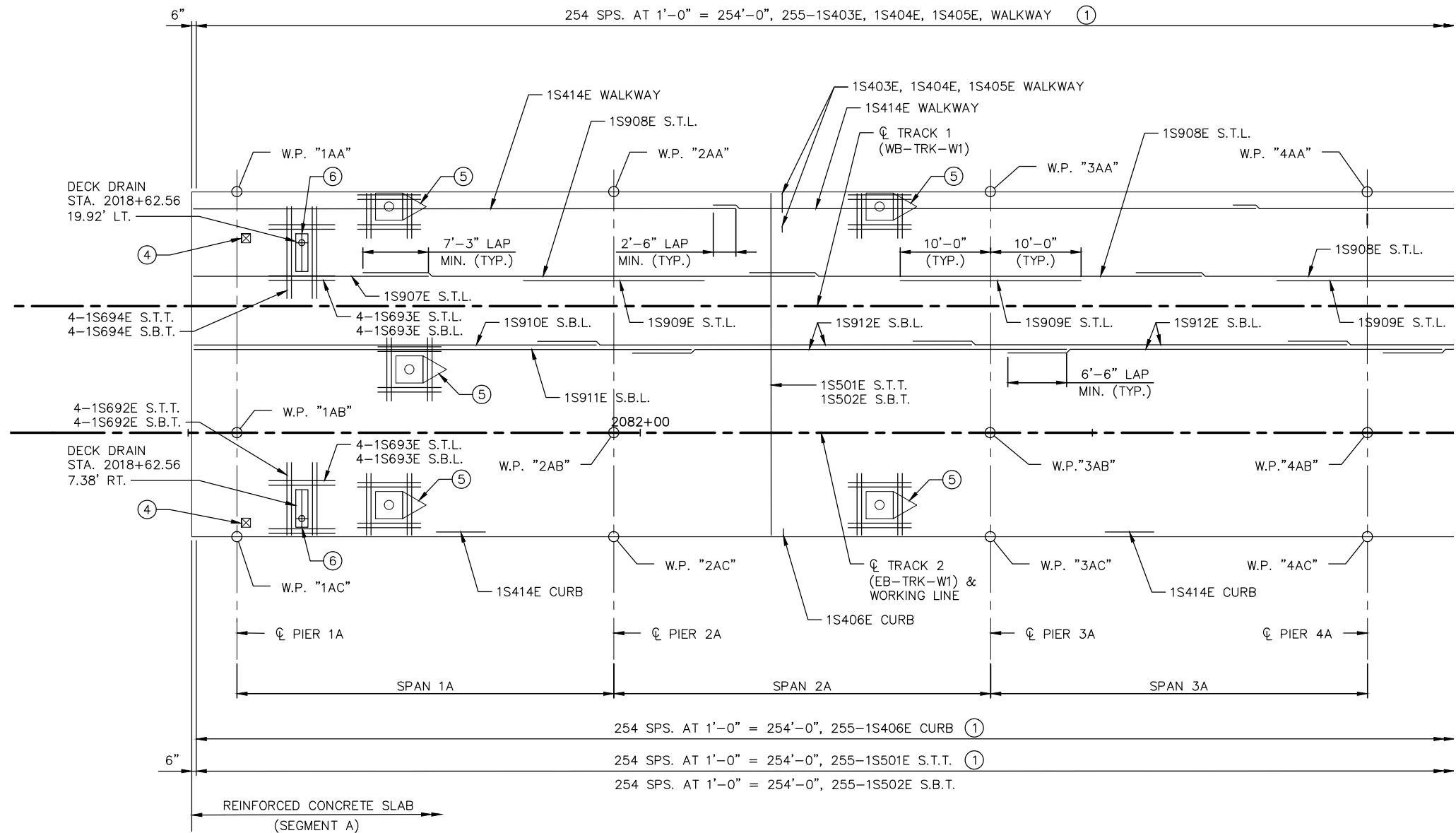
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-024

SHEET  
127  
OF  
232



Jan, 19 2016 10:18 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-016.dwg By: butterfielda



PARTIAL DECK REINFORCEMENT PLAN - SPAN 1A - 3A  
(REINFORCED CONCRETE SLAB)

NOTES:

- S.T.T. DENOTES SLAB TOP TRANSVERSE.
- S.B.T. DENOTES SLAB BOTTOM TRANSVERSE.
- S.T.L. DENOTES SLAB TOP LONGITUDINAL.
- S.B.L. DENOTES SLAB BOTTOM LONGITUDINAL.
- "1S" NOTATION IN BAR MARK DENOTES SEGMENT A.
- FOR TRANSVERSE SECTION SEE SHEET 124.
- FOR GEOMETRICS PLAN SEE SHEET 118.
- ① SPACINGS MEASURED ALONG  $\varnothing$  TRACK 2 (EB-TRK-W1).
- ② SPACINGS MEASURED ALONG NORTH EDGE OF SLAB.
- ③ SPACINGS MEASURED ALONG SOUTH EDGE OF SLAB.
- ④ STRAY CURRENT TEST STATION AND GROUND ARRAY. SEE NOTE 6 & 12 ON SHEET 10.
- ⑤ OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186. ALL BARS NOT SHOWN FOR CLARITY.
- ⑥ FOR BRIDGE DRAINS SEE SHEETS 118 AND 191.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ZA	CHECKED BY: BC
DRAWN BY: CL	CHECKED BY: AMA

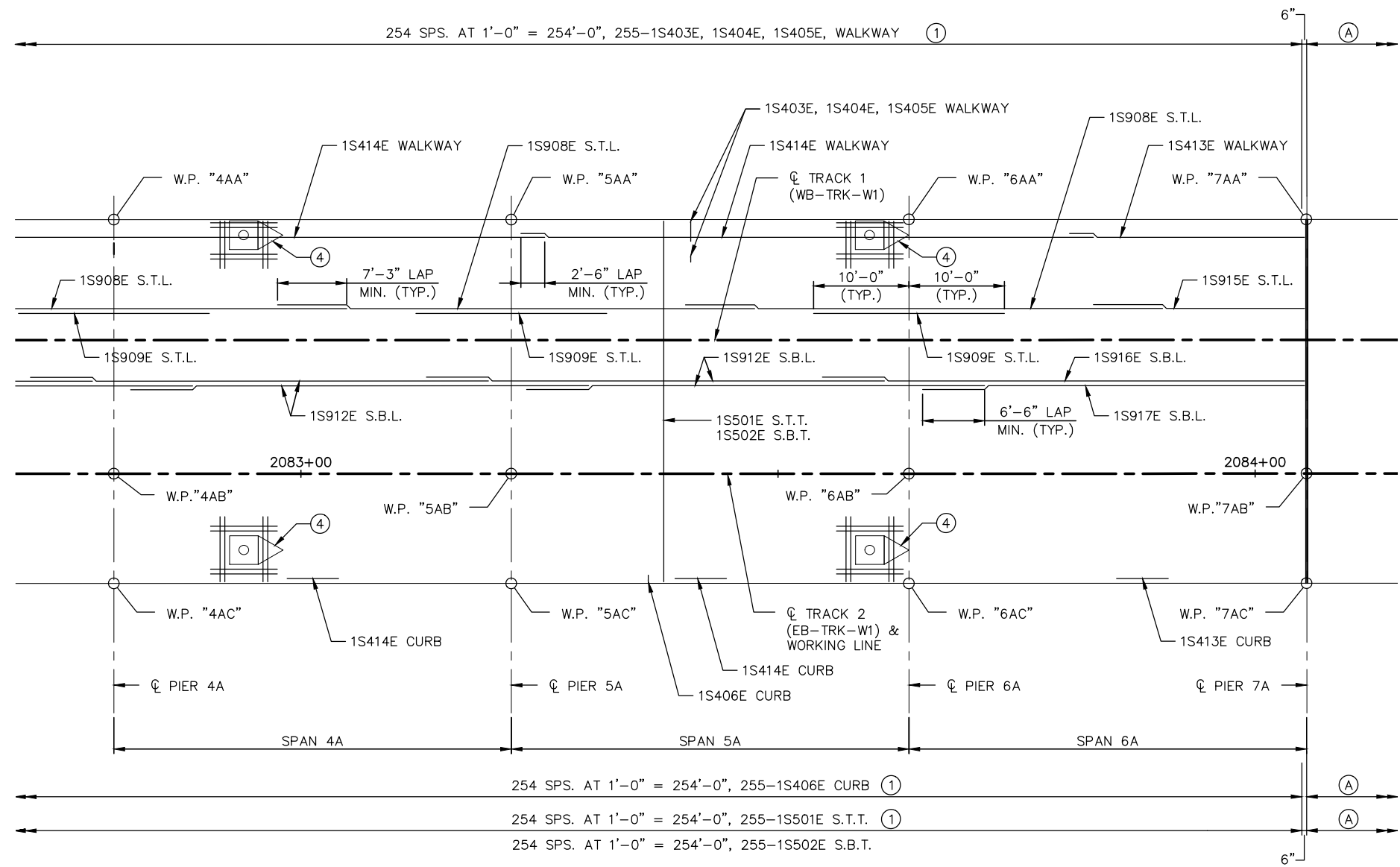
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 5 (SEGMENT A)

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-025

Jan, 19 2016 10:19 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-016.dwg By: butterfielda



**PARTIAL DECK REINFORCEMENT PLAN – SPAN 4A – 6A**  
(REINFORCED CONCRETE SLAB)

(A) FOR CONTINUATION REINFORCEMENT DETAIL,  
SEE SHEET 130.

- NOTES:**
- S.T.T. DENOTES SLAB TOP TRANSVERSE.
  - S.B.T. DENOTES SLAB BOTTOM TRANSVERSE.
  - S.T.L. DENOTES SLAB TOP LONGITUDINAL.
  - S.B.L. DENOTES SLAB BOTTOM LONGITUDINAL.
  - "1S" NOTATION IN BAR MARK DENOTES SEGMENT A.
  - FOR TRANSVERSE SECTION SEE SHEET 124.
  - FOR GEOMETRICS PLAN SEE SHEET 119.
  - ① SPACINGS MEASURED ALONG  $\text{CL}$  TRACK 2 (EB-TRK-W1).
  - ② SPACINGS MEASURED ALONG NORTH EDGE OF SLAB.
  - ③ SPACINGS MEASURED ALONG SOUTH EDGE OF SLAB.
  - ④ OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186.  
ALL BARS NOT SHOWN FOR CLARITY.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ZA  
DRAWN BY: CL

CHECKED BY: BC  
CHECKED BY: AMA

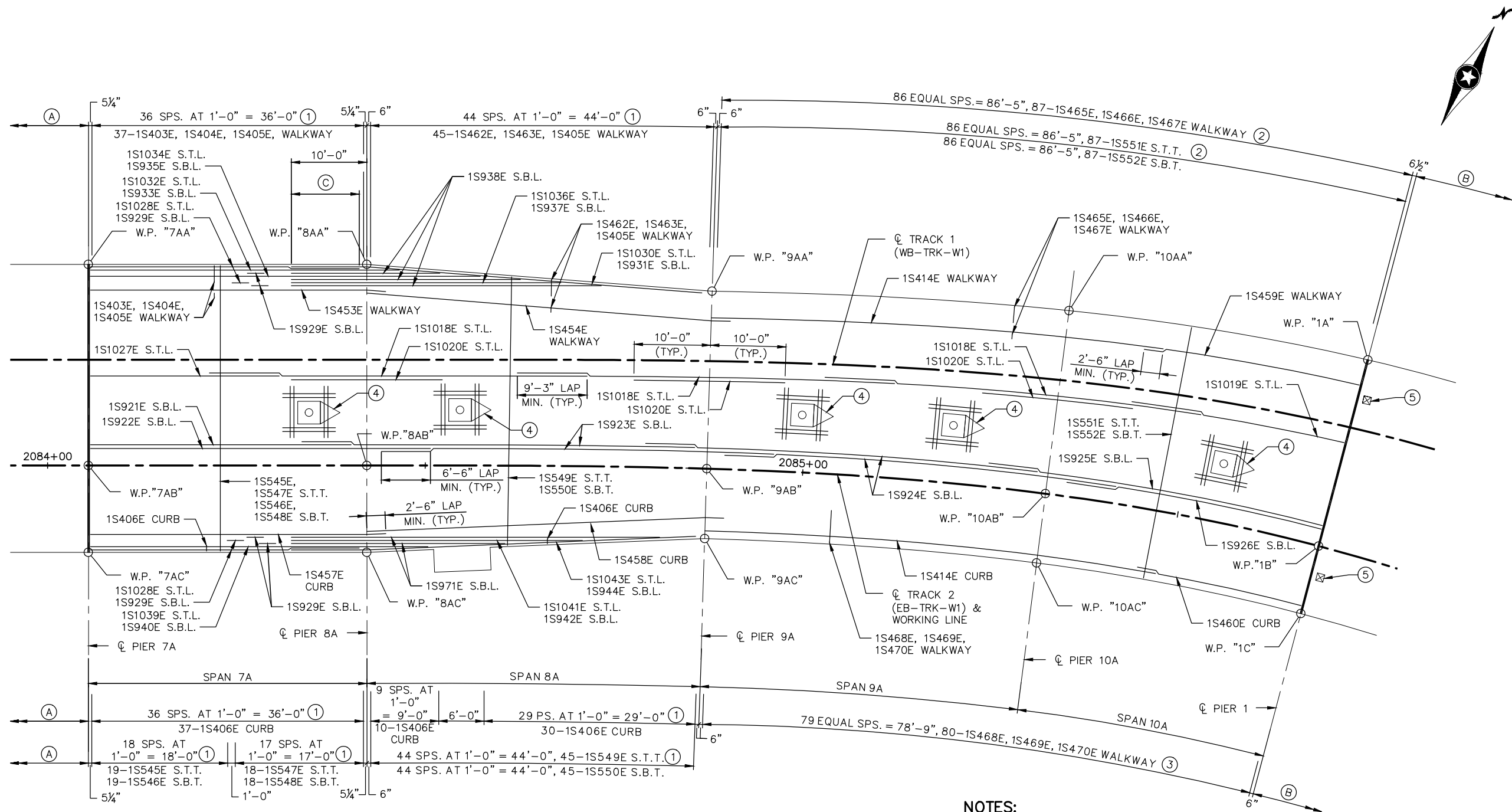
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 6 (SEGMENT A)

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-SUP-026

SHEET 129 OF 232

Jan, 19 2016 10:19 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-SUP-016.dwg By: butterflyda



- (A) FOR CONTINUATION REINFORCEMENT DETAIL, SEE SHEET 129.
- (B) FOR CONTINUATION REINFORCEMENT DETAIL, SEE SHEET 131.
- (C) 9'-3" LAP (TYP.) FOR #10.  
7'-3" LAP (TYP.) FOR #9.

**PARTIAL DECK REINFORCEMENT PLAN - SPAN 7A - 10A**  
(REINFORCED CONCRETE SLAB)

**NOTES:**

S.T.T. DENOTES SLAB TOP TRANSVERSE.  
S.B.T. DENOTES SLAB BOTTOM TRANSVERSE.  
S.T.L. DENOTES SLAB TOP LONGITUDINAL.  
S.B.L. DENOTES SLAB BOTTOM LONGITUDINAL.  
"1S" NOTATION IN BAR MARK DENOTES SEGMENT A.  
FOR TRANSVERSE SECTION SEE SHEETS 125 TO 127.  
FOR GEOMETRICS PLAN SEE SHEET 120.

- ① SPACINGS MEASURED ALONG  $\phi$  TRACK 2 (EB-TRK-W1).  
② SPACINGS MEASURED ALONG NORTH EDGE OF SLAB.  
③ SPACINGS MEASURED ALONG SOUTH EDGE OF SLAB.  
④ OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186.  
ALL BARS NOT SHOWN FOR CLARITY.  
⑤ STRAY CURRENT TEST STATION. SEE NOTE 7 ON SHEET 10.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ZA  
DRAWN BY: CL

CHECKED BY: BC  
CHECKED BY: AMA

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE REINF. 7 (SEGMENT A)**

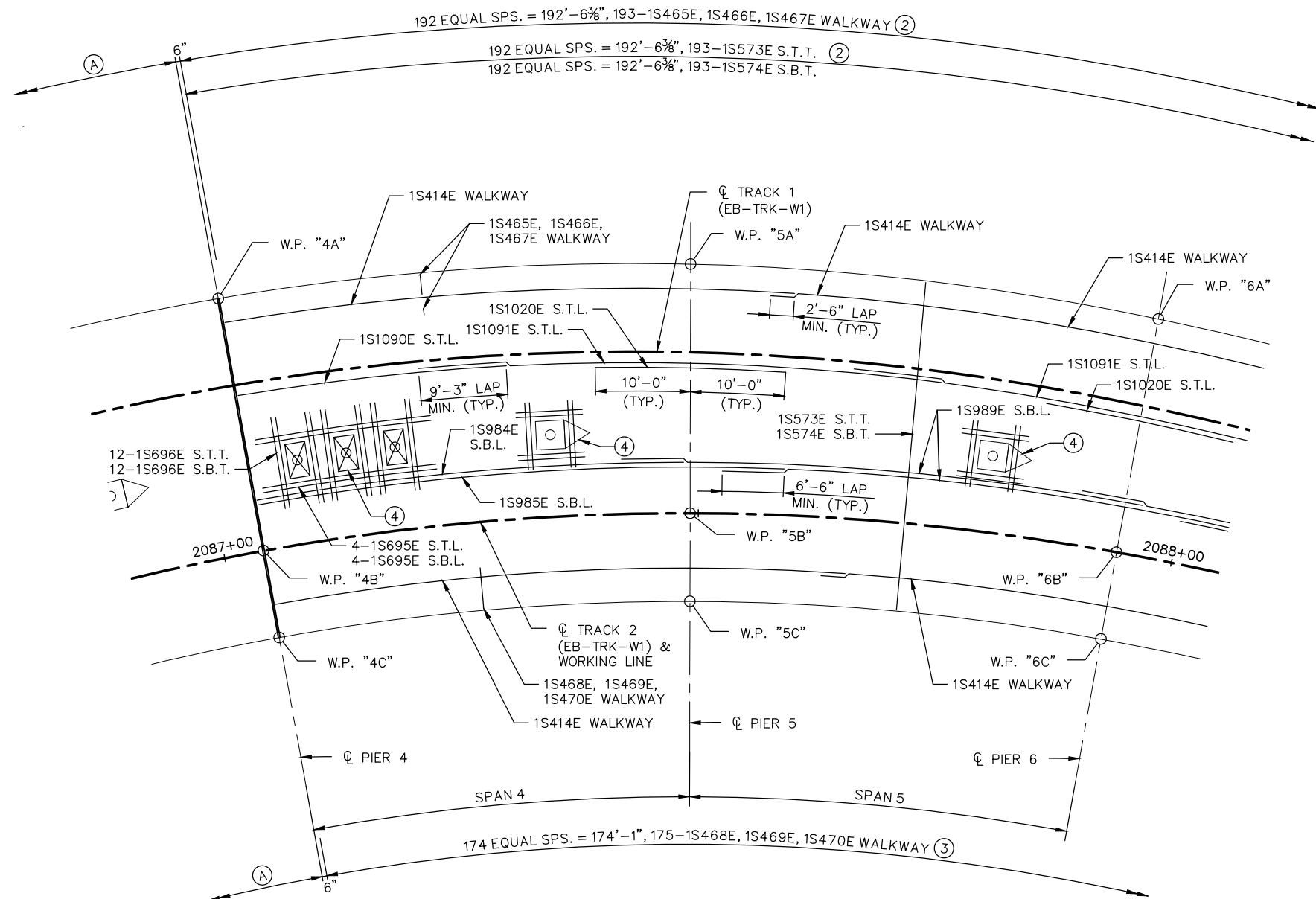
DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C06-BRG-SUP-027**

**SHEET**  
**130**  
**OF**  
**232**



Jan, 19 2016 10:20 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-020.dwg By: butterfield



(A) FOR CONTINUATION REINFORCEMENT DETAIL, SEE SHEET 131.

**PARTIAL DECK PLAN - SPAN 4 - 5**  
(REINFORCED CONCRETE SLAB)

**NOTES:**

- S.T.T. DENOTES SLAB TOP TRANSVERSE.
- S.B.T. DENOTES SLAB BOTTOM TRANSVERSE.
- S.T.L. DENOTES SLAB TOP LONGITUDINAL.
- S.B.L. DENOTES SLAB BOTTOM LONGITUDINAL.
- "1S" NOTATION IN BAR MARK DENOTES SEGMENT A.
- FOR TRANSVERSE SECTION SEE SHEET 127.
- FOR GEOMETRICS PLAN SEE SHEET 122.
- (1) SPACINGS MEASURED ALONG CL TRACK 2 (EB-TRK-W1).
- (2) SPACINGS MEASURED ALONG NORTH EDGE OF SLAB.
- (3) SPACINGS MEASURED ALONG SOUTH EDGE OF SLAB.
- (4) OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186. ALL BARS NOT SHOWN FOR CLARITY.
- (5) FOR BRIDGE DRAINS SEE SHEETS 122 AND 191.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ZA  
DRAWN BY: CL  
CHECKED BY: BC  
CHECKED BY: AMA

**AECOM**

90% SUBMISSION - 01/22/16



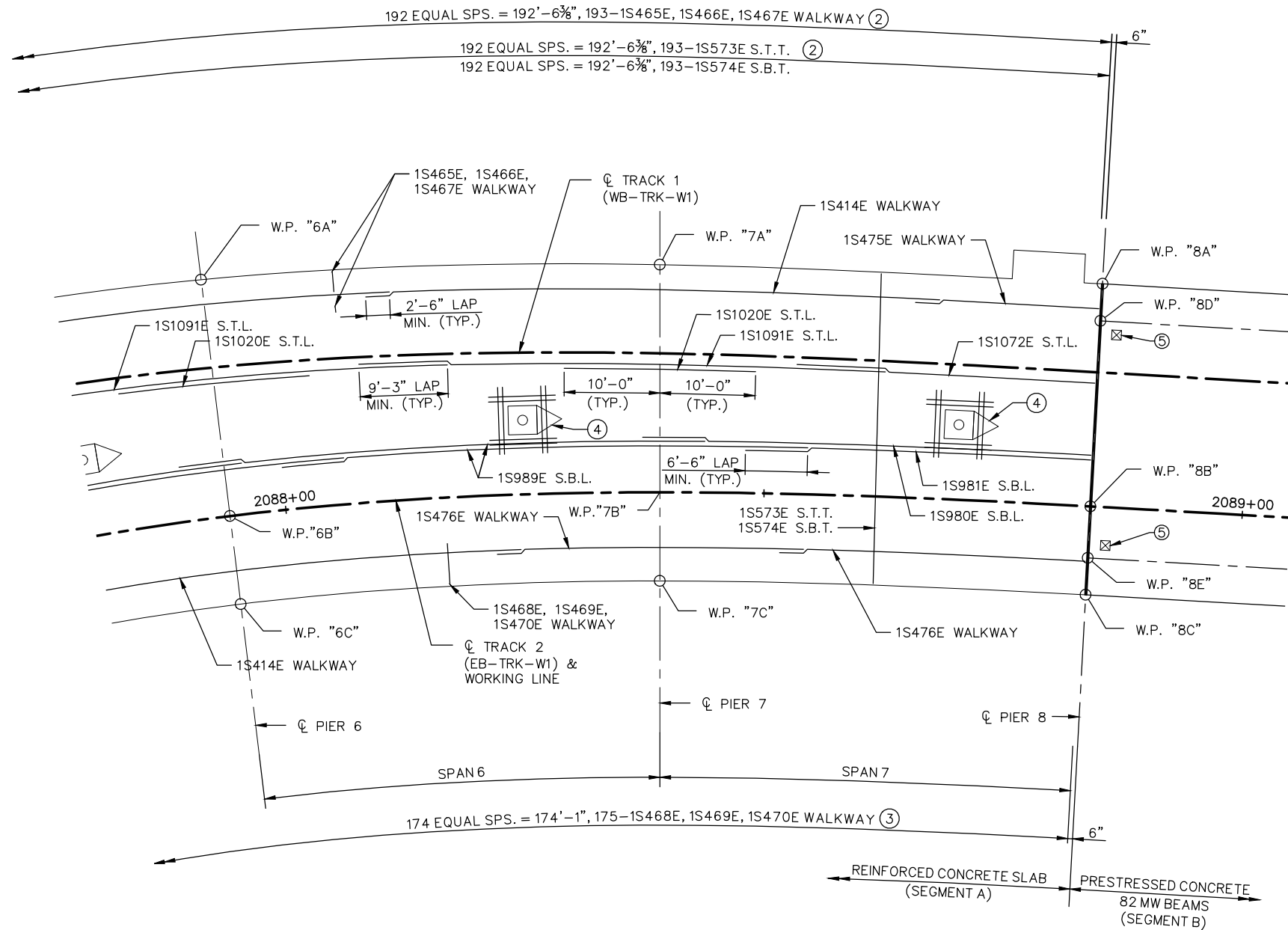
**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE REINF. 9 (SEGMENT A)**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C06-BRG-SUP-029**

**SHEET**  
**132**  
**OF**  
**232**

Jan, 19 2016 10:20 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-020.dwg By: butterfield



**PARTIAL DECK PLAN - SPAN 6 - 7**  
(REINFORCED CONCRETE SLAB)

- NOTES:**
- S.T.T. DENOTES SLAB TOP TRANSVERSE.
  - S.B.T. DENOTES SLAB BOTTOM TRANSVERSE.
  - S.T.L. DENOTES SLAB TOP LONGITUDINAL.
  - S.B.L. DENOTES SLAB BOTTOM LONGITUDINAL.
  - "1S" NOTATION IN BAR MARK DENOTES SEGMENT A.
  - FOR TRANSVERSE SECTION SEE SHEET 127.
  - FOR GEOMETRICS PLAN SEE SHEET 123.
  - (1) SPACINGS MEASURED ALONG CL TRACK 2 (EB-TRK-W1).
  - (2) SPACINGS MEASURED ALONG NORTH EDGE OF SLAB.
  - (3) SPACINGS MEASURED ALONG SOUTH EDGE OF SLAB.
  - (4) OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186. ALL BARS NOT SHOWN FOR CLARITY.
  - (5) STRAY CURRENT TEST STATION. SEE NOTE 7 ON SHEET 10.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: ZA  
DRAWN BY: CL

CHECKED BY: BC  
CHECKED BY: AMA

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE REINF. 10 (SEGMENT A)**

DISCIPLINE: **STRUCTURES**




SHEET NAME: **CBR27C06-BRG-SUP-030**

**SHEET**  
**133**  
**OF**  
**232**

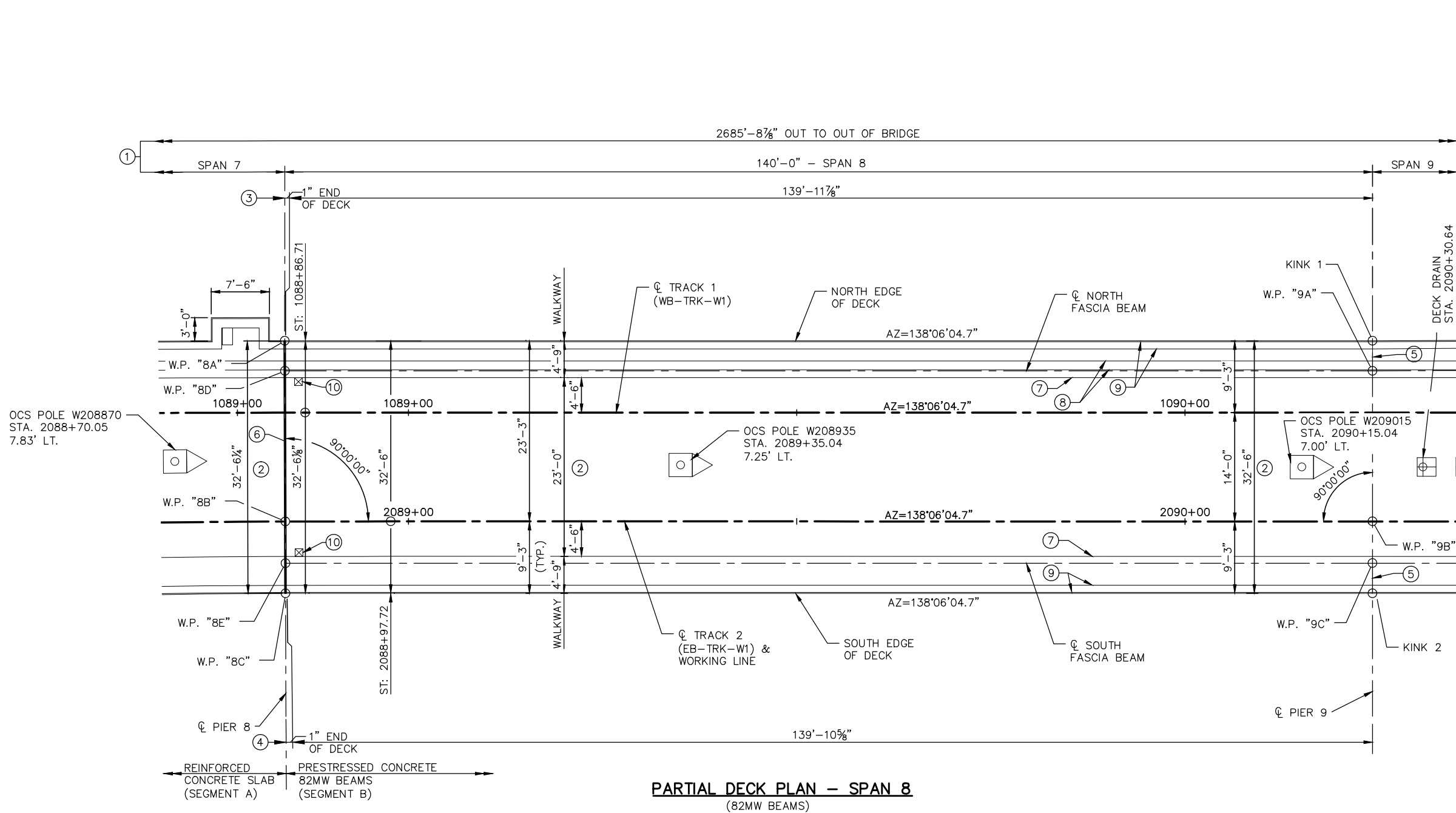
NO.	SERIES OF BARS
(A)	1 SERIES OF 2 BARS
(B)	1 SERIES OF 3 BARS
(C)	1 SERIES OF 32 BARS
(D)	1 SERIES OF 33 BARS
(E)	1 SERIES OF 34 BARS
(F)	1 SERIES OF 35 BARS
(G)	1 SERIES OF 36 BARS
(H)	1 SERIES OF 37 BARS
(I)	1 SERIES OF 39 BARS
(J)	1 SERIES OF 42 BARS
(K)	1 SERIES OF 44 BARS
(L)	1 SERIES OF 45 BARS
(M)	1 SERIES OF 87 BARS
(N)	1 SERIES OF 113 BARS
(O)	1 SERIES OF 193 BARS

BAR	NO.	LENGTH	SHAPE	LOCATION
1S501E	255	37'-9"	————	SLAB TOP TRANSVERSE
1S502E	255	37'-6"	————	SLAB BOTTOM TRANSVERSE
1S403E	292	5'-5"	└──	WALKWAY TRANSVERSE
1S404E	292	3'-2"	└──	WALKWAY TRANSVERSE
1S405E	337	5'-1"	└──	WALKWAY TRANSVERSE
1S406E	332	6'-2"	└──	CURB TRANSVERSE
1S907E	39	26'-0"	————	SLAB TOP LONGITUDINAL
1S908E	195	50'-0"	————	SLAB TOP LONGITUDINAL
1S909E	275	20'-0"	————	SLAB TOP LONGITUDINAL
1S910E	39	44'-6"	————	SLAB BOTTOM LONGITUDINAL
1S911E	38	55'-0"	————	SLAB BOTTOM LONGITUDINAL
1S912E	308	48'-0"	————	SLAB BOTTOM LONGITUDINAL
1S413E	13	24'-9"	————	WALKWAY/CURB LONGITUDINAL
1S414E	141	60'-0"	————	WALKWAY/CURB LONGITUDINAL
1S915E	39	22'-3"	————	SLAB TOP LONGITUDINAL
1S916E	39	50'-9"	————	SLAB BOTTOM LONGITUDINAL
1S917E	38	40'-3"	————	SLAB BOTTOM LONGITUDINAL
1S1018E	121	50'-0"	————	SLAB TOP LONGITUDINAL
1S1019E	(J)	23'-0" TO 32'-0"	————	SLAB TOP LONGITUDINAL
1S1020E	244	20'-0"	————	SLAB TOP LONGITUDINAL
1S921E	33	34'-6"	————	SLAB BOTTOM LONGITUDINAL
1S922E	32	45'-0"	————	SLAB BOTTOM LONGITUDINAL
1S923E	65	52'-0"	————	SLAB BOTTOM LONGITUDINAL
1S924E	67	52'-0"	————	SLAB BOTTOM LONGITUDINAL
1S925E	(F)	42'-3" TO 51'-0"	————	SLAB BOTTOM LONGITUDINAL
1S926E	(E)	31'-9" TO 40'-6"	————	SLAB BOTTOM LONGITUDINAL
1S1027E	40	25'-0"	————	SLAB TOP LONGITUDINAL
1S1028E	4	36'-0"	————	SLAB TOP LONGITUDINAL
1S929E	9	34'-0"	————	SLAB BOTTOM LONGITUDINAL
1S1030E	1	54'-6"	————	SLAB TOP LONGITUDINAL
1S931E	1	54'-6"	————	SLAB BOTTOM LONGITUDINAL
1S1032E	1	41'-0"	————	SLAB TOP LONGITUDINAL
1S933E	1	41'-0"	————	SLAB BOTTOM LONGITUDINAL
1S1034E	1	51'-9"	————	SLAB TOP LONGITUDINAL
1S935E	1	51'-9"	————	SLAB BOTTOM LONGITUDINAL
1S1036E	1	35'-9"	————	SLAB TOP LONGITUDINAL
1S937E	1	35'-9"	————	SLAB BOTTOM LONGITUDINAL
1S938E	(B)	19'-9" TO 41'-0"	————	SLAB BOTTOM LONGITUDINAL
1S1039E	1	44'-9"	————	SLAB TOP LONGITUDINAL
1S940E	1	44'-9"	————	SLAB BOTTOM LONGITUDINAL
1S1041E	1	38'-6"	————	SLAB TOP LONGITUDINAL
1S942E	1	38'-6"	————	SLAB BOTTOM LONGITUDINAL
1S1043E	1	53'-6"	————	SLAB TOP LONGITUDINAL
1S944E	1	53'-6"	————	SLAB BOTTOM LONGITUDINAL
1S545E	19	37'-9"	————	SLAB TOP TRANSVERSE
1S546E	19	37'-6"	————	SLAB BOTTOM TRANSVERSE
1S547E	18	37'-9"	————	SLAB TOP TRANSVERSE
1S548E	18	37'-6"	————	SLAB BOTTOM TRANSVERSE
1S549E	(L)	37'-9" TO 32'-5"	————	SLAB TOP TRANSVERSE
1S550E	(L)	37'-6" TO 32'-2"	————	SLAB BOTTOM TRANSVERSE
1S551E	(M)	32'-5" TO 34'-5"	————	SLAB TOP TRANSVERSE
1S552E	(M)	32'-2" TO 34'-2"	————	SLAB BOTTOM TRANSVERSE
1S453E	9	39'-2"	————	WALKWAY LONGITUDINAL

[illegible]

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL					 		CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 SUPERSTRUCTURE REINF. 11 (SEGMENT A)		SHEET
														134
														OF
														232

Jan, 19 2016 10:21 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-006.dwg By: butterfielda



PARTIAL DECK PLAN - SPAN 8  
(82MW BEAMS)

NOTES:

- ① MEASURED ALONG  $\phi$  TRACK 2 (EB-TRK-W1).

② DECK SPAN MEASURED ALONG  $\phi$  PIER.

③ MEASURED ALONG NORTH EDGE OF SLAB.

④ MEASURED ALONG SOUTH EDGE OF SLAB.
- ⑤ WALKWAY CONTROL JOINT LOCATION AT  $\phi$  PIER.

⑥ BRIDGE EXPANSION JOINT LOCATION AT  $\phi$  PIER.

⑦ EDGE OF WALKWAY.

⑧ EDGE OF 14" EXPRESS TROUGH COVER.

⑨ EDGE OF 11" CURB.

⑩ STRAY CURRENT TEST STATION. SEE NOTE 7 ON SHEET 10.

KINK 1  
KINK  
STA 2090+24.14  
23.25' LT  
X=485099.8023  
Y=125167.9520

KINK 2  
KINK  
STA 2090+24.14  
9.25' RT  
X= 485075.6117  
Y= 125146.2480

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: ALB	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE GEOM. 1 (SEGMENT B)

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-SUP-032

SHEET  
135  
OF  
232



Jan, 19 2016 10:21 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-006.dwg By: butterfielda



KINK 1
KINK
STA 2090+24.14
23.25' LT
X=485099.8023
Y=125167.9520

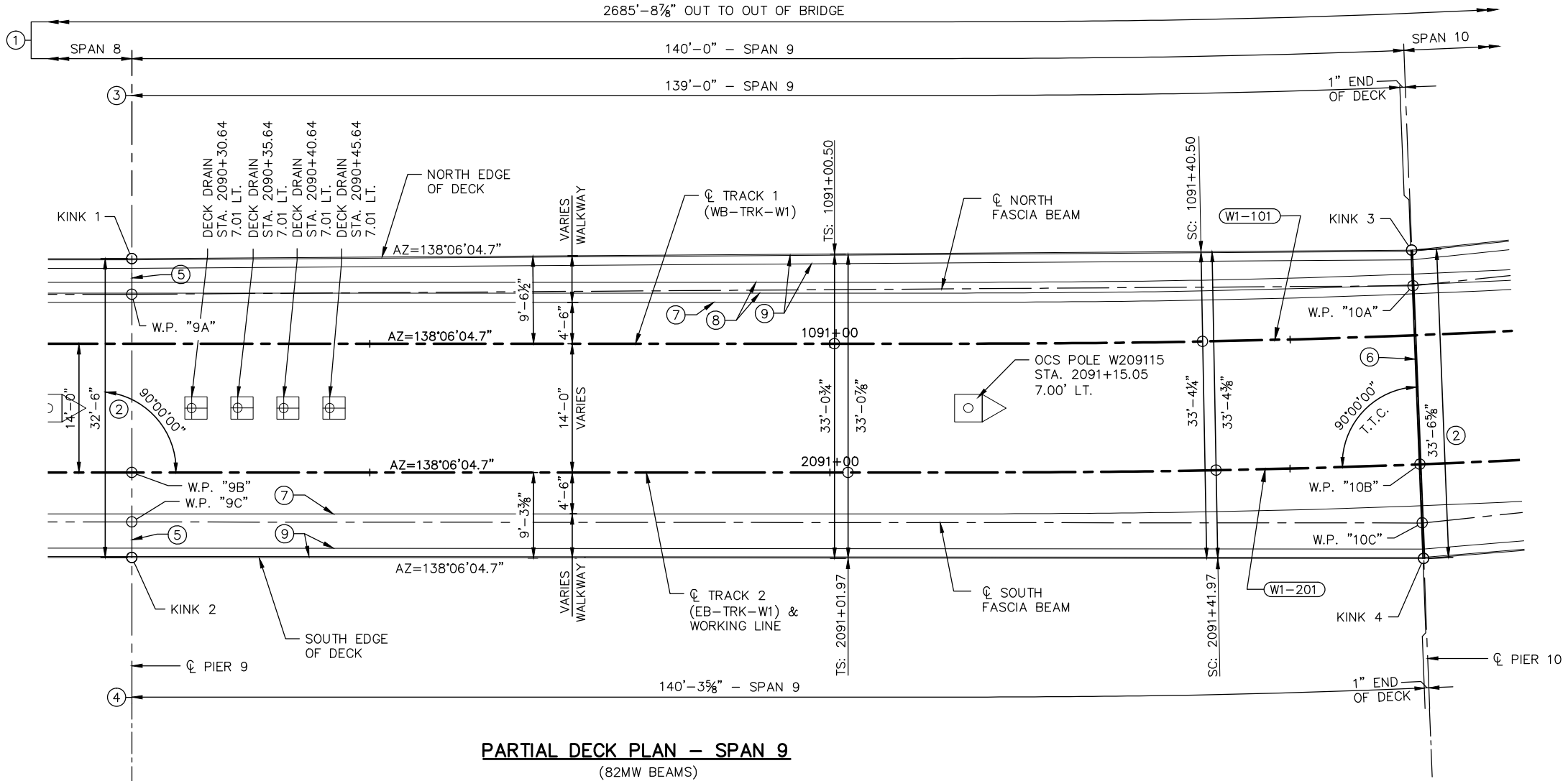
KINK 2
KINK
STA 2090+24.14
9.25' RT
X= 485075.6117
Y= 125146.2480

CURVE NO. W1-101
R = 1080'
Lc = 185.18'
Ls = 40'
Ea = 1.00"
Eu = 1.29"
V = 25 MPH

KINK 3
KINK
STA 2091+64.14
23.31' LT
X= 485193.3690
Y= 125065.0475

KINK 4
KINK
STA 2091+64.14
10.25' RT
X= 485169.2888
Y= 125041.6828

CURVE NO. W1-201
R = 1080'
Lc = 185.18'
Ls = 40'
Ea = 1.00"
Eu = 1.29"
V = 25 MPH



PARTIAL DECK PLAN - SPAN 9  
(82MW BEAMS)

NOTES:

T.T.C. DENOTES TANGENT TO CURVE.

- ① MEASURED ALONG  $\phi$  TRACK 2 (EB-TRK-W1).
- ② DECK SPAN MEASURED ALONG  $\phi$  PIER.
- ③ MEASURED ALONG NORTH EDGE OF SLAB.
- ④ MEASURED ALONG SOUTH EDGE OF SLAB.
- ⑤ WALKWAY CONTROL JOINT LOCATION AT  $\phi$  PIER.
- ⑥ BRIDGE EXPANSION JOINT LOCATION AT  $\phi$  PIER.
- ⑦ EDGE OF WALKWAY.
- ⑧ EDGE OF 14" EXPRESS TROUGH COVER.
- ⑨ EDGE OF 11" CURB.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: ALB	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE GEOM. 2 (SEGMENT B)

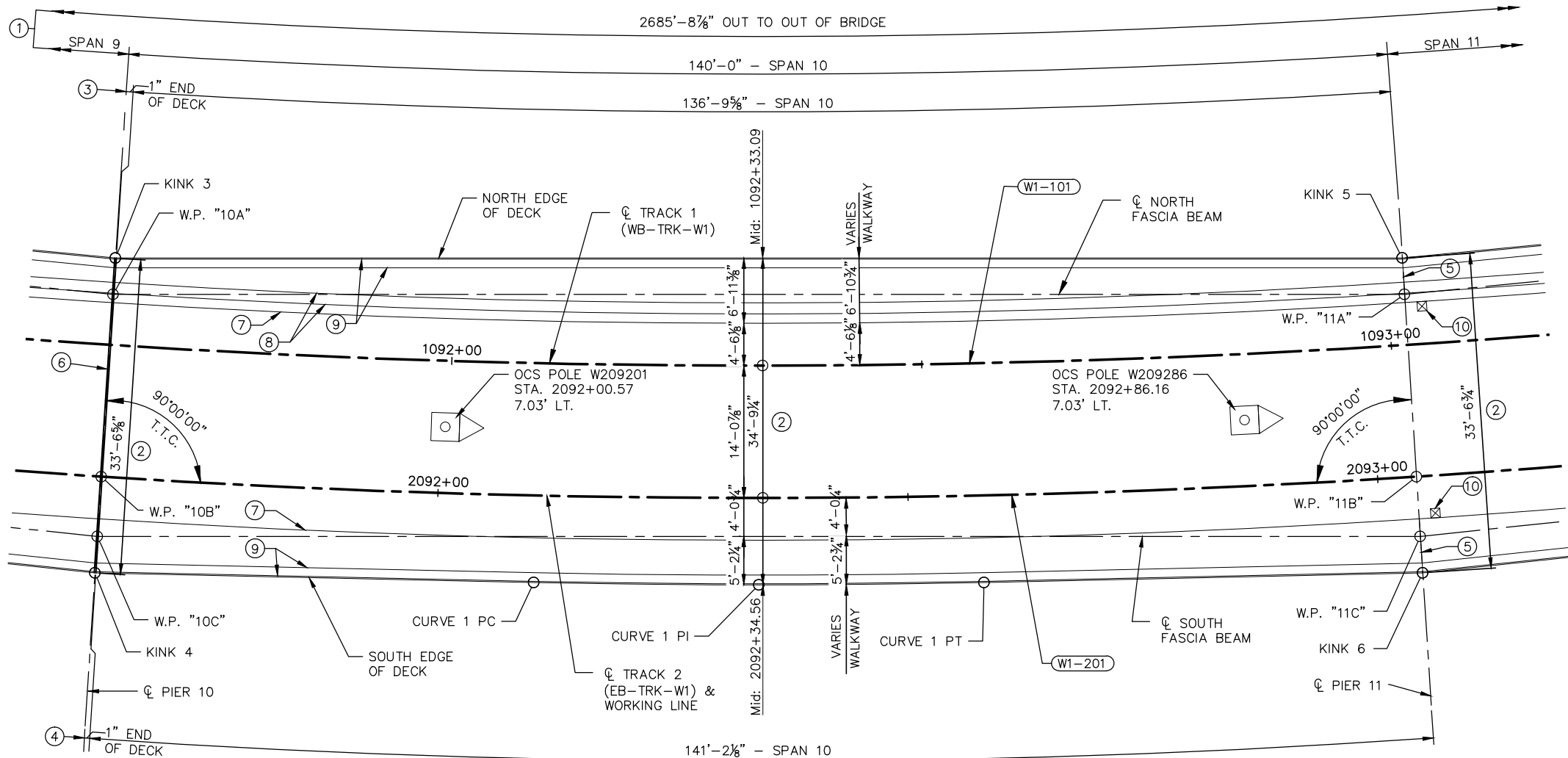
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-033

Jan, 19 2016 10:21 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-006.dwg By: butterfielda

KINK 3
KINK
STA 2091+64.14
23.31' LT
X= 485193.3690
Y= 125065.0475

KINK 4
KINK
STA 2091+64.14
10.25' RT
X= 485169.2888
Y= 125041.6828



PARTIAL DECK PLAN - SPAN 10  
(82MW BEAMS)

CURVE 1 RAD = 1089.25'		
PC	PI	PT
STA 2092+10.40'	STA 2092+34.14	STA 2092+57.88
9.25' RT	9.25' RT	9.25' RT
X= 485203.2007	X= 485220.7737	X= 485238.6998
Y= 125009.5984	Y= 124993.3370	Y= 124977.4658

NOTES:

T.T.C. DENOTES TANGENT TO CURVE.

- ① MEASURED ALONG  $\phi$  TRACK 2 (EB-TRK-W1).  
② DECK SPAN MEASURED ALONG  $\phi$  PIER.

- ③ MEASURED ALONG NORTH EDGE OF SLAB.  
④ MEASURED ALONG SOUTH EDGE OF SLAB.  
⑤ WALKWAY CONTROL JOINT LOCATION AT  $\phi$  PIER.  
⑥ BRIDGE EXPANSION JOINT LOCATION AT  $\phi$  PIER.

- ⑦ EDGE OF WALKWAY.  
⑧ EDGE OF 14" EXPRESS TROUGH COVER.  
⑨ EDGE OF 11" CURB.  
⑩ STRAY CURRENT TEST STATION. SEE NOTE 8 ON SHEET 10.

CURVE NO. W1-101
R = 1080'
Lc = 185.18'
Ls = 40'
Ea = 1.00"
Eu = 1.29"
V = 25 MPH

KINK 5
KINK
STA 2093+04.14
23.31' LT
X= 485294.8574
Y= 124973.1915

KINK 6
KINK
STA 2093+04.14
10.25' RT
X= 485273.9940
Y= 124946.9029

CURVE NO. W1-201
R = 1080'
Lc = 185.18'
Ls = 40'
Ea = 1.00"
Eu = 1.29"
V = 25 MPH

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: ALB	CHECKED BY: ATN

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE GEOM. 3 (SEGMENT B)

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-034

SHEET  
137  
OF  
232

Jan, 19 2016 10:21 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-006.dwg By: butterfly

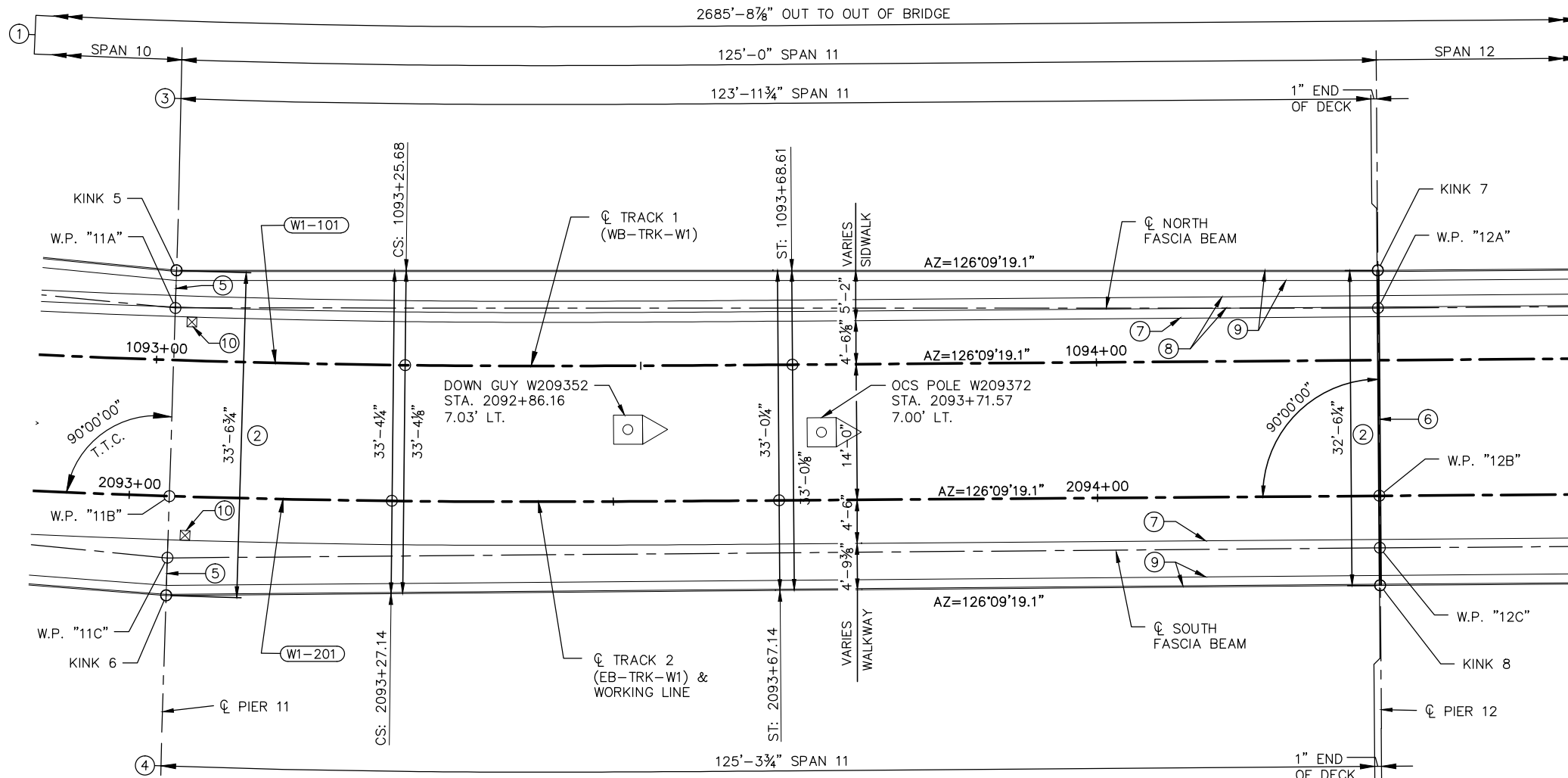


CURVE NO. W1-101
R = 1080'
Lc = 185.18'
Ls = 40'
Ea = 1.00"
Eu = 1.29"
V = 25 MPH

KINK 5
KINK
STA 2093+04.14
23.31' LT
X= 485294.8574
Y= 124973.1915

KINK 6
KINK
STA 2093+04.14
10.25' RT
X= 485273.9940
Y= 124946.9029

CURVE NO. W1-201
R = 1080'
Lc = 185.18'
Ls = 40'
Ea = 1.00"
Eu = 1.29"
V = 25 MPH



PARTIAL DECK PLAN - SPAN 11  
(82MW BEAMS)

**NOTES:**

T.T.C. DENOTES TANGENT TO CURVE.

- |  |   |   |
|--|---|---|
| ① MEASURED ALONG $\phi$ TRACK 2 (EB-TRK-W1). | ③ MEASURED ALONG NORTH EDGE OF SLAB.              | ⑦ EDGE OF WALKWAY.                                    |
| ② DECK SPAN MEASURED ALONG $\phi$ PIER.      | ④ MEASURED ALONG SOUTH EDGE OF SLAB.              | ⑧ EDGE OF 14" EXPRESS TROUGH COVER.                   |
|  | ⑤ WALKWAY CONTROL JOINT LOCATION AT $\phi$ PIER.  | ⑨ EDGE OF 11" CURB.                                   |
|  | ⑥ BRIDGE EXPANSION JOINT LOCATION AT $\phi$ PIER. | ⑩ STRAY CURRENT TEST STATION. SEE NOTE 8 ON SHEET 10. |

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: ALB	CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



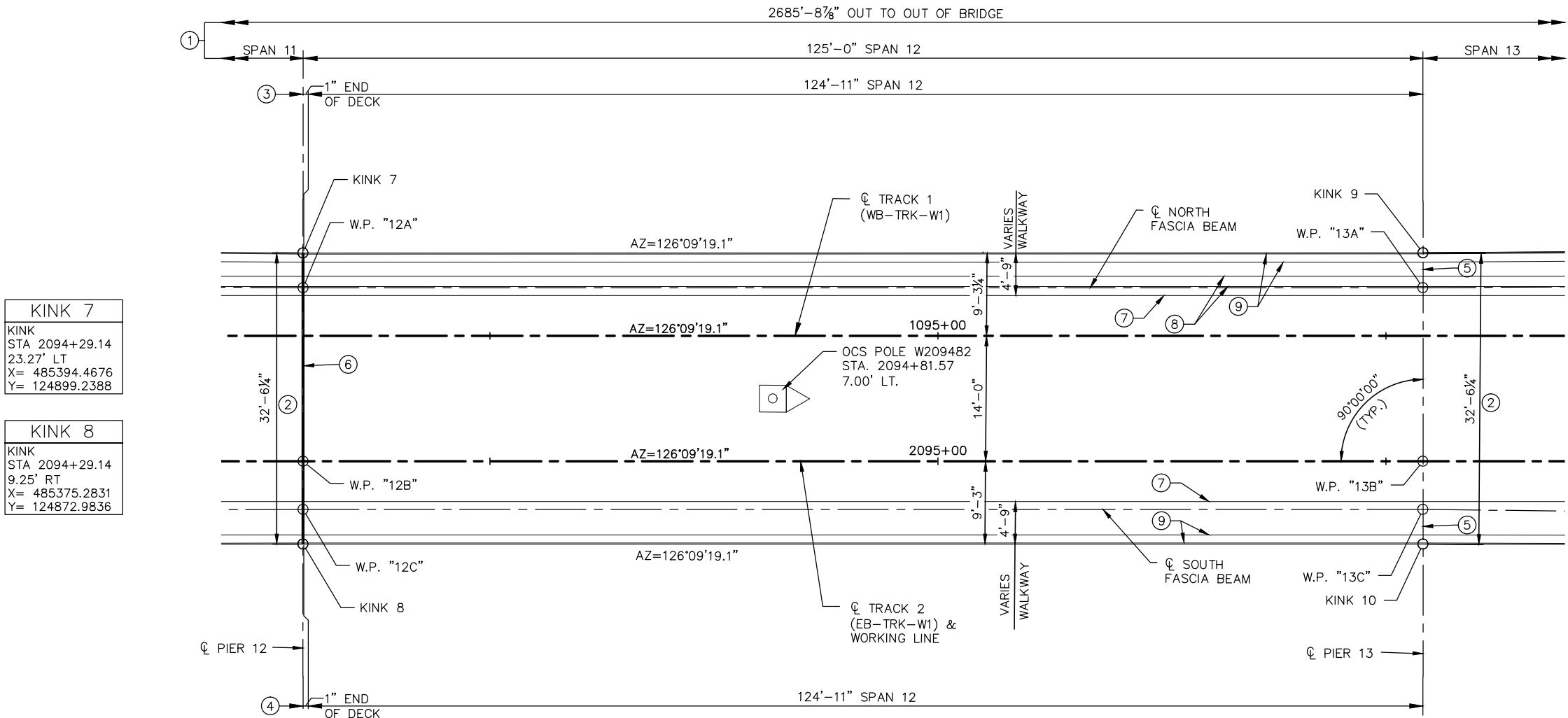
**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE GEOM. 4 (SEGMENT B)**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C06-BRG-SUP-035**

**SHEET  
138  
OF  
232**

Jan, 19 2016 10:21 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-006.dwg By: butterfielda



KINK 7
KINK
STA 2094+29.14
23.27' LT
X= 485394.4676
Y= 124899.2388

KINK 8
KINK
STA 2094+29.14
9.25' RT
X= 485375.2831
Y= 124872.9836

KINK 9
KINK
STA 2095+54.14
23.27' LT
X= 485495.3983
Y= 124825.4960

KINK 10
KINK
STA 2095+54.14
9.25' RT
X= 485476.2107
Y= 124799.2366

**PARTIAL DECK PLAN - SPAN 12**  
(82MW BEAMS)

**NOTES:**

- ① MEASURED ALONG  $\phi$  TRACK 2 (EB-TRK-W1).
- ② DECK SPAN MEASURED ALONG  $\phi$  PIER.
- ③ MEASURED ALONG NORTH EDGE OF SLAB.
- ④ MEASURED ALONG SOUTH EDGE OF SLAB.
- ⑤ WALKWAY CONTROL JOINT LOCATION AT  $\phi$  PIER.
- ⑥ BRIDGE EXPANSION JOINT LOCATION AT  $\phi$  PIER.
- ⑦ EDGE OF WALKWAY.
- ⑧ EDGE OF 14" EXPRESS TROUGH COVER.
- ⑨ EDGE OF 11" CURB.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: ALB	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE GEOM. 5 (SEGMENT B)**

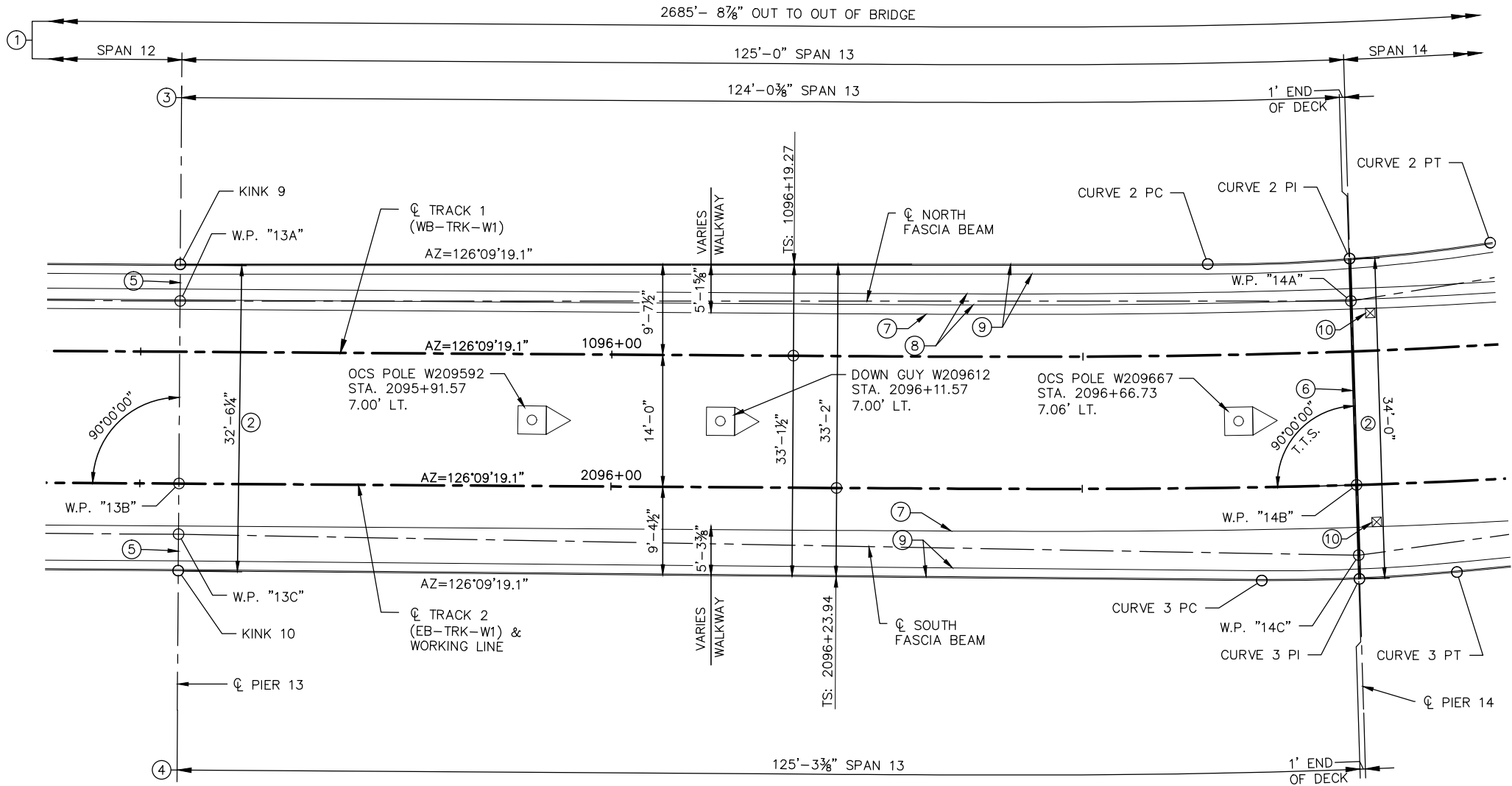
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-036

Jan, 19 2016 10:21 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-006.dwg By: butterfielda

KINK 9
KINK
STA 2095+54.14
23.27' LT
X= 485495.3983
Y= 124825.4960

KINK 10
KINK
STA 2095+54.14
9.25' RT
X= 485476.2107
Y= 124799.2366



PARTIAL DECK PLAN - SPAN 13  
(82MW BEAMS)

NOTES:

- T.T.S. DENOTES TANGENT TO SPIRAL.
- ① MEASURED ALONG  $\phi$  TRACK 2 (EB-TRK-W1).
  - ② DECK SPAN MEASURED ALONG  $\phi$  PIER.
  - ③ MEASURED ALONG NORTH EDGE OF SLAB.
  - ④ MEASURED ALONG SOUTH EDGE OF SLAB.
  - ⑤ WALKWAY CONTROL JOINT LOCATION AT  $\phi$  PIER.
  - ⑥ BRIDGE EXPANSION JOINT LOCATION AT  $\phi$  PIER.
  - ⑦ EDGE OF WALKWAY.
  - ⑧ EDGE OF 14" EXPRESS TROUGH COVER.
  - ⑨ EDGE OF 11" CURB.
  - ⑩ STRAY CURRENT TEST STATION. SEE NOTE 7 ON SHEET 10.

CURVE 2 RAD = 200'		
PC	PI	PT
STA 2096+63.64	STA 2096+79.14	STA 2096+94.72
23.77' LT	24.02' LT	25.09' LT
X= 485583.8761	X= 485596.4328	X= 485609.5370
Y= 124761.7718	Y= 124753.4284	Y= 124746.0777

CURVE 3 RAD = 200'		
PC	PI	PT
STA 2096+68.89	STA 2096+79.14	STA 2096+89.35
9.90' RT	9.98' RT	9.66' RT
X= 485568.8964	X= 485577.4086	X= 485586.2161
Y= 124731.1648	Y= 124725.2465	Y= 124719.7773

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: ALB	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE GEOM. 6 (SEGMENT B)

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-SUP-037

SHEET 140 OF 232

Jan, 19 2016 10:22 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-006.dwg By: butterfielda

CURVE 2 RAD = 200'		
PC STA 2096+63.64 23.77' LT X= 485583.8761 Y= 124761.7718	PI STA 2096+79.14 24.02' LT X= 485596.4328 Y= 124753.4284	PT STA 2096+94.72 25.09' LT X= 485609.5370 Y= 124746.0777

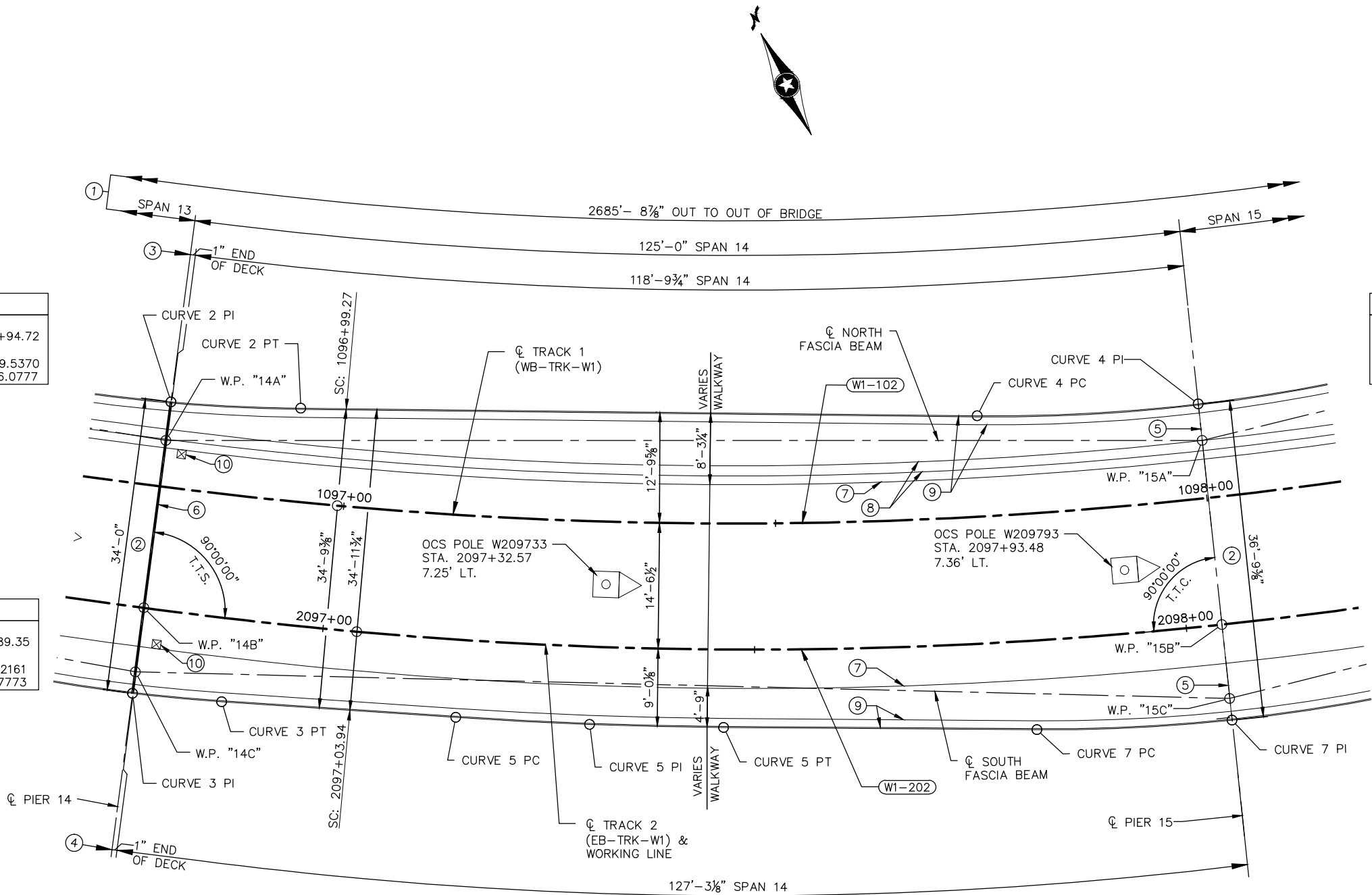
CURVE 3 RAD = 200'		
PC STA 2096+68.89 9.90' RT X= 485568.8964 Y= 124731.1648	PI STA 2096+79.14 9.98' RT X= 485577.4086 Y= 124725.2465	PT STA 2096+89.35 9.66' RT X= 485586.2161 Y= 124719.7773

CURVE NO. W1-102	
R =	510'
Lc =	248.27'
Ls =	80'
Ea =	2.25"
Eu =	2.60"
V =	25 MPH

CURVE 4 RAD = 200'		
PC STA 2097+77.17 26.36' LT X= 485679.1643 Y= 124710.3908	PI STA 2098+04.14 25.67' LT X= 485702.6511 Y= 124698.1944	PT STA 2098+31.07 26.90' LT X= 485727.2144 Y= 124693.0900

CURVE NO. W1-202	
R =	510'
Lc =	248.27'
Ls =	80'
Ea =	2.25"
Eu =	2.60"
V =	25 MPH

CURVE 5 RAD = 519.25'		
PC STA 2098+61.79 9.12' RT X= 485746.5630 Y= 124650.2765	PI STA 2098+76.20 9.14' RT X= 485760.8442 Y= 124646.9342	PT STA 2098+90.61 9.15' RT X= 485775.2142 Y= 124643.9966
CURVE 7 RAD = 200'		
PC STA 2097+82.03 10.31' LT X= 485669.1420 Y= 124674.7948	PI STA 2098+04.14 11.12' LT X= 485689.8273 Y= 124665.7173	PT STA 2098+26.25 10.35' LT X= 485711.4044 Y= 124659.0304



PARTIAL DECK PLAN - SPAN 14  
(82MW BEAMS)

NOTES:

T.T.S. DENOTES TANGENT TO SPIRAL.  
T.T.C. DENOTES TANGENT TO CURVE.

- ① MEASURED ALONG  $\phi$  TRACK 2 (EB-TRK-W1).  
② DECK SPAN MEASURED ALONG  $\phi$  PIER.

- ③ MEASURED ALONG NORTH EDGE OF SLAB.  
④ MEASURED ALONG SOUTH EDGE OF SLAB.  
⑤ WALKWAY CONTROL JOINT LOCATION AT  $\phi$  PIER.  
⑥ BRIDGE EXPANSION JOINT LOCATION AT  $\phi$  PIER.

- ⑦ EDGE OF WALKWAY.  
⑧ EDGE OF 14" EXPRESS TROUGH COVER.  
⑨ EDGE OF 11" CURB.  
⑩ STRAY CURRENT TEST STATION. SEE NOTE 7 ON SHEET 10.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: ALB	CHECKED BY: ATN

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE GEOM. 7 (SEGMENT B)

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-038

SHEET  
141  
OF  
232

CURVE NO. W1-102
R = 510'
Lc = 248.27'
Ls = 80'
Ea = 2.25"
Eu = 2.60"
V = 25 MPH

CURVE 4 RAD = 200'		
PC	PI	PT
STA 2097+77.17	STA. 2098+04.14	STA 2098+31.07
26.36' LT	25.67' LT	26.90' LT
X= 485679.1643	X= 485702.6511	X= 485727.2144
Y= 124710.3908	Y= 124698.1944	Y= 124693.0900

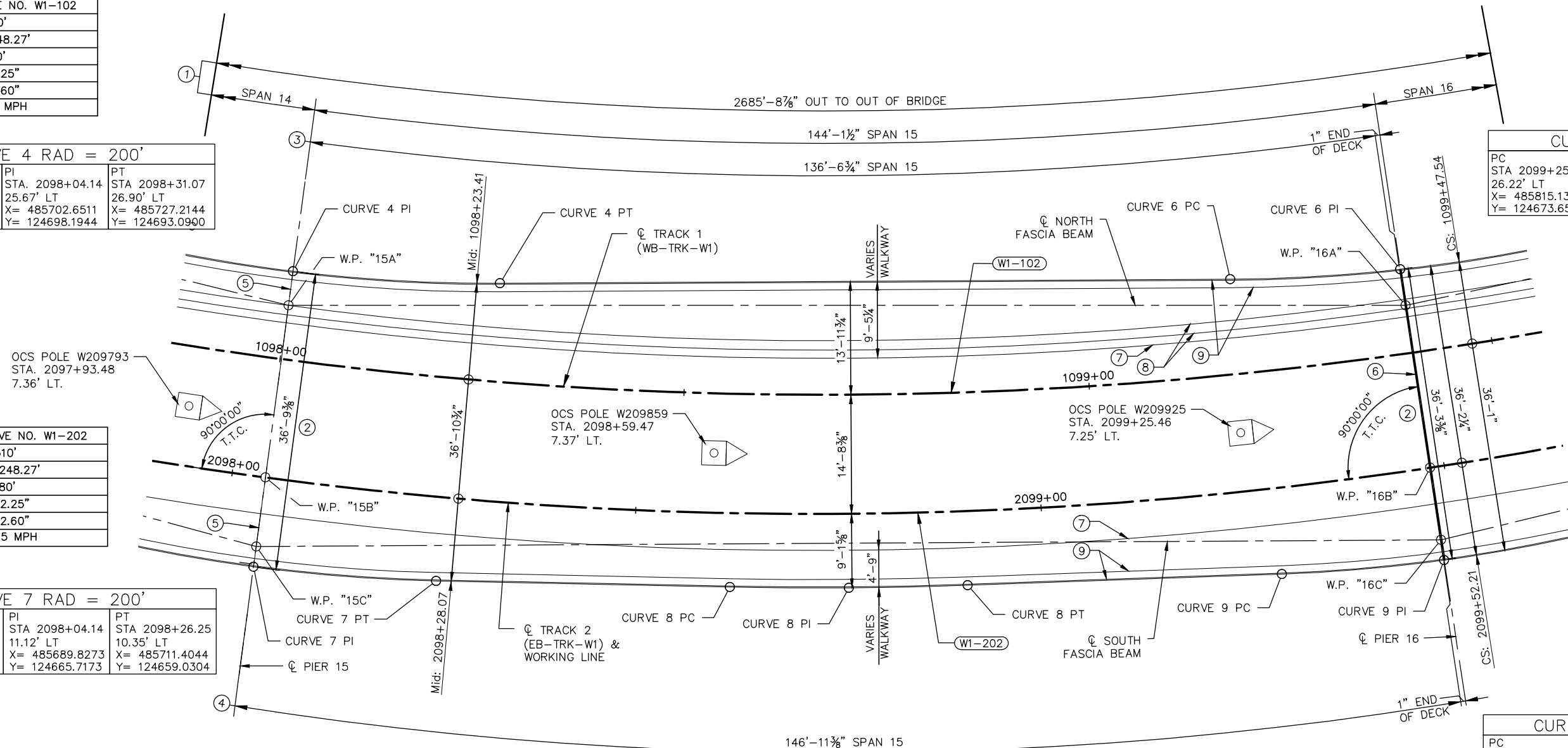
CURVE NO. W1-202
R = 510'
Lc = 248.27'
Ls = 80'
Ea = 2.25"
Eu = 2.60"
V = 25 MPH

CURVE 7 RAD = 200'		
PC STA 2097+82.03 10.31' LT	PI STA 2098+04.14 11.12' LT	PT STA 2098+26.25 10.35' LT
X = 485669.1420	X = 485689.8273	X = 485711.4044
Y = 124674.7948	Y = 124665.7173	Y = 124659.0304

CURVE 6 RAD = 200'		
PC	PI	PT
STA 2099+25.19	STA 2099+48.26	STA 2099+70.38
26.22' LT	24.75' LT	24.61' LT
X= 485815.1328	X= 485835.8599	X= 485856.9745
Y= 124673.6528	Y= 124670.2009	Y= 124668.9416

CURVE 8 RAD = 519.25'		
PC STA 2098+61.79 9.12' LT	PI STA 2098+76.20 9.14' LT	PT STA 2098+90.61 9.15' LT
X= 485746.5630 Y= 124650.2765	X= 485760.8442 Y= 124646.9342	X= 485775.2142 Y= 124643.9966

CURVE 9 RAD = 200'		
PC STA 2099+28.63 10.63' LT X= 485813.3048 Y= 124636.7688	PI STA 2099+48.26' 11.53' LT X= 485833.1944 Y= 124633.0204	PT STA 2099+67.94 11.16' LT X= 485853.2695 Y= 124633.2805



**PARTIAL DECK PLAN – SPAN 15**  
(82MW BEAMS)

NOTES:

T.T.C. DENOTES TANGENT TO CURVE.

- |  |  |                                     |
|--|--|-------------------------------------|
| T.T.C. DENOTES TANGENT TO CURVE.                       | ③ MEASURED ALONG NORTH EDGE OF SLAB.                     | ⑦ EDGE OF WALKWAY.                  |
| ① MEASURED ALONG $\mathcal{C}$ TRACK 2<br>(EB-TRK-W1). | ④ MEASURED ALONG SOUTH EDGE OF SLAB.                     | ⑧ EDGE OF 14" EXPRESS TROUGH COVER. |
| ② DECK SPAN MEASURED ALONG<br>$\mathcal{C}$ PIER.      | ⑤ WALKWAY CONTROL JOINT LOCATION AT $\mathcal{C}$ PIER.  | ⑨ EDGE OF 11" CURB.                 |
|  | ⑥ BRIDGE EXPANSION JOINT LOCATION AT $\mathcal{C}$ PIER. |                                     |

[illegible]

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: ALB	CHECKED BY: ATN

**AECOM**

**90% SUBMISSION - 01/22/16**



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE GEOM. 8 (SEGMENT B)**

DISCIPLINE: **STRUCTURES**

SHEET NAME:	CBR27C06-BRG-SUP-039
-------------	----------------------

**SHEET**  
**142**  
**OF**  
**232**

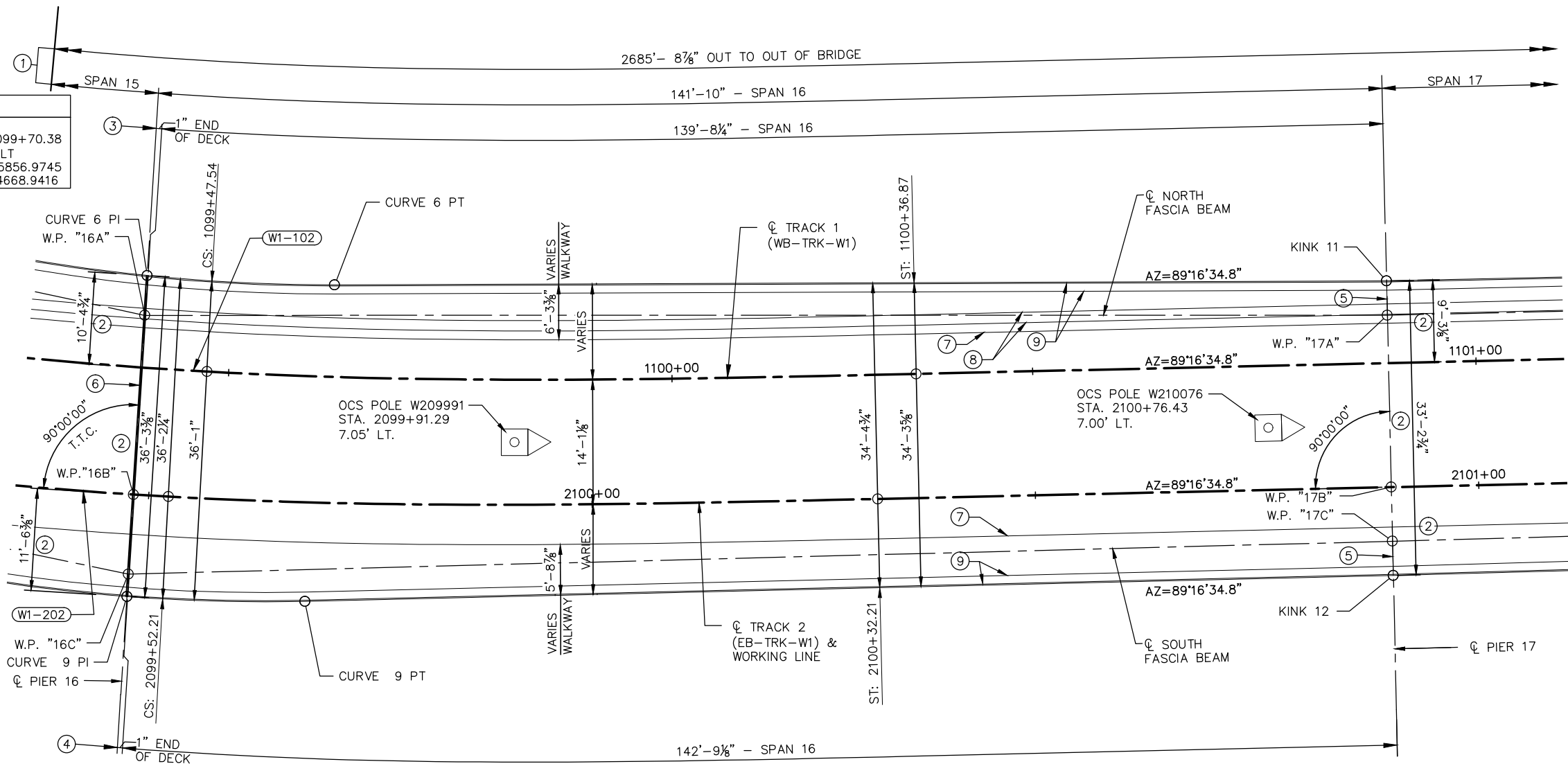
Jan, 19 2016 10:22 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-006.dwg By: butterfield

CURVE 6 RAD = 200'		
PC STA 2099+25.19 26.22' LT X= 485815.1328 Y= 124673.6528	PI STA 2099+48.26 24.75' LT X= 485835.8599 Y= 124670.2009	PT STA 2099+70.38 24.61' LT X= 485856.9745 Y= 124668.9416

CURVE NO. W1-102
R = 510'
Lc = 248.27'
Ls = 80'
Ea = 2.25"
Eu = 2.60"
V = 25 MPH

CURVE NO. W1-202
R = 510'
Lc = 248.27'
Ls = 80'
Ea = 2.25"
Eu = 2.60"
V = 25 MPH

CURVE 9 RAD = 200'		
PC STA 2099+28.63 10.63' LT X= 485813.3048 Y= 124636.7688	PI STA 2099+48.26' 11.53' LT X= 485833.1944 Y= 124633.0204	PT STA 2099+67.94 11.16' LT X= 485853.2695 Y= 124633.2805



**PARTIAL DECK PLAN - SPAN 16**  
(82MW BEAMS)

**NOTES:**

T.T.C. DENOTES TANGENT TO CURVE.

- ① MEASURED ALONG  $\phi$  TRACK 2 (EB-TRK-W1).  
② DECK SPAN MEASURED ALONG  $\phi$  PIER.  
③ MEASURED ALONG NORTH EDGE OF SLAB.  
④ MEASURED ALONG SOUTH EDGE OF SLAB.  
⑤ WALKWAY CONTROL JOINT LOCATION AT  $\phi$  PIER.  
⑥ BRIDGE EXPANSION JOINT LOCATION AT  $\phi$  PIER.

- ⑦ EDGE OF WALKWAY.  
⑧ EDGE OF 14" EXPRESS TROUGH COVER.  
⑨ EDGE OF 11" CURB.

KINK 11
KINK STA 2100+90.14 23.26' LT X=485975.5841 Y=124668.1515

KINK 12
KINK STA 2100+90.14 9.97' RT X= 485976.0038 Y= 124634.9248

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: ALB	CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE GEOM. 9 (SEGMENT B)**

DISCIPLINE: **STRUCTURES**

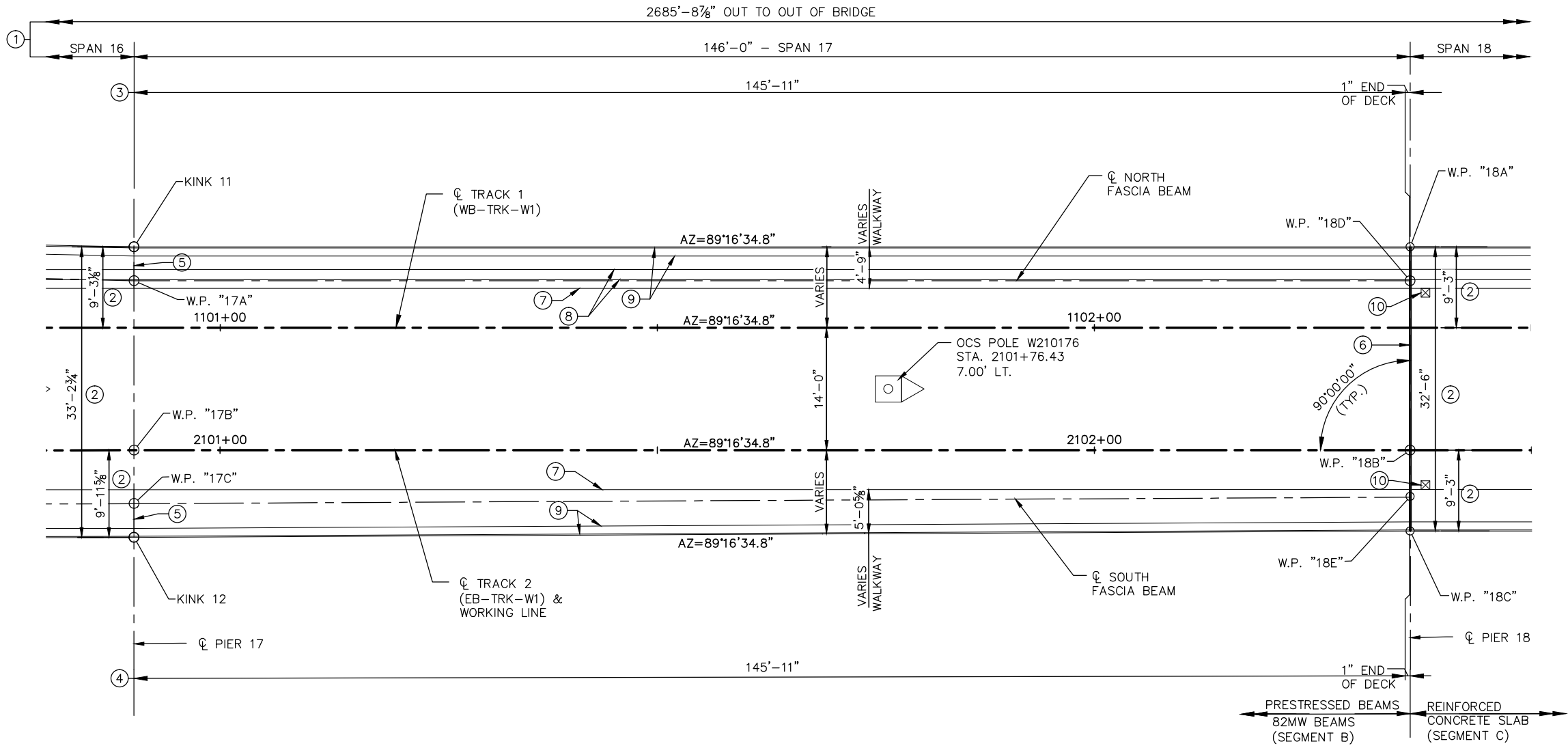
SHEET NAME: **CBR27C06-BRG-SUP-040**

**SHEET**  
**143**  
**OF**  
**232**



Jan, 19 2016 10:22 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-006.dwg By: butterfield

KINK 11
KINK STA 2100+90.14 23.26' LT X=485975.5841 Y=124668.1515
KINK 12
KINK STA 2100+90.14 9.97' RT X= 485976.0038 Y= 124634.9248



PARTIAL DECK PLAN - SPAN 17  
(82MW BEAMS)

NOTES:

- ① MEASURED ALONG  $\phi$  TRACK 2 (EB-TRK-W1).

② DECK SPAN MEASURED ALONG  $\phi$  PIER.

③ MEASURED ALONG NORTH EDGE OF SLAB.

④ MEASURED ALONG SOUTH EDGE OF SLAB.
- ⑤ WALKWAY CONTROL JOINT LOCATION AT  $\phi$  PIER.

⑥ BRIDGE EXPANSION JOINT LOCATION AT  $\phi$  PIER.

⑦ EDGE OF WALKWAY.

⑧ EDGE OF 14" EXPRESS TROUGH COVER.

⑨ EDGE OF 11" CURB.

⑩ STRAY CURRENT TEST STATION. SEE NOTE 7 ON SHEET 10.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: ALB	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

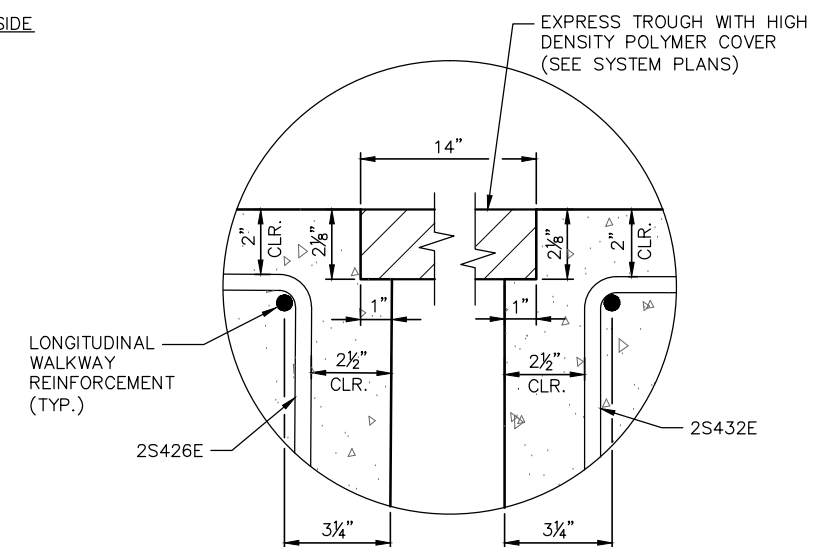
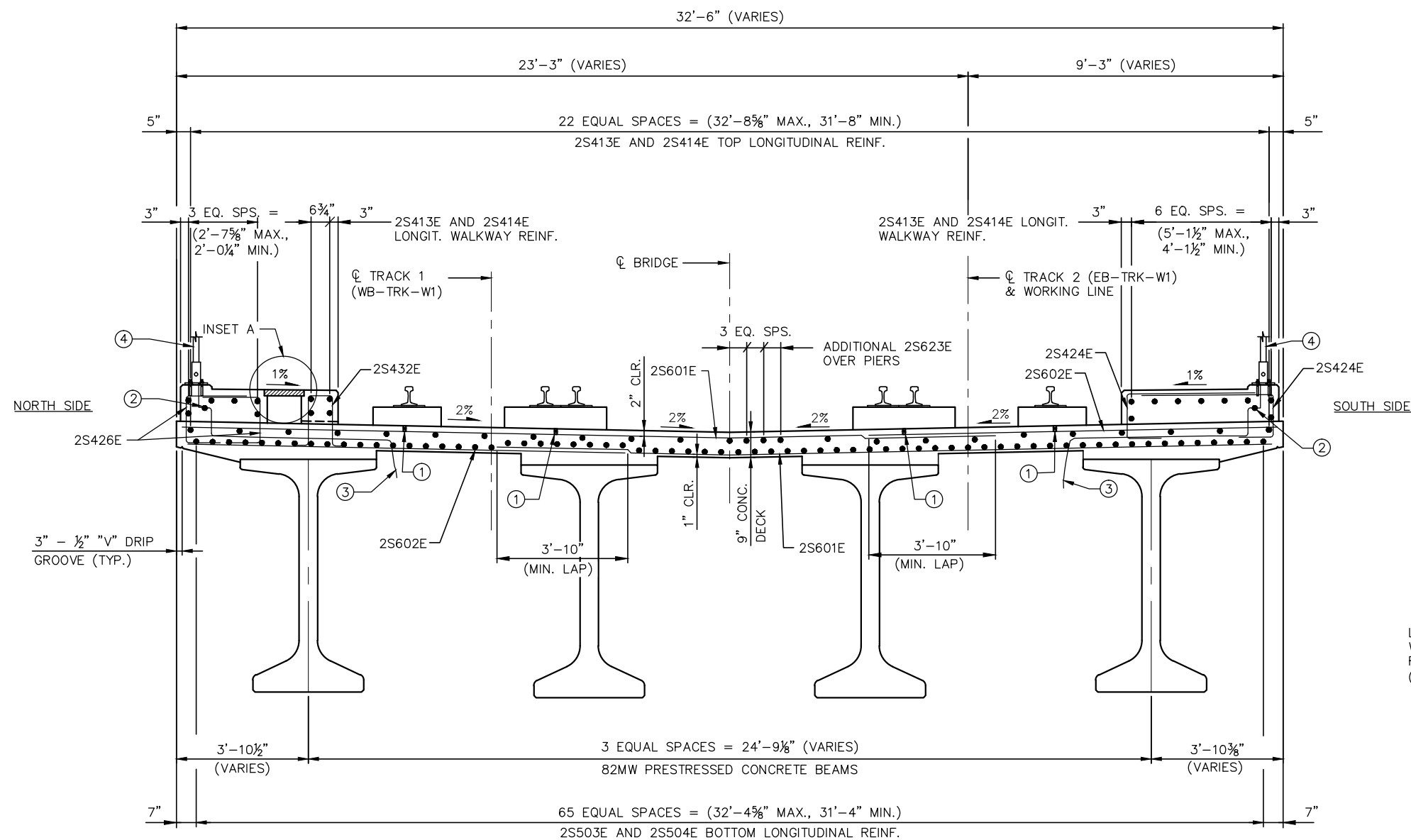
CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 SUPERSTRUCTURE GEOM. 10 (SEGMENT B)	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-SUP-041

NOTES:

"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.

SEE SHEET 160 FOR LOCATION OF SECTION A-A.

- ① STRAY CURRENT COLLECTOR CABLE.  
SEE NOTE 4 ON SHEET 10
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE  
DECK AT PIERS. CONNECT TO GROUND WIRE IN PIER. SEE  
GROUNDING PLANS.
- ④ WIRE FENCE (DESIGN W-1) SEE SHEET 196.



INSET A

CONTRACTOR TO COORDINATE FINAL  
BLOCKOUT & RECESS DIMENSIONS  
WITH SUPPLIER. (TYPICAL DETAIL FOR  
SPANS 8 THROUGH 17)

**TRANSVERSE SECTION A-A STA. 2089+54.09**

(SPAN 8)

[illegible]

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: TJM	CHECKED BY: JCF

**AECOM**

**90% SUBMISSION - 01/22/16**



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 1 (SEGMENT B)**

DISCIPLINE:

## STRUCTURES

<b>SHEET NAME:</b>
--------------------

CBR27C06-BRG-SUP-042

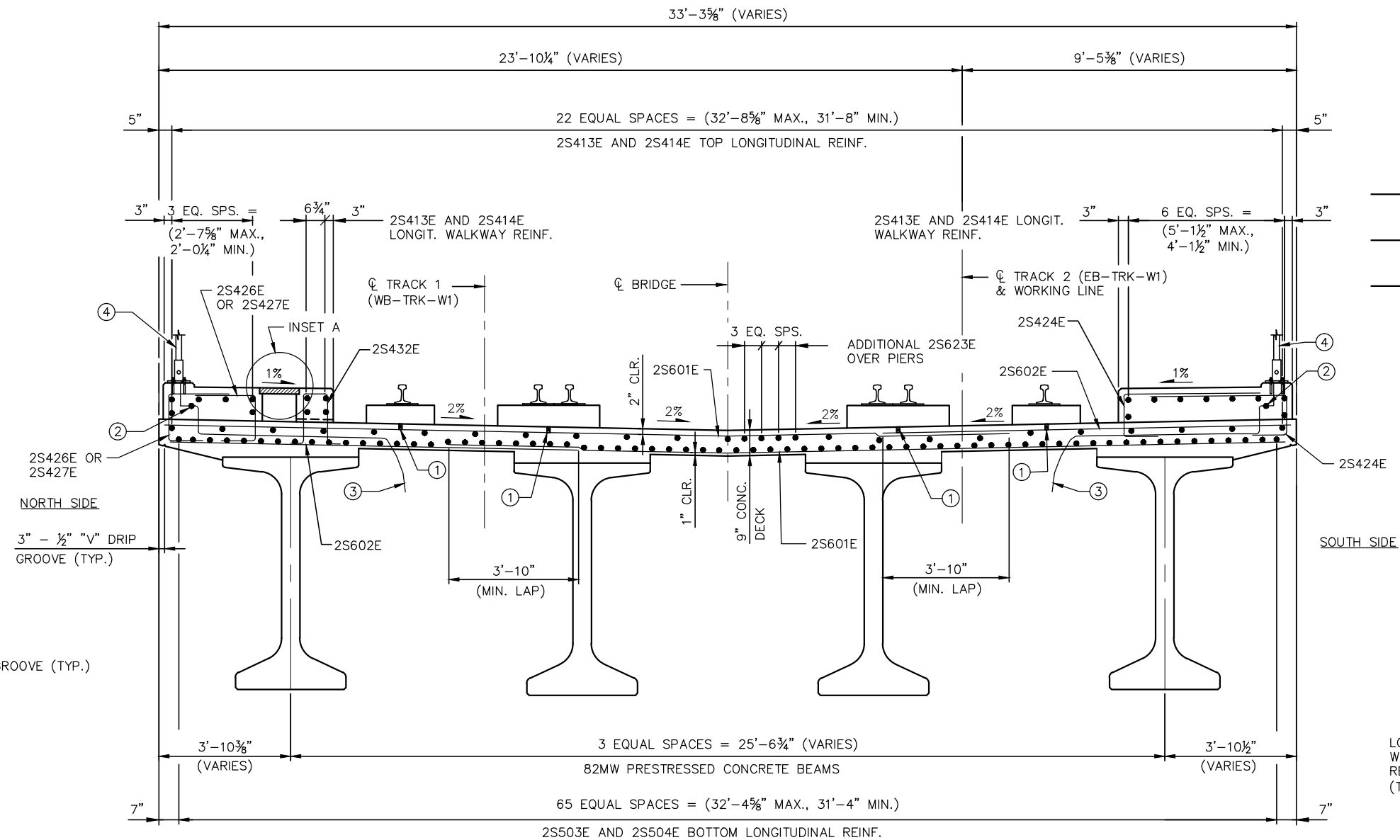
SHEET

145

OF

232

Jan, 19 2016 10:22 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-019.dwg By: butterfielda



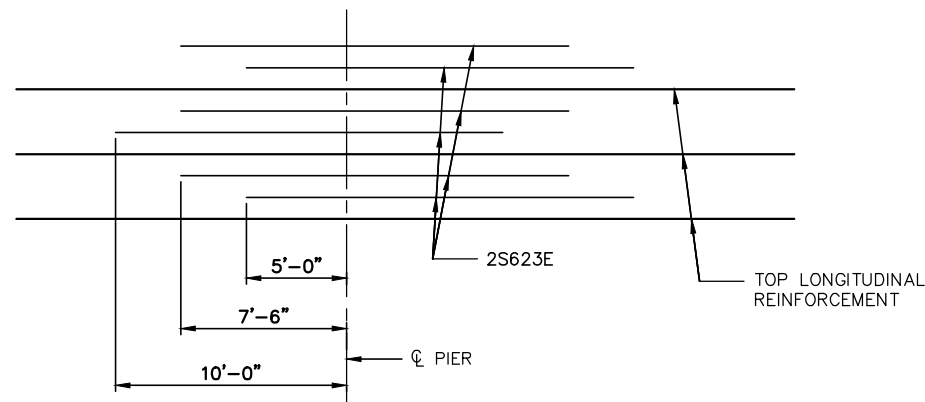
**TRANSVERSE SECTION B-B STA. 2091+33.03**  
(SPAN 9)

**NOTES:**

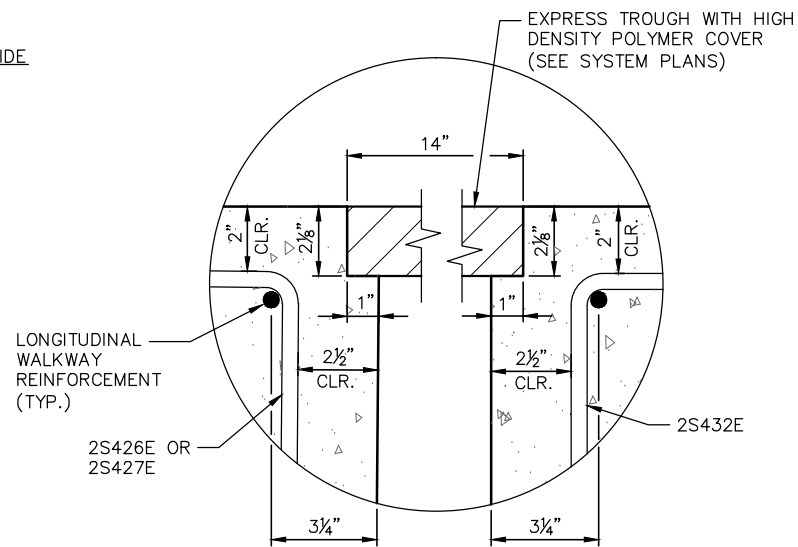
"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.

SEE SHEET 161 FOR LOCATION OF SECTION B-B.

- ① STRAY CURRENT COLLECTOR CABLE.  
SEE NOTE 4 ON SHEET 10
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE DECK AT PIERS. CONNECT TO GROUND WIRE IN PIER. SEE GROUNDING PLANS.
- ④ WIRE FENCE (DESIGN W-1) SEE SHEET 196.



**ADDITIONAL TOP REINFORCEMENT AT  
PIERS 9, 11, 13, 15 & 17**



**INSET A**

CONTRACTOR TO COORDINATE FINAL  
BLOCKOUT & RECESS DIMENSIONS  
WITH SUPPLIER. (TYPICAL DETAIL FOR  
SPANS 8 THROUGH 17)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: TJM  
CHECKED BY: JCF  
CHECKED BY: JCF

**AECOM**

90% SUBMISSION - 01/22/16



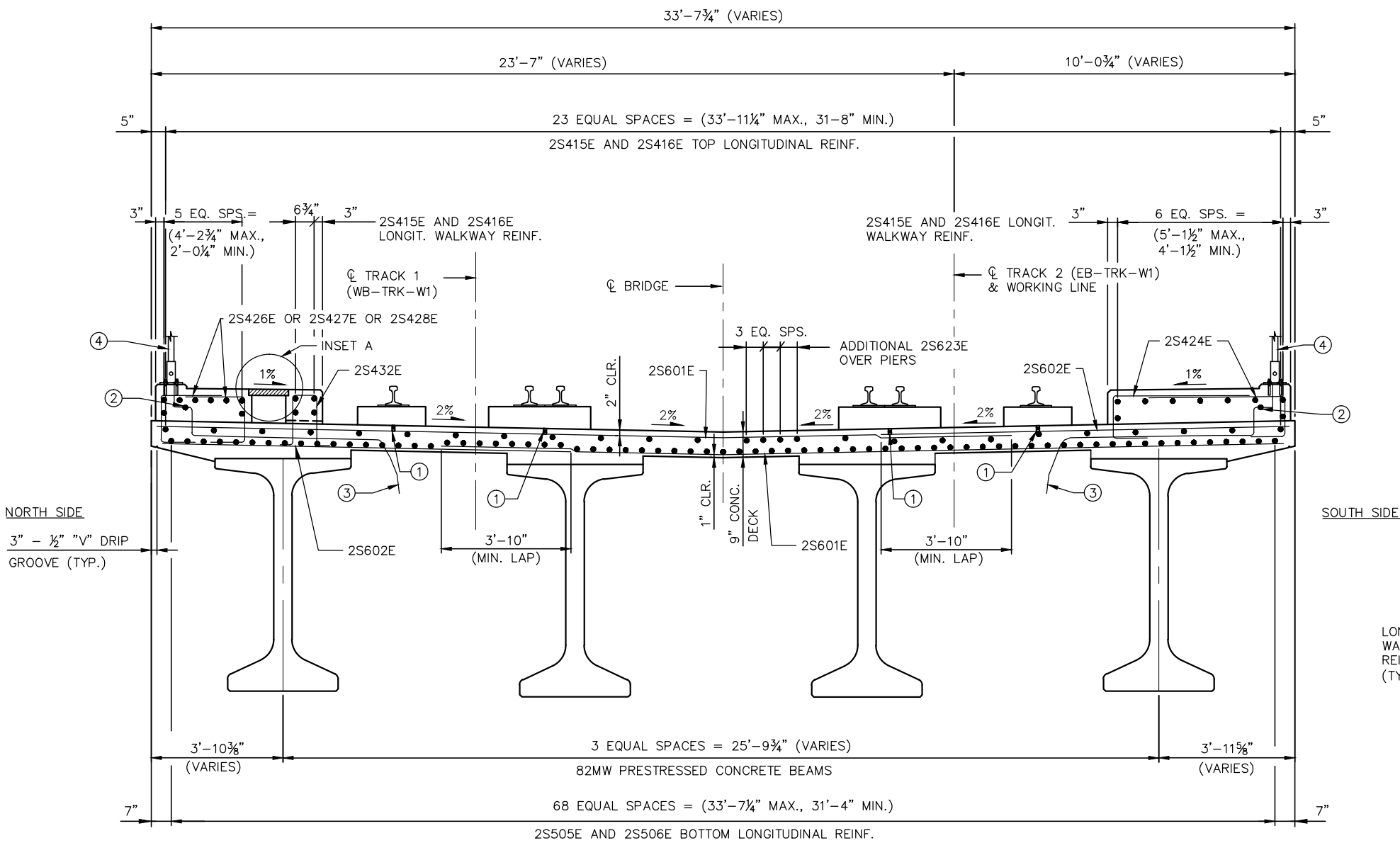
**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 2 (SEGMENT B)**

DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C06-BRG-SUP-043**

**SHEET**  
**146**  
**OF**  
**232**

Jan, 19 2016 10:23 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-019.dwg By: butterfielda

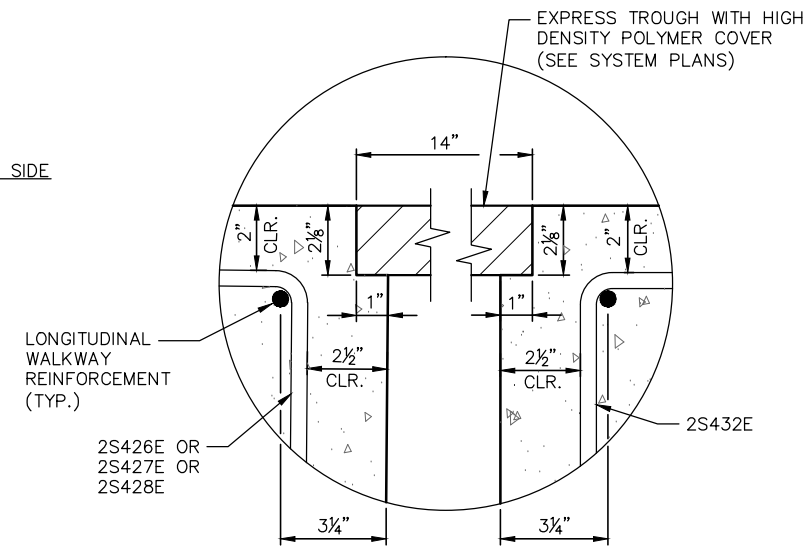


**NOTES:**

"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.

SEE SHEET 162 FOR LOCATION OF SECTION C-C.

- ① STRAY CURRENT COLLECTOR CABLE. SEE NOTE 4 ON SHEET 10
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED INSIDE 1 1/2" PVC CONDUIT WITHIN THE DECK AT PIERS. CONNECT TO GROUND WIRE IN PIER. SEE GROUNDING PLANS.
- ④ WIRE FENCE (DESIGN W-1) SEE SHEET 196.



**INSET A**

CONTRACTOR TO COORDINATE FINAL BLOCKOUT & RECESS DIMENSIONS WITH SUPPLIER. (TYPICAL DETAIL FOR SPANS 8 THROUGH 17)

**TRANSVERSE SECTION C-C STA. 2091+68.66**

(SPAN 10)

**AECOM**



**90% SUBMISSION - 01/22/16**

**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 3 (SEGMENT B)**

DISCIPLINE:

**STRUCTURES**

SHEET NAME:

**CBR27C06-BRG-SUP-044**

**SHEET**

**147**

**OF**

**232**

DESIGNED BY: JLB

CHECKED BY: JCF

DRAWN BY: TJM

CHECKED BY: JCF

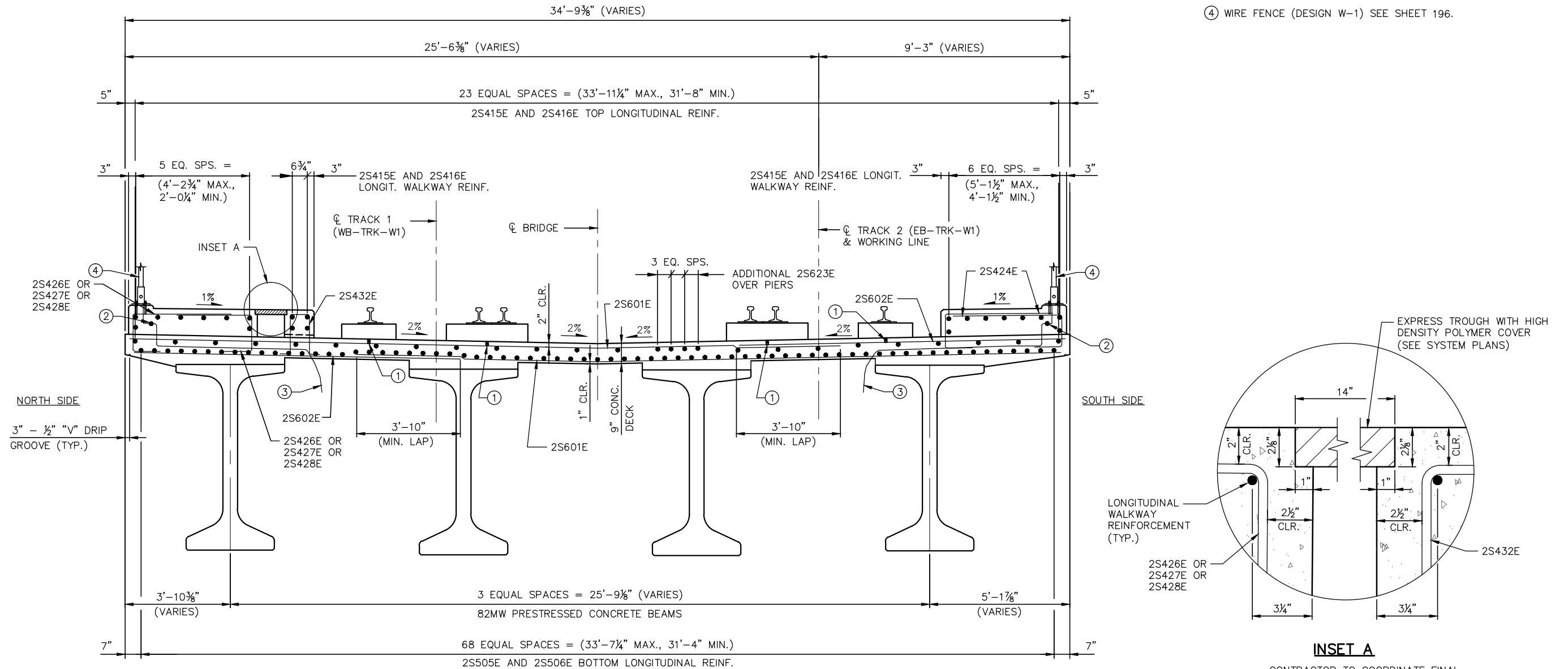
Jan, 19 2016 10:23 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-019.dwg By: butterflyda

### NOTES:

"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.

SEE SHEET 162 FOR LOCATION OF SECTION D-D.

- ① STRAY CURRENT COLLECTOR CABLE.  
SEE NOTE 4 ON SHEET 10
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE  
DECK AT PIERS. CONNECT TO GROUND WIRE IN PIER. SEE  
GROUNDING PLANS.
- ④ WIRE FENCE (DESIGN W-1) SEE SHEET 196.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: TJM	CHECKED BY: JCF

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 4 (SEGMENT B)

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-045

SHEET

148

OF

232

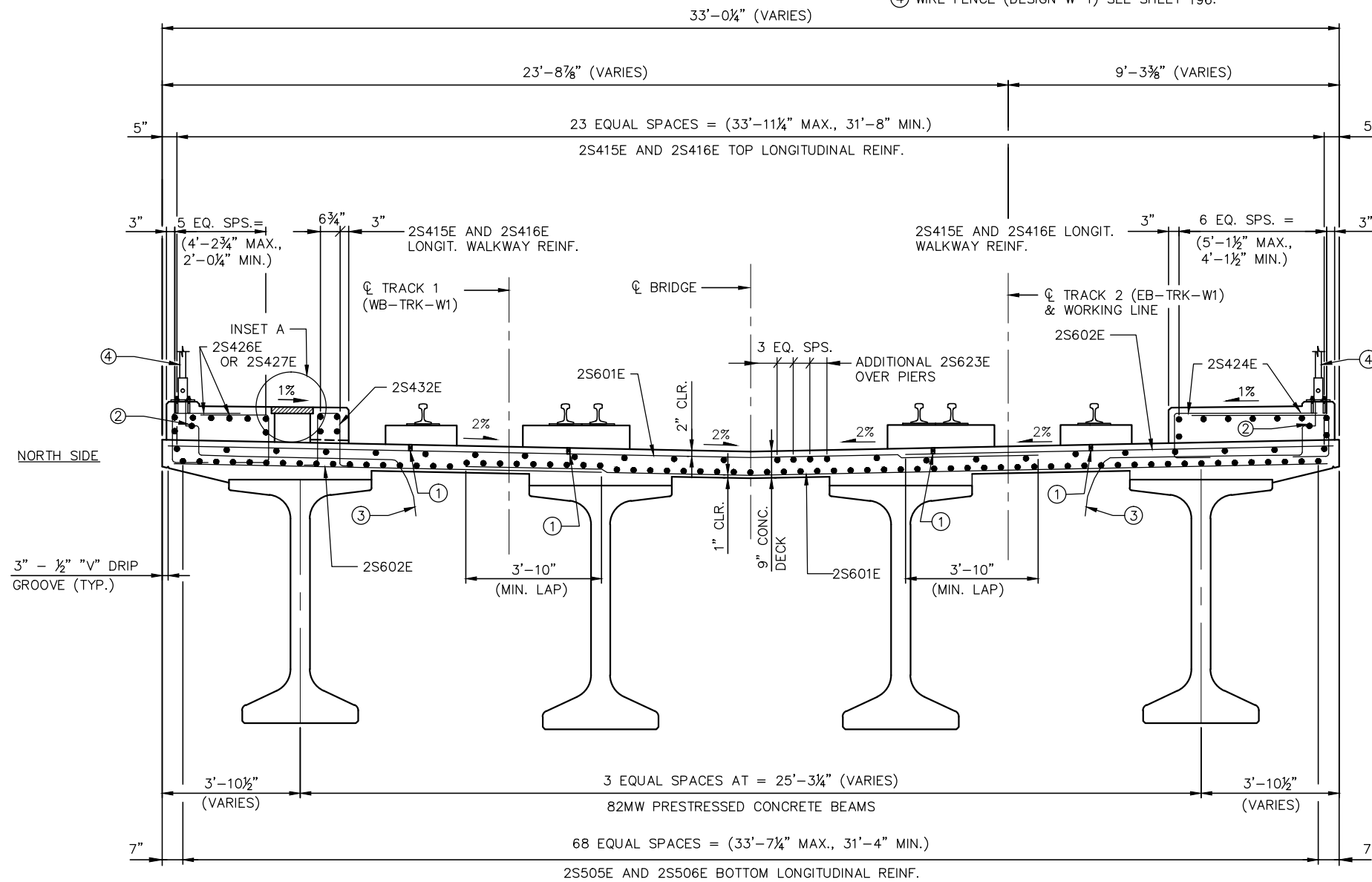
Jan, 19 2016 10:23 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-019.dwg By: butterflyda

**NOTES:**

"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.

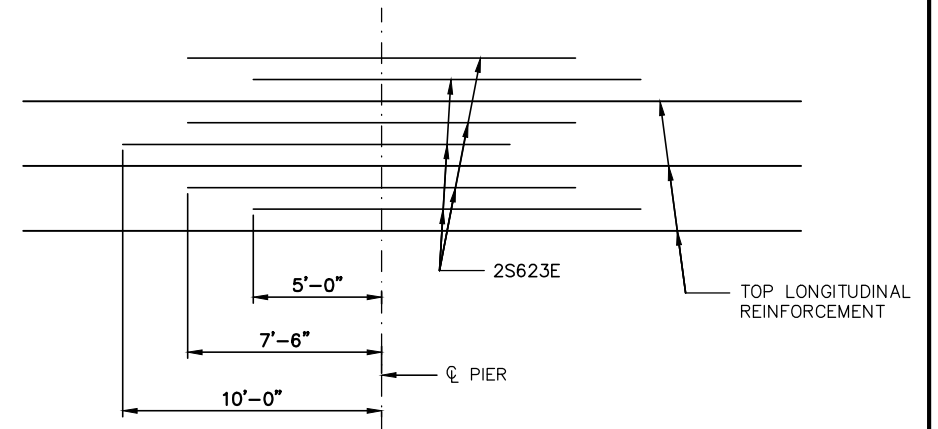
SEE SHEET 163 FOR LOCATION OF SECTION E-E.

- ① STRAY CURRENT COLLECTOR CABLE.  
SEE NOTE 4 ON SHEET 10
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE DECK AT PIERS. CONNECT TO GROUND WIRE IN PIER. SEE GROUNDING PLANS.
- ④ WIRE FENCE (DESIGN W-1) SEE SHEET 196.

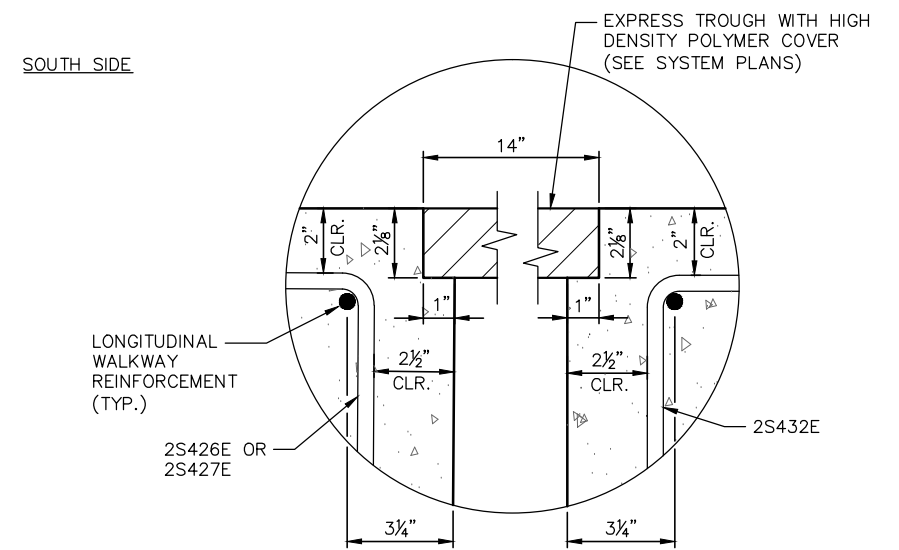


**TRANSVERSE SECTION E-E STA. 2093+67.22**

(SPAN 11)



**ADDITIONAL TOP REINFORCEMENT AT  
PIERS 9, 11, 13, 15 & 17**



**INSET A**

CONTRACTOR TO COORDINATE FINAL  
BLOCKOUT & RECESS DIMENSIONS  
WITH SUPPLIER. (TYPICAL DETAIL FOR  
SPANS 8 THROUGH 17)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: TJM

CHECKED BY: JCF  
CHECKED BY: JCF

**AECOM**

90% SUBMISSION - 01/22/16



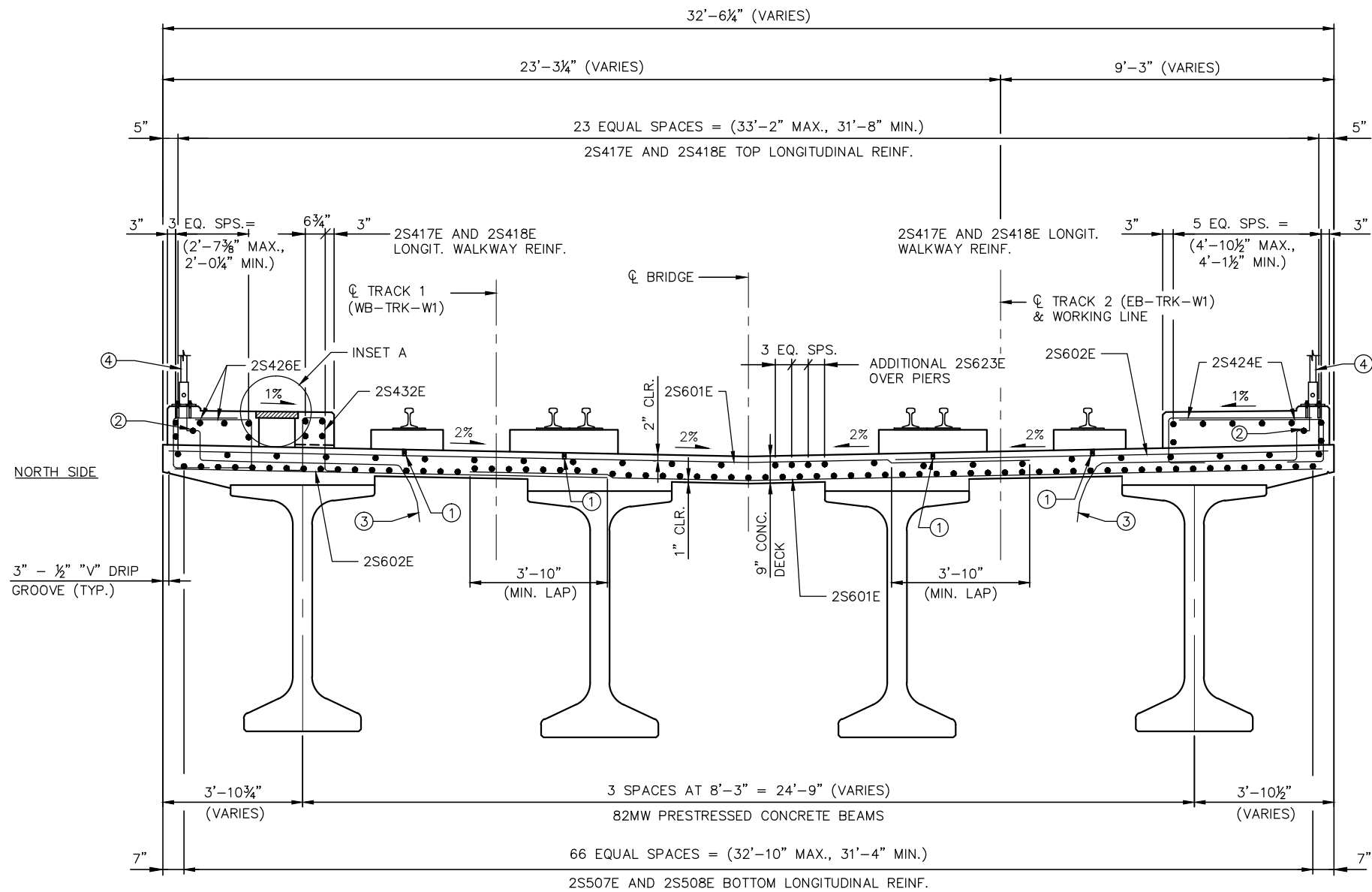
**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 5 (SEGMENT B)**

DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C06-BRG-SUP-046**

**SHEET**  
**149**  
**OF**  
**232**

Jan, 19 2016 10:23 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-019.dwg By: butterfield



TRANSVERSE SECTION F-F STA. 2094+91.64

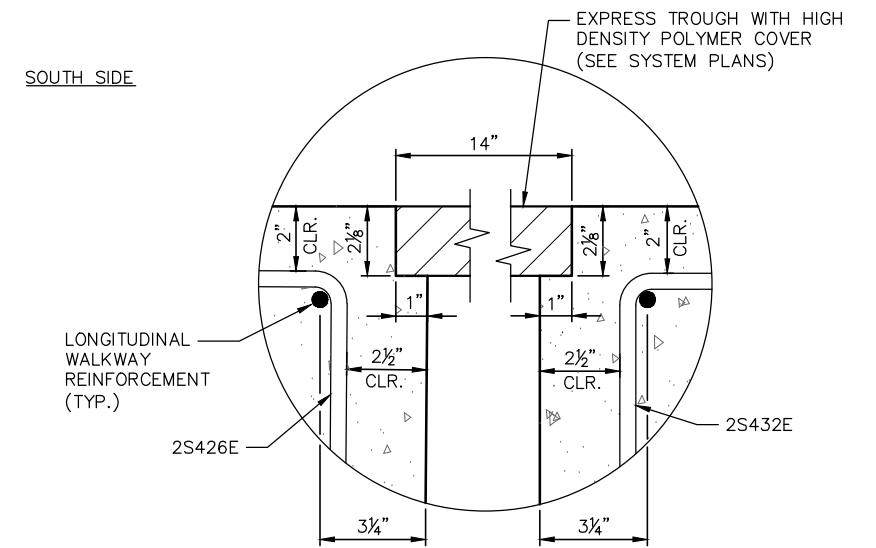
(SPAN 12)

NOTES:

"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.

SEE SHEET 164 FOR LOCATION OF SECTION F-F.

- ① STRAY CURRENT COLLECTOR CABLE. SEE NOTE 4 ON SHEET 10
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED INSIDE 1 1/2" PVC CONDUIT WITHIN THE DECK AT PIERS. CONNECT GROUND WIRE IN PIER. SEE GROUNDING PLANS.
- ④ WIRE FENCE (DESIGN W-1) SEE SHEET 196.



INSET A

CONTRACTOR TO COORDINATE FINAL BLOCKOUT & RECESS DIMENSIONS WITH SUPPLIER. (TYPICAL DETAIL FOR SPANS 8 THROUGH 17)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: TJM

CHECKED BY: JCF  
CHECKED BY: JCF

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 6 (SEGMENT B)

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-SUP-047

SHEET  
150  
OF  
232

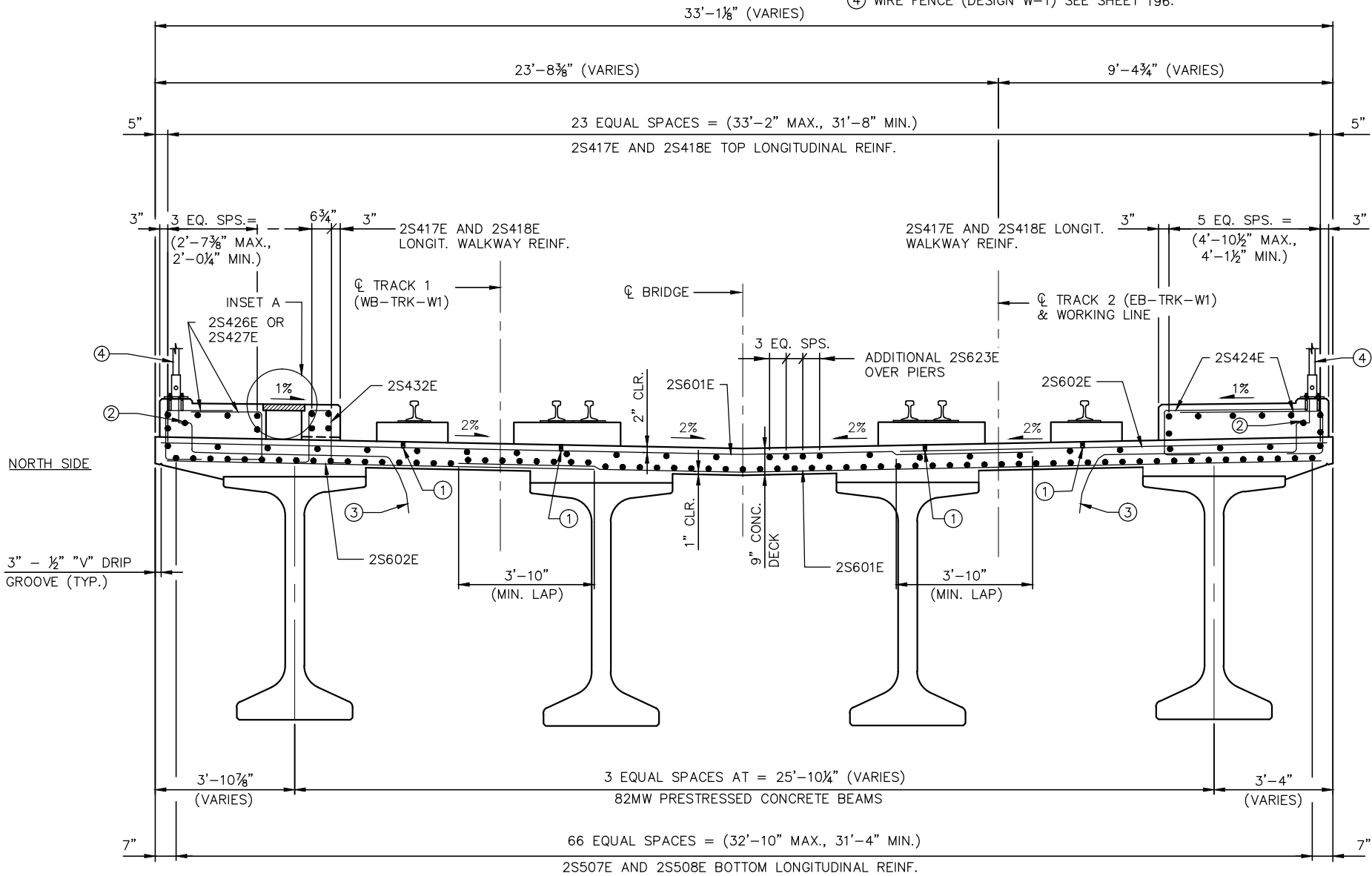
Jan, 19 2016 10:23 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-019.dwg By: butterflyda

NOTES:

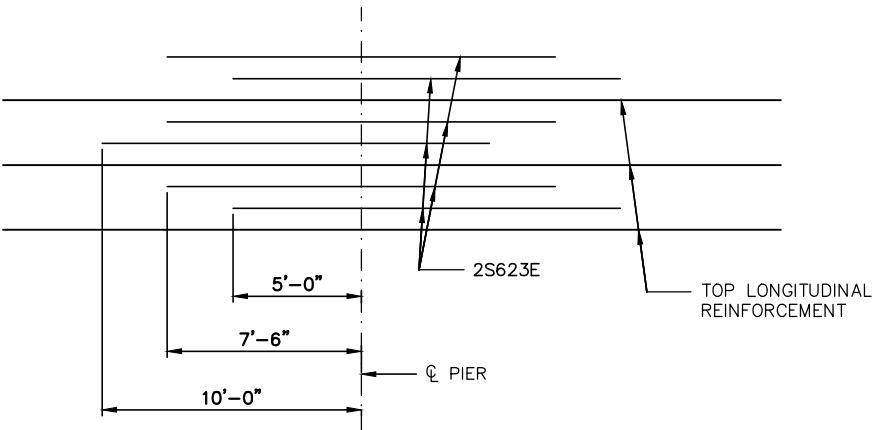
"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.

SEE SHEET 165 FOR LOCATION OF SECTION G-G.

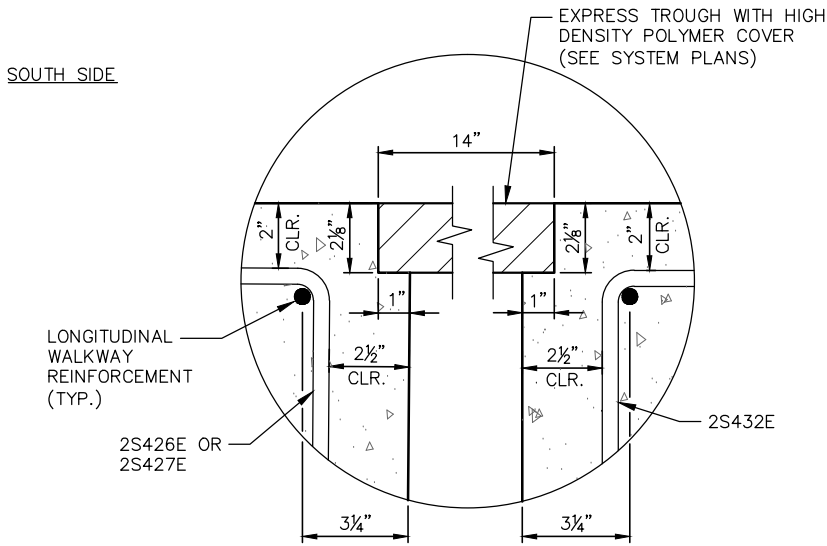
- ① STRAY CURRENT COLLECTOR CABLE.  
SEE NOTE 4 ON SHEET 10
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE  
DECK AT PIERS. CONNECT TO GROUND WIRE IN PIER. SEE  
GROUNDING PLANS.
- ④ WIRE FENCE (DESIGN W-1) SEE SHEET 196.



TRANSVERSE SECTION G-G STA. 2096+16.00  
(SPAN 13)



ADDITIONAL TOP REINFORCEMENT AT  
PIERS 9, 11, 13, 15 & 17



INSET A

CONTRACTOR TO COORDINATE FINAL  
BLOCKOUT & RECESS DIMENSIONS  
WITH SUPPLIER. (TYPICAL DETAIL FOR  
SPANS 8 THROUGH 17)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: TJM

CHECKED BY: JCF  
CHECKED BY: JCF

AECOM

90% SUBMISSION - 01/22/16

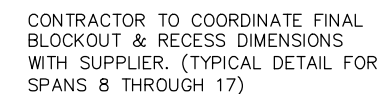
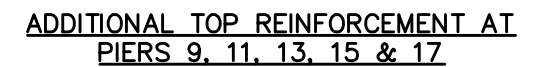





CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 SUPERSTRUCTURE REINF. 7 (SEGMENT B)	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-SUP-048

SHEET
151
OF
232



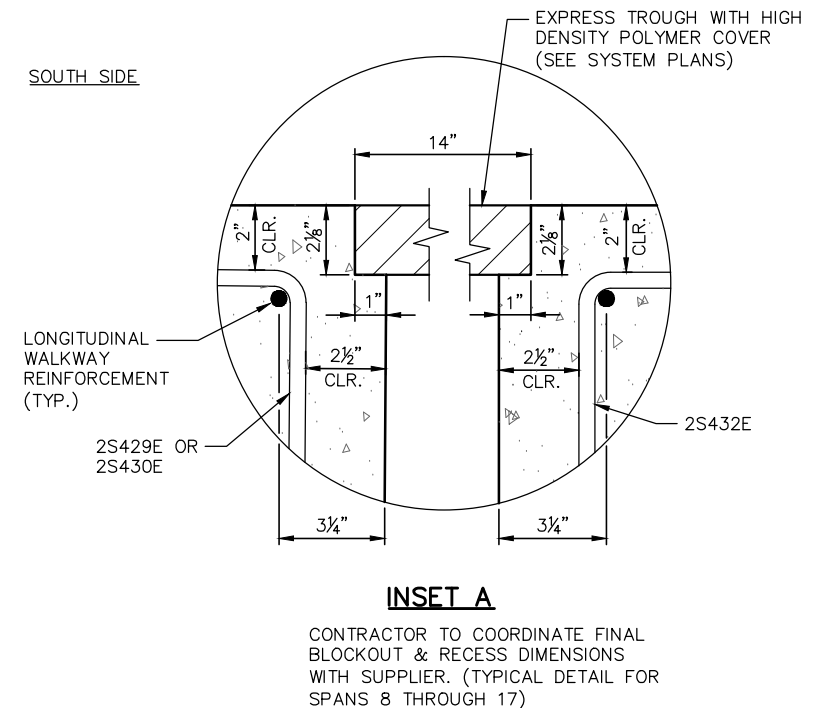
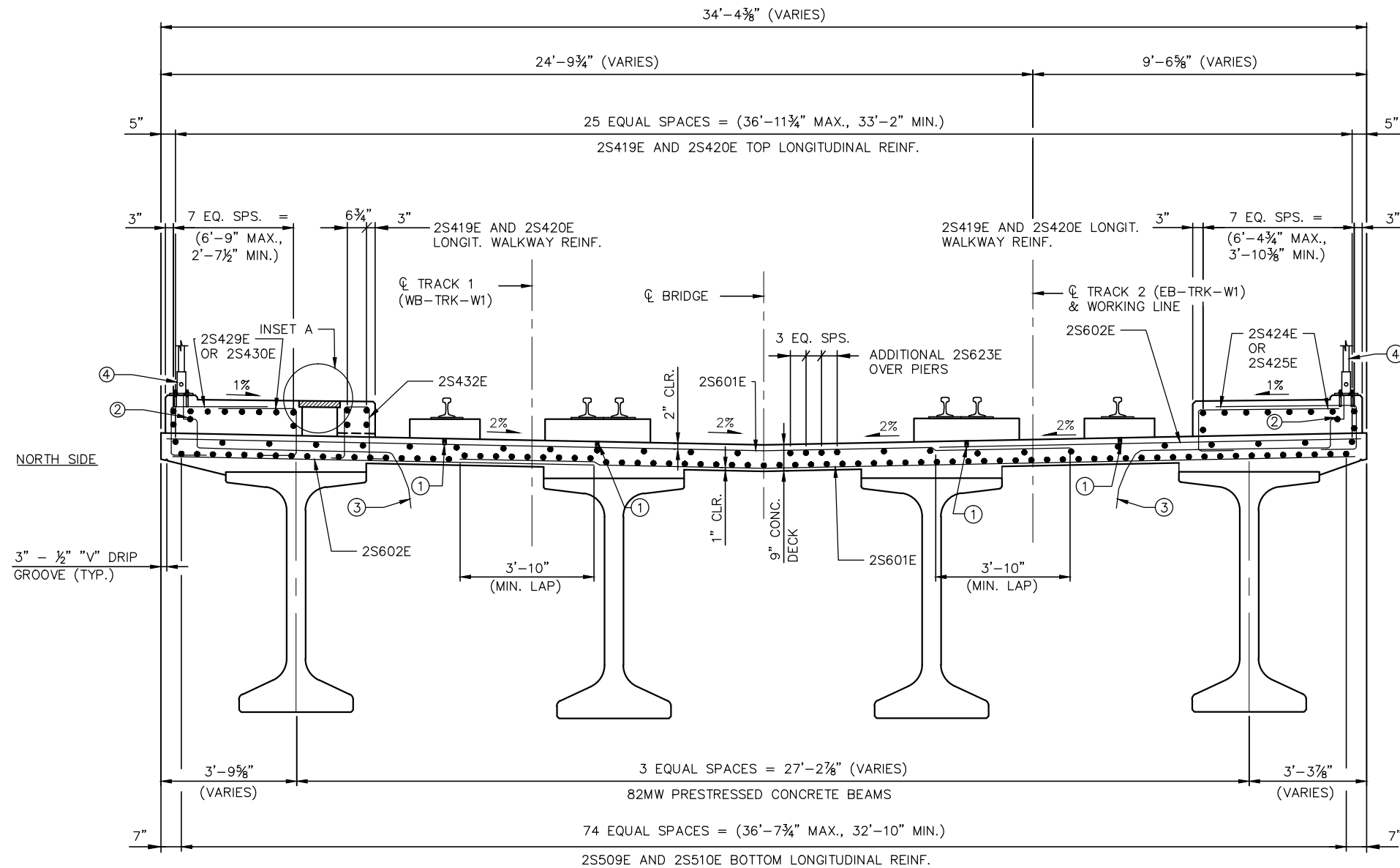
- ① STRAY CURRENT COLLECTOR CABLE.  
SEE NOTE 4 ON SHEET 10
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE  
DECK AT PIERS. CONNECT TO GROUND WIRE IN PIER. SEE  
GROUNDING PLANS.
- ④ WIRE FENCE (DESIGN W-1) SEE SHEET 196.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	<div></div>	<div></div>	<div>CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 SUPERSTRUCTURE REINF. 8 (SEGMENT B)</div>		SHEET
					152					
					OF					
					232					
<div>DESIGNED BY: JLB      CHECKED BY: JCF DRAWN BY: TJM      CHECKED BY: JCF</div>						90% SUBMISSION - 01/22/16	<div>DISCIPLINE:      SHEET NAME: STRUCTURES      CBR27C06-BRG-SUP-049</div>			

Jan, 19 2016 10:23 am V: \3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-SUP-019.dwg By: butterflyda

Jan, 19 2016 10:23 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-019.dwg By: butterfielda



TRANSVERSE SECTION J-J STA. 2096+91.60  
(SPAN 14)

**NOTES:**

"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.

SEE SHEET 166 FOR LOCATION OF SECTION J-J.

- ① STRAY CURRENT COLLECTOR CABLE.  
SEE NOTE 4 ON SHEET 10
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED INSIDE 1 $\frac{1}{2}$ " PVC CONDUIT WITHIN THE DECK AT PIERS. CONNECT TO GROUND WIRE IN PIER. SEE GROUNDING PLANS.
- ④ WIRE FENCE (DESIGN W-1) SEE SHEET 196.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: TJM

CHECKED BY: JCF  
CHECKED BY: JCF

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE REINF. 9 (SEGMENT B)**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C06-BRG-SUP-050**

**SHEET**  
**153**  
**OF**  
**232**

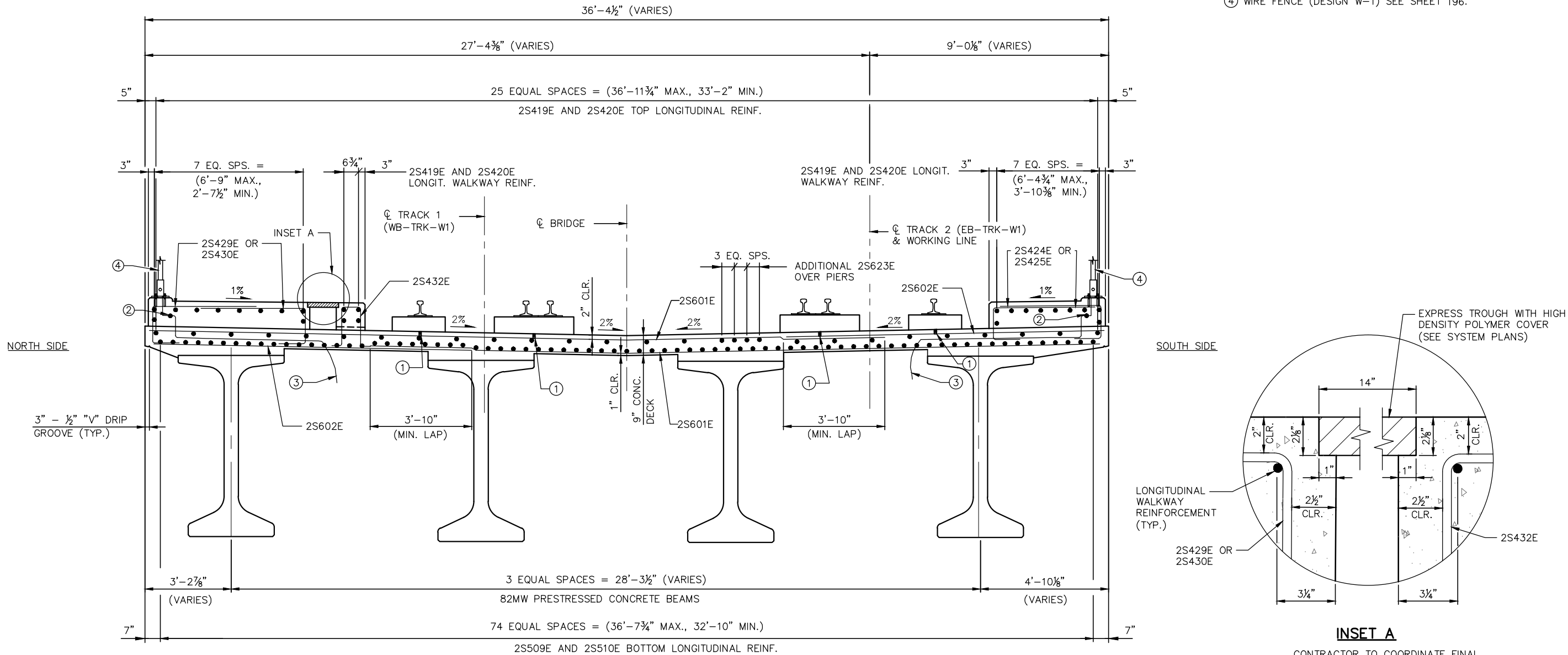
Jan, 19 2016 10:23 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-019.dwg By: butterfielda

NOTES:

"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.

SEE SHEET 166 FOR LOCATION OF SECTION K-K.

- ① STRAY CURRENT COLLECTOR CABLE.  
SEE NOTE 4 ON SHEET 10
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE  
DECK AT PIERS. CONNECT TO GROUND WIRE IN PIER. SEE  
GROUNDING PLANS.
- ④ WIRE FENCE (DESIGN W-1) SEE SHEET 196.



TRANSVERSE SECTION K-K STA. 2097+41.48  
(SPAN 14)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: TJM	CHECKED BY: JCF

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 10 (SEGMENT B)

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-SUP-051

SHEET

154  
OF  
232

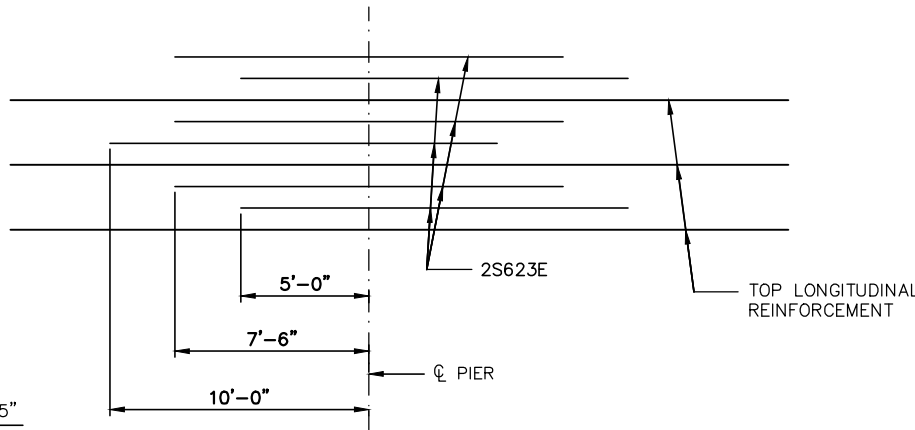
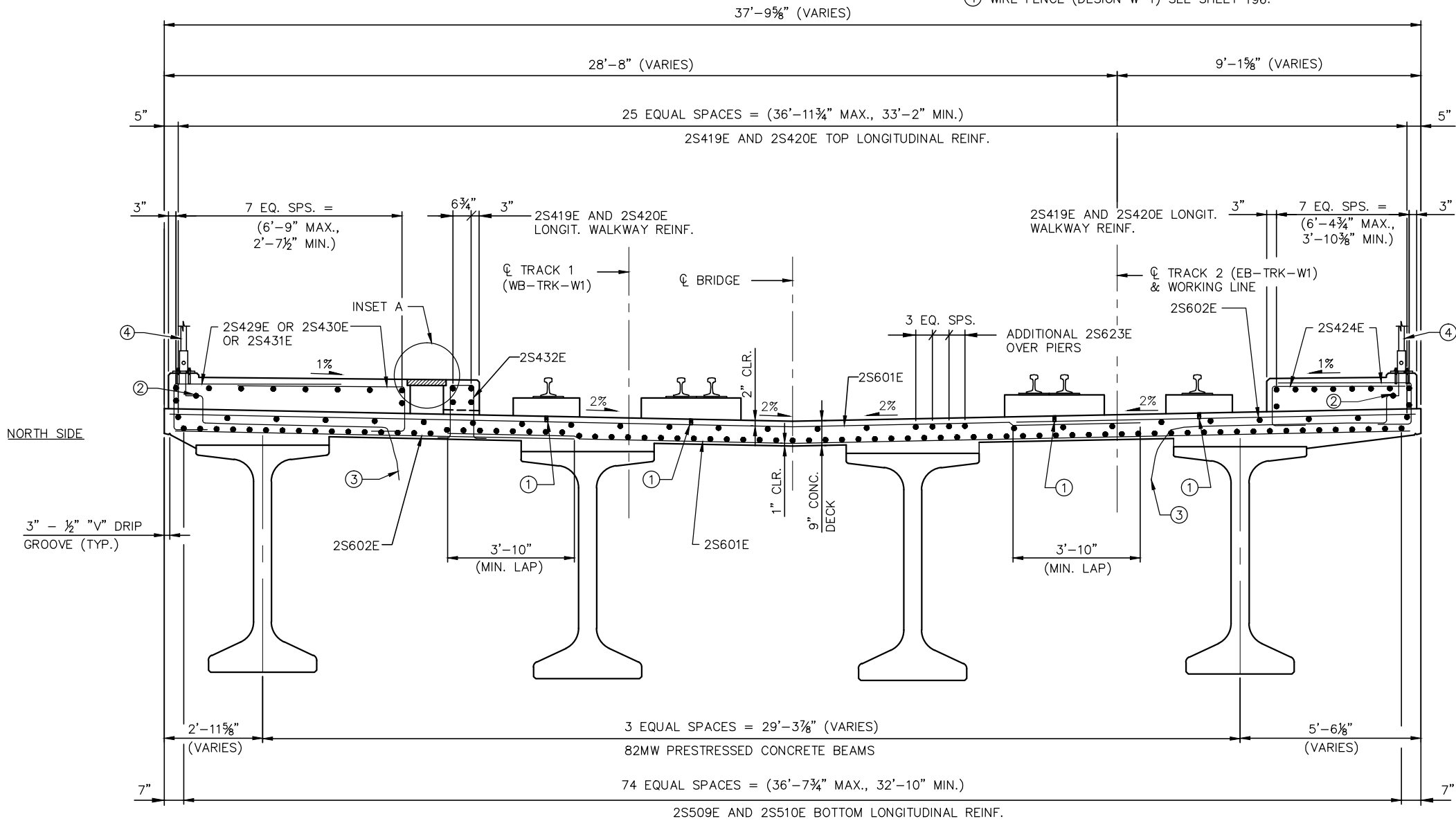
Jan, 19 2016 10:23 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-019.dwg By: butterfielda

NOTES:

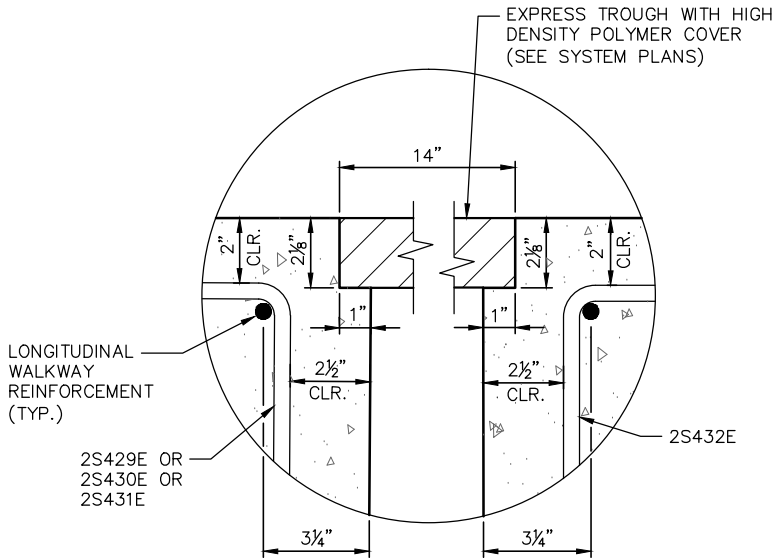
"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.

SEE SHEET 167 FOR LOCATION OF SECTION L-L.

- ① STRAY CURRENT COLLECTOR CABLE.  
SEE NOTE 4 ON SHEET 10
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE  
DECK AT PIERS. CONNECT TO GROUND WIRE IN PIER. SEE  
GROUNDING PLANS.
- ④ WIRE FENCE (DESIGN W-1) SEE SHEET 196.



ADDITIONAL TOP REINFORCEMENT AT  
PIERS 9, 11, 13, 15 & 17



INSET A

CONTRACTOR TO COORDINATE FINAL  
BLOCKOUT & RECESS DIMENSIONS  
WITH SUPPLIER. (TYPICAL DETAIL FOR  
SPANS 8 THROUGH 17)

TRANSVERSE SECTION L-L STA. 2098+76.26

(SPAN 15)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: TJM

CHECKED BY: JCF  
CHECKED BY: JCF

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 11 (SEGMENT B)

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-SUP-052

SHEET  
155  
OF  
232

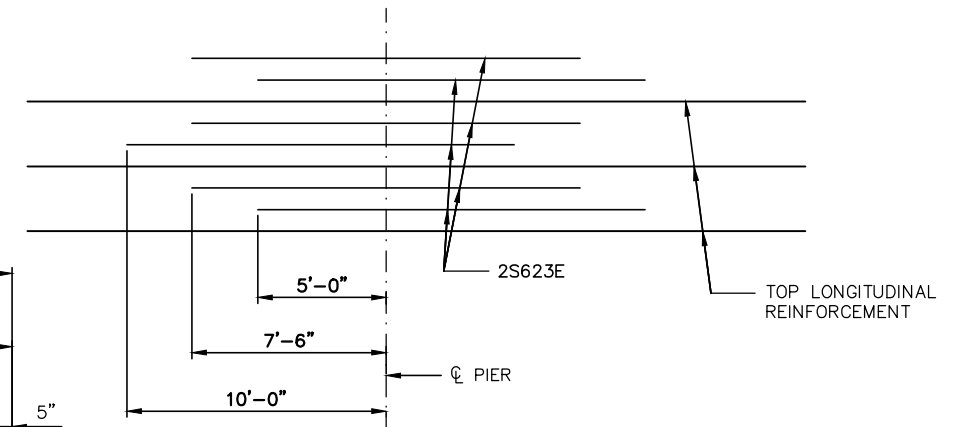
Jan, 19 2016 10:23 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-019.dwg By: butterfielda

**NOTES:**

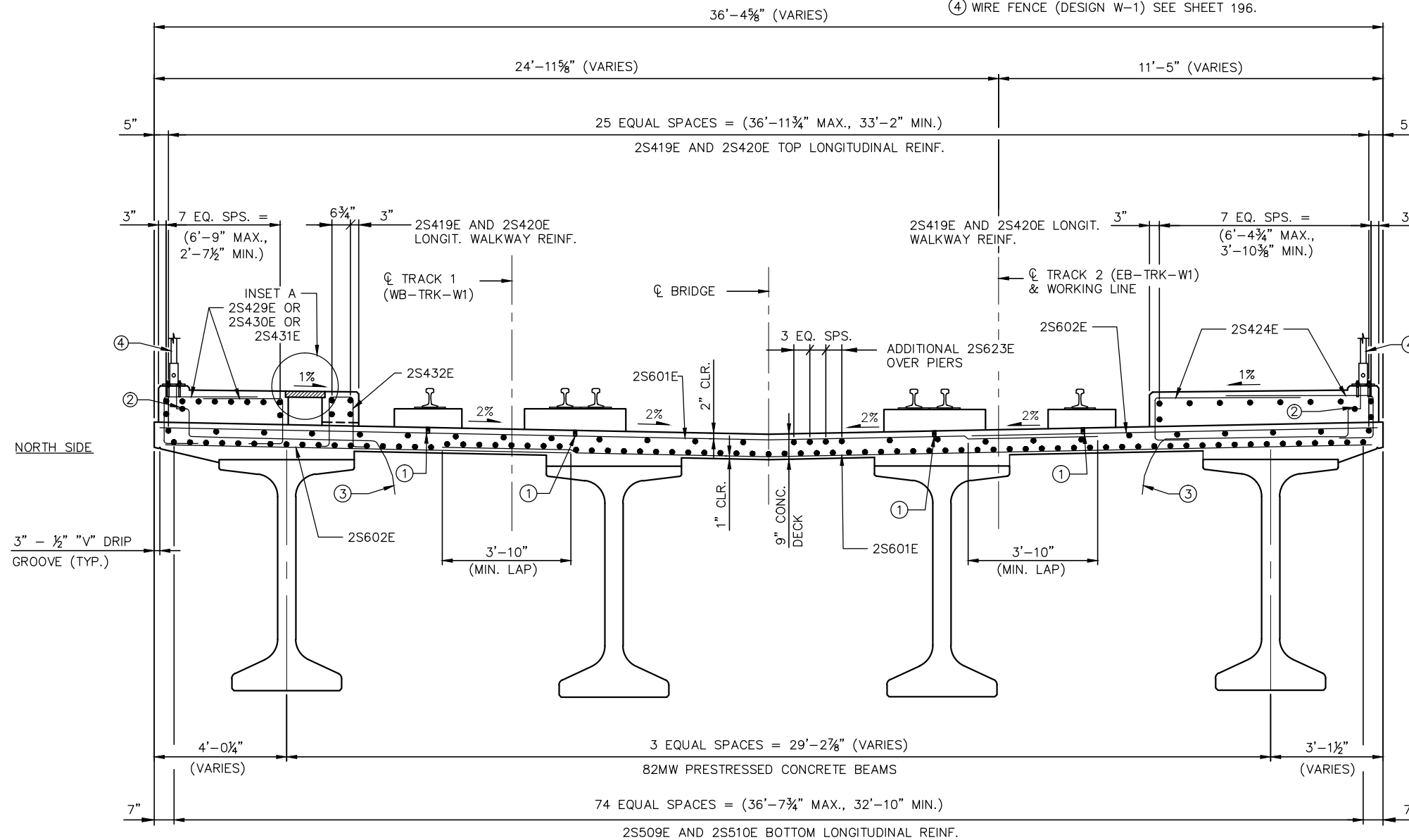
"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.

SEE SHEET 167 FOR LOCATION OF SECTION M-M.

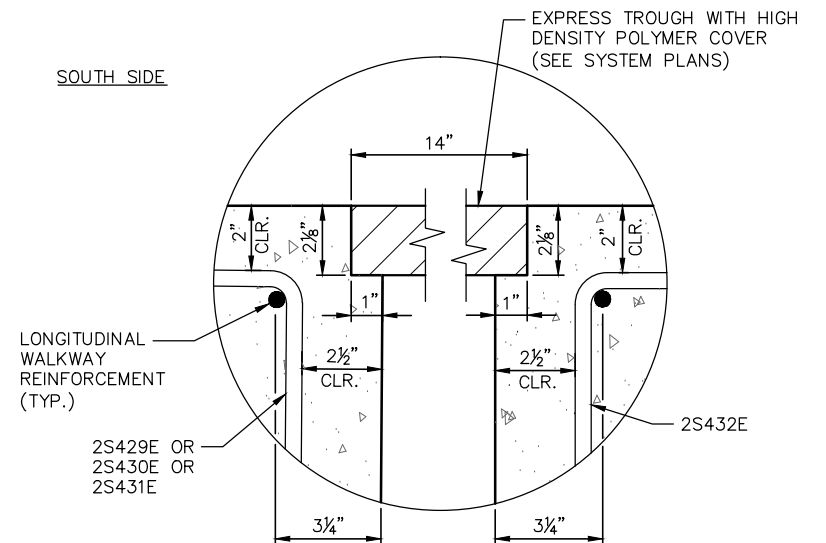
- ① STRAY CURRENT COLLECTOR CABLE.  
SEE NOTE 4 ON SHEET 10
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE  
DECK AT PIERS. CONNECT TO GROUND WIRE IN PIER. SEE  
GROUNDING PLANS.
- ④ WIRE FENCE (DESIGN W-1) SEE SHEET 196.



**ADDITIONAL TOP REINFORCEMENT AT  
PIERS 9, 11, 13, 15 & 17**



SOUTH SIDE



**INSET A**

CONTRACTOR TO COORDINATE FINAL  
BLOCKOUT & RECESS DIMENSIONS  
WITH SUPPLIER. (TYPICAL DETAIL FOR  
SPANS 8 THROUGH 17)

**TRANSVERSE SECTION M-M STA. 2099+43.34**

(SPAN 15)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: TJM  
CHECKED BY: JCF  
CHECKED BY: JCF

**AECOM**

90% SUBMISSION - 01/22/16



**SOUTHWEST**  
Green Line Light Extension



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 12 (SEGMENT B)**

DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C06-BRG-SUP-053**

**SHEET**  
**156**  
**OF**  
**232**

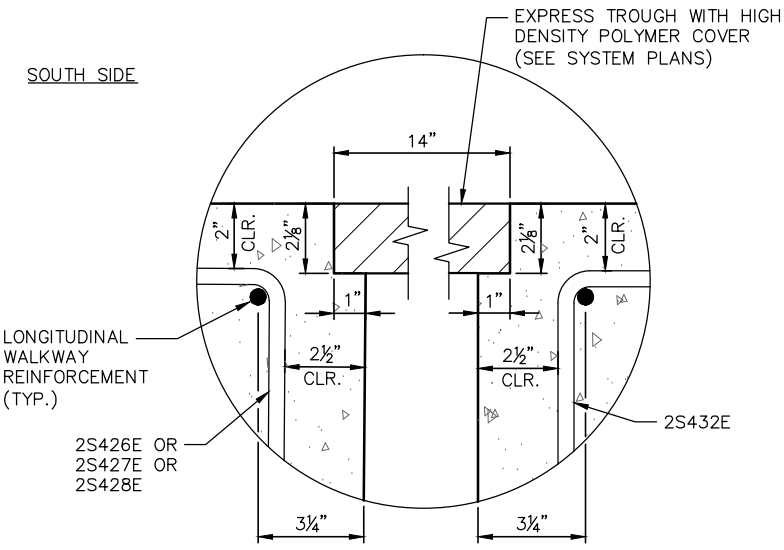
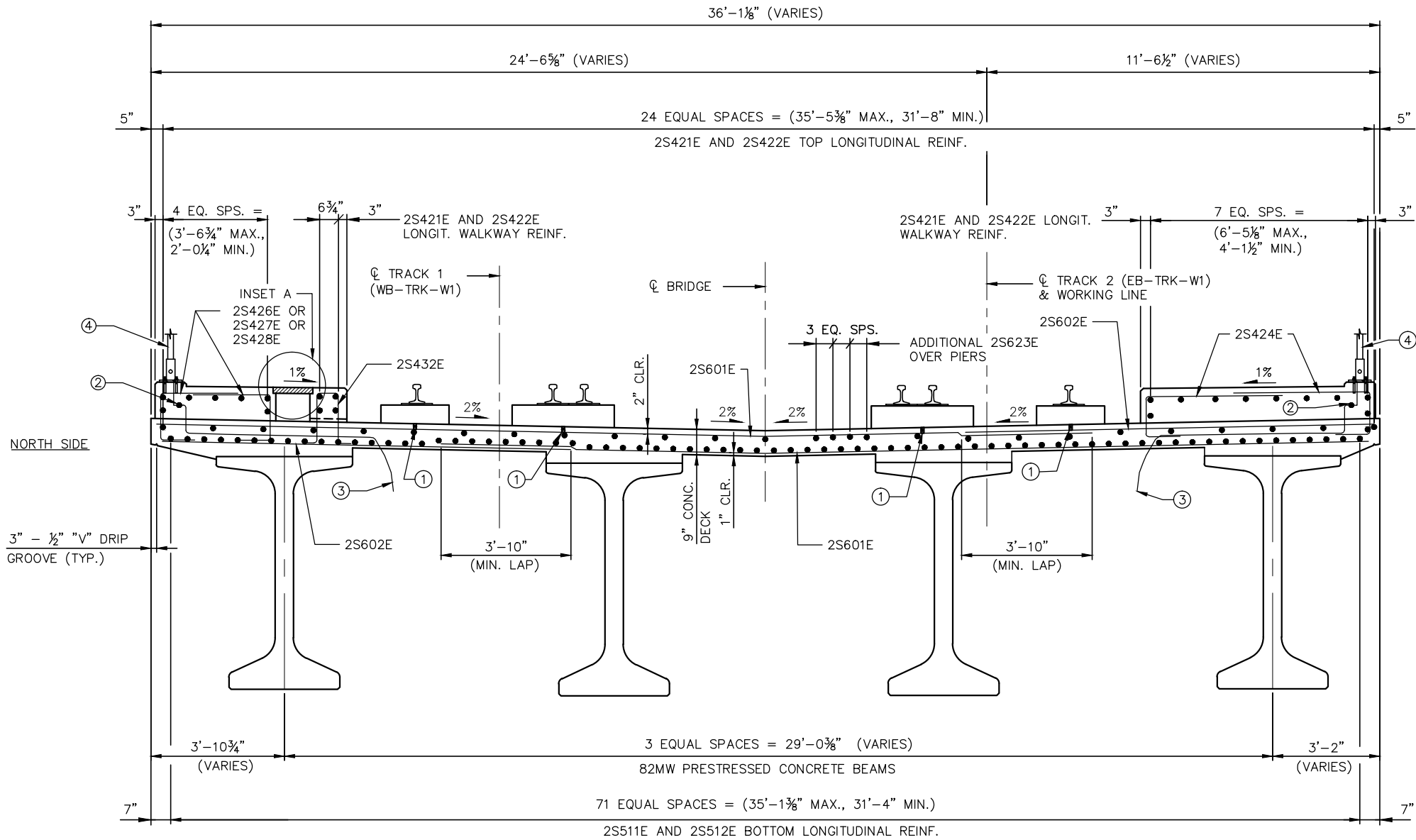
Jan, 19 2016 10:23 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-019.dwg By: butterfield

NOTES:

"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.

SEE SHEET 168 FOR LOCATION OF SECTION N-N.

- ① STRAY CURRENT COLLECTOR CABLE.  
SEE NOTE 4 ON SHEET 10
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE  
DECK AT PIERS. CONNECT TO GROUND WIRE IN PIER. SEE  
GROUNDING PLANS.
- ④ WIRE FENCE (DESIGN W-1) SEE SHEET 196.



INSET A

CONTRACTOR TO COORDINATE FINAL  
BLOCKOUT & RECESS DIMENSIONS  
WITH SUPPLIER. (TYPICAL DETAIL FOR  
SPANS 8 THROUGH 17)

TRANSVERSE SECTION N-N STA. 2099+55.80  
(SPAN 16)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: TJM	CHECKED BY: JCF

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 13 (SEGMENT B)

DISCIPLINE: STRUCTURES

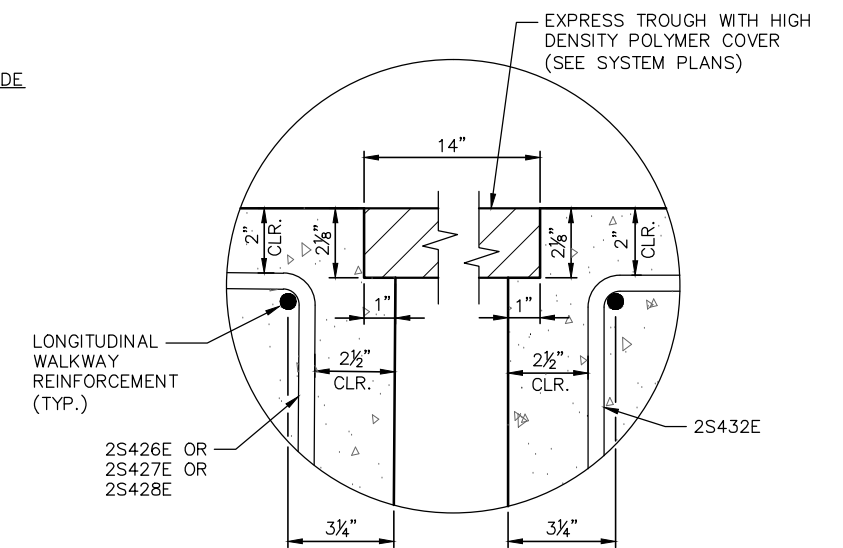
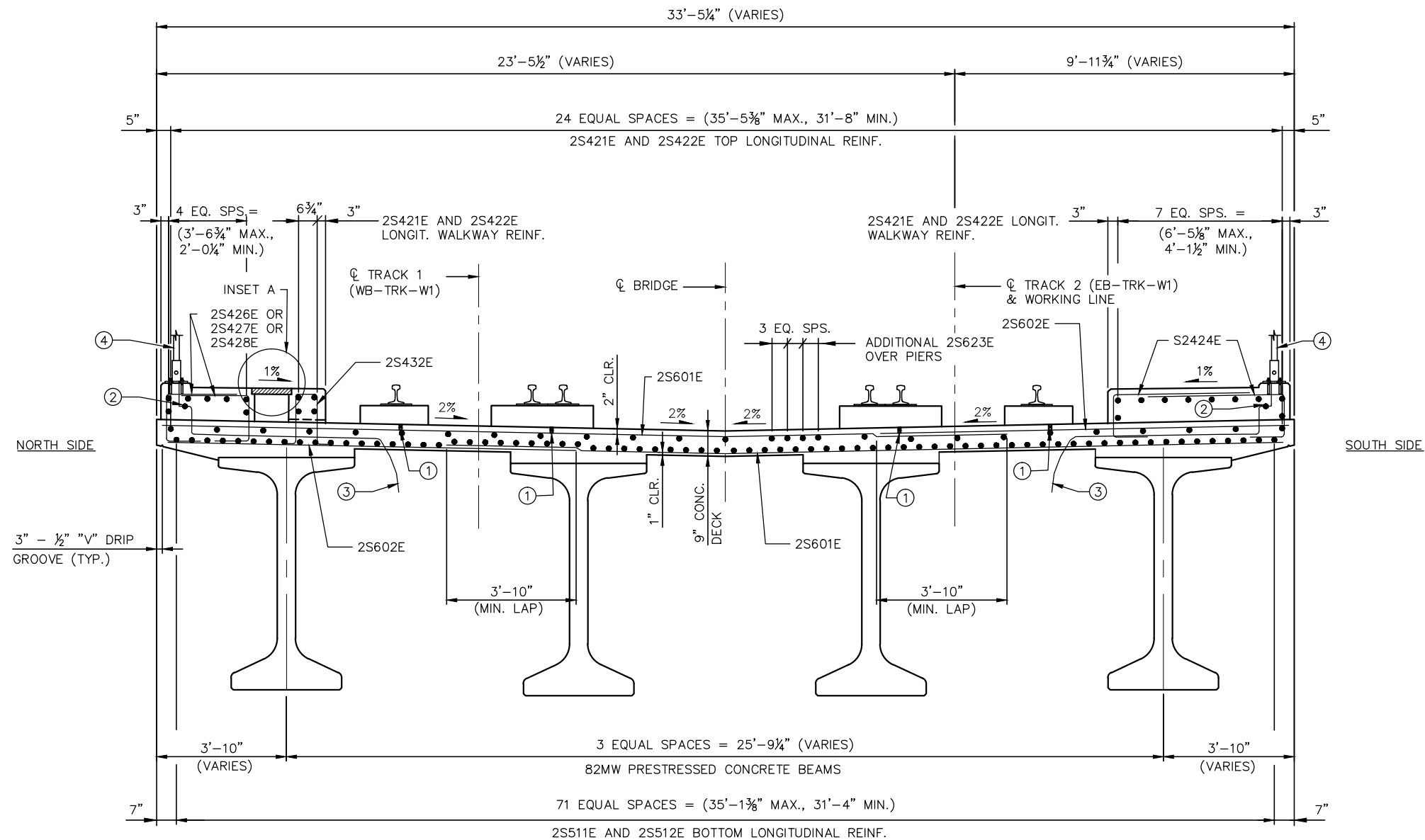
SHEET NAME: CBR27C06-BRG-SUP-054

NOTES:

"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.

SEE SHEET 168 FOR LOCATION OF SECTION P-P.

- ① STRAY CURRENT COLLECTOR CABLE.  
SEE NOTE 4 ON SHEET 10 .
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE  
DECK AT PIERS. CONNECT TO GROUND WIRE IN PIER. SEE  
GROUNDING PLANS.
- ④ WIRE FENCE (DESIGN W-1) SEE SHEET 196.



INSET A

CONTRACTOR TO COORDINATE FINAL  
BLOCKOUT & RECESS DIMENSIONS  
WITH SUPPLIER. (TYPICAL DETAIL FOR  
SPANS 8 THROUGH 17)

TRANSVERSE SECTION P-P STA. 2100+79.53

(SPAN 16)

[illegible]

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: TJM	CHECKED BY: JCF

**AECOM**

**90% SUBMISSION - 01/22/16**



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 14 (SEGMENT B)**

DISCIPLINE: **STRUCTURES**

SHEET NAME:	CBR27C06-BRG-SUP-055
-------------	----------------------

**SHEET**  
**158**  
**OF**  
**232**

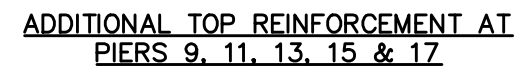
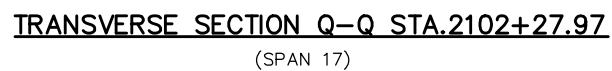
"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.

STRAY CURRENT COLLECTOR CABLE.  
SEE NOTE 4 ON SHEET 10

) GROUND WIRE.

GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE DECK AT PIERS. CONNECT TO GROUND WIRE IN PIER. SEE GROUNDING PLANS.

) WIRE FENCE (DESIGN W-1) SEE SHEET 196.



CONTRACTOR TO COORDINATE FINAL  
BLOCKOUT & RECESS DIMENSIONS  
WITH SUPPLIER. (TYPICAL DETAIL FOR  
SPANS 8 THROUGH 17)

[illegible]

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: TJM	CHECKED BY: JCF

**AECOM**

**90% SUBMISSION - 01/22/16**



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 15 (SEGMENT B)**

DISCIPLINE: **STRUCTURES**

SHEET NAME:	CBR27C06-BRG-SUP-056
-------------	----------------------

SHEET
159
OF
232



Jan, 19 2016 10:24 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-017.dwg By: butterfielda



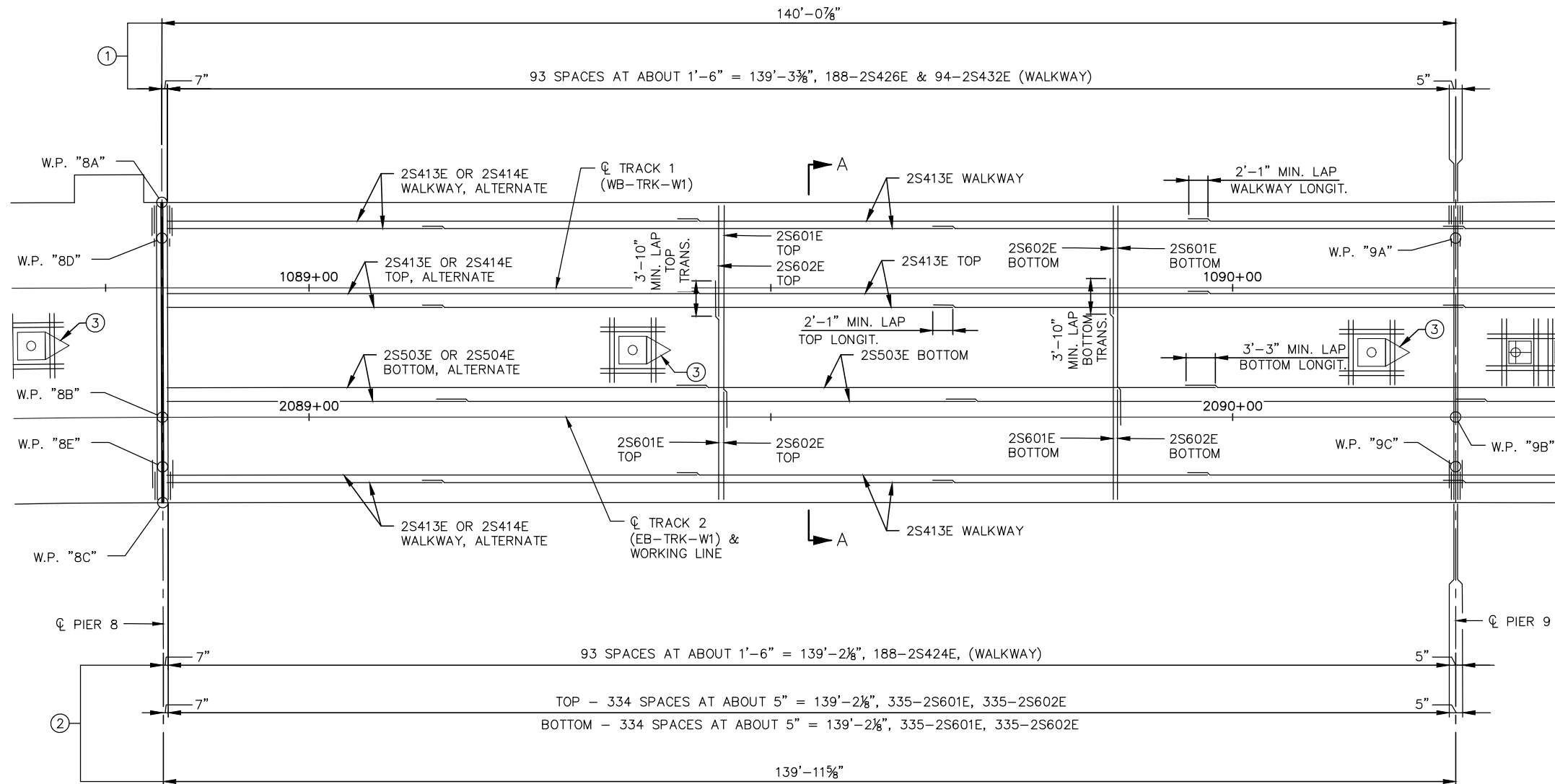
**NOTES:**

"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.

FOR SECTION A-A SEE SHEET 145.

FOR SPAN 8 GEOMETRIC DECK SEE SHEET 135.

- ① MEASURED ALONG NORTH EDGE OF DECK.
- ② MEASURED ALONG SOUTH EDGE OF DECK.
- ③ OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186, ALL BARS NOT SHOWN FOR CLARITY.



**PARTIAL DECK REINFORCEMENT PLAN – SPAN 8**  
(82MW BEAMS)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: TJM  
CHECKED BY: JCF  
CHECKED BY: JCF

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE REINF. 16 (SEGMENT B)**  
DISCIPLINE: **STRUCTURES**  
SHEET NAME: **CBR27C06-BRG-SUP-057**

**SHEET**  
**160**  
**OF**  
**232**

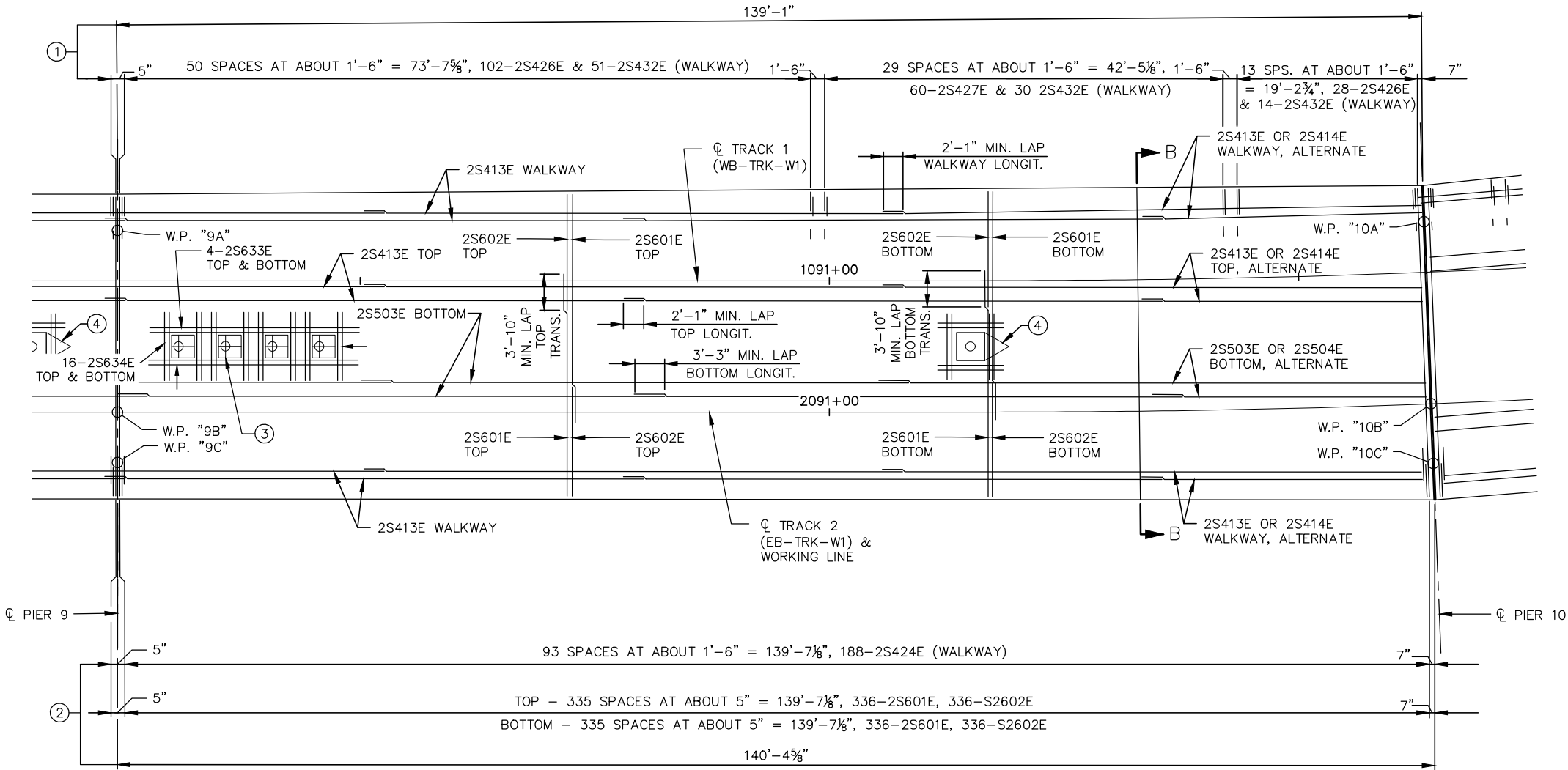
Jan, 19 2016 10:25 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-028.dwg By: butterfielda



NOTES:

"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.  
FOR SECTION B-B SEE SHEET 146.  
FOR SPAN 9 GEOMETRIC DECK SEE SHEET 136.

- ① MEASURED ALONG NORTH EDGE OF DECK.
- ② MEASURED ALONG SOUTH EDGE OF DECK.
- ③ FOR BRIDGE DRAINS SEE SHEET 136 AND 191.
- ④ OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186, ALL BARS NOT SHOWN FOR CLARITY.



PARTIAL DECK REINFORCEMENT PLAN – SPAN 9  
(82MW BEAMS)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: TJM	CHECKED BY: JCF

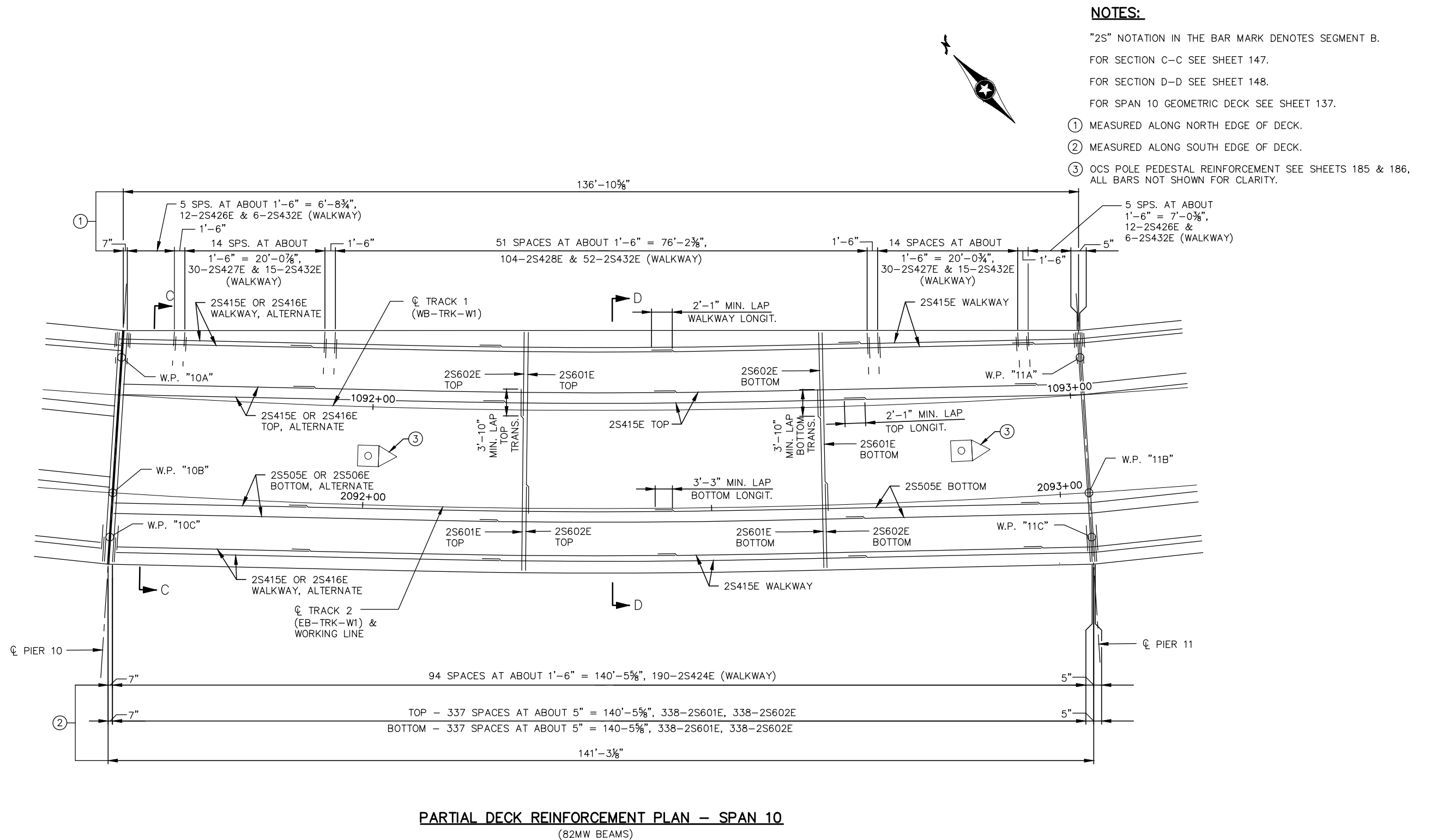
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 17 (SEGMENT B)

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-058

Jan, 19 2016 10:25 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-029.dwg By: butterfield



**PARTIAL DECK REINFORCEMENT PLAN – SPAN 10**  
(82MW BEAMS)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: TJM

CHECKED BY: JCF  
CHECKED BY: JCF

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE REINF. 18 (SEGMENT B)**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C06-BRG-SUP-059**

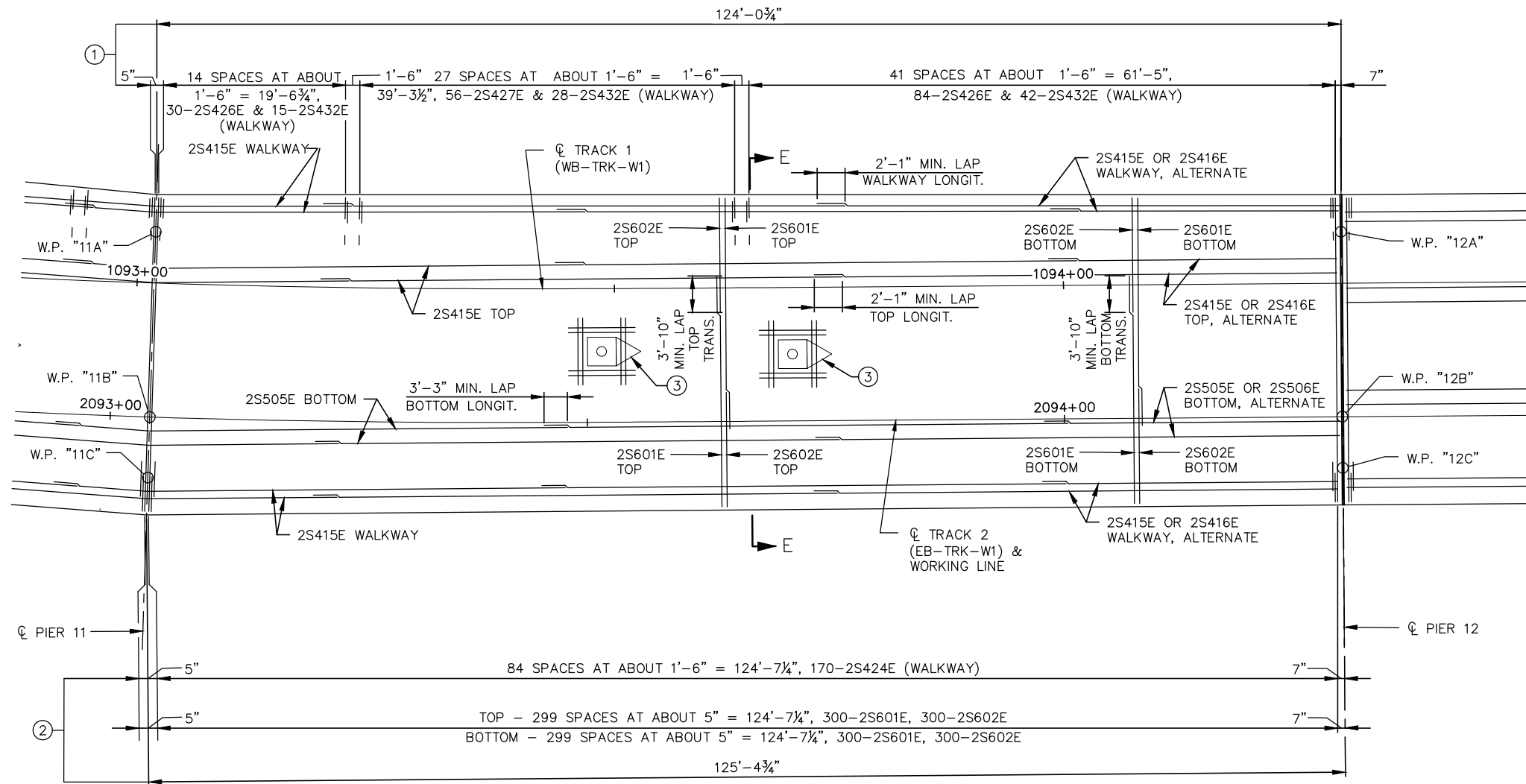
**SHEET**  
**162**  
**OF**  
**232**

Jan, 19 2016 10:26 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-030.dwg By: butterfield



**NOTES:**

- "2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.  
FOR SECTION E-E SEE SHEET 149.  
FOR SPAN 11 GEOMETRIC DECK SEE SHEET 138.
- ① MEASURED ALONG NORTH EDGE OF DECK.
  - ② MEASURED ALONG SOUTH EDGE OF DECK.
  - ③ OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186, ALL BARS NOT SHOWN FOR CLARITY.



**PARTIAL DECK REINFORCEMENT PLAN – SPAN 11**  
(82MW BEAMS)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: TJM

CHECKED BY: JCF  
CHECKED BY: JCF

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE REINF. 19 (SEGMENT B)**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C06-BRG-SUP-060**

**SHEET**  
**163**  
**OF**  
**232**

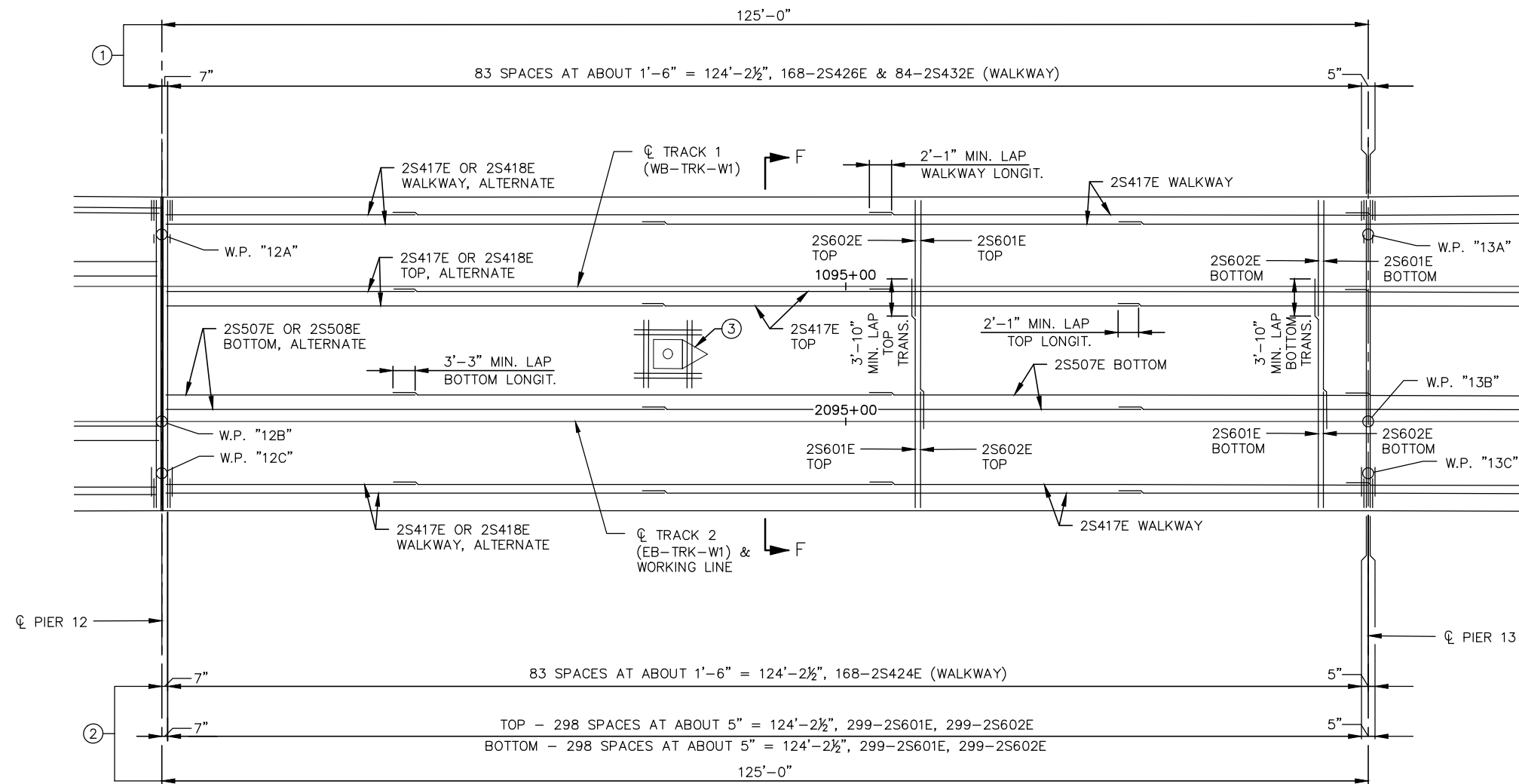
Jan, 19 2016 10:27 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-031.dwg By: butterfielda



**NOTES:**

"2S NOTATION IN THE BAR MARK DENOTES SEGMENT B.  
FOR SECTION F-F SEE SHEET 150.  
FOR SPAN 12 GEOMETRIC DECK SEE SHEET 139.

- ① MEASURED ALONG NORTH EDGE OF DECK.
- ② MEASURED ALONG SOUTH EDGE OF DECK.
- ③ OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186, ALL BARS NOT SHOWN FOR CLARITY.



**PARTIAL DECK REINFORCEMENT PLAN – SPAN 12**  
(82MW BEAMS)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: TJM  
CHECKED BY: JCF  
CHECKED BY: JCF

**AECOM**

90% SUBMISSION - 01/22/16



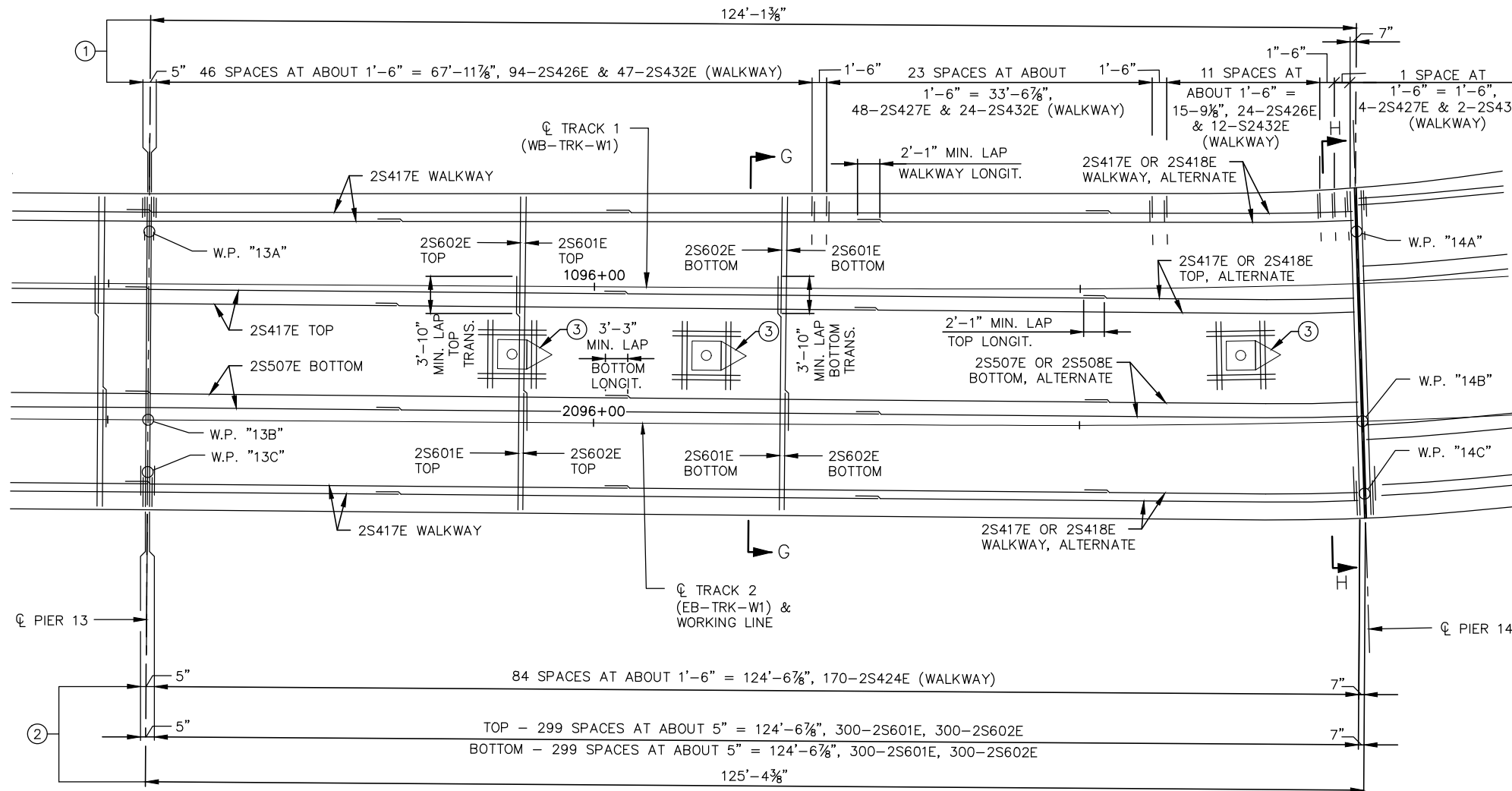
**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE REINF. 20 (SEGMENT B)**  
DISCIPLINE: **STRUCTURES**  
SHEET NAME: **CBR27C06-BRG-SUP-061**

**SHEET**  
**164**  
**OF**  
**232**

Jan, 19 2016 10:27 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-032.dwg By: butterfielda

**NOTES:**

- "2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.  
FOR SECTION G-G SEE SHEET 151.  
FOR SECTION H-H SEE SHEET 152.  
FOR SPAN 13 GEOMETRIC DECK SEE SHEET 140.
- ① MEASURED ALONG NORTH EDGE OF DECK.  
② MEASURED ALONG SOUTH EDGE OF DECK.  
③ OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186, ALL BARS NOT SHOWN FOR CLARITY.



**PARTIAL DECK REINFORCEMENT PLAN - SPAN 13**  
(82MW BEAMS)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: TJM

CHECKED BY: JCF  
CHECKED BY: JCF

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE REINF. 21 (SEGMENT B)**

DISCIPLINE: **STRUCTURES**  
SHEET NAME: **CBR27C06-BRG-SUP-062**

**SHEET**  
**165**  
**OF**  
**232**

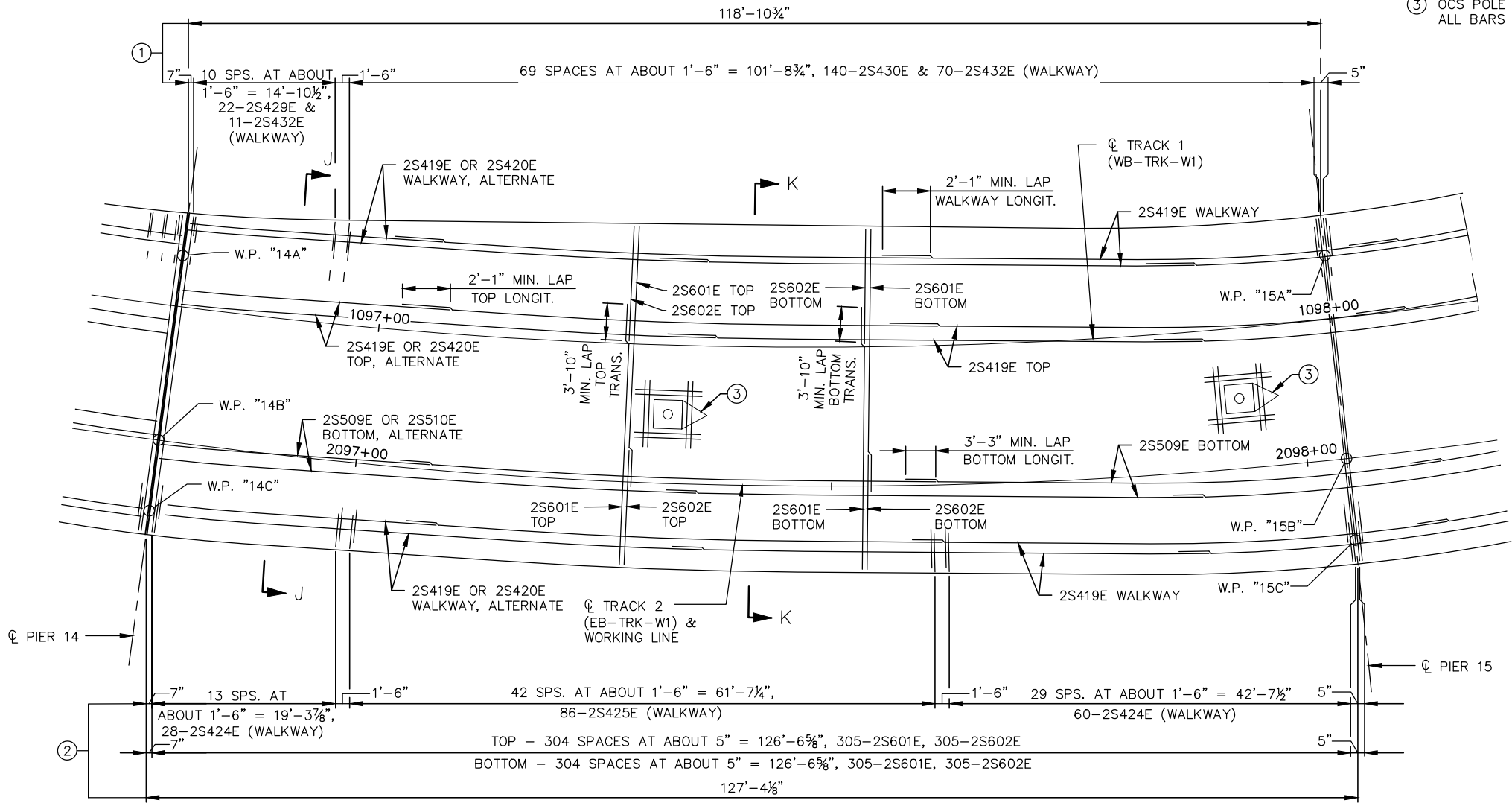
Jan, 19 2016 10:28 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-033.dwg By: butterfielda



NOTES:

"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.  
FOR SECTION J-J SEE SHEET 153.  
FOR SECTION K-K SEE SHEET 154.  
FOR SPAN 14 GEOMETRIC DECK SEE SHEET 141.

- ① MEASURED ALONG NORTH EDGE OF DECK.
- ② MEASURED ALONG SOUTH EDGE OF DECK.
- ③ OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186, ALL BARS NOT SHOWN FOR CLARITY.



PARTIAL DECK REINFORCEMENT PLAN – SPAN 14  
(82MW BEAMS)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: TJM  
CHECKED BY: JCF  
CHECKED BY: JCF

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 22 (SEGMENT B)

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-063

SHEET  
166  
OF  
232

Jan, 19 2016 10:28 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-034.dwg By: butterfielda

NOTES:

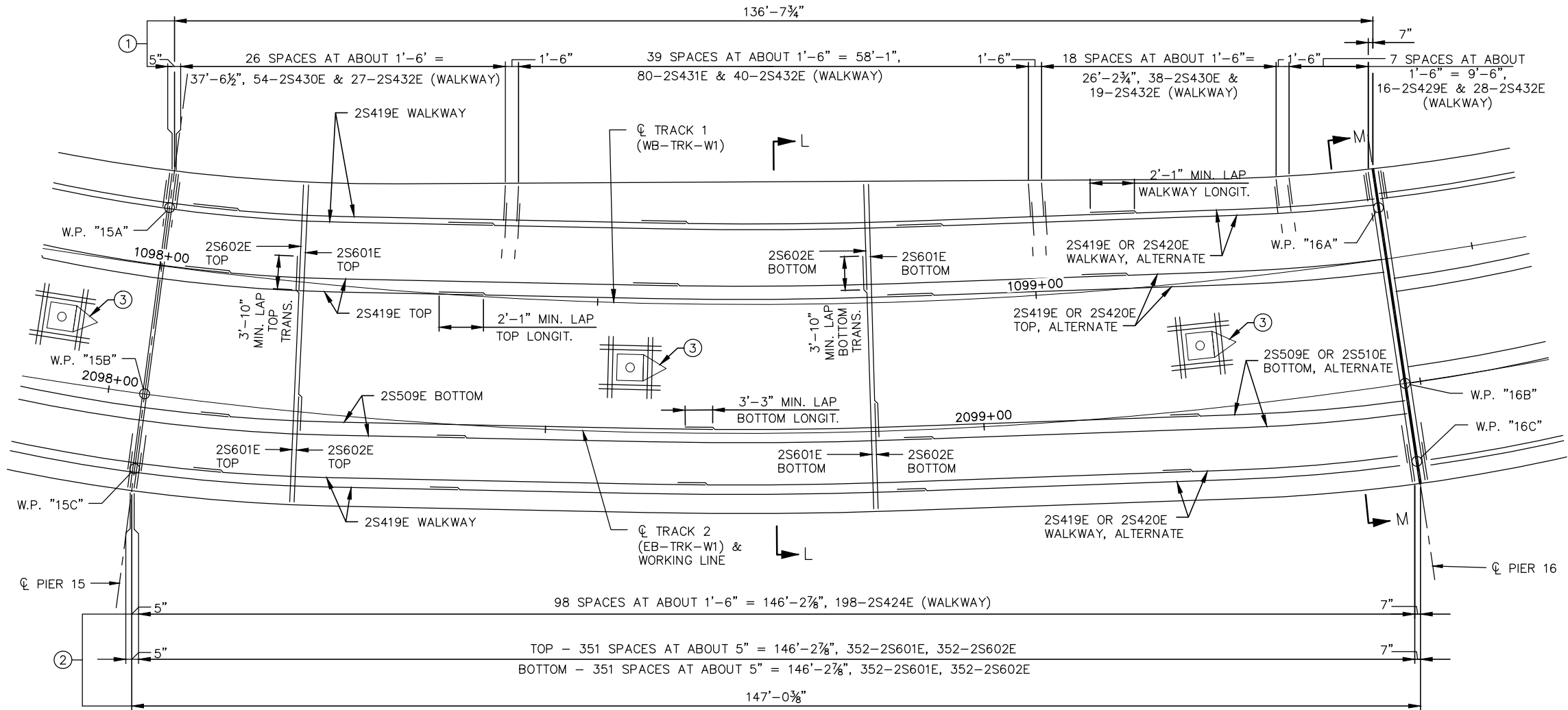
"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.

FOR SECTION L-L SEE SHEET 155.



FOR SECTION M-M SEE SHEET 156.

FOR SPAN 15 GEOMETRIC DECK SEE SHEET 142.

- ① MEASURED ALONG NORTH EDGE OF DECK.  
② MEASURED ALONG SOUTH EDGE OF DECK.  
③ OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186,  
ALL BARS NOT SHOWN FOR CLARITY.



PARTIAL DECK REINFORCEMENT PLAN – SPAN 15  
(82MW BEAMS)

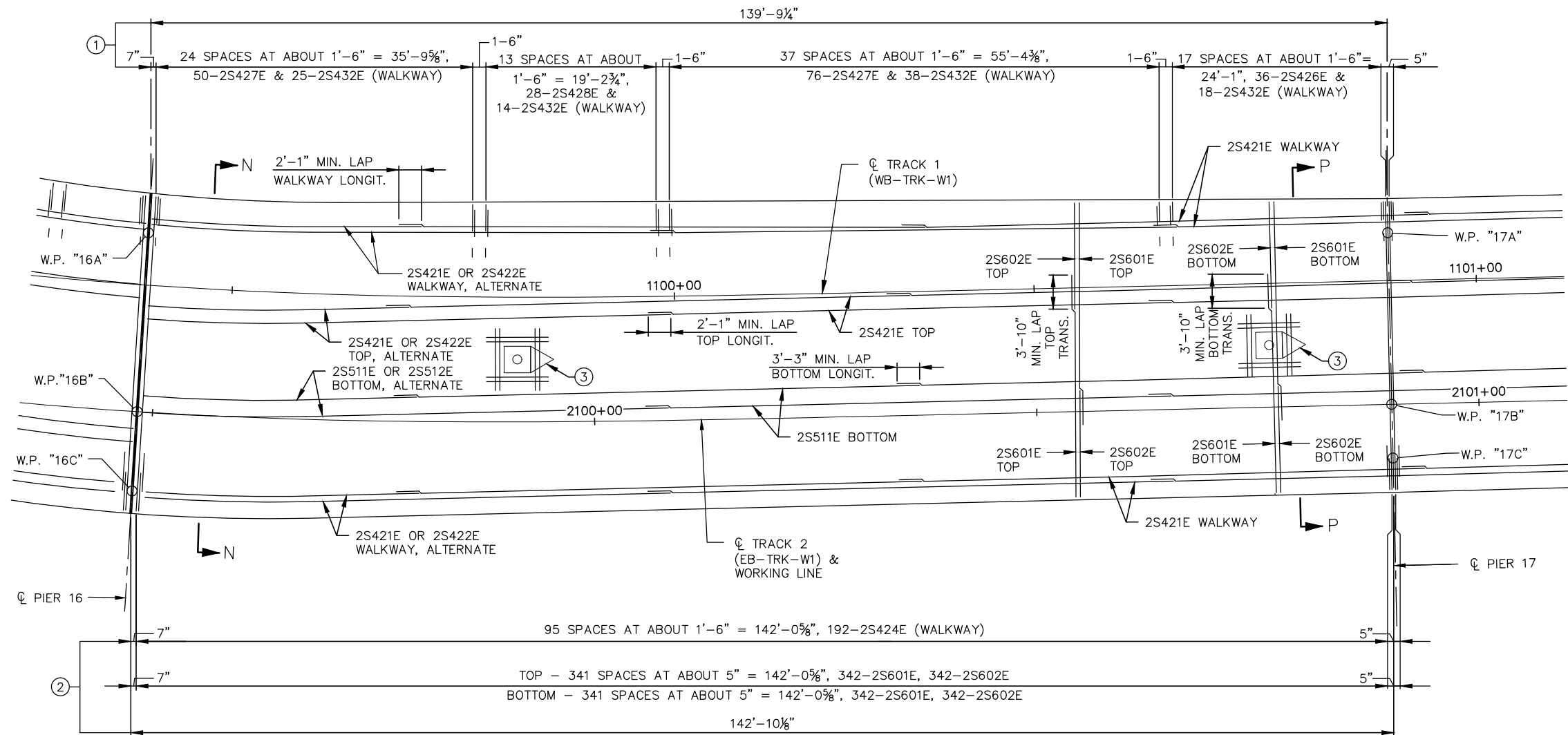
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL							CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 SUPERSTRUCTURE REINF. 23 (SEGMENT B)		SHEET 167 OF 232
	</													



Jan, 19 2016 10:29 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-035.dwg By: butterfielda

NOTES:

- "2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.  
FOR SECTION N-N SEE SHEET 157.  
FOR SECTION P-P SEE SHEET 158.  
FOR SPAN 16 GEOMETRIC DECK SEE SHEET 143.
- ① MEASURED ALONG NORTH EDGE OF DECK.  
② MEASURED ALONG SOUTH EDGE OF DECK.  
③ OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186, ALL BARS NOT SHOWN FOR CLARITY.



PARTIAL DECK REINFORCEMENT PLAN - SPAN 16  
(82MW BEAMS)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: TJM

CHECKED BY: JCF  
CHECKED BY: JCF

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 24 (SEGMENT B)

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-SUP-065

SHEET  
168  
OF  
232

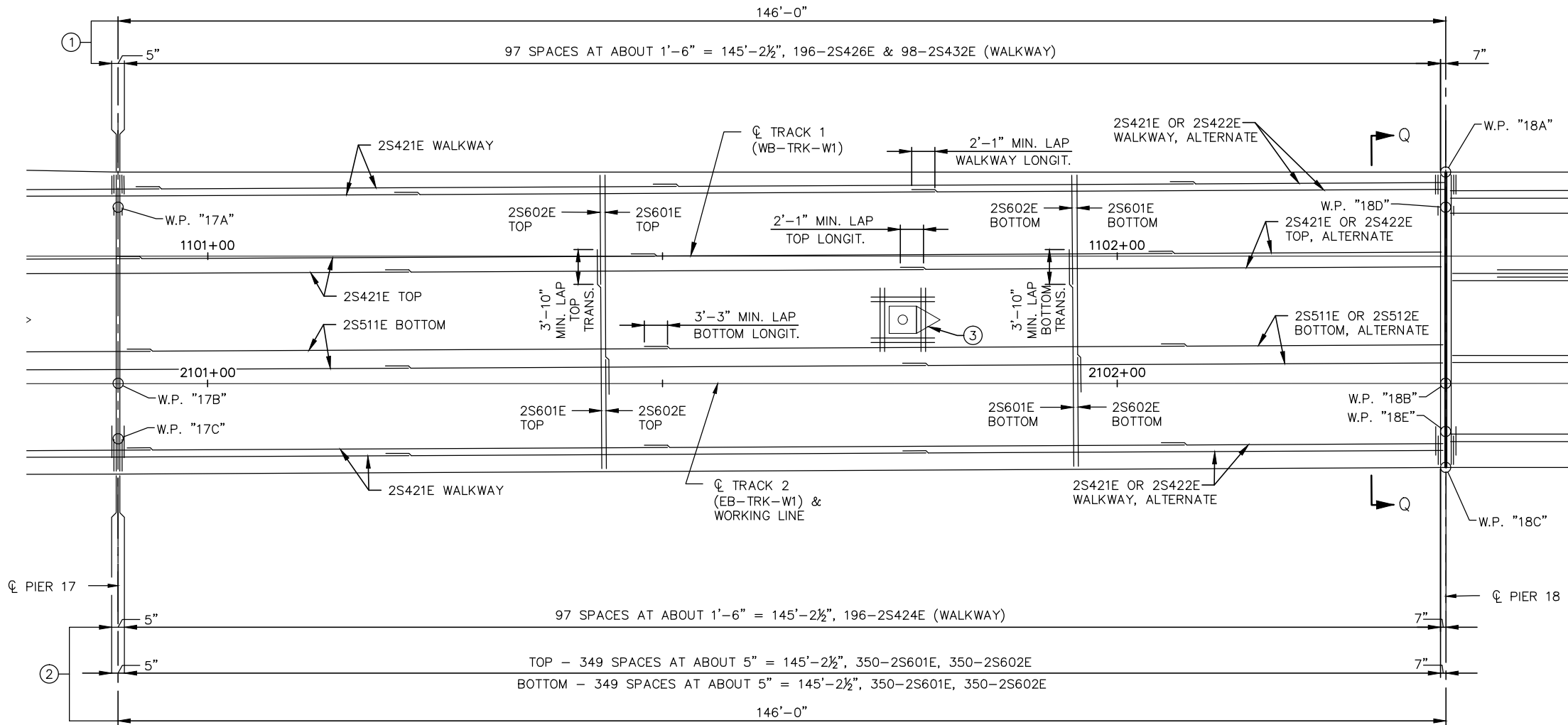
Jan, 19 2016 10:30 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-036.dwg By: butterfielda



**NOTES:**

"2S" NOTATION IN THE BAR MARK DENOTES SEGMENT B.  
FOR SECTION Q-Q SEE SHEET 159.  
FOR SPAN 17 GEOMETRIC DECK SEE SHEET 144.

- ① MEASURED ALONG NORTH EDGE OF DECK.  
② MEASURED ALONG SOUTH EDGE OF DECK.  
③ OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186, ALL BARS NOT SHOWN FOR CLARITY.



**PARTIAL DECK REINFORCEMENT PLAN – SPAN 17**  
(82MW BEAMS)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: TJM  
CHECKED BY: JCF  
CHECKED BY: JCF

**AECOM**

90% SUBMISSION - 01/22/16



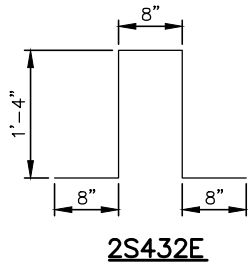
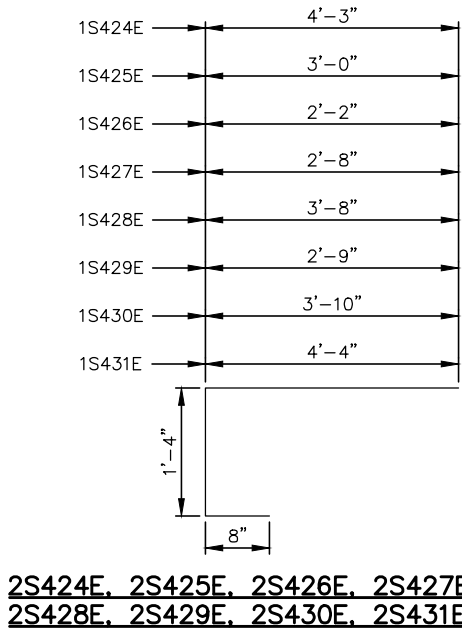
**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE REINF. 25 (SEGMENT B)**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C06-BRG-SUP-066**

**SHEET**  
**169**  
**OF**  
**232**

Jan, 19 2016 10:30 am V:\3400\_ADC\CAD\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-037.dwg By: butterfielda



BILL OF REINFORCEMENT FOR SUPERSTRUCTURE - SEGMENT B				
BAR	NO.	LENGTH	SHAPE	LOCATION
2S601E	6514	29'- 4"		TOP AND BOTTOM TRANSVERSE - SPAN 8 - 17
2S602E	6514	12'- 0"		TOP AND BOTTOM TRANSVERSE - SPAN 8 - 17
2S503E	297	58'- 9"		BOTTOM LONGITUDINAL - SPANS 8 & 9
2S504E	66	30'- 9"		BOTTOM LONGITUDINAL - SPANS 8 & 9
2S505E	311	56'- 0"		BOTTOM LONGITUDINAL - SPANS 10 & 11
2S506E	68	29'- 3"		BOTTOM LONGITUDINAL - SPANS 10 & 11
2S507E	302	52'- 9"		BOTTOM LONGITUDINAL - SPANS 12 & 13
2S508E	66	27'- 9"		BOTTOM LONGITUDINAL - SPANS 12 & 13
2S509E	338	57'- 6"		BOTTOM LONGITUDINAL - SPANS 14 & 15
2S510E	74	30'- 3"		BOTTOM LONGITUDINAL - SPANS 14 & 15
2S511E	396	51'- 0"		BOTTOM LONGITUDINAL - SPANS 16 & 17
2S512E	72	26'- 6"		BOTTOM LONGITUDINAL - SPANS 16 & 17
2S413E	190	57'- 9"		TOP LONGITUDINAL - SPANS 8, 9 & WALKWAY
2S414E	40	29'- 9"		TOP LONGITUDINAL - SPANS 8, 9 & WALKWAY
2S415E	203	55'- 0"		TOP LONGITUDINAL - SPANS 10, 11 & WALKWAY
2S416E	44	28'- 6"		TOP LONGITUDINAL - SPANS 10, 11 & WALKWAY
2S417E	189	51'- 9"		TOP LONGITUDINAL - SPANS 12, 13 & WALKWAY
2S418E	42	26'- 9"		TOP LONGITUDINAL - SPANS 12, 13 & WALKWAY
2S419E	225	56'- 6"		TOP LONGITUDINAL - SPANS 14, 15 & WALKWAY
2S420E	50	29'- 3"		TOP LONGITUDINAL - SPANS 14, 15 & WALKWAY
2S421E	208	59'- 6"		TOP LONGITUDINAL - SPANS 16, 17 & WALKWAY
2S422E	44	30'- 6"		TOP LONGITUDINAL - SPANS 16, 17 & WALKWAY
2S623E	234	15'- 0"		TOP LONGITUDINAL - AT PIERS
2S424E	1748	6'- 3"		STIRRUPS - SPANS 8 - 17 SOUTH WALKWAY
2S425E	86	5'- 0"		STIRRUPS - SPANS 14 SOUTH WALKWAY
2S426E	974	4'- 2"		STIRRUPS - SPANS 8 - 13, 16, 17 NORTH WALKWAY
2S427E	354	4'- 8"		STIRRUPS - SPANS 9 - 11, 13, 16 NORTH WALKWAY
2S428E	132	5'- 8"		STIRRUPS - SPANS 10, 16 NORTH WALKWAY
2S429E	38	4'- 9"		STIRRUPS - SPANS 14, 15 NORTH WALKWAY
2S430E	232	5'- 10"		STIRRUPS - SPANS 14, 15 NORTH WALKWAY
2S431E	80	6'- 4"		STIRRUPS - SPAN 15 NORTH WALKWAY
2S432E	905	4'- 8"		STIRRUPS - SPANS 8 - 17 NORTH WALKWAY
2S633E	8	25'- 6"		DECK LONGITUDINAL - TOP AND BOTTOM DRAINAGE
2S634E	32	10'- 6"		DECK TRANSVERSE - TOP AND BOTTOM DRAINAGE

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: ALB	CHECKED BY: JCF

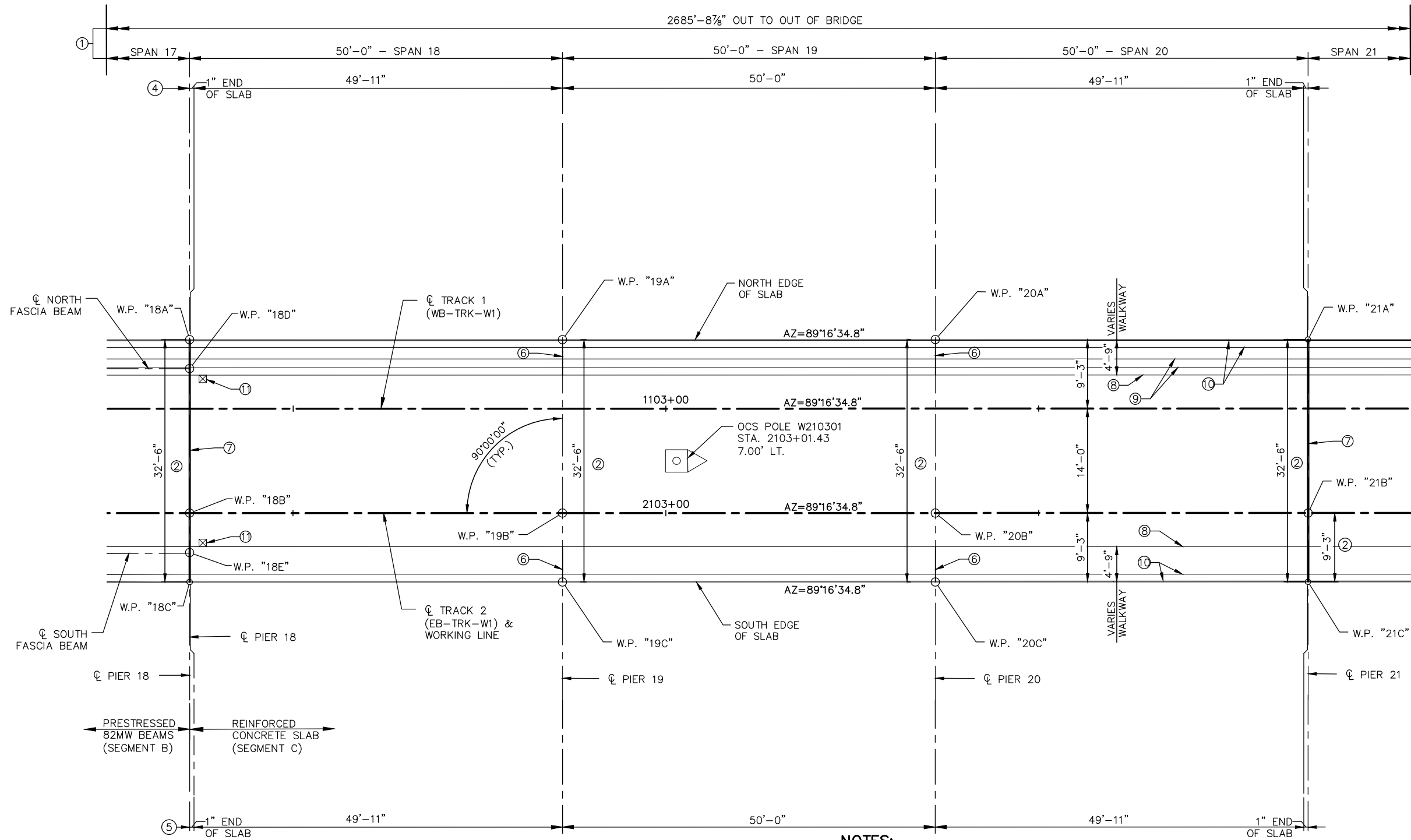
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 26 (SEGMENT B)

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-067

Jan, 19 2016 10:31 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-008.dwg By: butterfielda



DECK PLAN - SPAN 18-20  
(REINFORCED CONCRETE SLAB)

NOTES:

- ① MEASURED ALONG  $\phi$  TRACK 2 (EB-TRK-W1)

② DECK SPAN MEASURED ALONG  $\phi$  PIER

③ T.T.S. TYPICAL UNLESS SHOWN OTHERWISE.
- ④ MEASURED ALONG NORTH EDGE OF SLAB.

⑤ MEASURED ALONG SOUTH EDGE OF SLAB.

⑥ WALKWAY CONTROL JOINT LOCATION AT  $\phi$  PIER.

⑦ BRIDGE EXPANSION JOINT LOCATION AT  $\phi$  PIER.
- ⑧ EDGE OF WALKWAY.

⑨ EDGE OF 14" EXPRESS TROUGH COVER.

⑩ EDGE OF 11" CURB.

⑪ STRAY CURRENT TEST STATION. SEE NOTE 7 ON SHEET 10.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: ALB	CHECKED BY: ATN

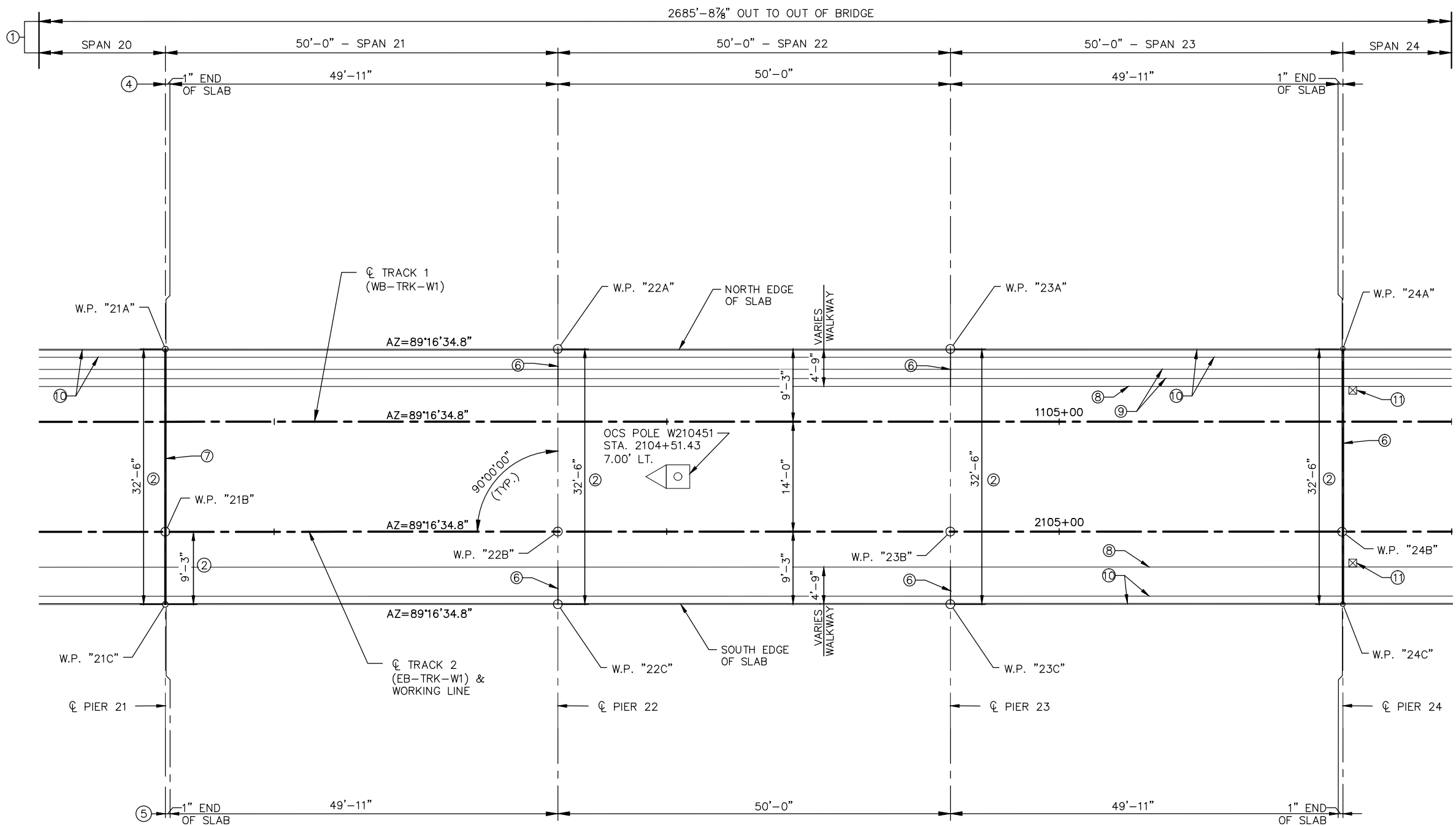
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE GEOM. 1 (SEGMENT C)

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-068

Jan, 19 2016 10:31 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-008.dwg By: butterfielda



**DECK PLAN - SPAN 21-23**  
(REINFORCED CONCRETE SLAB)

**NOTES:**

- T.T.S. DENOTES TANGENT TO SPIRAL.
- ① MEASURED ALONG CL TRACK 2 (EB-TRK-W1)
  - ② DECK SPAN MEASURED ALONG CL PIER
  - ③ T.T.S. TYPICAL UNLESS SHOWN OTHERWISE.
  - ④ MEASURED ALONG NORTH EDGE OF SLAB.
  - ⑤ MEASURED ALONG SOUTH EDGE OF SLAB.
  - ⑥ WALKWAY CONTROL JOINT LOCATION AT CL PIER.
  - ⑦ BRIDGE EXPANSION JOINT LOCATION AT CL PIER.
  - ⑧ EDGE OF WALKWAY.
  - ⑨ EDGE OF 14" EXPRESS TROUGH COVER.
  - ⑩ EDGE OF 11" CURB.
  - ⑪ STAY CURRENT TEST STATION SEE NOTE 7 ON SHEET 10.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: ALB

CHECKED BY: JCF  
CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



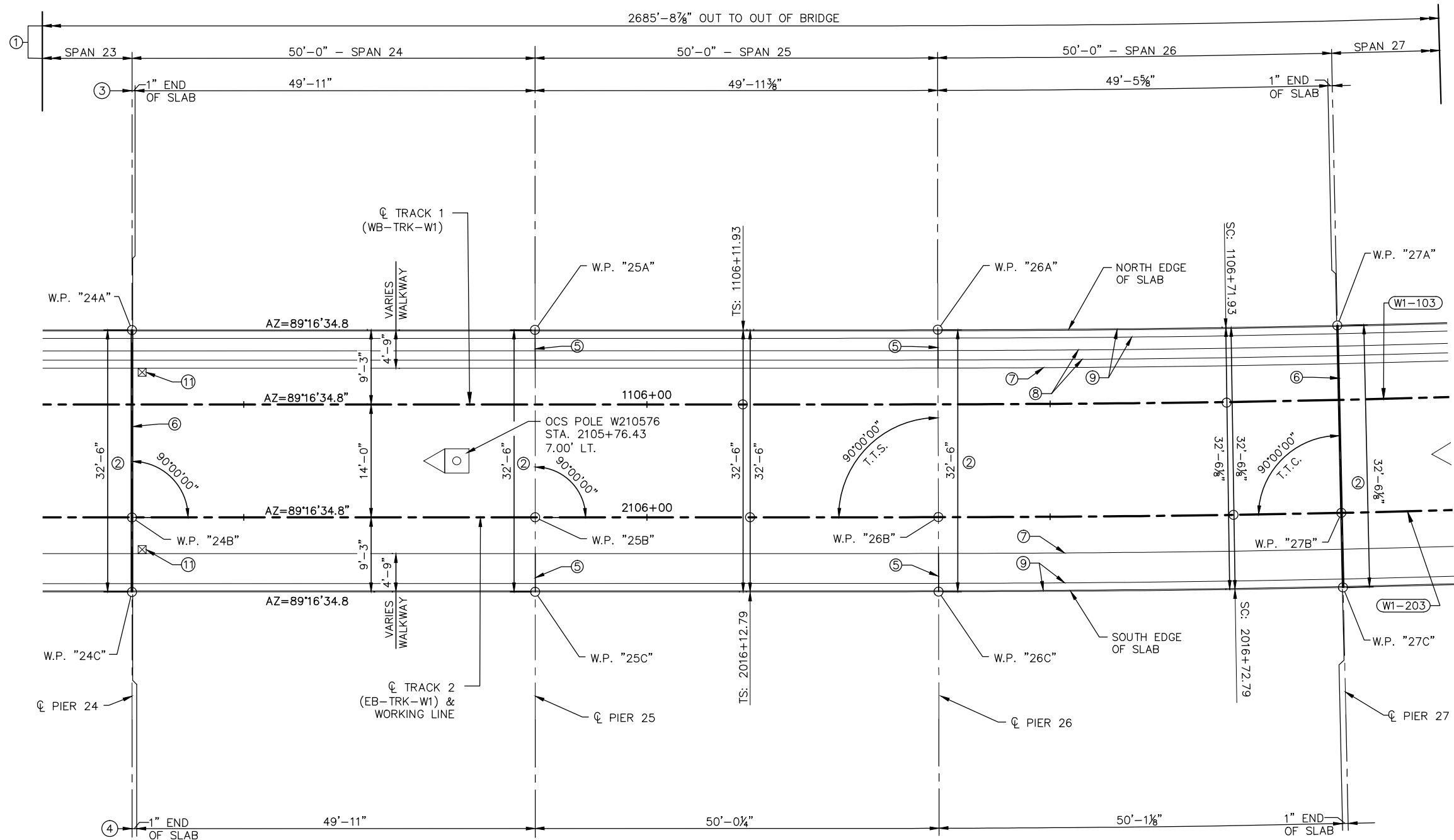
**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE GEOM. 2 (SEGMENT C)**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C06-BRG-SUP-069**

**SHEET**  
**172**  
**OF**  
**232**

Jan, 19 2016 10:31 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-008.dwg By: butterfielda



CURVE NO. W1-103
R = 2000.00'
Lc = 185.79'
Ls = 60'
Ea = 1.00"
Eu = 1.43"
V = 35 MPH

CURVE NO. W1-203
R = 2000.00'
Lc = 185.79'
Ls = 60'
Ea = 1.00"
Eu = 1.43"
V = 35 MPH

DECK PLAN - SPAN 24-26  
(REINFORCED CONCRETE SLAB)

NOTES:

T.T.S. DENOTES TANGENT TO SPIRAL.  
T.T.C. DENOTES TANGENT TO CURVE.

- ① MEASURED ALONG  $\phi$  TRACK 2 (EB-TRK-W1)

② DECK SPAN MEASURED ALONG  $\phi$  PIER
- ③ MEASURED ALONG NORTH EDGE OF SLAB.

④ MEASURED ALONG SOUTH EDGE OF SLAB.

⑤ WALKWAY CONTROL JOINT LOCATION AT  $\phi$  PIER.

⑥ BRIDGE EXPANSION JOINT LOCATION AT  $\phi$  PIER.
- ⑦ EDGE OF WALKWAY.

⑧ EDGE OF 14" EXPRESS TROUGH COVER.

⑨ EDGE OF 11" CURB.

⑩ STRAY CURRENT TEST STATION. SEE NOTE 7 ON SHEET 10.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

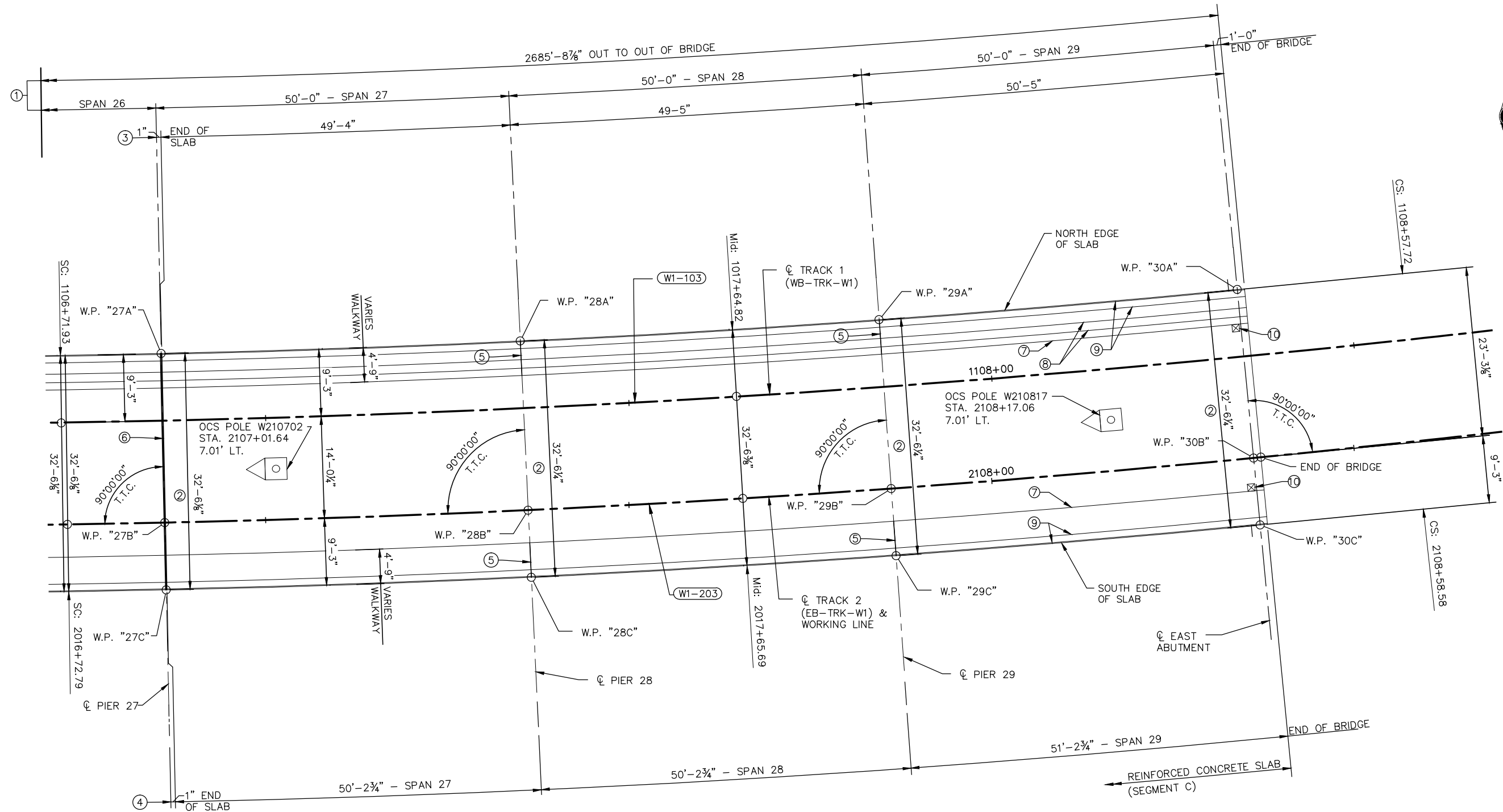
DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: ALB	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE GEOM. 3 (SEGMENT C)

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-SUP-070

Jan, 19 2016 10:31 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-008.dwg By: butterfly



CURVE NO. W1-103
R = 2000.00'
Lc = 185.79'
Ls = 60'
Ea = 1.00"
Eu = 1.43"
V = 35 MPH

CURVE NO. W1-203
R = 2000.00'
Lc = 185.79'
Ls = 60'
Ea = 1.00"
Eu = 1.43"
V = 35 MPH

DECK PLAN - SPAN 27-29  
(REINFORCED CONCRETE SLAB)

NOTES:

- T.T.S. DENOTES TANGENT TO SPIRAL.

T.T.C. DENOTES TANGENT TO CURVE.

① MEASURED ALONG CL TRACK 2 (EB-TRK-W1).

② DECK SPAN MEASURED ALONG CL PIER.
- ③ MEASURED ALONG NORTH EDGE OF SLAB.

④ MEASURED ALONG SOUTH EDGE OF SLAB.

⑤ WALKWAY CONTROL JOINT LOCATION AT CL PIER.

⑥ BRIDGE EXPANSION JOINT LOCATION AT CL PIER.
- ⑦ EDGE OF WALKWAY.

⑧ EDGE OF 14" EXPRESS TROUGH COVER.

⑨ EDGE OF 11" CURB.

⑩ STRAY CURRENT TEST STATION AND GROUND ARRAY. SEE NOTE 9 AND 12 ON SHEET 10.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: ALB	CHECKED BY: ATN

AECOM

90% SUBMISSION - 01/22/16



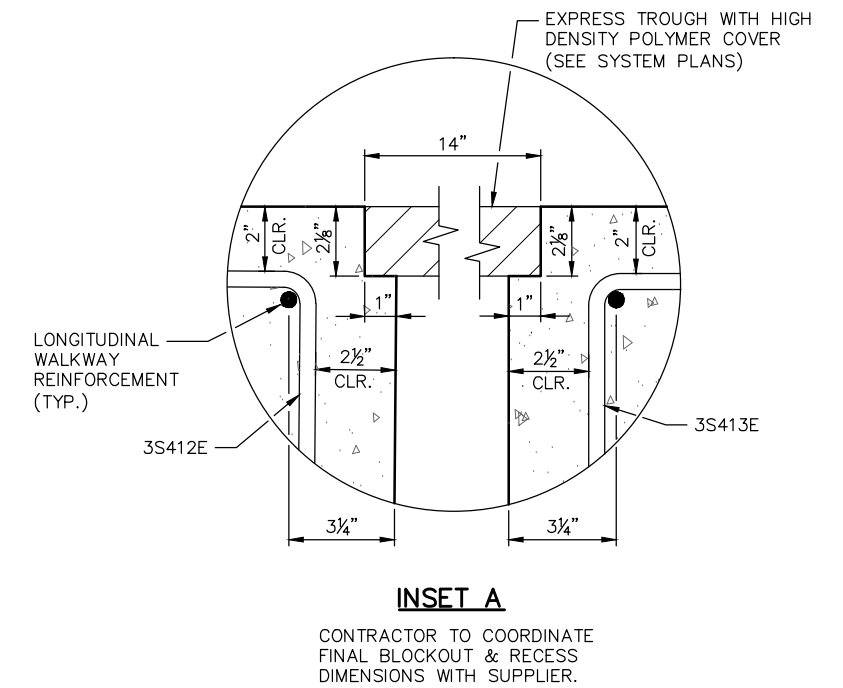
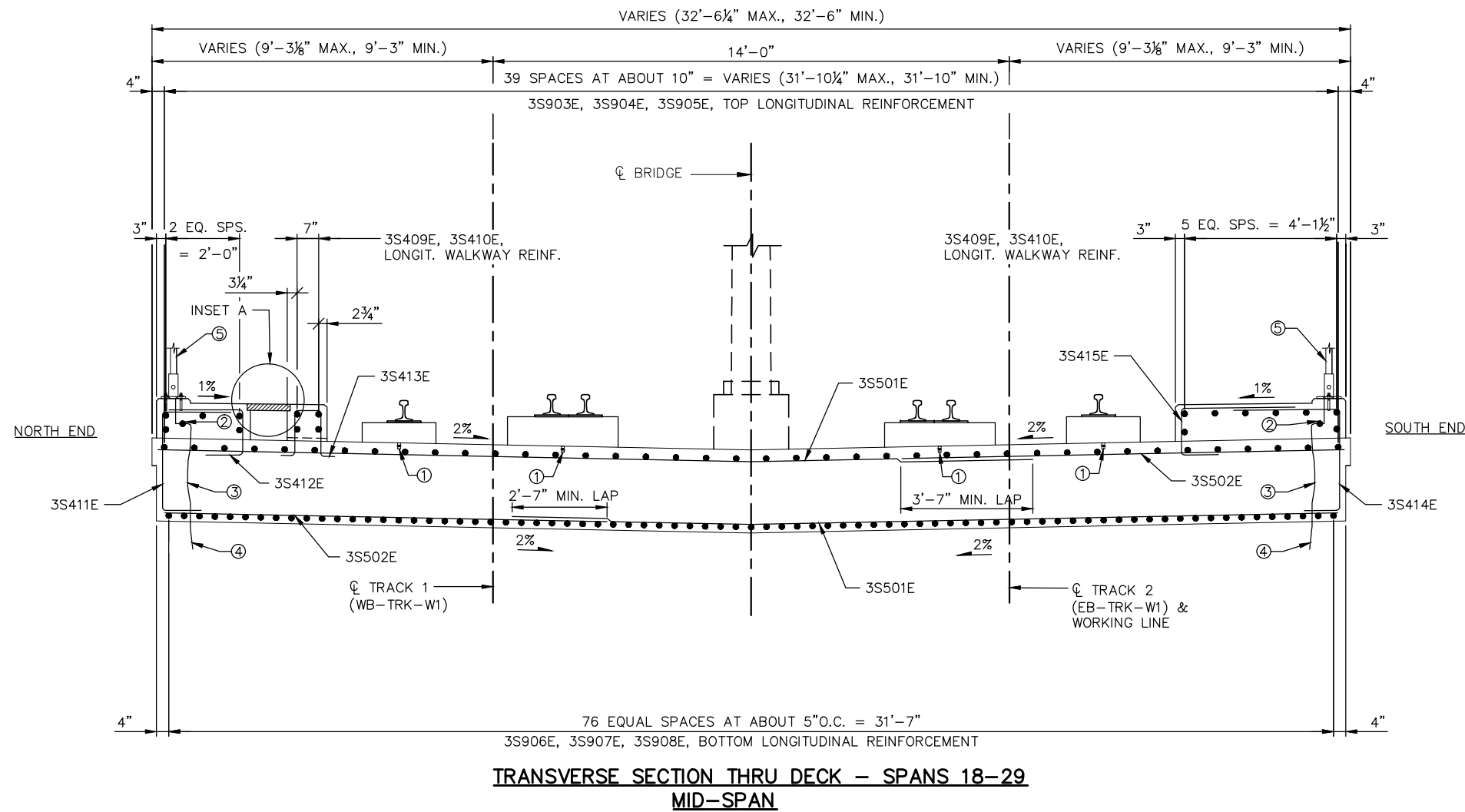
CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 SUPERSTRUCTURE GEOM. 4 (SEGMENT C)		SHEET 174 OF 232
DISCIPLINE:	SHEET NAME:	
STRUCTURES	CBR27C06-BRG-SUP-071	

Jan, 19 2016 10:31 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-022.dwg By: butterfield

**NOTES:**

"3S" NOTATION IN BAR MARK DENOTES SEGMENT C.

- ① STRAY CURRENT COLLECTOR CABLE. SEE NOTE 4 ON SHEET 10.
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED WITHIN THE SLAB. SEE GROUNDING PLANS.
- ④ CONNECT TO GROUND WIRE IN PIER. SEE GROUNDING PLANS
- ⑤ WIRE FENCE (DESIGN W-1) SEE SHEET 196.



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: ALB

CHECKED BY: KL  
CHECKED BY: ---

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE REINF. 1 (SEGMENT C)**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C06-BRG-SUP-072**

**SHEET**  
**175**  
**OF**  
**232**

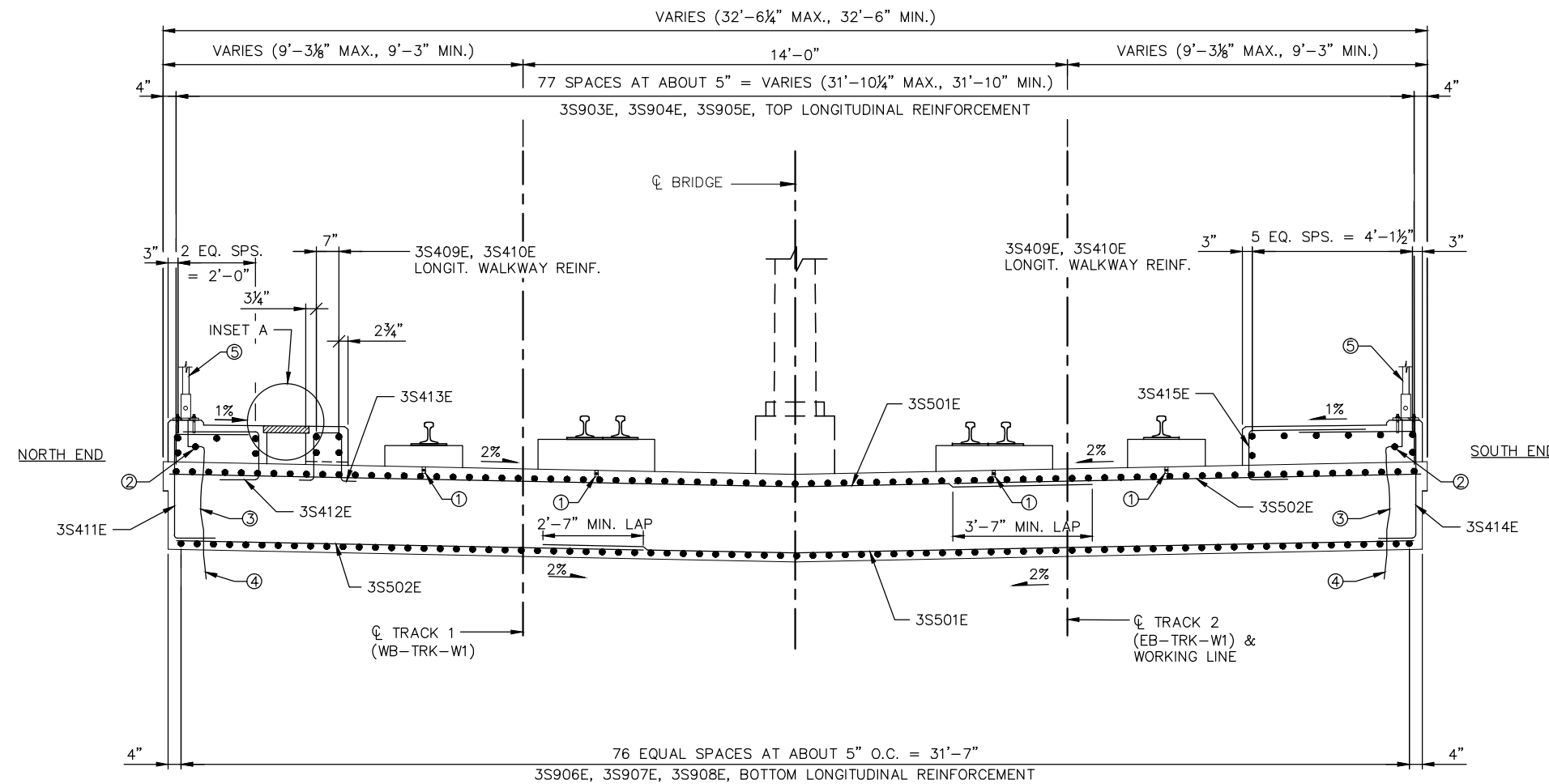


Jan, 19 2016 10:31 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-022.dwg By: butterfielda

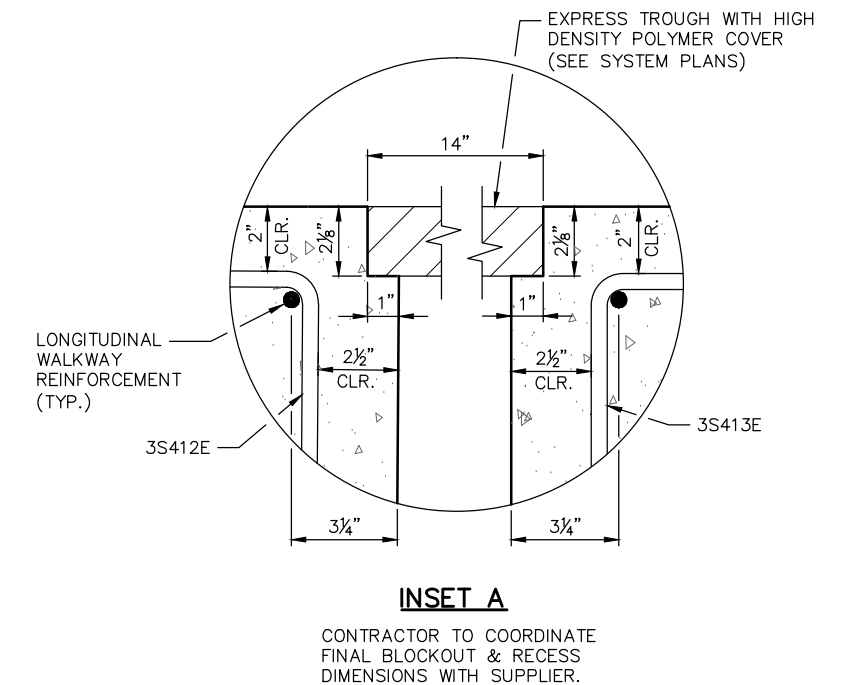
# NOTES:

"3S" NOTATION IN BAR MARK DENOTES SEGMENT C.

- ① STRAY CURRENT COLLECTOR CABLE. SEE NOTE 4 ON SHEET 10.
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED WITHIN THE SLAB. SEE GROUNDING PLANS.
- ④ CONNECT GROUND WIRE IN PIER.
- ⑤ WIRE FENCE (DESIGN W-1) SEE SHEET 196.



TRANSVERSE SECTION THRU DECK - SPANS 18-29  
CENTERLINE PIER



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: ALB

CHECKED BY: KL  
CHECKED BY: ---

**AECOM**

90% SUBMISSION - 01/22/16



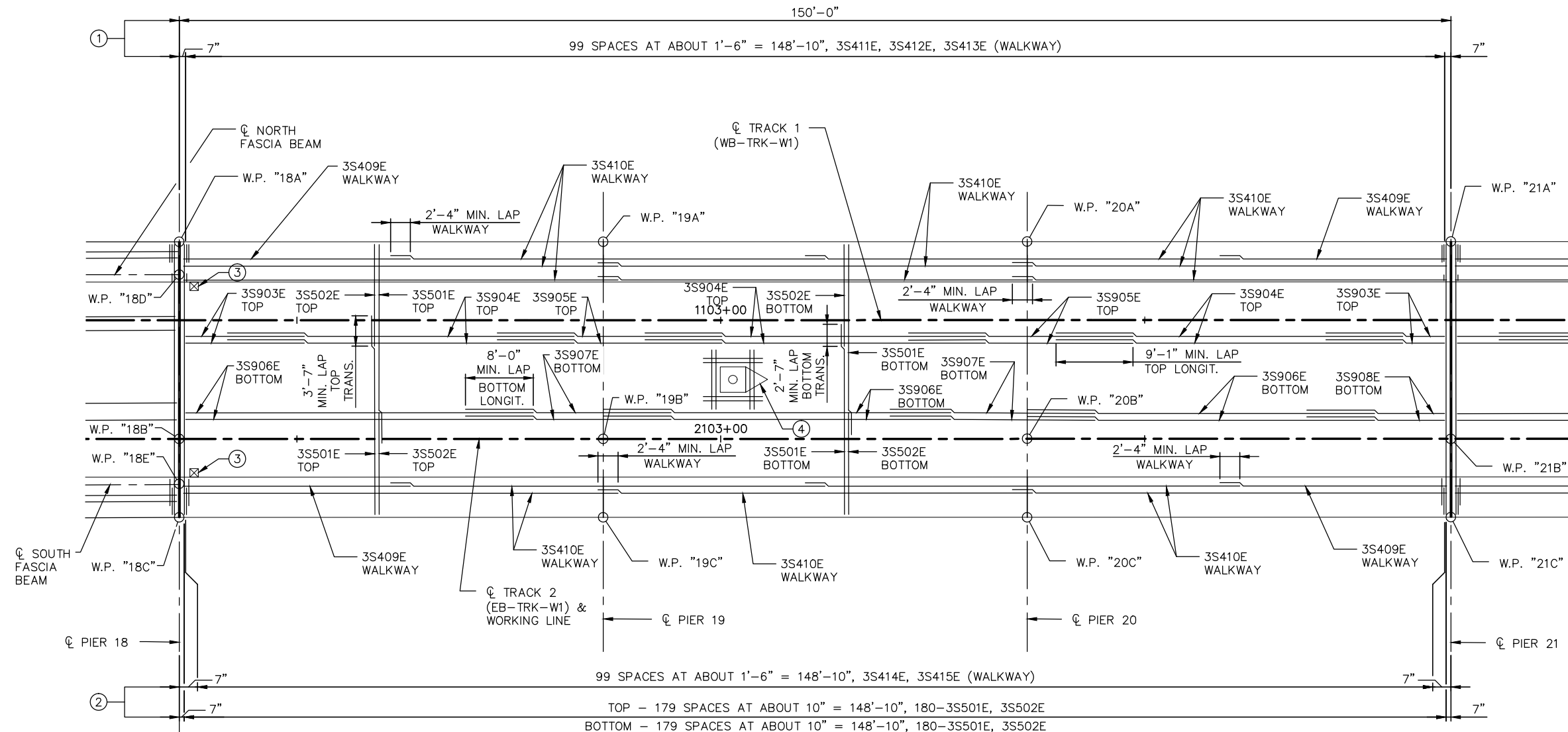
**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 2 (SEGMENT C)**

DISCIPLINE: **STRUCTURES**

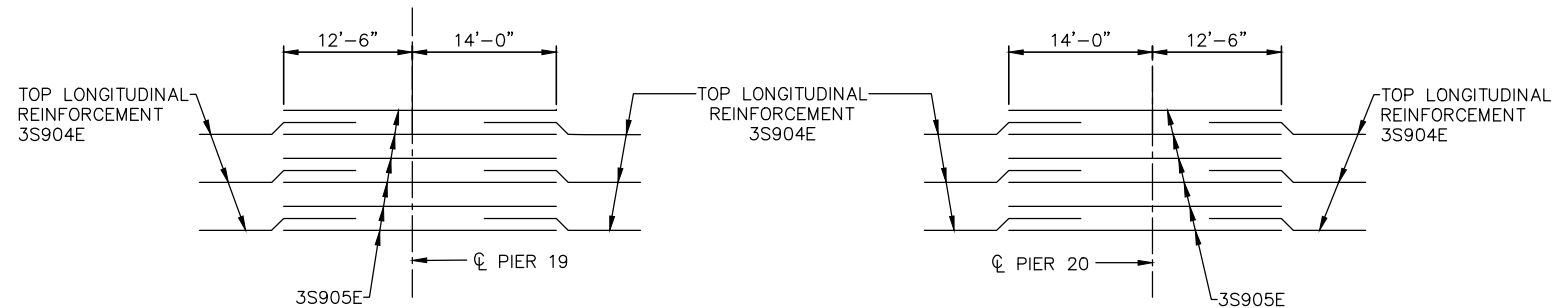
SHEET NAME: **CBR27C06-BRG-SUP-073**

**SHEET**  
**176**  
**OF**  
**232**

Jan, 19 2016 10:32 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-074.dwg By: butterfield



**PARTIAL DECK REINFORCEMENT PLAN - SPAN 18-20**  
(REINFORCED CONCRETE SLAB)



**ADDITIONAL TOP REINFORCEMENT**  
**AT PIER 19 & 20**

**NOTES:**

- "3S" NOTATION IN THE BAR MARK DENOTES SEGMENT C.
- FOR SECTION AT PIER SEE SHEET 176.
- FOR SECTION AT MID-SPAN SEE SHEET 175.
- FOR SPAN 18-20 GEOMETRIC PLANS SEE SHEET 171.
- ① MEASURED ALONG NORTH EDGE OF DECK.
- ② MEASURED ALONG SOUTH EDGE OF DECK.
- ③ STRAY CURRENT TEST STATION. SEE NOTE 7 ON SHEET 10.
- ④ OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186, ALL BARS NOT SHOWN FOR CLARITY.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: ALB

CHECKED BY: KL  
CHECKED BY: ---

**AECOM**

90% SUBMISSION - 01/22/16



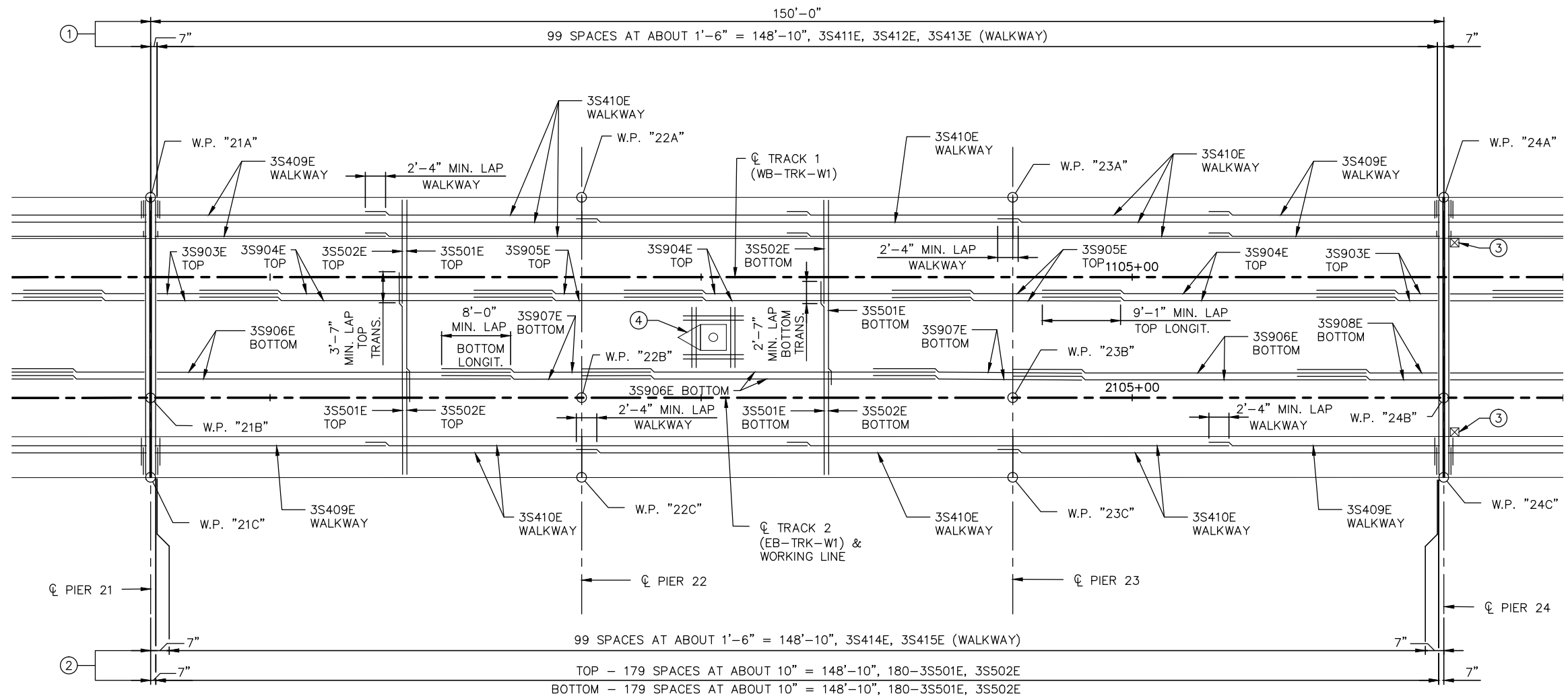
**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE REINF. 3 (SEGMENT C)**

DISCIPLINE: **STRUCTURES**

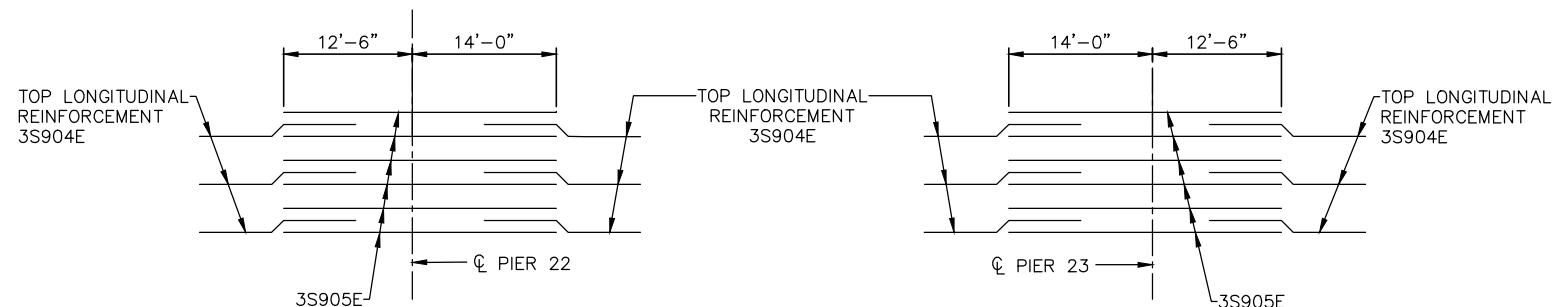
SHEET NAME: **CBR27C06-BRG-SUP-074**

**SHEET**  
**177**  
**OF**  
**232**

Jan, 19 2016 10:32 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-074.dwg By: butterfielda



**PARTIAL DECK REINFORCEMENT PLAN - SPAN 21-23**  
(REINFORCED CONCRETE SLAB)



**ADDITIONAL TOP REINFORCEMENT**  
**AT PIER 22 & 23**

**NOTES:**

"3S" NOTATION IN THE BAR MARK DENOTES SEGMENT C.

FOR SECTION AT PIER SEE SHEET 176.

FOR SECTION AT MID-SPAN SEE SHEET 175.

FOR SPAN 21-23 GEOMETRIC PLANS SEE SHEET 172.

- ① MEASURED ALONG NORTH EDGE OF DECK.
- ② MEASURED ALONG SOUTH EDGE OF DECK.
- ③ STRAY CURRENT TEST STATION. SEE NOTE 7 ON SHEET 10.
- ④ OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186, ALL BARS NOT SHOWN FOR CLARITY.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: ALB  
CHECKED BY: KL  
CHECKED BY: ---

**AECOM**

90% SUBMISSION - 01/22/16



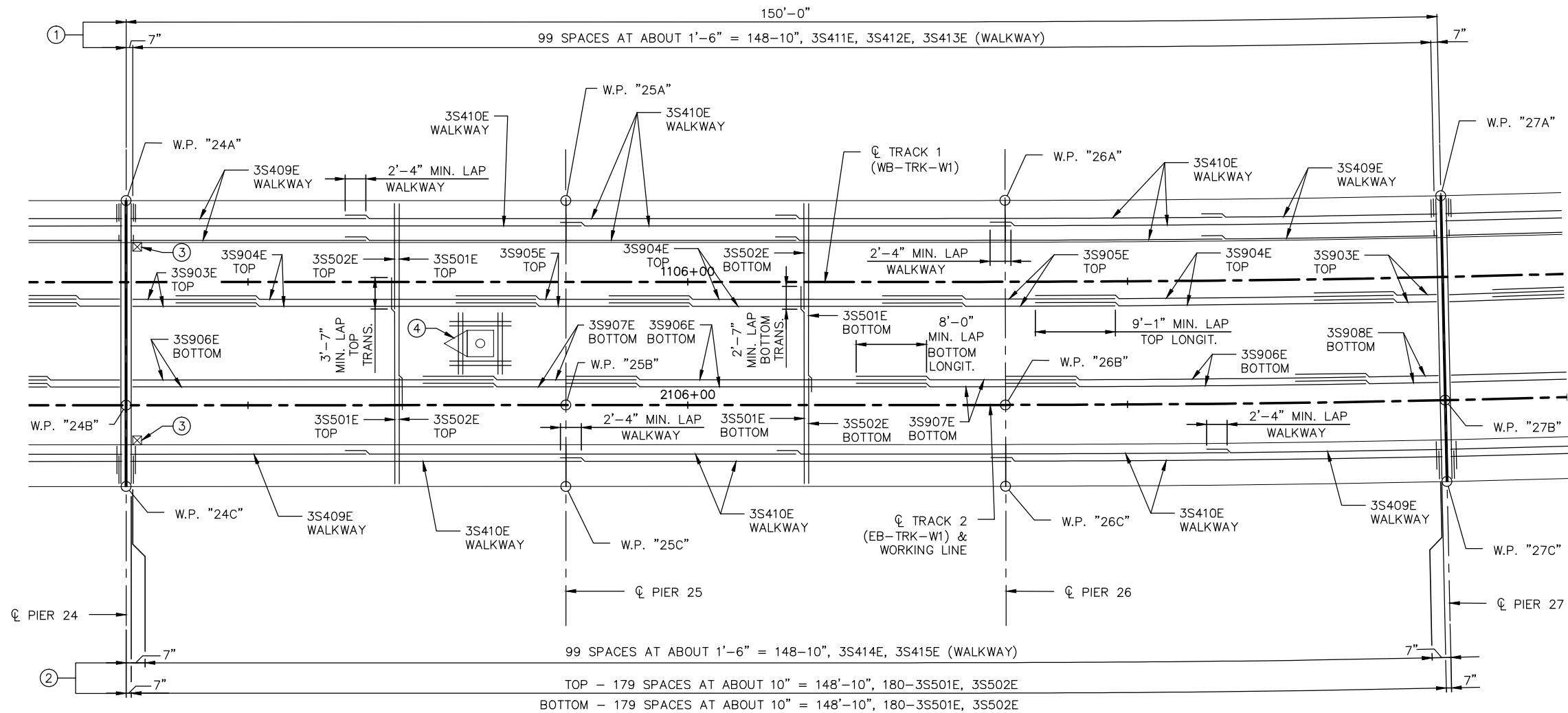
**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE REINF. 4 (SEGMENT C)**

DISCIPLINE:  
**STRUCTURES**

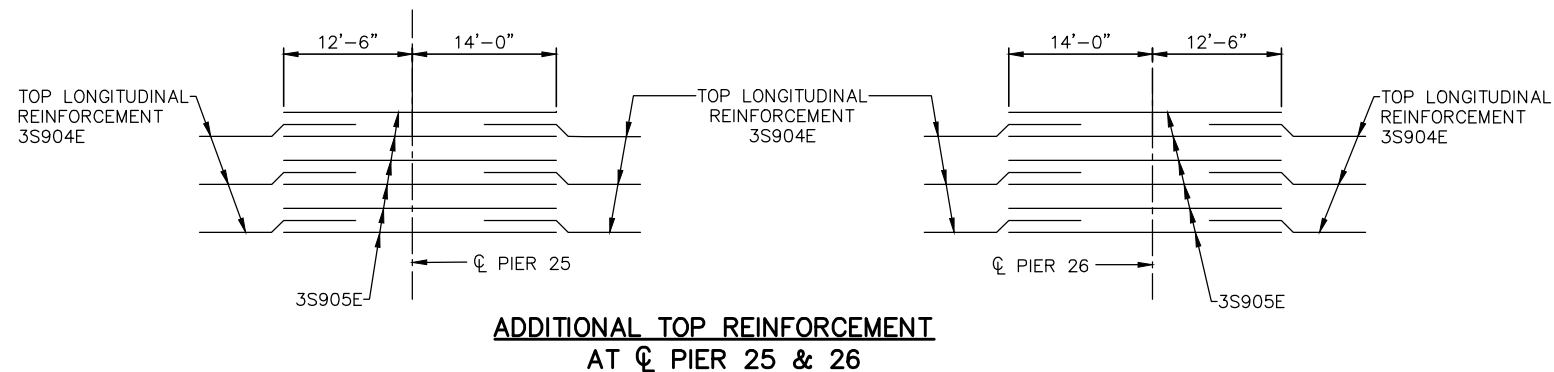
SHEET NAME:  
**CBR27C06-BRG-SUP-075**

**SHEET**  
**178**  
**OF**  
**232**

Jan, 19 2016 10:33 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-074.dwg By: butterfield



**PARTIAL DECK REINFORCEMENT PLAN - SPAN 24-26**  
(REINFORCED CONCRETE SLAB)



**NOTES:**

- "3S" NOTATION IN THE BAR MARK DENOTES SEGMENT C.
- FOR SECTION AT PIER SEE SHEET 176.
- FOR SECTION AT MID-SPAN SEE SHEET 175.
- FOR SPAN 24-26 GEOMETRIC PLANS SEE SHEET 173.
- ① MEASURED ALONG NORTH EDGE OF DECK.
- ② MEASURED ALONG SOUTH EDGE OF DECK.
- ③ STRAY CURRENT TEST STATION. SEE NOTE 7 ON SHEET 10.
- ④ OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186, ALL BARS NOT SHOWN FOR CLARITY.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

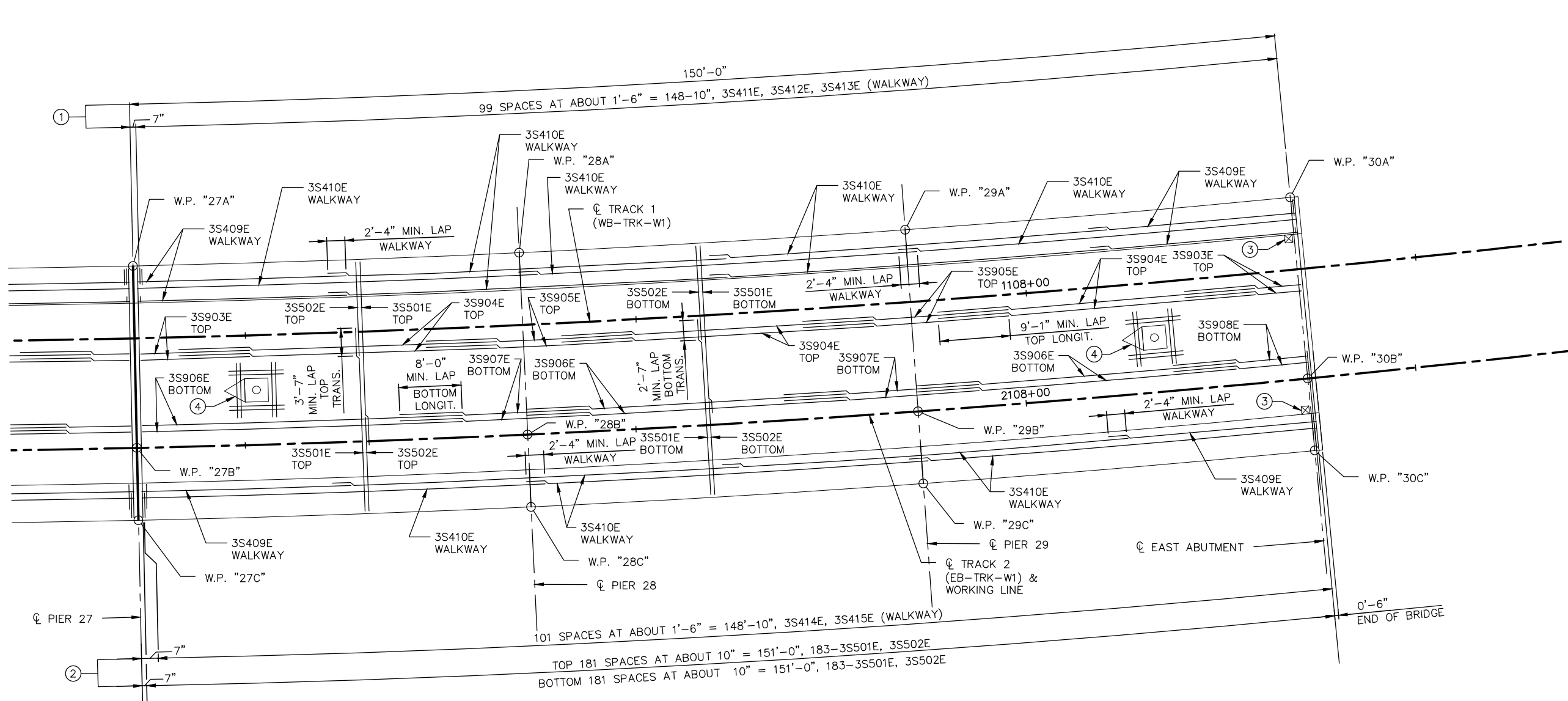
DESIGNED BY: JLB	CHECKED BY: KL
DRAWN BY: ALB	CHECKED BY: ---

90% SUBMISSION - 01/22/16

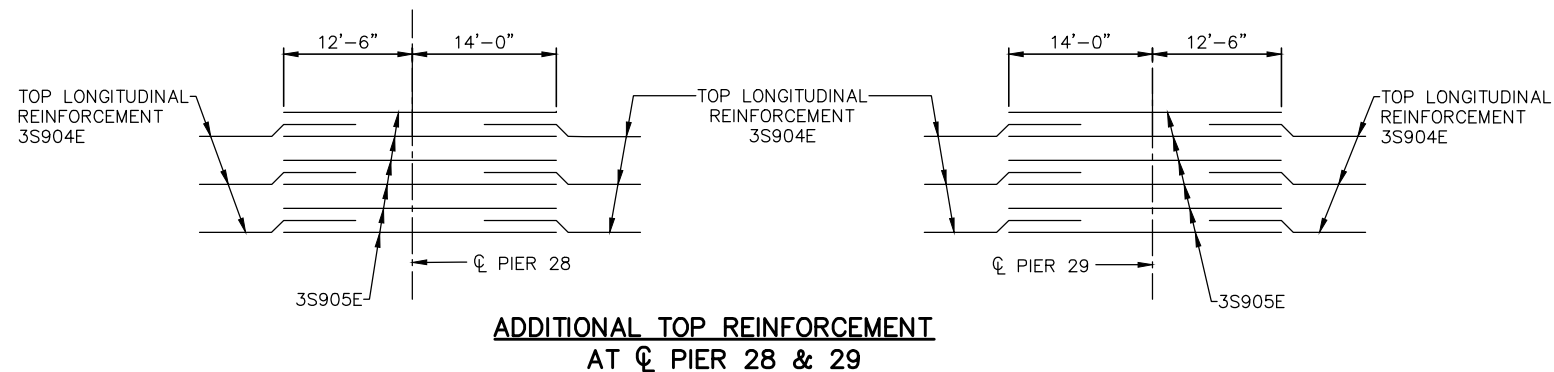
CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 5 (SEGMENT C)

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-SUP-076

Jan, 19 2016 10:33 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-074.dwg By: butterfield



**PARTIAL DECK REINFORCEMENT PLAN - SPAN 27-29**  
(REINFORCED CONCRETE SLAB)



**NOTES:**

- "3S" NOTATION IN THE BAR MARK DENOTES SEGMENT C.
- FOR SECTION AT PIER SEE SHEET 176.
- FOR SECTION AT MID-SPAN SEE SHEET 175.
- FOR SPAN 27-29 GEOMETRIC PLANS SEE SHEET 174.
- ① MEASURED ALONG NORTH EDGE OF DECK.
- ② MEASURED ALONG SOUTH EDGE OF DECK.
- ③ STRAY CURRENT TEST STATION AND GROUND ARRAY. SEE NOTE 9 AND 12 ON SHEET 10.
- ④ OCS POLE PEDESTAL REINFORCEMENT SEE SHEETS 185 & 186, ALL BARS NOT SHOWN FOR CLARITY.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB  
DRAWN BY: ALB

CHECKED BY: KL  
CHECKED BY: ---

**AECOM**

90% SUBMISSION - 01/22/16



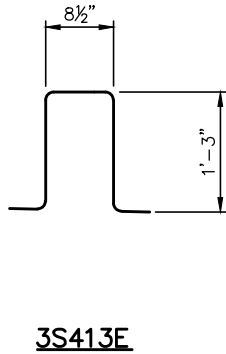
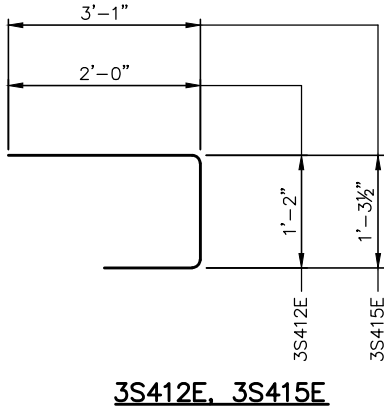
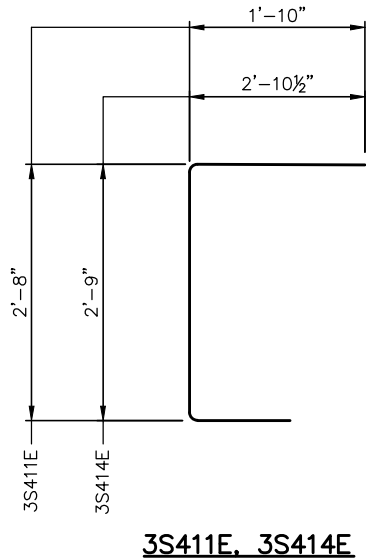
**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE REINF. 6 (SEGMENT C)**

DISCIPLINE: **STRUCTURES**

SHEET NAME: **CBR27C06-BRG-SUP-077**

**SHEET**  
**180**  
**OF**  
**232**

Jan, 19 2016 10:33 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-SUP-074.dwg By: butterfielda



BILL OF REINFORCEMENT FOR SUPERSTRUCTURE - SEGMENT C				
BAR	NO.	LENGTH	SHAPE	LOCATION
3S501E	1444	23'- 7"		TOP AND BOTTOM TRANSVERSE - SPANS 18 - 29
3S502E	1444	12'- 0"		TOP AND BOTTOM TRANSVERSE - SPANS 18 - 29
3S903E	624	14'- 0"		TOP LONGITUDINAL - SPANS 18 - 29
3S904E	480	41'- 3"		TOP LONGITUDINAL - SPANS 18 - 29
3S905E	625	26'- 6"		TOP LONGITUDINAL - SPANS 18 - 29
3S906E	924	41'- 3"		BOTTOM LONGITUDINAL - SPANS 18 - 29
3S907E	312	25'- 0"		BOTTOM LONGITUDINAL - SPANS 18 - 29
3S908E	156	16'- 3"		BOTTOM LONGITUDINAL - SPANS 18 - 29
3S409E	56	26'- 9"		WALKWAY LONGITUDINAL -SPANS 18-29
3S410E	108	51'- 9"		WALKWAY LONGITUDINAL -SPANS 18-29
3S411E	405	5'- 8"		NORTH WALKWAY TRANSVERSE - SPANS 18-29
3S412E	405	4'- 2"		NORTH WALKWAY TRANSVERSE - SPANS 18-29
3S413E	405	3'- 1"		NORTH WALKWAY STIRRUPS - SPANS 18-29
3S414E	405	6'- 11 1/2"		SOUTH WALKWAY TRANSVERSE - SPANS 18-29
3S415E	405	5'- 5 1/2"		SOUTH WALKWAY TRANSVERSE - SPANS 18-29

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: JLB	CHECKED BY: JCF
DRAWN BY: ALB	CHECKED BY: JCF

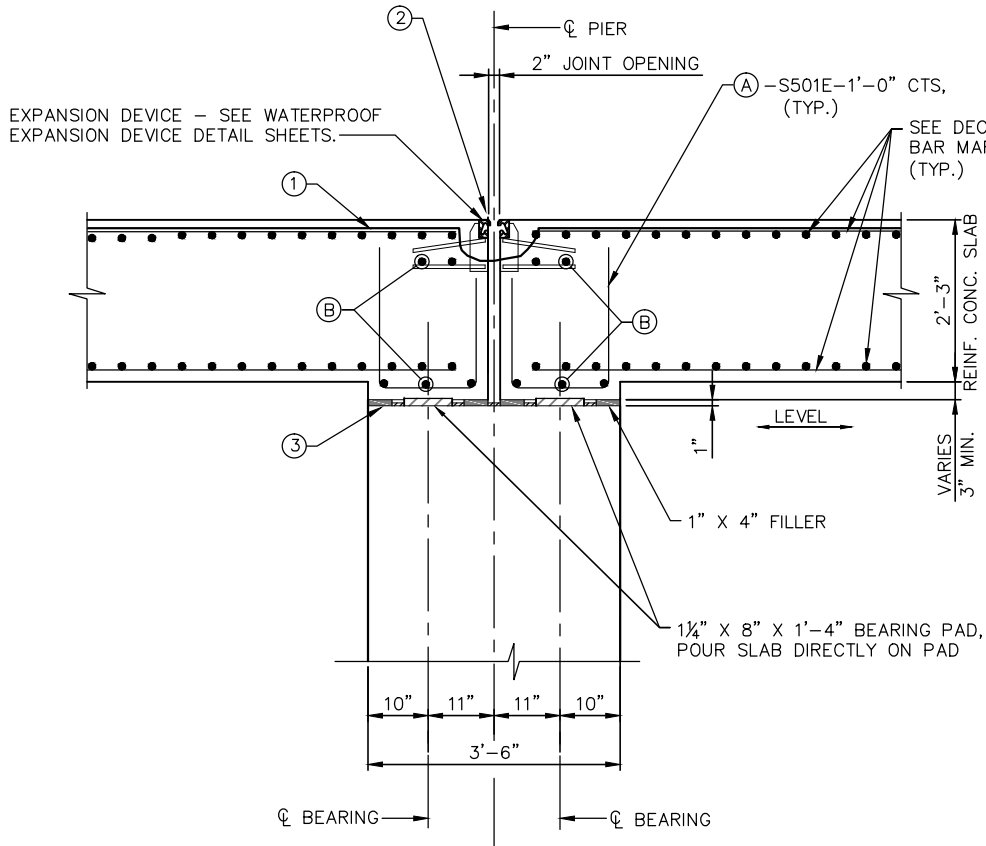
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE REINF. 7 (SEGMENT C)

DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-078

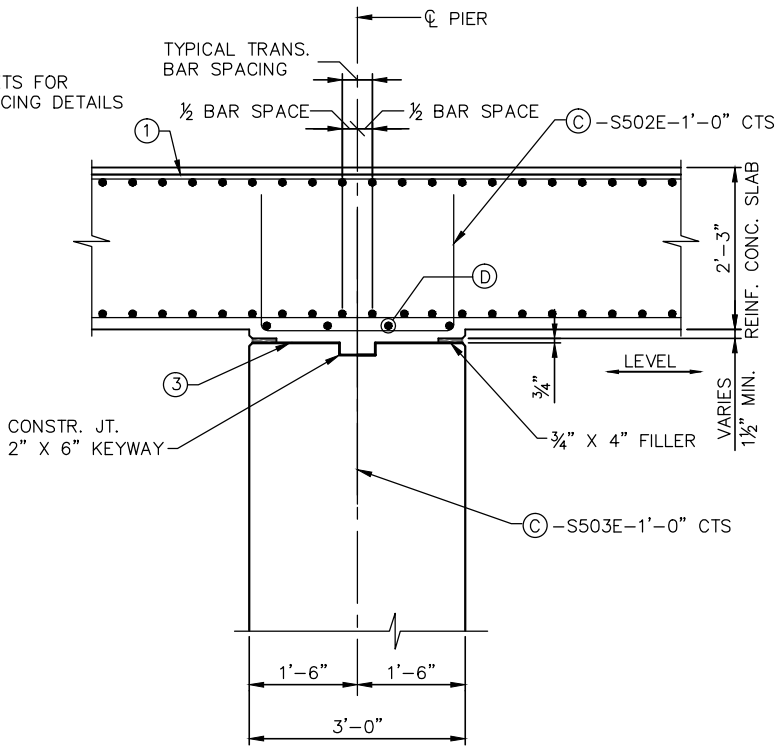
Jan, 19 2016 10:33 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-012.dwg By: butterfielda



**SECTION THRU PIER**

(PIERS 7A, 1, 4, 21, 24, 27)

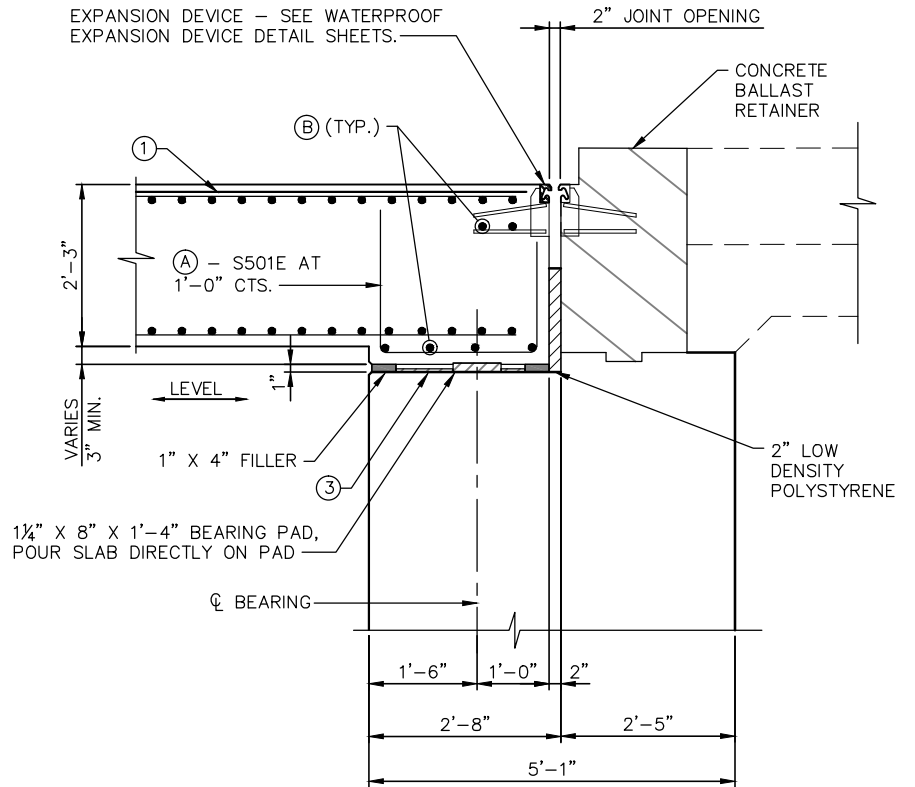
PIER	(A)	(B)
7A	39	10-S504E
1	35	10-S505E
4	37	10-S506E
21	33	10-S507E
24	33	10-S507E
27	33	10-S507E
E. ABUT	32	12-S507E



**SECTION THRU PIER**

(PIERS 1A-6A, 8A-10A, 2, 3, 5-7, 19, 20, 22, 23, 25, 26, 28, 29)

PIER	(C)	(D)
1A-6A	39	4-S511E
8A	39	4-S512E
9A	33	4-S513E
10A	34	4-S514E
2	36	4-S515E
3	37	4-S516E
5	36	4-S517E
6	35	4-S518E
7	34	4-S519E
19, 20	33	4-S520E
22, 23	33	4-S520E
25, 26	33	4-S520E
28, 29	33	4-S520E



**SECTION THRU EAST ABUTMENT**

**NOTES:**

FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS, SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-002.

- ① 3/8" UNCOATED GALVANIZED STEEL CABLE, SEE NOTE 4 ON SHEET 10.
- ② DECK/SLAB EXPANSION JOINT, SEE NOTE 5 ON SHEET 10.
- ③ SLAB/PIER CAP INTERFACE, SEE NOTE 3 ON SHEET 10.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	RJH	CHECKED BY:	ATN
DRAWN BY:	ALB	CHECKED BY:	ATN

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE DETAILS 1**

DISCIPLINE: STRUCTURES

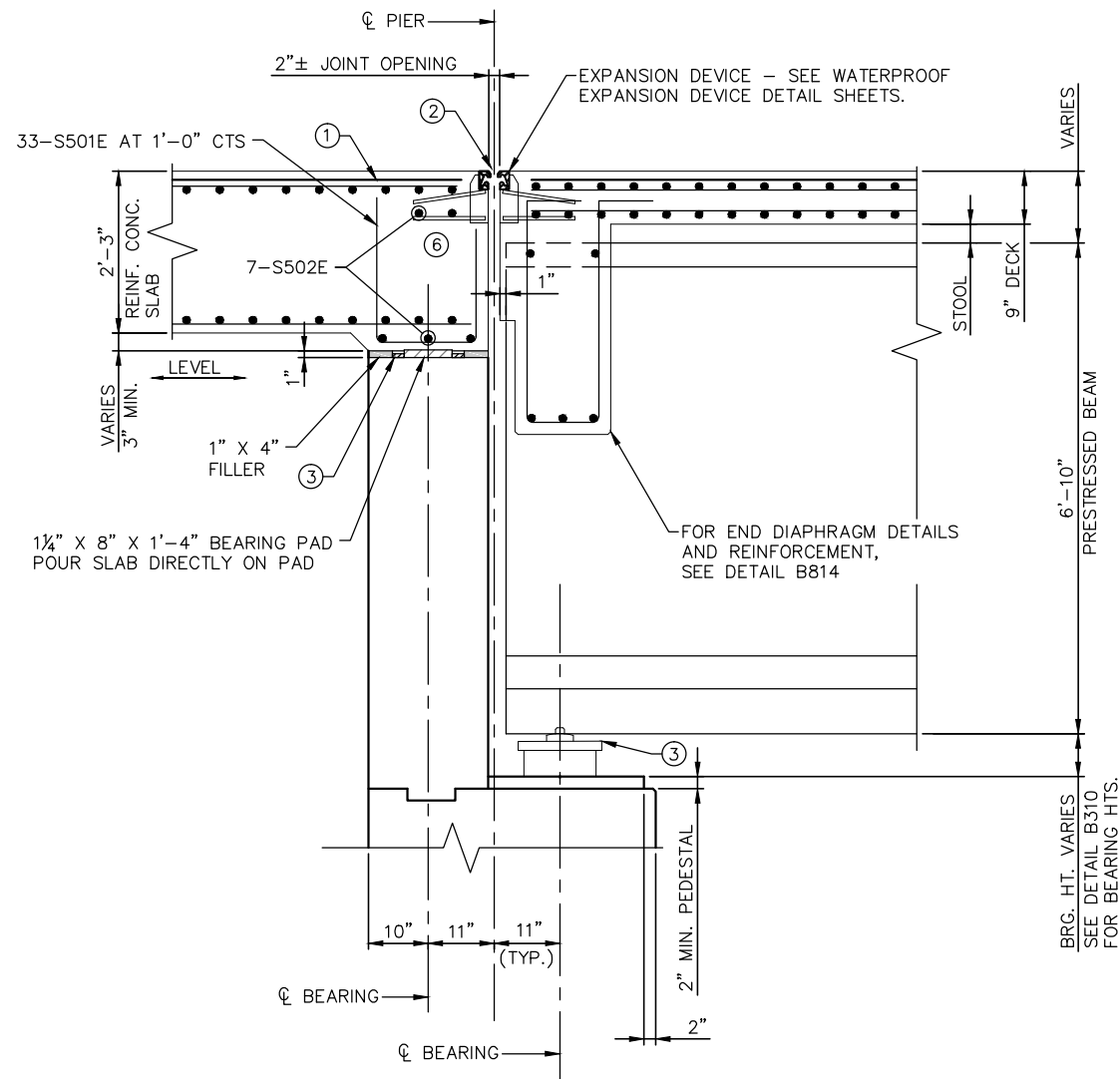
SHEET NAME: CBR27C06-BRG-SUP-079

**SHEET  
182  
OF  
232**

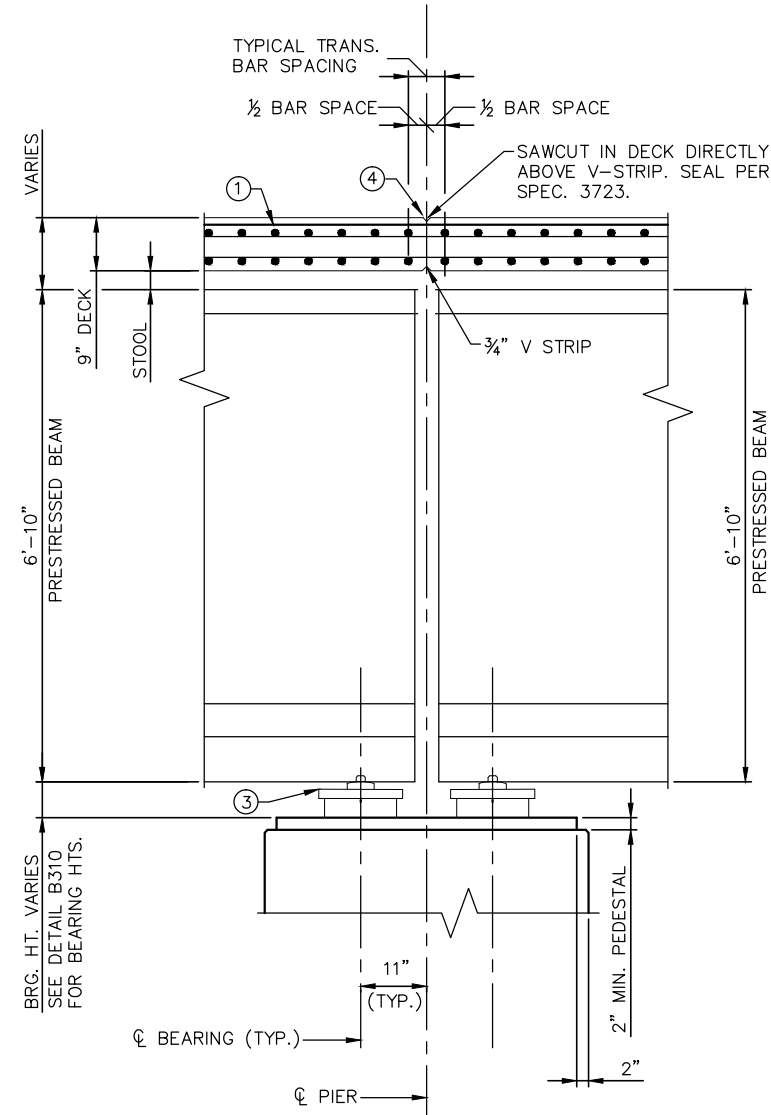
NOTES:

FOR STRAY CURRENT PROTECTION SYSTEM INFORMATION AND DETAILS,  
SEE SHEETS E0-SYS-CORR-DTL-001 TO 027 AND NOTES ON SHEET TRN-002.

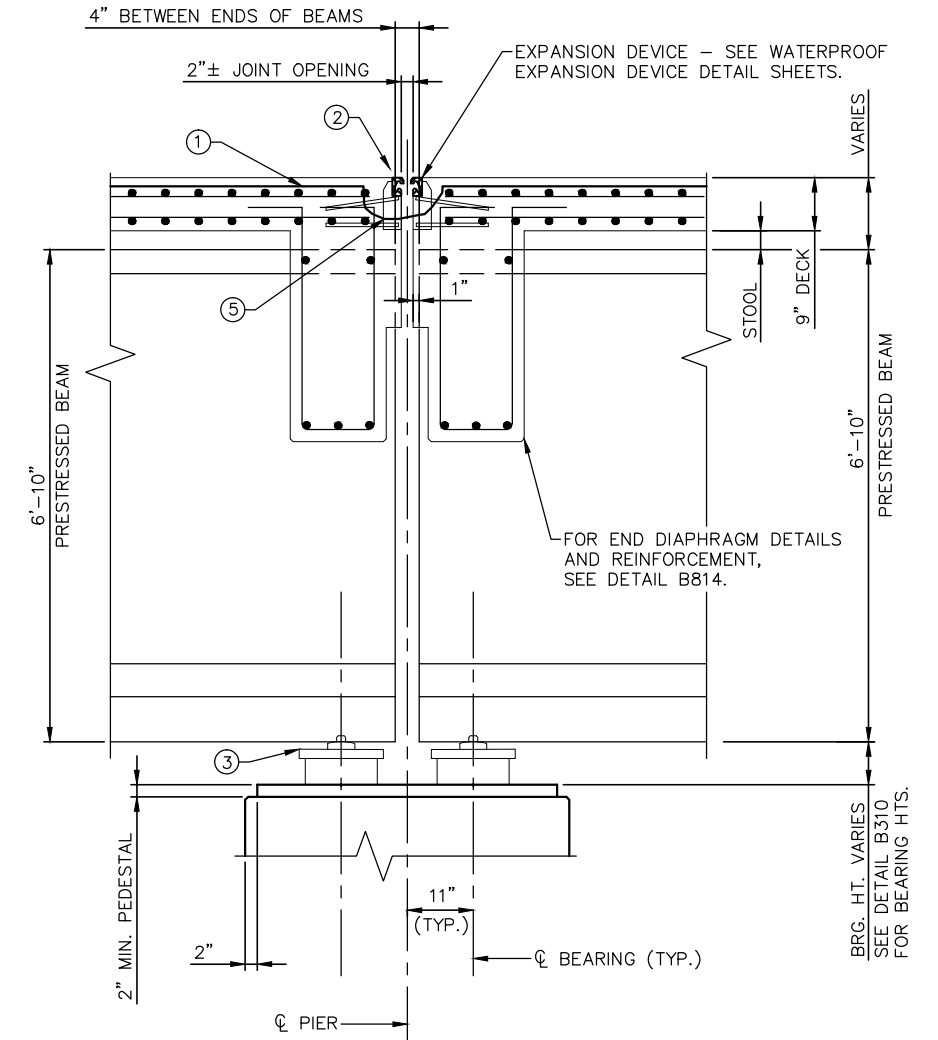
- ① 3/8" UNCOATED GALVANIZED STEEL CABLE, SEE NOTE 4 ON SHEET 10.
- ② DECK/SLAB EXPANSION JOINT, SEE NOTE 5 ON SHEET 10.
- ③ SLAB/PIER CAP INTERFACE, SEE NOTE 3 ON SHEET 10.
- ④ #1/0 INSULATED CABLE TEE CONNECTIONS TO 3/8" UNCOATED GALVANIZED STEEL CABLES AT PIER 11. SEE NOTES 4 & 8 ON SHEET 10.
- ⑤ BONDING CABLE NOT PRESENT AT PIER 14. SEE NOTE 5 ON SHEET 10.
- ⑥ BONDING CABLE NOT PRESENT ACROSS EXPANSION JOINT AT PIERS 8 & 18. SEE NOTE 7 ON SHEET 10.



SECTION THRU PIER  
(PIERS 8 & 18)



SECTION THRU PIER  
(PIERS 9, 11, 13, 15, 17)



SECTION THRU PIER  
(PIERS 10, 12, 14, 16)

[illegible]

DESIGNED BY: <b>RJH</b>	CHECKED BY: <b>ATN</b>
DRAWN BY: <b>ALB</b>	CHECKED BY: <b>ATN</b>

**AECOM**

**90% SUBMISSION - 01/22/16**



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE DETAILS 2**

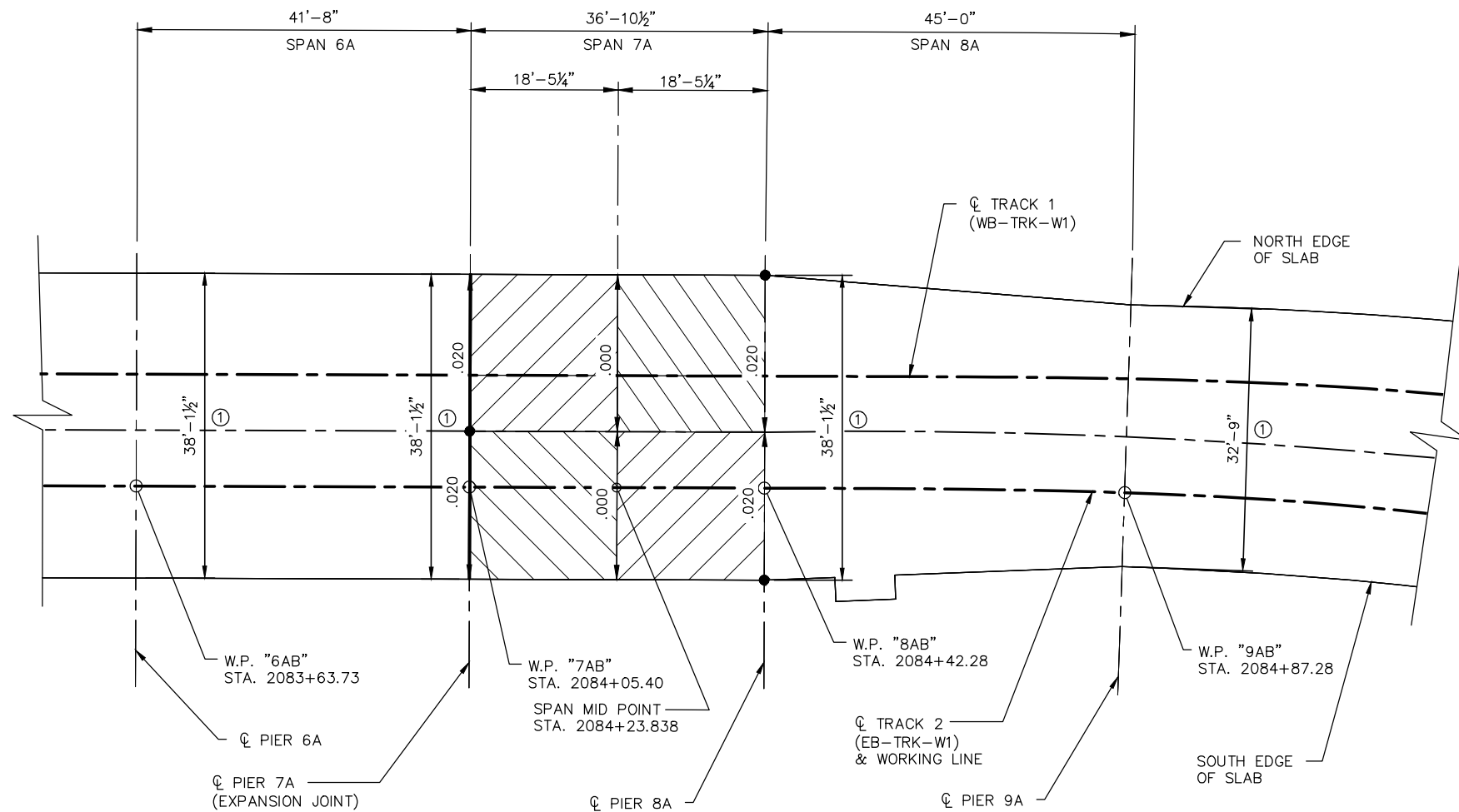
DISCIPLINE: **STRUCTURES**

SHEET NAME:	CBR27C06-BRG-SUP-080
-------------	----------------------

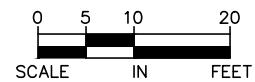
**SHEET**  
**183**  
**OF**  
**232**



Jan, 19 2016 10:34 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-015.dwg By: butterfielda



PARTIAL BRIDGE PLAN



NOTES:

① DIMENSIONS ARE AT CL OF PIER

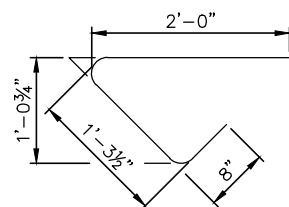
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN

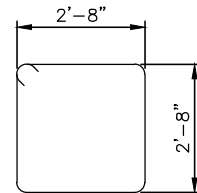
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 SUPERSTRUCTURE DETAILS 3	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-SUP-081

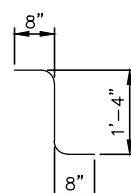
SHEET  
184  
OF  
232



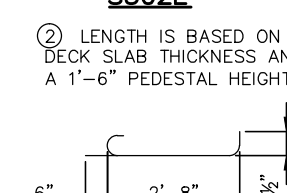
S405E



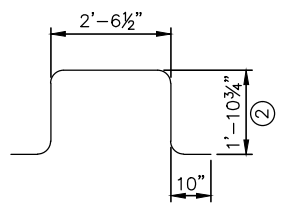
S403E



S406E

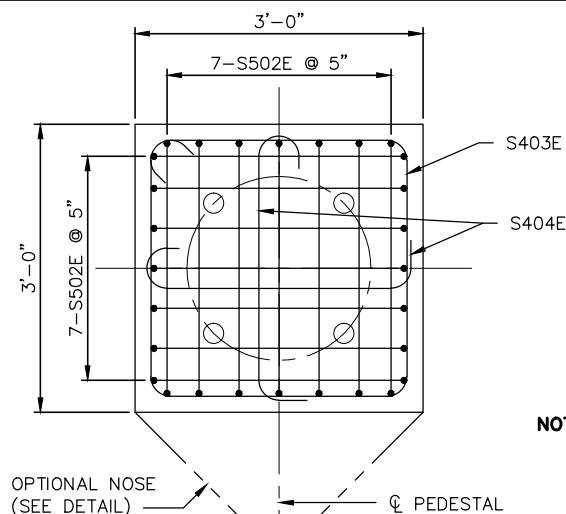


S404E

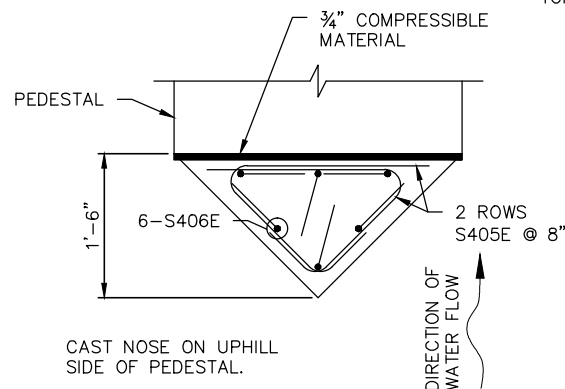


S502E

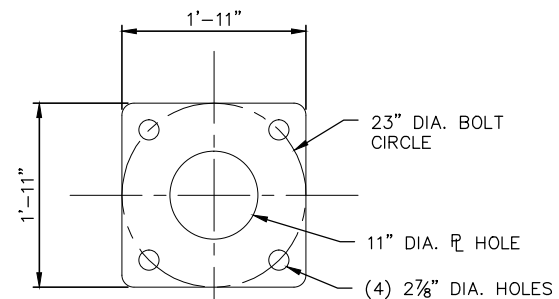
② LENGTH IS BASED ON A 9"  
DECK SLAB THICKNESS AND  
A 1'-6" PEDESTAL HEIGHT.



PEDESTAL REINF. PLAN



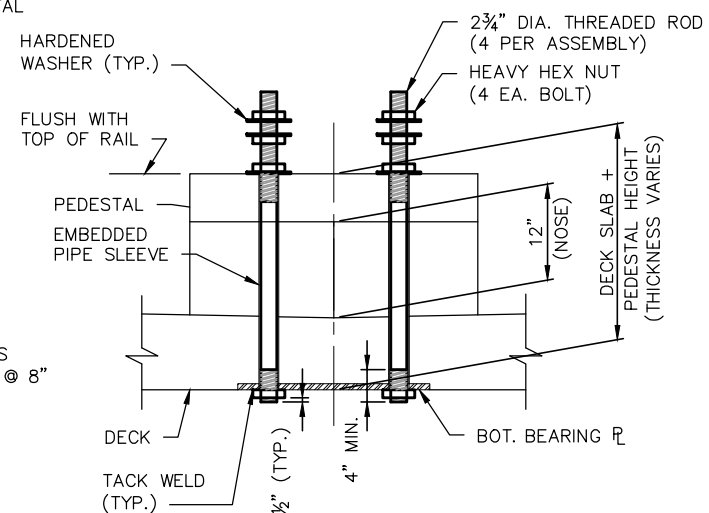
OPTIONAL NOSE DETAIL  
FOR CENTER PEDESTALS ON SLABS  
WITH INVERTED CROWN



**BOTTOM BEARING PLATE PLAN**

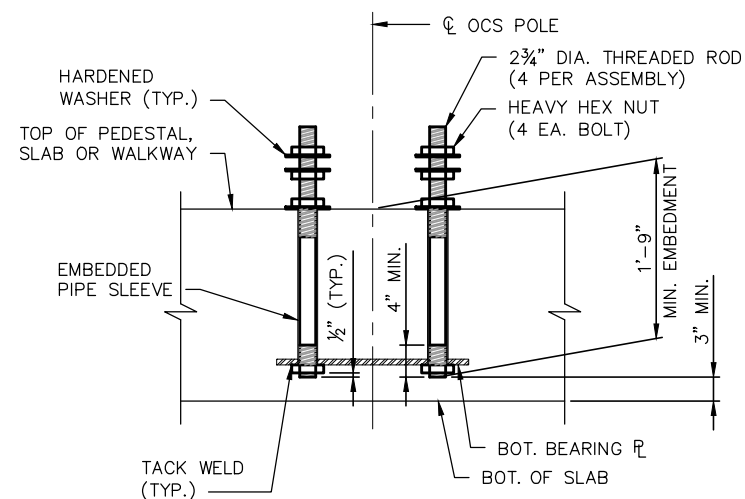
(POLE TYPE TT3 SHOWN)

NOTE: PLATE SIZE, THICKNESS AND ANCHOR BOLT LAYOUT SHOULD MATCH OCS POLE ASSEMBLY DRAWING. SEE VOLUME 12.



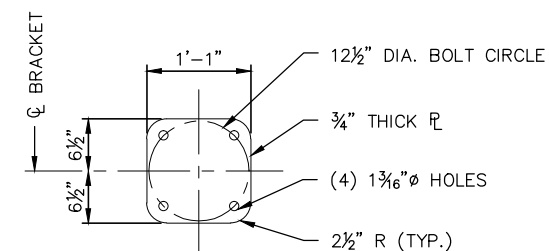
### OCS POLE PEDESTAL ELEVATION

(POLE TYPE TT3 SHOWN)  
THRU SLAB CONNECTION

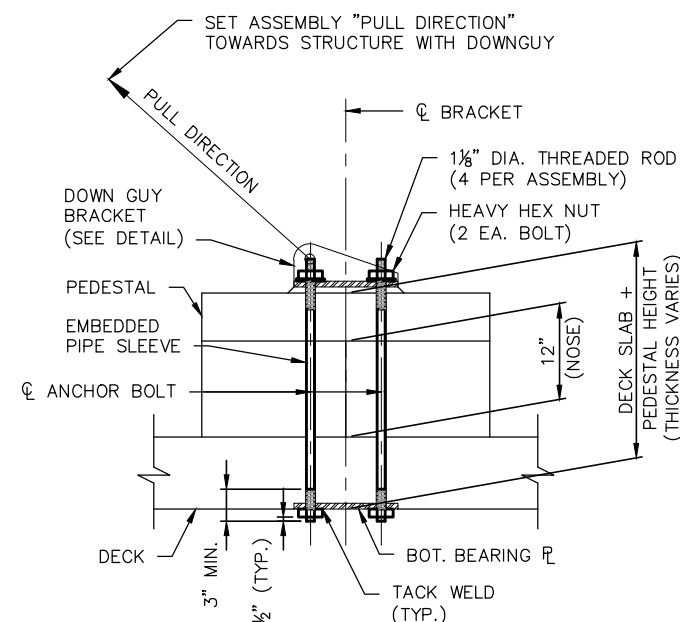


OCS POLE PEDESTAL ELEVATION

EMBEDDED PLATE (CIP SLABS  $\geq 2'-0"$ )  
(OCS POLE PLATE SHOWN - DOWN GUY SIMILAR)

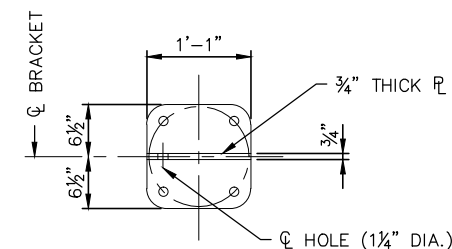


**DOWN GUY BOTTOM BEARING PLATE PLAN**



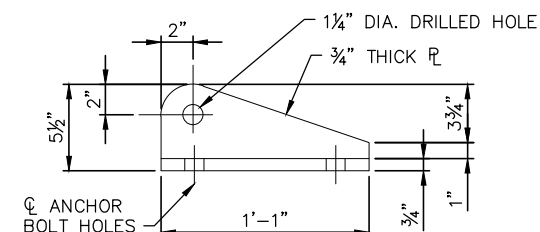
### DOWN GUY BRACKET ELEVATION

THRU SLAB CONNECTION



### DOWN GUY BRACKET PLAN

(BY OTHERS)



### DOWN GUY BRACKET DETAIL

(BY OTHERS)

[illegible]

DESIGNED BY: ETN	CHECKED BY: JWJ
DRAWN BY: ALB	CHECKED BY: ATN

**AECOM**

**90% SUBMISSION - 01/22/16**



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE DETAILS 4**

DISCIPLINE: **STRUCTURES**

SHEET NAME:	CBR27C06-BRG-SUP-082
-------------	----------------------

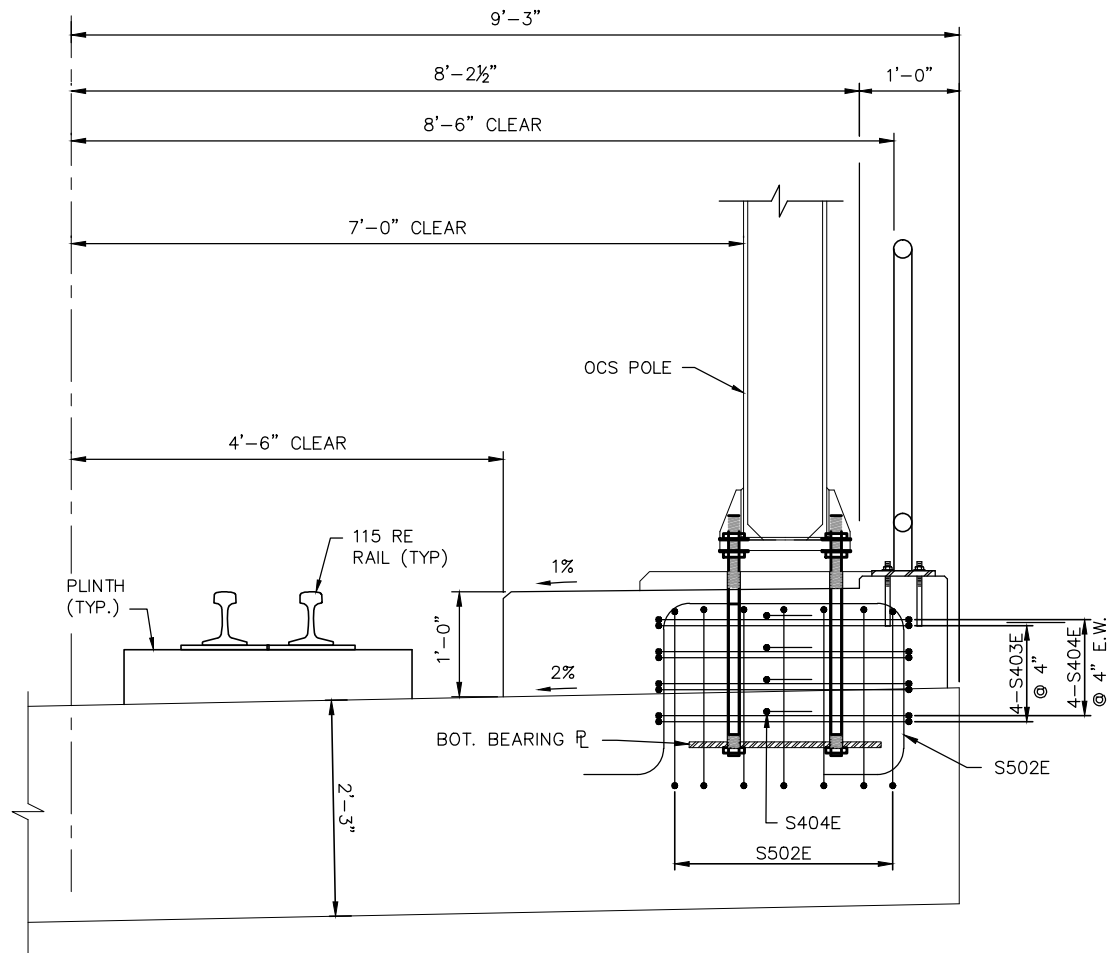
	<b>SHEET</b>
--	--------------

185

**OF**

232

Jan, 19 2016 10:34 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-021.dwg By: butterfielda



PEDESTAL REINF. ELEVATION  
(WALKWAY CONNECTION)

NOTES:


- 1.CONCRETE COVER FOR PEDESTAL SHALL BE 2" UNLESS OTHERWISE NOTED.
- 2.USE EMBEDDED SLEEVE THROUGH PEDESTAL AND DECK SLAB WITH A BOTTOM BEARING PLATE EQUAL IN PLAN SIZE TO THE TOP OCS POLE BEARING PLATE. (SEE OCS POLE ANCHORAGE ASSEMBLY DETAILS AND FOUNDATION SCHEDULES IN CIVIL VOLUME 12 FOR ADDITIONAL OCS PLATE DETAILS)
- 3.STRUCTURAL STEEL ELEMENTS SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS:
  - BEARING PLATES A572 GRADE 50
  - ANCHOR BOLTS (THREADED RODS) F1554 GRADE 55
  - HEXAGONAL NUTS A563, AND
  - WASHERS F436
- 4.ALL STEEL SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A-123 AND A-153.
- 5.CONTRACTOR MAY PROVIDE FULLY THREADED ROD IF DESIRED.
- 6.BARS S502E MAY BE ADJUSTED TO AVOID CONFLICTS WITH OCS ANCHOR RODS.
- 7.ONCE OCS POLE BEARING PLATE AND ANCHOR BOLTS HAVE BEEN INSTALLED AND TIGHTENED, INTERSTITIAL SPACE BETWEEN SLEEVE AND BOLT IS FILLED WITH AN EPOXY GROUT.
- 8.EPOXY GROUT SHALL HAVE THE FOLLOWING PROPERTIES:
  - MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI
  - NON-SHRINK
  - NON-METALLIC
  - NON-CONDUCTIVE TO ELECTRICITY, AND
  - SUITABLE FOR ADHESION TO GALVANIZED ANCHOR BOLTS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	RJH	CHECKED BY:	ATN
DRAWN BY:	ALB	CHECKED BY:	ATN



90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 SUPERSTRUCTRE DETAILS 5	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-SUP-083





Technical drawing of a roof plan showing a rectangular structure with dimensions and labels for structural elements.

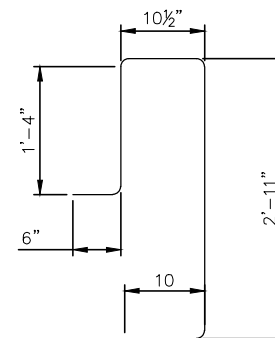
Dimensions:

- Overall width: 7'-3"
- Overall depth: 3'-11"
- Left side depth: 1'-2 1/2"
- Right side depth: 1'-2 1/2"

Labels and Callouts:

- 1S501E (Top left corner)
- 1S502E (Top left corner, pointing to the corner joint)
- 1S503E (Bottom center, pointing to the bottom edge)
- 1S501E (Top right corner)
- 1S502E (Top right corner, pointing to the corner joint)
- 1S501E (Bottom right corner)

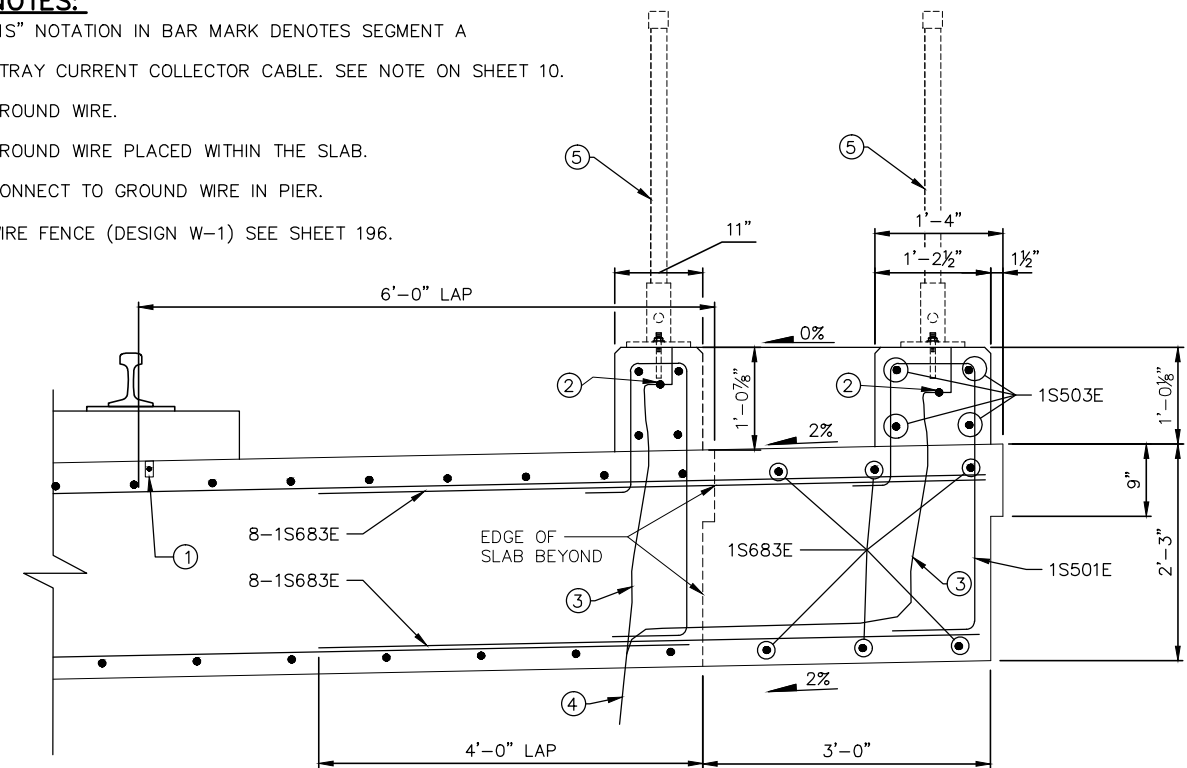
BILL OF REINFORCEMENT FOR FRICTION MODIFIER. SPAN 8A				
BAR	NO.	LENGTH	SHAPE	LOCATION
1S580E	14	6'-5½"		SPAN 8A
1S581E	8	3'-7"		SPAN 8A
1S582E	4	6'-11"		SPAN 8A
1S683E	22	6'-11"		SPAN 8A



**NOTES:**

"1S" NOTATION IN BAR MARK DENOTES SEGMENT A

- ① STRAY CURRENT COLLECTOR CABLE. SEE NOTE ON SHEET 10.
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED WITHIN THE SLAB.
- ④ CONNECT TO GROUND WIRE IN PIER.
- ⑤ WIRE FENCE (DESIGN W-1) SEE SHEET 196.

[illegible][illegible]**AECOM**

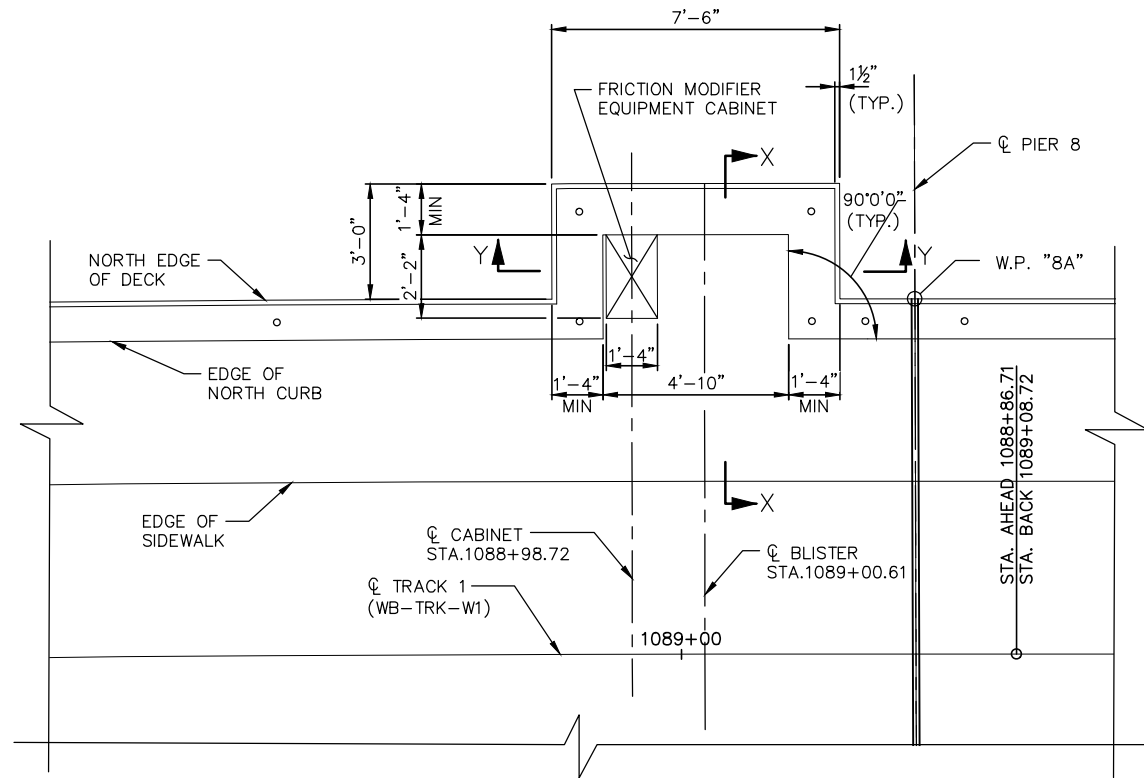
**METROPOLITAN**  
COUNCIL



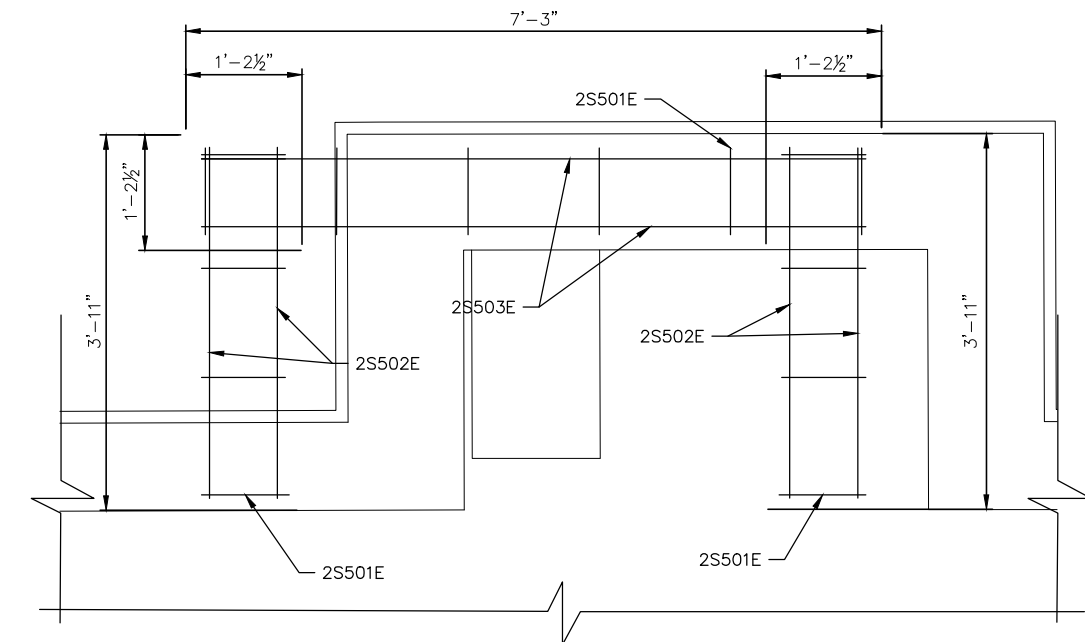
SHEET NAME:	CBR27C06-BRG-SUP-084
-------------	----------------------

**SHEET**  
**187**  
**OF**  
**232**

Jan, 19 2016 10:35 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-025.dwg By: butterfield

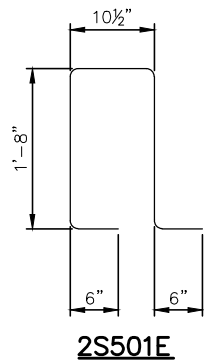


FRICION MODIFIER - SPAN 7

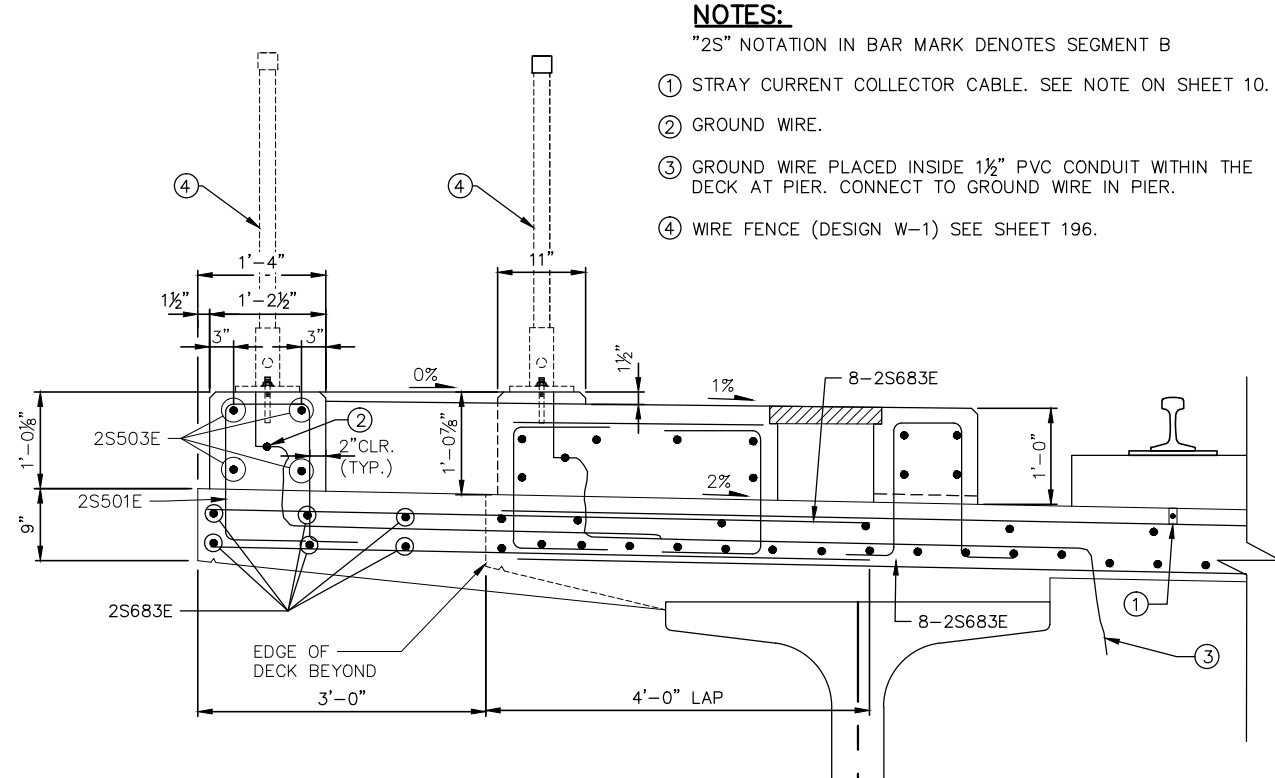


REINF. DETAIL - SPAN 7

BILL OF REINFORCEMENT FOR FRICTION MODIFIER. SPAN 7				
BAR	NO.	LENGTH	SHAPE	LOCATION
2S580E	14	5'-2 1/2"		SPAN 7
2S581E	8	3'-7"		SPAN 7
2S582E	4	6'-11"		SPAN 7
2S683E	22	6'-11"		SPAN 7

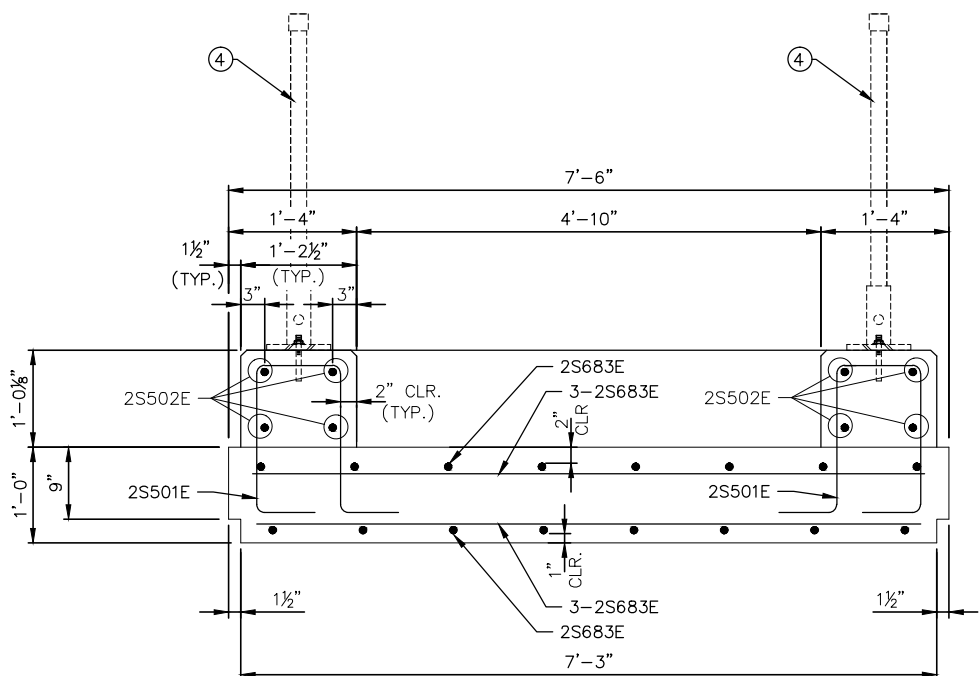


2S501E



SECTION X-X

- NOTES:**
- "2S" NOTATION IN BAR MARK DENOTES SEGMENT B
  - ① STRAY CURRENT COLLECTOR CABLE. SEE NOTE ON SHEET 10.
  - ② GROUND WIRE.
  - ③ GROUND WIRE PLACED INSIDE 1 1/2" PVC CONDUIT WITHIN THE DECK AT PIER. CONNECT TO GROUND WIRE IN PIER.
  - ④ WIRE FENCE (DESIGN W-1) SEE SHEET 196.



SECTION Y-Y

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

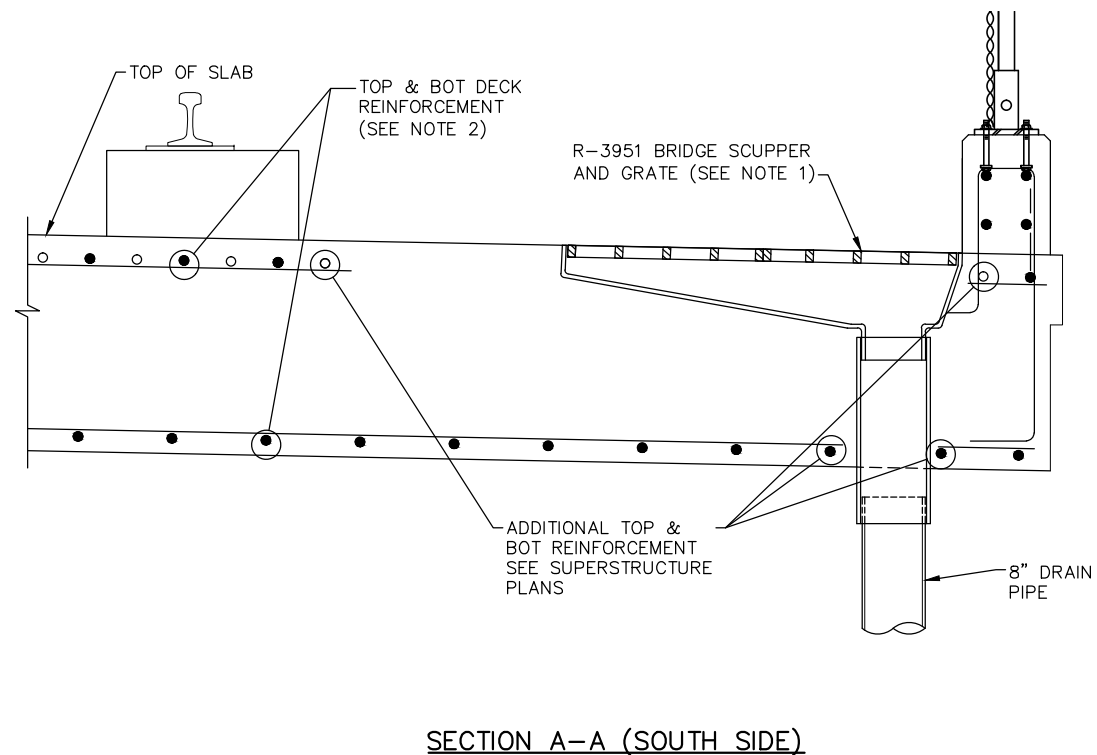
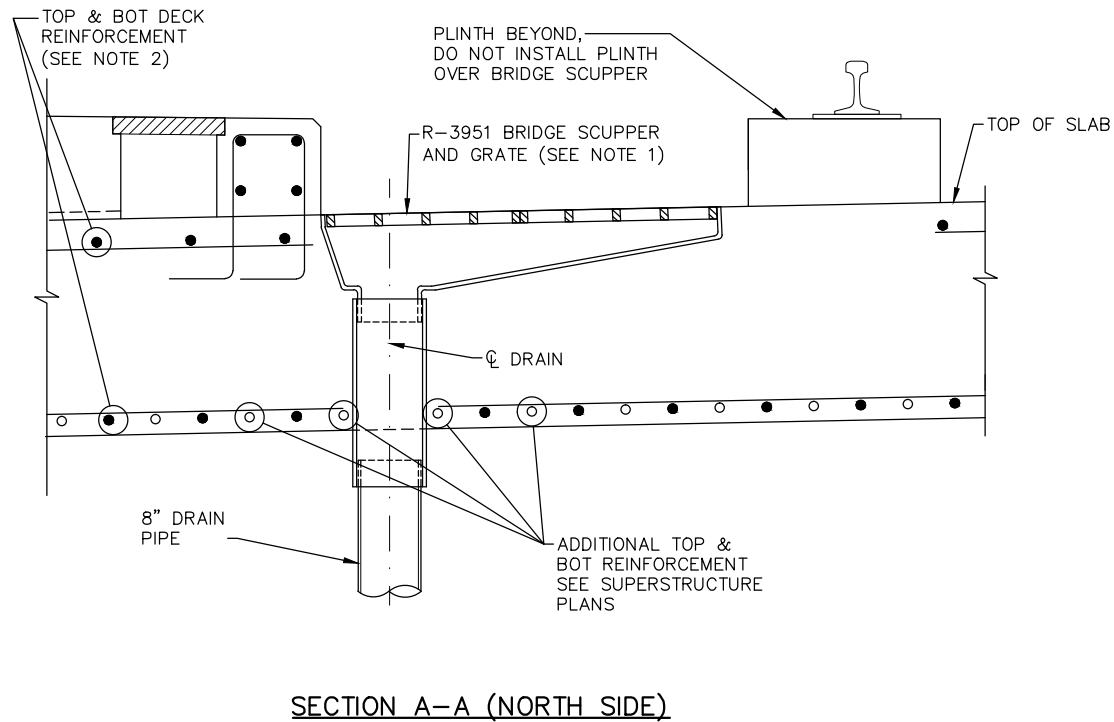
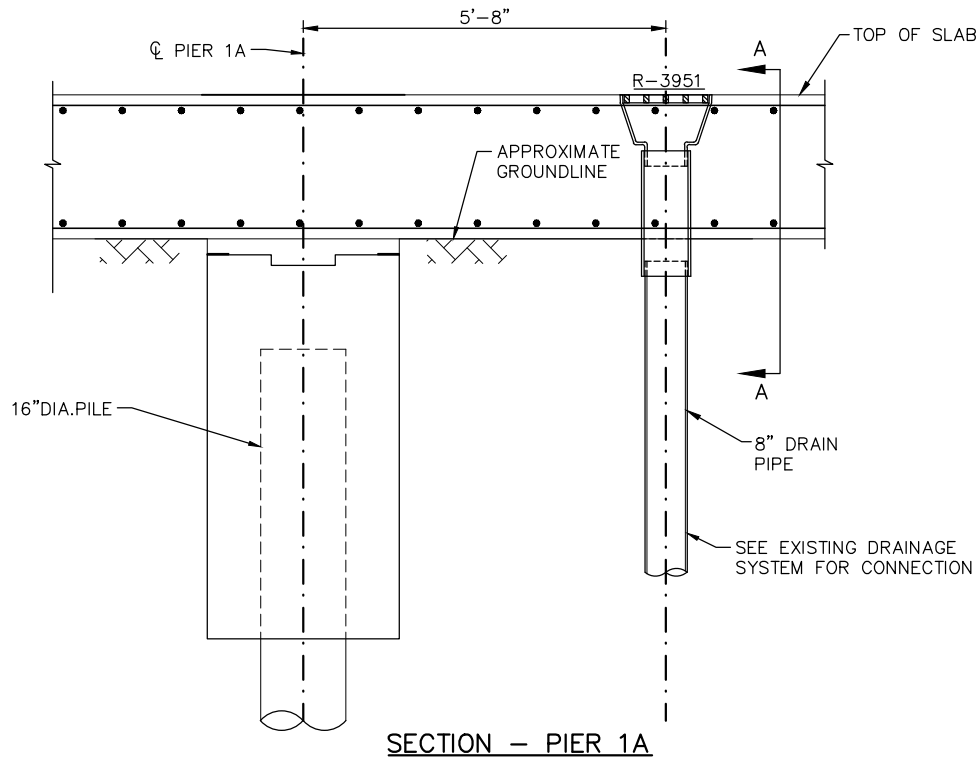
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-SUP-085

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE DETAILS 7

188  
OF  
232

Jan, 19 2016 10:35 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-026.dwg By: butterfield



#### GENERAL NOTES:

ALL PIER CAP, PIER COLUMN, SLAB, DECK AND PRESTRESSED BEAM REINFORCEMENT SHALL BE LOCATED PRIOR TO DRILLING ANCHORAGES. ANCHORAGES SHALL BE SHIFTED AS REQUIRED TO AVOID DAMAGE TO REINFORCEMENT DUE TO DRILLING.

ALL DECK DRAIN PIPING, ATTACHMENTS AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153

STRUCTURAL TUBING SHALL MEET THE REQUIREMENTS OF ASTM A53 GR. B.

THE BOTTOM OF THE 8", 10", OR 12" DIAMETER DOWN SPOUTS SHALL EXTEND 7" MINIMUM BELOW BOTTOM OF SLAB OR DECK.

PIPE CLAMP ASSEMBLY SHALL BE MOVED IF BOLTS INTERFERE PIER OR PRESTRESSED BEAM REINFORCING.

ALL JOINTS OR CONNECTIONS SHALL BE BUTT WELDED OR CONNECTED BY A STEEL PIPE SLEEVE AND SHALL BE SMOOTH THROUGHOUT INSIDE OF PIPE.

FIELD VERIFY THE DRAIN PIPE LENGTH PRIOR TO FABRICATION.

#### NOTES:

1. DECK DRAIN DETAILS SHOWN ARE FOR NEENAH R-3951. THE BRIDGE SCUPPER SHALL CONFORM TO NEENAH R-3951 OR APPROVED EQUAL.
2. DECK REINFORCEMENTS THAT INTERFERES WITH THE BRIDGE SCUPPER SHALL BE TERMINATED 2" CLEAR FROM THE SCUPPER.
3. WHEN ADDITIONAL REBAR PLACED INTERFERES WITH MAIN DECK REINFORCEMENTS, SUCH REBAR SHALL BE BUNDLED TO THE DECK REINFORCEMENT AT RESPECTIVE LOCATIONS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB

CHECKED BY: ATN  
CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



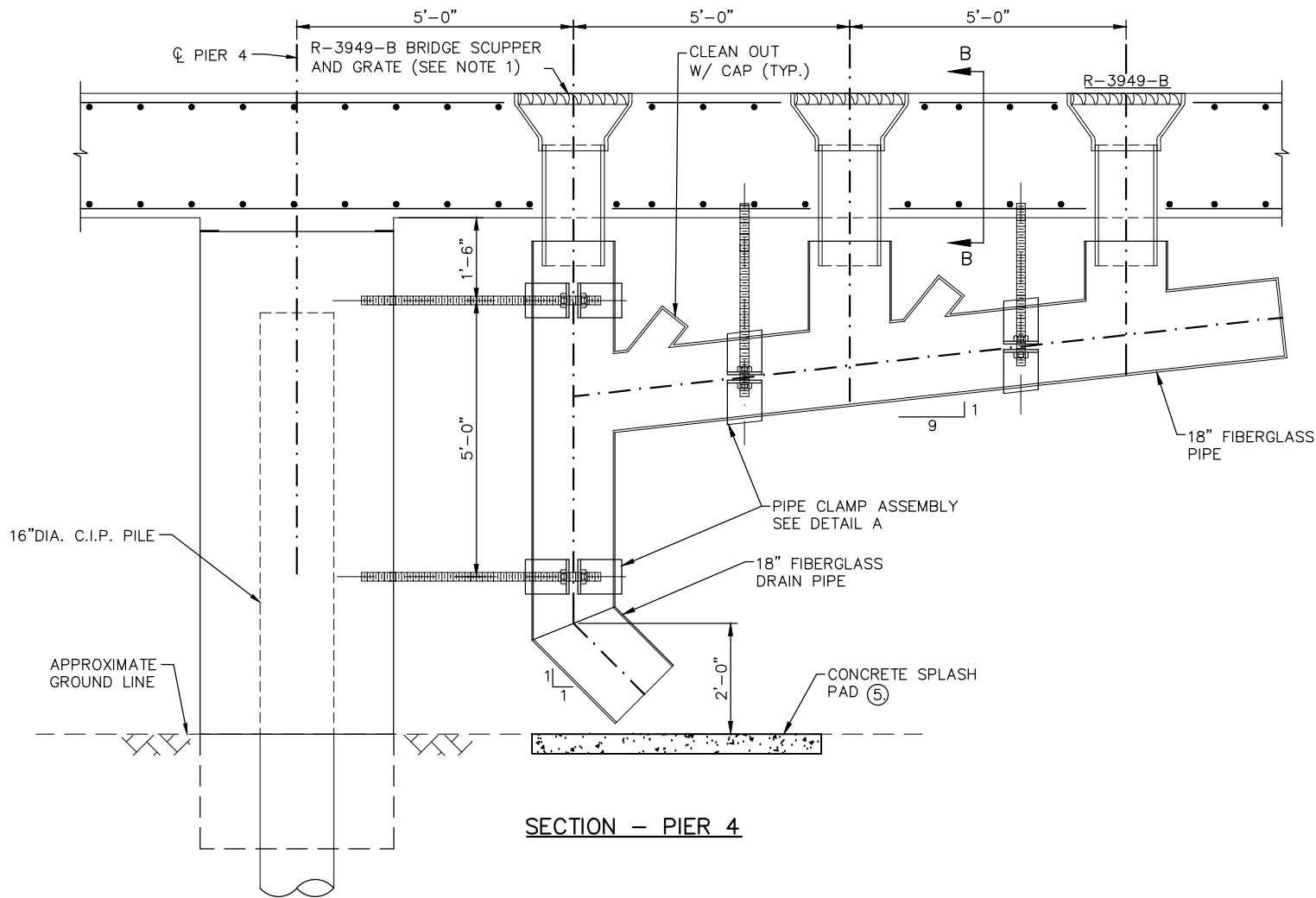
**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE DETAILS 8**

DISCIPLINE:  
**STRUCTURES**

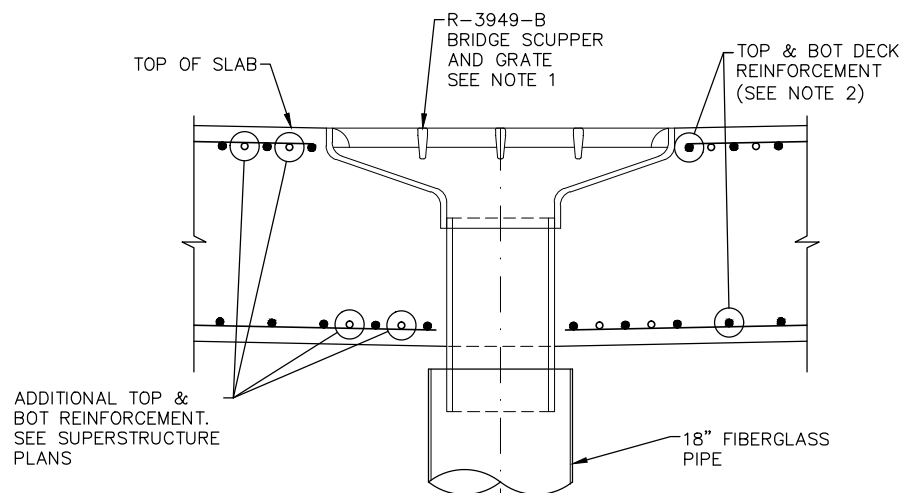
SHEET NAME:  
**CBR27C06-BRG-SUP-086**

**SHEET**  
**189**  
**OF**  
**232**

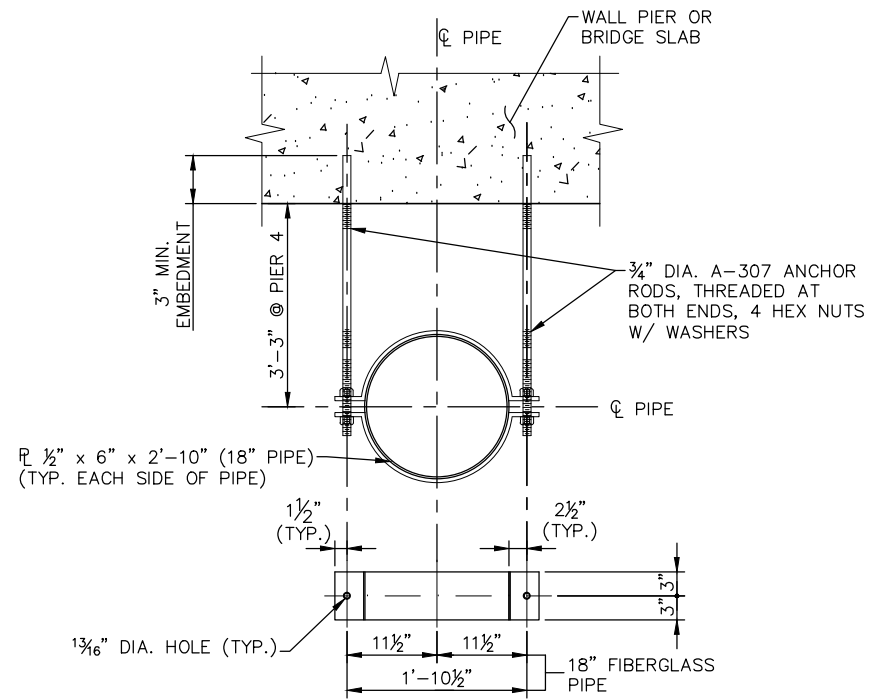
Jan, 19 2016 10:35 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-026.dwg By: butterfielda



SECTION - PIER 4



SECTION B-B



DETAIL A

NOTES:

- SEE GENERAL NOTES ON SHEET 189.
1. DECK DRAIN DETAILS SHOWN ARE FOR NEENAH R-3949-B. THE BRIDGE SCUPPER SHALL CONFORM TO NEENAH R-3949-B OR APPROVED EQUAL.
  2. DECK REINFORCEMENTS THAT INTERFERES WITH THE BRIDGE SCUPPER SHALL BE TERMINATED 2" CLEAR FROM THE SCUPPER.
  3. WHEN ADDITIONAL REBAR PLACED INTERFERES WITH MAIN DECK REINFORCEMENTS, SUCH REBAR SHALL BE BUNDLED TO THE DECK REINFORCEMENT AT RESPECTIVE LOCATIONS.
  4. COLOR OF FIBERGLASS PIPE AND PAINT FOR HARDWARE SHALL MATCH "ARCHITECTURAL CONCRETE FINISH (SINGLE COLOR)." SEE SPECIAL PROVISIONS.
- ⑤ SEE CIVIL PLANS FOR DETAILS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN



90% SUBMISSION - 01/22/16



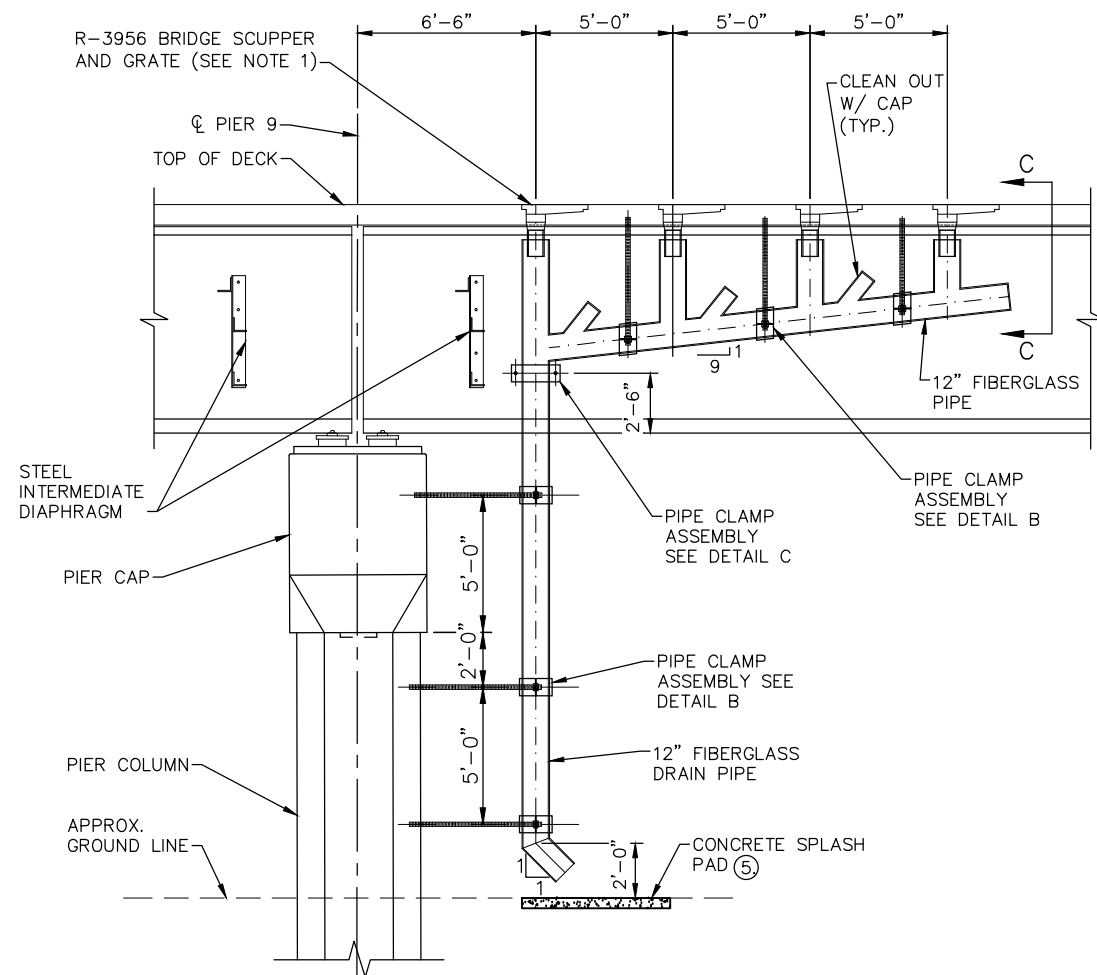
CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE DETAILS 9

DISCIPLINE: STRUCTURES

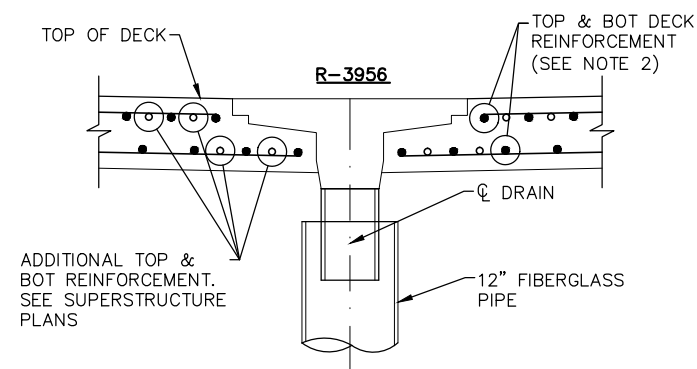
SHEET NAME: CBR27C06-BRG-SUP-087

SHEET  
190  
OF  
232

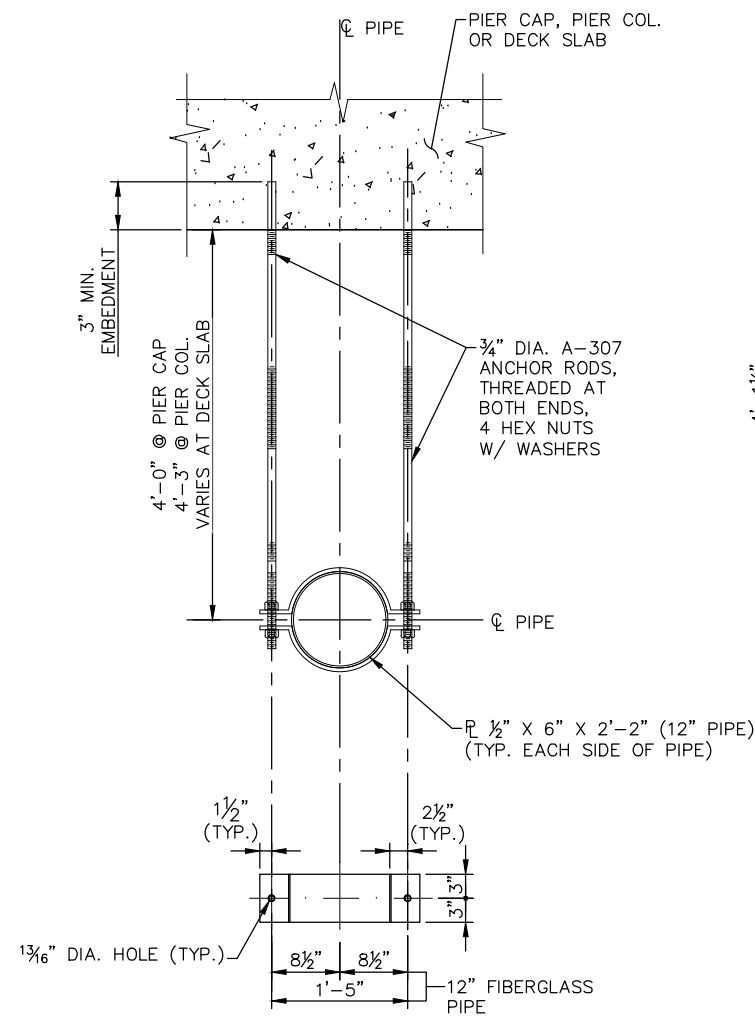
Jan, 19 2016 10:35 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-026.dwg By: butterfield



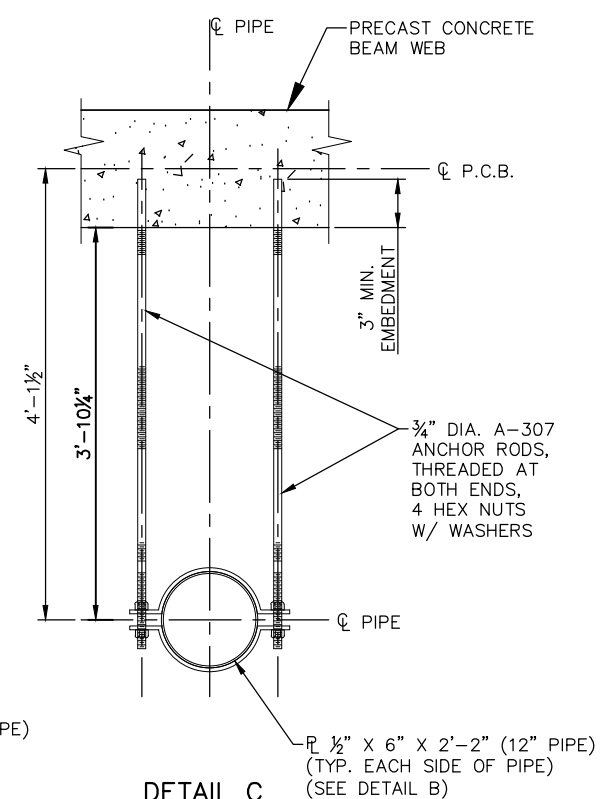
SECTION - PIER 9



SECTION C-C



DETAIL B



DETAIL C

## NOTES:

SEE GENERAL NOTES ON SHEET 189.

- DECK DRAIN DETAILS SHOWN ARE FOR NEENAH R-3956. THE BRIDGE SCUPPER SHALL CONFORM TO NEENAH R-3956 OR APPROVED EQUAL.
- DECK REINFORCEMENTS THAT INTERFERES WITH THE BRIDGE SCUPPER SHALL BE TERMINATED 2" CLEAR FROM THE SCUPPER.
- WHEN ADDITIONAL REBAR PLACED INTERFERES WITH MAIN DECK REINFORCEMENTS, SUCH REBAR SHALL BE BUNDLED TO THE DECK REINFORCEMENT AT RESPECTIVE LOCATIONS.
- COLOR OF FIBERGLASS PIPE AND PAINT FOR HARDWARE SHALL MATCH "ARCHITECTURAL CONCRETE FINISH (SINGLE COLOR)." SEE SPECIAL PROVISIONS.
- SEE CIVIL PLANS FOR DETAILS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB

CHECKED BY: ATN  
CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE DETAILS 10**

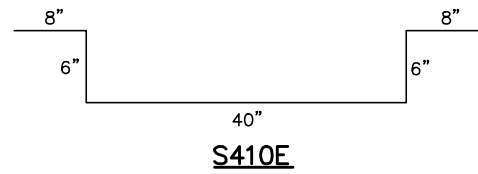
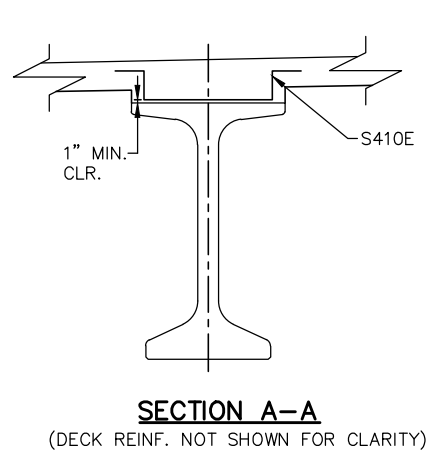
DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C06-BRG-SUP-088**

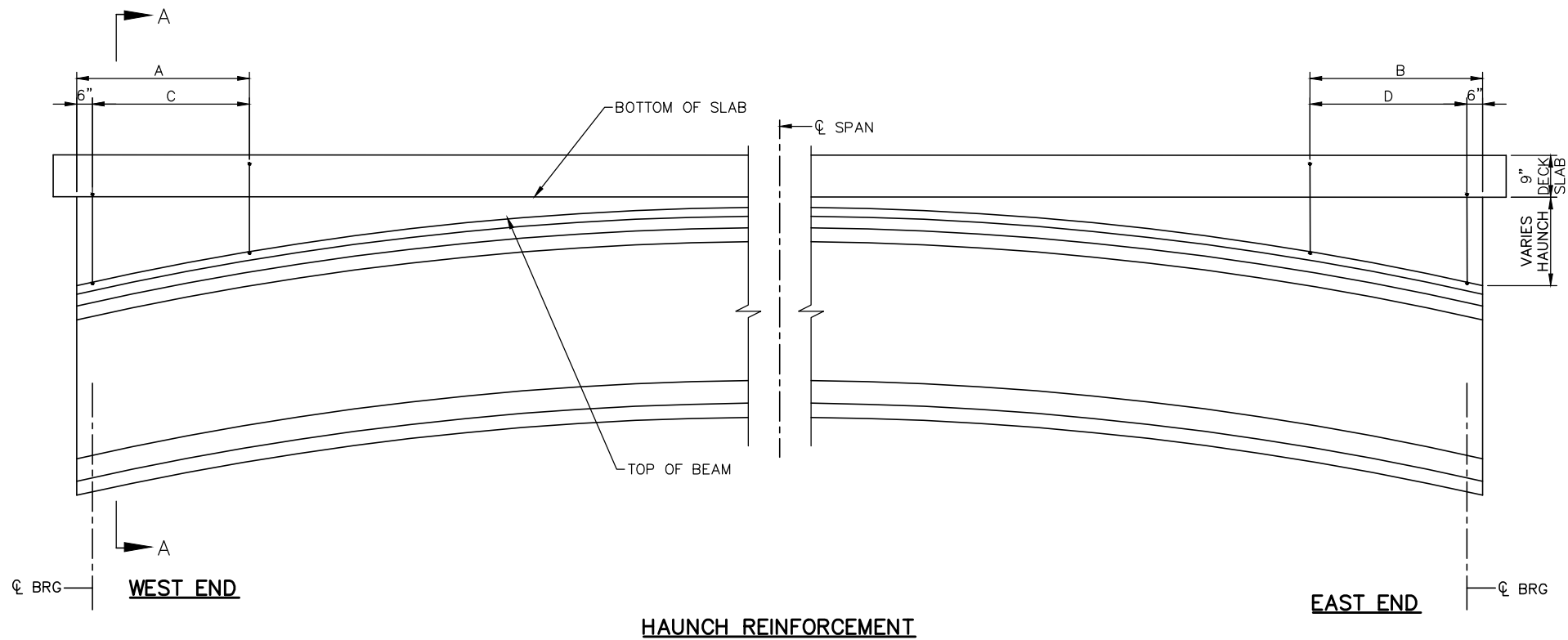
**SHEET**  
**191**  
**OF**  
**232**



Jan, 19 2016 10:35 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-027.dwg By: butterfielda



HAUNCH REINFORCEMENT TABLE					
SPAN NO.	BEAM NO.	A	B	C	D
14	25	—	7'- 4"	—	8 BARS @ ABT 12" = 6'-10"
	26	—	9'- 0"	—	10 BARS @ ABT 12" = 8'-6"
	27	—	4'- 7"	—	6 BARS @ ABT 12" = 4'-1"
	28	—	4'- 8"	—	6 BARS @ ABT 12" = 4'-2"
15	29	11'- 10"	12'- 3"	13 BARS @ ABT 12" = 11'-4"	13 BARS @ ABT 12" = 11'-9"
	30	13'- 11"	12'- 3"	15 BARS @ ABT 12" = 13'-5"	13 BARS @ ABT 12" = 11'-9"
	31	8'- 10"	8'- 11"	10 BARS @ ABT 12" = 8'-4"	10 BARS @ ABT 12" = 8'-5"
	32	9'- 1"	9'- 1"	10 BARS @ ABT 12" = 8'-7"	10 BARS @ ABT 12" = 8'-7"
16	33	15'- 2"	1'- 9"	16 BARS @ ABT 12" = 14'-8"	3 BARS @ ABT 12" = 1'-3"
	34	15'- 5"	1'- 9"	16 BARS @ ABT 12" = 14'-11"	3 BARS @ ABT 12" = 1'-3"
	35	12'- 3"	1'- 9"	13 BARS @ ABT 12" = 11'-9"	3 BARS @ ABT 12" = 1'-3"
	36	12'- 5"	1'- 9"	13 BARS @ ABT 12" = 11'-11"	3 BARS @ ABT 12" = 1'-3"
17	37	12'- 7"	—	14 BARS @ ABT 12" = 12'-1"	—
	38	14'- 5"	—	15 BARS @ ABT 12" = 13'-11"	—
	39	14'- 5"	—	15 BARS @ ABT 12" = 13'-11"	—
	40	12'- 7"	—	14 BARS @ ABT 12" = 12'-1"	—



**NOTE:**  
HAUNCH REINFORCEMENT PROVIDED WHERE HAUNCH HEIGHT EXCEEDS 5"

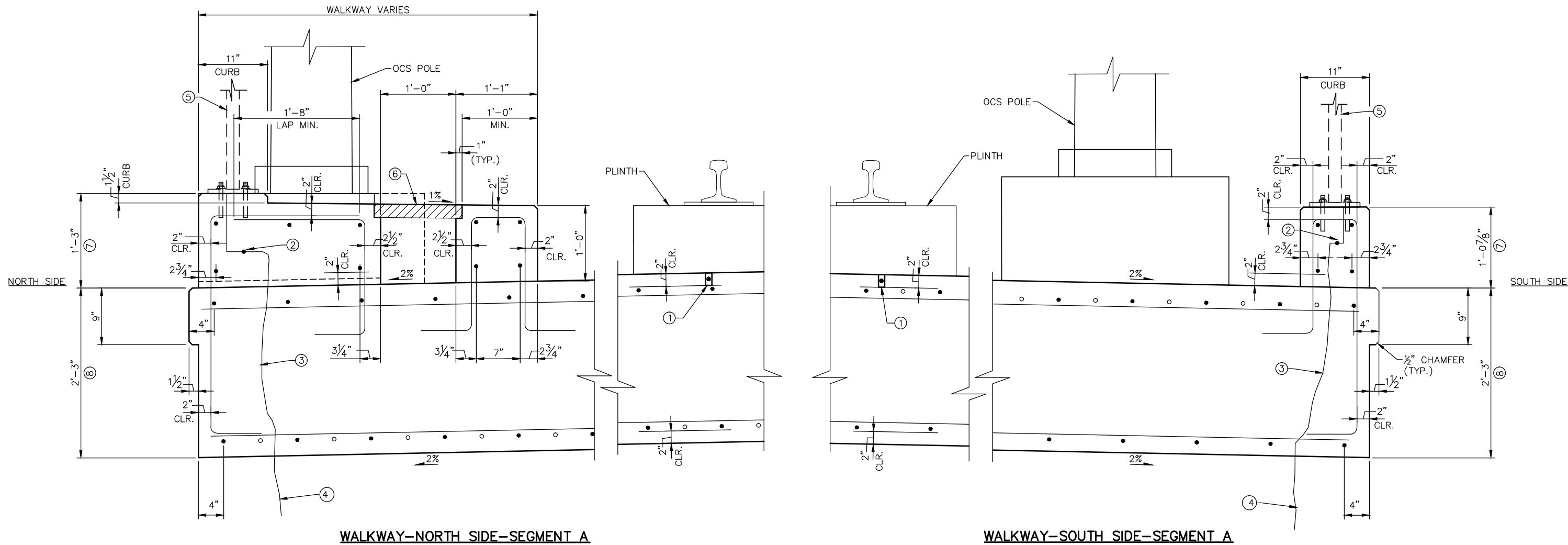
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY:	RJH	CHECKED BY:	ATN
DRAWN BY:	ALB	CHECKED BY:	ATN

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 SUPERSTRUCTURE DETAILS 11	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-SUP-089

Jan, 19 2016 10:35 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-038.dwg By: butterfield



**NOTES:**

- ① STRAY CURRENT COLLECTOR CABLE. SEE NOTE ON SHEET 10.
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED WITHIN THE SLAB.
- ④ CONNECT TO GROUND WIRE IN PIER.
- ⑤ 42" MIN. HEIGHT WIRE FENCE (DESIGN W-1)  
SEE FIG. 5-397.119 (MOD) WIRE FENCE ON SHEET 196.
- ⑥ EXPRESS TROUGH WITH HIGH DENSITY POLYMER COVER. CONTRACTOR  
TO COORDINATE FINAL BLOCKOUT AND RECESS DIMENSIONS WITH  
SUPPLIER. SEE SYSTEM PLANS.
- ⑦ SIDEWALK CONCRETE (3F52).
- ⑧ STRUCTURE CONCRETE (3YHPC-M).

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: KL  
DRAWN BY: ALB

CHECKED BY: AMA  
CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**SUPERSTRUCTURE DETAILS 12**

DISCIPLINE:  
**STRUCTURES**

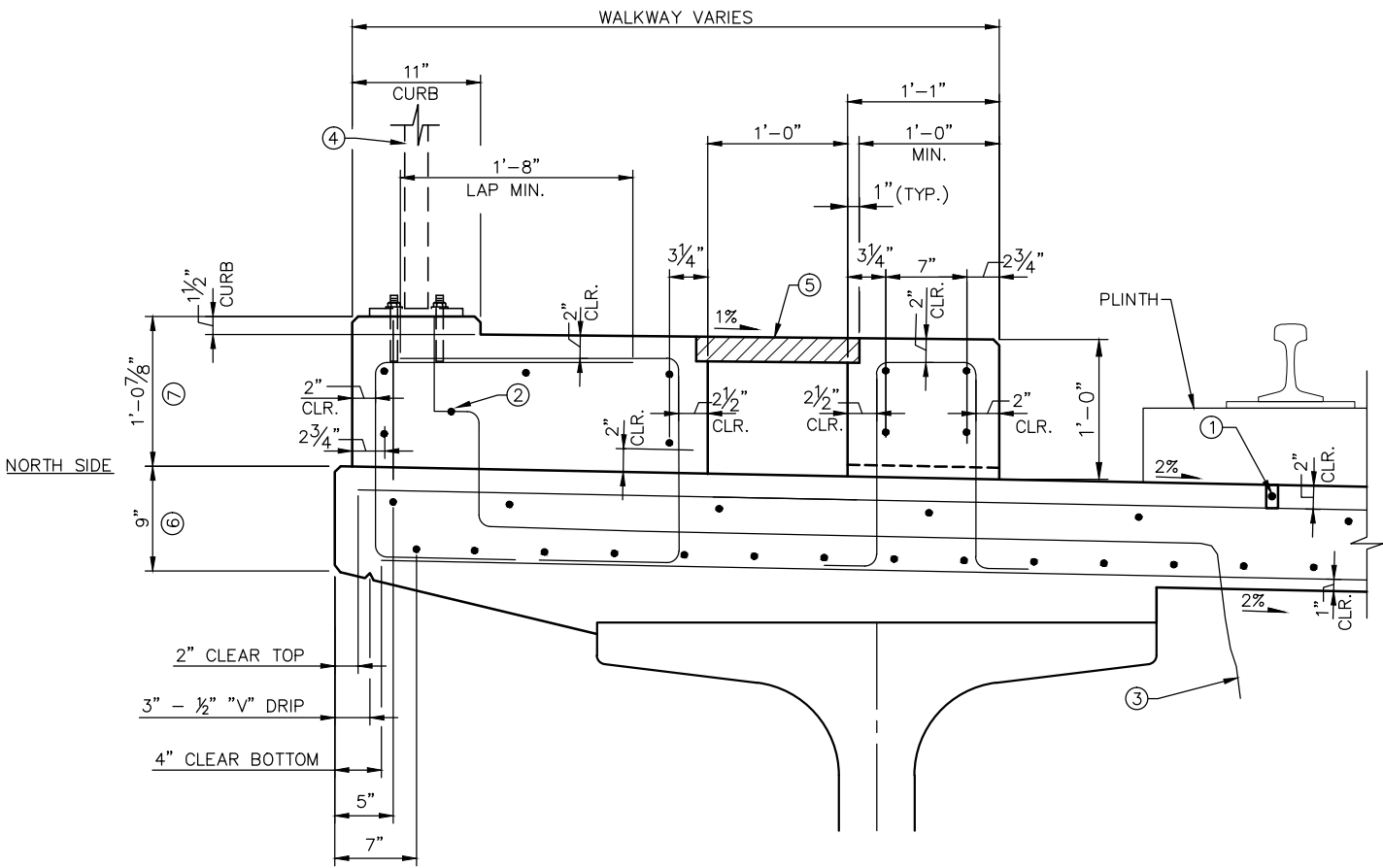
SHEET NAME:  
**CBR27C06-BRG-SUP-090**

**SHEET**  
**193**  
**OF**  
**232**

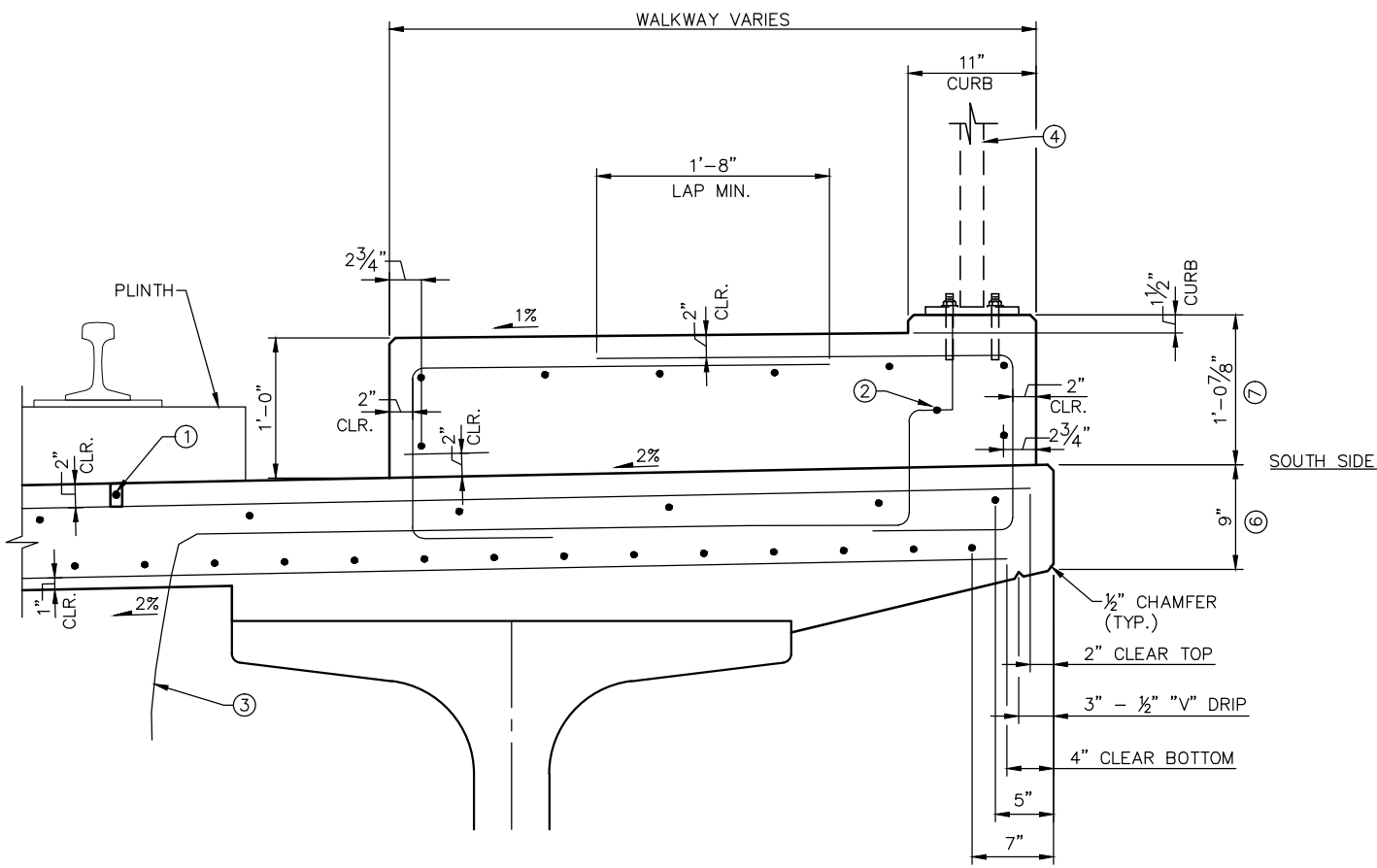
Jan, 19 2016 10:36 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUP-038.dwg By: butterfield

NOTES:

- ① STRAY CURRENT COLLECTOR CABLE. SEE NOTE ON SHEET 10.
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED INSIDE 1½" PVC CONDUIT WITHIN THE DECK AT PIERS. CONNECT TO GROUND WIRE IN PIER.
- ④ 42" MIN. HEIGHT WIRE FENCE (DESIGN W-1) SEE FIG. 5-397.119 (MOD) WIRE FENCE ON SHEET 196.
- ⑤ EXPRESS TROUGH WITH HIGH DENSITY POLYMER COVER. CONTRACTOR TO COORDINATE FINAL BLOCKOUT AND RECESS DIMENSIONS WITH SUPPLIER. SEE SYSTEM PLANS.
- ⑥ BRIDGE SLAB CONCRETE (3YHPC-M).
- ⑦ SIDEWALK CONCRETE (3F52).



WALKWAY-NORTH SIDE-SEGMENT B



WALKWAY-SOUTH SIDE-SEGMENT B

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: KL  
DRAWN BY: ALB

CHECKED BY: AMA  
CHECKED BY: ATN

AECOM

90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
SUPERSTRUCTURE DETAILS 13

DISCIPLINE:  
STRUCTURES

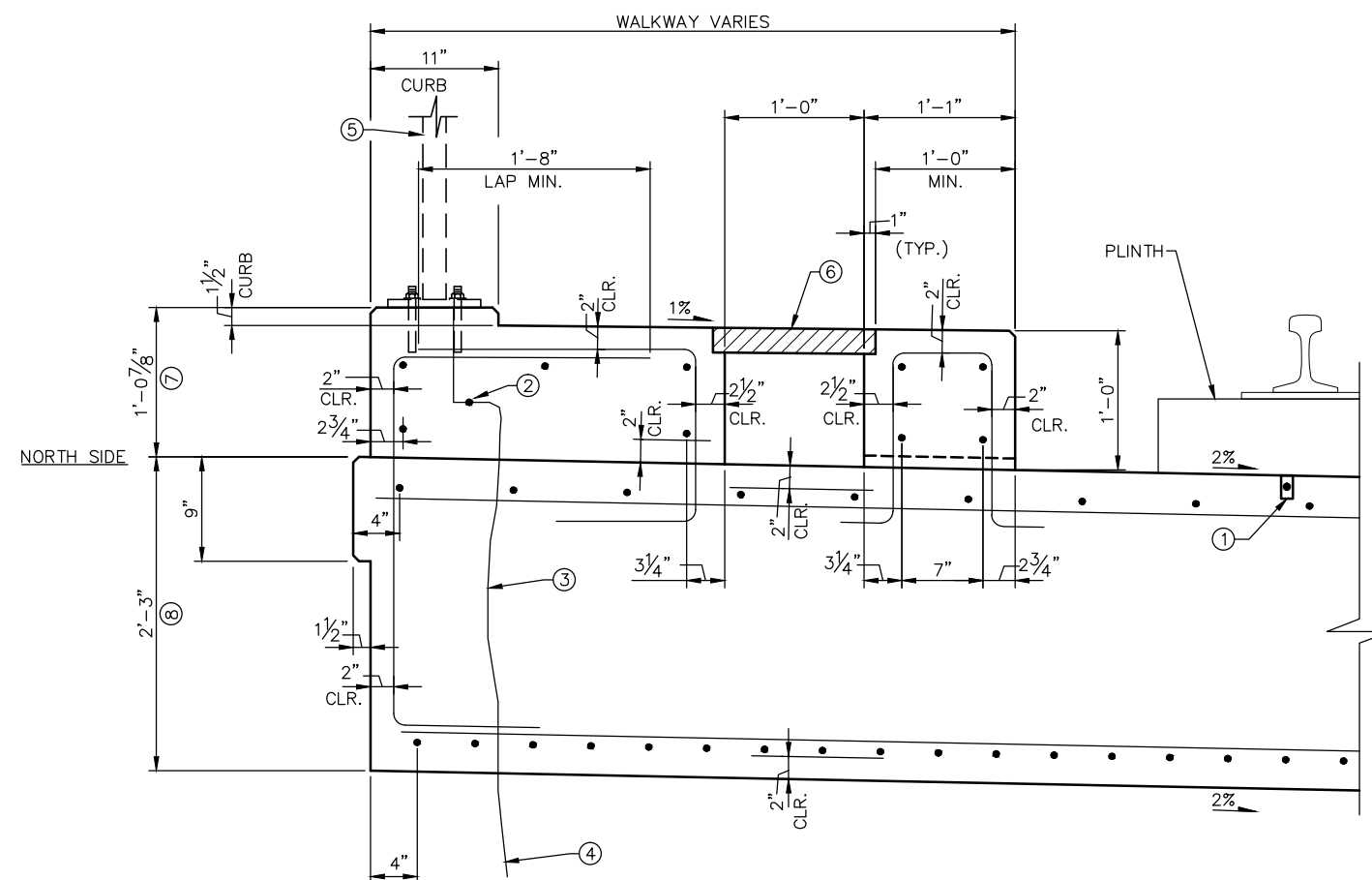
SHEET NAME:  
CBR27C06-BRG-SUP-091

SHEET  
194  
OF  
232

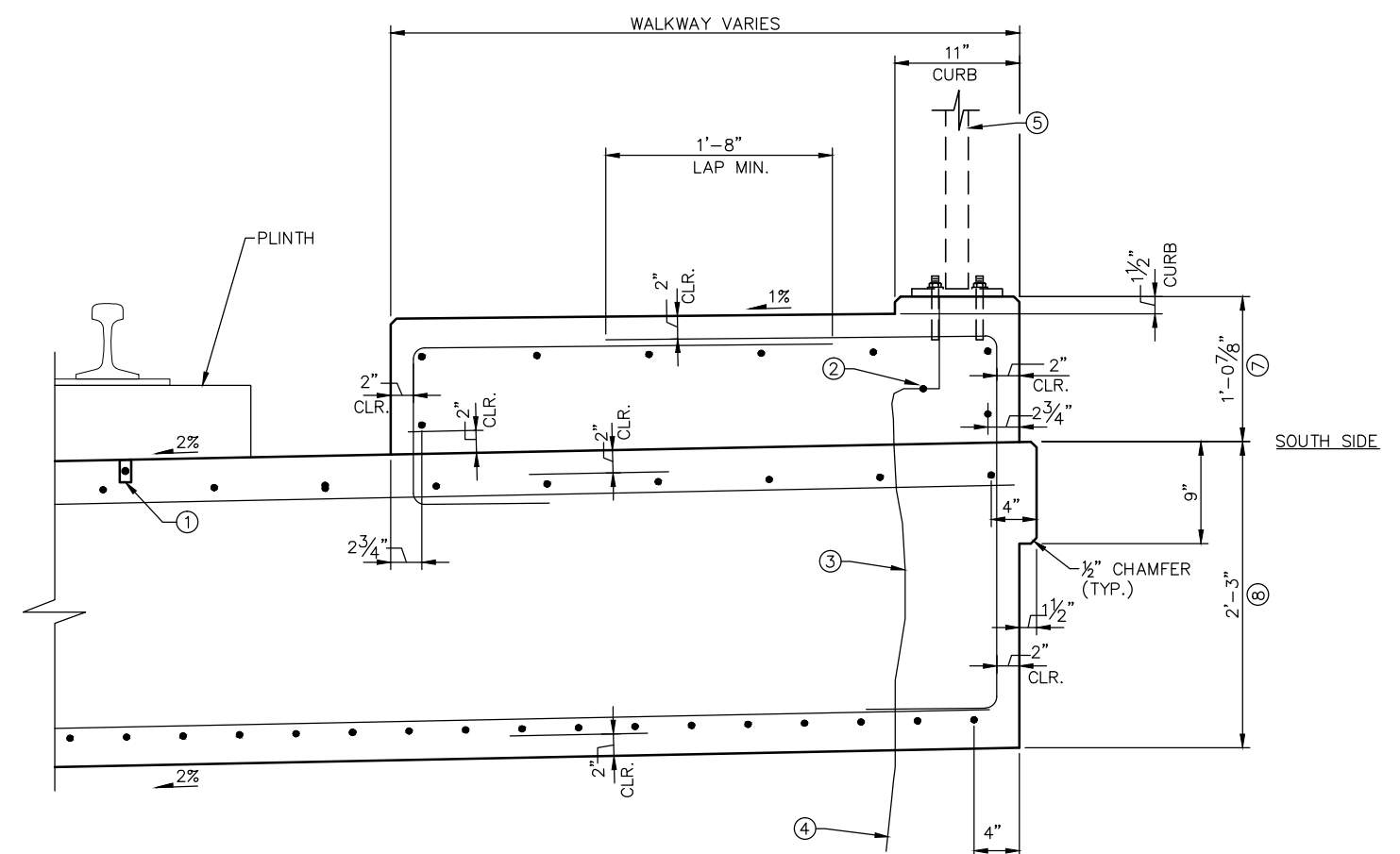
Jan, 19 2016 10:36 am V:\3400\_ADC\CAD\SEGEMT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-SUP-038.dwg By: butterfly

NOTES:




- ① STRAY CURRENT COLLECTOR CABLE. SEE NOTE ON SHEET 10.
- ② GROUND WIRE.
- ③ GROUND WIRE PLACED WITHIN THE SLAB.
- ④ CONNECT TO GROUND WIRE IN PIER.
- ⑤ 42" MIN. HEIGHT WIRE FENCE (DESIGN W-1)  
SEE FIG. 5-397.119 (MOD) WIRE FENCE ON SHEET 196.
- ⑥ EXPRESS TROUGH WITH HIGH DENSITY POLYMER COVER. CONTRACTOR TO COORDINATE FINAL BLOCKOUT AND RECESS DIMENSIONS WITH SUPPLIER. SEE SYSTEM PLANS.
- ⑦ SIDEWALK CONCRETE (3F52).
- ⑧ STRUCTURE CONCRETE (3YHPC-M).



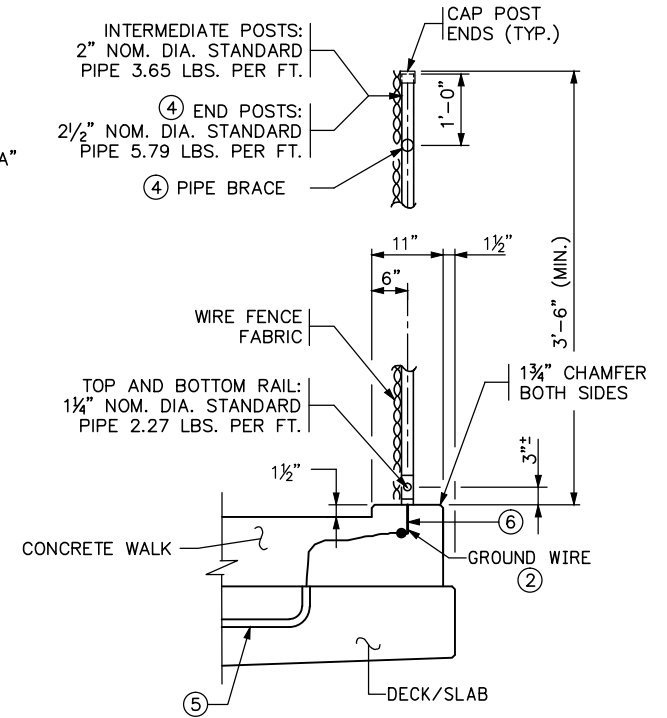
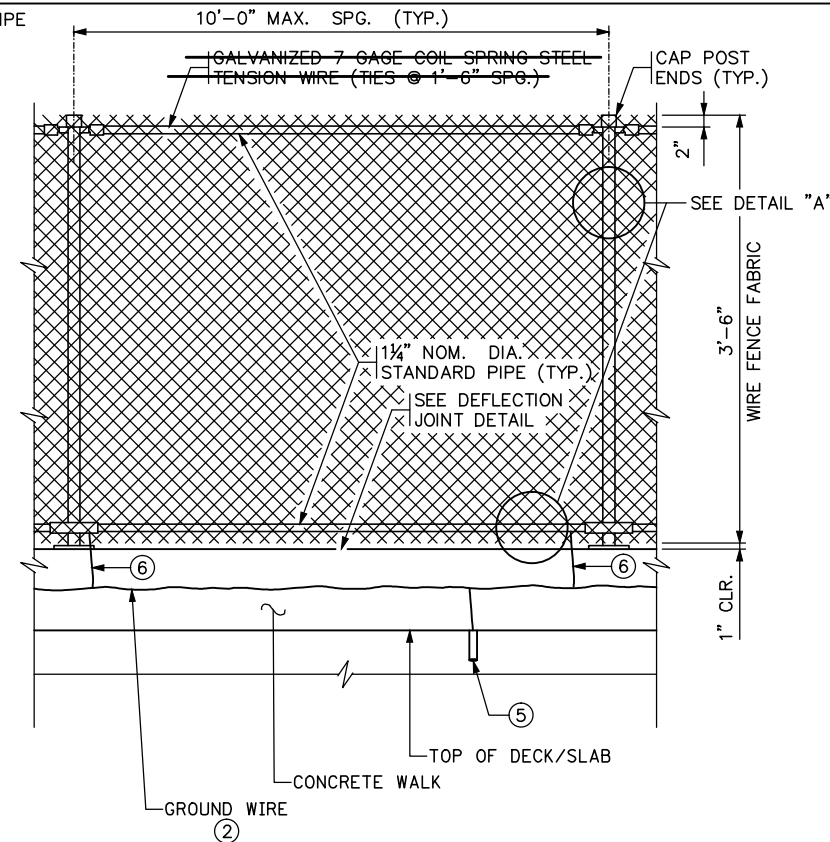
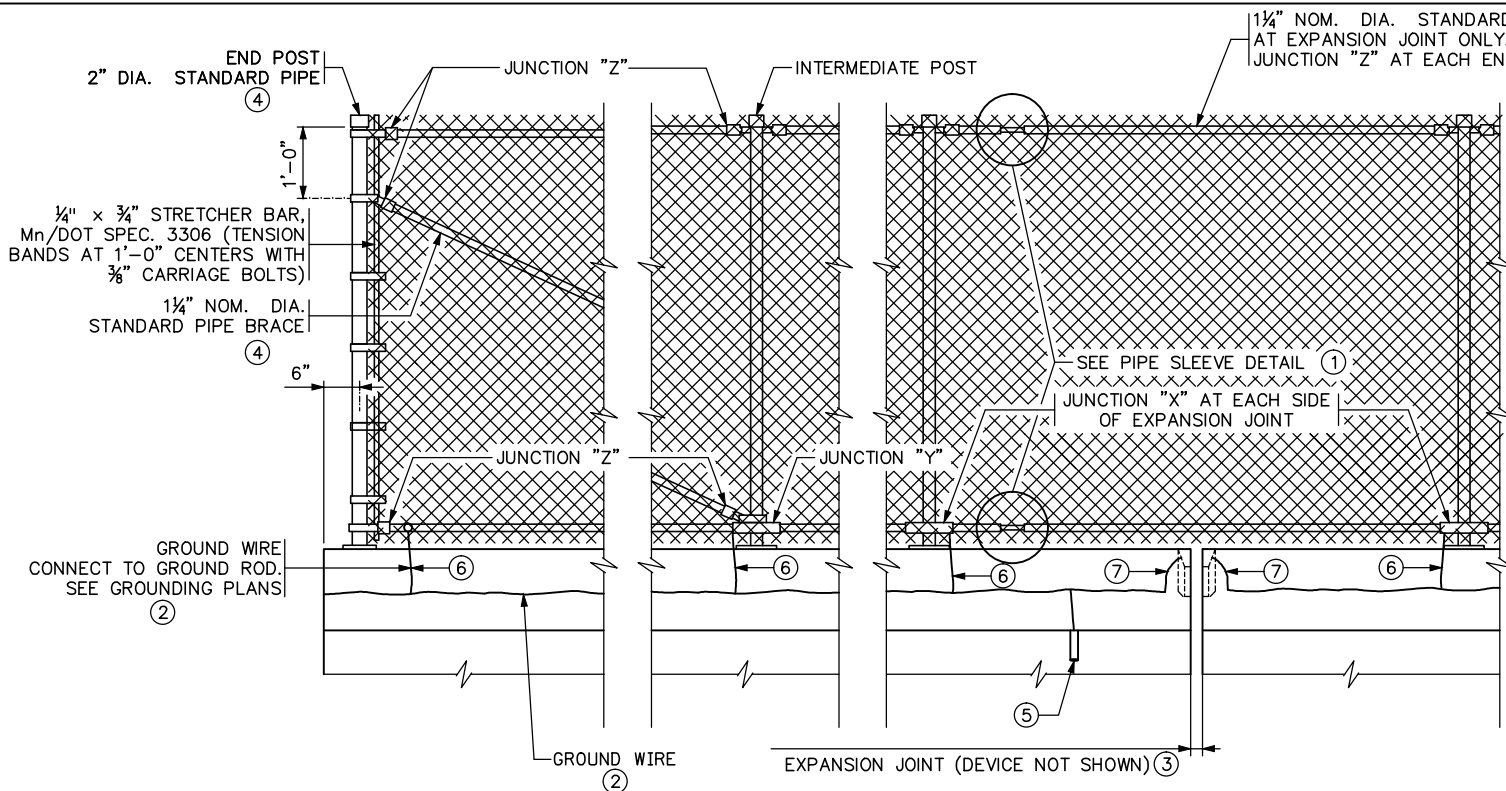
WALKWAY-NORTH SIDE-SEGMENT A & C



WALKWAY-SOUTH SIDE-SEGMENT A & C

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL			 	CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 SUPERSTRUCTURE DETAILS 14		SHEET  195  OF  232
DESIGNED BY: KL DRAWN BY: ALB						CHECKED BY: AMA CHECKED BY: ATN	90% SUBMISSION - 01/22/16		DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-SUP-092	

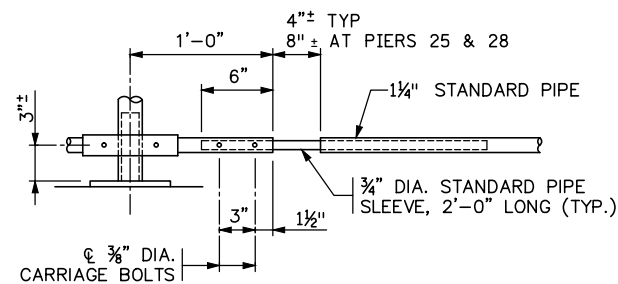
Jan, 19 2016 09:51 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-RAL-001.dwg By: mayert



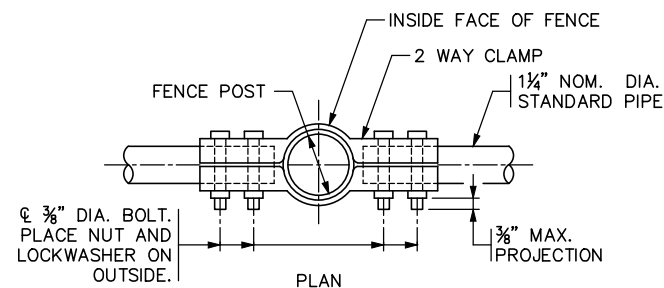
TYPICAL SECTION THROUGH FENCE

INTERMEDIATE POST SHOWN

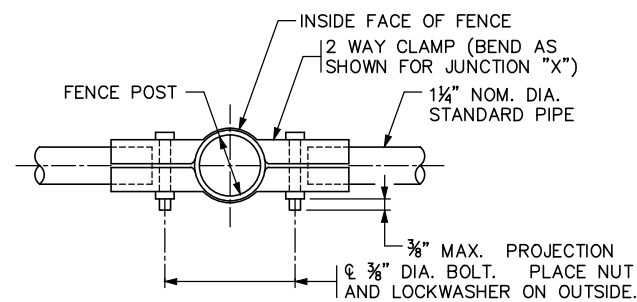
MODIFICATION  
REMOVED/REPLACED REFERENCES TO P-1  
RAILING WITH SIDEWALK DETAILS.  
REVISED TOP SPRING STEEL TENSION  
WIRE TO 1/4" NOM.DIA. TOP RAIL.



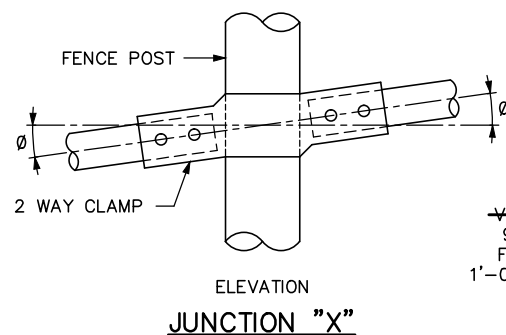
PIPE SLEEVE DETAIL ①



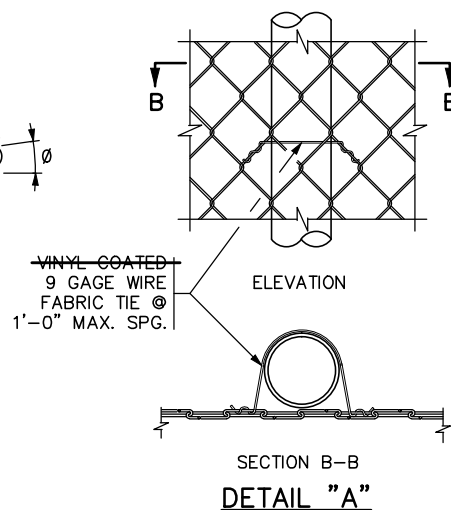
2 WAY CLAMP BENDING TABLE	
GRADE OF FENCE	Ø
0' TO 2'	0'
2' TO 6'	4'
6' TO 10'	8'



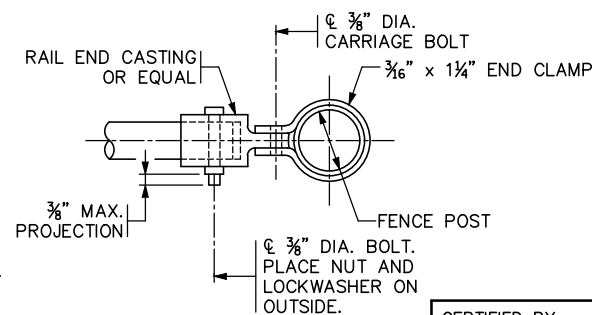
JUNCTION "Y"



JUNCTION "X"



SECTION B-B  
DETAIL "A"



JUNCTION "Z"

## GENERAL NOTES

LENGTH OF "WIRE FENCE" FOR PAYMENT SHALL BE MEASURED BETWEEN THE CENTERS OF END RAILPOSTS.

FENCE POST ANCHORAGES SHALL BE TYPE A. SEE DETAIL B905 "FENCE POST ANCHORAGE".

FENCE POSTS AND FENCE POST ANCHORAGES SHALL BE SET VERTICAL, UNLESS OTHERWISE NOTED.

Ø OF FENCE POST ANCHORAGE SHALL BE A MINIMUM OF 6" FROM JOINTS.

~~ALL POSTS SHALL HAVE A MEANS TO SECURELY HOLD THE TOP TENSION WIRE IN POSITION AND ALLOW FOR THE REMOVAL AND REPLACEMENT OF A POST WITHOUT DAMAGING THE TOP WIRE.~~

WIRE TIES MAY BE 9 GAGE GALVANIZED STEEL OR 0.179" MIN. ALUMINUM ALLOY CONFORMING TO A.S.T.M. B211, ALLOY 1100-H18. ~~USE 12 1/2 GAGE GALVANIZED HOG RINGS FOR TENSION WIRE TIES.~~

SEE SPECIAL PROVISIONS FOR REQUIREMENTS NOT INCLUDED ON THIS SHEET AND FOR BASIS OF PAYMENT.

- ① PROVIDE PIPE SLEEVE IN SPAN BETWEEN THE VERTICAL POSTS AT EXPANSION JOINT. SEE SUPERSTRUCTURE SHEETS FOR LOCATION.
- ② LONGITUDINAL COLLECTOR GROUND WIRE CONTINUOUS BETWEEN EXPANSION JOINTS
- ③ SEE SUPERSTRUCTURE PLANS FOR JOINT OPENINGS.
- ④ END POSTS AND BRACING SHALL BE AT 500 FT. MAXIMUM INTERVALS.
- ⑤ GROUND WIRE PLACED IN 1/2" PVC CONDUIT AT FIXED PIERS IN SEGMENT B AT LOCATIONS SHOWN ON PIER DETAILS. BARE GROUND WIRE AT FIXED PIERS IN SEGMENTS A AND C AT LOCATIONS SHOWN ON PIER DETAILS.
- ⑥ GROUND WIRE PIGTAIL PLACED WITHIN 6" OF EACH FENCE POST ANCHORAGE. CONTRACTOR SHALL COORDINATE LOCATIONS WITH FENCE SUB CONTRACTOR.
- ⑦ GROUND WIRE PIGTAIL CONNECTION TO EXPANSION JOINT DEVICE AND EXPANSION JOINT COVER PLATES.

REVISED: 04-17-2013

APPROVED: DECEMBER 18, 2003

*Ramit S. Horgan*  
STATE BRIDGE ENGINEER

CERTIFIED BY \_\_\_\_\_  
LICENSED PROFESSIONAL ENGINEER DATE \_\_\_\_\_  
NAME: \_\_\_\_\_ LIC. NO. \_\_\_\_\_

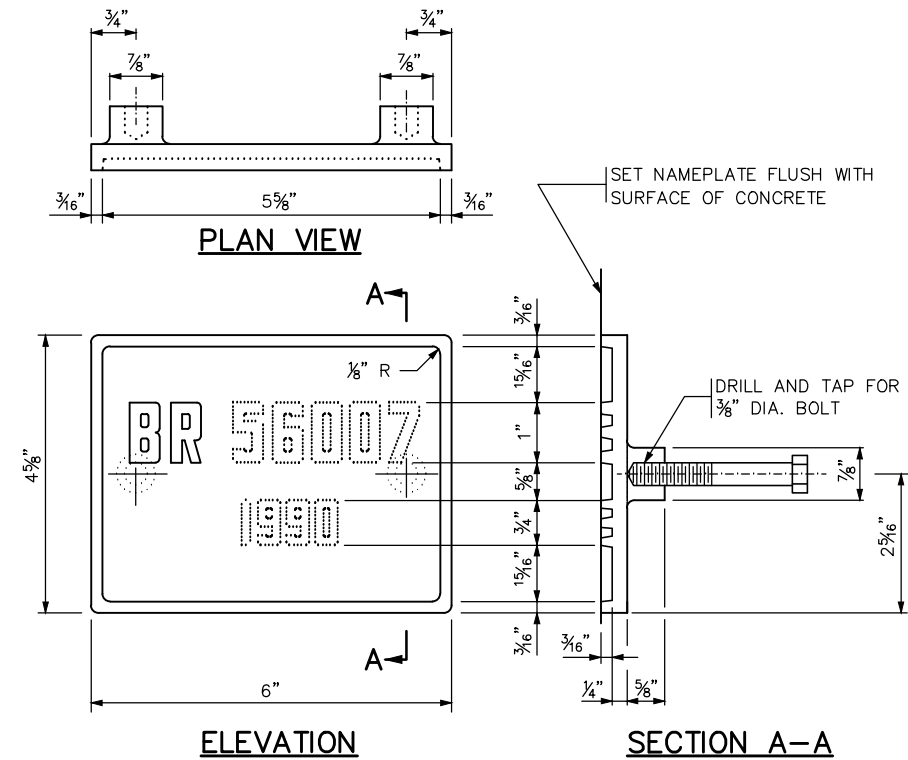
TITLE: **WIRE FENCE (DESIGN W-1) AND  
CONCRETE PARAPET (TYPE P-1)**  
(WITH INTEGRAL END POST)

DES: **RJH** DR: **ALB**  
CHK: **ATN** CHK: **ATN**  
SHEET NO. **196** OF **232** SHEETS

FIG. 5-397.119 (MOD.)

BRIDGE NO.  
**27C06**

Jan, 19 2016 09:51 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-DTL-001.dwg By: mayert



THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION.  
DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

BRIDGE 27C06  
YEAR 2019

1234567890  
NUMBERS FOR NAMEPLATE

**NOTES:**

- MATERIAL SHALL COMPLY WITH SPEC. 3327.
- LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.
- DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".
- HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.
- TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.
- FURNISH 2 STEEL BOLTS 3/8" DIA. x 3" LONG WITH EACH PLATE.
- ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR 1" HIGH LETTERS AND NUMBERS.

APPROVED: NOVEMBER 22, 2002

*Samuel J. Morgan*  
STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
**BRIDGE NAMEPLATE**  
(FOR NEW BRIDGES)

REVISION  
09-11-2014

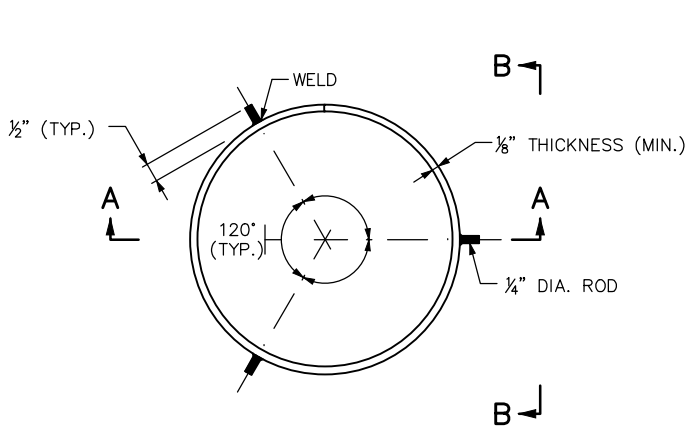
DETAIL NO.  
**B101**

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

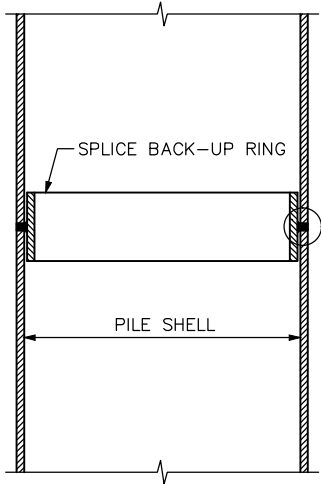
DESIGNED BY: RJH  
DRAWN BY: ALB  
CHECKED BY: ATN  
CHECKED BY: ATN

**AECOM**

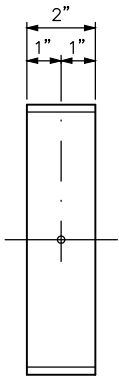
90% SUBMISSION - 01/22/16



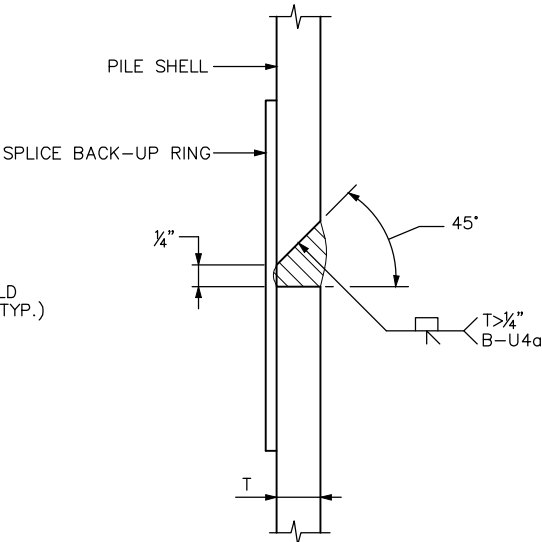
**PLAN VIEW - SPLICE BACK-UP RING**  
PILE NOT SHOWN



**SECTION A-A**



**SECTION B-B**  
PILE NOT SHOWN



**DETAIL "A"**

**NOTES:**

- APPROVED COMMERCIAL PILE SPLICE BACK-UP RING MAY BE USED IN LIEU OF THE TYPE DETAILED, PROVIDED THAT 1/4" ROOT IS MAINTAINED. BACK-UP RING SHALL HAVE A TIGHT FIT.
- WELDING ELECTRODES SHALL BE CELLULOSIC TYPE ELECTRODES E-6010 OR E-6011.
- ELECTRODES WHICH HAVE BECOME WET, SOILED OR DAMAGED SHALL NOT BE USED.
- WELDING SHALL NOT BE DONE WHEN THE AMBIENT TEMPERATURE IS LOWER THAN 0°F. OR WHEN THE PILE IS WET OR EXPOSED TO FALLING RAIN OR SNOW. WHEN THE PILE METAL TEMPERATURE IS BELOW 32°F, THE PILE METAL IN THE AREA OF THE WELD SHALL BE HEATED TO A MINIMUM TEMPERATURE OF 70°F. AND MAINTAINED AT THIS TEMPERATURE DURING WELDING.
- ① FOR PILE SHELL THICKNESSES GREATER THAN 1/4", USE A B-U4a WELD CONFIGURATION. SEE DETAIL "A".

APPROVED NOVEMBER 22, 2002

*Samuel J. Morgan*  
STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
**PILE SPLICE**  
(CAST-IN-PLACE CONCRETE PILES)

REVISION:  
11-06-2013

DETAIL NO.  
**B201**



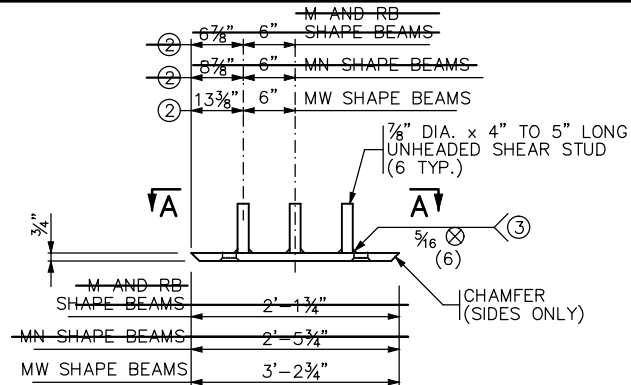
**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**BRIDGE DETAILS 1**

DISCIPLINE:  
**STRUCTURES**

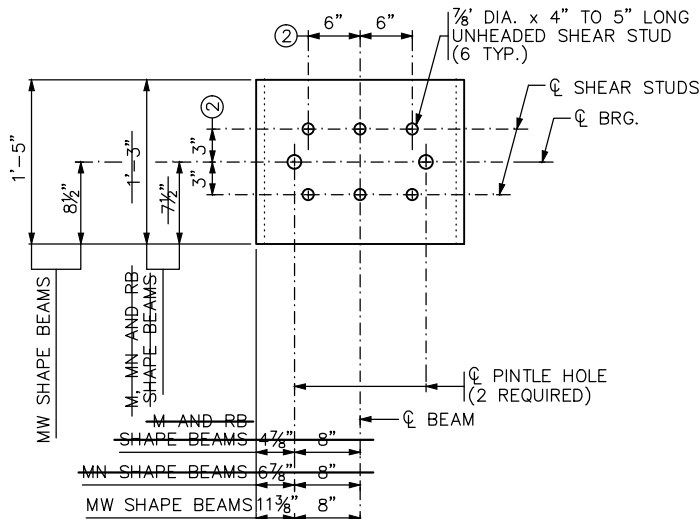
SHEET NAME:  
**CBR27C06-BRG-DTL-001**

**SHEET**  
**197**  
**OF**  
**232**

Jan, 19 2016 09:51 am V:\3400\_ADC\CAD\SEGEMNT M1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-DTL-004.dwg By: mayert



FRONT ELEVATION



SECTION A-A

NOTES:

MATERIAL TO BE STRUCTURAL STEEL PER MnDOT SPEC. 3306.

WELDED STUDS TO BE WELDABLE CARBON STEEL PER MnDOT SPEC. 3391.2D.

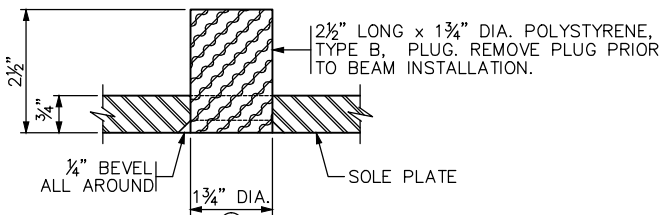
SOLE PLATE FOR BEARING ASSEMBLY TO BE GALVANIZED PER MnDOT SPEC. 3394 AFTER FABRICATION.

PINTLE HOLES SHALL BE FREE OF ZINC BUILD UP FROM GALVANIZING.

SOLE PLATES ARE INCIDENTAL TO PRESTRESSED CONCRETE BEAMS.

ALL BEARINGS SHALL PROVIDE ELECTRICAL ISOLATION OF EMBEDDED STEEL ELEMENTS LOCATED ABOVE THE BEARING ASSEMBLIES FROM EMBEDDED STEEL ELEMENTS LOCATED BELOW BEARING ASSEMBLIES.

- ① FOR 1 1/2" DIA. PINTLES.
- ② THESE DIMENSIONS MAY BE MODIFIED TO CLEAR PRESTRESSED STRANDS. HOWEVER, CHANGES MUST BE APPROVED BY THE ENGINEER.
- ③ THE REQUIREMENTS FOR WELDING STUDS SHALL COMPLY WITH AASHTO/AWS D1.1.



PINTLE HOLE DETAIL

APPROVED: SEPTEMBER 22, 2011

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

REVISED

DETAIL NO.

*Nancy Dautenberger*  
STATE BRIDGE ENGINEER

**SOLE PLATE**  
(PRESTRESSED CONCRETE BEAMS)  
(FOR BEARINGS WITH PINTLES)

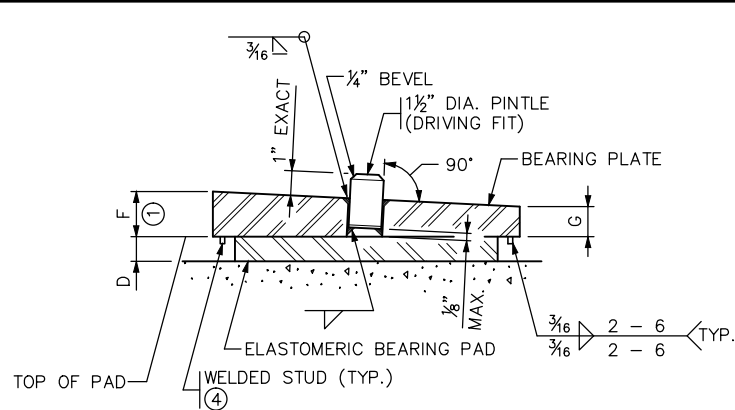
B303

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

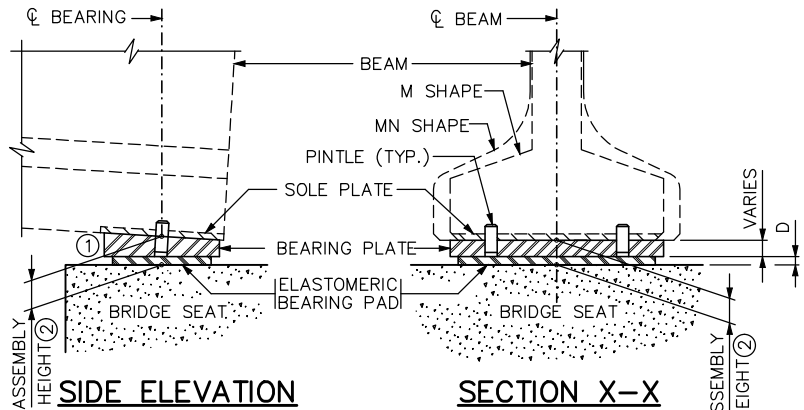
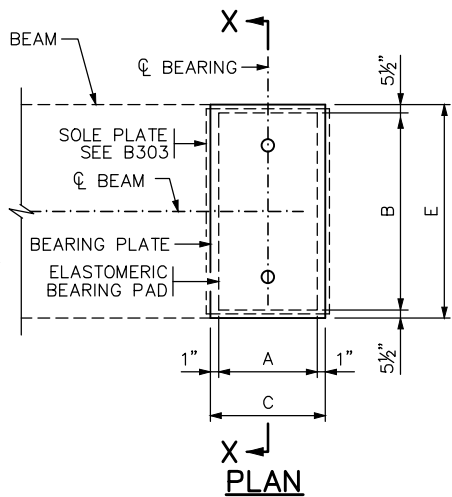
DESIGNED BY: RJH  
DRAWN BY: ALB  
CHECKED BY: ATN  
CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



BEARING PLATE DETAIL



SIDE ELEVATION

SECTION X-X

TABLE											
ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			SHAPE FACTOR	BEARING PLATE SIZE				ASSEMBLY HEIGHT
			A	B	D ③		C	E	F	G	
F1	PIER 9	MW82	16	36	¾"	7.4	18"	47"	1.9"	1.1"	HT.② 3½"

NOTES:

PROVIDE ELASTOMERIC MATERIALS AND PAD CONSTRUCTION PER SPEC. 3741.

PROVIDE STEEL PLATES PER SPEC. 3306.

PROVIDE PINTLES PER SPEC. 3309.

GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER SPEC. 3394. AREAS WELDED SHALL BE REPAIRED PER SPEC. 2471.3L.

PAYMENT FOR "TAPERED BEARING PLATE ASSEMBLY" IS PER EACH, AND INCLUDES ALL MATERIAL ON THIS DETAIL.

ALL BEARINGS SHALL PROVIDE ELECTRICAL ISOLATION OF EMBEDDED STEEL ELEMENTS LOCATED ABOVE THE BEARING ASSEMBLIES FROM EMBEDDED STEEL ELEMENTS LOCATED BELOW BEARING ASSEMBLIES.

① MARK THICKER SIDE OF SLOPED PLATES WITH AN "H" FOR PLACEMENT. SEE FRAMING PLAN SHEET NO. 4.

② BEARING PAD AND BEARING PLATE THICKNESS AT CL BEARING.

③ "D" INDICATES THE THICKNESS OF THE BEARING PAD.

④ 3/8" x 3/8" BAR INSTALLED ON BEARING PLATE AROUND PERIMETER OF BEARING PAD. BAR LENGTH IS 2" LESS THAN ADJACENT PAD DIMENSION, CENTERED ON PAD. CENTERLINE OF BAR TO EDGE OF PAD DIMENSION = 1/2".

APPROVED: FEBRUARY 27, 2013

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

REVISION  
11-03-15

DETAIL NO.

*Nancy Dautenberger*  
STATE BRIDGE ENGINEER

**TAPERED BEARING PLATE ASSEMBLY**  
(FOR INTEGRAL ABUTMENTS OR PIERS WITH CONTINUITY DIAPHRAGMS)

B309



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**BRIDGE DETAILS 4**

DISCIPLINE:  
**STRUCTURES**

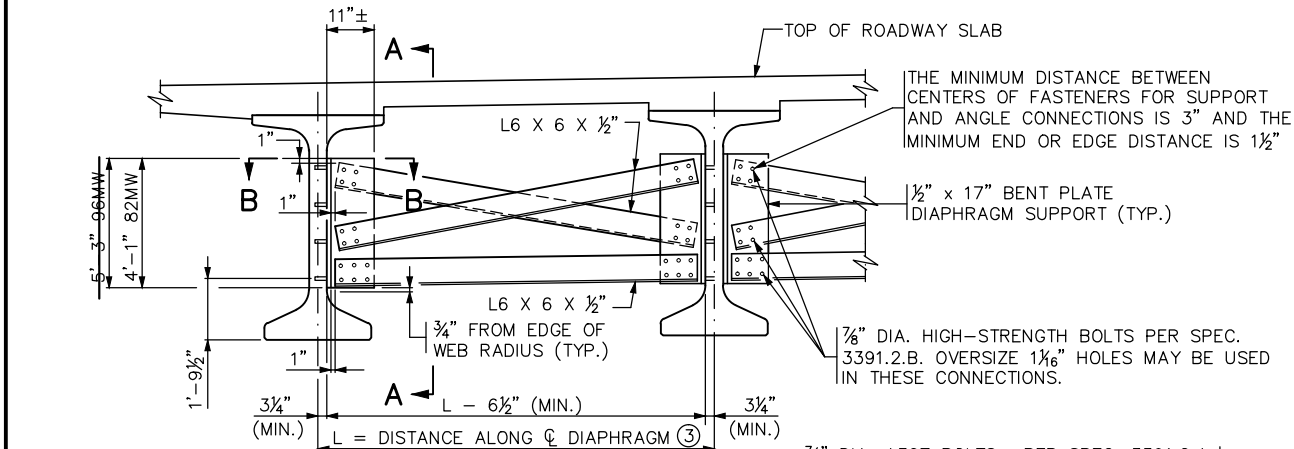
SHEET NAME:  
**CBR27C06-BRG-DTL-002**

**SHEET**  
**198**  
**OF**  
**232**

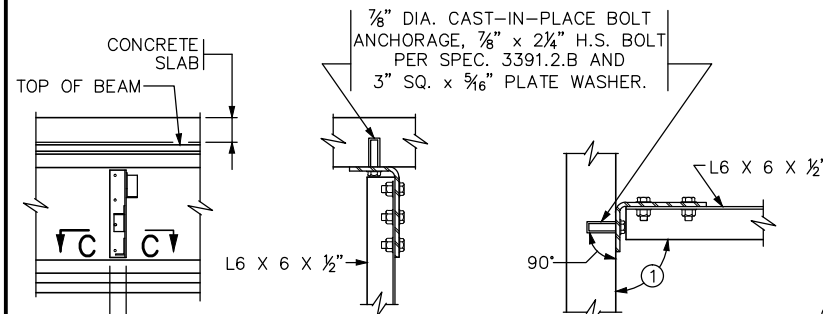




Jan, 19 2016 09:52 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-DTL-005.dwg By: mayert

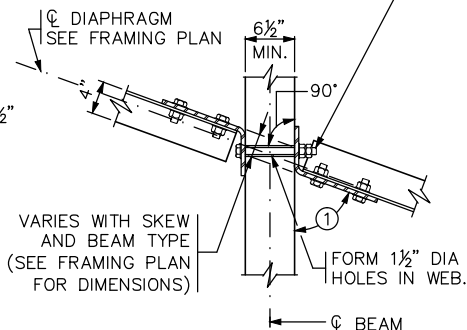


**PART TRANSVERSE SECTION**  
SQUARE BRIDGE SHOWN



**SECTION A-A**  
FASCIA BEAM

**SECTION B-B**  
TYPICAL SECTION AT FASCIA BEAM



**INTERMEDIATE DIAPHRAGM**  
TYPICAL SECTION AT INTERIOR BEAM WITH CONTINUOUS OR STAGGERED INTERMEDIATE DIAPHRAGMS

**NOTES:**

PROVIDE STEEL PER SPEC. 3306.

INCLUDE ALL STRUCTURAL STEEL SHOWN ON THIS DETAIL, INCLUDING BOLTS AND WASHERS, IN THE PAYMENT FOR DIAPHRAGMS FOR PRESTRESSED BEAMS.

INSTALLATION PER SPEC. 2405.3.K.

TORQUE ALL BOLTS, INCLUDING ANCHOR BOLTS TO 80 FT. LBS.

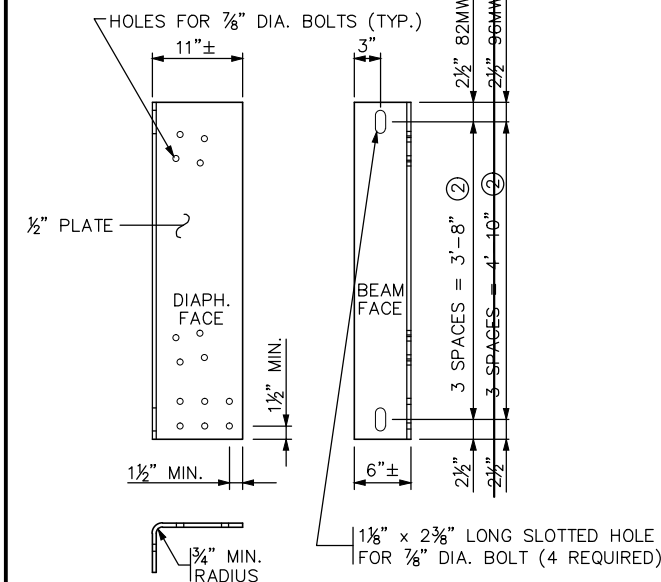
GALVANIZE STEEL PLATES AND SHAPES PER SPEC. 3394.

GALVANIZE BOLTS, NUTS AND WASHERS PER SPEC. 3392.

① FOR SKEW ANGLES UNDER 20°, USE 90° LESS THE SKEW ANGLE. FOR SKEW ANGLES OVER 20°, USE 90°.

② SPACE BOLT HOLES SO AS TO MISS PRESTRESSED STRANDS IN CONCRETE BEAMS. SEE PRESTRESSED CONCRETE BEAM SHEETS FOR MORE INFORMATION.

③ DIAPHRAGM SHOWN DESIGNED FOR BEAM SPACING UP TO 13'-0".



**DIAPHRAGM SUPPORT**

APPROVED: SEPTEMBER 22, 2011

*Nancy Dubenberger*  
STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

**STEEL INTERMEDIATE BOLTED DIAPHRAGM**  
(ALL MW PRESTRESSED CONCRETE BEAMS)

REVISED  
09-11-2014  
11-03-2015

DETAIL NO.

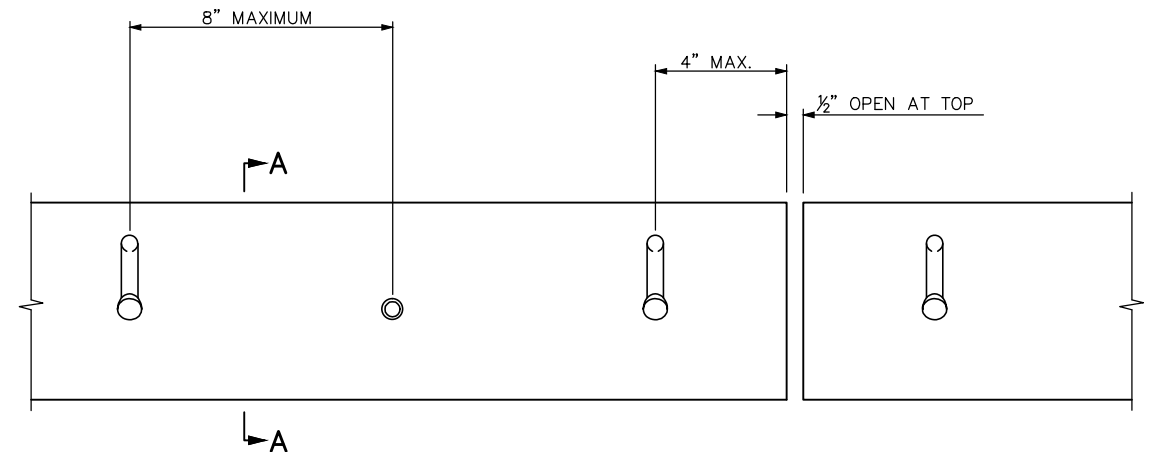
**B412**

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

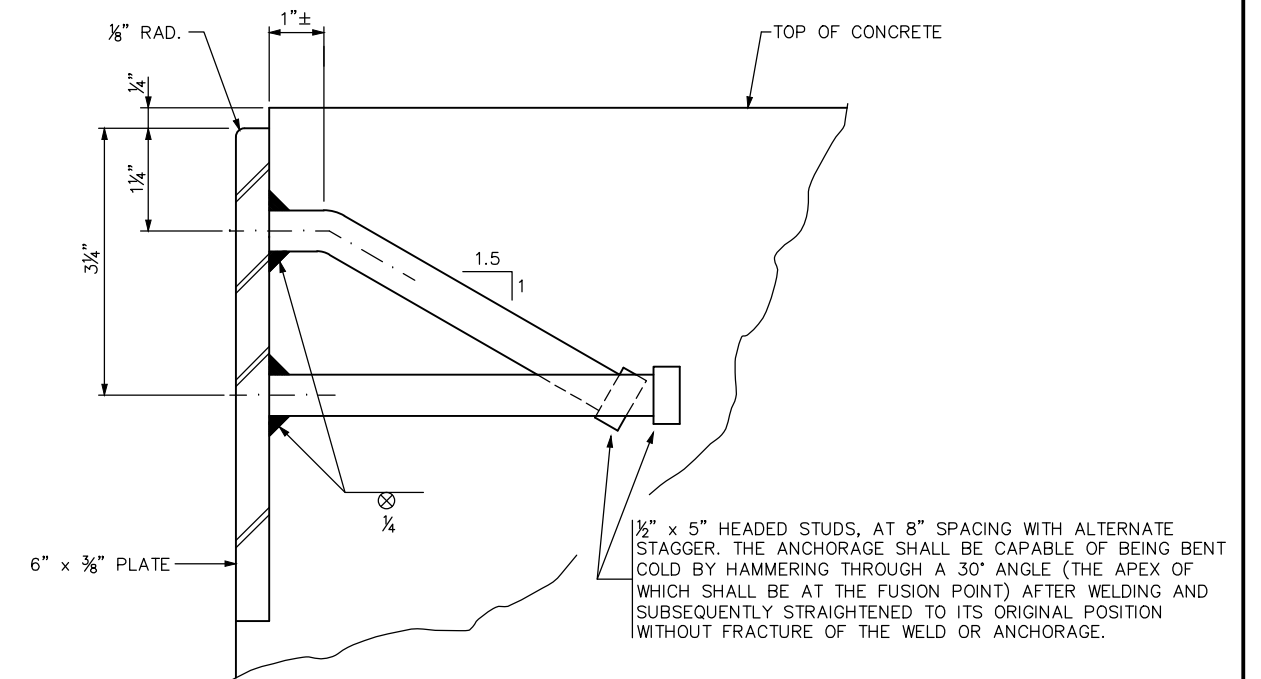
DESIGNED BY: RJH  
DRAWN BY: ALB  
CHECKED BY: ATN  
CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



**ELEVATION**  
CONCRETE NOT SHOWN



**SECTION A-A**

**NOTES:**

PLATES SHALL EXTEND FULL WIDTH OF ROADWAY BETWEEN GUTTER LINES WITH A 1/2" OPEN JOINT AT EACH BREAK IN CROWN PROFILE. MAX. LENGTH 22 FT.

MATERIALS: STRUCTURAL STEEL PER Mn/DOT SPEC. 3306. GALVANIZE AFTER FABRICATION PER Mn/DOT SPEC. 3394

SET PLATE TO PROPER GRADE AND CROWN.

APPROVED: NOVEMBER 22, 2002

*Daniel J. Morgan*  
STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

**PROTECTION PLATE**  
(FOR END OF SLAB)

REVISION

DETAIL NO.

**B553**



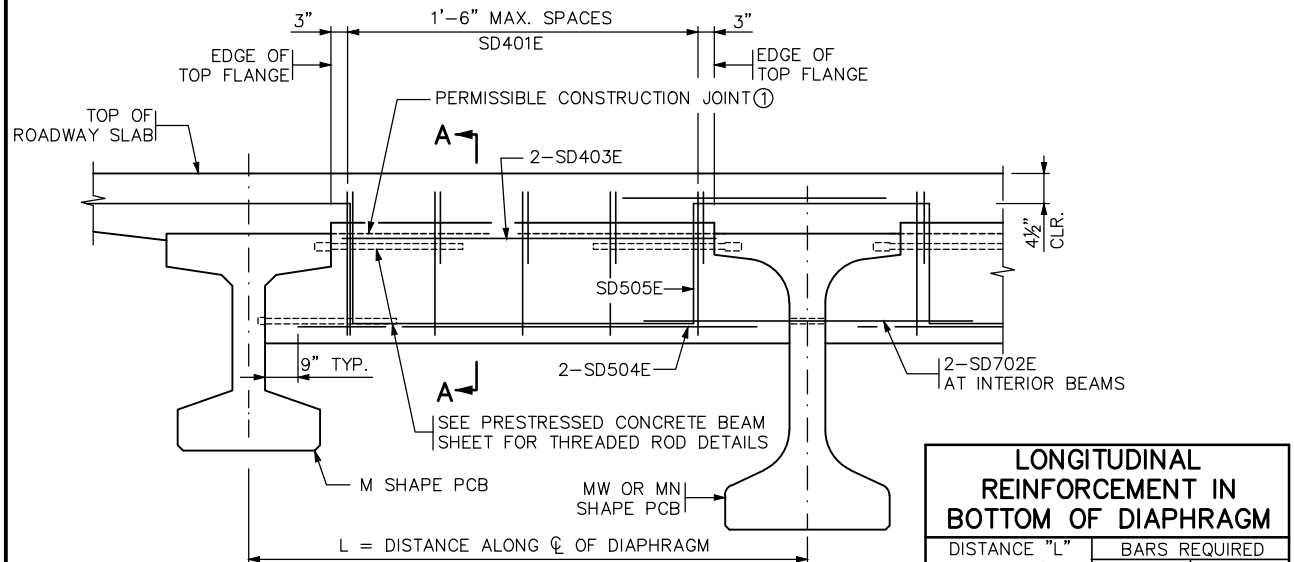
**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**BRIDGE DETAILS 5**

DISCIPLINE:  
**STRUCTURES**

SHEET NAME:  
**CBR27C06-BRG-DTL-004**

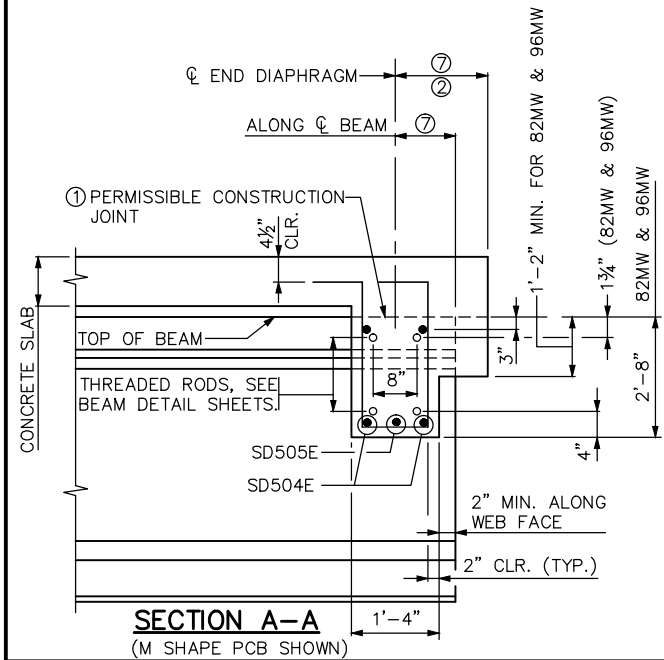
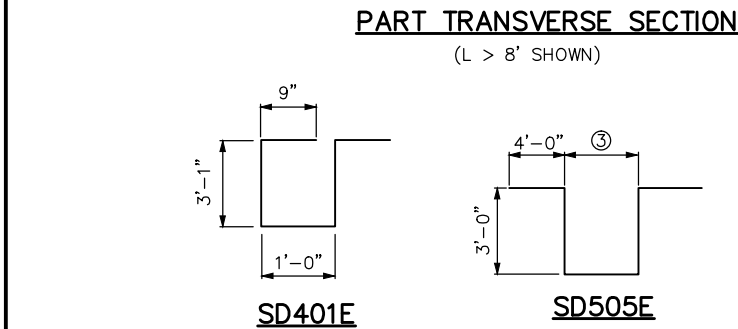
**SHEET**  
**200**  
**OF**  
**232**

Jan, 19 2016 09:52 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-DTL-003.dwg By: mayert



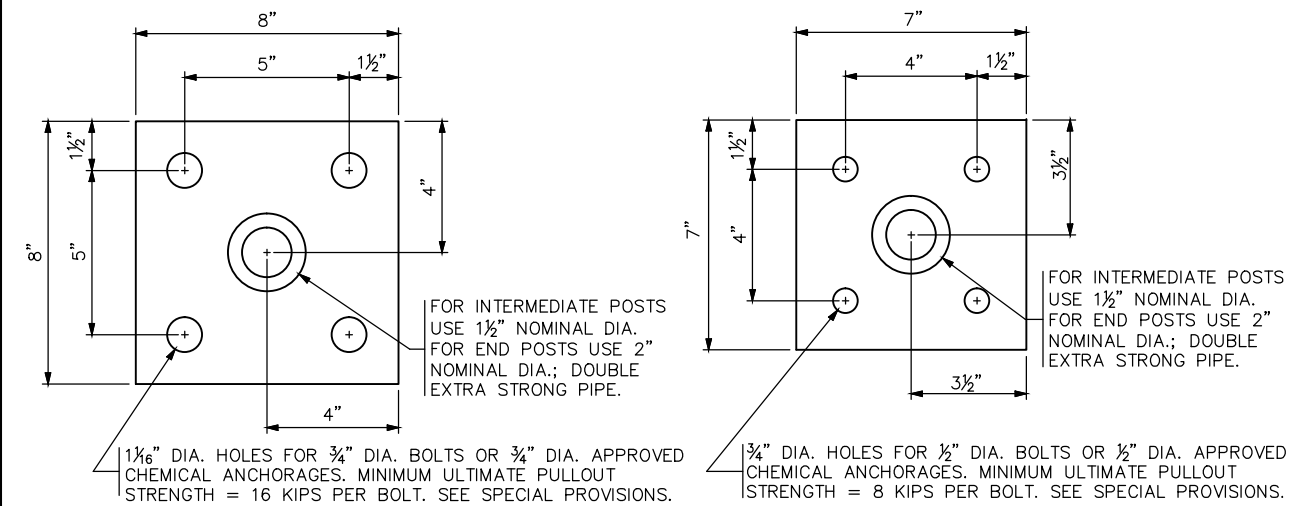
LONGITUDINAL REINFORCEMENT IN BOTTOM OF DIAPHRAGM					
DISTANCE "L" ALONG $\phi$ OF DIAPHRAGM	BARS REQUIRED				
	STRAIGHT NO.	SIZE	BENT NO.	SIZE	
UP TO 8'	2	6E	1	5E	
OVER 8' TO 11'	2	7E	1	6E	
OVER 11' TO 13'	2	8E	1	8E	
OVER 13' TO 15'	2	9E	1	10E	
OVER 15' TO 18'	2	11E	1	11E	

BILL OF REINFORCEMENT FOR END DIAPHRAGM				
BAR	NO.	LENGTH	SHAPE	LOCATION
SD401E	125	8'-8"		VERTICAL TIE
SD702E	40	5'-0"		LONG. THRU BEAM
SD403E	40	⑤		LONG. TOP
SD504E	60	⑥		LONG. BOTTOM
SD505E	30	④		LONGITUDINAL



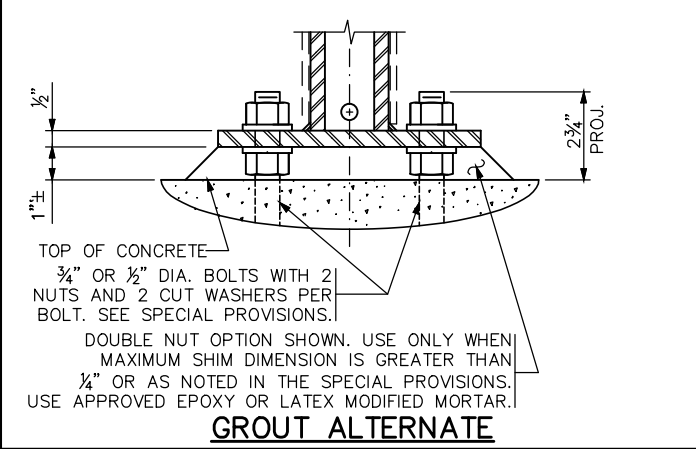
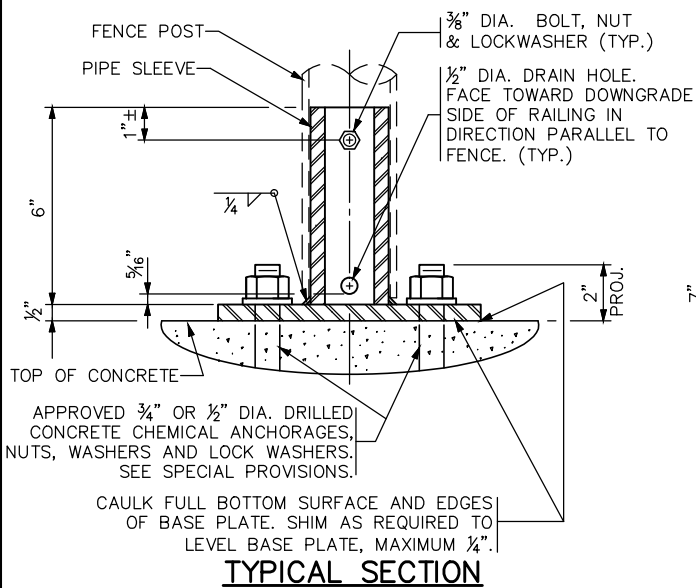
- NOTES:**
- CONCRETE FOR END DIAPHRAGMS SHALL BE THE SAME MIX AS USED IN DECK.
- QUANTITIES FOR END DIAPHRAGM CONCRETE AND REINFORCEMENT SHOWN ON THIS DETAIL SHALL BE LISTED IN SUPERSTRUCTURE QUANTITIES.
- THREADED RODS ARE INCIDENTAL TO PRESTRESSED CONCRETE BEAMS.
- ① USE OF CONSTRUCTION JOINT REQUIRES CLEARANCE FOR EXPANSION DEVICE. WHEN CONSTRUCTION JOINT IS USED AT THIS LOCATION, DIAPHRAGM FALSEWORK SHALL REMAIN INPLACE UNTIL COMPLETION OF SLAB CURING PERIOD.
- ② PERPENDICULAR TO CENTERLINE OF DIAPHRAGM.
- ③ PIERS 8, 12 & 18 = 3'-9" PIER 10 = 4'-1" PIER 14 = 4'-6" PIER 16 = 5'-3"
- ④ PIERS 8, 12 & 18 = 17'-9" PIER 10 = 18'-1" PIER 14 = 18'-6" PIER 16 = 19'-3"
- ⑤ PIERS 8 & 12 = 3'-11" PIER 10 = 4'-3" PIER 14 = 4'-8" PIER 16 = 5'-4" PIER 18 = 3'-10"
- ⑥ PIERS 8 & 18 = 6'-2" PIER 10 = 6'-6" PIER 12 = 6'-1" PIER 14 = 6'-11" PIER 16 = 7'-8"
- ⑦ SEE SHEET 117.

APPROVED: SEPTEMBER 22, 2011	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION <b>CONCRETE END DIAPHRAGM</b> (27M & 36M, MN45 - MN63, 82MW & 96MW PRESTRESSED CONCRETE BEAMS) (PARAPET ABUTMENT)	REVISED 04-17-2013 11-06-2013	DETAIL NO. <b>B814 MODIFIED</b>
------------------------------	--	-------------------------------------	--



**PLAN VIEW - TYPE A**  
ESTIMATED WEIGHT = 12 OR 14 LBS.

**PLAN VIEW - TYPE B**  
ESTIMATED WEIGHT = 10 OR 12 LBS.



APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION <b>FENCE POST ANCHORAGE</b>	REVISION	DETAIL NO. <b>B905</b>
-----------------------------	---	----------	---------------------------

- NOTES:**
- STRUCTURAL STEEL PER Mn/DOT SPEC. 3306.
- STRUCTURAL PIPE PER Mn/DOT SPEC. 3362.
- GALVANIZE THE FENCE POST ANCHORAGE AFTER FABRICATION PER Mn/DOT SPEC. 3394. GALVANIZE THE FASTENERS PER Mn/DOT SPEC. 3392.
- DOUBLE EXTRA STRONG PIPE WEIGHTS:  
1/2" NOMINAL DIA. = 6.41 LBS./FT.  
2" NOMINAL DIA. = 9.03 LBS./FT.

**AECOM**



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
BRIDGE DETAILS 3**

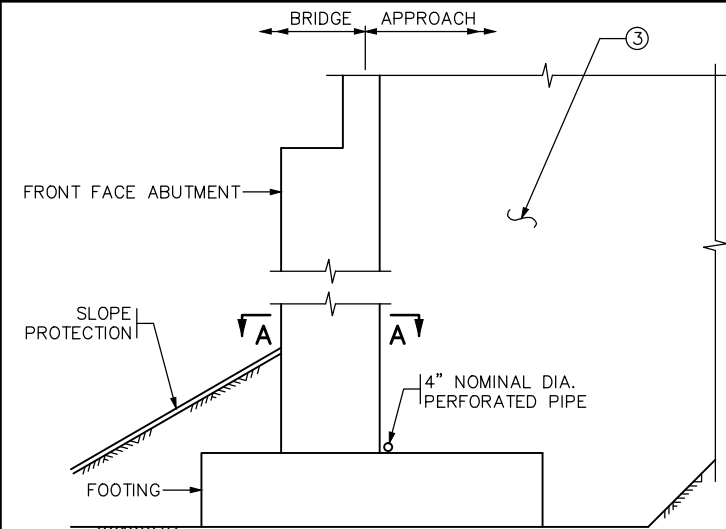
**SHEET  
201  
OF  
232**

DESIGNED BY: <b>RJH</b>	CHECKED BY: <b>ATN</b>
DRAWN BY: <b>ALB</b>	CHECKED BY: <b>ATN</b>

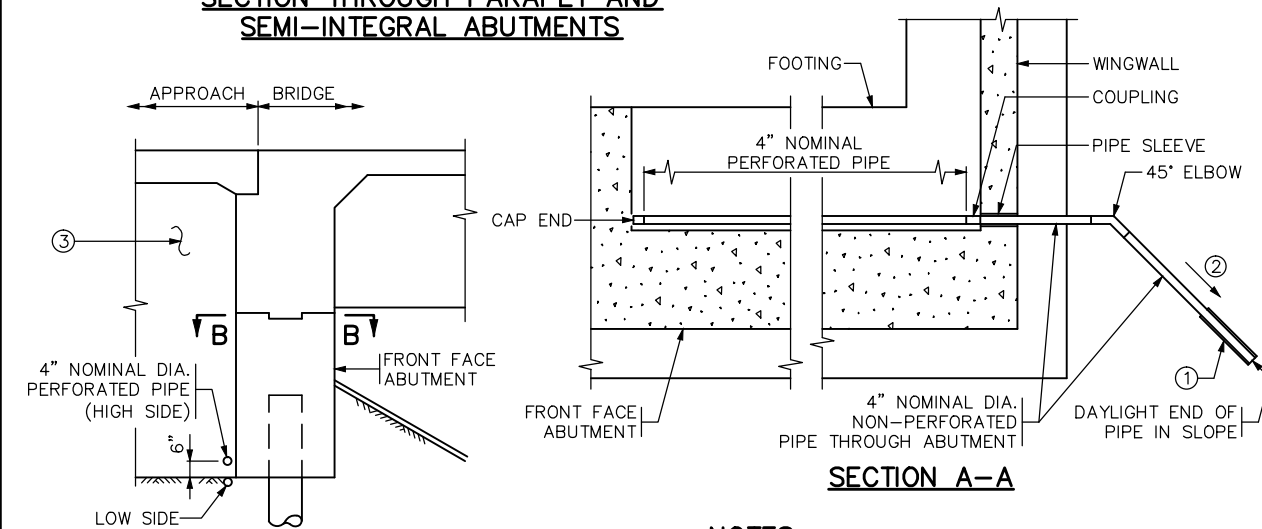
**90% SUBMISSION - 01/22/16**

DISCIPLINE: <b>STRUCTURES</b>	SHEET NAME: <b>CBR27C06-BRG-DTL-005</b>
----------------------------------	--

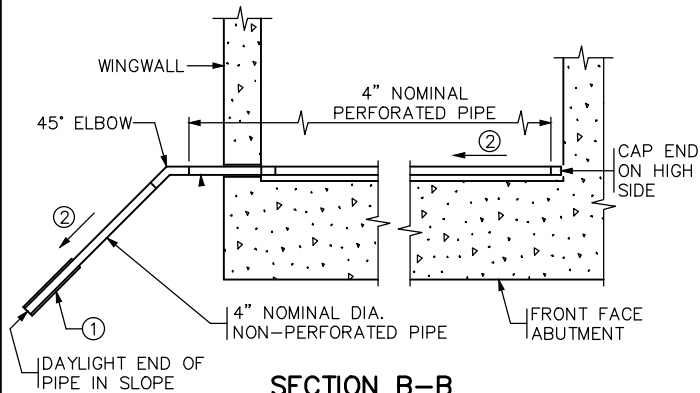
Jan, 19 2016 09:52 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-DTL-006.dwg By: mayert



SECTION THROUGH PARAPET AND  
SEMI-INTEGRAL ABUTMENTS



SECTION THROUGH INTEGRAL ABUTMENT



SECTION B-B

**NOTES:**

PAYMENT WILL BE INCLUDED IN THE SINGLE LUMP SUM PRICE FOR "DRAINAGE SYSTEM TYPE (B910)", INCLUDES BUT IS NOT LIMITED TO 4" DIAMETER PERFORATED AND NON-PERFORATED PIPE, ELBOWS, END CAPS, COUPLINGS, SLEEVES AND PRECAST CONCRETE HEADWALLS.

ALL PIPE TO COMPLY WITH SPEC. 3245.

WRAP PERFORATED PIPE WITH GEOTEXTILE PER SPEC. 3733, TYPE 1. ATTACH TO PIPE PER SPEC. 2502.

① AT CONTRACTORS OPTION, MAY TIE APPROACH PANEL DRAINAGE SYSTEM AND ABUTMENT DRAINAGE SYSTEM INTO A SINGLE PRECAST CONCRETE HEADWALL OR INTO A CATCH BASIN AS LONG AS A MINIMUM OF 1% POSITIVE SLOPE CAN BE MAINTAINED.

USE PRECAST CONCRETE HEADWALL WITH RODENT SCREEN. SEE STANDARD PLATE 3131 FOR DETAILS.

② 1/8" PER FT. MINIMUM SLOPE.

③ REFER TO GRADING PLANS FOR ABUTMENT BACKFILL REQUIREMENTS.

APPROVED: JANUARY 13, 2015

*Nancy Dubenberger*  
STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

DRAINAGE SYSTEM

REVISED  
12-02-2015

DETAIL NO.

B910

**AECOM**



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
BRIDGE DETAILS 6**

DISCIPLINE:

STRUCTURES

SHEET NAME:

CBR27C06-BRG-DTL-006

SHEET

202

OF

232

DESIGNED BY: RJH

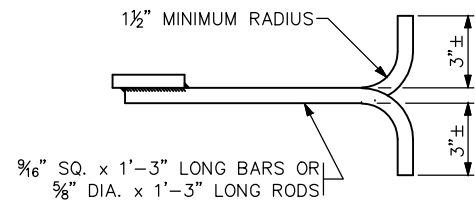
CHECKED BY: ATN

DRAWN BY: ALB

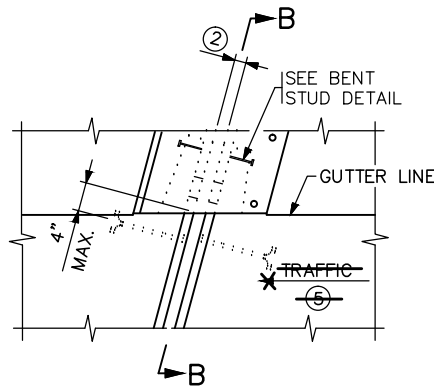
CHECKED BY: ATN

90% SUBMISSION - 01/22/16

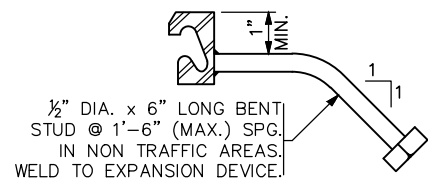
Jan, 19 2016 09:52 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-DTL-008.dwg By: mayert



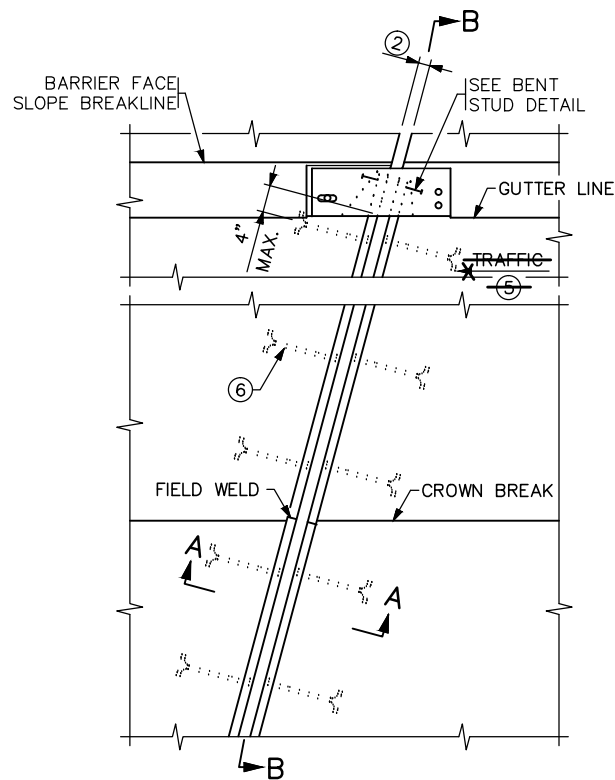
BAR-ROD DETAIL



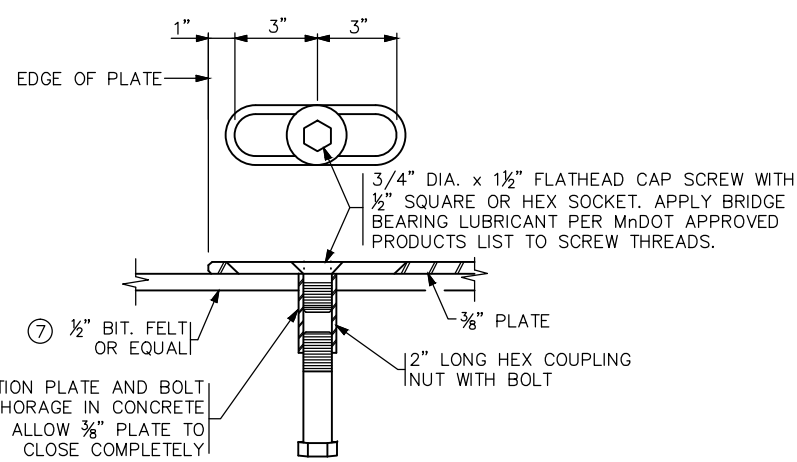
PLAN VIEW @ EXPANSION DEVICE  
SIDEWALK ALTERNATE



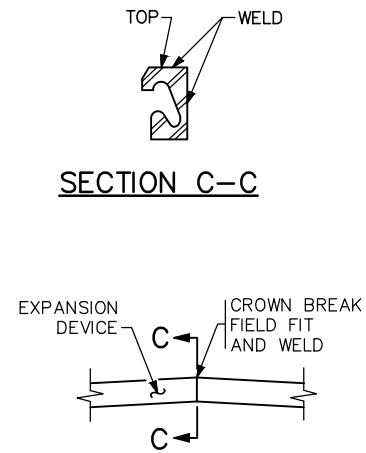
BENT STUD DETAIL



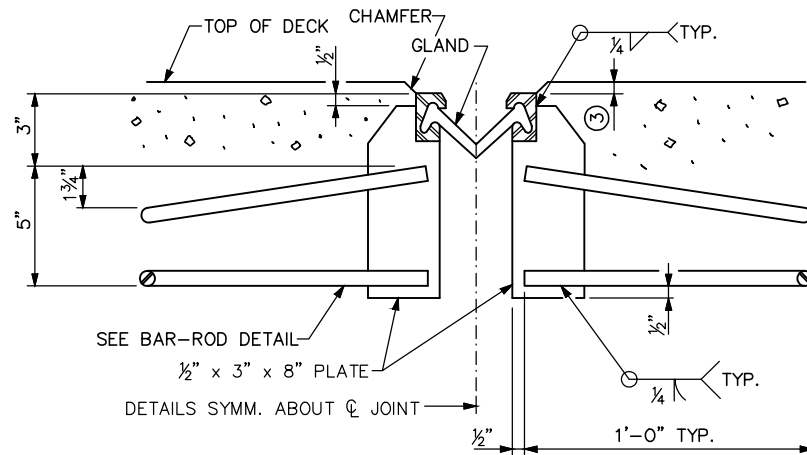
PLAN VIEW @ EXPANSION DEVICE  
WITH STRAIGHT DEVICE



DETAIL "A"



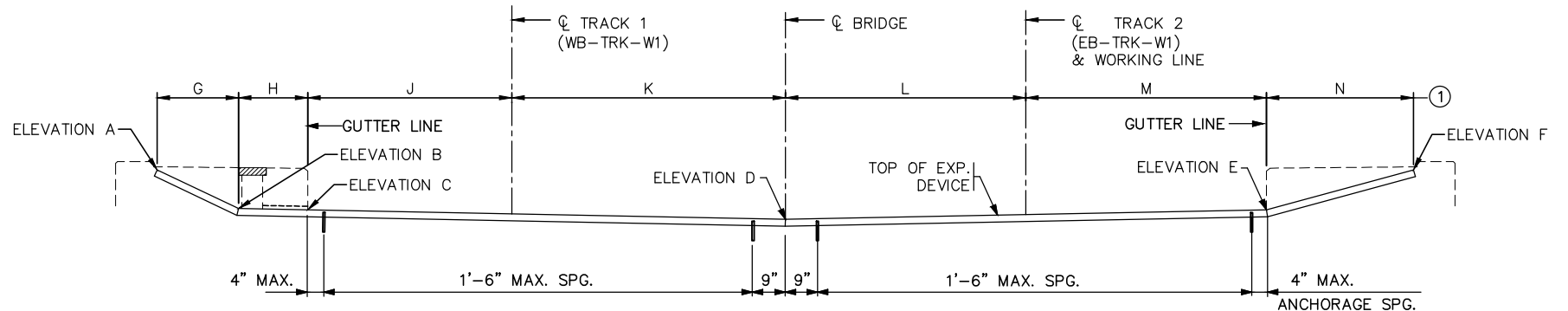
DETAIL "B"



SECTION A-A

TABLE OF ELEVATIONS

TABLE OF EXPANSION DEVICE ELEVATIONS AND DISTANCES													
LOCATION	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"	"M"	"N"
PIER 7A	834.35	833.27	833.31	833.60	833.24	834.36	1.42	2.17	8.00	6.44	7.56	10.46	1.04
PIER 1	839.83	838.84	838.80	838.54	838.80	839.83	1.54	2.17	4.49	8.12	8.12	4.50	3.71
PIER 4	846.14	845.15	845.10	844.84	845.10	846.14	1.54	2.17	4.50	8.82	8.82	4.50	3.71
PIER 8	854.49	853.50	853.45	853.22	853.45	854.49	1.54	2.17	4.50	7.01	7.00	4.50	3.71
PIER 10	865.61	864.61	864.57	864.33	864.55	865.60	1.55	2.17	4.50	7.52	6.53	4.50	4.70
PIER 12	871.52	870.52	870.48	870.25	870.48	871.52	1.56	2.17	4.50	6.99	7.01	4.50	3.71
PIER 14	876.73	875.73	875.78	875.50	875.73	876.73	2.14	2.17	4.50	7.16	7.02	4.50	4.44
PIER 16	882.40	881.44	881.40	881.15	881.37	881.37	2.68	2.17	4.50	7.75	6.61	4.50	5.98
PIER 18	886.52	886.56	886.52	886.29	886.52	886.52	1.54	2.17	4.50	7.00	7.00	4.50	3.71
PIER 21	886.98	886.56	886.98	886.29	889.05	886.98	1.54	2.17	4.50	7.00	7.00	4.50	3.71
PIER 24	886.77	886.82	886.77	886.54	886.77	886.77	1.54	2.17	4.50	7.00	7.00	4.50	3.71
PIER 27	886.57	886.82	886.77	886.34	886.77	886.57	1.54	2.17	4.50	7.01	7.01	4.50	3.71
E. ABUT	885.71	885.71	885.76	885.48	885.71	885.71	1.54	2.17	4.50	7.01	7.01	4.50	3.71



SECTION B-B ~ ALONG J<sub>o</sub>INT

NOTE: SEE "TABLE OF ELEVATIONS" ABOVE.

## GENERAL NOTES

GALVANIZE STRUCTURAL STEEL AFTER FABRICATION AS PER SPEC. 3394. GALVANIZE FASTENERS AS PER SPEC. 3392.

JOINTS IN EXTRUSION SHALL BE LOCATED AT BREAKS IN TRANSVERSE PROFILE AND AS OTHERWISE REQUIRED. JOINTS SHALL BE CLOSE FIT AND WELDED. REPAIR AFTER WELDING AS PER SPEC. 2471.3L.

STRUCTURAL STEEL SHALL COMPLY WITH SPEC. 3306 OR SPEC. 3309.

EXPANSION DEVICE SHALL BE STRAIGHTENED TO A TOLERANCE OF 1/8" IN 10 FT.

3/4" DIA. X 1 1/2" FLATHEAD CAP SCREW WITH 1/2" SQUARE OR HEX SOCKET PER SPEC 3391. CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF PLATE. APPLY BRIDGE BEARING LUBRICANT PER MnDOT APPROVED PRODUCTS LIST TO SCREW THREADS.

~~LENGTH OF PAYMENT FOR DEVICE IS FROM OUTER END TO OUTER END OF EXTRUSION ALONG CENTERLINE OF JOINT. REFER TO THE SPECIAL PROVISIONS FOR MORE SPECIFIC PAYMENT INFORMATION.~~

① DIMENSIONS ARE ALONG CENTERLINE OF JOINT.

② 2" AT 45° F; 2 1/2" AT 90° F. 2" AT ALL TEMPS.

③ 1/8" (1/4" MAX.).  
~~1/2" (3/8" MAX.) WHEN SNOWPLOW FINGERS ARE USED. SNOWPLOW FINGERS ARE REQUIRED FOR SKEWS OVER 15° AND LESS THAN 50°.~~

④ ~~SEE SUPERSTRUCTURE DETAILS FOR RADIUS.~~

⑤ ~~SEE SHEET NO. \_\_\_ FOR DIRECTION OF TRAFFIC.~~

⑥ PLACE BAR-ROD NORMAL TO JOINT ON NEW BRIDGES AND JOINT REPLACEMENTS. ON JOINT REPLACEMENTS WHEN SKEW IS OVER 15° AND LESS THAN 50° BEND RODS PARALLEL TO J<sub>o</sub>ADWAY.

⑦ USE THE LARGEST SINGLE PIECE POSSIBLE. USE OF SMALL PIECES OR SCRAPS SECURED TOGETHER IS PROHIBITED.

REVISION: 09-11-2014

APPROVED: NOVEMBER 6, 1995

*Donald J. Blum*  
STATE BRIDGE ENGINEER

MODIFICATIONS:  
REVISED SECTION B-B. ADDED TABEL OF ELEVATIONS AND DIMENSIONS. REMOVED BARRIER DETAILS AND CURVED DEVICE PLAN.

CERTIFIED BY

LICENSED PROFESSIONAL ENGINEER DATE

NAME:

LIC. NO.

TITLE:

WATERPROOF  
EXPANSION DEVICE 1  
(WITH TYPE F BARRIER)

DES: RJH

DR: ALB

CHK: ATN

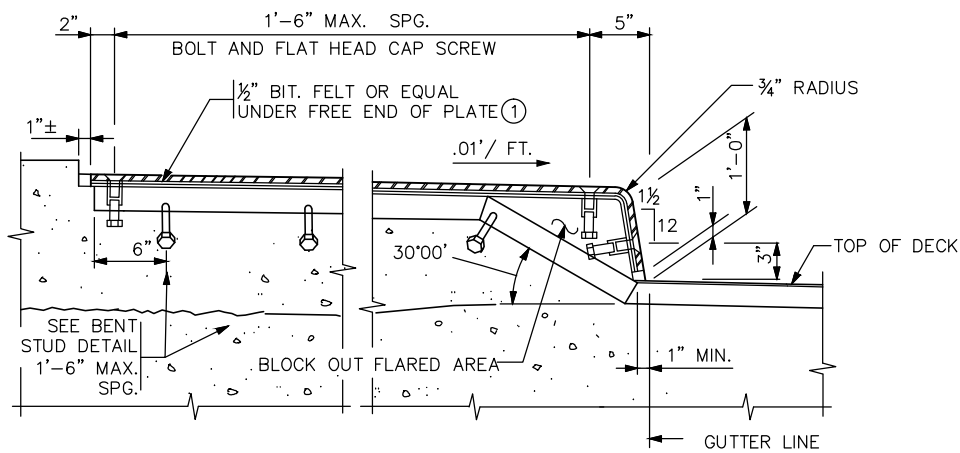
CHK: ATN

APPROVED:

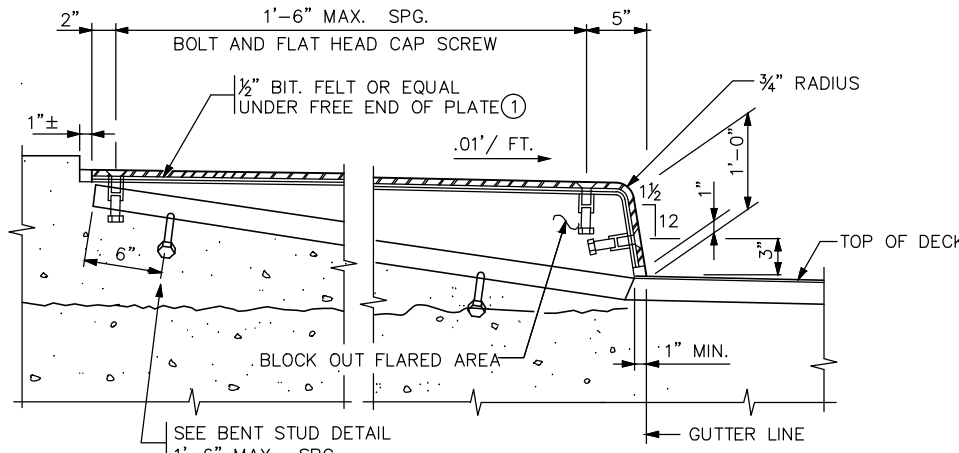
SHEET NO. 203 OF 232 SHEETS

FIG. 5-397.627(MOD.)

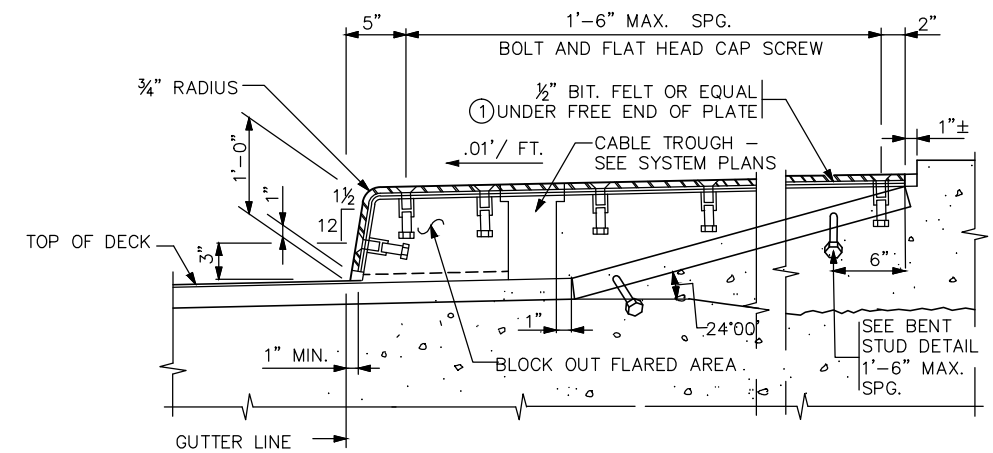
BRIDGE NO.  
27C06



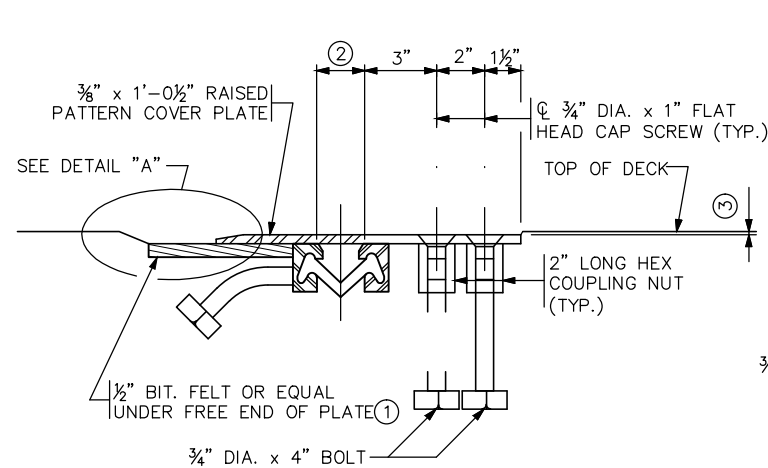
**SECTION THROUGH LEFT SIDEWALK - OPTION 1**  
(LOOKING UPSTATION)



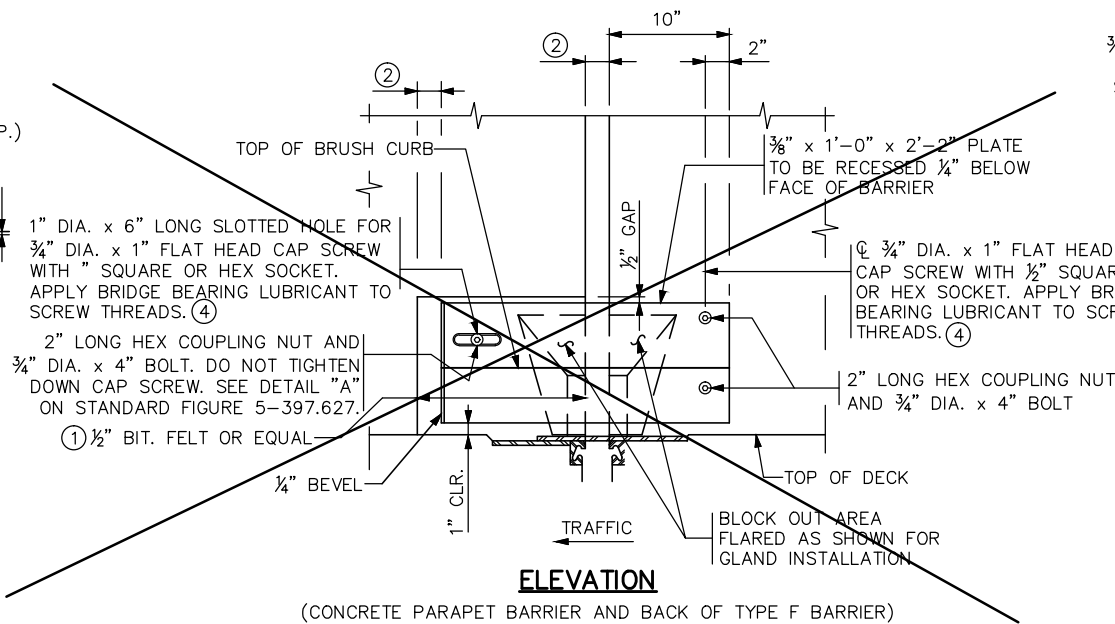
**SECTION THROUGH LEFT SIDEWALK - OPTION 2**  
(LOOKING UPSTATION)



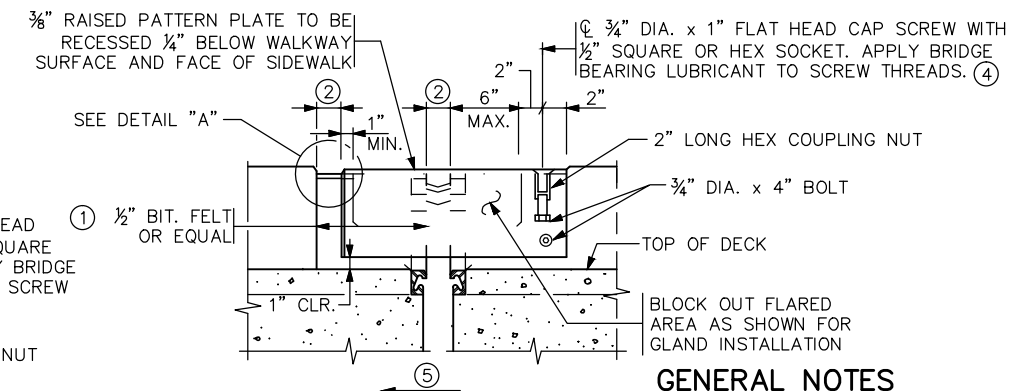
**SECTION THROUGH RIGHT SIDEWALK**  
(LOOKING UPSTATION, AT EXPANSION JOINT WITH CABLE TROUGH)



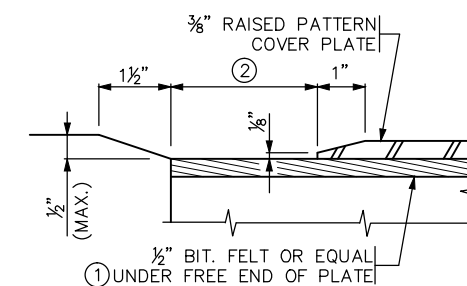
**SECTION D-D**



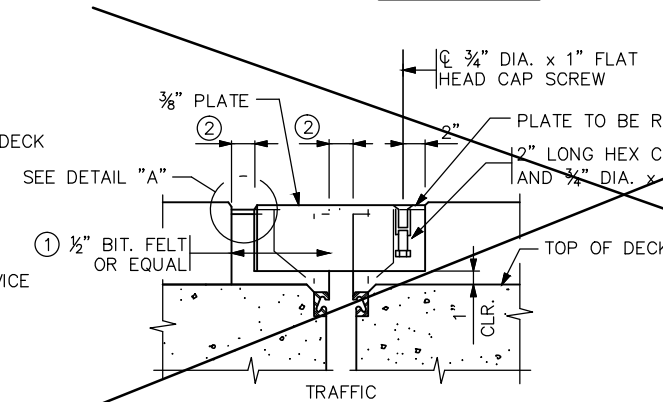
**ELEVATION**  
(CONCRETE PARAPET BARRIER AND BACK OF TYPE F BARRIER)



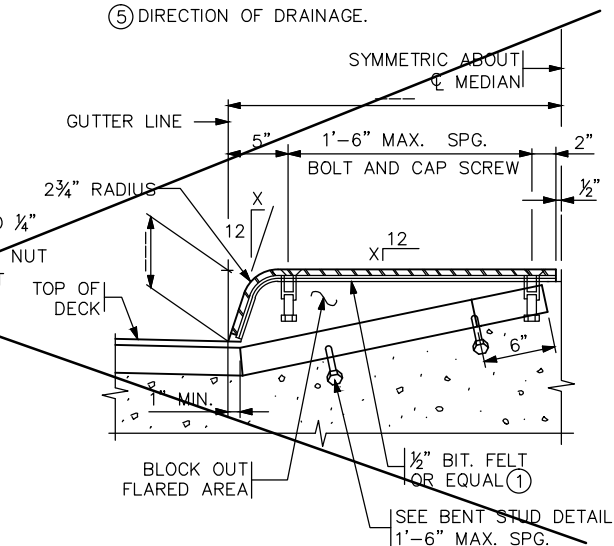
**ELEVATION**  
**RAISED SIDEWALK DETAILS**



**DETAIL "A"**



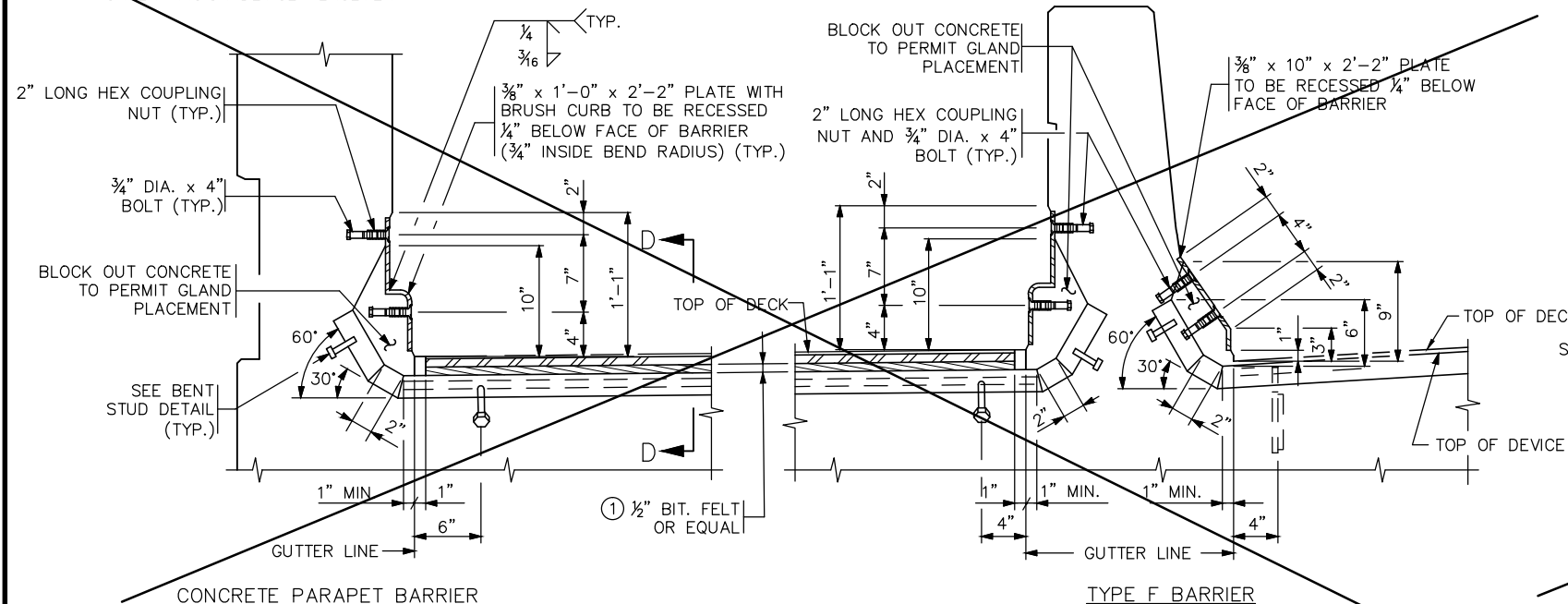
**MEDIAN ELEVATION**



**MEDIAN SECTION**

**FIG. 5-397.630**

NOTE:  
TRANSVERSE DECK REINFORCEMENT MAY BE  
SHIFTED THE MINIMUM DISTANCE REQUIRED  
FOR EXPANSION DEVICE PLACEMENT



**SECTION THROUGH BARRIERS - INTEGRAL SIDEWALK**

REVISION: 11-06-2013  
APPROVED: SEPTEMBER 26, 2003  
*Samuel A. Morgan*  
STATE BRIDGE ENGINEER

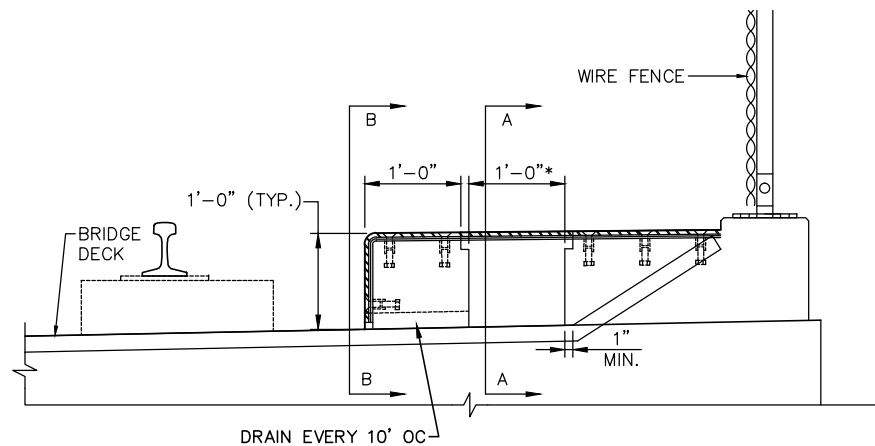
CERTIFIED BY \_\_\_\_\_  
NAME: \_\_\_\_\_ LIC. NO. \_\_\_\_\_

TITLE: **WATERPROOF  
EXPANSION DEVICE 2**  
(RAISED MEDIAN OR SIDEWALK WITH PARAPET)

DES: **RJH** DR: **ALB**  
CHK: **ATN** CHK: **ATN**  
APPROVED: \_\_\_\_\_  
**SHEET NO. 204 OF 232 SHEETS**

**BRIDGE NO.  
27C06**

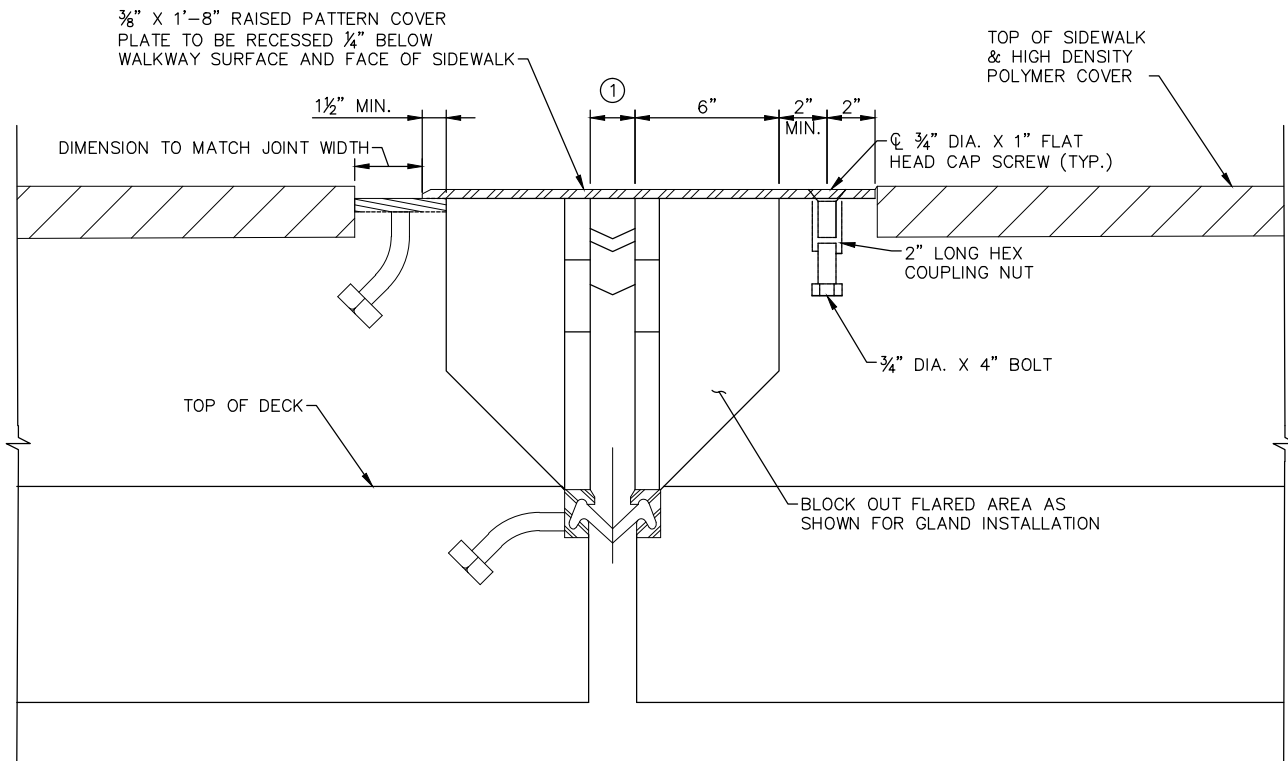
Jan, 19 2016 09:52 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-DTL-012.dwg By: mayert



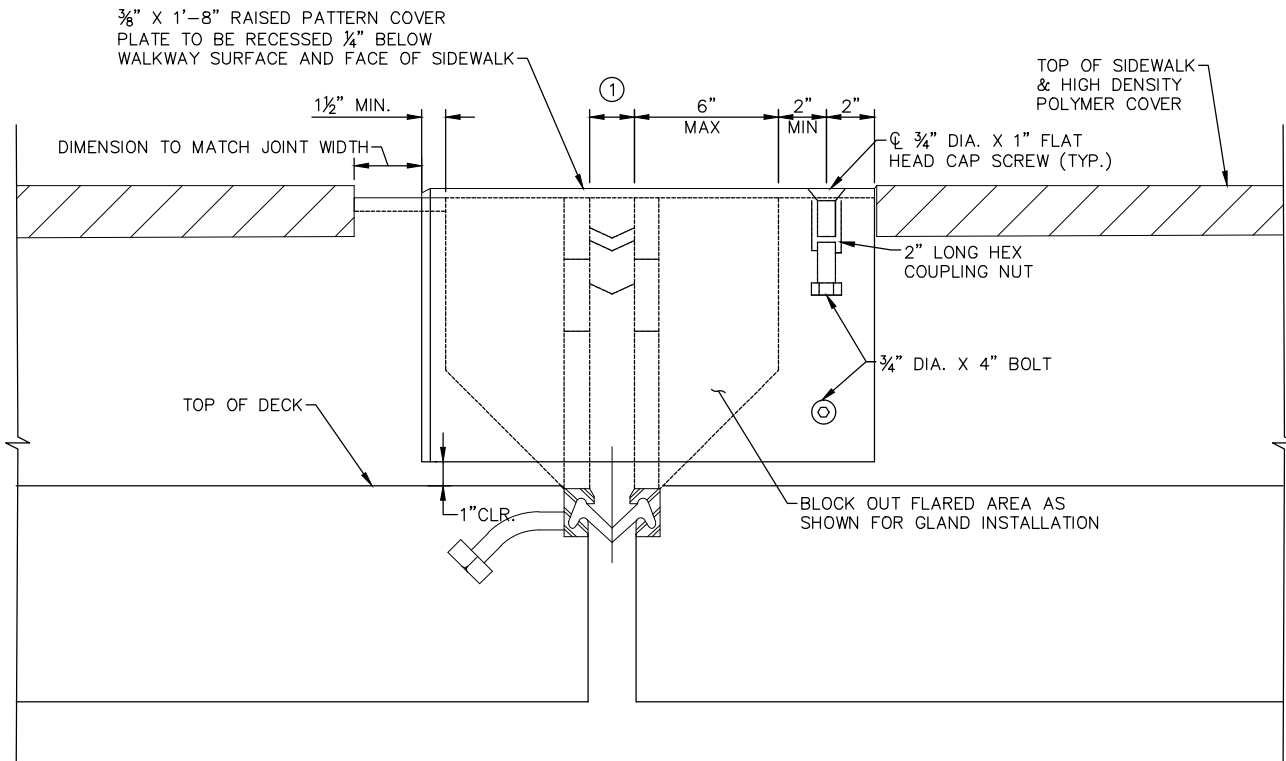
SECTION THROUGH WALKWAY

NOTES:

- ① SEE NOTE ② ON STANDARD  
FIGURE 5-397.627, SHEET 203.



SECTION A-A



SECTION B-B

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB  
CHECKED BY: ATN  
CHECKED BY: ATN

AECOM

90% SUBMISSION - 01/22/16



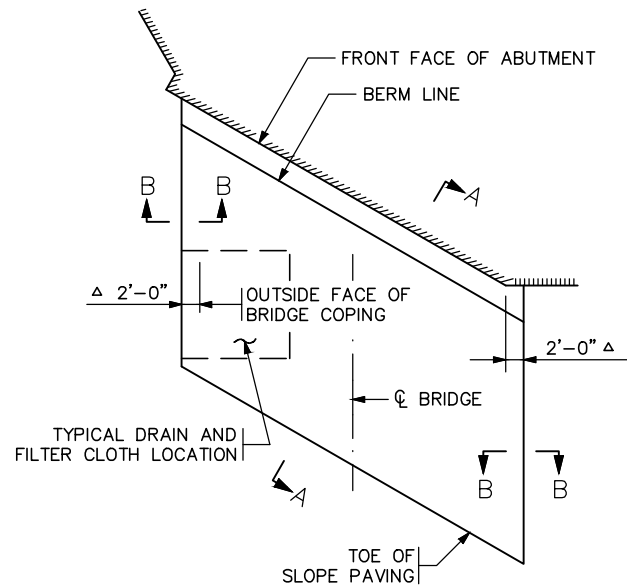
CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
WATERPROOF EXPANSION DEVICE 3

DISCIPLINE:  
STRUCTURES

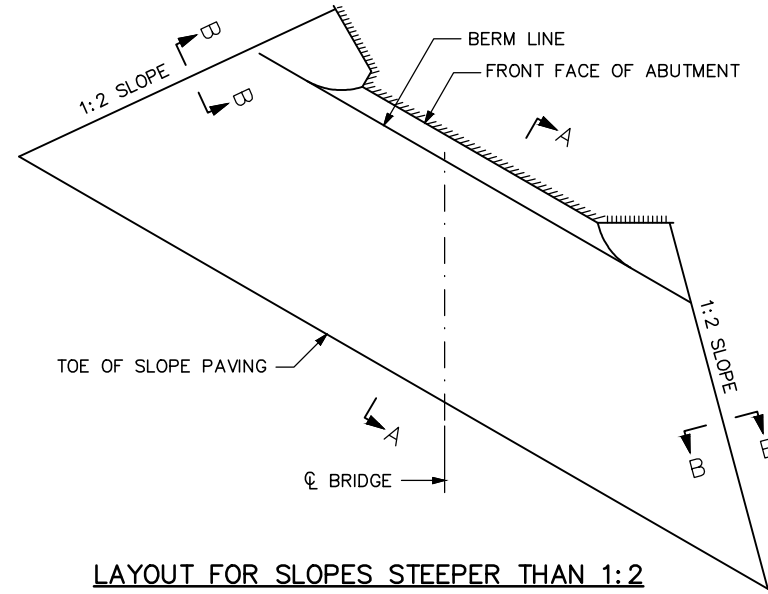
SHEET NAME:  
CBR27C06-BRG-DTL-009

SHEET  
205  
OF  
232

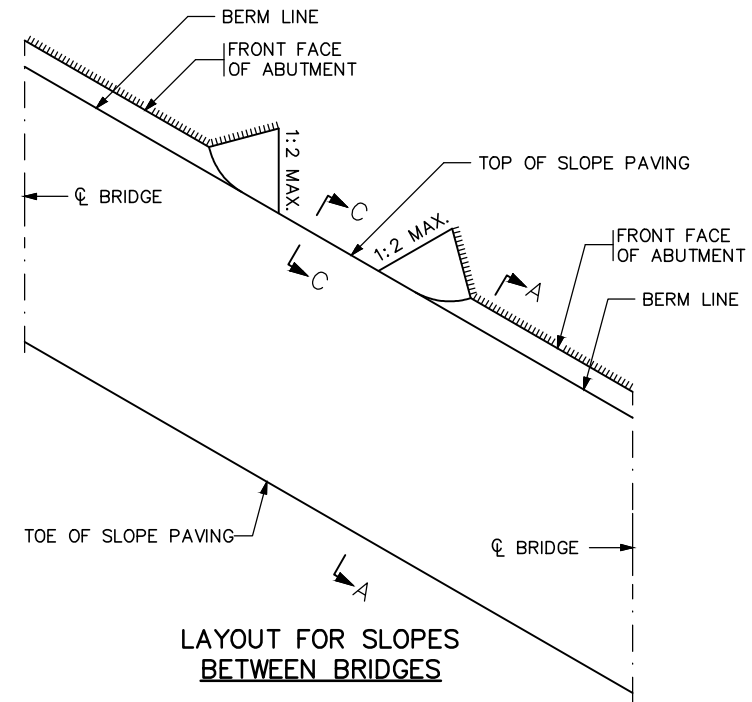
Oct, 20 15 02:35 pm v:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-RAL-002.dwg By: butterfielda



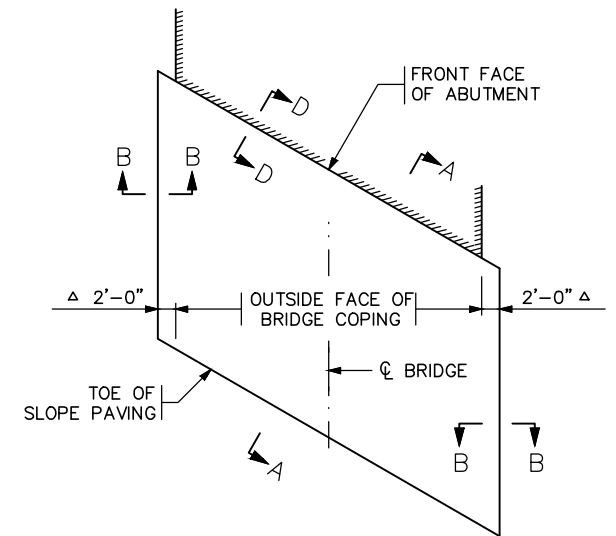
LAYOUT FOR SLOPES  
1:2 OR FLATTER



LAYOUT FOR SLOPES STEEPER THAN 1:2

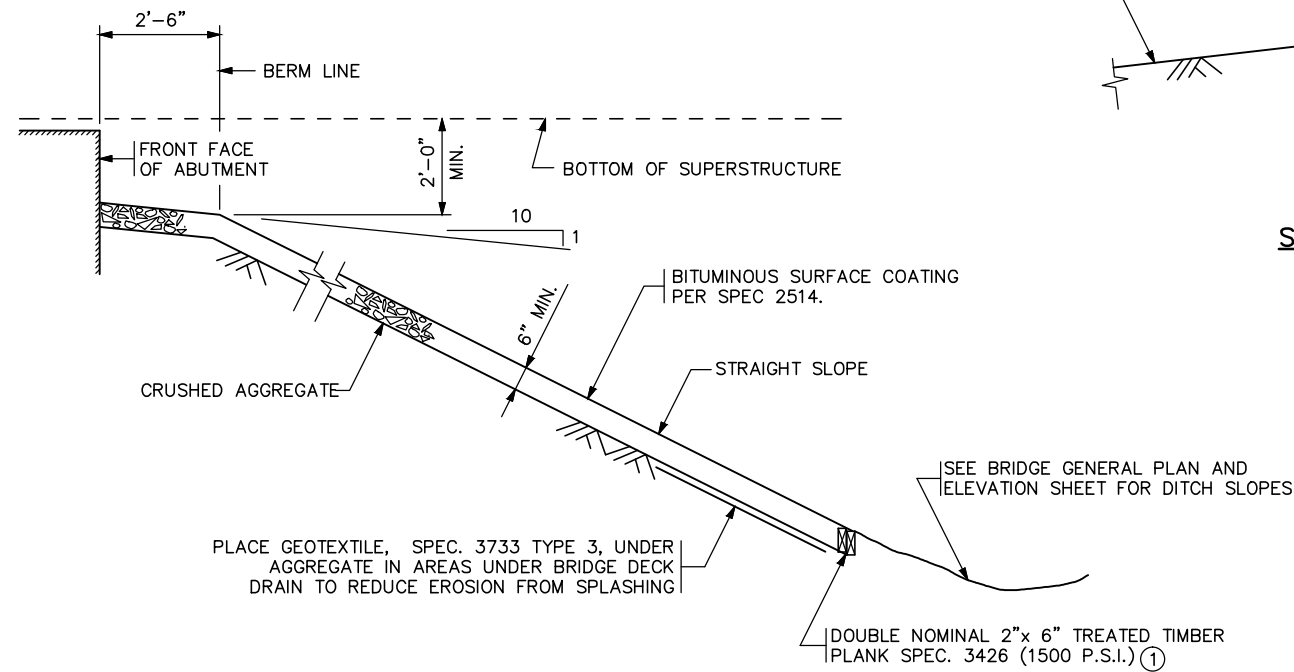


LAYOUT FOR SLOPES  
BETWEEN BRIDGES

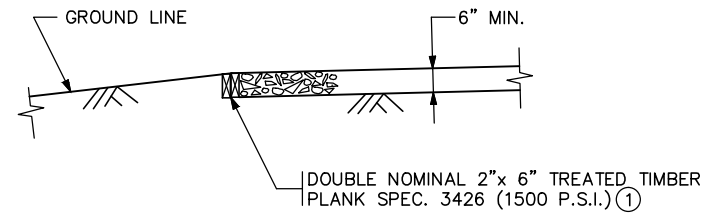


LAYOUT FOR SLOPES  
AT HIGH ABUTMENTS

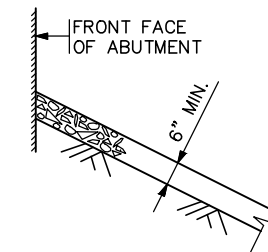
Δ 2'-0" FOR TANGENT BRIDGE SUPERSTRUCTURES.  
VARIES 2'-0" MINIMUM FOR CURVED BRIDGE  
SUPERSTRUCTURES.



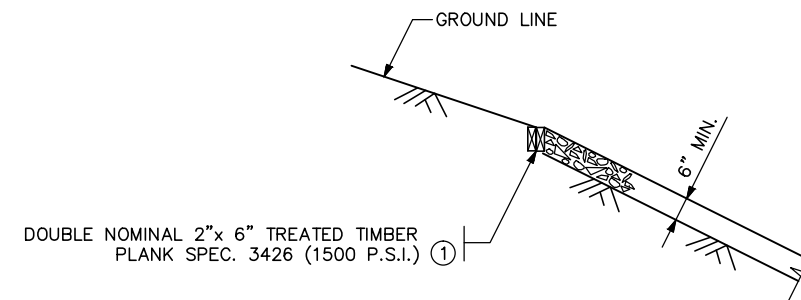
SECTION A-A



SECTION B-B



SECTION D-D  
HIGH ABUTMENTS



SECTION C-C

#### GENERAL NOTES

SLOPES ARE EXPRESSED AS A RATIO OF  
VERTICAL DISTANCE: HORIZONTAL DISTANCE.

REFER TO SPECIFICATION 2514 FOR  
ADDITIONAL INFORMATION.

① PRESERVATIVE TREATMENT PER SPEC. 3491,  
TABLE 3491-1, PRODUCT AND USAGE CATEGORY E2,  
AWPA USE CATEGORY UC4B. REFER TO MNDOT  
APPROVED PRODUCTS LIST.

REVISION: 09-11-2014
APPROVED: SEPTEMBER 26, 2003
<i>Samuel A. Morgan</i> STATE BRIDGE ENGINEER

CERTIFIED BY	LICENSED PROFESSIONAL ENGINEER	DATE
NAME:	LIC. NO.	

TITLE:
STABILIZED AGGREGATE SLOPE PAVING UNDER BRIDGES

DES: RJH	DR: ALB	APPROVED:
CHK: ATN	CHK: ATN	
SHEET NO. 206 OF 232 SHEETS		BRIDGE NO. 27C06

FIG. 5-397.302

<h2 style="margin: 0;"><u>CONCRETE WEARING COURSE</u></h2>	
<input type="checkbox"/> LOW SLUMP  <input type="checkbox"/> OTHER _____	_____ TYPE OR MANUFACTURER
<h2 style="margin: 0;"><u>EXPANSION JOINTS</u></h2>	
JOINT MANUFACTURER _____	
MANUFACTURER'S IDENTIFICATION _____	MFR'S No. AND/OR LETTER DESIGNATION FOR JOINT USED _____
GLAND MANUFACTURER _____	NAME AND ADDRESS (CITY, STATE) _____
SIZE OF GLAND _____	
MANUFACTURER'S IDENTIFICATION _____	MFR'S No. AND/OR LETTER DESIGNATION FOR GLAND USED _____
<h2 style="margin: 0;"><u>ELASTOMERIC BEARING PADS</u></h2>	
PAD MANUFACTURER _____	
NAME AND ADDRESS (CITY, STATE) _____	
<h2 style="margin: 0;"><u>SPECIAL SURFACE FINISH</u></h2>	
SYSTEM: _____ COLOR: _____	
<h2 style="margin: 0;"><u>FINISHING ROADWAY FACES OF BARRIER RAILING</u></h2>	
TYPE: _____ COLOR: _____	
<h2 style="margin: 0;"><u>ANTI-GRAFFITI COATING</u></h2>	
MANUFACTURER _____	
NAME AND ADDRESS (CITY, STATE) _____	
PRODUCT NAME: _____	LOCATION: _____

<h2><u>PAINT SYSTEM</u></h2>	
Mn/DOT SPECIFICATION NUMBER	_____
	2478 OR 2479 OR OTHER
MANUFACTURER	_____
	NAME AND ADDRESS (CITY, STATE)
PRIME COAT	_____
	Mn/DOT MATERIAL SPECIFICATION NUMBER
INTERMEDIATE COAT	_____
	Mn/DOT MATERIAL SPECIFICATION NUMBER
FINISH COAT	_____
	Mn/DOT MATERIAL SPECIFICATION NUMBER      COLOR
<h2><u>PLAN QUALITY</u></h2>	
RATE 1 (AGREE), 2 (NEUTRAL), OR 3 (DISAGREE), PLEASE COMMENT BELOW)	
DIMENSIONING AND DETAILING ADEQUATELY DESCRIBED REQUIRED CONSTRUCTION. _____ BAR LISTS AND QUANTITIES WERE TYPICALLY COMPLETE AND FREE OF ERRORS. _____ SCALE OF DRAWINGS AND OVERALL LEGIBILITY OF LINES AND TEXT WAS GOOD. _____ (SB) SPECIAL PROVISIONS ADEQUATELY DESCRIBED SPECIAL WORK AND PAYMENT. _____ _____	
COMMENTS: _____ _____ _____ _____ _____ _____ _____	
NUMBER OF BRIDGE SUPPLEMENTAL AGREEMENTS: _____ COST: \$ _____	
LIST SIGNIFICANT ERRORS OR OMISSIONS IN PLAN DETAILS OR PAY QUANTITIES IN THE SPACE PROVIDED AT RIGHT.	

## OTHER ITEMS ①

① UTILITIES ADDED DURING CONSTRUCTION AND SPECIALTY ITEMS.

FINAL QUANTITIES ENTERED ON SCHEDULE OF QUANTITIES:

YES ☐

NO ☐

### SUMMARY OF SIGNIFICANT AS-BUILT CHANGES

<p style="text-align: center;"><u>BRIDGE REMOVAL / BRIDGE OPENING</u></p>	
<p>NUMBER OF AND DATE OLD BRIDGE WAS REMOVED (IF APPLICABLE):</p>	
<p>BRIDGE NUMBER _____</p>	<p>DATE REMOVED _____</p>
<p>DATE NEW BRIDGE WAS OPENED TO TRAFFIC _____</p>	
<p>NOTIFY THE BRIDGE OFFICE BRIDGE MANAGEMENT UNIT WITH THIS INFORMATION AS SOON AS POSSIBLE. (651) 366-4557</p>	

AS-BUILT DETAILS  
(AS NEEDED)

**THE AS-BUILT INFORMATION WAS ADDED TO THE PLAN BY:**

_____	_____
INSPECTOR(S) SIGNATURE	DATE
CHECKED BY: _____	_____
PROJECT ENGINEER/SUPERVISOR SIGNATURE	DATE

AT THE TIME OF THE FINAL, THIS COMPLETED AS-BUILT BRIDGE DATA SHEET MUST BE SUBMITTED TO THE BRIDGE OFFICE – ATTN: REGIONAL CONSTRUCTION ENGINEER (MS610).

**FIG. 5–397.900**

[illegible]

**AECOM**

**90% SUBMISSION - 01/22/16**

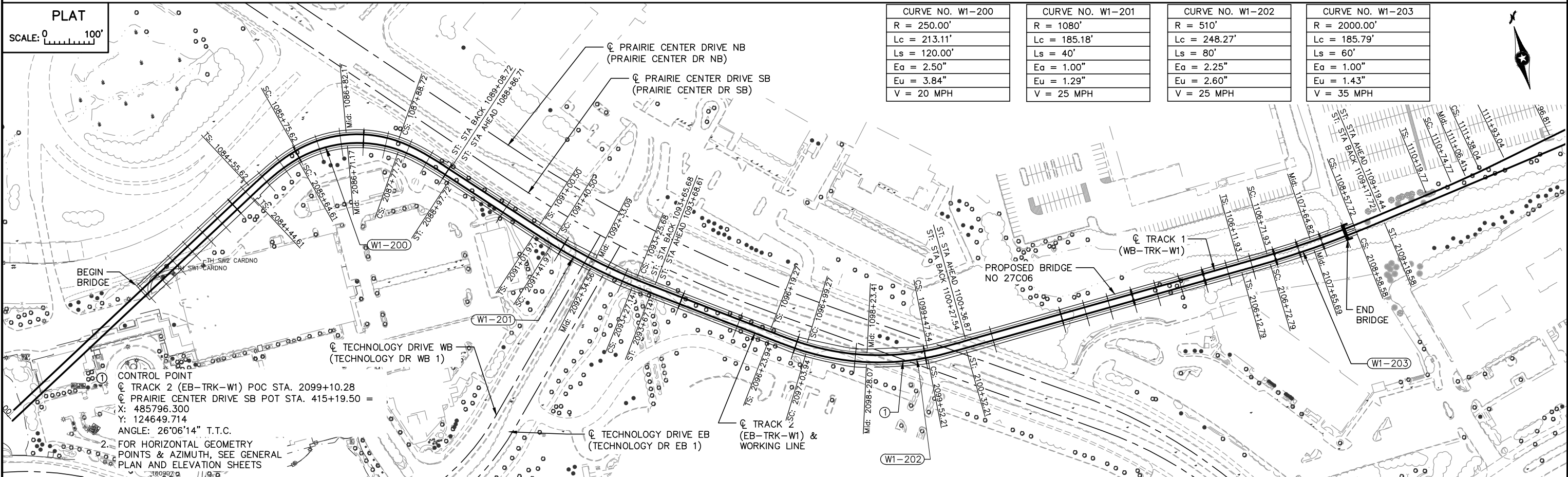
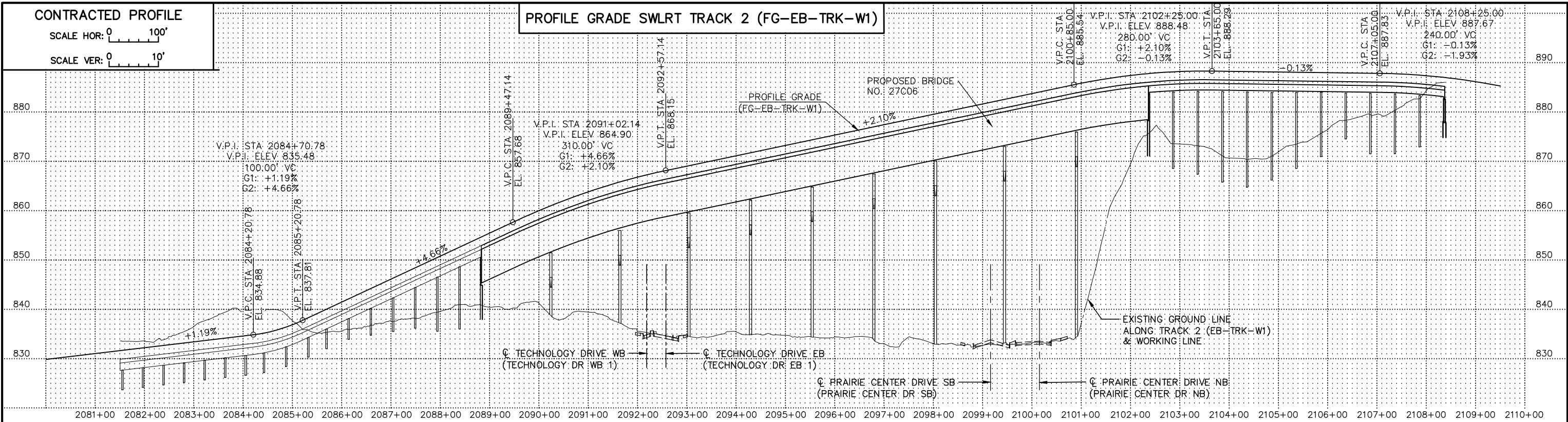


<b>CIVIL - VOLUME 4B</b> <b>PRAIRIE CENTER DRIVE</b> <b>BRIDGE 27C06</b> <b>AS-BUILT BRIDGE DATA</b>		<b>SHEET</b>  <b>207</b>  <b>OF</b>  <b>232</b>
<b>DISCIPLINE:</b>  <b>STRUCTURES</b>	<b>SHEET NAME:</b>  <b>CBR27C06-BRG-DTL-011</b>	

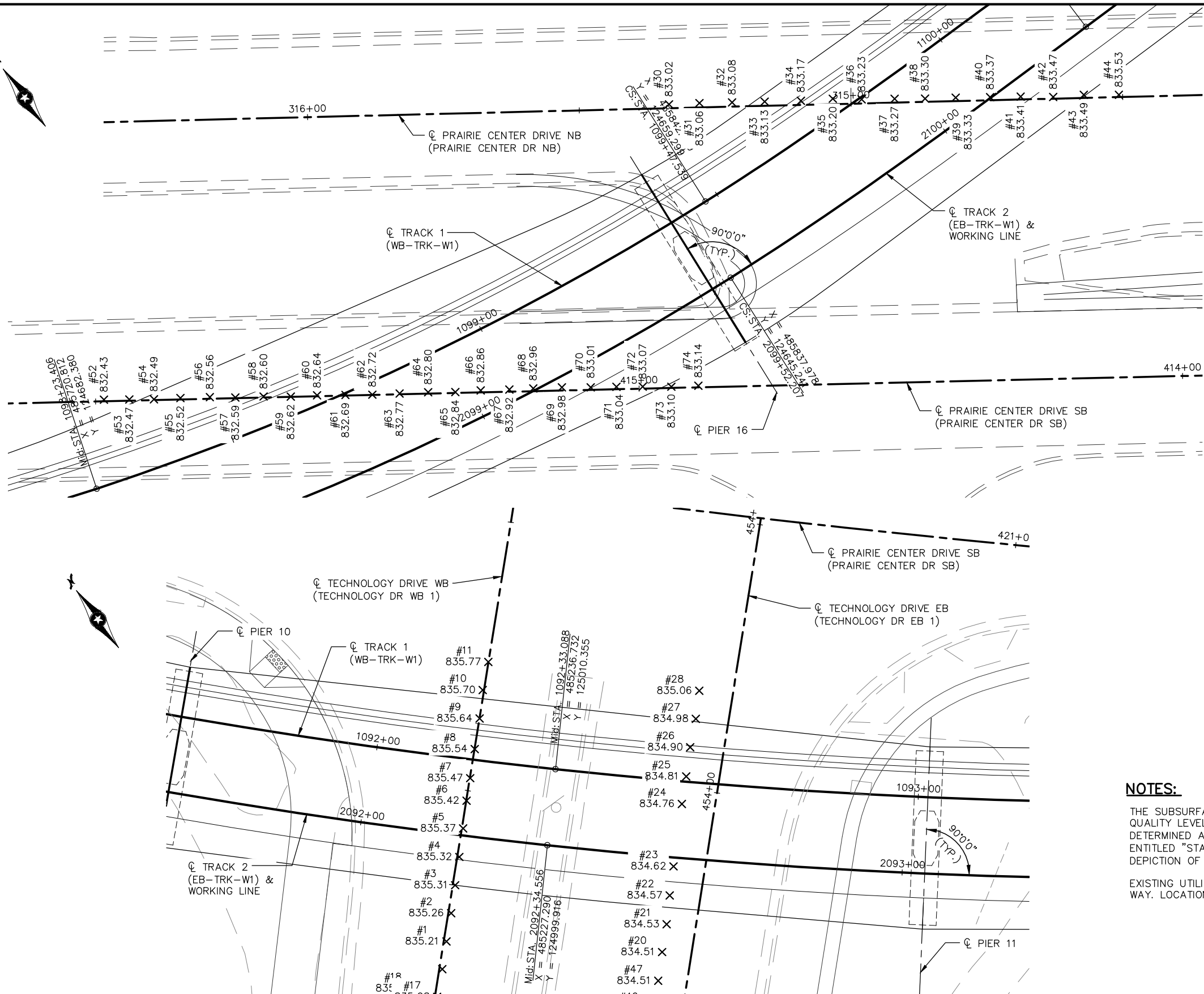
Jan, 19 2016 09:53 am V:\3400\_ADC\CAD\SEGEMINT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-DTL-011.dwg By: mayert



Jan, 19 2016 09:54 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUR.dwg By: mayert



Jan, 19 2016 09:54 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUR-026.dwg By: mayert



**NOTES:**

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".



EXISTING UTILITIES TO BE RELOCATED WITHIN THE RIGHT OF WAY. LOCATION TO BE DETERMINED IN ADVANCED DESIGN.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN



90% SUBMISSION - 01/22/16

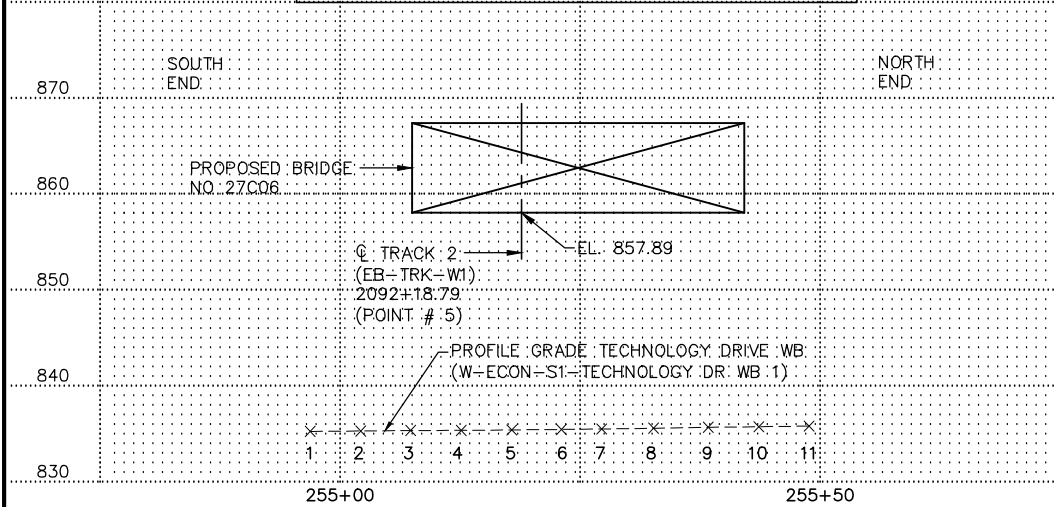


CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 BRIDGE SURVEY 2	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-SUR-002

SHEET  
209  
OF  
232

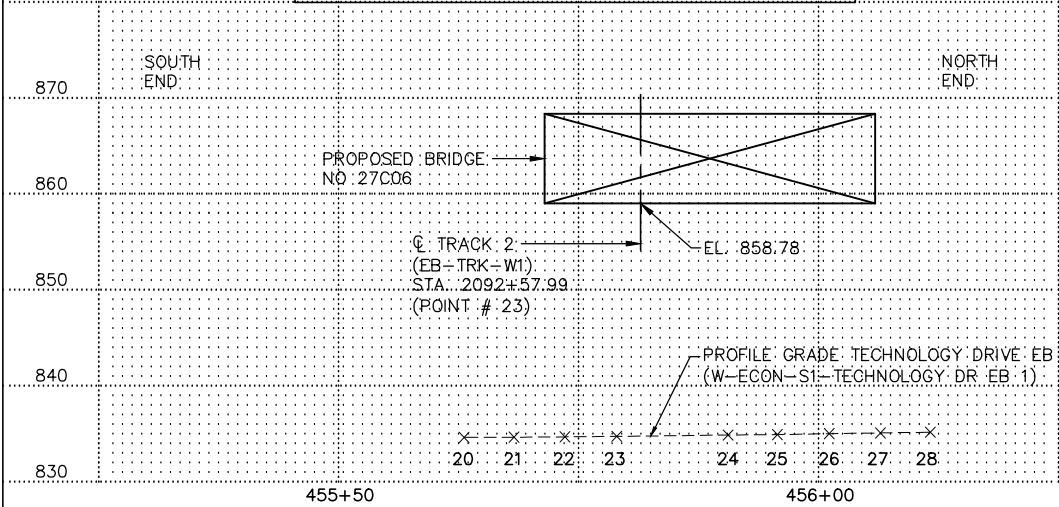
Jan, 19 2016 09:55 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUR.dwg By: mayert

PROFILE GRADE TECHNOLOGY DRIVE WB  
(W-ECON-S1-TECHNOLOGY DR WB 1)



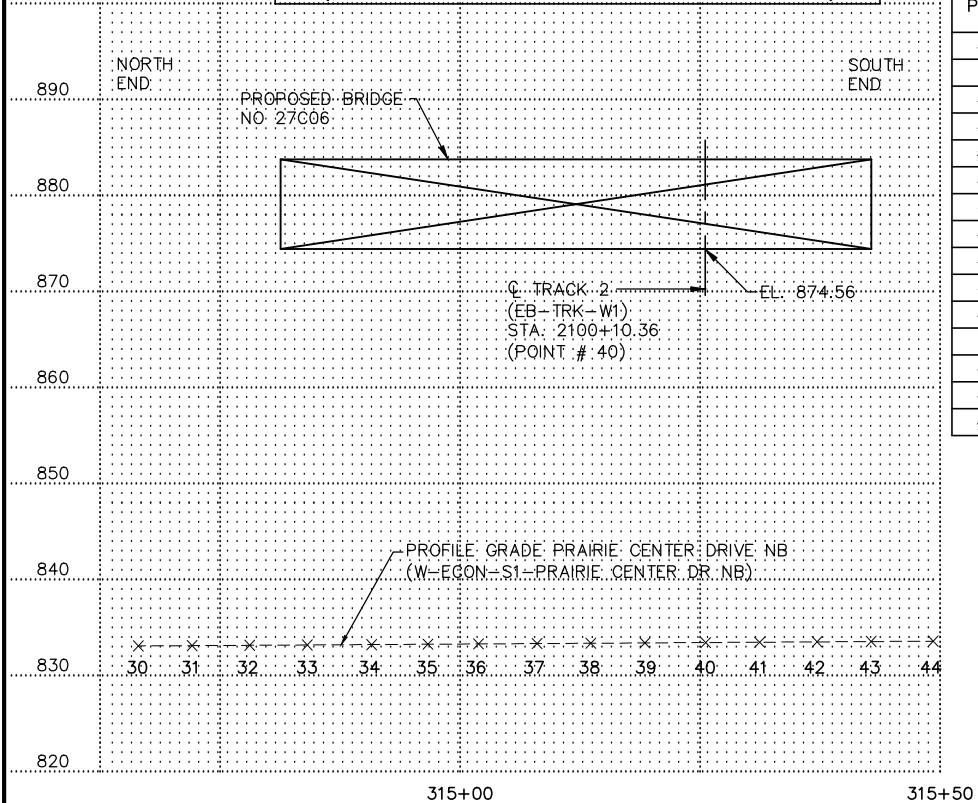
POINT	COORDINATES		ELEVATIONS
	X	Y	
#1	485201.861	124996.528	835.209
#2	485205.625	125000.216	835.255
#3	485209.238	125003.946	835.309
#4	485212.914	125007.704	835.324
#5	485216.554	125011.527	835.369
#6	485220.081	125015.289	835.416
#7	485223.058	125018.25	835.469
#8	485226.876	125022.099	835.539
#9	485230.91	125026.107	835.637
#10	485234.447	125030.012	835.701
#11	485238.304	125033.575	835.766

PROFILE GRADE TECHNOLOGY DRIVE EB  
(W-ECON-S1-TECHNOLOGY DR EB 1)



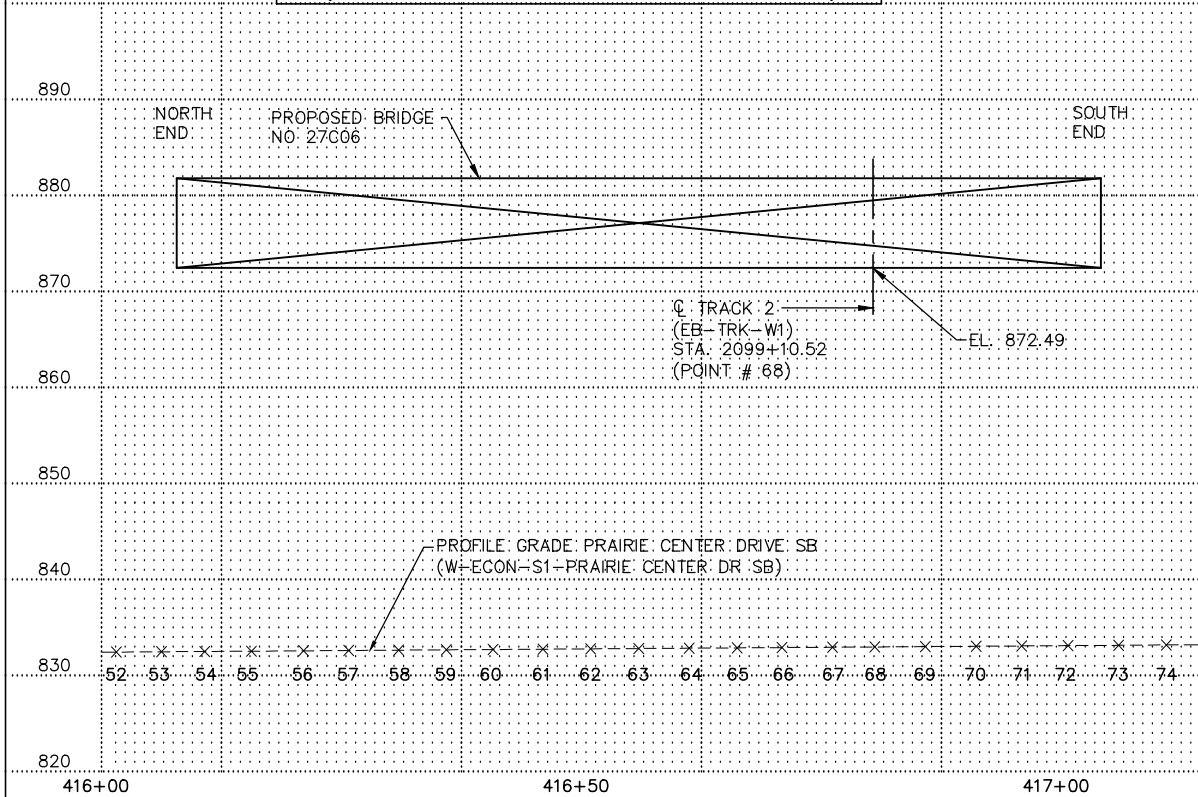
POINT	COORDINATES		ELEVATIONS
	X	Y	
#20	485232.812	124971.618	834.514
#21	485236.487	124975.276	834.528
#22	485240.056	124979.23	834.572
#23	485243.768	124983.144	834.624
#24	485251.772	124991.529	834.764
#25	485255.375	124995.17	834.812
#26	485259.129	124999.05	834.901
#27	485263.032	125002.689	834.978
#28	485266.591	125006.483	835.057

PROFILE GRADE PRAIRIE CENTER DRIVE NB  
(W-ECON-S1-PRAIRIE CENTER DR NB)



POINT	COORDINATES		ELEVATIONS
	X	Y	
#30	485847.531	124677.732	833.022
#31	485852.206	124674.618	833.056
#32	485857.122	124671.185	833.081
#33	485862.063	124667.788	833.129
#34	485867.557	124663.987	833.166
#35	485872.193	124660.79	833.202
#36	485876.74	124657.64	833.234
#37	485881.708	124654.152	833.269
#38	485886.266	124650.899	833.299
#39	485890.937	124647.715	833.332
#40	485896.101	124644.066	833.371
#41	485900.708	124640.846	833.409
#42	485905.51	124637.283	833.468
#43	485910.314	124634.291	833.488
#44	485915.517	124630.499	833.53

PROFILE GRADE PRAIRIE CENTER DRIVE SB  
(W-ECON-S1-PRAIRIE CENTER DR SB)



POINT	COORDINATES		ELEVATIONS
	X	Y	
#52	485731.511	124694.854	832.431
#53	485735.317	124692.143	832.466
#54	485738.984	124689.494	832.493
#55	485743.073	124686.842	832.522
#56	485747.543	124683.773	832.561
#57	485751.312	124680.979	832.591
#58	485755.616	124678.06	832.6
#59	485759.644	124675.126	832.617
#60	485763.694	124672.449	832.643
#61	485767.955	124669.452	832.687
#62	485771.984	124666.583	832.722
#63	485776.174	124663.796	832.766
#64	485780.566	124660.919	832.796
#65	485784.632	124658.005	832.836
#66	485788.564	124655.49	832.859
#67	485792.927	124652.538	832.918
#68	485796.601	124650.112	832.959
#69	485800.998	124647.176	832.985
#70	485805.289	124644.065	833.009
#71	485809.154	124641.357	833.045
#72	485813.094	124638.547	833.067
#73	485817.353	124635.435	833.1
#74	485821.465	124632.661	833.135

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN

AECOM

90% SUBMISSION - 01/22/16



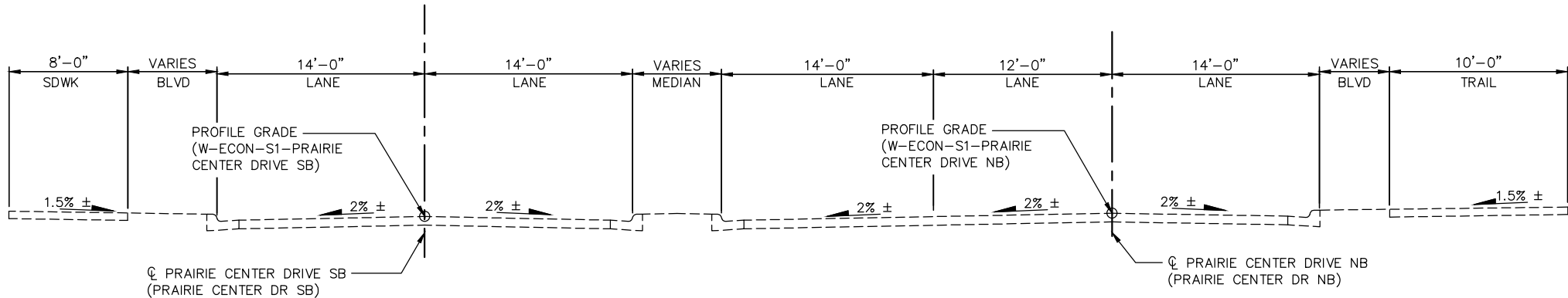
CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
BRIDGE SURVEY 3

DISCIPLINE:  
STRUCTURES

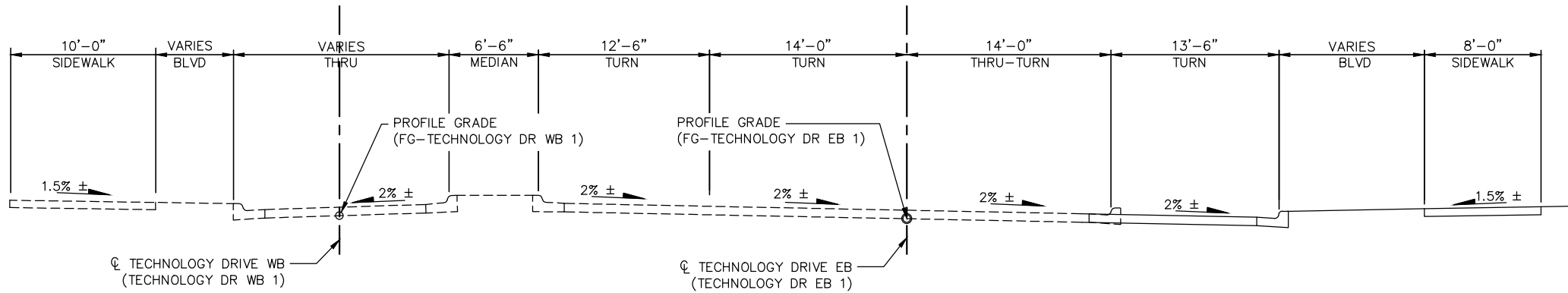
SHEET NAME:  
CBR27C06-BRG-SUR-001

SHEET  
210  
OF  
232

Jan, 19 2016 09:55 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUR.dwg By: mayert

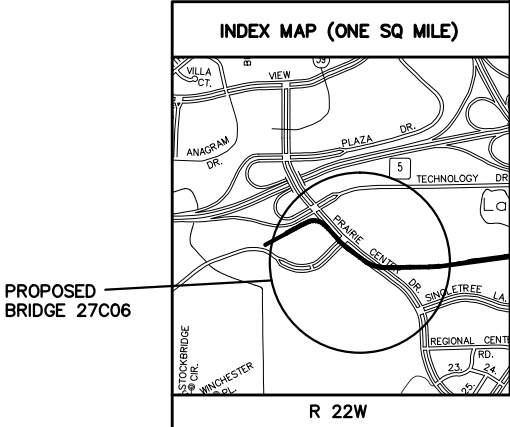


EXISTING TYPICAL APPROACH SECTION PRAIRIE CENTER DRIVE



EXISTING TYPICAL APPROACH SECTION TECHNOLOGY DRIVE

**NOTES:**  
PROFILE GRADES SHOWN AT LOCATION OF SURVEY SHOTS.



**LOCATION ENGINEER'S OBSERVATIONS  
AT BRIDGE SITE**  
1.SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.  
2.OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY) : GIVEN LOCATION,TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS-SECTIONAL AREA ETC.  
3.APPARENT HIGHWATER ELEVATION \_\_\_\_\_ OBTAINED FROM:  
4.OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

**HYDRAULIC ENGINEERS RECOMMENDATION**  
DATE: XX-XX-XXXX  
STREAM OR DITCH DESIGNATION: XXX  
DRAINAGE AREA: XXX SQ. MI.  
MAX FLOOD ON RECORD: XXX C.F.S. (XX-XX-XX)  
MAXIMUM OBSERVED HIGHWATER ELEVATION: XXX.X FT.  
DESIGN FLOOD (XX TR. FREQ.): XXX C.F.S.  
HEADWATER ELEVATION: XXX.X FT.  
DESIGN MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.  
TOTAL STAGE INCREASE: XX FT.  
LOW MEMBER AT OR ABOVE ELEVATION: XXX.X FT  
WATERWAY AREA REQUIRED BELOW ELEV. XXX.X = XXX SQ. FT. AT RIGHT ANGLES TO CHANNEL  
BASIC FLOOD (100 YR. FREQ.): XXX C.F.S.  
HEADWATER ELEVATION: XXX.X FT.  
TOTAL STAGE INCREASE: X.X FT.  
MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.  
FLOWLINE ELEVATION: XXX FT. SKEW ANGLE: XX  
ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. XXX.X (500 OR OT YR.FREQ.)

**SCOUR CONFIRMATION RECOMMENDATION**  
DATE: XX-XX-XXXX  
TOTAL SCOUR AT PIER EL. XXX.XX (500 OR OT YR. FREQ.)  
SCOUR CODE: OBTAIN FROM HYDRAULIC ENGINEER

**BRIDGE SURVEY**  
BRIDGE SURVEY = SHEETS MADE FROM SURVEY AND PHOTOGRAMMETRIC MAPPING  
MnDOT NAME: 2701S BENCH MARK ELEVATION 829.569 FEET (NAVD88) LOCATION STAMPED 2701 S 1993 -IN EDEN PRAIRIE, 1.0 MILE WEST ALONG TH 5 FROM JUNCTION OF TH 5 AND INTERSTATE HIGHWAY 494, AT TH 5 MILEPOINT 49.75, IN SOUTHEAST CORNER OF TH 5 BOX CULVERT, 56.0 FEET SOUTH OF EASTBOUND TH 5, 0.5 FOOT WEST OF SOUTHEAST CORNER OF BOX CULVERT.  
2ND MnDOT NAME: 2744N BENCH MARK ELEVATION 885.113 FEET (NAVD88) LOCATION STAMPED 2744 N 1980 - IN EDEN PRAIRIE, 0.5 MILE SOUTHWEST OF JUNCTION OF TH 212 AND INTERSTATE HIGHWAY 494, AT TH 212 MILEPOINT 158.9, 250 FEET SOUTH OF ENTRANCE TO EDEN PRAIRIE CENTER, 47.8 FEET SOUTHEAST OF SOUTHEAST CURB OF TH 212, 42.9 FEET NORTHEAST OF NORTH CURB ON ACCESS ROAD, 1.2 FEET NORTH OF WEST COLUMN OF SIGN (EDEN PRAIRIE CENTER) NOTHING ON SIGN AT PRESENT, IN WEST BASE OF SIGN.

**BRIDGE SURVEY**  
0.1 MI SOUTHEAST OF THE INTERSECTION OF TH 212 AND PRAIRIE CENTER DRIVE IN EDEN PRAIRIE  
SOUTHWEST LIGHT RAIL OVER PRAIRIE CENTER DRIVE AND TECHNOLOGY DRIVE  
SEC 14/15 T 116N R 22W  
CITY OF EDEN PRAIRIE HENNEPIN COUNTY  
BRIDGE 27C06

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
BRIDGE SURVEY 4

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-SUR-004

SHEET
211
OF
232

SEE SHEET 222 FOR CORRESPONDING BRIDGE SURVEY PROFILE.

[illegible]

DESIGNED BY: <b>RJH</b>	CHECKED BY: <b>ATN</b>
DRAWN BY: <b>ALB</b>	CHECKED BY: <b>ATN</b>

**AECOM**

**90% SUBMISSION - 01/22/16**






**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
BRIDGE SURVEY PLAN 1**

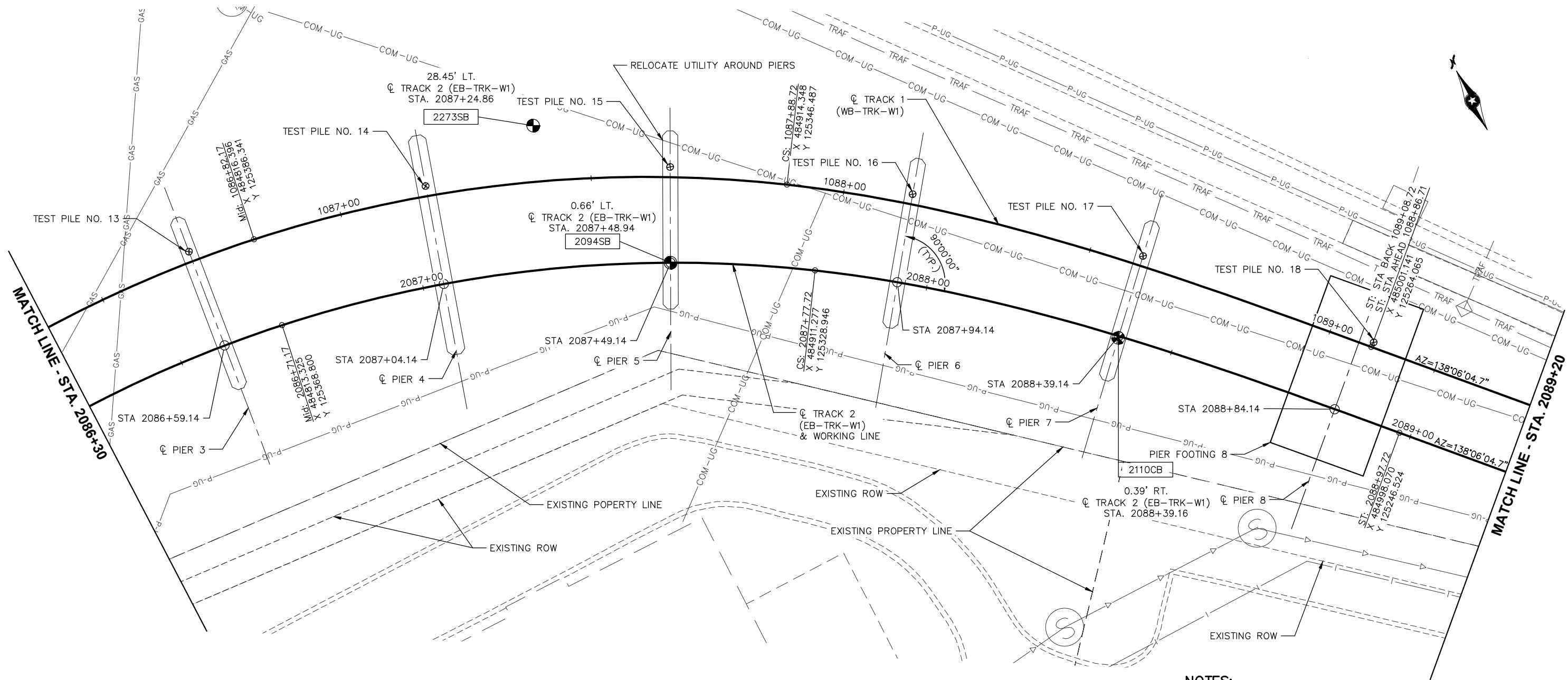
DISCIPLINE:	SHEET NAME:
<b>STRUCTURES</b>	<b>CBR27C06-BRG-BOR-001</b>

**SHEET**  
**212**  
**OF**  
**232**

SEE SHEET 223 & 224 FOR CORRESPONDING BRIDGE SURVEY  
PROFILE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	<div></div>	<div></div>	<div>CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 BRIDGE SURVEY PLAN 2</div>		SHEET 213 OF 232
<div>DESIGNED BY: RJH      CHECKED BY: ATN DRAWN BY: ALB      CHECKED BY: ATN</div>						90% SUBMISSION - 01/22/16	<div>DISCIPLINE: STRUCTURES      SHEET NAME: CBR27C06-BRG-BOR-002</div>			

Jan, 19 2016 09:59 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06\BRG-SUR-006.dwg By: mayert



**NOTES:**

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

EXISTING UTILITIES TO BE RELOCATED WITHIN THE RIGHT OF WAY UNLESS OTHERWISE NOTED.

SEE SHEET 225 FOR CORRESPONDING BRIDGE SURVEY PROFILE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN



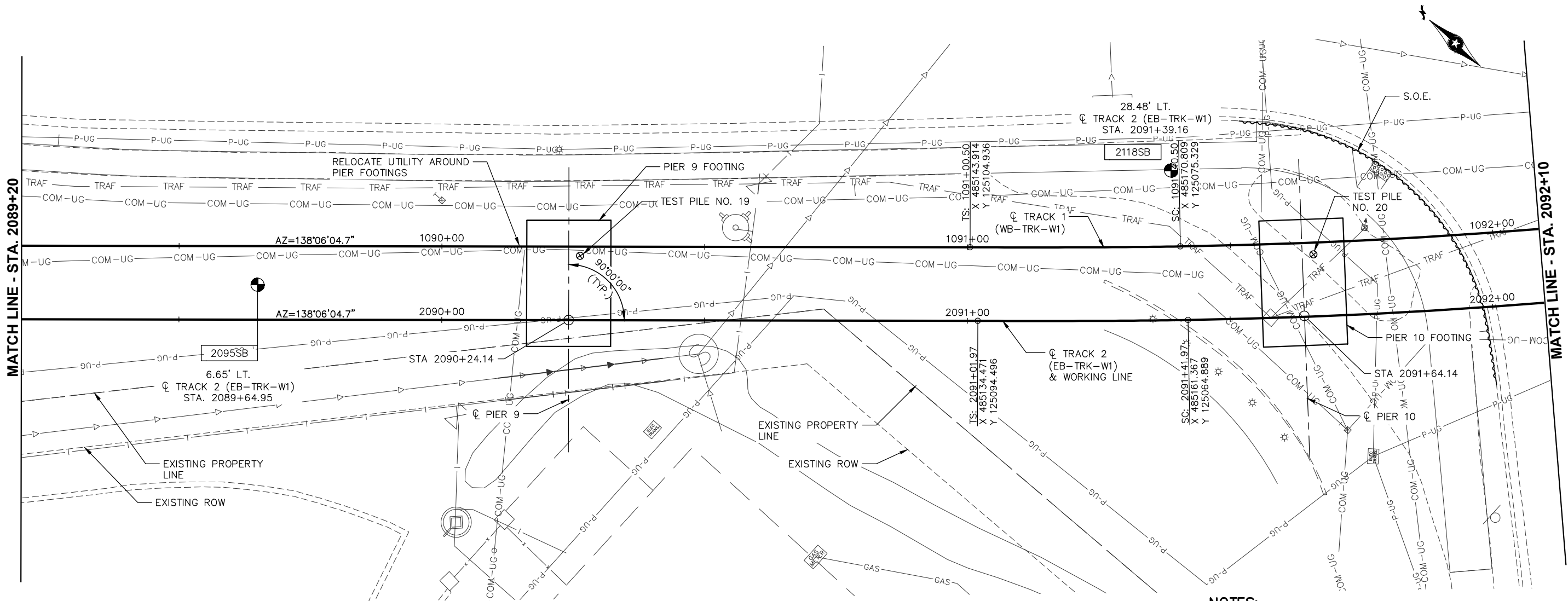
**90% SUBMISSION - 01/22/16**



CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 BRIDGE SURVEY PLAN 3	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-BOR-003

SHEET
214
OF
232

Jan, 19 2016 10:00 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUR-007.dwg By: mayert



**NOTES:**

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

EXISTING UTILITIES TO BE RELOCATED WITHIN THE RIGHT OF WAY UNLESS NOTED OTHERWISE.

SEE SHEET 226 FOR CORRESPONDING BRIDGE SURVEY PROFILE.

SUPPORT OF EXCAVATION (S.O.E.) TO BE DESIGNED BY THE CONTRACTOR. SHEET PILING SHOWN, OTHER SYSTEMS MAY BE UTILIZED AT THE CONTRACTORS OPTION. SEE SPECIAL PROVISIONS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN

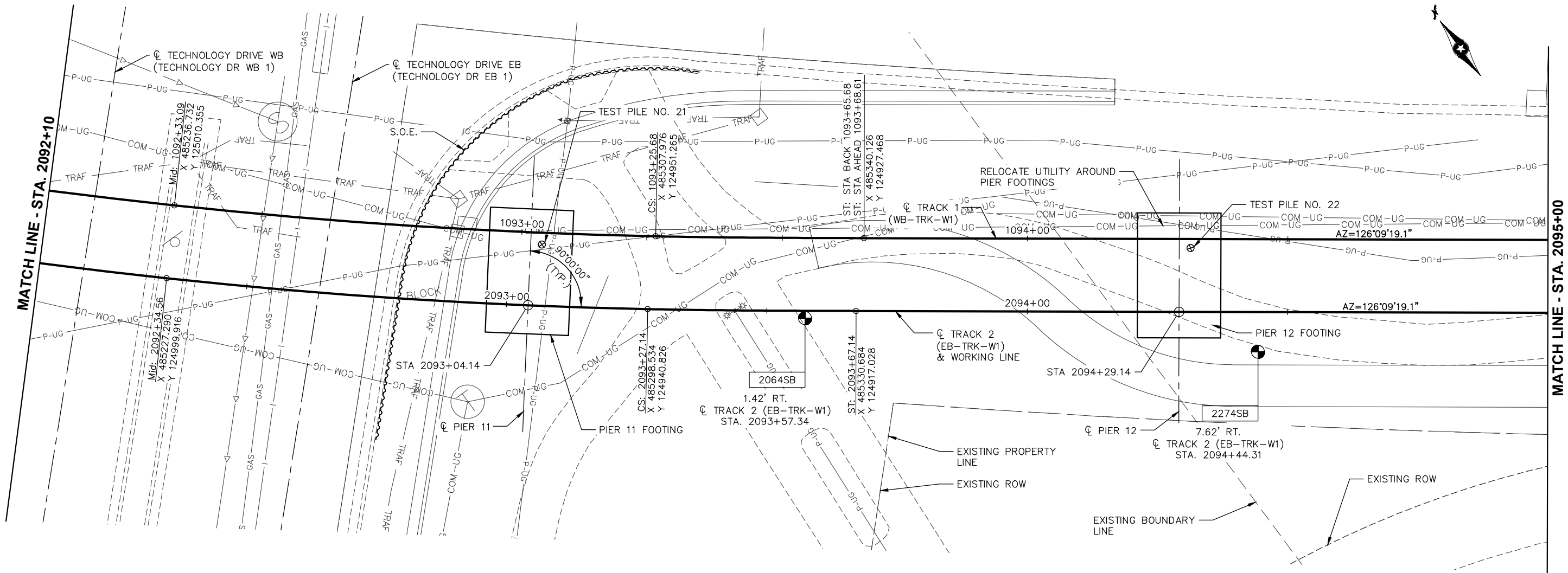
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 BRIDGE SURVEY PLAN 4	
DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-BOR-004

SHEET
215
OF
232



Jan, 19 2016 10:01 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUR-008.dwg By: mayert



**NOTES:**

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C/ASCE 38-02 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

EXISTING UTILITIES TO BE RELOCATED WITHIN THE RIGHT OF WAY UNLESS NOTED OTHERWISE.

SEE SHEET 227 FOR CORRESPONDING BRIDGE SURVEY PROFILE.

SUPPORT OF EXCAVATION (S.O.E.) TO BE DESIGNED BY THE CONTRACTOR. SHEET PILING SHOWN, OTHER SYSTEMS MAY BE UTILIZED AT THE CONTRACTORS OPTION. SEE SPECIAL PROVISIONS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN

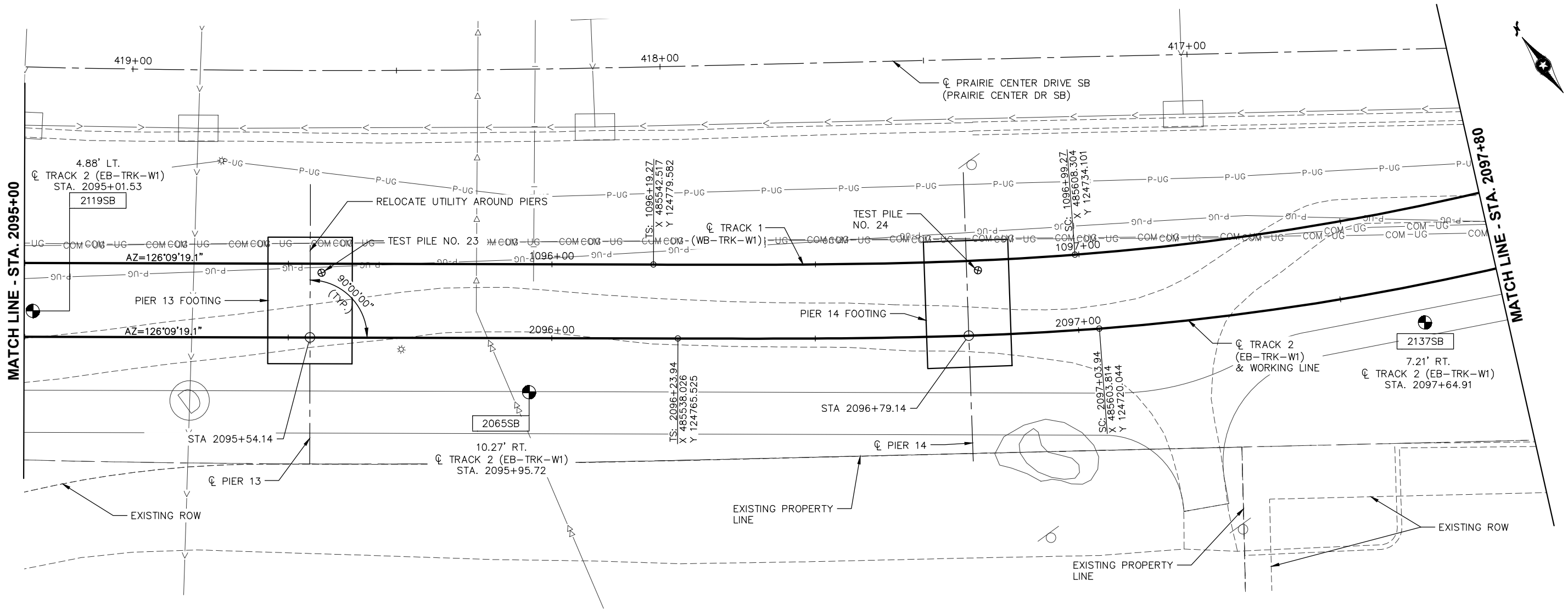
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
BRIDGE SURVEY PLAN 5

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-BOR-005

SHEET
216
OF
232

Jan, 19 2016 10:02 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUR-009.dwg By: mayert



**NOTES:**

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

EXISTING UTILITIES TO BE RELOCATED WITHIN THE RIGHT OF WAY UNLESS NOTED OTHERWISE.

SEE SHEET 228 FOR CORRESPONDING BRIDGE SURVEY PROFILE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN

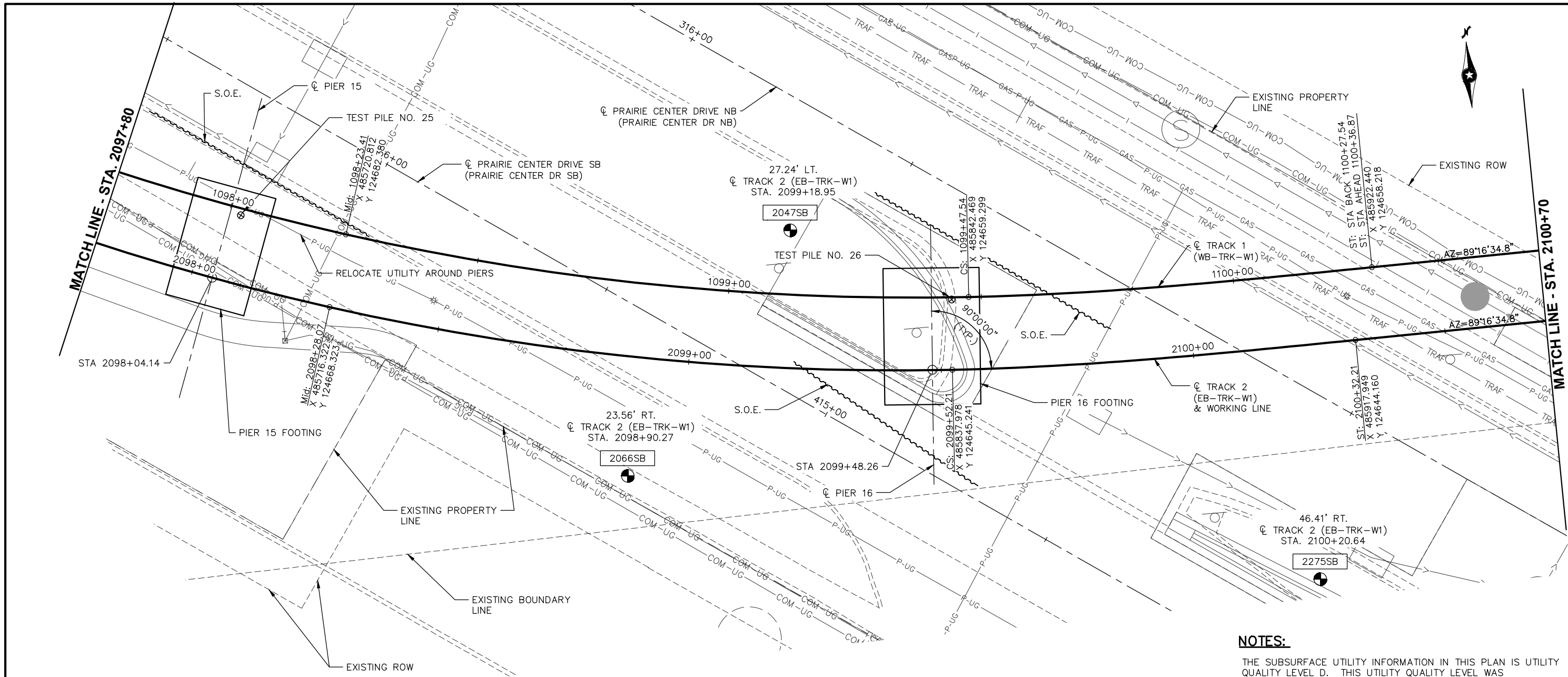
90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
BRIDGE SURVEY PLAN 6

DISCIPLINE: STRUCTURES	SHEET NAME: CBR27C06-BRG-BOR-006
---------------------------	-------------------------------------

SHEET  
217  
OF  
232

Jan, 19 2016 10:03 am V:\3400\_ADC\CAD\SEGEMNT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUR-010.dwg By: mayert



**NOTES:**

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

EXISTING UTILITIES TO BE RELOCATED WITHIN THE RIGHT OF WAY UNLESS NOTED OTHERWISE.

SEE SHEET 229 FOR CORRESPONDING BRIDGE SURVEY PROFILE.



SUPPORT OF EXCAVATION (S.O.E.) TO BE DESIGNED BY THE CONTRACTOR. SHEET PILING SHOWN, OTHER SYSTEMS MAY BE UTILIZED AT THE CONTRACTORS OPTION. SEE SPECIAL PROVISIONS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN



90% SUBMISSION - 01/22/16



CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
BRIDGE SURVEY PLAN 7

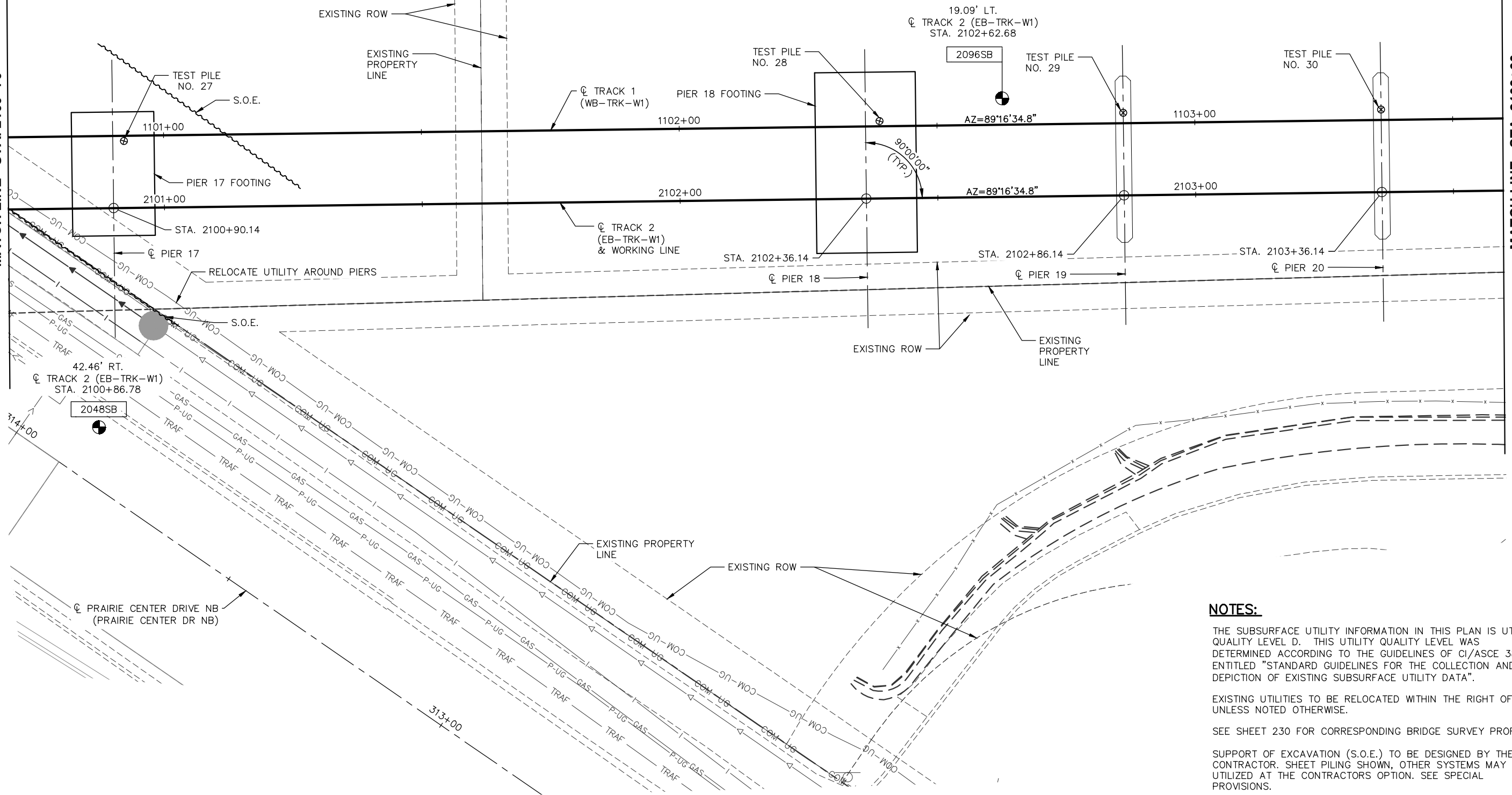
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-BOR-007

Jan, 19 2016 10:04 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUR-011.dwg By: mayert

MATCH LINE - STA. 2100+70

MATCH LINE - STA. 2103+60



**NOTES:**

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

EXISTING UTILITIES TO BE RELOCATED WITHIN THE RIGHT OF WAY UNLESS NOTED OTHERWISE.

SEE SHEET 230 FOR CORRESPONDING BRIDGE SURVEY PROFILE.

SUPPORT OF EXCAVATION (S.O.E.) TO BE DESIGNED BY THE CONTRACTOR. SHEET PILING SHOWN, OTHER SYSTEMS MAY BE UTILIZED AT THE CONTRACTORS OPTION. SEE SPECIAL PROVISIONS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB  
CHECKED BY: ATN  
CHECKED BY: ATN

**AECOM**

90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
BRIDGE SURVEY PLAN 8**

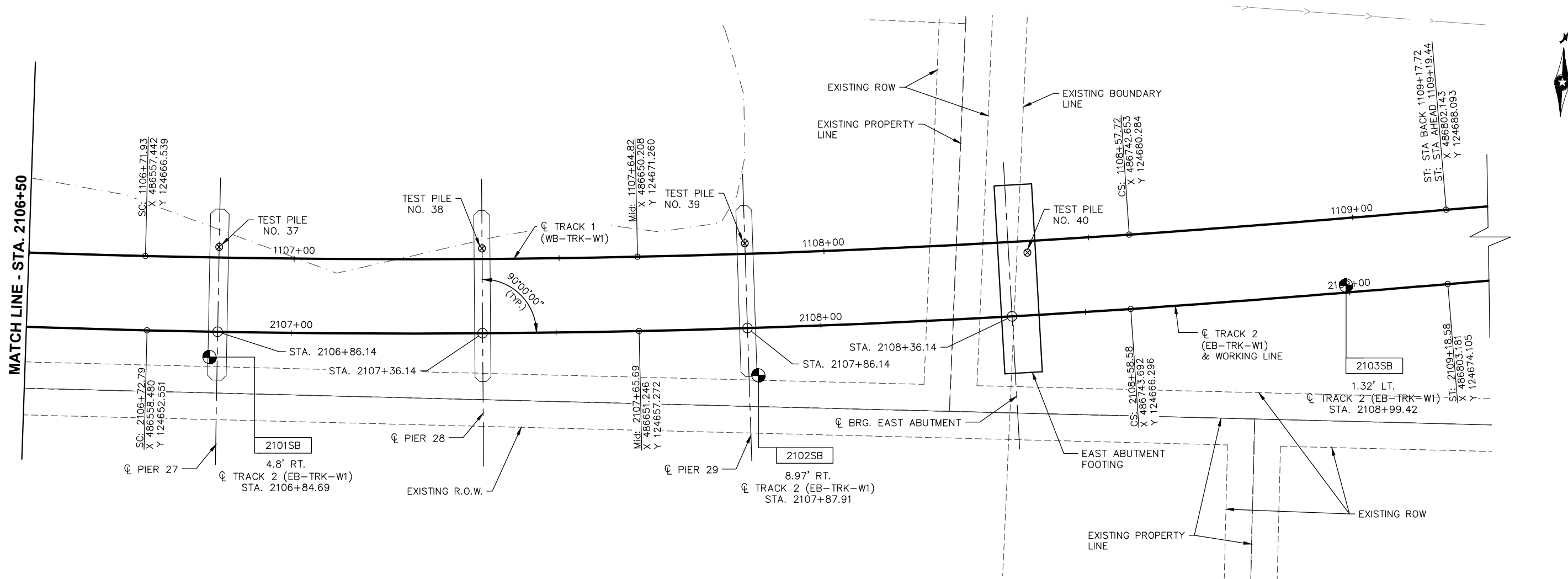
DISCIPLINE: STRUCTURES

SHEET NAME: CBR27C06-BRG-BOR-008

**SHEET**  
**219**  
**OF**  
**232**



Jan, 19 2016 10:07 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06\CBR27C06-BRG-SUR-013.dwg By: mayert



**NOTES:**

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

EXISTING UTILITIES TO BE RELOCATED WITHIN THE RIGHT OF WAY. LOCATION TO BE DETERMINED IN ADVANCED DESIGN.

SEE SHEET 232 FOR CORRESPONDING BRIDGE SURVEY PROFILE.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN



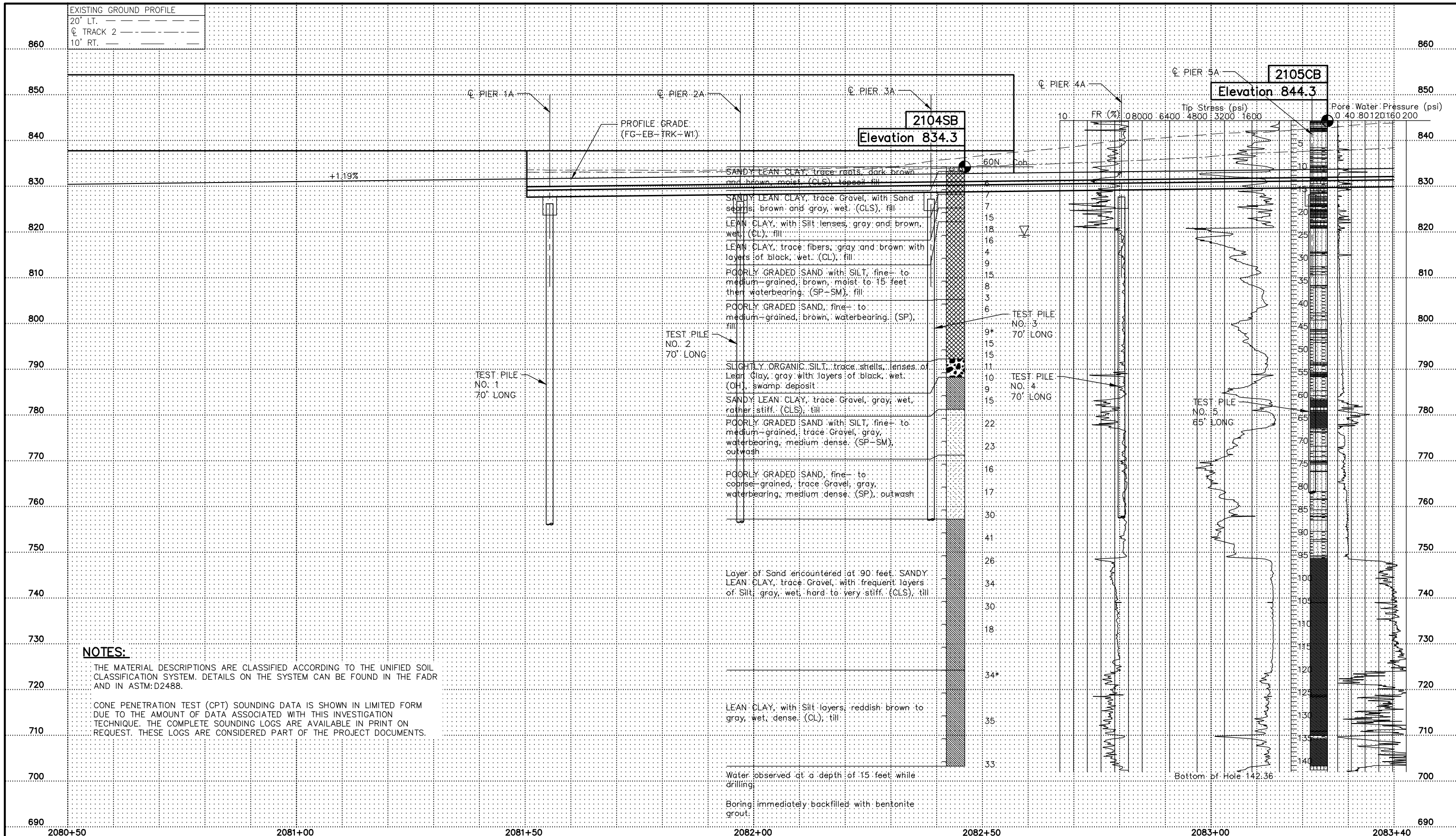
90% SUBMISSION - 01/22/16



**CIVIL - VOLUME 4B**  
**PRAIRIE CENTER DRIVE**  
**BRIDGE 27C06**  
**BRIDGE SURVEY PLAN 10**

DISCIPLINE: <b>STRUCTURES</b>	SHEET NAME: <b>CBR27C06-BRG-BOR-010</b>
----------------------------------	--

Jan, 19 2016 10:08 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUR-014.dwg By: mayert



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL




DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN

90% SUBMISSION - 01/22/16

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
BRIDGE SURVEY PROFILE 1

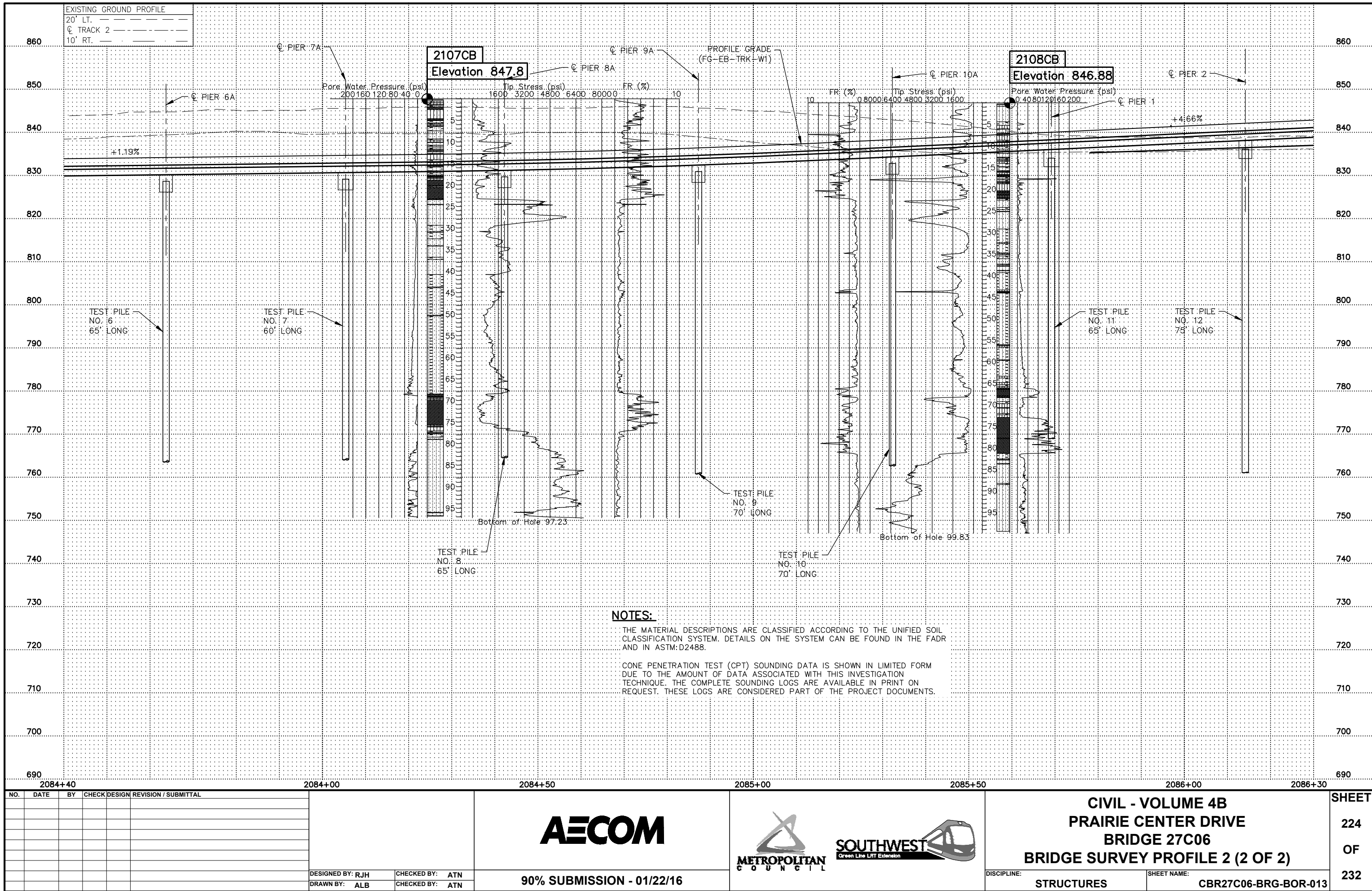
DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-BOR-011

SHEET 222  
OF  
232

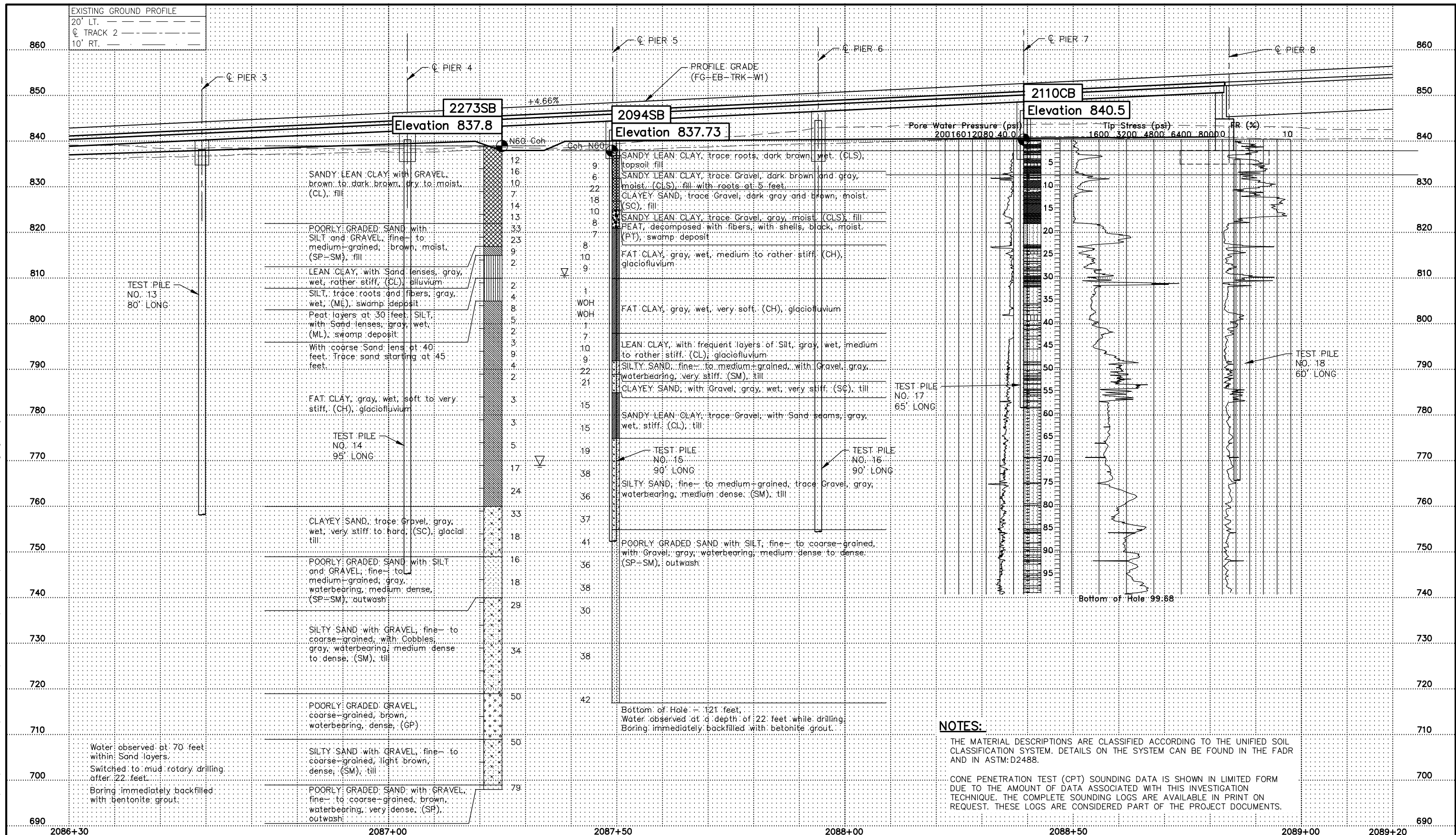
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL		 	<div>CIVIL - VOLUME 4B</div> <div>PRAIRIE CENTER DRIVE</div> <div>BRIDGE 27C06</div> <div>BRIDGE SURVEY PROFILE 2 (1 OF 2)</div>		SHEET 223  OF  232			
DESIGNED BY: RJH      CHECKED BY: ATN						90% SUBMISSION - 01/22/16	DISCIPLINE: STRUCTURES		SHEET NAME: CBR27C06-BRG-BOR-012				
DRAWN BY: ALB      CHECKED BY: ATN													



Jan, 19 2016 10:09 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUR-016.dwg By: mayert



Jan, 19 2016 10:11 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUR-017.dwg By: mayert





NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH	CHECKED BY: ATN
DRAWN BY: ALB	CHECKED BY: ATN



90% SUBMISSION - 01/22/16









Green Line LRT Extension

CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
BRIDGE SURVEY PROFILE 3




DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-BOR-014

SHEET  
225  
OF  
232

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL		 	<div>CIVIL - VOLUME 4B</div> <div>PRAIRIE CENTER DRIVE</div> <div>BRIDGE 27C06</div> <div>BRIDGE SURVEY PROFILE 4</div>		SHEET	
											226
											OF
											232
<div>DESIGNED BY: RJH</div> <div>DRAWN BY: ALB</div>						<div>CHECKED BY: ATN</div> <div>CHECKED BY: ATN</div>	90% SUBMISSION - 01/22/16	<div>DISCIPLINE:</div> <div>STRUCTURES</div>	<div>SHEET NAME:</div> <div>CBR27C06-BRG-BOR-015</div>		

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	<div></div>	<div></div>	<div>CIVIL - VOLUME 4B</div> <div>PRAIRIE CENTER DRIVE</div> <div>BRIDGE 27C06</div> <div>BRIDGE SURVEY PROFILE 5</div>		SHEET 227 OF 232
<div>DESIGNED BY: RJH</div> <div>DRAWN BY: ALB</div>						<div>CHECKED BY: ATN</div> <div>CHECKED BY: ATN</div>	90% SUBMISSION - 01/22/16	<div>DISCIPLINE:</div> <div>STRUCTURES</div>	<div>SHEET NAME:</div> <div>CBR27C06-BRG-BOR-016</div>	



2097+80						2098+00						2099+00						2099+50						2100+00						2100+50						2100+70												
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL	<div></div>												<div></div>												<div>CIVIL - VOLUME 4B PRAIRIE CENTER DRIVE BRIDGE 27C06 BRIDGE SURVEY PROFILE 7</div>												SHEET  229  OF  232						
						DESIGNED BY: RJH	CHECKED BY: ATN						90% SUBMISSION - 01/22/16												DISCIPLINE: STRUCTURES												SHEET NAME: CBR27C06-BRG-BOR-018											
						DRAWN BY: ALB	CHECKED BY: ATN																																									

THE MATERIAL DESCRIPTIONS ARE CLASSIFIED ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM. DETAILS ON THE SYSTEM CAN BE FOUND IN THE FADR AND IN ASTM:D2488.

CONE PENETRATION TEST (CPT) SOUNDING DATA IS SHOWN IN LIMITED FORM DUE TO THE AMOUNT OF DATA ASSOCIATED WITH THIS INVESTIGATION TECHNIQUE. THE COMPLETE SOUNDING LOGS ARE AVAILABLE IN PRINT ON REQUEST. THESE LOGS ARE CONSIDERED PART OF THE PROJECT DOCUMENTS.

**AECOM**

DESIGNED BY: <b>RJH</b>	CHECKED BY: <b>ATN</b>
DRAWN BY: <b>ALB</b>	CHECKED BY: <b>ATN</b>

**90% SUBMISSION - 01/22/16**



## SOUTHWEST



**CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
BRIDGE SURVEY PROFILE 8**

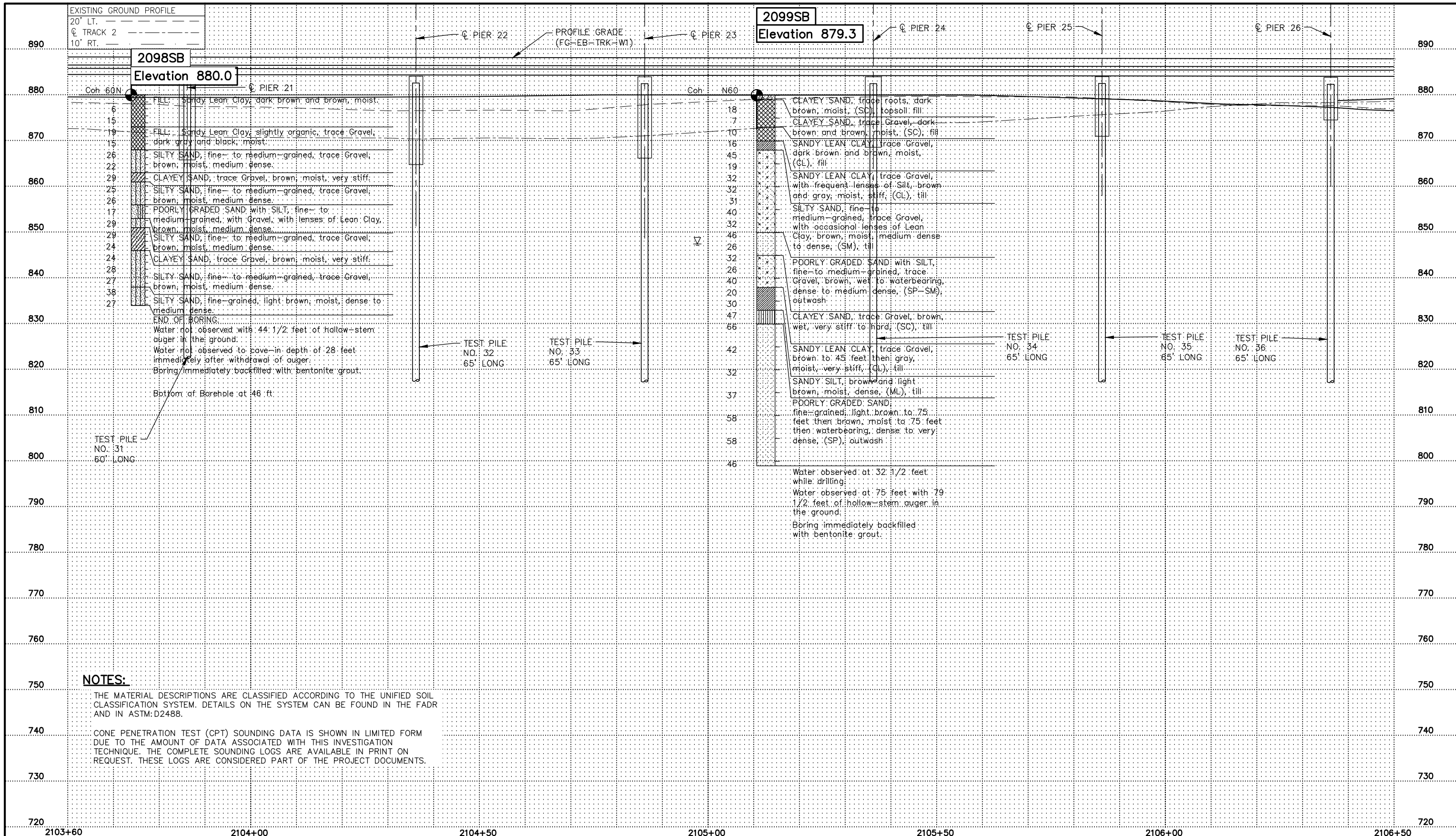
DISCIPLINE: **STRUCTURES**

SHEET NAME:	CBR27C06-BRG-BOR-019
-------------	----------------------

**SHEET**  
**230**  
**OF**  
**232**



Jan, 19 2016 10:16 am V:\3400\_ADC\CAD\SEGMENT W1\PLAN SHEETS\STRUCTURES\CBR27C06-BRG-SUR-023.dwg By: mayert



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

DESIGNED BY: RJH  
DRAWN BY: ALB

CHECKED BY: ATN  
CHECKED BY: ATN

AECOM

90% SUBMISSION - 01/22/16



SOUTHWEST  
Green Line LRT Extension



CIVIL - VOLUME 4B  
PRAIRIE CENTER DRIVE  
BRIDGE 27C06  
BRIDGE SURVEY PROFILE 9

DISCIPLINE: STRUCTURES  
SHEET NAME: CBR27C06-BRG-BOR-020

SHEET  
231  
OF  
232



