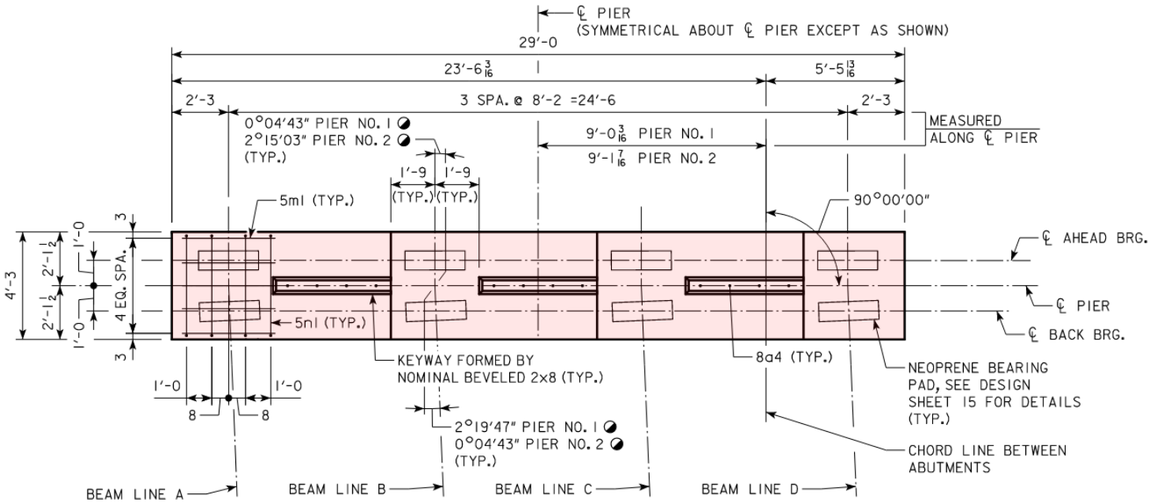
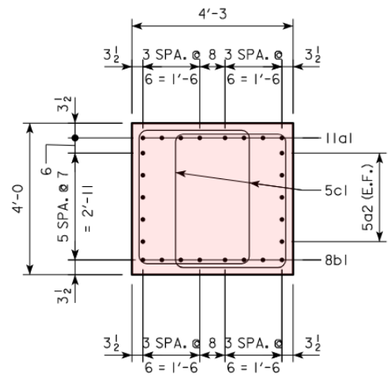
BENCH MARK NO. 26: NORTHING: 604283.735, EASTING: 1624489.540, ELEV. 886.700, FENO. MONUMENT, W/CAP STAMPED "026", 6" DEEP, IN THE NORTH ROW/SHOULDER OF NE 54TH AVE., 9' NORTH OF EDGE AC SLAB; 128' FROM P.I. OF NE 54TH AVE. WITH OF RR CROSSING.



PLAN OF PIER CAP

NOTE:
◒ MEASURED PERPENDICULAR TO ℄ OF PIER.

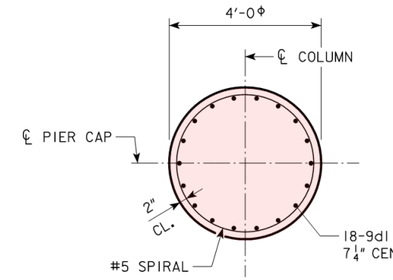


SECTION A-A

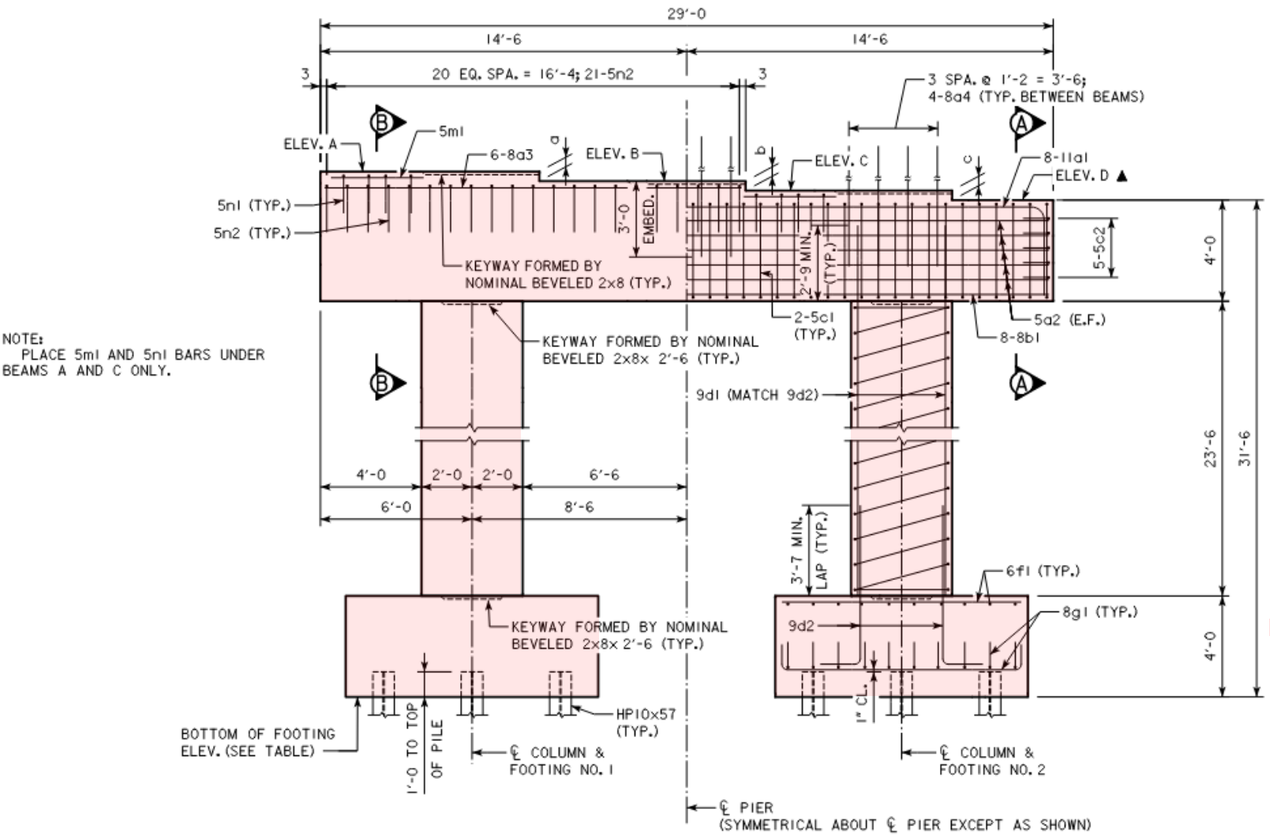
TABLE OF PIER ELEVATIONS		
ELEVATION	PIER NO. 1	PIER NO. 2
ELEV. A	957.61	957.99
ELEV. B	957.23	957.61
ELEV. C	956.86	957.24
ELEV. D	▲ 956.48	▲ 956.86
BOTTOM OF FOOTING	924.98	925.36

▲ LOW STEP ELEVATION

TABLE OF PIER STEPS		
STEP	PIER NO. 1	PIER NO. 2
a	4 1/2	4 1/2
b	4 1/2	4 1/2
c	4 1/2	4 1/2

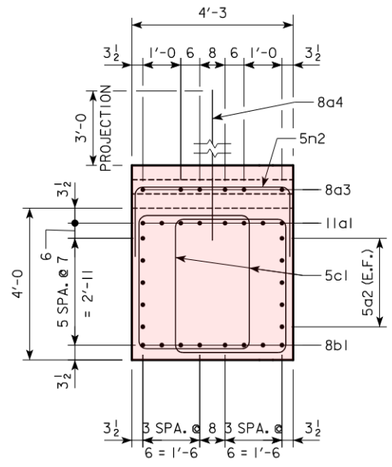


TYPICAL SECTION THRU COLUMN



NOTE:
PLACE 5m1 AND 5n1 BARS UNDER BEAMS A AND C ONLY.

PIER ELEVATION
(LOOKING SOUTH)



SECTION B-B

PIER NOTES:

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

SPIRAL REINFORCING IS TO BE NO. 5 BAR WITH 3'-7 3/8" DIAMETER, 12" PITCH WITH 4 EQUALLY SPACED L 3/8 × 3/8 × 3/8 SPACERS PUNCHED TO HOLD SPIRALS. SPIRALS ARE TO HAVE 1 1/2 EXTRA TURNS AT TOP AND BOTTOM COLUMNS.

THE SPIRAL REINFORCING MAY BE SPLICED BY LAPPING 22". THE LENGTH OF THE SPIRAL SHOWN DOES NOT INCLUDE THE LAPPED LENGTH OF THE SPLICES. THE COST OF THE LAPS AT SPLICES IS TO BE INCLUDED IN THE PRICE BID FOR OTHER REINFORCEMENT.

COLUMN TIES SPACED AT 12" CENTERS MAY BE SUBSTITUTED FOR THE SPIRAL REINFORCEMENT. PAYMENT WILL BE BASED ON THE WEIGHT OF SPIRAL REINFORCEMENT. NO ADJUSTMENTS IN REINFORCING STEEL PAY WEIGHT WILL BE ALLOWED. SEE BENT BAR DETAILS FOR SPLICE LAP LENGTH.

NOTES:

1. For the full plan set and additional structure information, see Br1-Precast and Cast Concrete-Iowa DOT.pdf.
2. Use specifications from L1-Br01-PierCap01, L1-Br01-PierColumn01, L1-Br01-PileCap01 and L2-Br01-Piles01 for similar elements.

Unit Test Instruction for the Design-to-Construction Data Exchange

BIM FOR BRIDGES AND STRUCTURES TPF-5(372)

HDR

jo consulting

No.	Date	Issue / Revision Notes
1	12/14/23	

Unit Test Description: Level 3 Piers

Unit Test / Sheet No.: L3-Br03-Pier02 / 01

Drawn By: AMN

Reviewed By:

PIER PILE NOTES:

THE CONTRACT LENGTH OF 105 FEET FOR THE PIER NO. 1 PILES, AND 100 FEET FOR THE PIER NO. 2 PILES IS BASED ON A COHESIVE SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 204 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65. THE FACTORED AXIAL LOAD INCLUDES A FACTORED DEAD LOAD OF 6 KIPS PER PILE TO ACCOUNT FOR FUTURE RAILROAD PIER PROTECTION.

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A COHESIVE SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.76. PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE BOTTOM OF FOOTING.

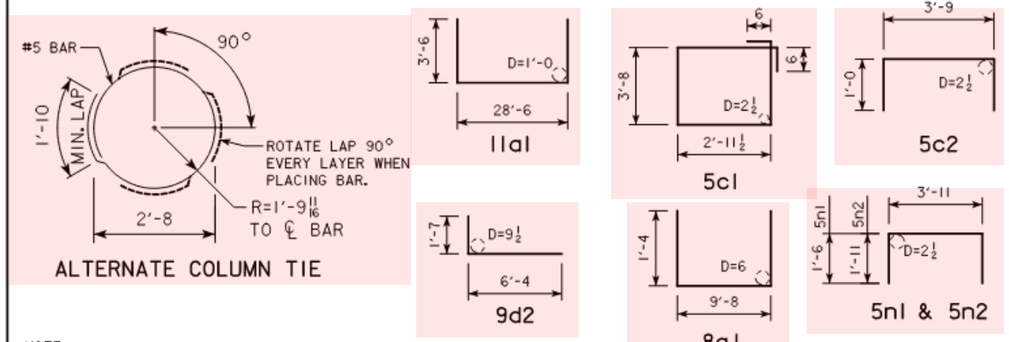
THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR PIER PILES IS 134 TONS AT END OF DRIVE. IF RETAPS ARE NECESSARY TO ACHIEVE BEARING THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE IS 157 TONS AT ONE-DAY RETAP. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. CONSTRUCTION CONTROL REQUIRES A WEAP ANALYSIS WITH BEARING GRAPH.

PILE DIMENSIONS ARE AT BOTTOM OF FOOTING. BATTER PILES 1:4 IN DIRECTION SHOWN.

ALL BATTERED PILE SHALL BE TRIMMED TO A HORIZONTAL LINE TO AID IN THE PLACEMENT OF REINFORCING.

7 - HP10x57 STEEL BEARING PILING ARE REQUIRED FOR EACH FOOTING AT PIER NOS. 1 AND 2.

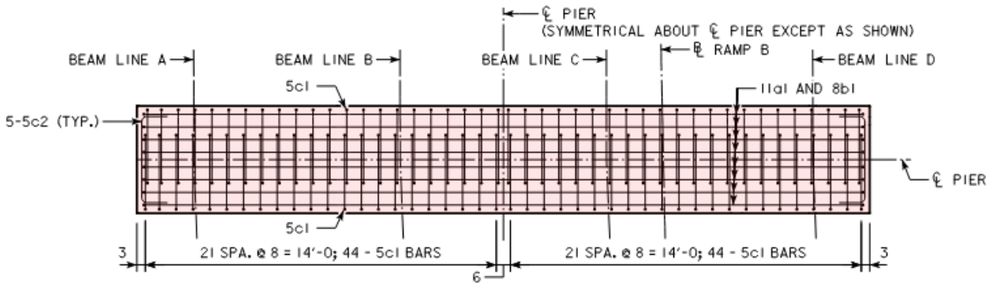
BENT BAR DETAILS



NOTE:
ALL DIMENSIONS ARE OUT TO OUT.
D = PIN DIAMETER.

REINFORCING BAR LIST - ONE PIER

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
11a1	CAP, TOP, LONGITUDINAL	⌊⌋	8	35'-6	1,509
5a2	CAP, SIDE, LONGITUDINAL	——	10	28'-8	299
8a3	CAP, TOP, LONGITUDINAL	——	6	16'-6	264
8a4	CAP TO DIAPHRAGM DOWEL	——	12	6'-0	192
8b1	CAP, BOTTOM, LONGITUDINAL	——	8	28'-8	612
5c1	CAP, HOOPS	□	88	14'-3	1,308
5c2	CAP, ENDS	⌊⌋	10	5'-9	60
9d1	COLUMN, VERTICAL	——	36	26'-3	3,213
9d2	FOOTING TO COLUMN DOWEL	⌊⌋	36	7'-11	969
6f1	FOOTING, TOP	——	40	9'-8	581
8g1	FOOTING, BOTTOM	⌊⌋	40	12'-4	1,317
5m1	CAP, PEDESTAL, LONGITUDINAL	——	10	3'-8	38
5n1	CAP, PEDESTAL, TRANSVERSE	⌊⌋	8	6'-11	58
5n2	CAP, PEDESTAL, TRANSVERSE	⌊⌋	21	7'-9	170
#5	COLUMN SPIRAL	∿∿	2	298'-2	622
	COLUMN SPIRAL SPACERS L ⅜ × ⅜ × ⅛	——	8	23'-2	130
	REINFORCING STEEL - TOTAL (LBS.)				11,342



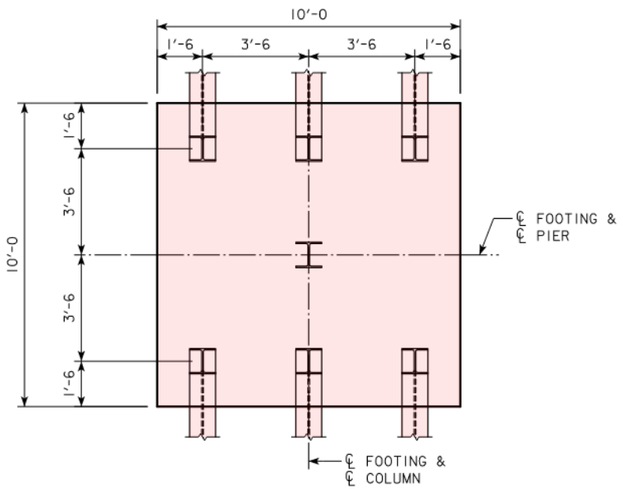
NOTE:
8a3, 5m1, 5n1 AND 5n2 BARS NOT SHOWN FOR CLARITY.

PIER CAP REINFORCING PLAN

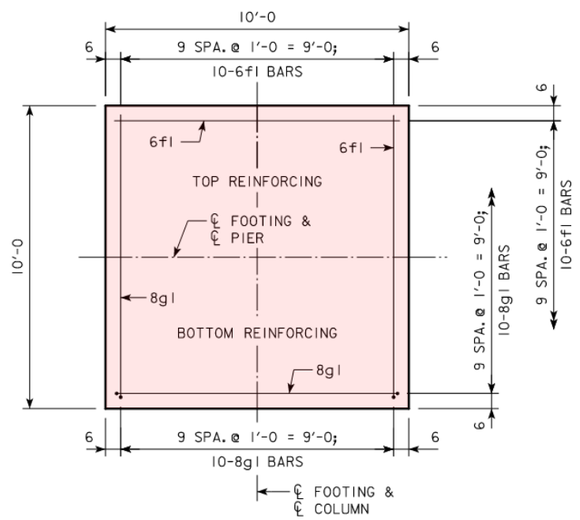
CONCRETE PLACEMENT QUANTITIES

LOCATION	PIER NO. 1	PIER NO. 2	QUANTITY
CAP & STEPS (HIGH PERFORMANCE CONCRETE)	21.3	21.3	42.6
COLUMNS (HIGH PERFORMANCE CONCRETE)	21.9	21.9	43.8
FOOTINGS	29.6	29.6	59.2
TOTAL CU. YDS.	72.8	72.8	145.6

NOTE:
CONCRETE AND REINFORCING STEEL QUANTITIES ARE INCLUDED ON THE SUMMARY OF ITEMIZED QUANTITIES SHEET.



PILE LAYOUT
(TYP. FOR ALL PIER FOOTINGS)



REINFORCING LAYOUT
(TYP. FOR ALL PIER FOOTINGS)

NOTE:
1. Use specifications from L1-Br01-PierCap01, L1-Br01-PierColumn01, L1-Br01-PileCap01 and L2-Br01-Piles01 for similar elements.

Unit Test Instruction for the Design-to-Construction Data Exchange

BIM FOR BRIDGES AND STRUCTURES TPF-5(372)

HDR jo consulting

No.	Date	Issue / Revision Notes
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Unit Test Description: Level 3 Piers

Unit Test / Sheet No.: L3-Br03-Pier02 / 02

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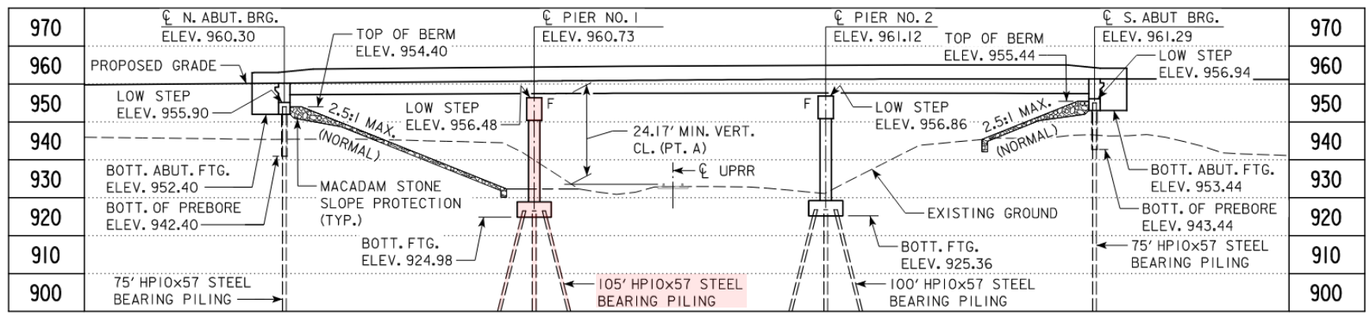
Reviewed By: .



LONGITUDINAL SECTION ALONG ℄ RAMP B

Unit Test Instruction for the
Design-to-Construction Data Exchange

BIM FOR BRIDGES AND STRUCTURES TPF-5(372)

No.	Date	Issue / Revision Notes
1	12/14/23	.

HDR jō consulting

Unit Test Description: Level 3 Piers

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Reviewed By: .

Unit Test / Sheet No.: **L3-Br03-Pier02 / 03**