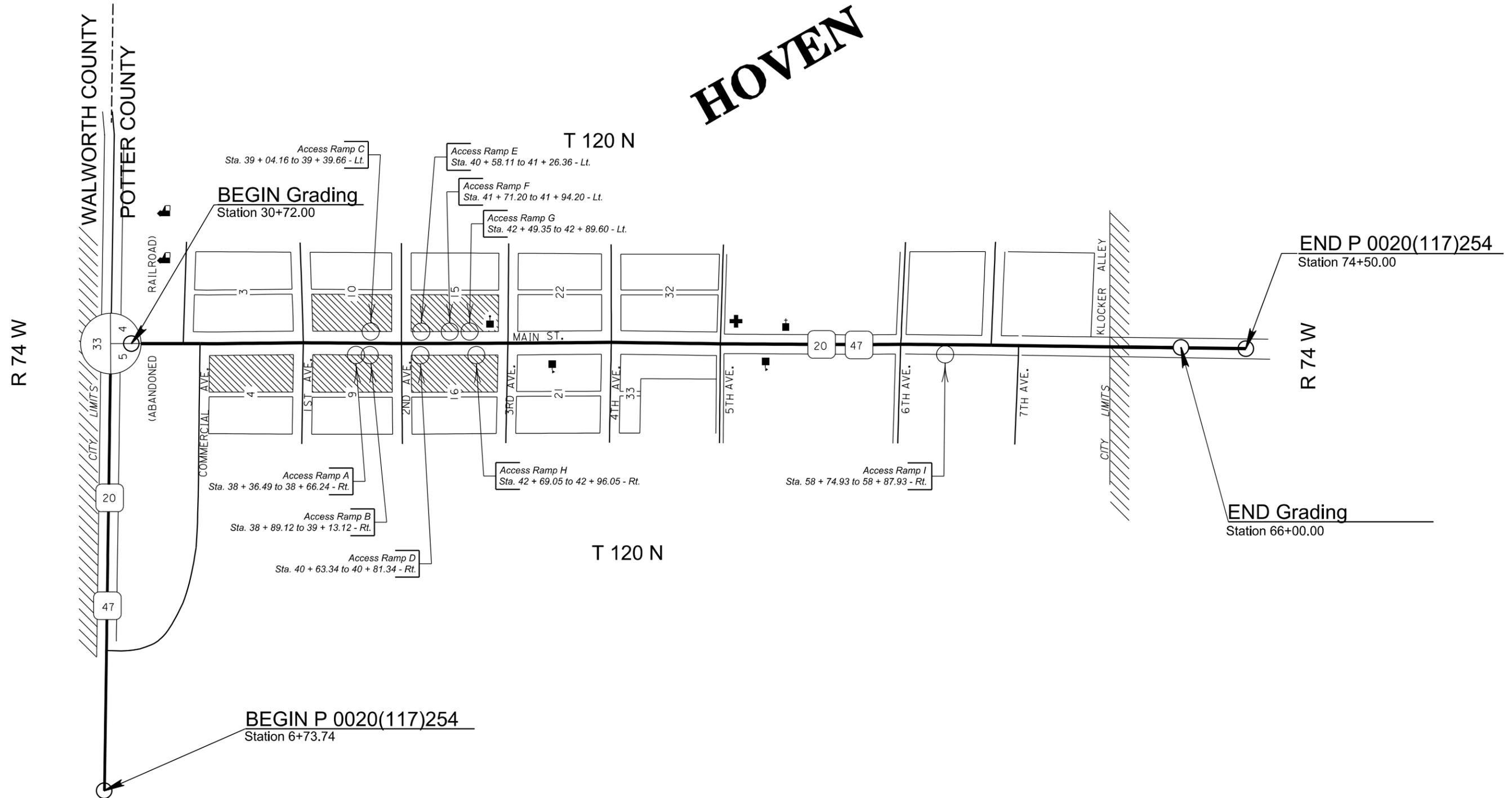
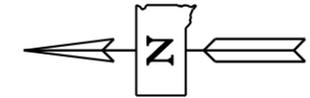


STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0020(117)254	E1	E23

Section E: Structure Plans

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Sheet E2	Estimate of Structure Quantities
Sheet E3 to E4	Access Ramp A
Sheet E5 to E6	Access Ramp B
Sheet E7 to E8	Access Ramp C
Sheet E9 to E10	Access Ramp D
Sheet E11 to E13	Access Ramp E
Sheet E14 to E15	Access Ramp F
Sheet E16 to E19	Access Ramp G
Sheet E20 to E21	Access Ramp H
Sheet E22 to E23	Access Ramp I



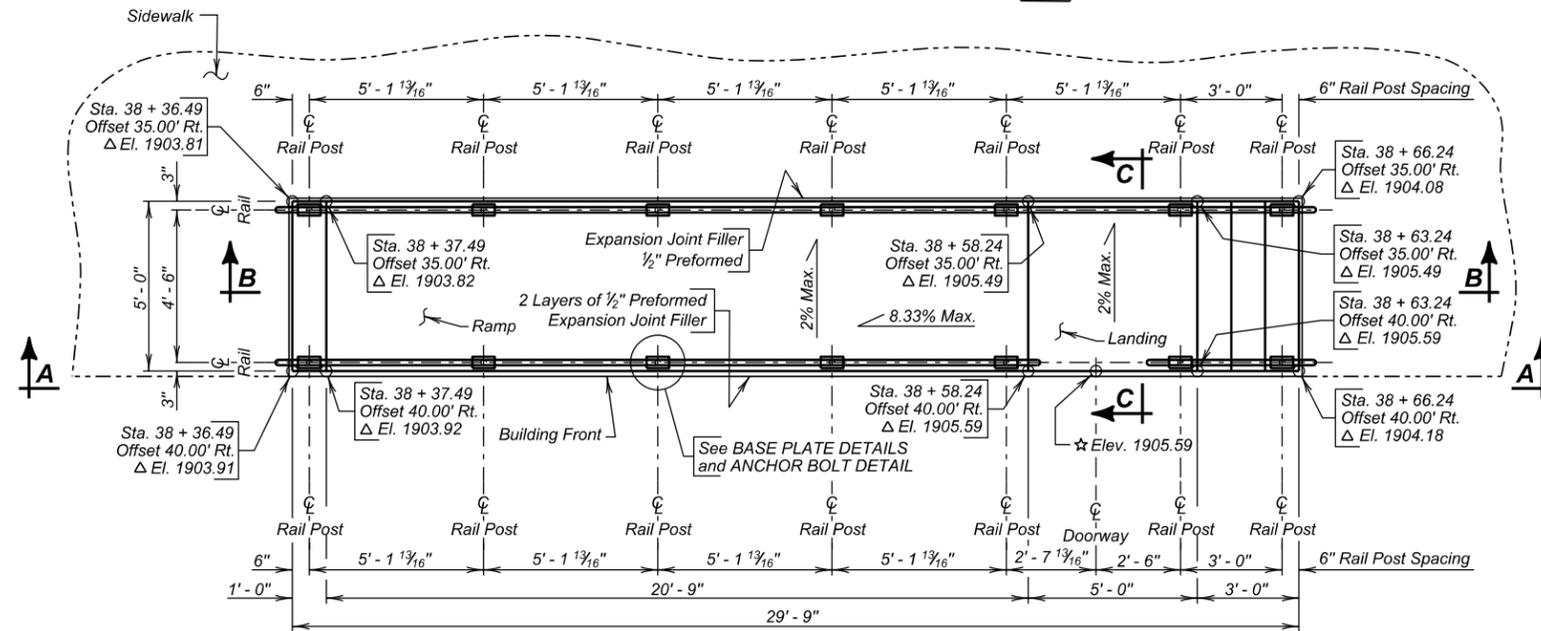
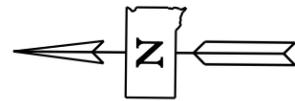
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0020(117)254	E2	E23

SECTION E – ESTIMATE OF STRUCTURE QUANTITIES

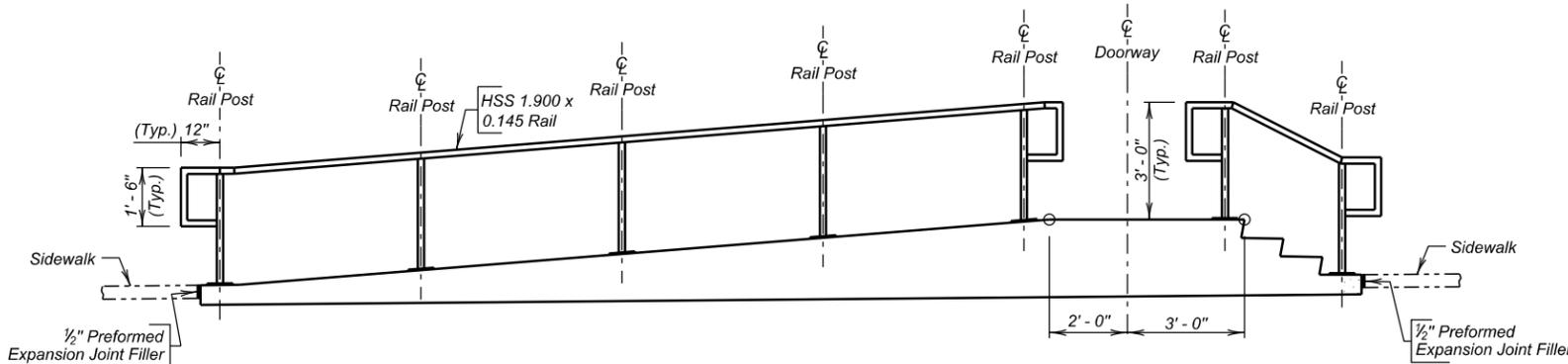
Bid Item Number	Item	Quantity	Unit
462E0100	Class M6 Concrete	85.0	CuYd
470E0020	Pipe Handrail	520.0	Ft
480E0200	Epoxy Coated Reinforcing Steel	3,834	Lb

The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

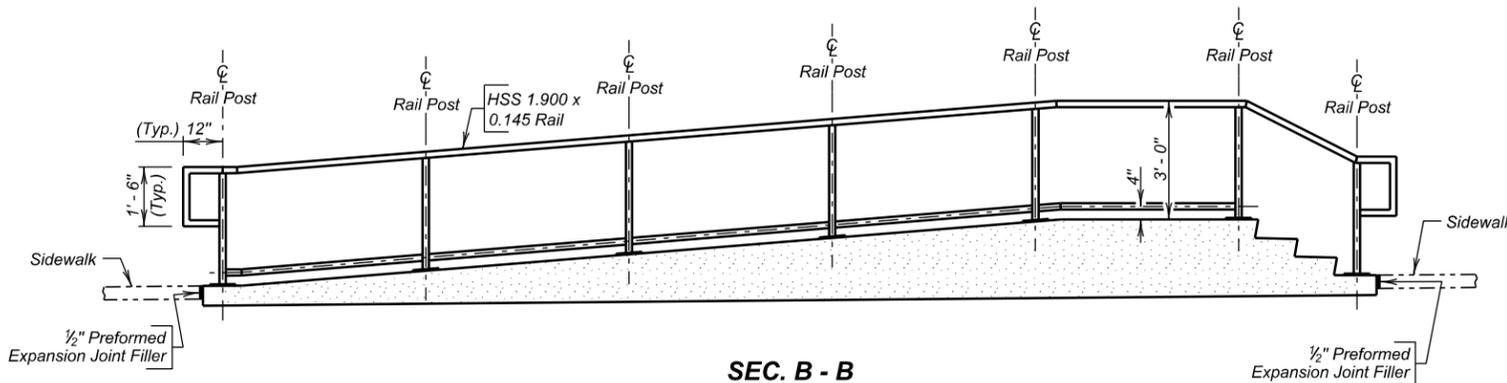
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0020(117)254	E3	E23



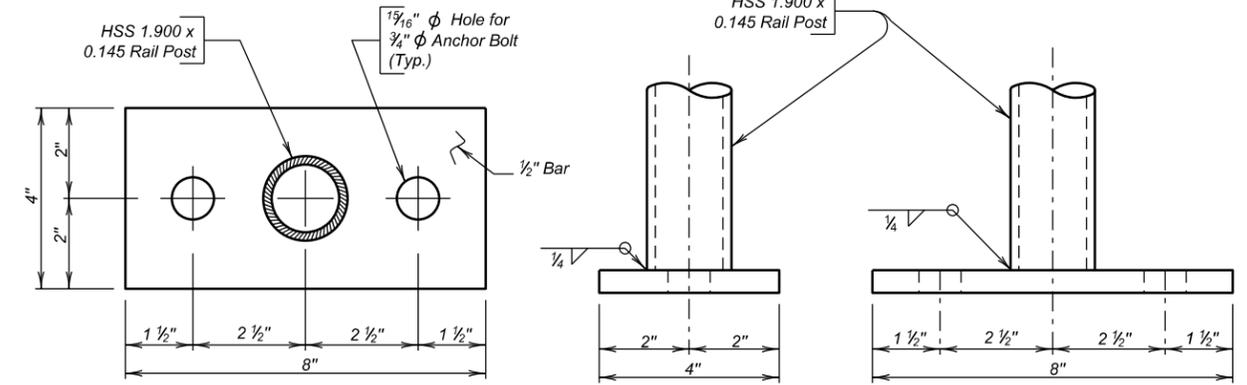
PLAN



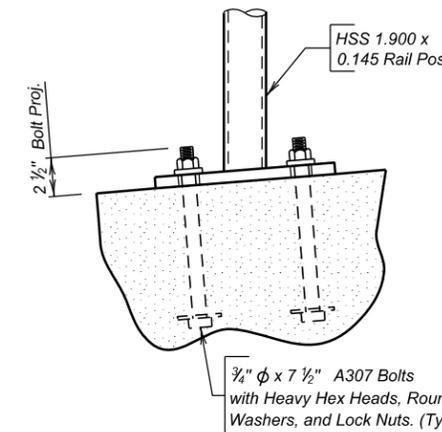
VIEW A - A



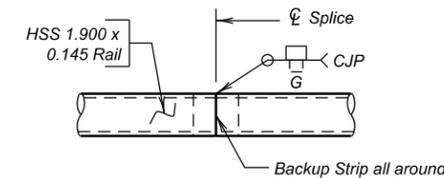
SEC. B - B



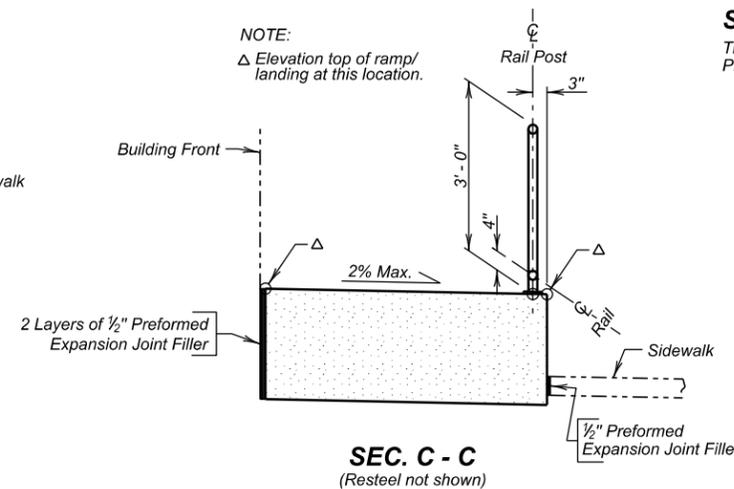
BASE PLATE DETAILS



ANCHOR BOLT DETAIL



RAIL SPLICE DETAILS



SEC. C - C
(Resteel not shown)

SPECIFICATIONS

South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

GENERAL NOTES

1. The plans elevations and slopes shown to construct the ramp and landing are based on the existing doorway threshold elevation. The doorway threshold elevation shall be field verified and if the field verified elevation is different than that shown in the plans adjust ramp and stairway elevations accordingly. If field elevations differ from plans elevations by more than one inch, contact the Bridge Construction Engineer before proceeding with construction.
2. All concrete shall be Class M6 in accordance with Section 462.
3. All reinforcing steel shall be epoxy coated and shall conform to ASTM A615, Grade 60.
4. Use 2" clear cover on all reinforcing steel except as shown.
5. All concrete shall be thoroughly tamped and spaded against forms to leave a smooth surface without honeycomb. All exposed edges shall be chamfered 3/4" except as shown.
6. Place concrete on undisturbed soil. If backfilling is necessary, compact with mechanical tampers to the satisfaction of the Engineer.
7. The concrete sidewalk shall be constructed in accordance with Section 651.
8. Cost of the 1/2" Preformed Expansion Joint Filler shall be incidental to the contract unit price per cubic yard for "Class M6 Concrete".
9. All costs for constructing ramps, stairways and pipe hand railing including labor, material equipment and incidentals necessary to complete the work shall be included in the Class M6 concrete, Epoxy Coated Reinforcing Steel and Pipe Handrail bid items. Payment will be for plans quantities regardless of the quantity actually used.

SHOP PLANS

The fabricator shall submit shop plans in accordance with the Specifications or in Adobe PDF format. Shop plan submittals shall be sent to the Office of Bridge Design.

GENERAL DRAWING & QUANTITIES FOR ACCESS RAMP A

IN HOVEN STA. 38+36.49 TO STA. 38+66.24 - RT. PCN 02R9
SEC. 5-T120N-R74W P 0020(117)254

POTTER COUNTY
S. D. DEPT. OF TRANSPORTATION

OCTOBER 2014 1 OF 2

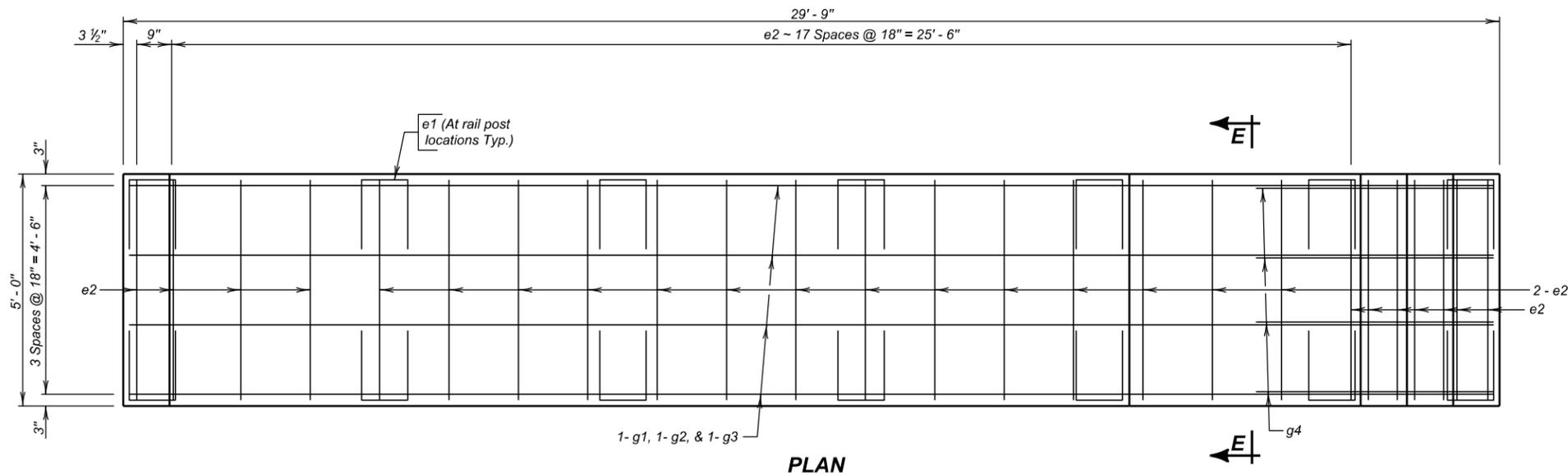
ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class M6 Concrete	Cu. Yd.	7.2
Epoxy Coated Reinforcing Steel	Lb.	371
Pipe Handrail	Ft.	60

INDEX OF SHEETS-

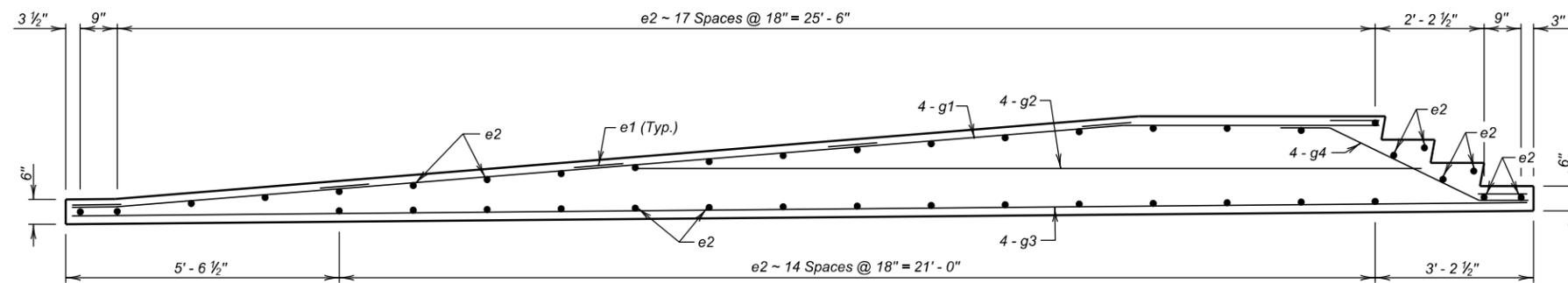
Sheet No. 1 - General Drawing & Quantities
Sheet No. 2 - Ramp Details

PLANS BY:
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

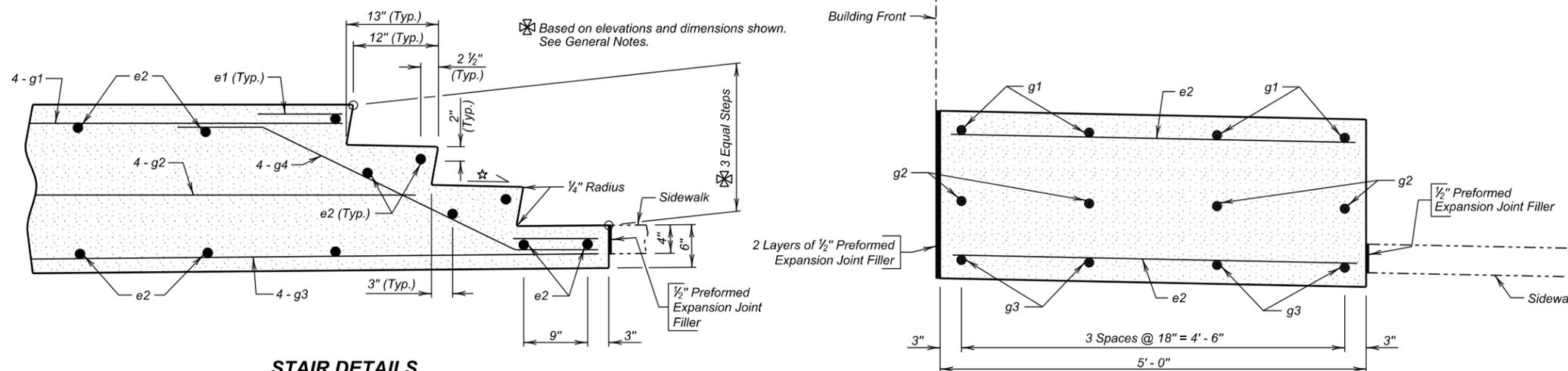
DESIGNED BY BB POTT02R9	CK. DES. BY MG 02R9GA01	DRAFTED BY MG	Kevin N. Goeden BRIDGE ENGINEER
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PLAN



ELEVATION



STAIR DETAILS

SEC. E - E
(Railing not shown)

PIPE HANDRAIL

1. Pipe handrail shall not be ordered until the ramps, landings and stairways are constructed and field measurements for in-place length and slope are taken.
2. All rail posts shall be built vertical.
3. Steel pipe for railing and posts shall conform to ASTM A500, Grade B. Railpost base plates shall conform to ASTM A709, Grade 36.
4. The Contractor may use either cast in place anchor bolts or drilled and epoxied anchor rods for anchoring the pipe handrail. Anchor Bolts and nuts shall conform to ASTM A307. Anchor rods shall conform to ASTM 1554, Grade 36. Washers shall be in accordance with ASTM F436. Hardware shall be galvanized in accordance with ASTM F2329. Bolts shall be hex head "Structural" type with heavy hex, lock nuts, and round washers.
5. All anchor bolts and rods shall be tightened to a torque of 120 ft./lbs. (approximated without the use of a calibrated torque wrench).
6. Epoxy shall be in accordance with ASTM C881 Type IV. Hole size shall be as per the epoxy manufacturer's recommendations. Core bits shall not be used to drill anchor rod holes.
7. Painting of steel railing shall be done in accordance with Section 411 of the Specifications. The finish color shall be an approved black.
8. Welding and weld inspection shall be done in accordance with AWS D1.1-(Current Year) Structural Welding Code - Steel.
9. The cost of structural steel, anchor bolts or anchor rods, painting, galvanizing, welding, weld inspection, and that which is incidental to the fabrication and installation of the Pipe Handrail shall be incidental to the contract unit price per foot for "Pipe Handrail".
10. Alternate rail designs, including aluminum rail, may be submitted through proper channels to the Office of Bridge Design for approval.

SLIP RESISTANT COATING FOR CONCRETE STAIRWAY

1. Curing compounds shall not be utilized on concrete stairway treads during the concrete curing process. Curing shall be accomplished with a double layer of burlap mats and polyethylene sheeting.
2. The Contractor shall apply a 2" wide slip resistant coating at the front of each stairway tread for the full width of the tread.
3. The slip resistant coating shall be a red color. The coating shall be a single component epoxy and have a minimum coefficient of friction value of 0.9 for dry and 0.9 for wet as determined by ASTM F609.
4. The slip resistant coating shall be applied in accordance with the manufacturer's recommendations.
5. All costs for furnishing and applying the slip resistant epoxy coating including equipment, labor, and materials shall be incidental to the various contract items.

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type	Bending Details
e1	14	4	4'-0"	17	
e2	40	4	4'-9"	Str.	
g1	4	4	26'-6"	Str.	
g2	4	4	16'-0"	Str.	
g3	4	4	29'-6"	Str.	
g4	4	4	5'-3"	19	

NOTES:
All dimensions are out to out of bars.
* Bend in field as necessary to fit.

RAMP DETAILS FOR ACCESS RAMP A

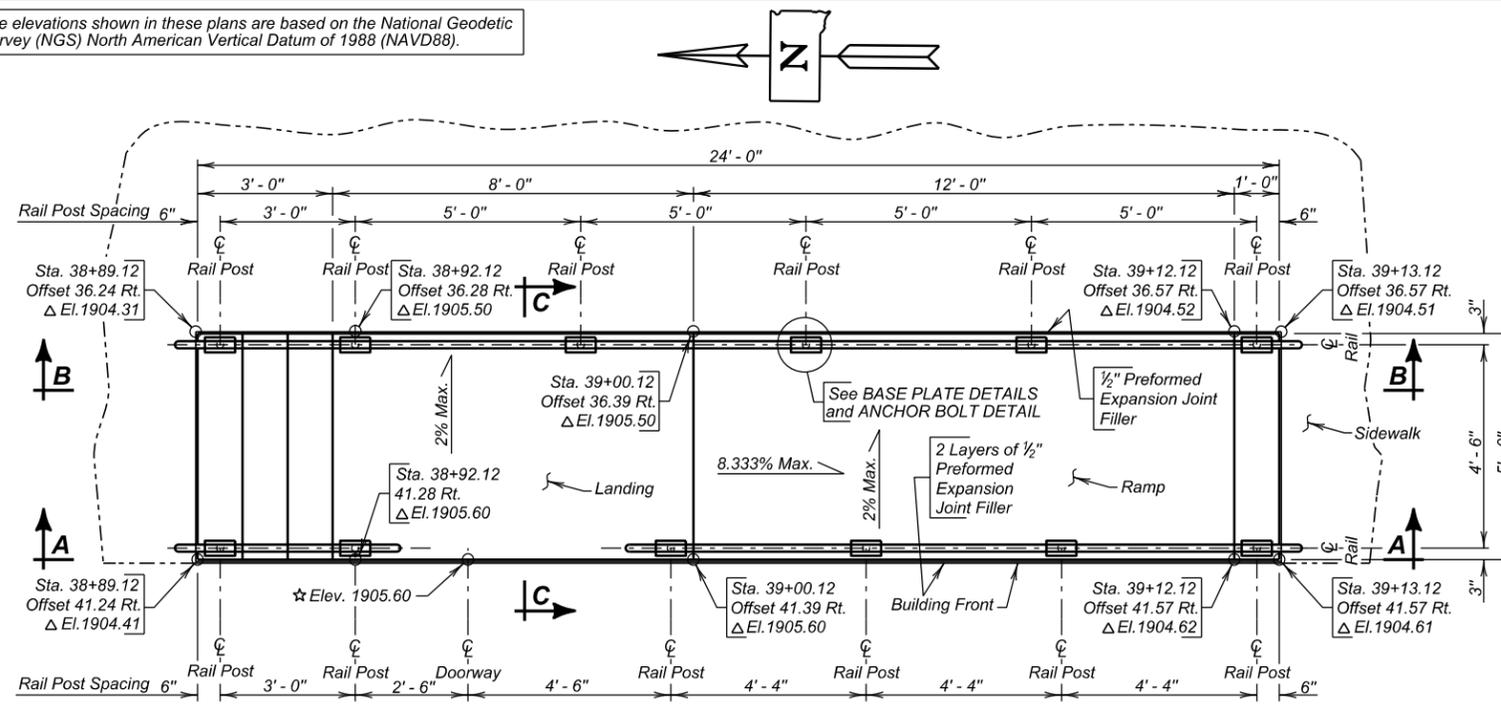
IN HOVEN STA. 38+36.49 TO STA. 38+66.24 - RT. SEC. 5-T120N-R74W P 0020(117)254

POTTER COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2014

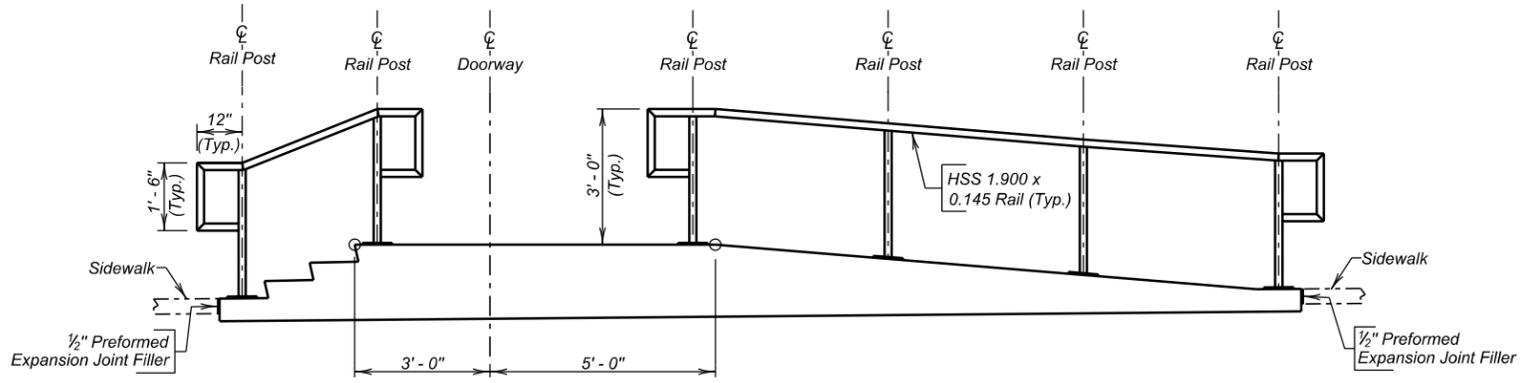
☆ NOTE: Slope 1/4" per foot max.

The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

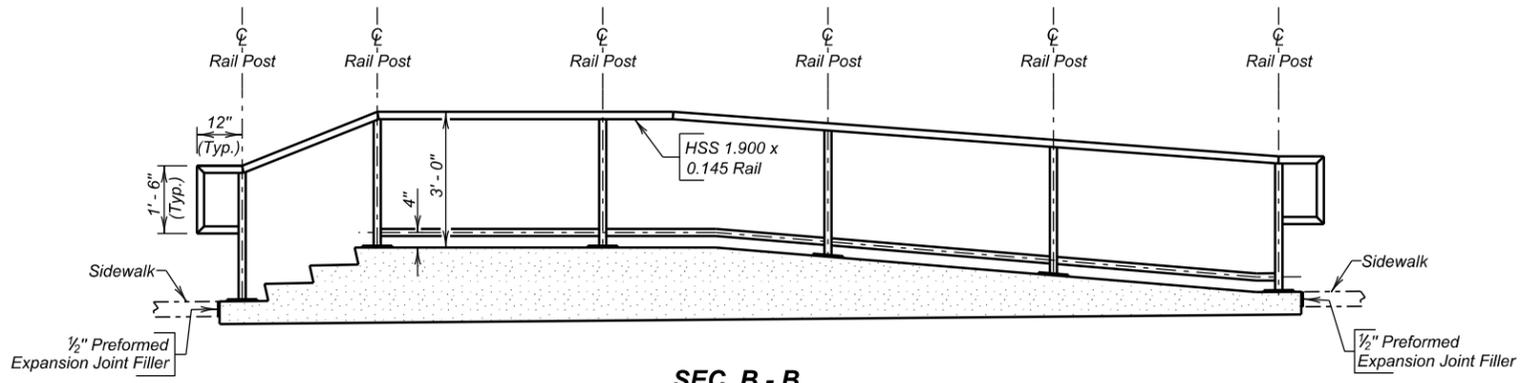
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0020(117)254	E5	E23



PLAN



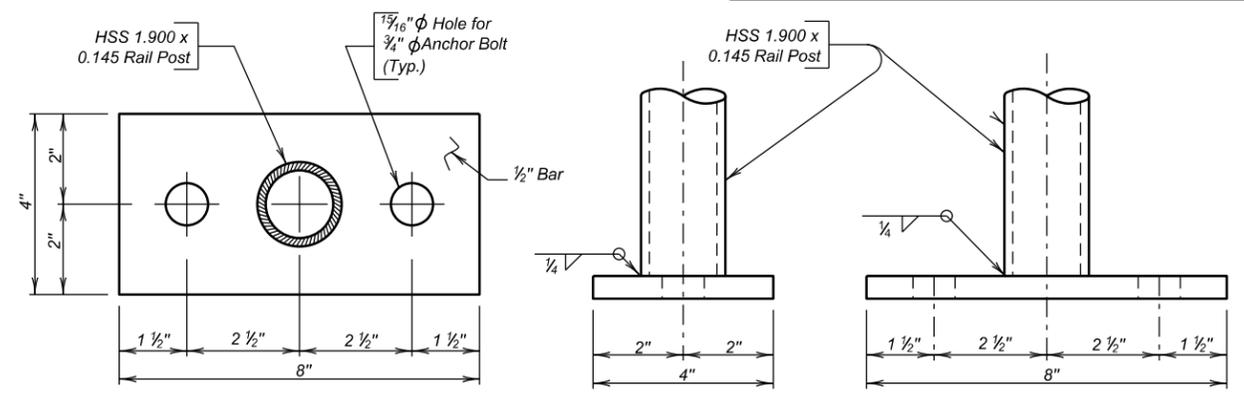
VIEW A - A



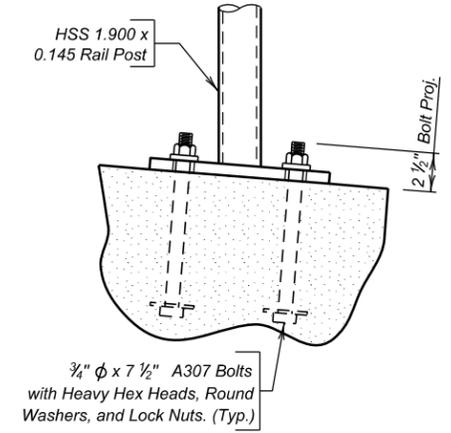
SEC. B - B

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class M6 Concrete	Cu. Yd.	5.3
Epoxy Coated Reinforcing Steel	Lb.	270
Pipe Handrail	Ft.	46

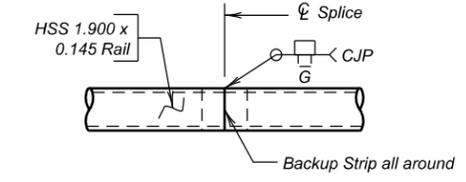
INDEX OF SHEETS-
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 Sheet No. 2 - Ramp Details



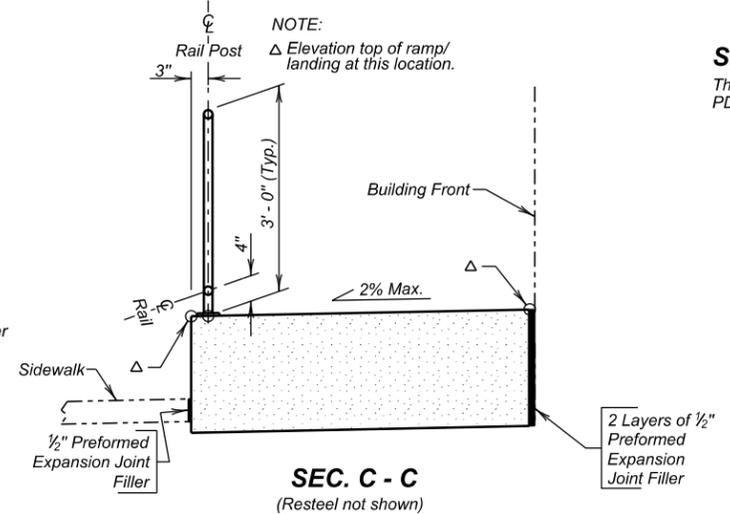
BASE PLATE DETAILS



ANCHOR BOLT DETAIL



RAIL SPLICE DETAILS



SEC. C - C
(Resteel not shown)

SPECIFICATIONS
 South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

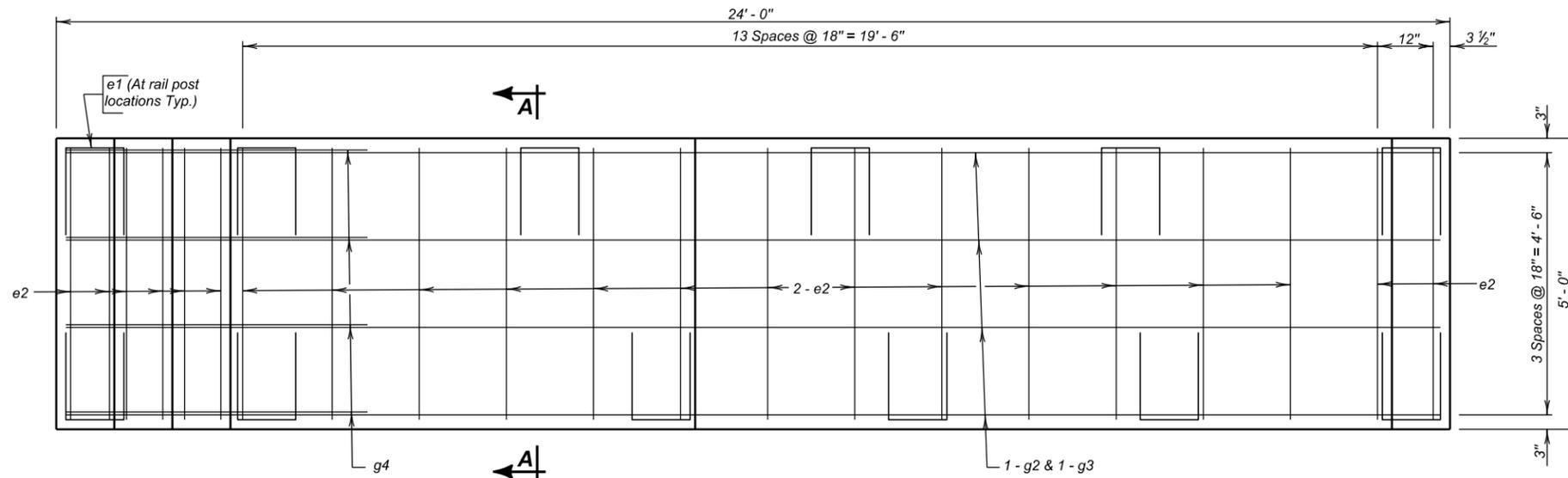
- GENERAL NOTES**
- The plans elevations and slopes shown to construct the ramp and landing are based on the existing doorway threshold elevation. The doorway threshold elevation shall be field verified and if the field verified elevation is different than that shown in the plans adjust ramp and stairway elevations accordingly. If field elevations differ from plans elevations by more than one inch, contact the Bridge Construction Engineer before proceeding with construction.
 - All concrete shall be Class M6 in accordance with Section 462.
 - All reinforcing steel shall be epoxy coated and shall conform to ASTM A615, Grade 60.
 - Use 2" clear cover on all reinforcing steel except as shown.
 - All concrete shall be thoroughly tamped and spaded against forms to leave a smooth surface without honeycomb. All exposed edges shall be chamfered 3/4" except as shown.
 - Place concrete on undisturbed soil. If backfilling is necessary, compact with mechanical tampers to the satisfaction of the Engineer.
 - The concrete sidewalk shall be constructed in accordance with Section 651.
 - Cost of the 1/2" Preformed Expansion Joint Filler shall be incidental to the contract unit price per cubic yard for "Class M6 Concrete".
 - All costs for constructing ramps, stairways and pipe hand railing including labor, material equipment and incidentals necessary to complete the work shall be included in the Class M6 concrete, Epoxy Coated Reinforcing Steel and Pipe Handrail bid items. Payment will be for plans quantities regardless of the quantity actually used.

SHOP PLANS
 The fabricator shall submit shop plans in accordance with the Specifications or in Adobe PDF format. Shop plan submittals shall be sent to the Office of Bridge Design.

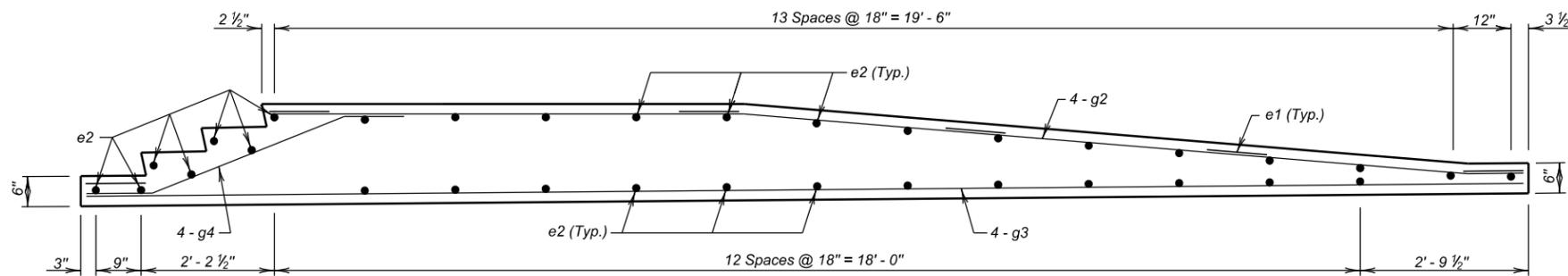
GENERAL DRAWING & QUANTITIES
 FOR
ACCESS RAMP B
 IN HOVEN STA. 38+89.12 TO STA. 39+13.12 - RT.
 PCN 02R9
 SEC. 5-T120N-R74W
 P 0020(117)254
 POTTER COUNTY
 S. D. DEPT. OF TRANSPORTATION
 OCTOBER 2014

PLANS BY:
 OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

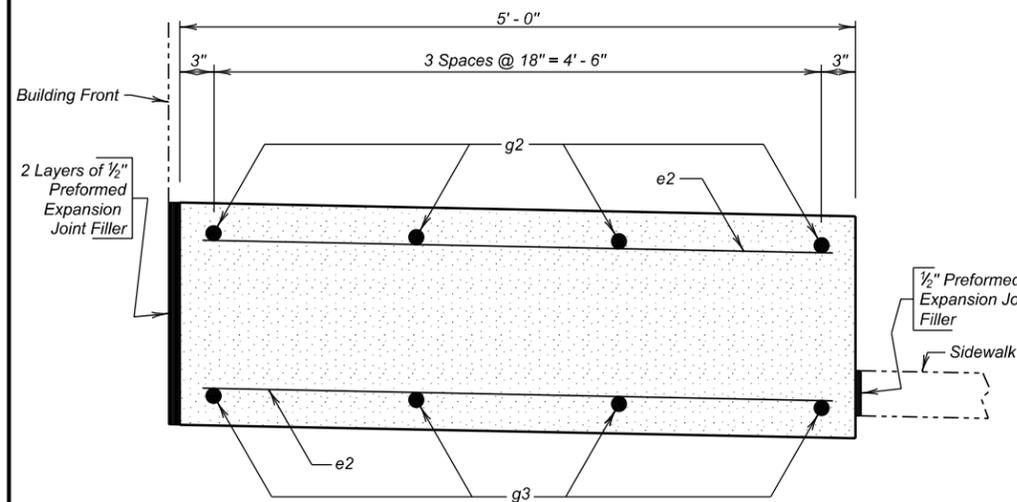
DESIGNED BY JSM POTT02R9	CK. DES. BY BB 02R9TB01	DRAFTED BY BT	Kevin N. Goeden BRIDGE ENGINEER
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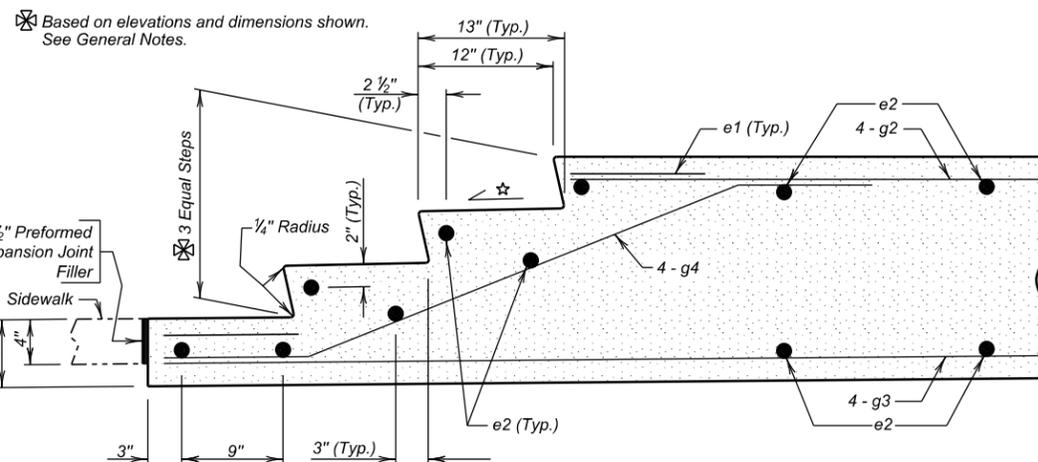
PLAN
(Railing not shown)



ELEVATION



SEC. A - A



STAIR DETAILS

☆ NOTE: Slope 1/4" per foot max.

PIPE HANDRAIL

1. Pipe handrail shall not be ordered until the ramps, landings and stairways are constructed and field measurements for in-place length and slope are taken.
2. All rail posts shall be built vertical.
3. Steel pipe for railing and posts shall conform to ASTM A500, Grade B. Railpost base plates shall conform to ASTM A709, Grade 36.
4. The Contractor may use either cast in place anchor bolts or drilled and epoxied anchor rods for anchoring the pipe handrail. Anchor Bolts and nuts shall conform to ASTM A307. Anchor rods shall conform to ASTM 1554, Grade 36. Washers shall be in accordance with ASTM F436. Hardware shall be galvanized in accordance with ASTM F2329. Bolts shall be hex head "Structural" type with heavy hex, lock nuts, and round washers.
5. All anchor bolts and rods shall be tightened to a torque of 120 ft./lbs. (approximated without the use of a calibrated torque wrench).
6. Epoxy shall be in accordance with ASTM C881 Type IV. Hole size shall be as per the epoxy manufacturer's recommendations. Core bits shall not be used to drill anchor rod holes.
7. Painting of steel railing shall be done in accordance with Section 411 of the Specifications. The finish color shall be an approved black.
8. Welding and weld inspection shall be done in accordance with AWS D1.1-(Current Year) Structural Welding Code - Steel.
9. The cost of structural steel, anchor bolts or anchor rods, painting, galvanizing, welding, weld inspection, and that which is incidental to the fabrication and installation of the Pipe Handrail shall be incidental to the contract unit price per foot for "Pipe Handrail".
10. Alternate rail designs, including aluminum rail, may be submitted through proper channels to the Office of Bridge Design for approval.

SLIP RESISTANT COATING FOR CONCRETE STAIRWAY

1. Curing compounds shall not be utilized on concrete stairway treads during the concrete curing process. Curing shall be accomplished with a double layer of burlap mats and polyethylene sheeting.
2. The Contractor shall apply a 2" wide slip resistant coating at the front of each stairway tread for the full width of the tread.
3. The slip resistant coating shall be a red color. The coating shall be a single component epoxy and have a minimum coefficient of friction value of 0.9 for dry and 0.9 for wet as determined by ASTM F609.
4. The slip resistant coating shall be applied in accordance with the manufacturer's recommendations.
5. All costs for furnishing and applying the slip resistant epoxy coating including equipment, labor, and materials shall be incidental to the various contract items.

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type	Bending Details
e1	12	4	4' - 0"	17	
e2	33	4	4' - 9"	Str.	
g2	4	4	20' - 9"	Str.	
g3	4	4	23' - 9"	Str.	
g4	4	4	5' - 3"	19	

NOTES:
All dimensions are out to out of bars.
* Bend in field as necessary to fit.

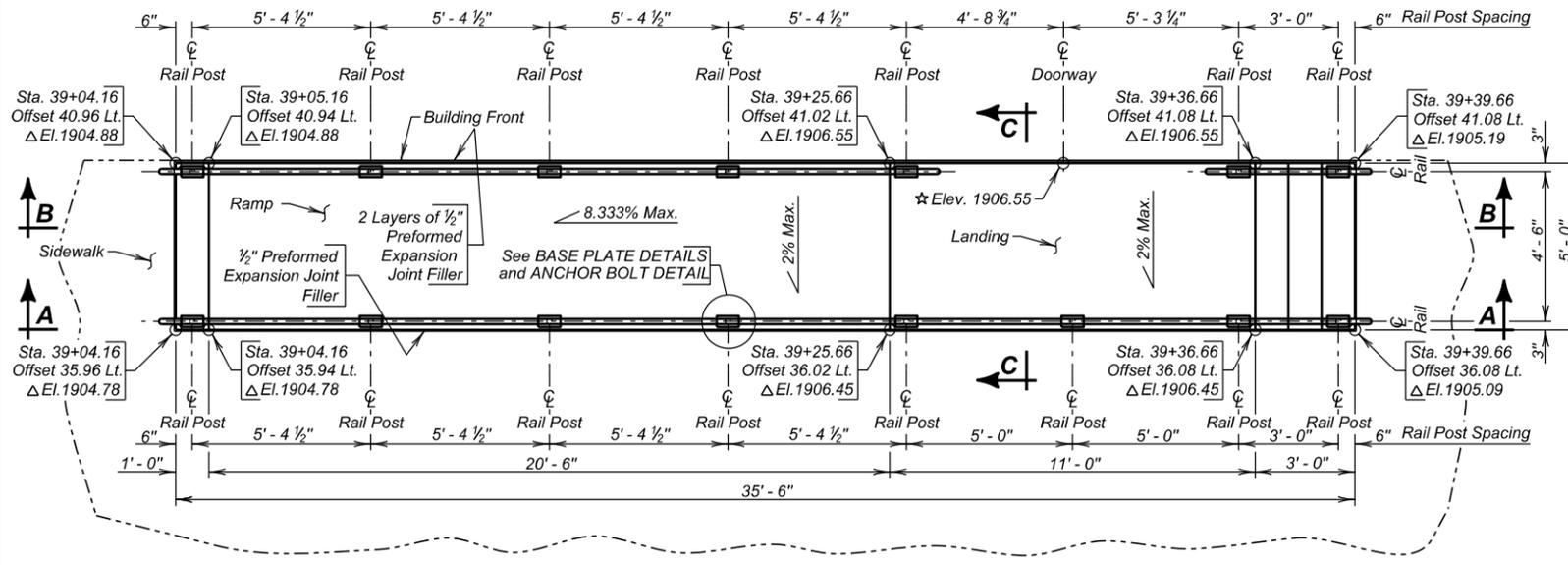
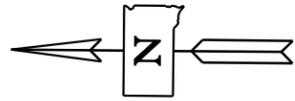
RAMP DETAILS FOR ACCESS RAMP B

IN HOVEN STA. 38+89.12 TO STA. 39+13.12 - RT. SEC. 5-T120N-R74W P 0020(117)254

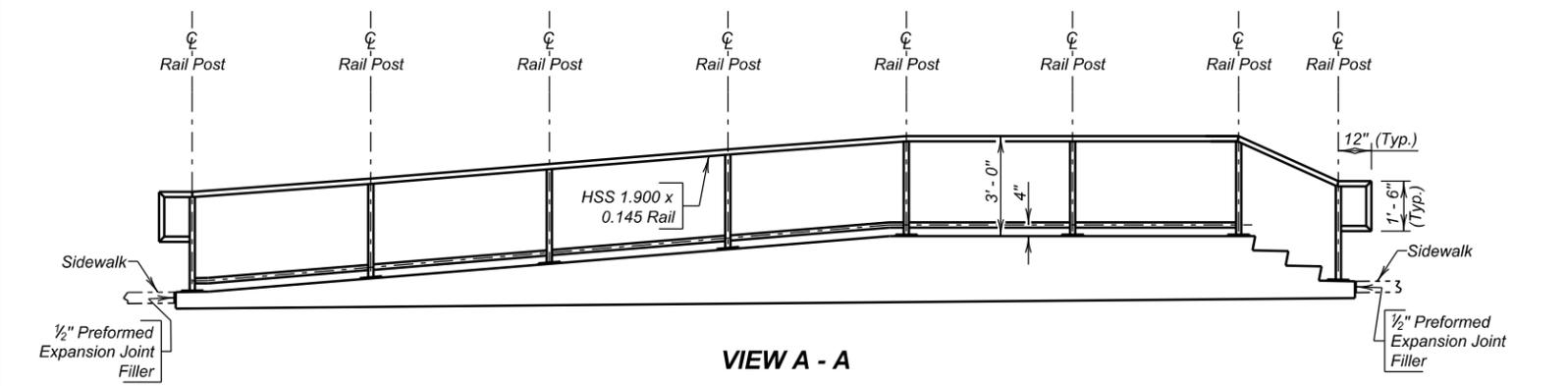
POTTER COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2014

The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

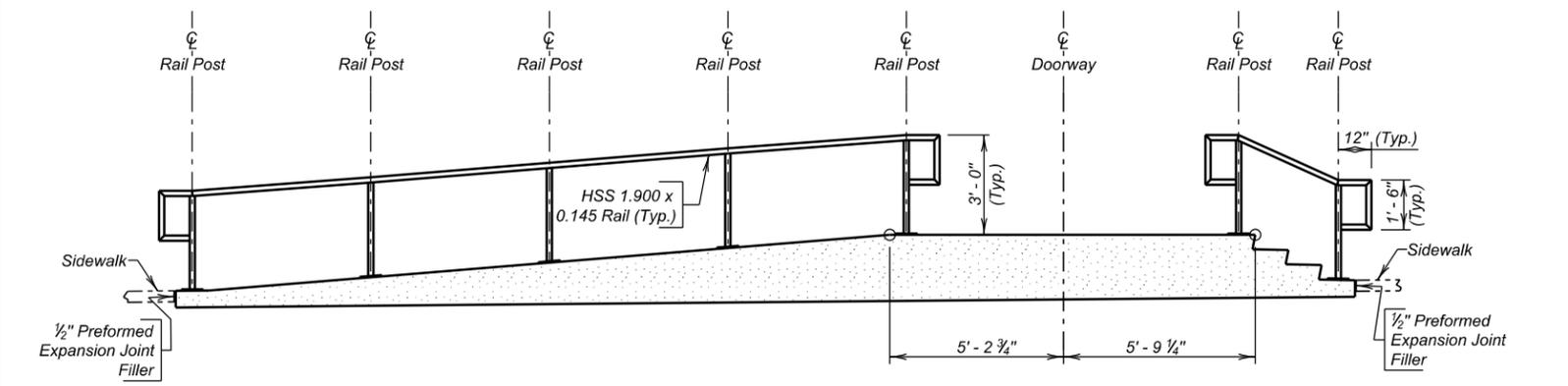
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0020(117)254	E7	E23



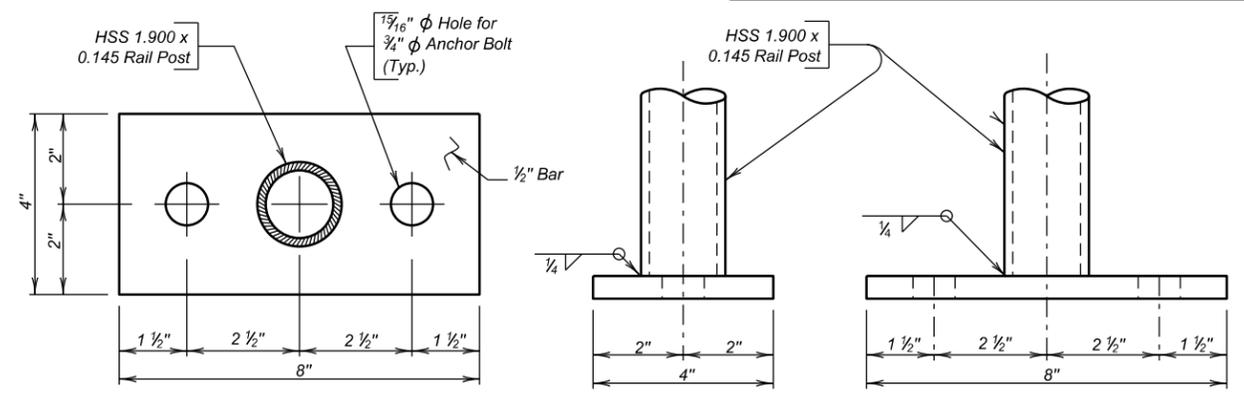
PLAN



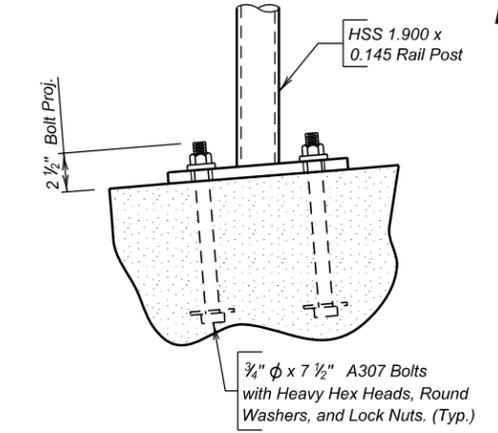
VIEW A - A



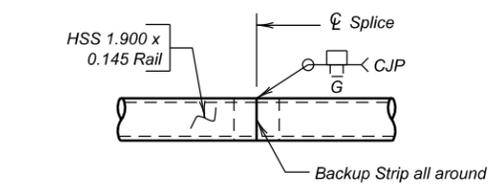
SEC. B - B



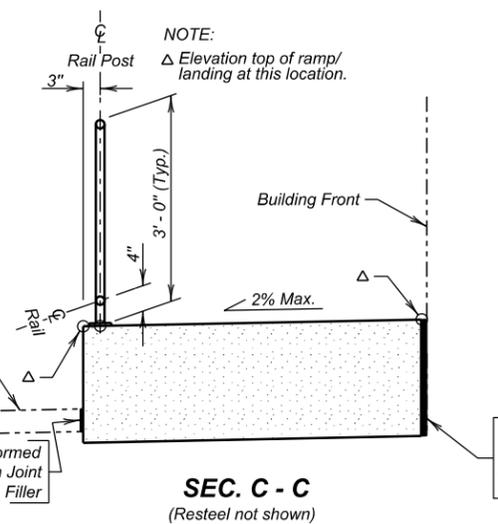
BASE PLATE DETAILS



ANCHOR BOLT DETAIL



RAIL SPLICE DETAILS



SEC. C - C
(Resteel not shown)

SPECIFICATIONS

South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

GENERAL NOTES

1. The plans elevations and slopes shown to construct the ramp and landing are based on the existing doorway threshold elevation. The doorway threshold elevation shall be field verified and if the field verified elevation is different than that shown in the plans adjust ramp and stairway elevations accordingly. If field elevations differ from plans elevations by more than one inch, contact the Bridge Construction Engineer before proceeding with construction.
2. All concrete shall be Class M6 in accordance with Section 462.
3. All reinforcing steel shall be epoxy coated and shall conform to ASTM A615, Grade 60.
4. Use 2" clear cover on all reinforcing steel except as shown.
5. All concrete shall be thoroughly tamped and spaded against forms to leave a smooth surface without honeycomb. All exposed edges shall be chamfered 1/4" except as shown.
6. Place concrete on undisturbed soil. If backfilling is necessary, compact with mechanical tampers to the satisfaction of the Engineer.
7. The concrete sidewalk shall be constructed in accordance with Section 651.
8. Cost of the 1/2" Preformed Expansion Joint Filler shall be incidental to the contract unit price per cubic yard for "Class M6 Concrete".
9. All costs for constructing ramps, stairways and pipe hand railing including labor, material equipment and incidentals necessary to complete the work shall be included in the Class M6 concrete, Epoxy Coated Reinforcing Steel and Pipe Handrail bid items. Payment will be for plans quantities regardless of the quantity actually used.

SHOP PLANS

The fabricator shall submit shop plans in accordance with the Specifications or in Adobe PDF format. Shop plan submittals shall be sent to the Office of Bridge Design.

GENERAL DRAWING & QUANTITIES FOR ACCESS RAMP C

IN HOVEN STA. 39+04.16 TO STA. 39+39.66 - LT. PCN 02R9

SEC. 4-T120N-R74W P 0020(117)254

POTTER COUNTY
S. D. DEPT. OF TRANSPORTATION

OCTOBER 2014

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class M6 Concrete	Cu. Yd.	9.9
Epoxy Coated Reinforcing Steel	Lb.	448
Pipe Handrail	Ft.	66

INDEX OF SHEETS-
Sheet No. 1 - General Drawing & Quantities
Sheet No. 2 - Ramp Details

PLANS BY:
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

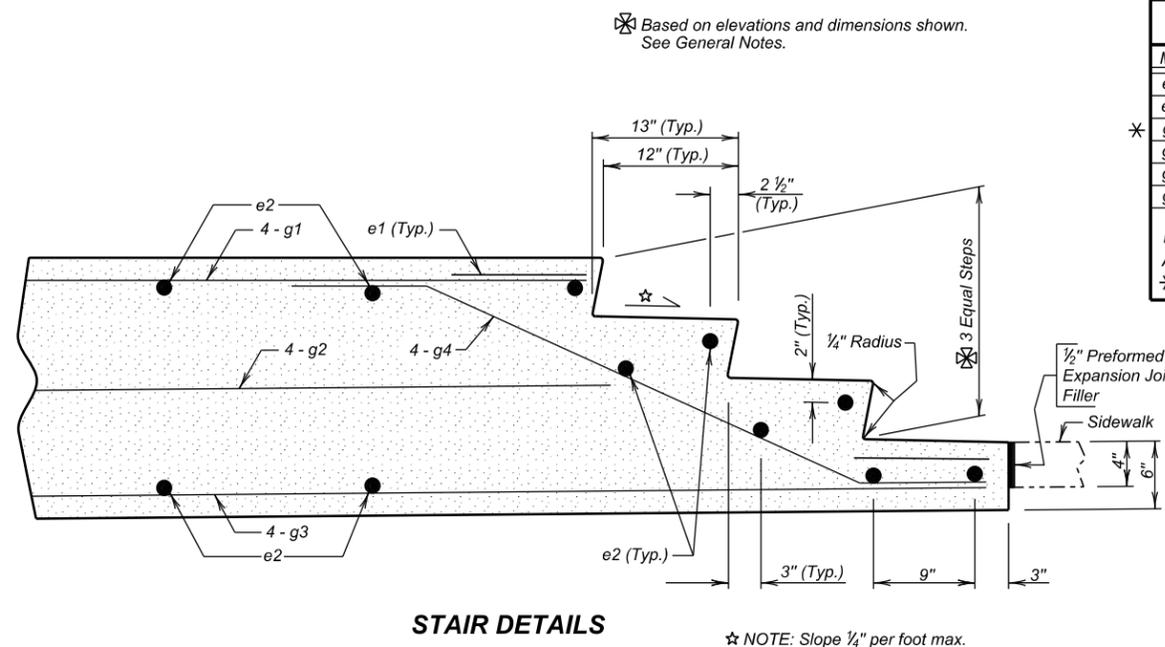
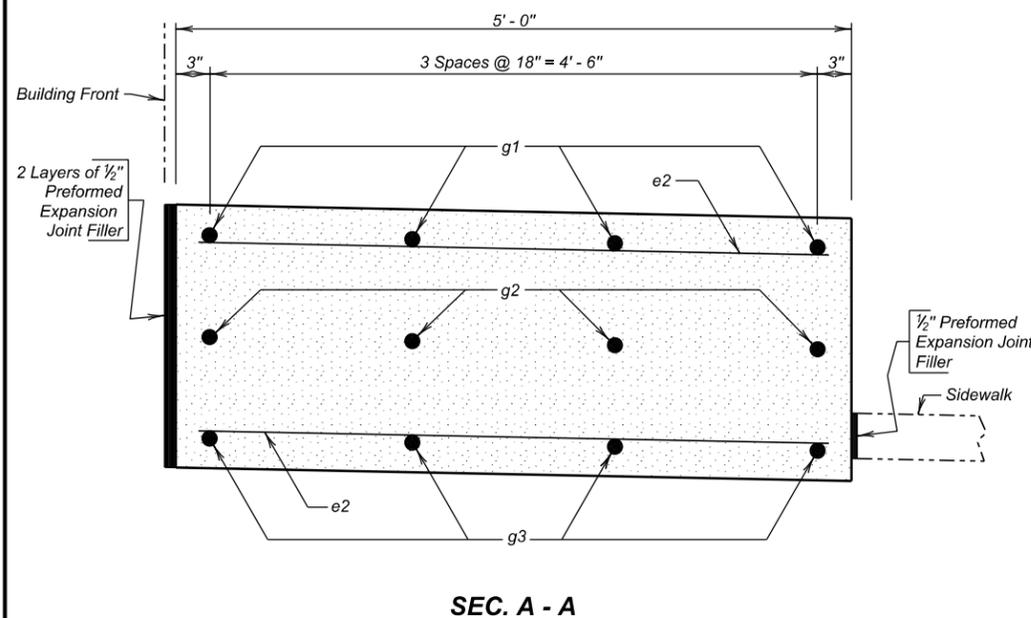
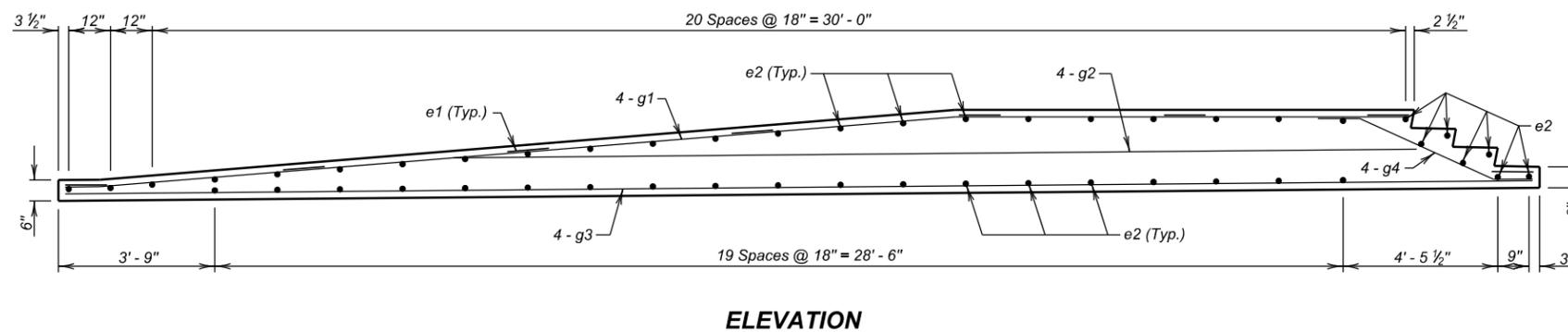
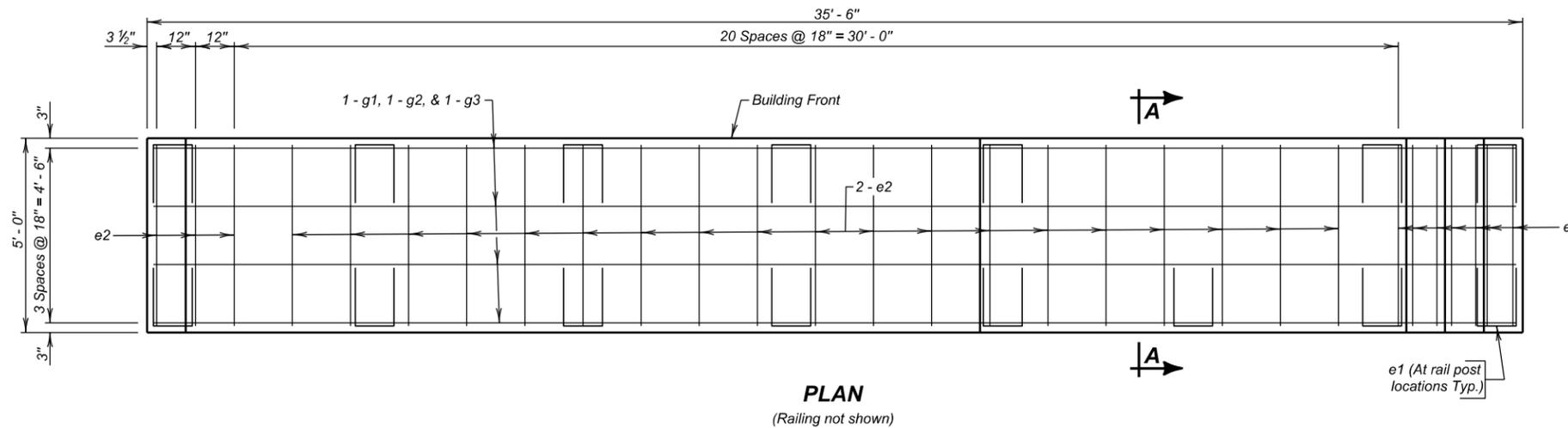
DESIGNED BY JSM POTT02R9	CK. DES. BY BB 02R9TC01	DRAFTED BY BT	Kevin N. Goeden BRIDGE ENGINEER
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PIPE HANDRAIL

1. Pipe handrail shall not be ordered until the ramps, landings and stairways are constructed and field measurements for in-place length and slope are taken.
2. All rail posts shall be built vertical.
3. Steel pipe for railing and posts shall conform to ASTM A500, Grade B. Railpost base plates shall conform to ASTM A709, Grade 36.
4. The Contractor may use either cast in place anchor bolts or drilled and epoxied anchor rods for anchoring the pipe handrail. Anchor Bolts and nuts shall conform to ASTM A307. Anchor rods shall conform to ASTM 1554, Grade 36. Washers shall be in accordance with ASTM F436. Hardware shall be galvanized in accordance with ASTM F2329. Bolts shall be hex head "Structural" type with heavy hex, lock nuts, and round washers.
5. All anchor bolts and rods shall be tightened to a torque of 120 ft./lbs. (approximated without the use of a calibrated torque wrench).
6. Epoxy shall be in accordance with ASTM C881 Type IV. Hole size shall be as per the epoxy manufacturer's recommendations. Core bits shall not be used to drill anchor rod holes.
7. Painting of steel railing shall be done in accordance with Section 411 of the Specifications. The finish color shall be an approved black.
8. Welding and weld inspection shall be done in accordance with AWS D1.1-(Current Year) Structural Welding Code - Steel.
9. The cost of structural steel, anchor bolts or anchor rods, painting, galvanizing, welding, weld inspection, and that which is incidental to the fabrication and installation of the Pipe Handrail shall be incidental to the contract unit price per foot for "Pipe Handrail".
10. Alternate rail designs, including aluminum rail, may be submitted through proper channels to the Office of Bridge Design for approval.

SLIP RESISTANT COATING FOR CONCRETE STAIRWAY

1. Curing compounds shall not be utilized on concrete stairway treads during the concrete curing process. Curing shall be accomplished with a double layer of burlap mats and polyethylene sheeting.
2. The Contractor shall apply a 2" wide slip resistant coating at the front of each stairway tread for the full width of the tread.
3. The slip resistant coating shall be a red color. The coating shall be a single component epoxy and have a minimum coefficient of friction value of 0.9 for dry and 0.9 for wet as determined by ASTM F609.
4. The slip resistant coating shall be applied in accordance with the manufacturer's recommendations.
5. All costs for furnishing and applying the slip resistant epoxy coating including equipment, labor, and materials shall be incidental to the various contract items.



REINFORCING SCHEDULE				
Mk.	No.	Size	Length	Type
e1	15	4	4' - 0"	17
e2	48	4	4' - 9"	Str.
g1	4	4	32' - 3"	Str.
g2	4	4	23' - 0"	Str.
g3	4	4	35' - 3"	Str.
g4	4	4	5' - 3"	19

Bending Details:
 Type 17: U-shaped bar with 1'-0" height and 1'-6" width.
 Type 19: L-shaped bar with 3'-3" length and 5 7/16" width.

NOTES:
 All dimensions are out to out of bars.
 ★ Bend in field as necessary to fit.

RAMP DETAILS FOR ACCESS RAMP C

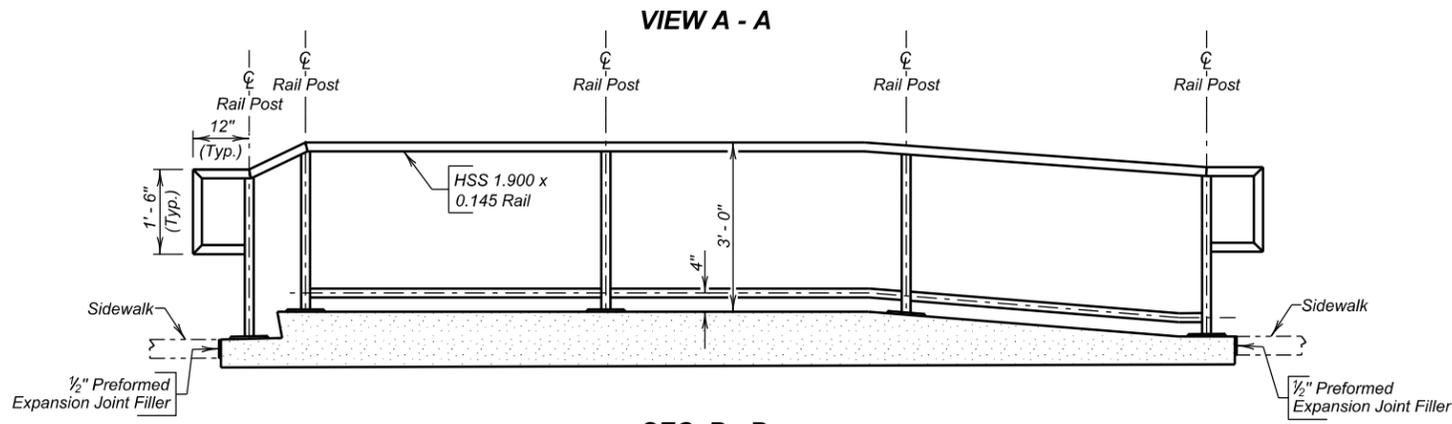
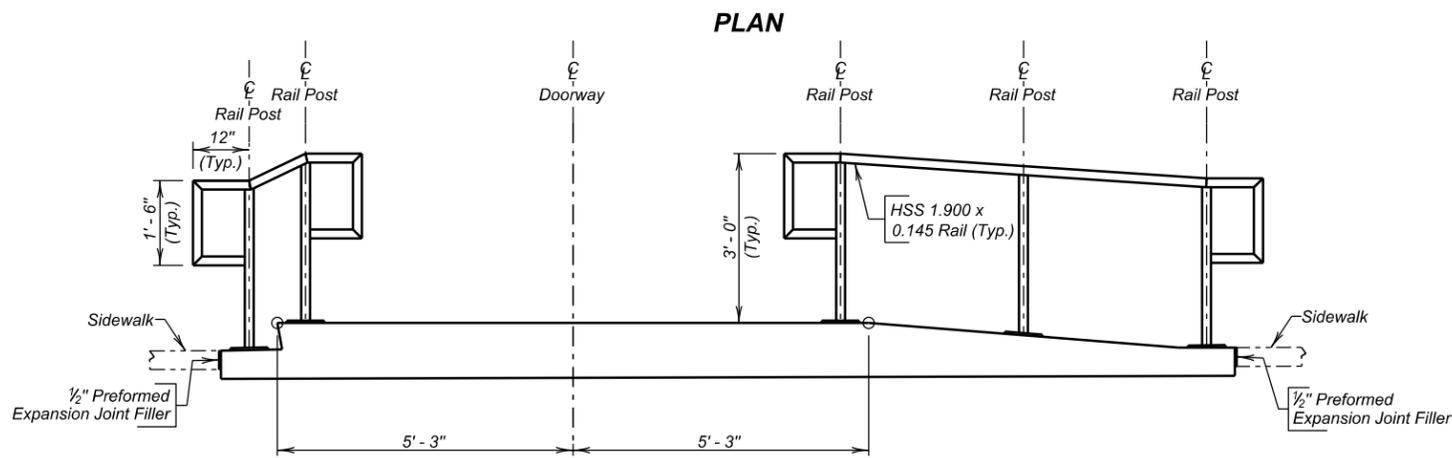
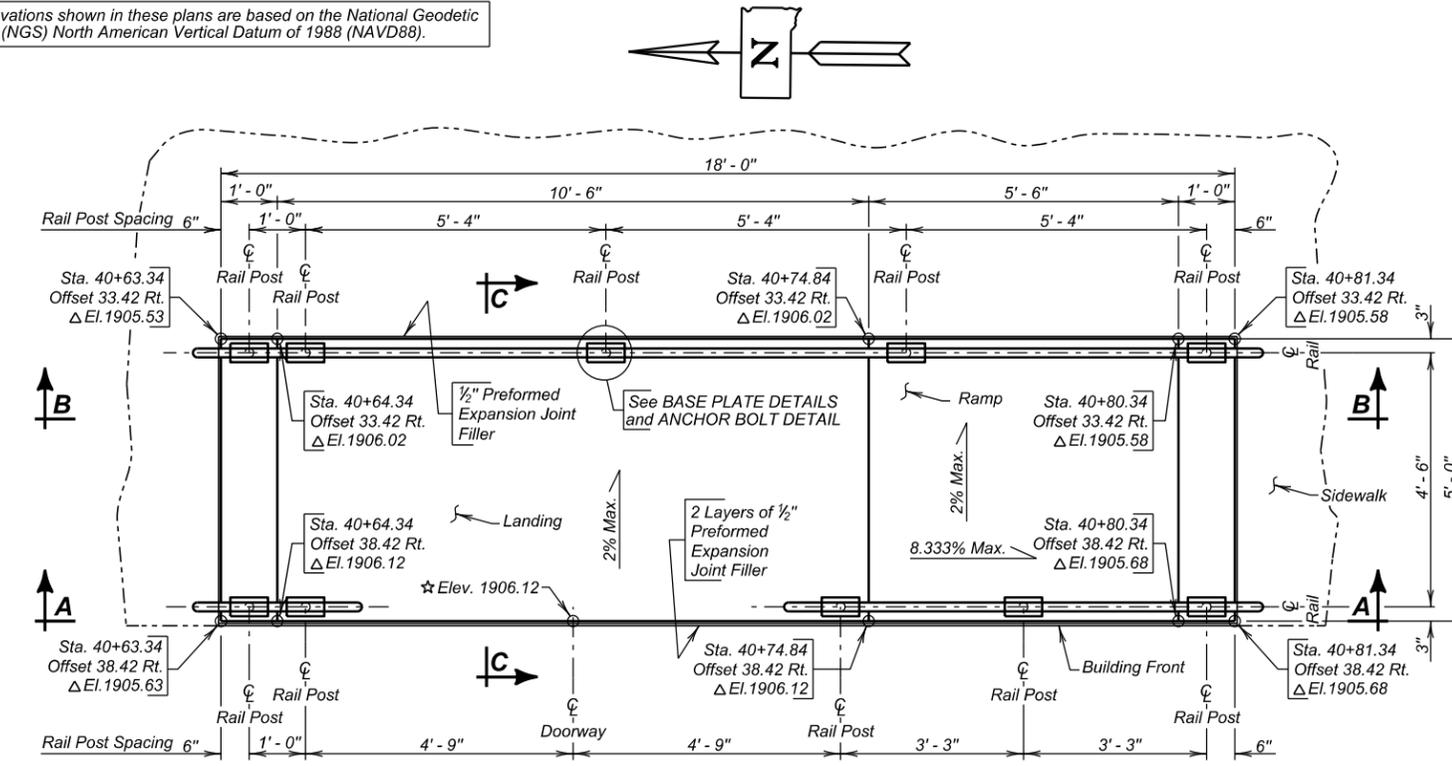
IN HOVEN
STA. 39+04.16 TO
STA. 39+39.66 - LT.

SEC. 4-T120N-R74W
P 0020(117)254

POTTER COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2014

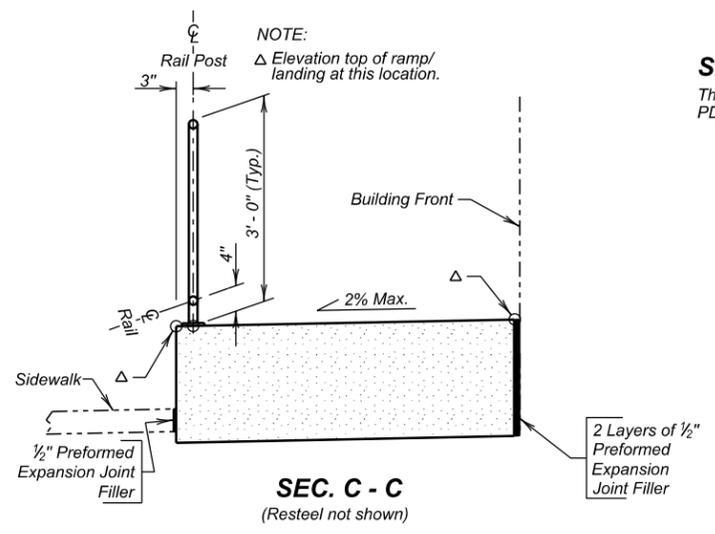
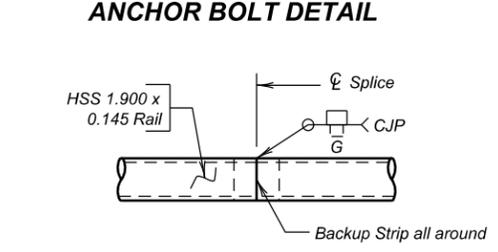
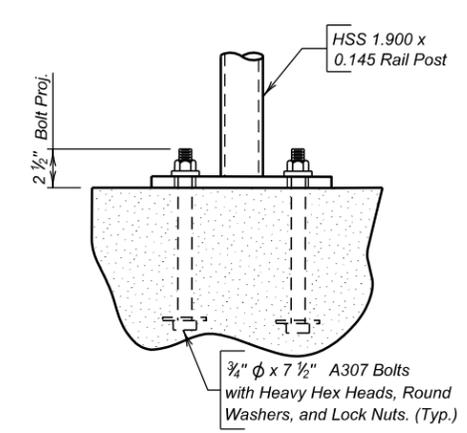
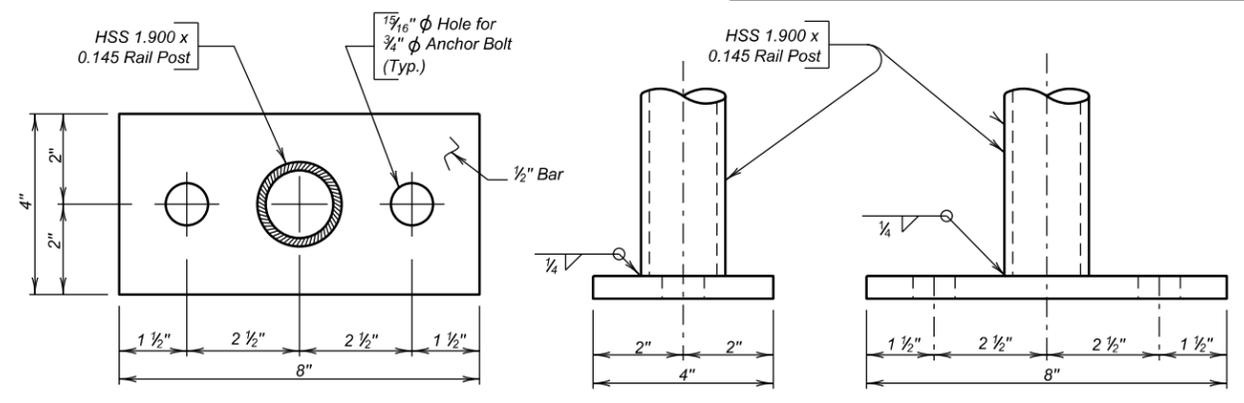
The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0020(117)254	E9	E23



ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class M6 Concrete	Cu. Yd.	2.8
Epoxy Coated Reinforcing Steel	Lb.	204
Pipe Handrail	Ft.	28

INDEX OF SHEETS-
 Sheet No. 1 - General Drawing & Quantities
 Sheet No. 2 - Ramp Details



BASE PLATE DETAILS

SPECIFICATIONS

South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

GENERAL NOTES

- The plans elevations and slopes shown to construct the ramp and landing are based on the existing doorway threshold elevation. The doorway threshold elevation shall be field verified and if the field verified elevation is different than that shown in the plans adjust ramp and stairway elevations accordingly. If field elevations differ from plans elevations by more than one inch, contact the Bridge Construction Engineer before proceeding with construction.
- All concrete shall be Class M6 in accordance with Section 462.
- All reinforcing steel shall be epoxy coated and shall conform to ASTM A615, Grade 60.
- Use 2" clear cover on all reinforcing steel except as shown.
- All concrete shall be thoroughly tamped and spaded against forms to leave a smooth surface without honeycomb. All exposed edges shall be chamfered 1/4" except as shown.
- Place concrete on undisturbed soil. If backfilling is necessary, compact with mechanical tampers to the satisfaction of the Engineer.
- The concrete sidewalk shall be constructed in accordance with Section 651.
- Cost of the 1/2" Preformed Expansion Joint Filler shall be incidental to the contract unit price per cubic yard for "Class M6 Concrete".
- All costs for constructing ramps, stairways and pipe hand railing including labor, material equipment and incidentals necessary to complete the work shall be included in the Class M6 concrete, Epoxy Coated Reinforcing Steel and Pipe Handrail bid items. Payment will be for plans quantities regardless of the quantity actually used.

SHOP PLANS

The fabricator shall submit shop plans in accordance with the Specifications or in Adobe PDF format. Shop plan submittals shall be sent to the Office of Bridge Design.

GENERAL DRAWING & QUANTITIES

FOR ACCESS RAMP D

IN HOVEN STA. 40+63.34 TO STA. 40+81.34 - RT. PCN 02R9

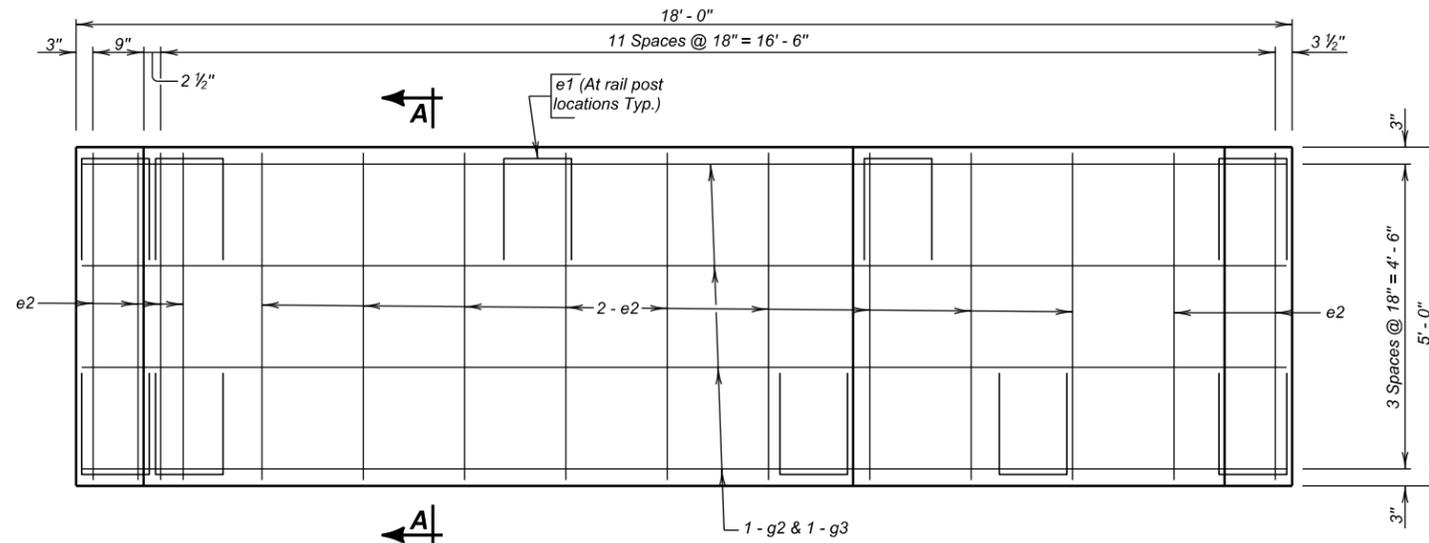
SEC. 5-T120N-R74W P 0020(117)254

POTTER COUNTY
 S. D. DEPT. OF TRANSPORTATION

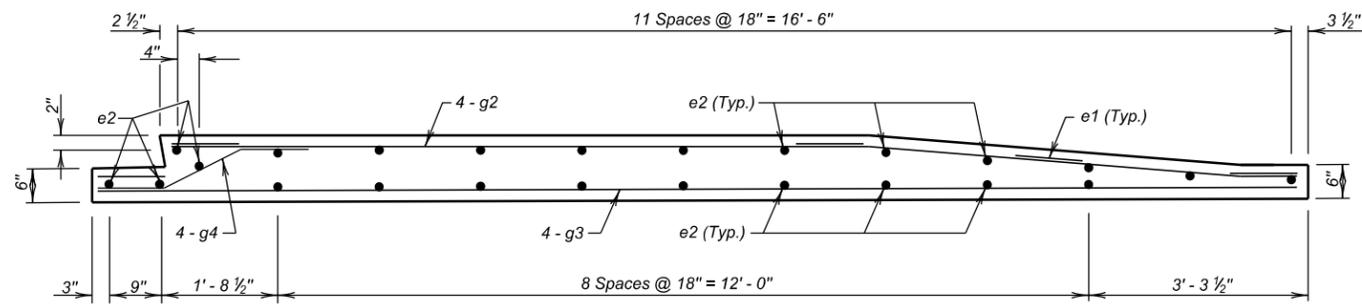
OCTOBER 2014

PLANS BY:
 OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

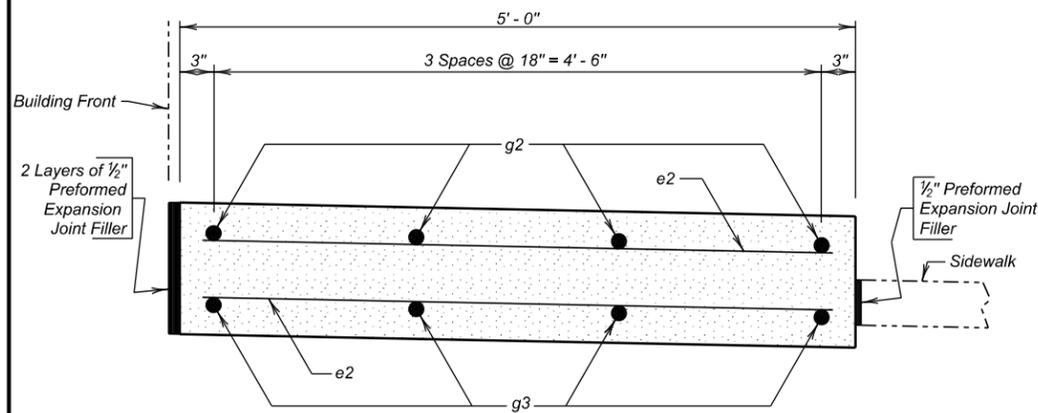
DESIGNED BY JSM POTT02R9	CK. DES. BY BB 02R9TD01	DRAFTED BY BT	Kevin N. Coeden BRIDGE ENGINEER
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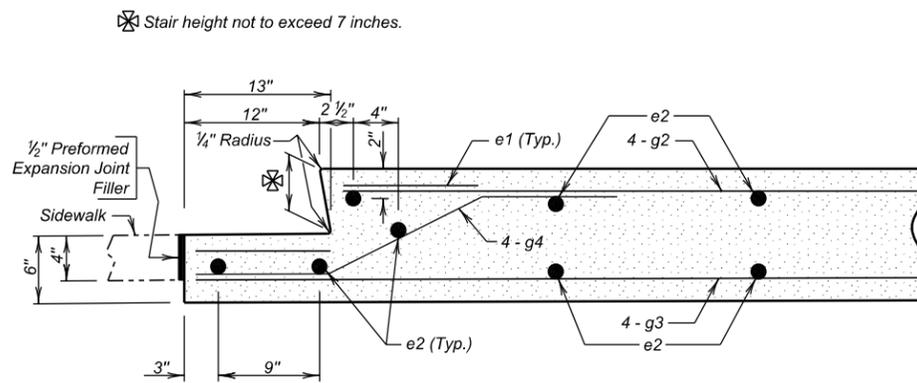
PLAN
(Railing not shown)



ELEVATION



SEC. A - A



STAIR DETAILS

PIPE HANDRAIL

1. Pipe handrail shall not be ordered until the ramps, landings and stairways are constructed and field measurements for in-place length and slope are taken.
2. All rail posts shall be built vertical.
3. Steel pipe for railing and posts shall conform to ASTM A500, Grade B. Railpost base plates shall conform to ASTM A709, Grade 36.
4. The Contractor may use either cast in place anchor bolts or drilled and epoxied anchor rods for anchoring the pipe handrail. Anchor Bolts and nuts shall conform to ASTM A307. Anchor rods shall conform to ASTM 1554, Grade 36. Washers shall be in accordance with ASTM F436. Hardware shall be galvanized in accordance with ASTM F2329. Bolts shall be hex head "Structural" type with heavy hex, lock nuts, and round washers.
5. All anchor bolts and rods shall be tightened to a torque of 120 ft./lbs. (approximated without the use of a calibrated torque wrench).
6. Epoxy shall be in accordance with ASTM C881 Type IV. Hole size shall be as per the epoxy manufacturer's recommendations. Core bits shall not be used to drill anchor rod holes.
7. Painting of steel railing shall be done in accordance with Section 411 of the Specifications. The finish color shall be an approved black.
8. Welding and weld inspection shall be done in accordance with AWS D1.1-(Current Year) Structural Welding Code - Steel.
9. The cost of structural steel, anchor bolts or anchor rods, painting, galvanizing, welding, weld inspection, and that which is incidental to the fabrication and installation of the Pipe Handrail shall be incidental to the contract unit price per foot for "Pipe Handrail".
10. Alternate rail designs, including aluminum rail, may be submitted through proper channels to the Office of Bridge Design for approval.

SLIP RESISTANT COATING FOR CONCRETE STAIRWAY

1. Curing compounds shall not be utilized on concrete stairway treads during the concrete curing process. Curing shall be accomplished with a double layer of burlap mats and polyethylene sheeting.
2. The Contractor shall apply a 2" wide slip resistant coating at the front of each stairway tread for the full width of the tread.
3. The slip resistant coating shall be a red color. The coating shall be a single component epoxy and have a minimum coefficient of friction value of 0.9 for dry and 0.9 for wet as determined by ASTM F609.
4. The slip resistant coating shall be applied in accordance with the manufacturer's recommendations.
5. All costs for furnishing and applying the slip resistant epoxy coating including equipment, labor, and materials shall be incidental to the various contract items.

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type	Bending Details
e1	10	4	4' - 0"	17	
e2	24	4	4' - 9"	Str.	
g2	4	4	16' - 9"	Str.	
g3	4	4	17' - 9"	Str.	
g4	4	4	3' - 1"	19	

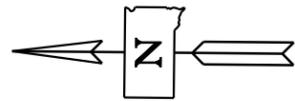
NOTES:
All dimensions are out to out of bars.
* Bend in field as necessary to fit.

RAMP DETAILS FOR ACCESS RAMP D

IN HOVEN STA. 40+63.34 TO STA. 40+81.34 - RT. SEC. 5-T120N-R74W P 0020(117)254

POTTER COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2014

The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).



STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0020(117)254	E11	E23

SPECIFICATIONS

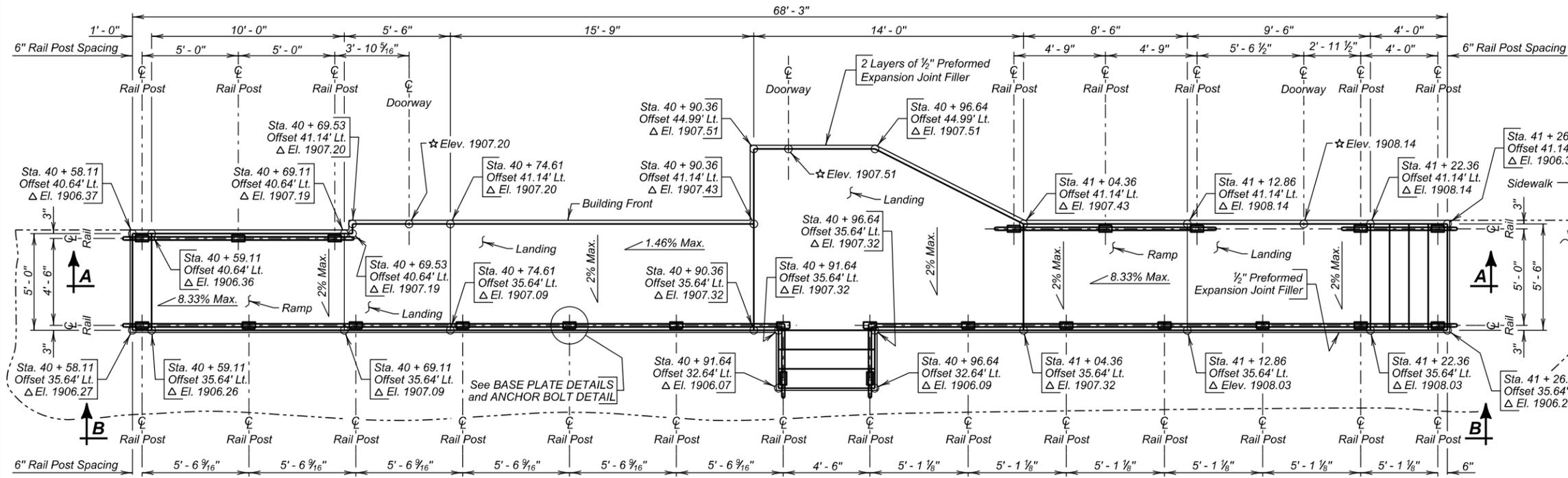
South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

GENERAL NOTES

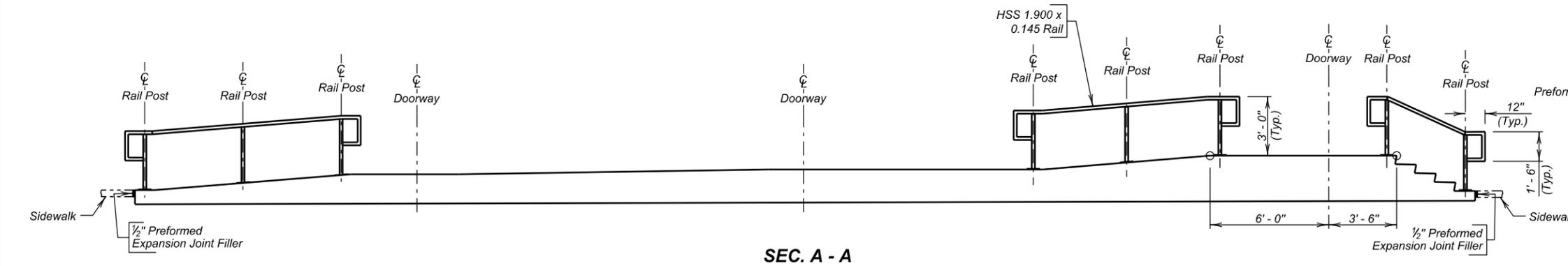
- ★ 1. The plans elevations and slopes shown to construct the ramp and landing are based on the existing doorway threshold elevation. The doorway threshold elevation shall be field verified and if the field verified elevation is different than that shown in the plans adjust ramp and stairway elevations accordingly. If field elevations differ from plans elevations by more than one inch, contact the Bridge Construction Engineer before proceeding with construction.
- 2. All concrete shall be Class M6 in accordance with Section 462.
- 3. All reinforcing steel shall be epoxy coated and shall conform to ASTM A615, Grade 60.
- 4. Use 2" clear cover on all reinforcing steel except as shown.
- 5. All concrete shall be thoroughly tamped and spaded against forms to leave a smooth surface without honeycomb. All exposed edges shall be chamfered 1/4" except as shown.
- 6. Place concrete on undisturbed soil. If backfilling is necessary, compact with mechanical tampers to the satisfaction of the Engineer.
- 7. The concrete sidewalk shall be constructed in accordance with Section 651.
- 8. Cost of the 1/2" Preformed Expansion Joint Filler shall be incidental to the contract unit price per cubic yard for "Class M6 Concrete".
- 9. All costs for constructing ramps, stairways and pipe hand railing including labor, material equipment and incidentals necessary to complete the work shall be included in the Class M6 concrete, Epoxy Coated Reinforcing Steel and Pipe Handrail bid items. Payment will be for plans quantities regardless of the quantity actually used.

SHOP PLANS

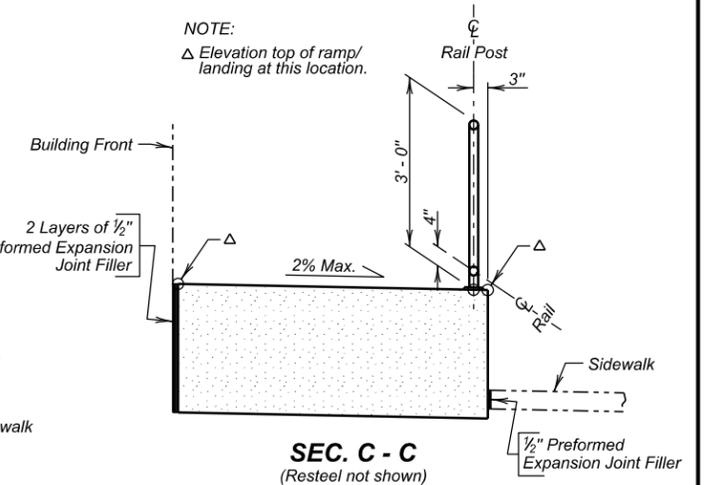
The fabricator shall submit shop plans in accordance with the Specifications or in Adobe PDF format. Shop plan submittals shall be sent to the Office of Bridge Design.



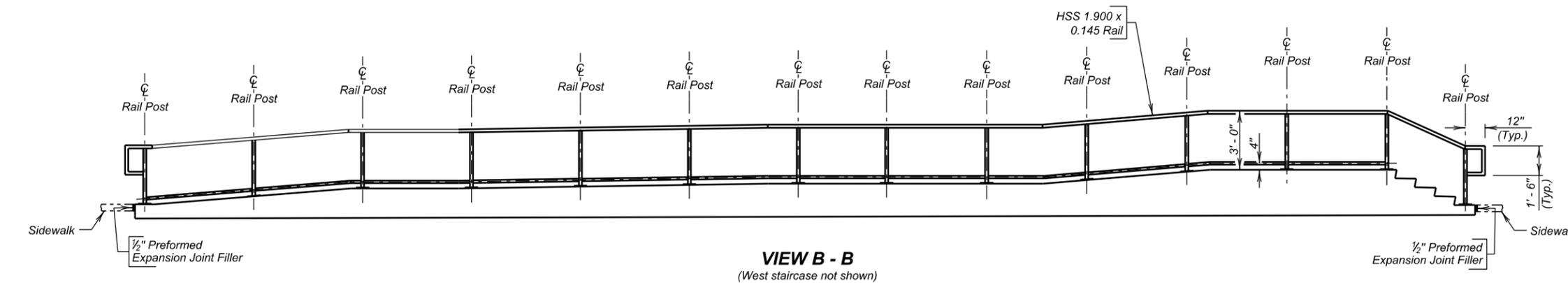
PLAN



SEC. A - A



SEC. C - C
(Resteel not shown)



VIEW B - B
(West staircase not shown)

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class M6 Concrete	Cu. Yd.	26.9
Epoxy Coated Reinforcing Steel	Lb.	951
Pipe Handrail	Ft.	104

GENERAL DRAWING & QUANTITIES

FOR ACCESS RAMP E

IN HOVEN STA. 40+58.11 TO STA. 41+26.36 - LT. PCN 02R9

SEC. 4-T120N-R74W P 0020(117)254

POTTER COUNTY
S. D. DEPT. OF TRANSPORTATION

OCTOBER 2014

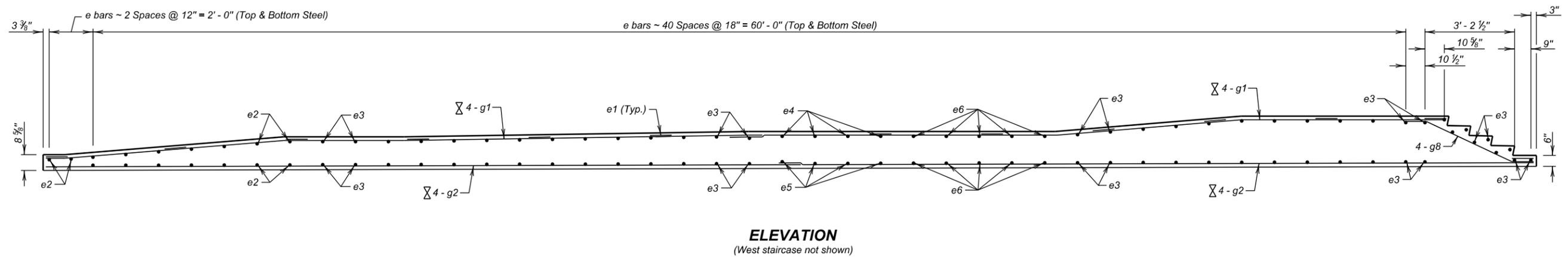
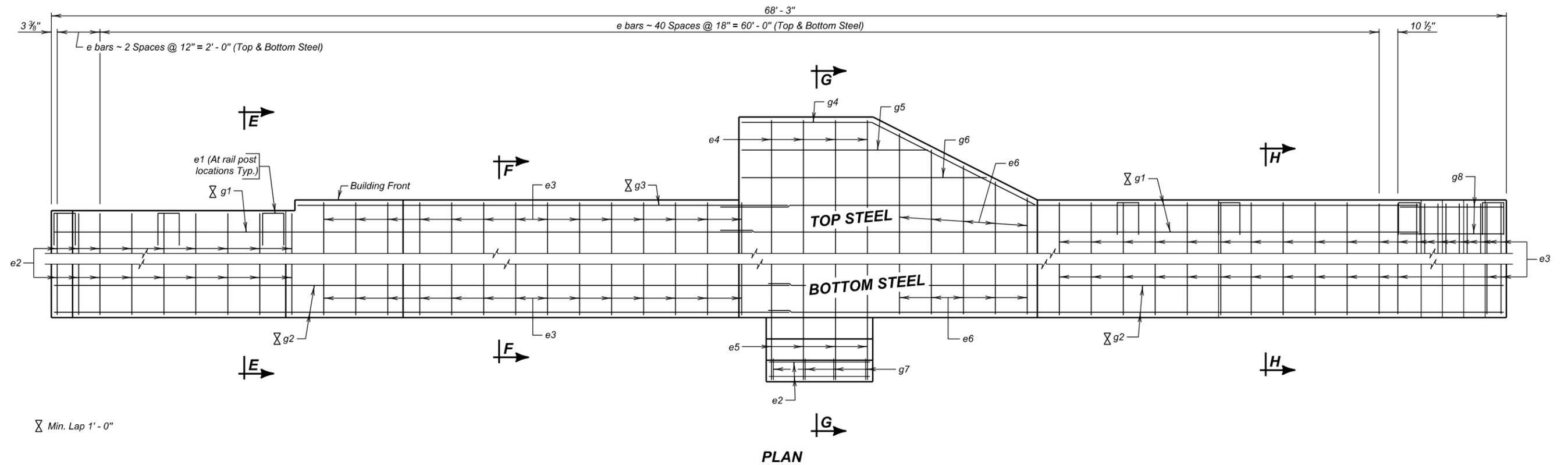
INDEX OF SHEETS-

- Sheet No. 1 - General Drawing & Quantities
- Sheet No. 2 - Ramp Details (A)
- Sheet No. 3 - Ramp Details (B)

PLANS BY:
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY JSM POTT02R9	CK. DES. BY BB 02R9GE01	DRAFTED BY MG	Kevin N. Coeden BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0020(117)254	E12	E23



RAMP DETAILS (A)
FOR
ACCESS RAMP E

IN HOVEN
STA. 40+58.11 TO
STA. 41+26.36 - LT.

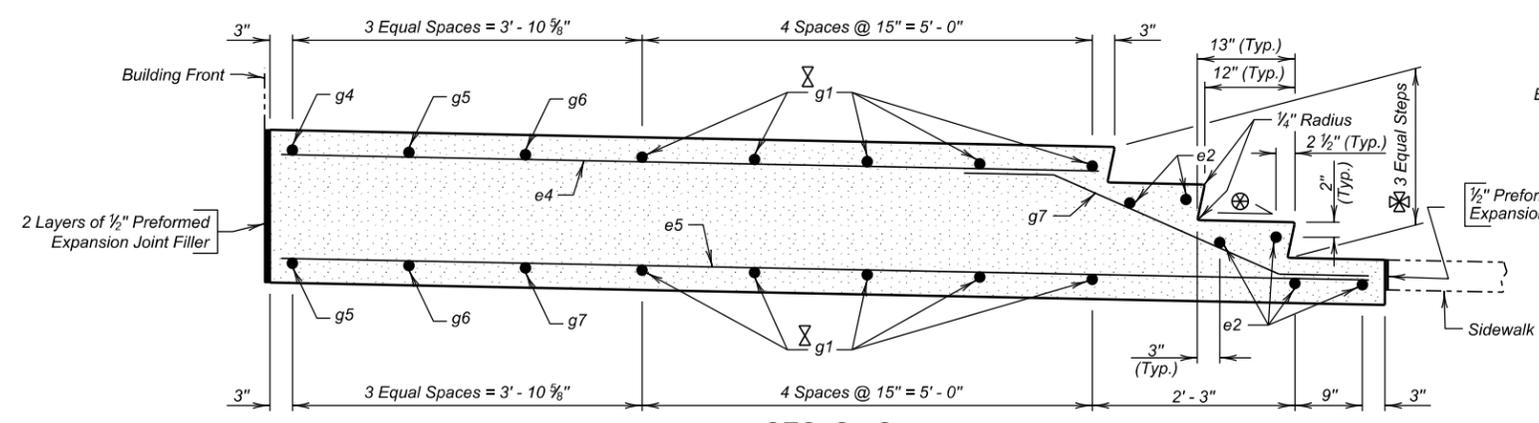
SEC. 4-T120N-R74W
P 0020(117)254

POTTER COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2014

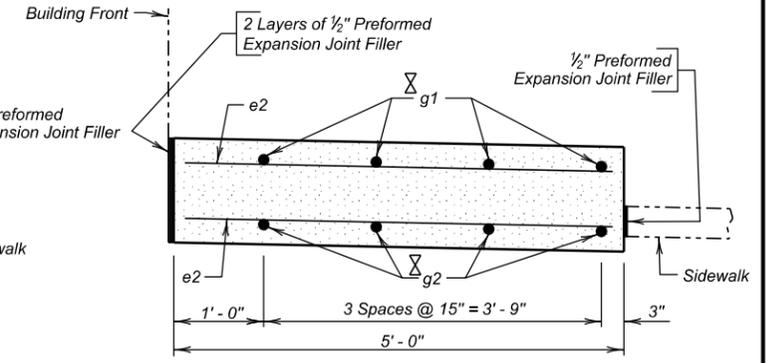
DESIGNED BY JSM POTT02R9	CK. DES. BY BB 02R9GE02	DRAFTED BY MG	Kevin N. Goeden BRIDGE ENGINEER
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PIPE HANDRAIL

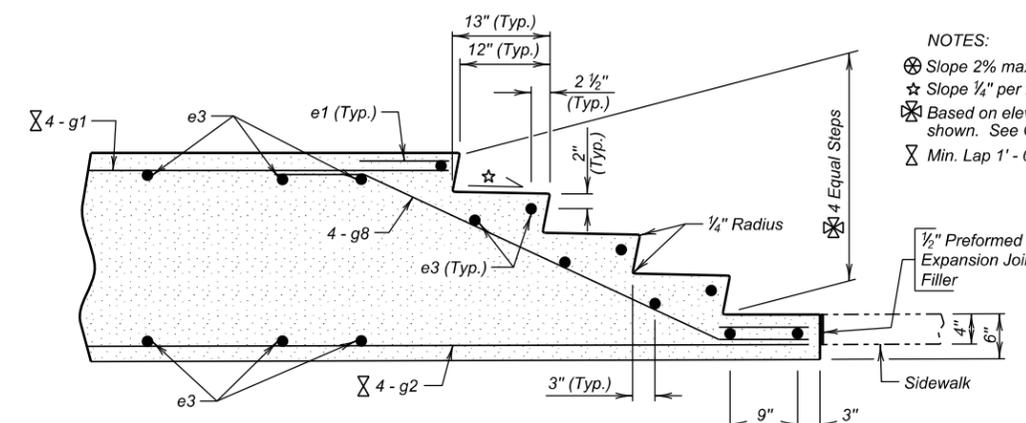
- Pipe handrail shall not be ordered until the ramps, landings and stairways are constructed and field measurements for in-place length and slope are taken.
- All rail posts shall be built vertical.
- Steel pipe for railing and posts shall conform to ASTM A500, Grade B. Railpost base plates shall conform to ASTM A709, Grade 36.
- The Contractor may use either cast in place anchor bolts or drilled and epoxied anchor rods for anchoring the pipe handrail. Anchor Bolts and nuts shall conform to ASTM A307. Anchor rods shall conform to ASTM 1554, Grade 36. Washers shall be in accordance with ASTM F436. Hardware shall be galvanized in accordance with ASTM F2329. Bolts shall be hex head "Structural" type with heavy hex, lock nuts, and round washers.
- All anchor bolts and rods shall be tightened to a torque of 120 ft./lbs. (approximated without the use of a calibrated torque wrench).
- Epoxy shall be in accordance with ASTM C881 Type IV. Hole size shall be as per the epoxy manufacturer's recommendations. Core bits shall not be used to drill anchor rod holes.
- Painting of steel railing shall be done in accordance with Section 411 of the Specifications. The finish color shall be an approved black.
- Welding and weld inspection shall be done in accordance with AWS D1.1-(Current Year) Structural Welding Code - Steel.
- The cost of structural steel, anchor bolts or anchor rods, painting, galvanizing, welding, weld inspection, and that which is incidental to the fabrication and installation of the Pipe Handrail shall be incidental to the contract unit price per foot for "Pipe Handrail".
- Alternate rail designs, including aluminum rail, may be submitted through proper channels to the Office of Bridge Design for approval.



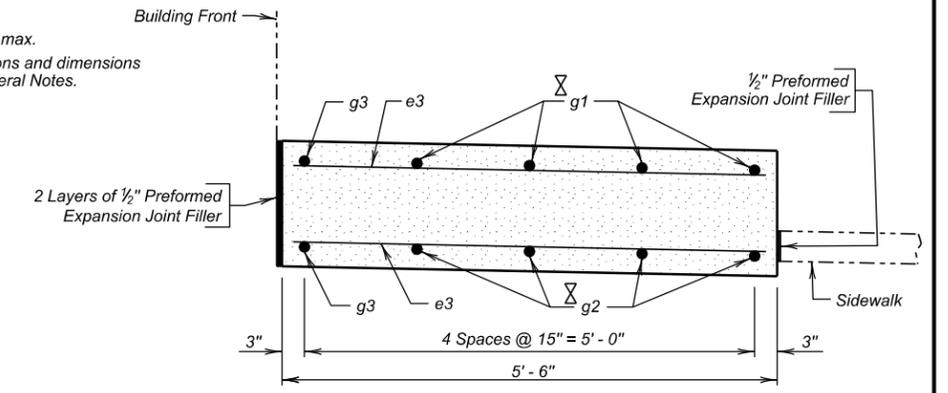
SEC. G - G



SEC. E - E



STAIR DETAILS
(South Staircase)



SEC. F - F

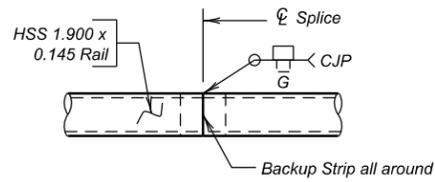
SLIP RESISTANT COATING FOR CONCRETE STAIRWAY

- Curing compounds shall not be utilized on concrete stairway treads during the concrete curing process. Curing shall be accomplished with a double layer of burlap mats and polyethylene sheeting.
- The Contractor shall apply a 2" wide slip resistant coating at the front of each stairway tread for the full width of the tread.
- The slip resistant coating shall be a red color. The coating shall be a single component epoxy and have a minimum coefficient of friction value of 0.9 for dry and 0.9 for wet as determined by ASTM F609.
- The slip resistant coating shall be applied in accordance with the manufacturer's recommendations.
- All costs for furnishing and applying the slip resistant epoxy coating including equipment, labor, and materials shall be incidental to the various contract items.

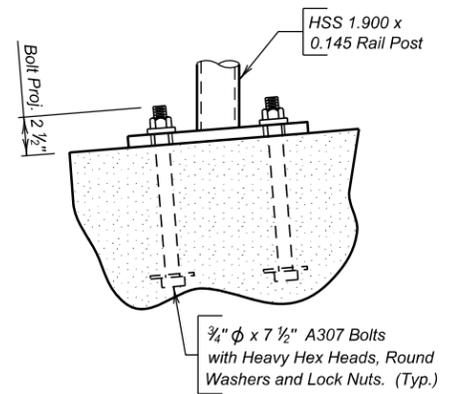
REINFORCING SCHEDULE				
Mk.	No.	Size	Length	Type
e1	24	4	4'-0"	17
e2	23	4	4'-9"	Str.
e3	61	4	5'-3"	Str.
e4	4	4	9'-1"	Str.
e5	4	4	12'-1"	Str.
e6	5	4	13'-11"	Str.
*g1	9	4	32'-9"	Str.
*g2	9	4	34'-6"	Str.
g3	2	4	23'-0"	Str.
g4	2	4	14'-8"	Str.
g5	2	4	8'-9"	Str.
g6	2	4	11'-6"	Str.
g7	4	4	5'-2"	19
g8	5	4	6'-3"	19

Bending Details	
	Type 19
	Type 19
	Type 17
	Type 17

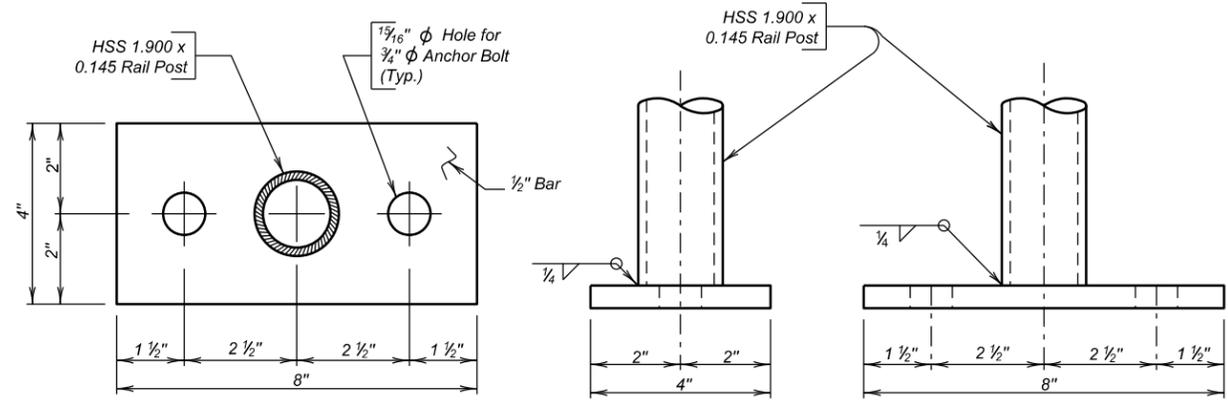
NOTES:
All dimensions are out to out of bars.
* Bend in field as necessary to fit.



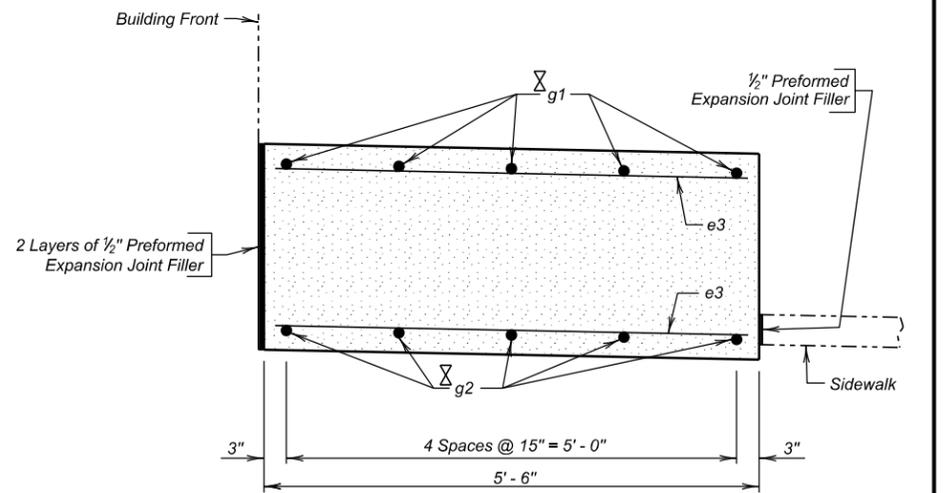
RAIL SPLICE DETAILS



ANCHOR BOLT DETAIL



BASE PLATE DETAILS



SEC. H - H

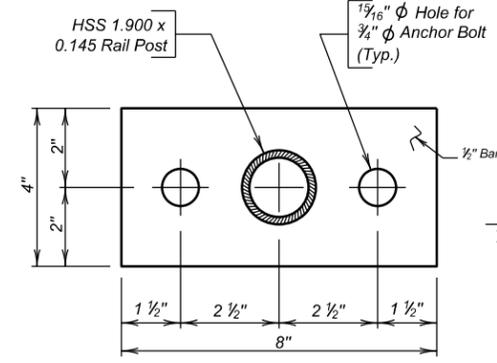
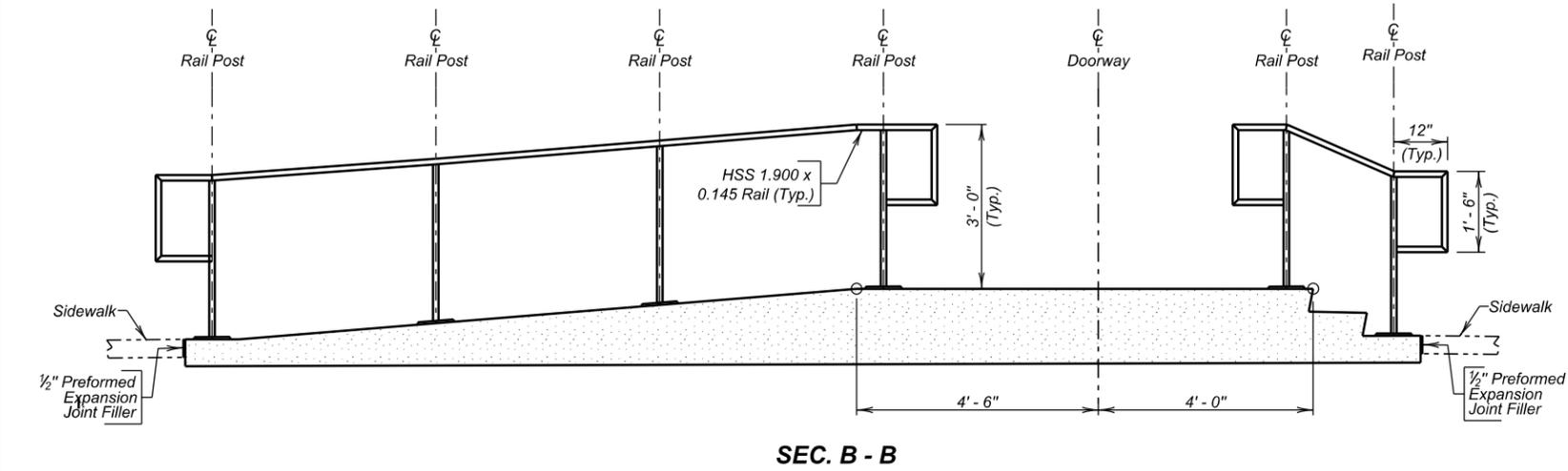
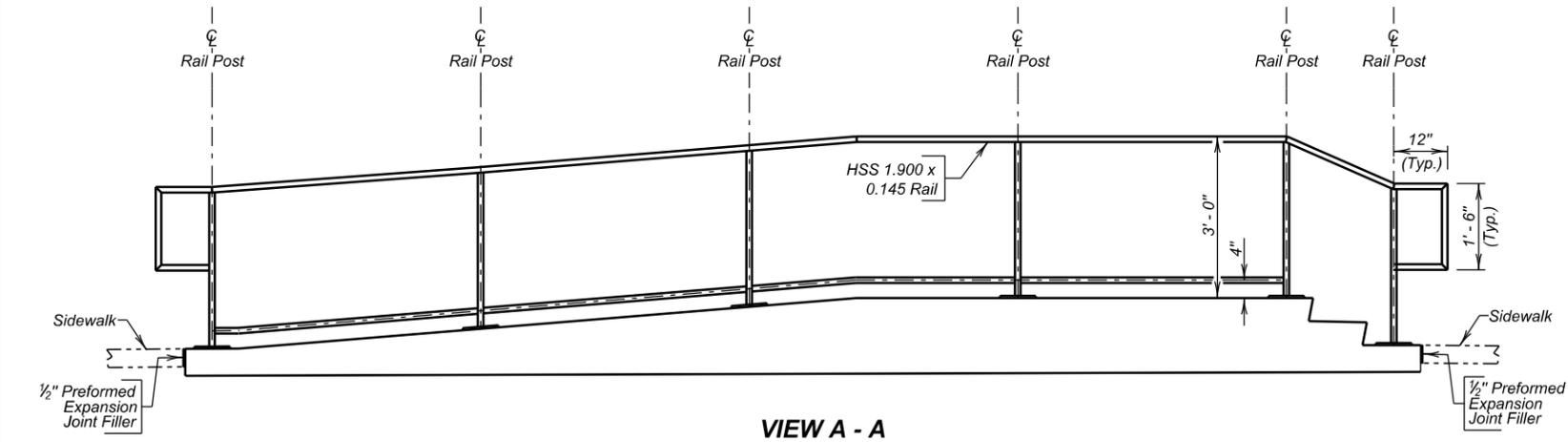
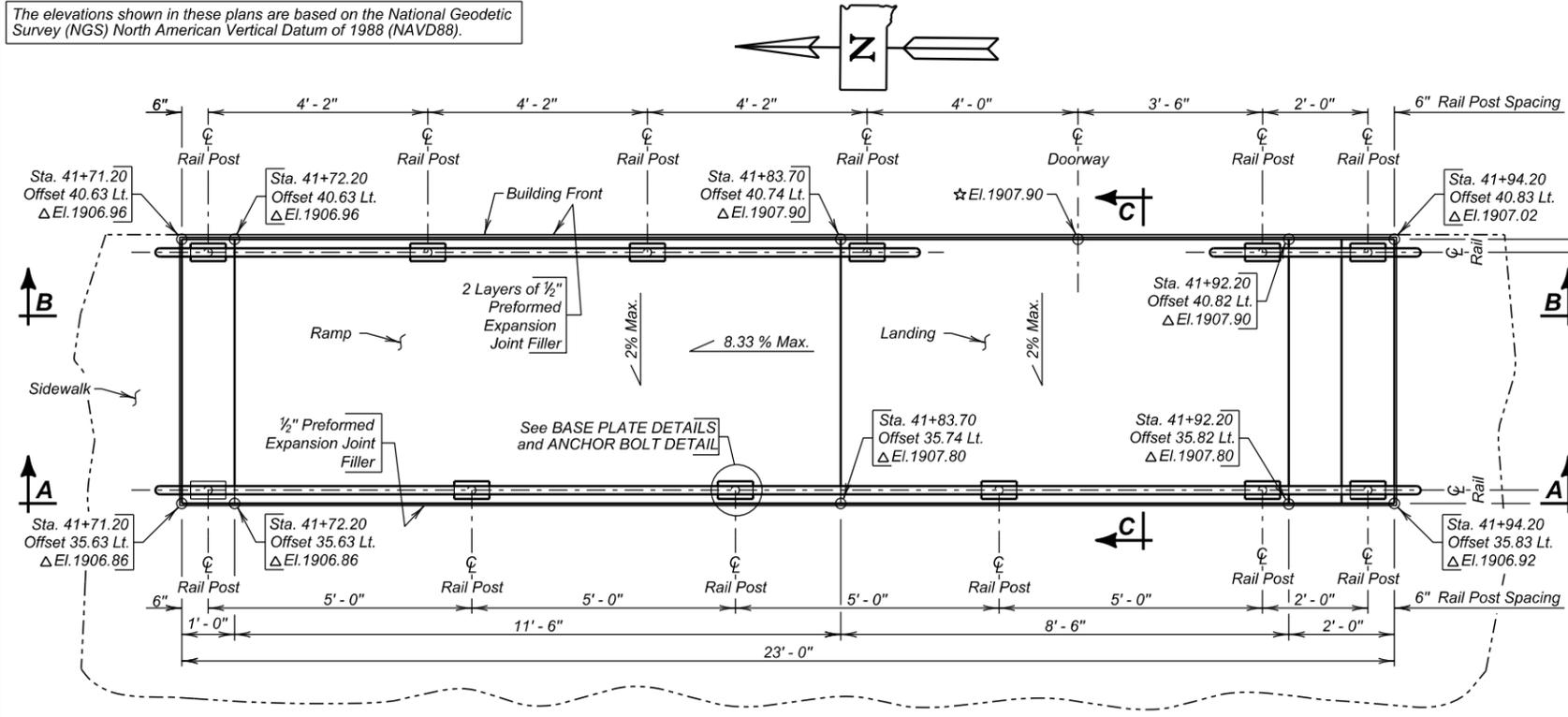
RAMP DETAILS (B) FOR ACCESS RAMP E

IN HOVEN STA. 40+58.11 TO STA. 41+26.36 - LT. SEC. 4-T120N-R74W P 0020(117)254

POTTER COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2014

The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0020(117)254	E14	E23



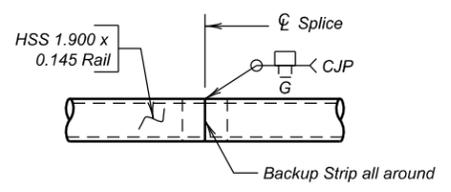
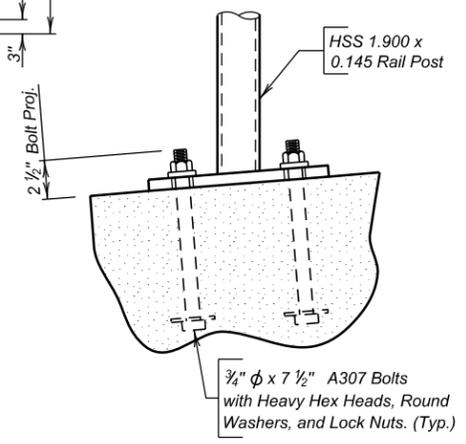
BASE PLATE DETAILS

SPECIFICATIONS

South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

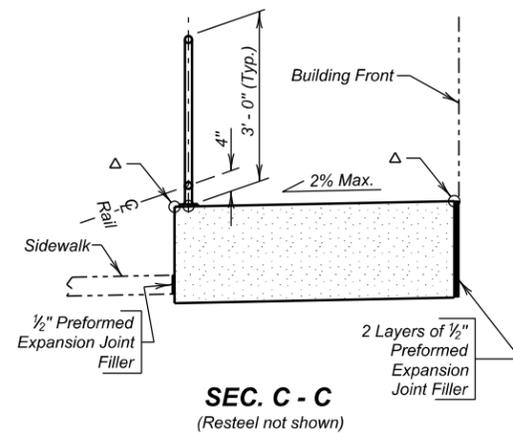
GENERAL NOTES

- ★ The plans elevations and slopes shown to construct the ramp and landing are based on the existing doorway threshold elevation. The doorway threshold elevation shall be field verified and if the field verified elevation is different than that shown in the plans adjust ramp and stairway elevations accordingly. If field elevations differ from plans elevations by more than one inch, contact the Bridge Construction Engineer before proceeding with construction.
- All concrete shall be Class M6 in accordance with Section 462.
- All reinforcing steel shall be epoxy coated and shall conform to ASTM A615, Grade 60.
- Use 2" clear cover on all reinforcing steel except as shown.
- All concrete shall be thoroughly tamped and spaded against forms to leave a smooth surface without honeycomb. All exposed edges shall be chamfered 3/4" except as shown.
- Place concrete on undisturbed soil. If backfilling is necessary, compact with mechanical tampers to the satisfaction of the Engineer.
- The concrete sidewalk shall be constructed in accordance with Section 651.
- Cost of the 1/2" Preformed Expansion Joint Filler shall be incidental to the contract unit price per cubic yard for "Class M6 Concrete".
- All costs for constructing ramps, stairways and pipe hand railing including labor, material equipment and incidentals necessary to complete the work shall be included in the Class M6 concrete, Epoxy Coated Reinforcing Steel and Pipe Handrail bid items. Payment will be for plans quantities regardless of the quantity actually used.



RAIL SPLICE DETAILS

NOTE:
 Δ Elevation top of ramp/landing at this location.



ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class M6 Concrete	Cu. Yd.	4.6
Epoxy Coated Reinforcing Steel	Lb.	255
Pipe Handrail	Ft.	43

INDEX OF SHEETS-

Sheet No. 1 - General Drawing & Quantities
 Sheet No. 2 - Ramp Details

GENERAL DRAWING & QUANTITIES

FOR ACCESS RAMP F

IN HOVEN STA. 41+71.20 TO STA. 41+94.20 - LT. PCN 02R9

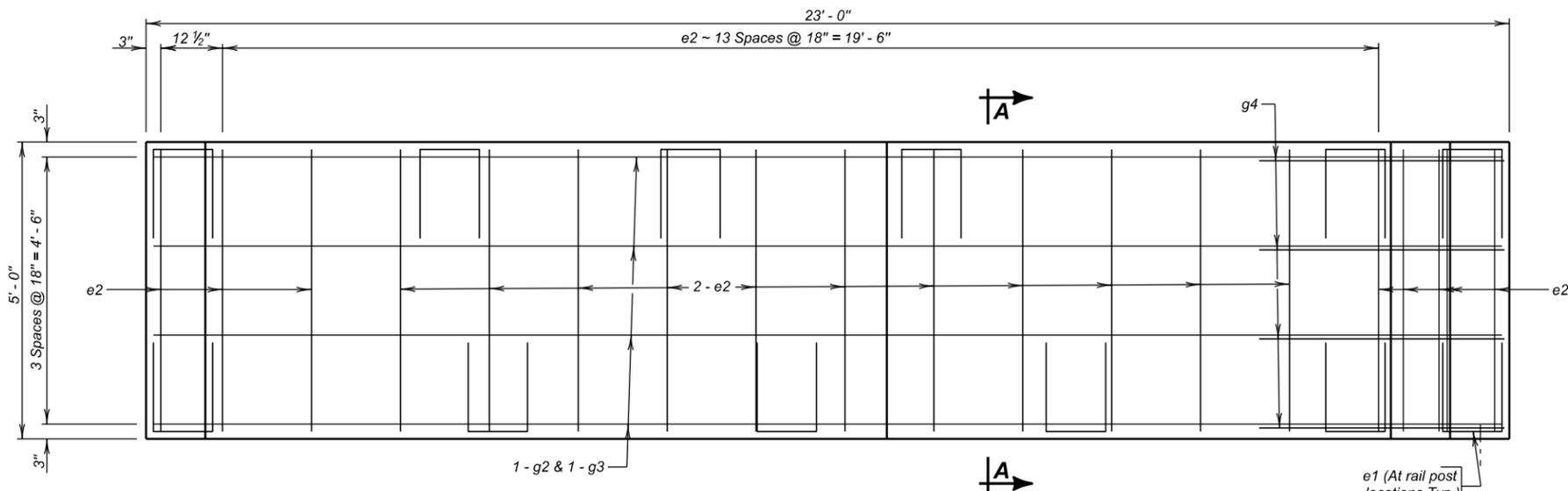
SEC. 4-T120N-R74W P 0020(117)254

POTTER COUNTY
 S. D. DEPT. OF TRANSPORTATION

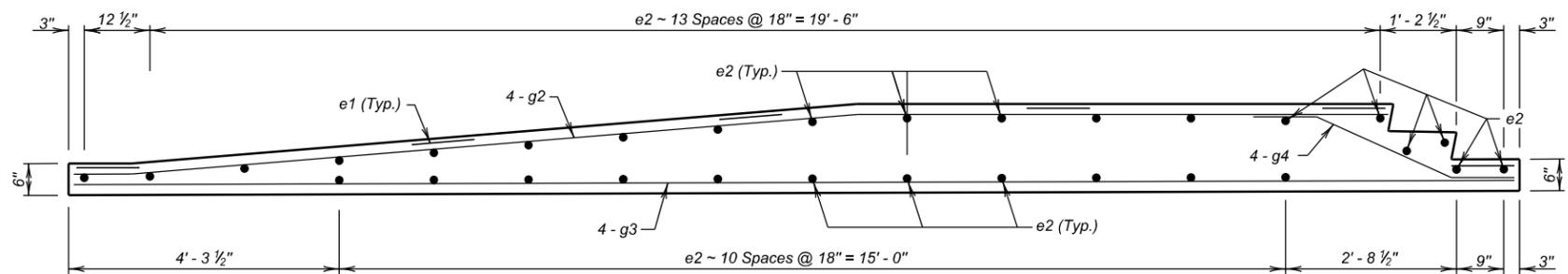
OCTOBER 2014

PLANS BY:
 OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

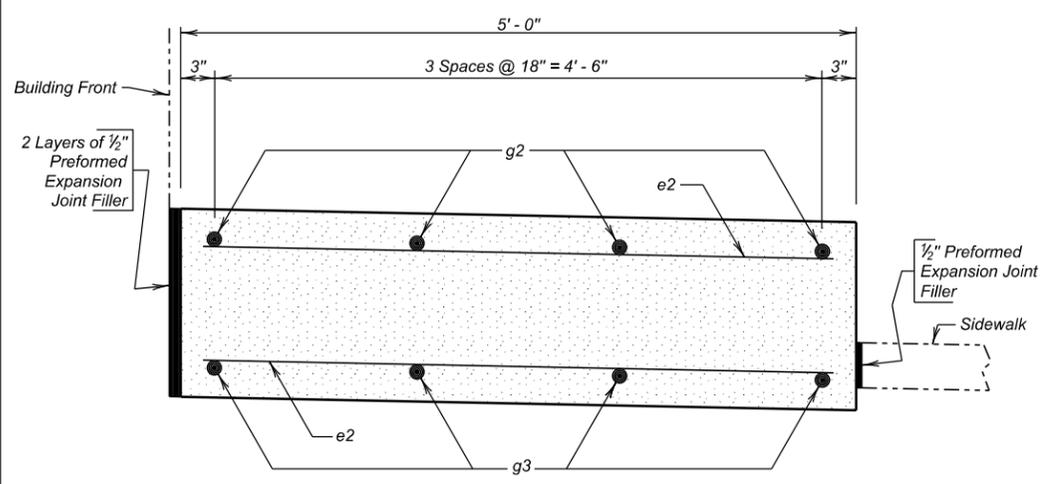
DESIGNED BY JSM POTT02R9	CK. DES. BY BB 02R9WF01	DRAFTED BY GW	Kevin N. Coeden BRIDGE ENGINEER
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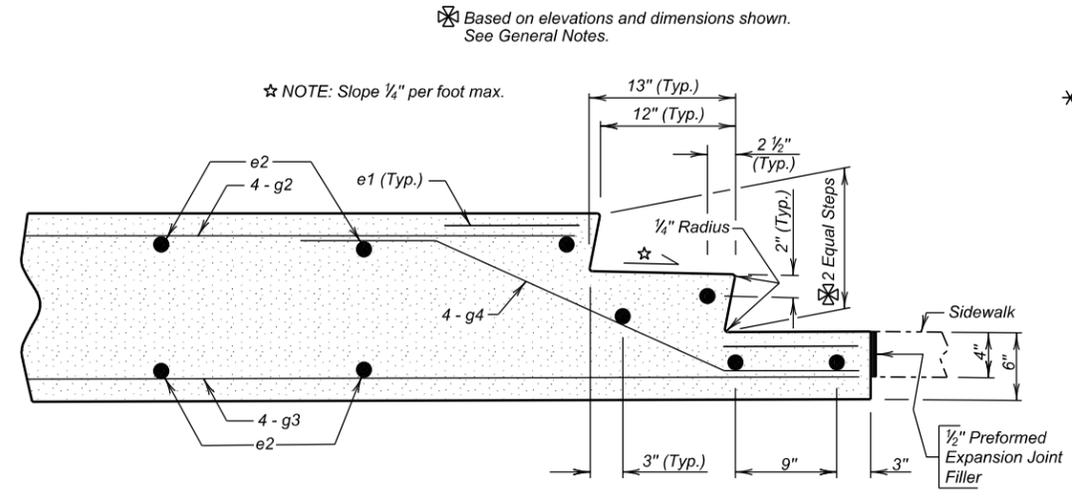
PLAN
(Railing not shown)



ELEVATION



SEC. A - A



STAIR DETAILS

Based on elevations and dimensions shown. See General Notes.

NOTE: Slope 1/4" per foot max.

PIPE HANDRAIL

1. Pipe handrail shall not be ordered until the ramps, landings and stairways are constructed and field measurements for in-place length and slope are taken.
2. All rail posts shall be built vertical.
3. Steel pipe for railing and posts shall conform to ASTM A500, Grade B. Railpost base plates shall conform to ASTM A709, Grade 36.
4. The Contractor may use either cast in place anchor bolts or drilled and epoxied anchor rods for anchoring the pipe handrail. Anchor Bolts and nuts shall conform to ASTM A307. Anchor rods shall conform to ASTM 1554, Grade 36. Washers shall be in accordance with ASTM F436. Hardware shall be galvanized in accordance with ASTM F2329. Bolts shall be hex head "Structural" type with heavy hex, lock nuts, and round washers.
5. All anchor bolts and rods shall be tightened to a torque of 120 ft./lbs. (approximated without the use of a calibrated torque wrench).
6. Epoxy shall be in accordance with ASTM C881 Type IV. Hole size shall be as per the epoxy manufacturer's recommendations. Core bits shall not be used to drill anchor rod holes.
7. Painting of steel railing shall be done in accordance with Section 411 of the Specifications. The finish color shall be an approved black.
8. Welding and weld inspection shall be done in accordance with AWS D1.1-(Current Year) Structural Welding Code - Steel.
9. The cost of structural steel, anchor bolts or anchor rods, painting, galvanizing, welding, weld inspection, and that which is incidental to the fabrication and installation of the Pipe Handrail shall be incidental to the contract unit price per foot for "Pipe Handrail".
10. Alternate rail designs, including aluminum rail, may be submitted through proper channels to the Office of Bridge Design for approval.

SLIP RESISTANT COATING FOR CONCRETE STAIRWAY

1. Curing compounds shall not be utilized on concrete stairway treads during the concrete curing process. Curing shall be accomplished with a double layer of burlap mats and polyethylene sheeting.
2. The Contractor shall apply a 2" wide slip resistant coating at the front of each stairway tread for the full width of the tread.
3. The slip resistant coating shall be a red color. The coating shall be a single component epoxy and have a minimum coefficient of friction value of 0.9 for dry and 0.9 for wet as determined by ASTM F609.
4. The slip resistant coating shall be applied in accordance with the manufacturer's recommendations.
5. All costs for furnishing and applying the slip resistant epoxy coating including equipment, labor, and materials shall be incidental to the various contract items.

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type	Bending Details
e1	12	4	4'-0"	17	
e2	30	4	4'-9"	Str.	
g2	4	4	20'-9"	Str.	
g3	4	4	22'-9"	Str.	
g4	4	4	4'-3"	19	

NOTES:
All dimensions are out to out of bars.
* Bend in field as necessary to fit.

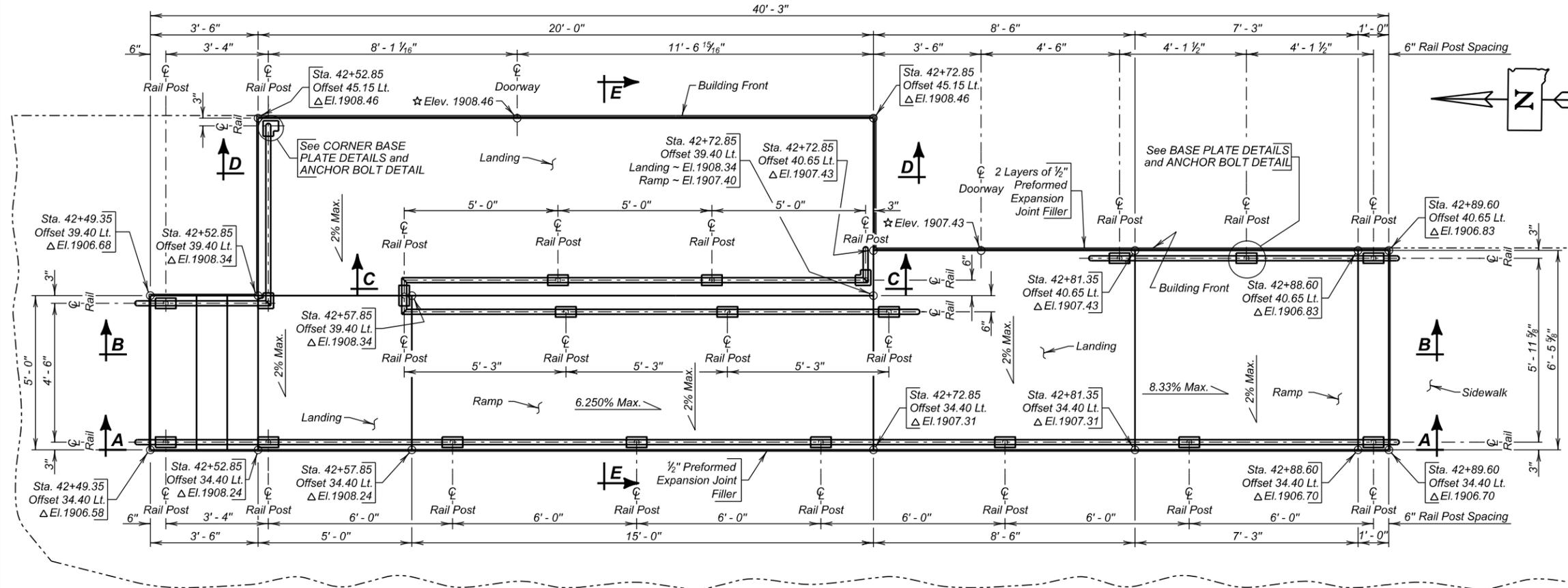
RAMP DETAILS FOR ACCESS RAMP F

IN HOVEN STA. 41+71.20 TO STA. 41+94.20 - LT. SEC. 4-T120N-R74W P 0020(117)254

POTTER COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2014

The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0020(117)254	E16	E23



SPECIFICATIONS

South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

GENERAL NOTES

- The plans elevations and slopes shown to construct the ramp and landing are based on the existing doorway threshold elevation. The doorway threshold elevation shall be field verified and if the field verified elevation is different than that shown in the plans adjust ramp and stairway elevations accordingly. If field elevations differ from plans elevations by more than one inch, contact the Bridge Construction Engineer before proceeding with construction.
- All concrete shall be Class M6 in accordance with Section 462.
- All reinforcing steel shall be epoxy coated and shall conform to ASTM A615, Grade 60.
- Use 2" clear cover on all reinforcing steel except as shown.
- All concrete shall be thoroughly tamped and spaded against forms to leave a smooth surface without honeycomb. All exposed edges shall be chamfered 3/4" except as shown.
- Place concrete on undisturbed soil. If backfilling is necessary, compact with mechanical tampers to the satisfaction of the Engineer.
- The concrete sidewalk shall be constructed in accordance with Section 651.
- Cost of the 1/2" Preformed Expansion Joint Filler shall be incidental to the contract unit price per cubic yard for "Class M6 Concrete".
- All costs for constructing ramps, stairways and pipe hand railing including labor, material equipment and incidentals necessary to complete the work shall be included in the Class M6 concrete, Epoxy Coated Reinforcing Steel and Pipe Handrail bid items. Payment will be for plans quantities regardless of the quantity actually used.

SHOP PLANS

The fabricator shall submit shop plans in accordance with the Specifications or in Adobe PDF format. Shop plan submittals shall be sent to the Office of Bridge Design.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Class M6 Concrete	Cu. Yd.	20.1
Epoxy Coated Reinforcing Steel	Lb.	843
Pipe Handrail	Ft.	96

INDEX OF SHEETS-

- Sheet No. 1 - General Drawing & Quantities
- Sheet No. 2 - Railing Details and Notes
- Sheet No. 3 - Ramp Details (A)
- Sheet No. 4 - Ramp Details (B)

GENERAL DRAWING & QUANTITIES

FOR ACCESS RAMP G

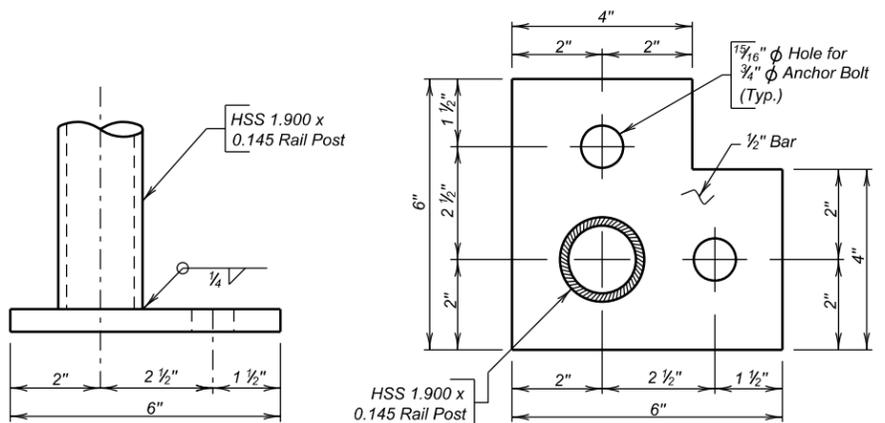
IN HOVEN STA. 42+49.35 TO STA. 42+89.60 - LT. PCN 02R9

SEC. 4-T120N-R74W P 0020(117)254

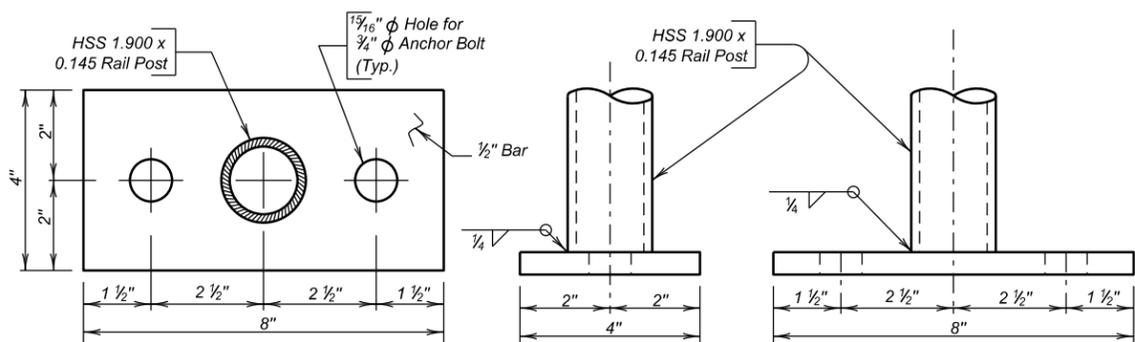
POTTER COUNTY
S. D. DEPT. OF TRANSPORTATION

OCTOBER 2014

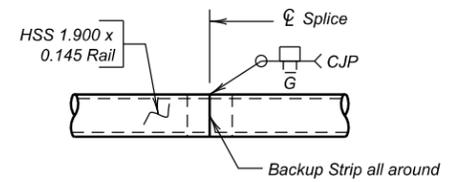
PLAN



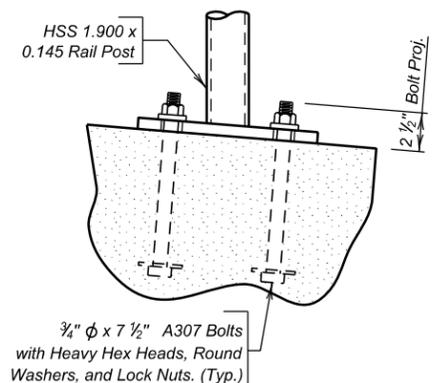
CORNER BASE PLATE DETAILS



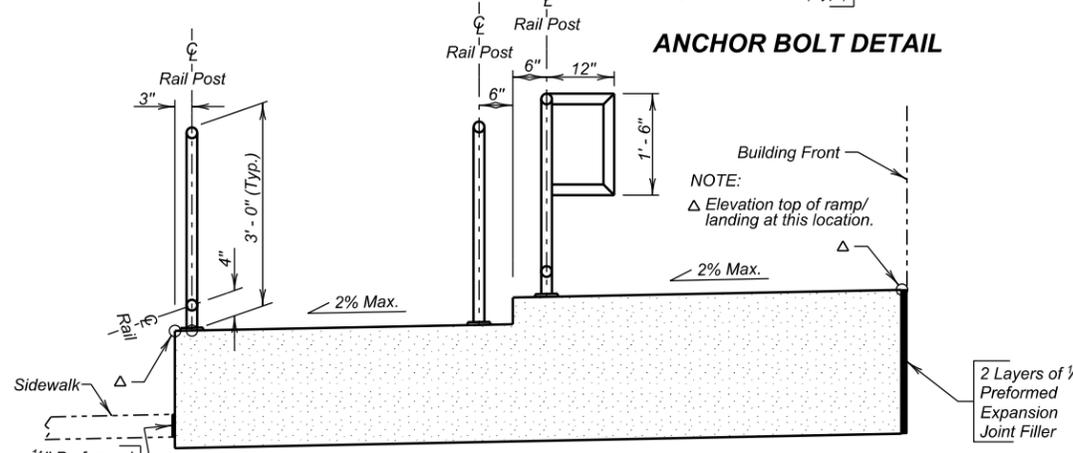
BASE PLATE DETAILS



RAIL SPLICE DETAILS



ANCHOR BOLT DETAIL

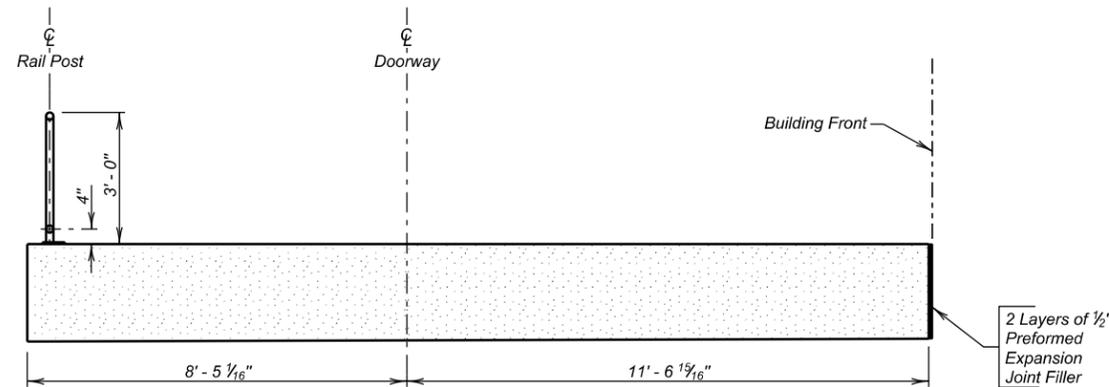


SEC. E - E

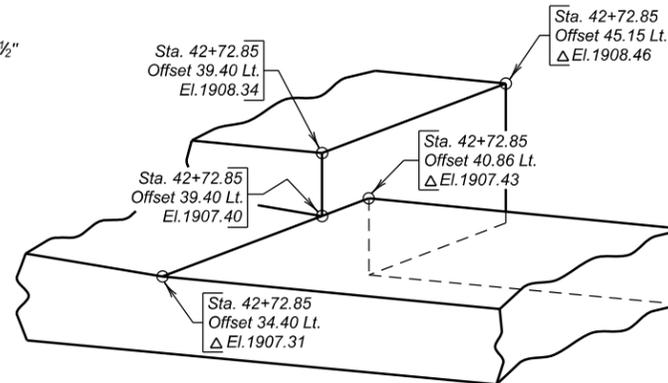
(Resteel not shown) PLANS BY: OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY JSM POTT02R9	CK. DES. BY BB 02R9TG01	DRAFTED BY BT	Kevin N. Coeden BRIDGE ENGINEER
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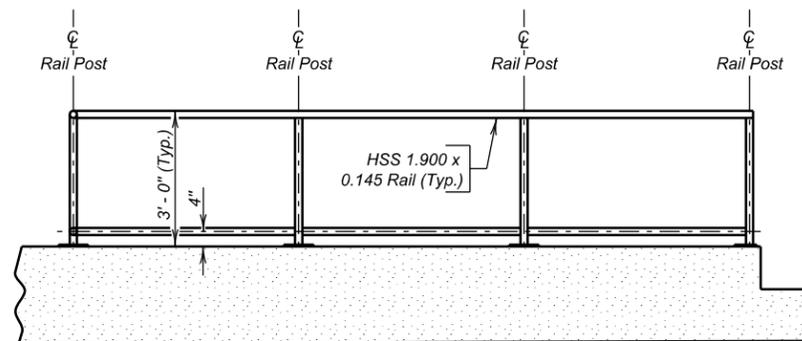
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0020(117)254	E17	E23



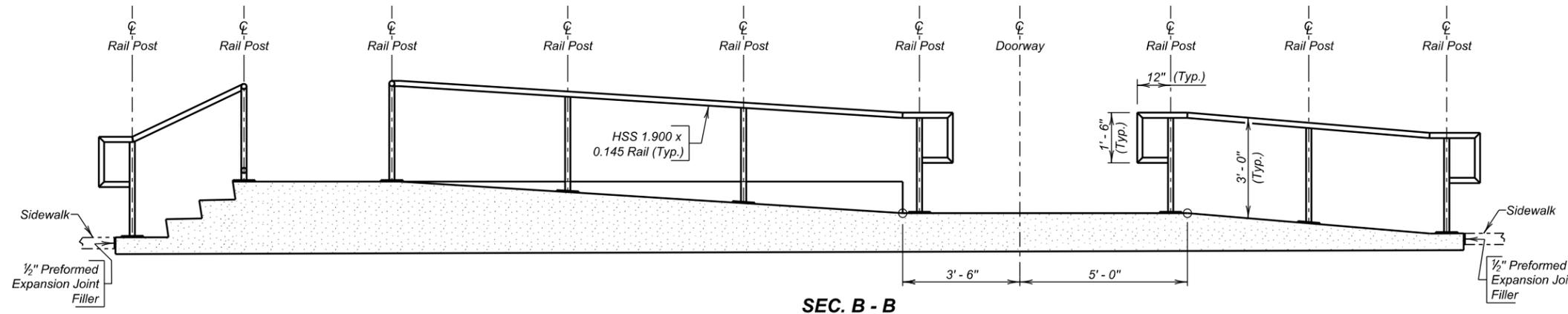
SEC. D - D



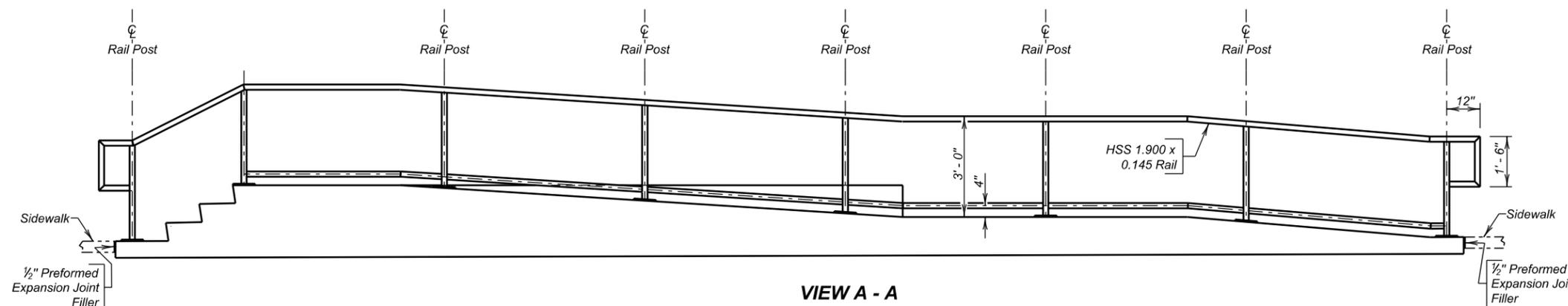
ISOMETRIC VIEW
(Railing not shown)



SEC. C - C



SEC. B - B



VIEW A - A

PIPE HANDRAIL

1. Pipe handrail shall not be ordered until the ramps, landings and stairways are constructed and field measurements for in-place length and slope are taken.
2. All rail posts shall be built vertical.
3. Steel pipe for railing and posts shall conform to ASTM A500, Grade B. Railpost base plates shall conform to ASTM A709, Grade 36.
4. The Contractor may use either cast in place anchor bolts or drilled and epoxied anchor rods for anchoring the pipe handrail. Anchor Bolts and nuts shall conform to ASTM A307. Anchor rods shall conform to ASTM 1554, Grade 36. Washers shall be in accordance with ASTM F436. Hardware shall be galvanized in accordance with ASTM F2329. Bolts shall be hex head "Structural" type with heavy hex, lock nuts, and round washers.
5. All anchor bolts and rods shall be tightened to a torque of 120 ft./lbs. (approximated without the use of a calibrated torque wrench).
6. Epoxy shall be in accordance with ASTM C881 Type IV. Hole size shall be as per the epoxy manufacturer's recommendations. Core bits shall not be used to drill anchor rod holes.
7. Painting of steel railing shall be done in accordance with Section 411 of the Specifications. The finish color shall be an approved black.
8. Welding and weld inspection shall be done in accordance with AWS D1.1-(Current Year) Structural Welding Code - Steel.
9. The cost of structural steel, anchor bolts or anchor rods, painting, galvanizing, welding, weld inspection, and that which is incidental to the fabrication and installation of the Pipe Handrail shall be incidental to the contract unit price per foot for "Pipe Handrail".
10. Alternate rail designs, including aluminum rail, may be submitted through proper channels to the Office of Bridge Design for approval.

SLIP RESISTANT COATING FOR CONCRETE STAIRWAY

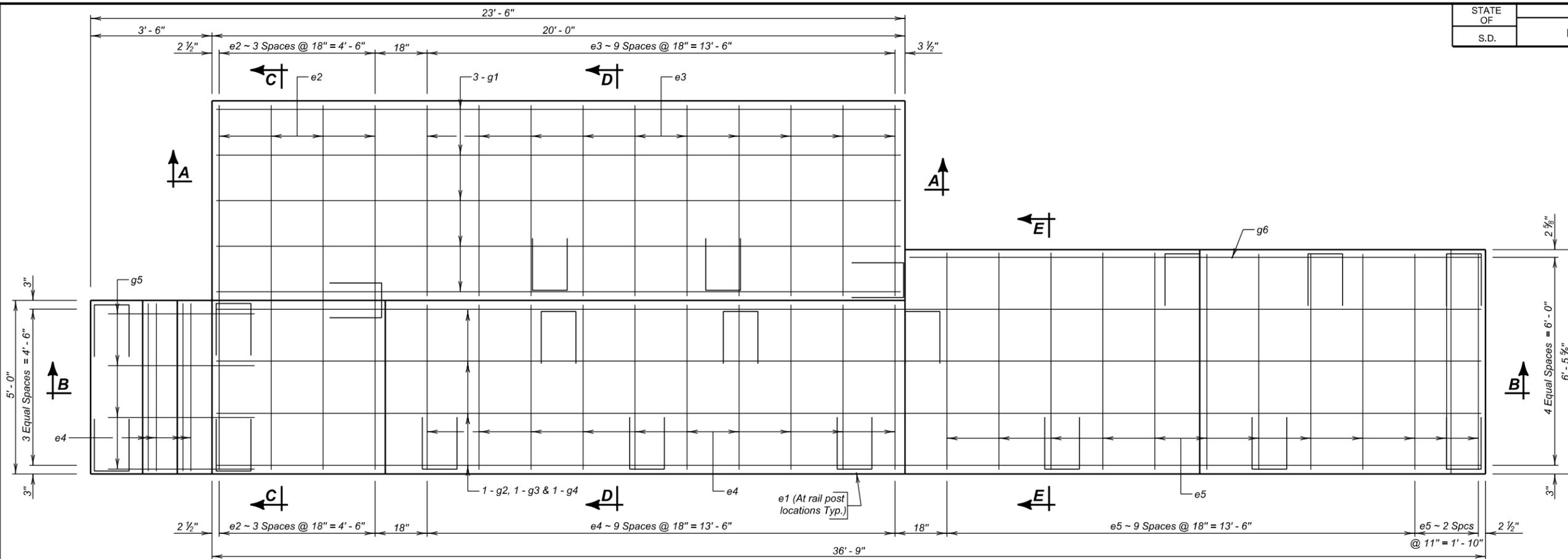
1. Curing compounds shall not be utilized on concrete stairway treads during the concrete curing process. Curing shall be accomplished with a double layer of burlap mats and polyethylene sheeting.
2. The Contractor shall apply a 2" wide slip resistant coating at the front of each stairway tread for the full width of the tread.
3. The slip resistant coating shall be a red color. The coating shall be a single component epoxy and have a minimum coefficient of friction value of 0.9 for dry and 0.9 for wet as determined by ASTM F609.
4. The slip resistant coating shall be applied in accordance with the manufacturer's recommendations.
5. All costs for furnishing and applying the slip resistant epoxy coating including equipment, labor, and materials shall be incidental to the various contract items.

**RAILING DETAILS AND NOTES
FOR
ACCESS RAMP G**

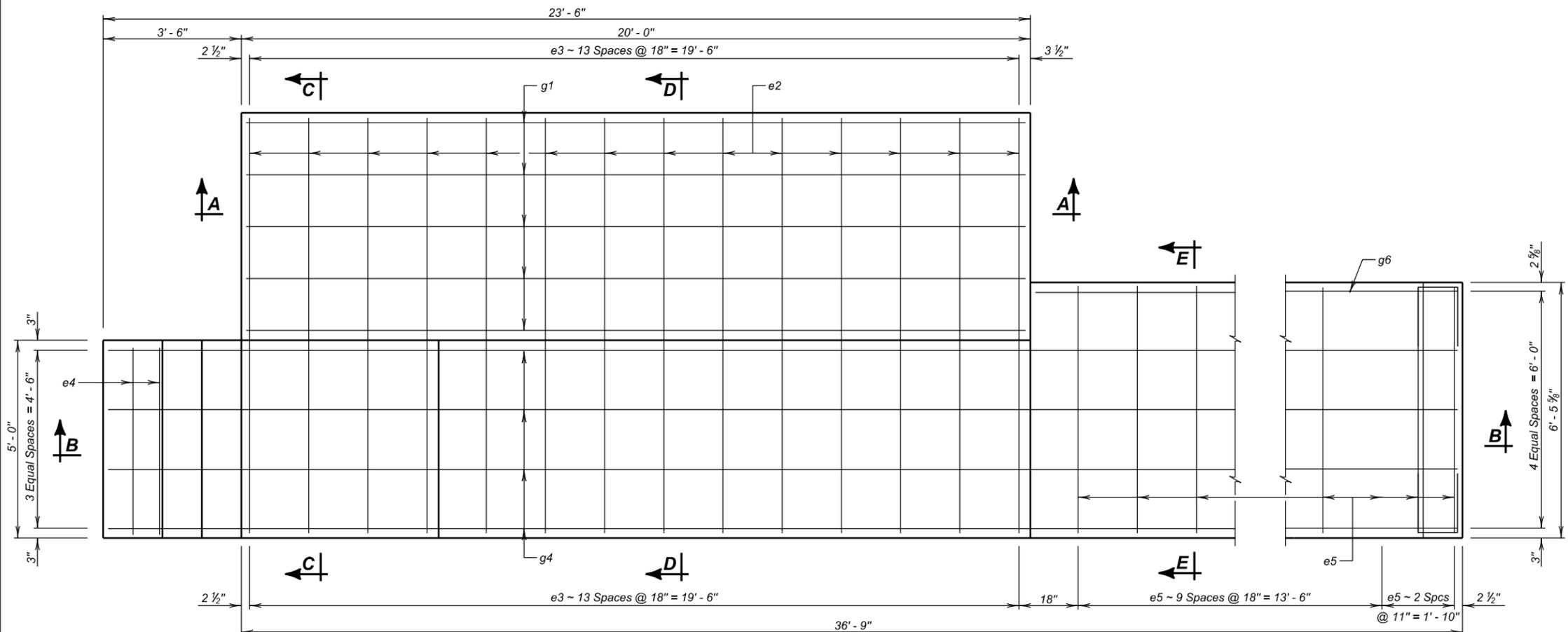
IN HOVEN STA. 42+49.35 TO STA. 42+89.60 - LT. SEC. 4-T120N-R74W P 0020(117)254

POTTER COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2014

DESIGNED BY JSM POTT02R9	CK. DES. BY BB 02R9TG02	DRAFTED BY BT	Kevin N. Coeden BRIDGE ENGINEER
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PLAN - TOP STEEL



PLAN - BOTTOM STEEL

REINFORCING SCHEDULE					
Mk.	No.	Size	Length	Type	Bending Details
e1	21	4	4'-0"	17	
e2	18	4	10'-6"	Str.	
e3	10	4	5'-6"	Str.	
e4	16	4	4'-9"	Str.	
e5	21	4	6'-3"	Str.	
* g1	15	4	19'-9"	Str.	
* g2	4	4	36'-6"	Str.	
* g3	4	4	17'-3"	Str.	
* g4	4	4	40'-0"	Str.	
* g5	4	4	5'-6"	19	
* g6	2	4	16'-6"	Str.	

NOTES:
 All dimensions are out to out of bars.
 * Bend in field as necessary to fit.

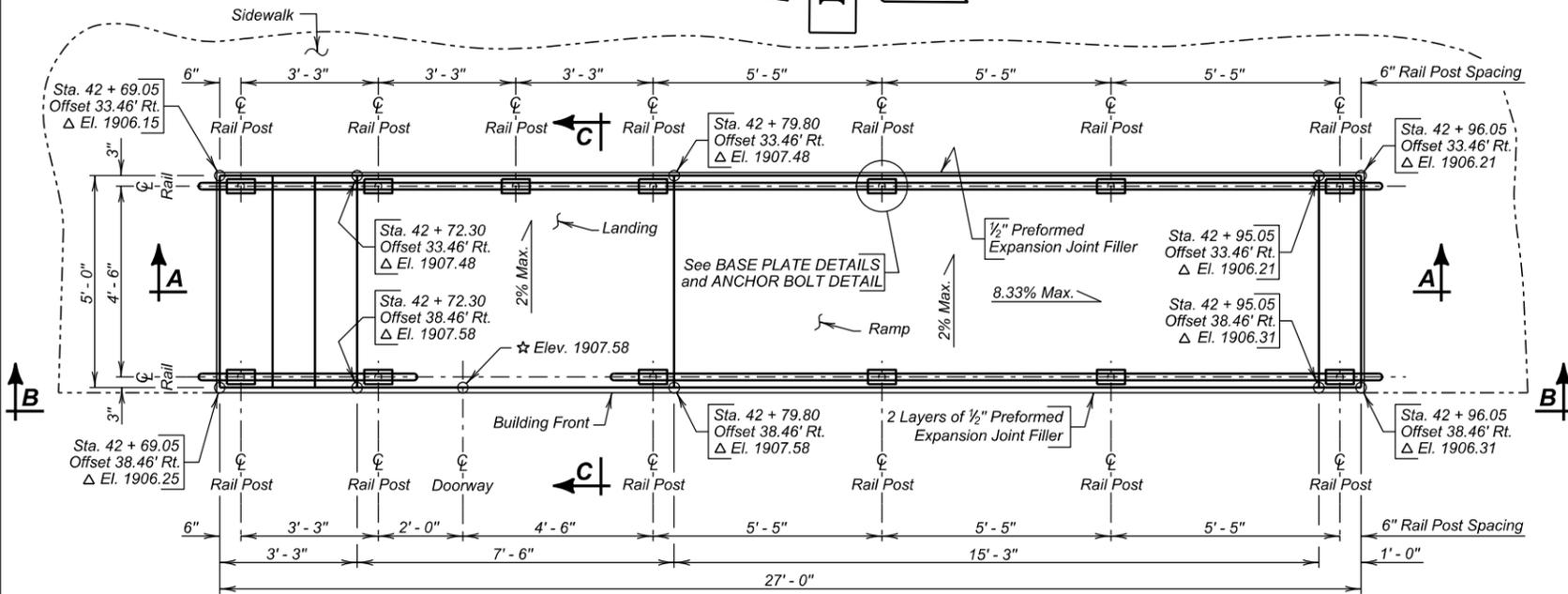
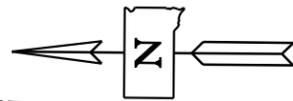
RAMP DETAILS (A)
 FOR
ACCESS RAMP G

IN HOVEN STA. 42+49.35 TO STA. 42+89.60 - LT. SEC. 4-T120N-R74W P 0020(117)254

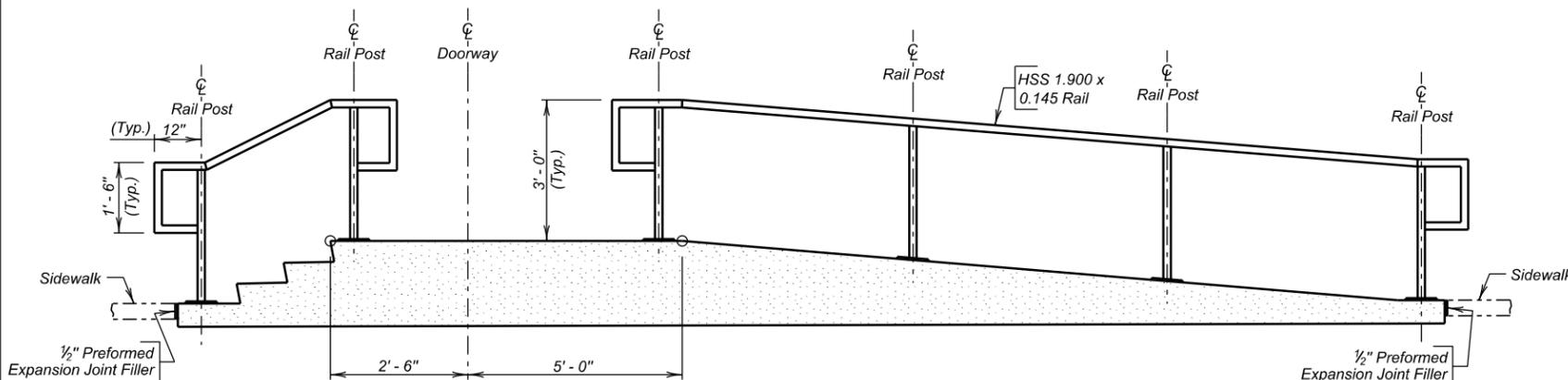
POTTER COUNTY
 S. D. DEPT. OF TRANSPORTATION
 OCTOBER 2014 3 OF 4

The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

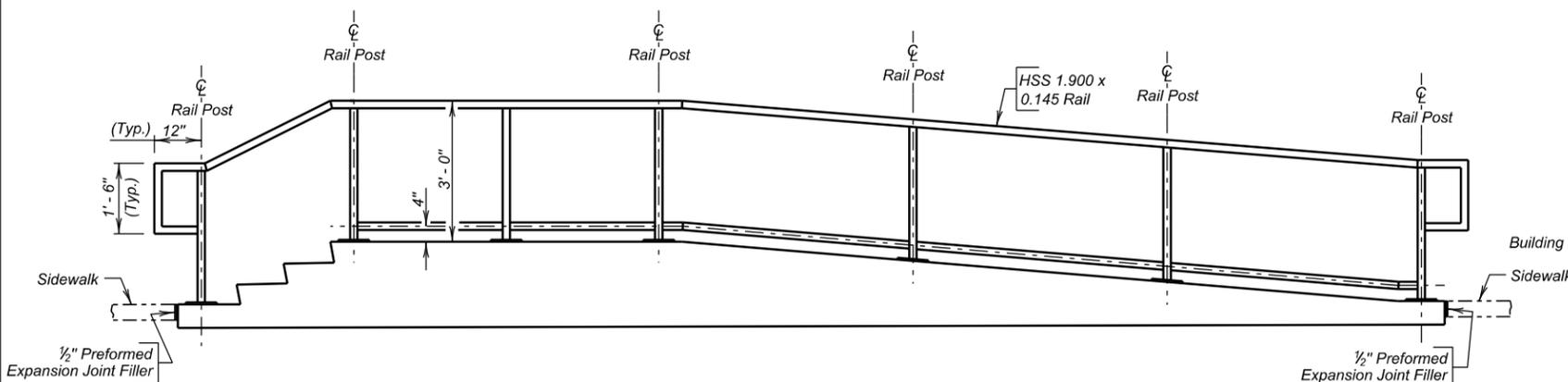
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0020(117)254	E20	E23



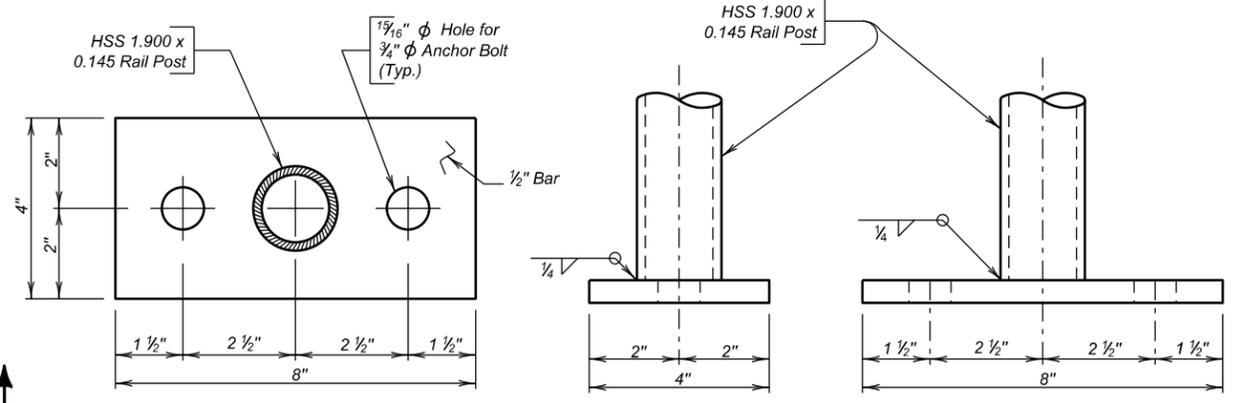
PLAN



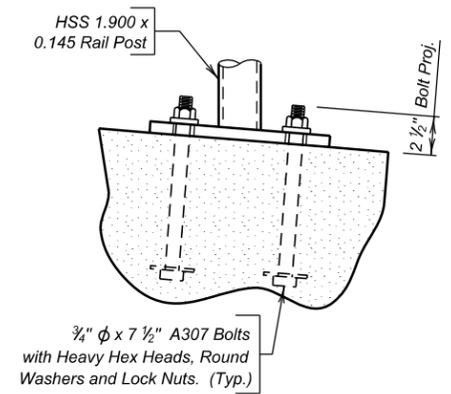
SEC. A - A



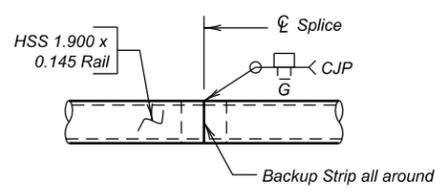
VIEW B - B



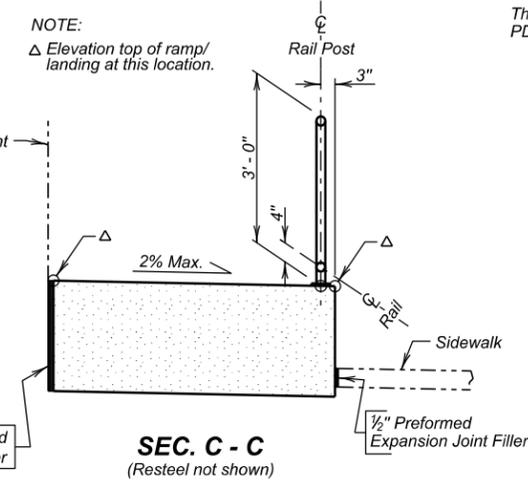
BASE PLATE DETAILS



ANCHOR BOLT DETAIL



RAIL SPLICE DETAILS



SEC. C - C
(Resteel not shown)

SPECIFICATIONS

South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

GENERAL NOTES

1. The plans elevations and slopes shown to construct the ramp and landing are based on the existing doorway threshold elevation. The doorway threshold elevation shall be field verified and if the field verified elevation is different than that shown in the plans adjust ramp and stairway elevations accordingly. If field elevations differ from plans elevations by more than one inch, contact the Bridge Construction Engineer before proceeding with construction.
2. All concrete shall be Class M6 in accordance with Section 462.
3. All reinforcing steel shall be epoxy coated and shall conform to ASTM A615, Grade 60.
4. Use 2" clear cover on all reinforcing steel except as shown.
5. All concrete shall be thoroughly tamped and spaded against forms to leave a smooth surface without honeycomb. All exposed edges shall be chamfered 3/4" except as shown.
6. Place concrete on undisturbed soil. If backfilling is necessary, compact with mechanical tampers to the satisfaction of the Engineer.
7. The concrete sidewalk shall be constructed in accordance with Section 651.
8. Cost of the 1/2" Preformed Expansion Joint Filler shall be incidental to the contract unit price per cubic yard for "Class M6 Concrete".
9. All costs for constructing ramps, stairways and pipe hand railing including labor, material equipment and incidentals necessary to complete the work shall be included in the Class M6 concrete, Epoxy Coated Reinforcing Steel and Pipe Handrail bid items. Payment will be for plans quantities regardless of the quantity actually used.

SHOP PLANS

The fabricator shall submit shop plans in accordance with the Specifications or in Adobe PDF format. Shop plan submittals shall be sent to the Office of Bridge Design.

GENERAL DRAWING & QUANTITIES FOR ACCESS RAMP H

IN HOVEN STA. 42+69.05 TO STA. 42+96.05 - RT. PCN 02R9

SEC. 5-T120N-R74W P 0020(117)254

POTTER COUNTY
S. D. DEPT. OF TRANSPORTATION

OCTOBER 2014

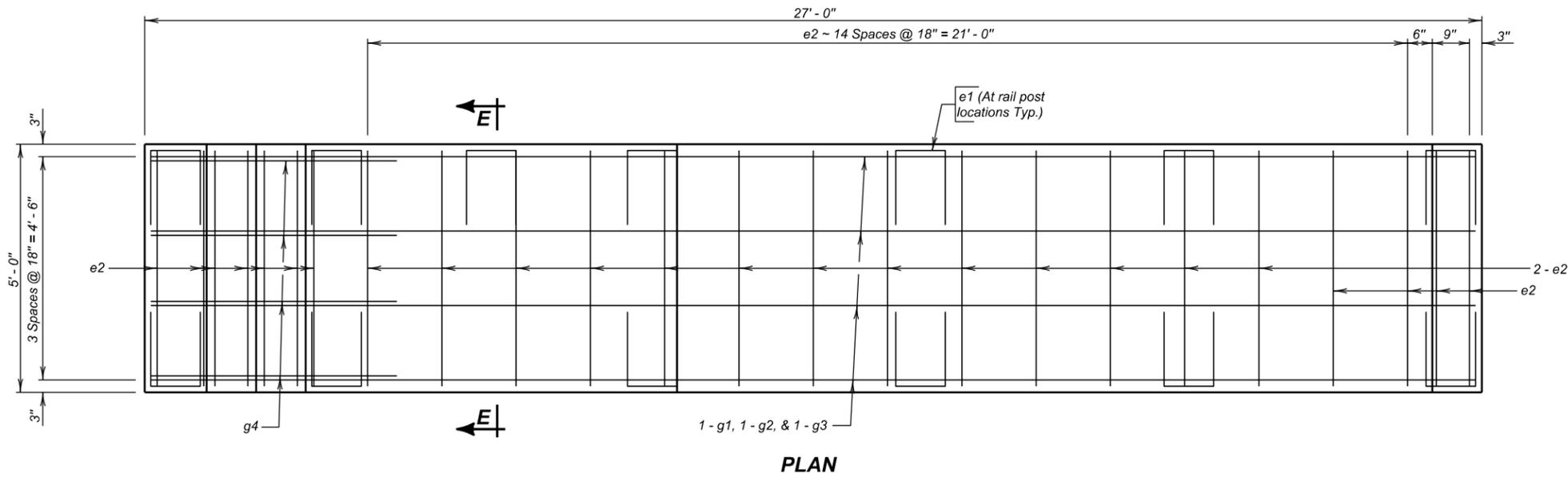
ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class M6 Concrete	Cu. Yd.	6.3
Epoxy Coated Reinforcing Steel	Lb.	346
Pipe Handrail	Ft.	52

INDEX OF SHEETS-
Sheet No. 1 - General Drawing & Quantities
Sheet No. 2 - Ramp Details

PLANS BY:
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY JSM POTT02R9	CK. DES. BY MG 02R9GH01	DRAFTED BY MG	Kevin N. Goeden BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0020(117)254	E21	E23

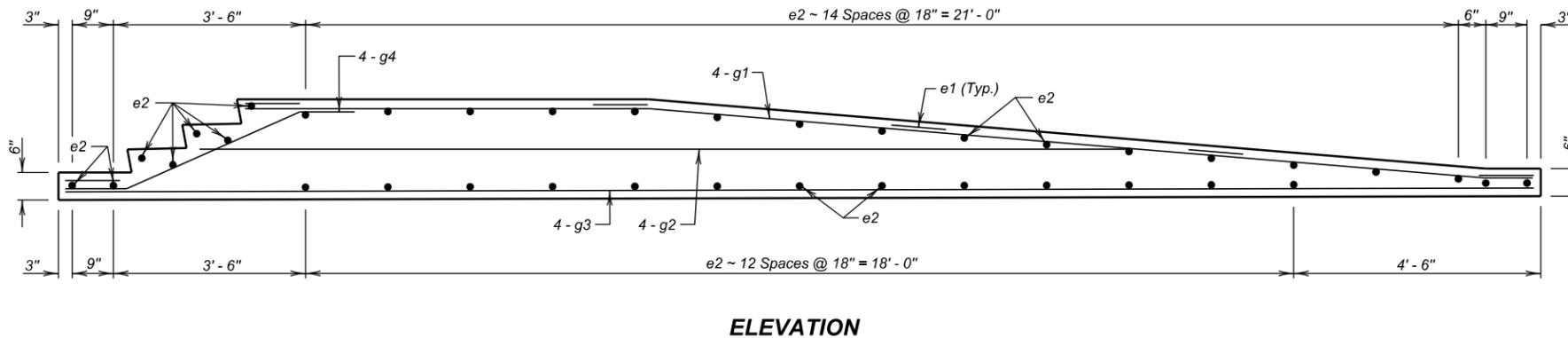


PIPE HANDRAIL

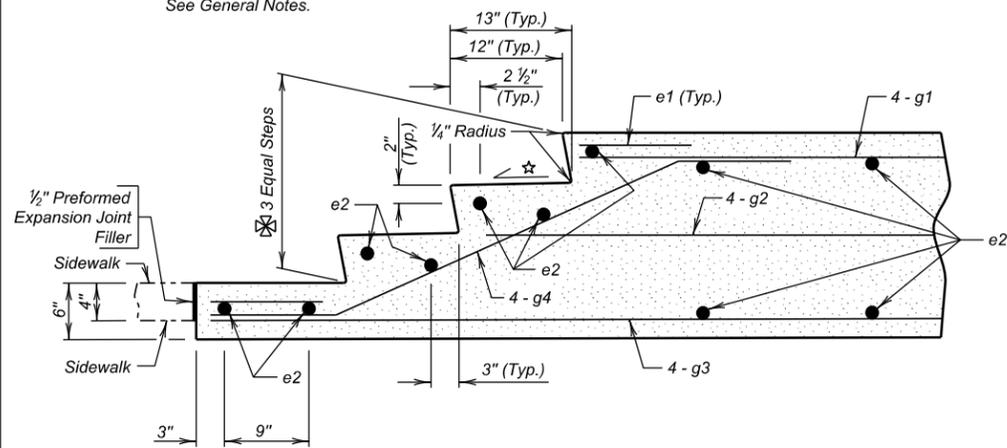
1. Pipe handrail shall not be ordered until the ramps, landings and stairways are constructed and field measurements for in-place length and slope are taken.
2. All rail posts shall be built vertical.
3. Steel pipe for railing and posts shall conform to ASTM A500, Grade B. Railpost base plates shall conform to ASTM A709, Grade 36.
4. The Contractor may use either cast in place anchor bolts or drilled and epoxyed anchor rods for anchoring the pipe handrail. Anchor Bolts and nuts shall conform to ASTM A307. Anchor rods shall conform to ASTM 1554, Grade 36. Washers shall be in accordance with ASTM F436. Hardware shall be galvanized in accordance with ASTM F2329. Bolts shall be hex head "Structural" type with heavy hex, lock nuts, and round washers.
5. All anchor bolts and rods shall be tightened to a torque of 120 ft./lbs. (approximated without the use of a calibrated torque wrench).
6. Epoxy shall be in accordance with ASTM C881 Type IV. Hole size shall be as per the epoxy manufacturer's recommendations. Core bits shall not be used to drill anchor rod holes.
7. Painting of steel railing shall be done in accordance with Section 411 of the Specifications. The finish color shall be an approved black.
8. Welding and weld inspection shall be done in accordance with AWS D1.1-(Current Year) Structural Welding Code - Steel.
9. The cost of structural steel, anchor bolts or anchor rods, painting, galvanizing, welding, weld inspection, and that which is incidental to the fabrication and installation of the Pipe Handrail shall be incidental to the contract unit price per foot for "Pipe Handrail".
10. Alternate rail designs, including aluminum rail, may be submitted through proper channels to the Office of Bridge Design for approval.

SLIP RESISTANT COATING FOR CONCRETE STAIRWAY

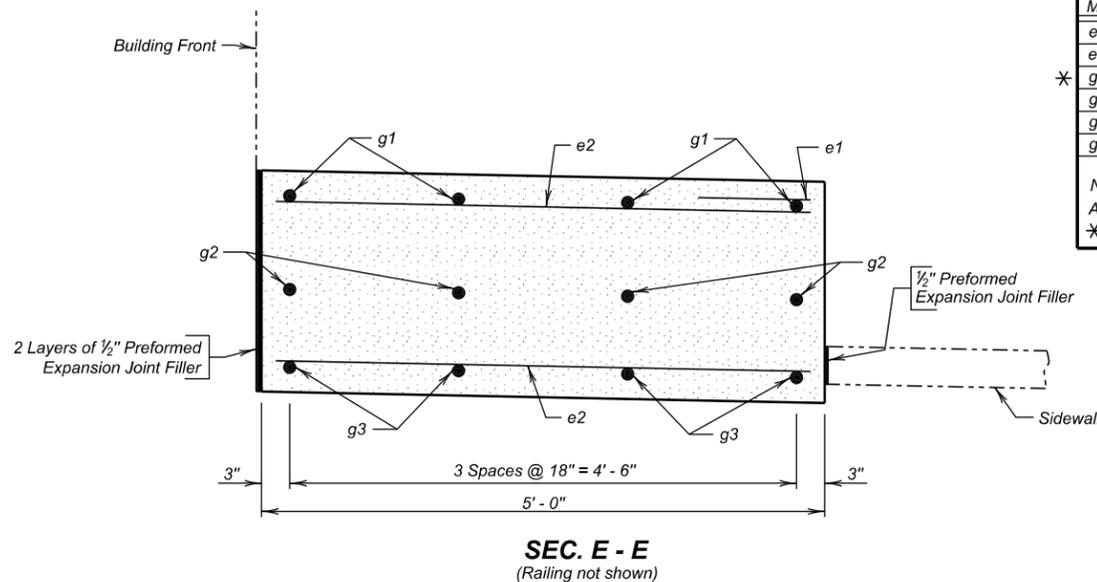
1. Curing compounds shall not be utilized on concrete stairway treads during the concrete curing process. Curing shall be accomplished with a double layer of burlap mats and polyethylene sheeting.
2. The Contractor shall apply a 2" wide slip resistant coating at the front of each stairway tread for the full width of the tread.
3. The slip resistant coating shall be a red color. The coating shall be a single component epoxy and have a minimum coefficient of friction value of 0.9 for dry and 0.9 for wet as determined by ASTM F609.
4. The slip resistant coating shall be applied in accordance with the manufacturer's recommendations.
5. All costs for furnishing and applying the slip resistant epoxy coating including equipment, labor, and materials shall be incidental to the various contract items.



Based on elevations and dimensions shown. See General Notes.



NOTE: Slope 1/4" per foot max.



REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type	Bending Details
e1	13	4	4'-0"	17	<p>Type 17</p> <p>Type 19</p>
e2	37	4	4'-9"	Str.	
g1	4	4	23'-6"	Str.	
g2	4	4	17'-0"	Str.	
g3	4	4	26'-9"	Str.	
g4	4	4	5'-4"	19	

NOTES:
All dimensions are out to out of bars.
* Bend in field as necessary to fit.

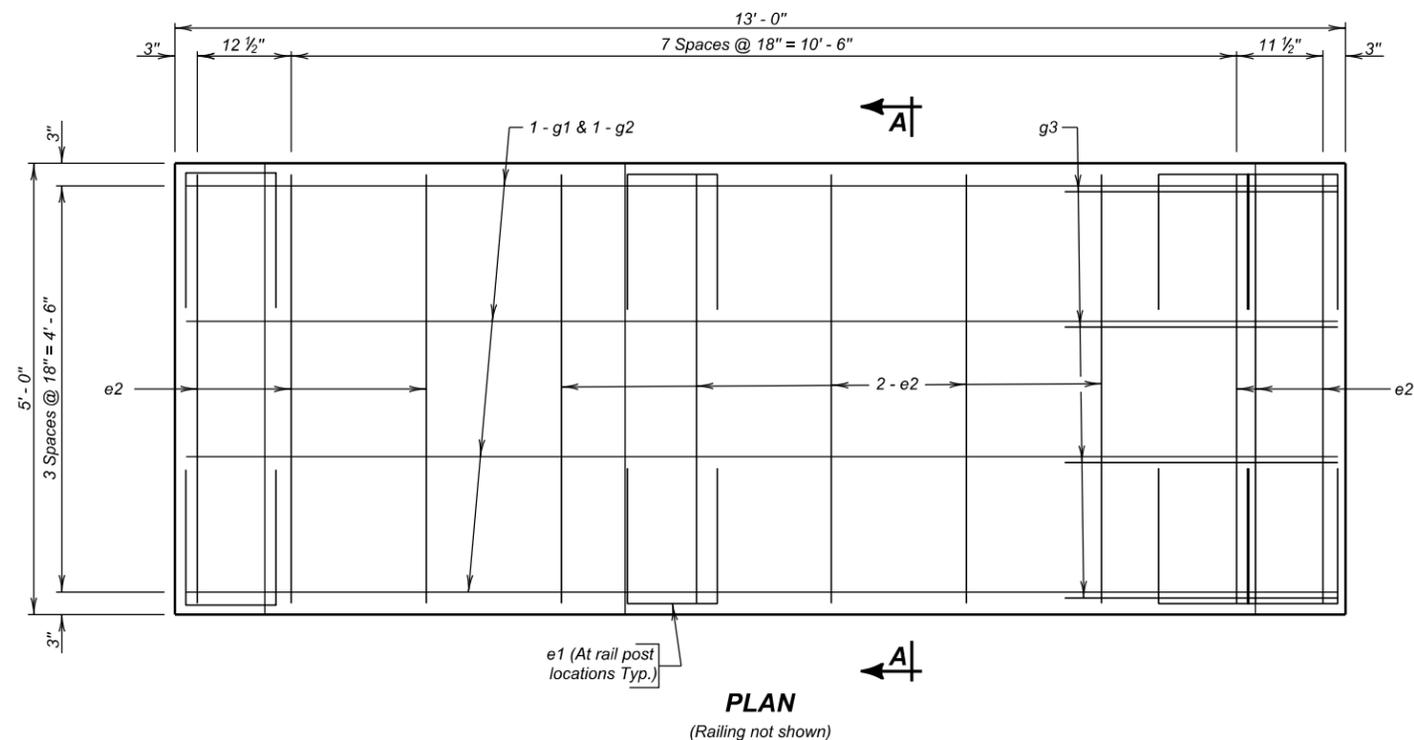
RAMP DETAILS FOR ACCESS RAMP H

IN HOVEN STA. 42+69.05 TO STA. 42+96.05 - RT.

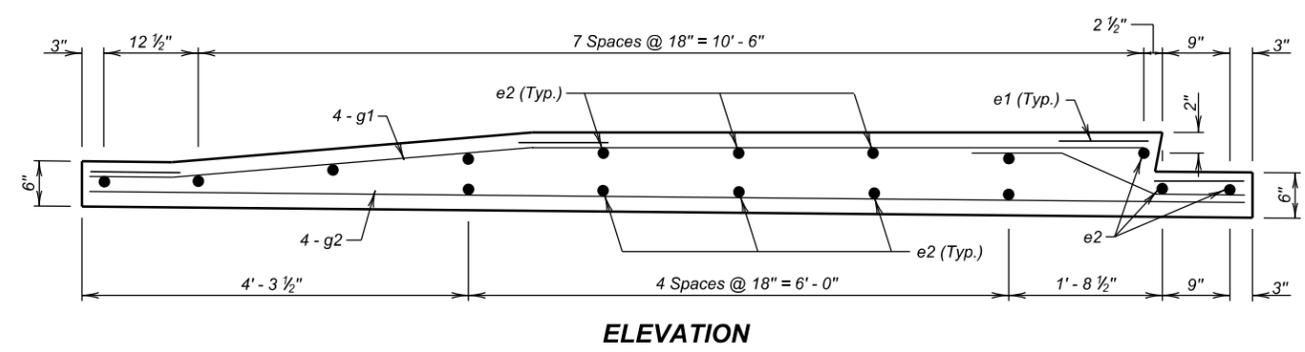
SEC. 5-T120N-R74W P 0020(117)254

POTTER COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2014

DESIGNED BY JSM POTT02R9	CK. DES. BY MG 02R9GH02	DRAFTED BY MG	Kevin N. Goeden BRIDGE ENGINEER
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- ### PIPE HANDRAIL
1. Pipe handrail shall not be ordered until the ramps, landings and stairways are constructed and field measurements for in-place length and slope are taken.
 2. All rail posts shall be built vertical.
 3. Steel pipe for railing and posts shall conform to ASTM A500, Grade B. Railpost base plates shall conform to ASTM A709, Grade 36.
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 10. Alternate rail designs, including aluminum rail, may be submitted through proper channels to the Office of Bridge Design for approval.

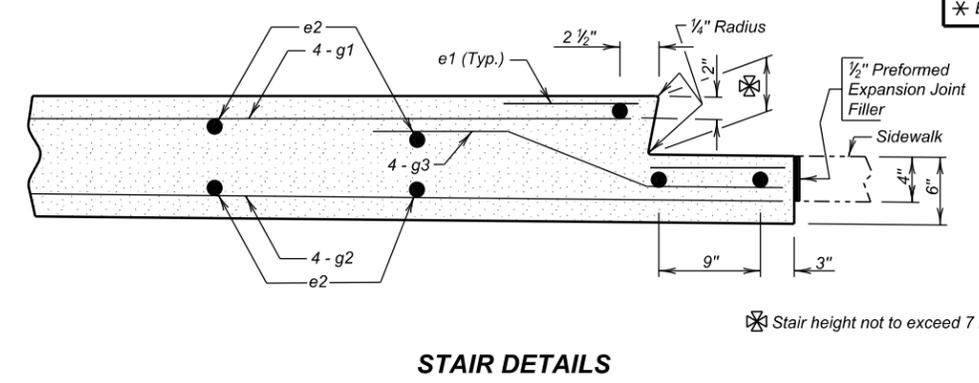
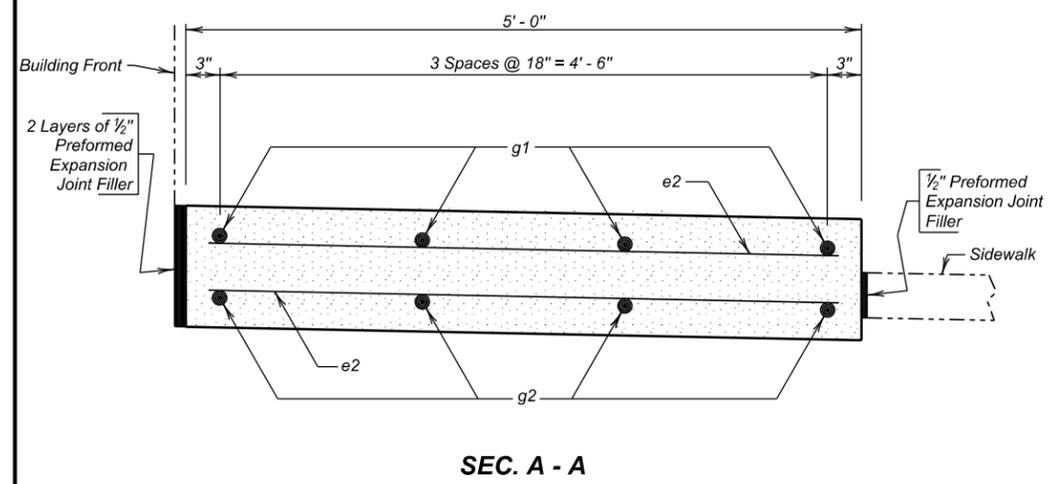


- ### SLIP RESISTANT COATING FOR CONCRETE STAIRWAY
1. Curing compounds shall not be utilized on concrete stairway treads during the concrete curing process. Curing shall be accomplished with a double layer of burlap mats and polyethylene sheeting.
 2. The Contractor shall apply a 2" wide slip resistant coating at the front of each stairway tread for the full width of the tread.
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 4. The slip resistant coating shall be applied in accordance with the manufacturer's recommendations.
 5. All costs for furnishing and applying the slip resistant epoxy coating including equipment, labor, and materials shall be incidental to the various contract items.

REINFORCING SCHEDULE				
Mk.	No.	Size	Length	Type
e1	8	4	4'-0"	17
e2	16	4	4'-9"	Str.
g1	4	4	11'-9"	Str.
g2	4	4	12'-9"	Str.
g3	4	4	3'-0"	19

Bending Details	
<p>g3 12" 1 1/16"</p>	<p>e1 1'-0"</p>
<p>5 1/4 12</p> <p>Type 19</p>	<p>Type 17</p>

NOTES:
All dimensions are out to out of bars.
* Bend in field as necessary to fit.



RAMP DETAILS FOR ACCESS RAMP I

IN HOVEN STA. 58+74.93 TO STA. 58+87.93 - RT.

SEC. 5-T120N-R74W
P 0020(117)254

POTTER COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2014