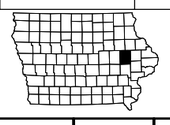
LETTING DATE
November 20, 2018

LINN Co.

UNKNOWN PAVEMENT - GRADE AND REPLACE
NHSX-151-3(158)--3H-57

INDEX OF SHEETS

* Color Plan Sheets



IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

LINN COUNTY

UNKNOWN PAVEMENT - GRADE AND REPLACE

FROM SOUTH OF CHURCH STREET
IN FAIRFAX TO SOUTH OF DEAN ROAD

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.

IOWA ONE CALL
1-800-292-8989
811
www.iowaonecall.com
Know what's below. Call before you dig.

REVISIONS

TOTAL
185
PROJECT IDENTIFICATION NUMBER
08-57-151-020
PROJECT NUMBER
NHSX-151-3(158)--3H-57
R.O.W. PROJECT NUMBER

Anticipated Project Development Schedule:

D2 - Design Field Exam
November 20, 2015

D3 - Plans for Preliminary Bridge
June 24, 2016

B1 - Bridges and Structures Layout
July 22, 2016

S2 - Identification of Soils Related ROW Issues
April 13, 2016

D5 - Plans to Right of Way
August 05, 2016

Preliminary Earthwork: 15,870 CY Cut (Total)
76,210 CY Fill (Total)
60,340 CY Borrow

For Project Location Map
Refer to Sheet A.2

DESIGN DATA URBAN		
2013 AADT	8,100	V.P.D.
2040 AADT	12,010	V.P.D.
2040 DHV	1,255	V.P.H.
TRUCKS	6	%
Total Design ESALs	--	

DESIGN DATA RURAL		
2013 AADT	13,500	V.P.D.
2040 AADT	19,800	V.P.D.
2040 DHV	1,830	V.P.H.
TRUCKS	6	%
Total Design ESALs	--	

U4 PLANS

Subject to change by final design.

U5 PLAN – Date: March 30, 2018

ANGLE RD

MORGAN BRIDGE

80TH ST SW

33RD AVE SW

BEVERLY RD

BEVERLY RD

SELZER RD

STA. 974+70.00
RESUME PROJECT

STA. 985+83.16
END PROJECT

Drainage Ditch 2
Design No. 0718

Beverly Road
Culvert

151

STA. 903+15.44
STOP PROJECT

NURSERY RD

VALLEY VIEW DR

EAST CEMETERY RD

T-82N

Prairie Creek Bridge
Design No. 0518

Drainage Ditch 1
Design No. 0618

Prairie Creek Wall
Design No. 0918

FAIRFAX

POP.
2123

UPRR Bridge
Design No. 0418

UP

Prairie Creek

OLD BRIDGE RD

STA. 843+47.28
BEGIN PROJECT

R-8W

LOCATION MAP SCALE
0 0.25 0.5
Miles

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	A.2

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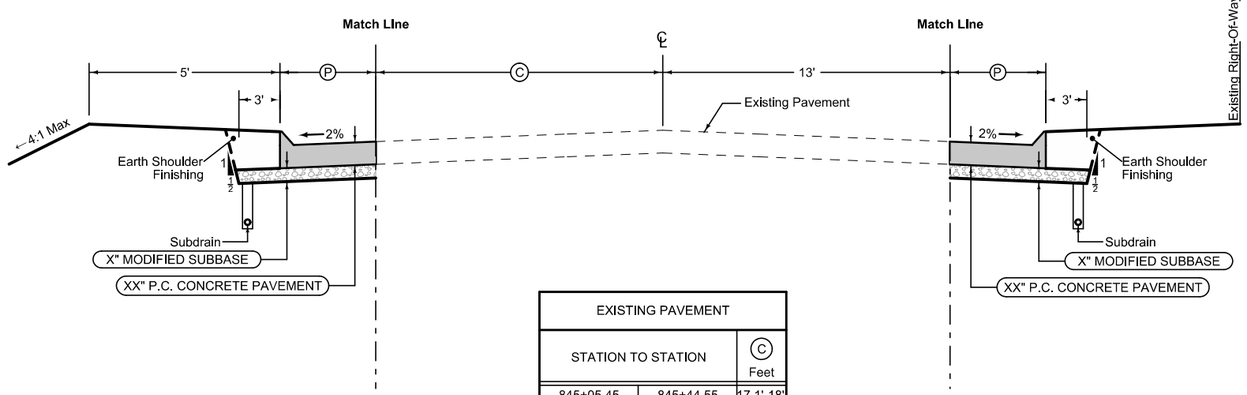
Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			1R_Curb 04-19-11
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
845+05.45	848+30.33	3'	6" Sloped



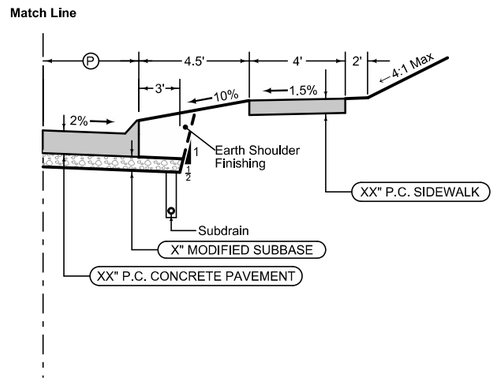
EXISTING PAVEMENT		
STATION TO STATION		(C) Feet
845+05.45	845+44.55	17.1'-18'
845+44.55	848+30.33	18'

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			1R_Curb 04-19-11
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
847+24.00	848+30.33	8'	6" Sloped

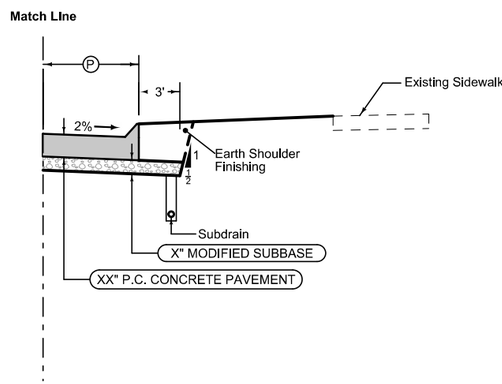


Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			1R_Curb 04-19-11
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
845+60.00	846+17.11	6.7'-8'	6" Sloped
846+17.11	847+24.00	8'	6" Sloped



Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			1R_Curb 04-19-11
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
843+88.58	845+60.00	3'-6.7'	6" Sloped

See Tab 100-24 or 100-25 for pavement quantities.

See Tab 112-9 for shoulder quantities.

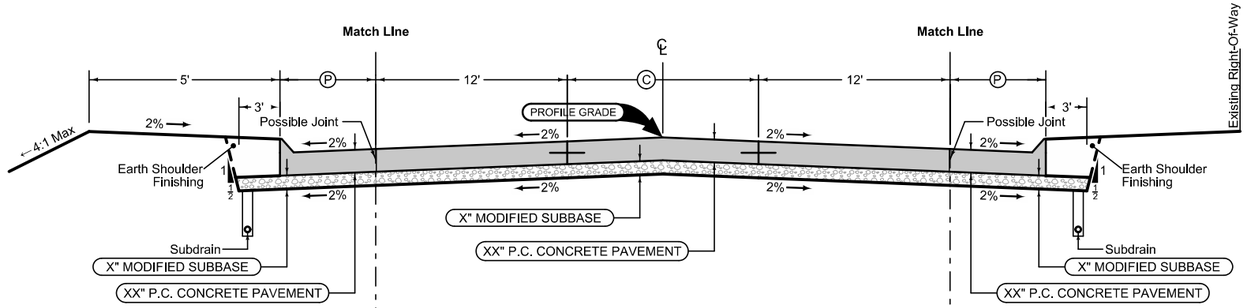
US HIGHWAY 151

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			1R_Curb 04-19-11
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
848+30.33	848+87.11	3'	6" Sloped



Curbed Shoulder

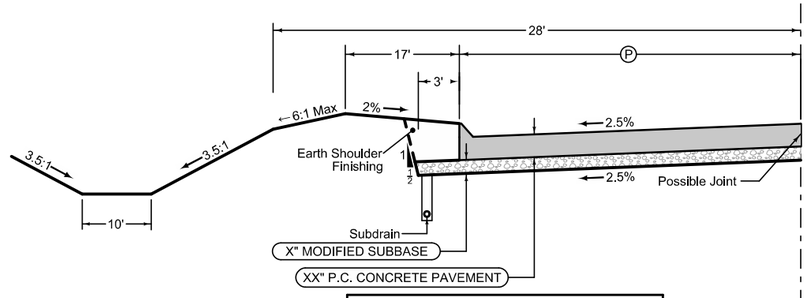
Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

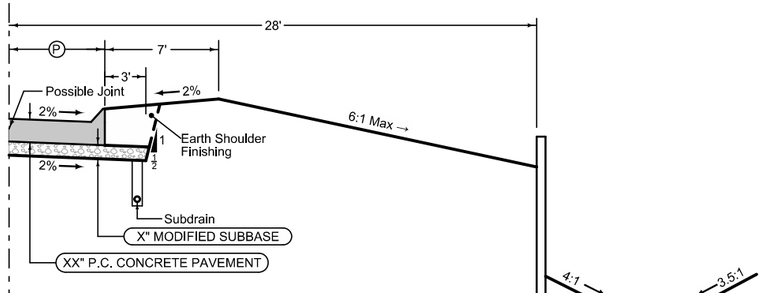
Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			1R_Curb 04-19-11
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
848+30.33	848+85.83	3'	6" Sloped

Mainline Jointing:
Transverse joints: CD at 20' spacing
Longitudinal joint: L-2

		2P_TWLTL_ 10-19-10
STATION TO STATION		(C) Feet
848+30.33	853+34.27	12'
853+34.27	855+59.10	12'-2.1'
859+06.10	861+73.36	0'-12'
861+73.36	863+59.72	12'
863+59.72	864+57.82	12'-14'
864+57.82	865+56.60	14'
869+26.20	879+37.99	14'
882+29.22	898+00.00	14'



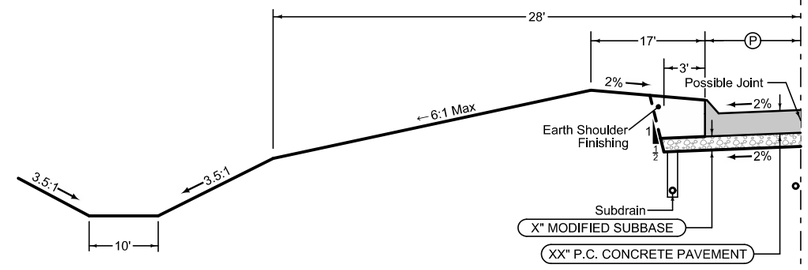


Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			1R_Curb 04-19-11
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
849+84.27	853+34.27	15'	6" Sloped
853+34.27	855+14.27	15'-3'	6" Sloped
855+19.27	855+59..13	Var.	6' Sloped



Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

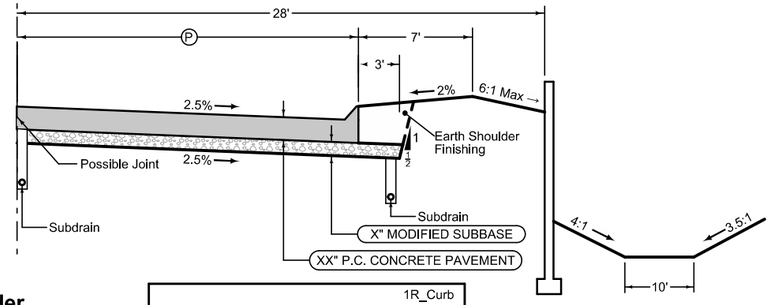
			1R_Curb 04-19-11
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
864+57.82	865+56.60	3'	6" Sloped
869+26.20	870+00.00	3'	6" Sloped
870+00.00	870+70.00	3'-10'	6" Sloped

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			1R_Curb 04-19-11
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
849+82.84	853+34.27	3'	6" Sloped
853+34.27	855+59.10	3'-8'	6" Sloped
859+06.10	859+93.36	9.0'-3'	6" Sloped
864+74.60	865+56.60	3'	6" Sloped



Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			1R_Curb 04-19-11
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
859+93.36	861+73.36	3'-15'	6" Sloped
861+73.36	863+58.36	15'	6" Sloped

See Tab 100-24 or 100-25 for pavement quantities.

See Tab 112-9 for shoulder quantities.

US HIGHWAY 151

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER B.2

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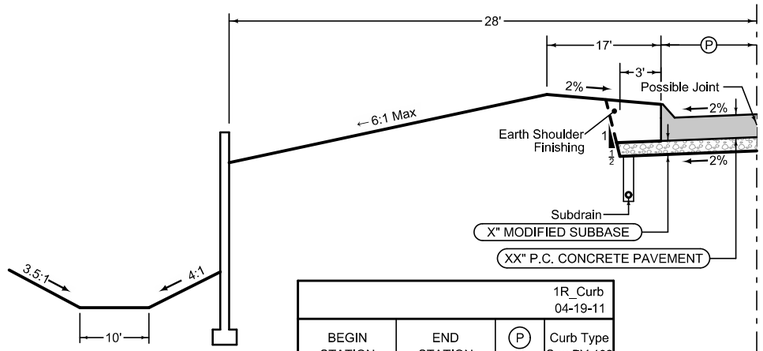
Match LIne

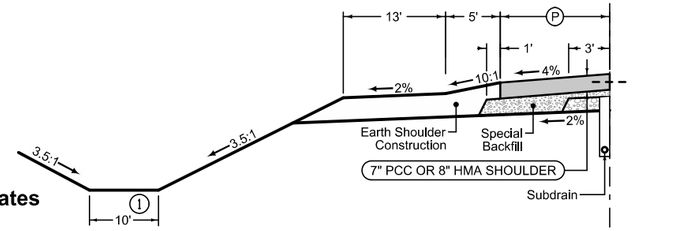


Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			1R_Curb 04-19-11
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
859+06.10	861+73.23	3'	6" Sloped
861+73.23	863+59.72	3'	6" Sloped



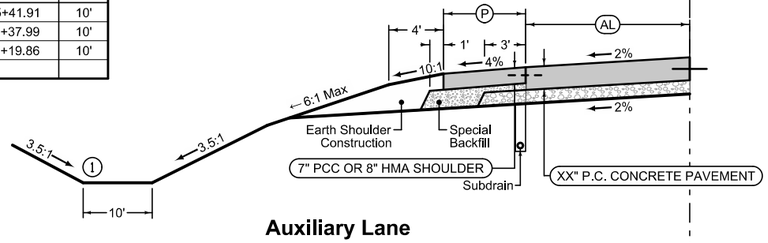
Paved Shoulder Alternates

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

		2_P_ALT_ 10-21-14
STATION TO STATION		(P) Feet
870+70.00	875+41.91	10'
876+49.90	879+37.99	10'
882+29.22	883+19.86	10'

NOTES:

(1) Ditch width varies, see cross sections



NOTES:

(1) Ditch width and backslope varies, see cross sections

Auxiliary Lane

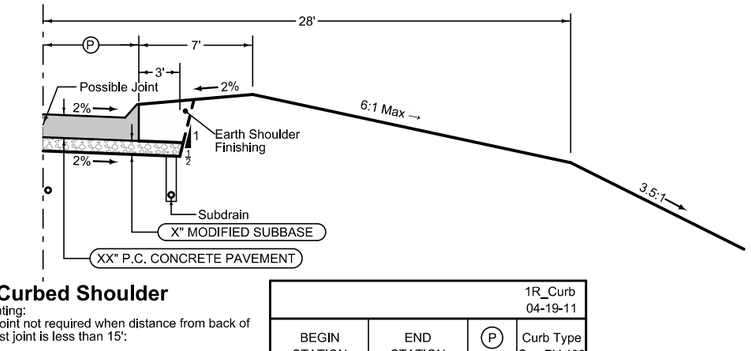
Longitudinal joint: L or KT
Transverse joint: Match Mainline

Auxiliary Lane
Paved Shoulder Alternates

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

		2_AuxLane_PCC_ 10-18-16		2_AL_Shldr_ALT_ 10-21-14
STATION TO STATION		(AL) Feet	(P) Feet	
884+25.93	887+75.30	12'	6'	
887+75.30	889+55.30	12'-0'	6'	
889+55.30	898+00.00	10'	6'	

Match LIne

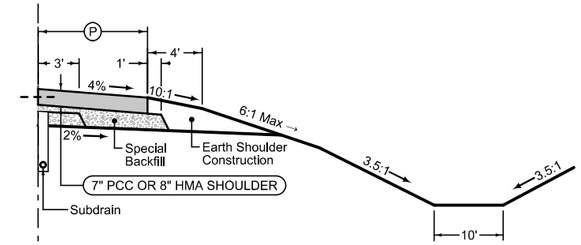


Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

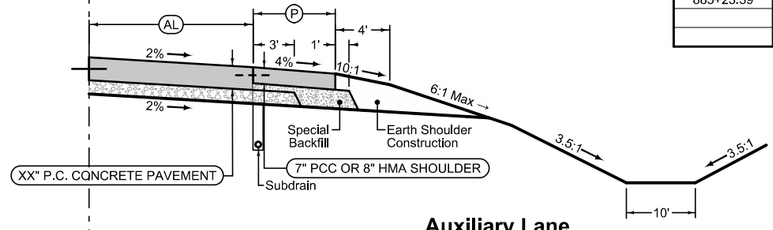
			1R_Curb 04-19-11
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
868+96.20	870+00.00	3'	6" Sloped
870+00.00	870+70.00	3'-10'	6" Sloped



Paved Shoulder Alternates

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

		2_P_ALT_ 10-21-14
STATION TO STATION		(P) Feet
870+70.00	879+37.99	10'
885+23.39	898+00.00	10'



Auxiliary Lane
Paved Shoulder Alternates

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

		2_AuxLane_PCC_ 10-18-16		2_AL_Shldr_ALT_ 10-21-14
STATION TO STATION		(AL) Feet	(P) Feet	
882+29.22	882+78.25	8.4'-12'	6'	
882+78.25	883+95.73	12'	6'	

See Tab 100-24 or 100-25 for pavement quantities.

See Tab 112-9 for shoulder quantities.

US HIGHWAY 151

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	B.3

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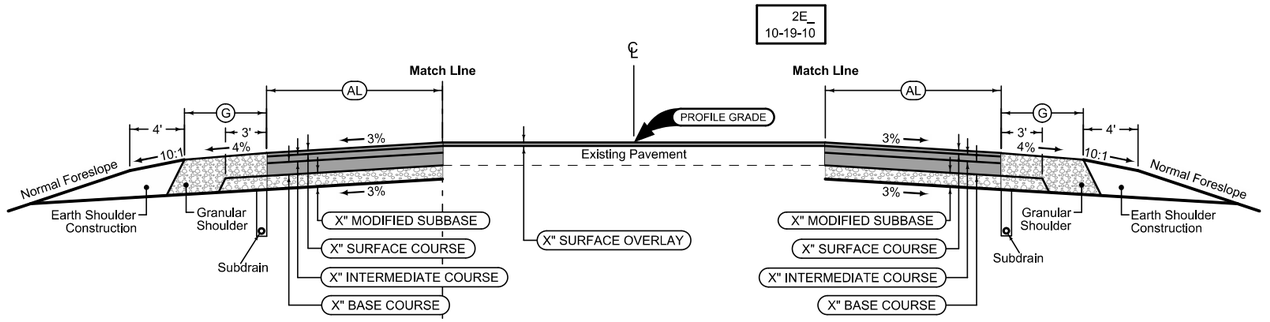
Auxiliary Lane

Longitudinal joint: B

Auxiliary Lane Granular Shoulder

2_AuxLane_HMA_ 10-18-16		2_AL_Shldr_G_ 10-19-10	
STATION TO STATION		(AL) Feet	(G) Feet
898+00.00	899+00.00	5'±-0'	6'
899+00.00	900+00.00	5'-0'	6'
900+00.00	902+58.42	0'	6'



Auxiliary Lane

Longitudinal joint: B

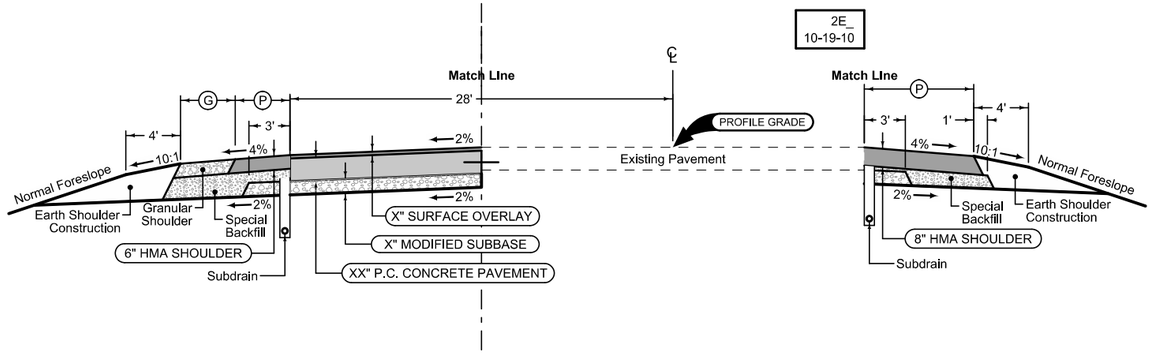
Auxiliary Lane Granular Shoulder

2_AuxLane_HMA_ 10-18-16		2_AL_Shldr_G_ 10-19-10	
STATION TO STATION		(AL) Feet	(G) Feet
898+00.00	901+14.21	8'	6'
901+14.21	902+58.42	8'-4'	6'

Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

2_C_ 10-15-13			
STATION TO STATION		(P) Feet	(G) Feet
974+69.95	979+30.00	4'	6'
981+15.00	982+06.32	13.3'	0'
982+06.32	982+49.62	13.3'-15	0'
982+49.62	982+76.24	15'	0'
982+76.24	984+83.16	4'	6'



HMA Shoulder

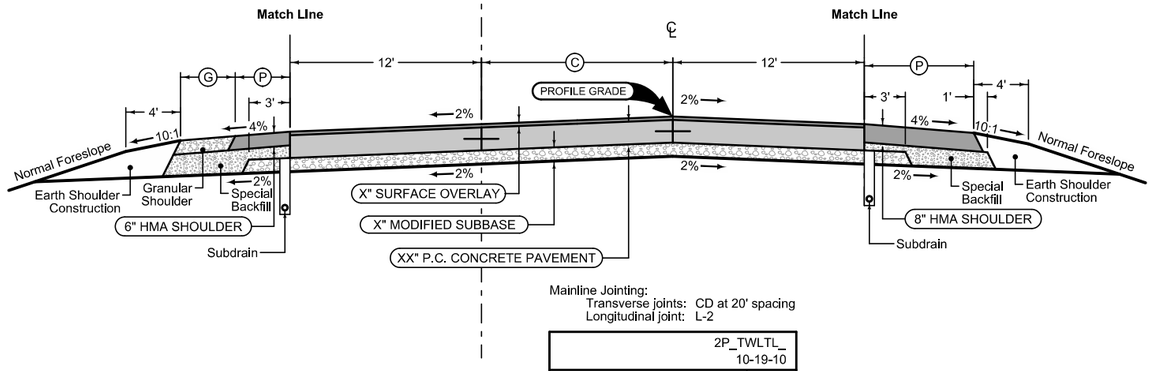
Shoulder Jointing:
Longitudinal joint: B

2_P_HMA_ 10-19-10		
STATION TO STATION		(P) Feet
977+81.50	978+01.97	6.9'-5.3'
978+01.97	978+51.41	5.3'-3.2'
978+51.41	979+30.00	3.2'

Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

2_C_ 10-15-13			
STATION TO STATION		(P) Feet	(G) Feet
979+30.00	979+80.00	4'	6'
979+80.00	981+15.00	13.3'	0'



Mainline Jointing:
Transverse joints: CD at 20' spacing
Longitudinal joint: L-2

2P_TWLTL_ 10-19-10		
STATION TO STATION		(C) Feet
979+30.00	981+15.00	16'

HMA Shoulder

Shoulder Jointing:
Longitudinal joint: B

2_P_HMA_ 10-19-10		
STATION TO STATION		(P) Feet
979+30.00	980+65.15	13.3'
980+65.15	981+15.00	10'

See Tab 100-24 or 100-25 for pavement quantities.

See Tab 112-9 for shoulder quantities.

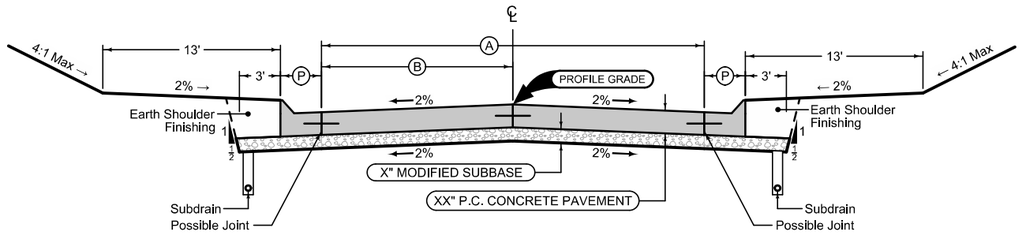
US HIGHWAY 151

Curbed Shoulder

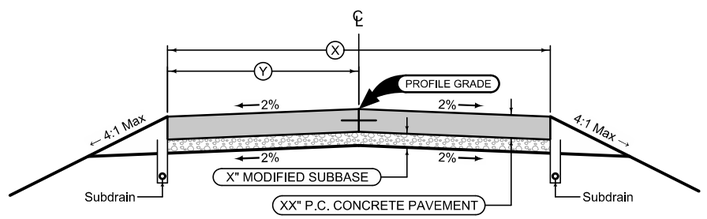
Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			2_Curb_ 04-19-11
STATION TO STATION		Ⓟ Feet	Curb Type See PV-102
1849+85.37	1849+96.58	3'	6" Std.
2864+82.50	2865+30.81	3'	6" Std.
3862+86.45	3864+59.42	3'	6" Std.



LOCATION			DIMENSIONS	
ROAD IDENTIFICATION	STATION TO STATION		Ⓐ Feet	Ⓑ Feet
CHURCH STREET	1849+85.37	1849+96.58	31'	15.5'
PRAIRIE AVENUE	2864+82.50	2865+30.81	23'	11.5'
LOSEY AVENUE	3862+86.45	3864+56.28	17'	8.5'



LOCATION			DIMENSIONS	
ROAD IDENTIFICATION	STATION TO STATION		Ⓧ Feet	Ⓨ Feet
CHURCH STREET	1847+83.00	1848+71.36	24'-37'	12'-15.5'
CHURCH STREET	1849+96.58	1850+86.58	37'-25'	18.5'-12.5'
CHURCH STREET	1850+86.58	1851+00.00	25'	12.5'
PRAIRIE AVENUE	2865+30.81	2866+50.00	23'	11.5
STALLMAN DRIVE	4874+25.00	4875+43.95	25'	12.5'
CEMETERY ROAD	5882+30.00	5883+14.67	25'	12.5'

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			2_Curb_ 04-19-11
STATION TO STATION		Ⓟ Feet	Curb Type See PV-102
1849+86.58	1849+96.58	3'	6" Std.
2864+82.50	2865+30.81	3'	6" Std.
3862+85.37	3864+56.28	3'	6" Std.

SURVEY SYMBOLS

- CP Control Point
- BM Bench Mark
- PPA Power Pole Co. 1
- PLG Location of General Photo
- IN Storm Sewer Intake
- SI Sign
- LC Lot Corner
- BB Billboard
- WV Water Valve
- WH WHD Water Hydrant
- TP TPD Telephone Pedestal
- TDC Tree Deciduous
- TEV Evergeen Tree
- SHR Shrub
- PR Electric Riser Pole
- SL Speed Limit Sign
- MH Utility Access (Manhole)
- MIS Miscellaneous
- MM Mile Marker Post
- WEL Well
- LUM Luminaire
- GP Guard Post (Less Than 4 Posts)
- GV Gas Valve
- EB Electrical Box
- UB Utility Box
- FLG Flag Poles
- FHD Fire Hydrants
- STP Stump
- OUT Tile Outlet
- INB Storm Sewer Beehive Intake
- S Soil Sampling Site (Wetlands)
- TVP TV Pedestal
- SP Stream Profile
- TW Top of Water
- BLD Building or Foundation
- LIN Miscellaneous Line
- ST Spiral Point
- RET Retaining Walls
- BRG Bridge
- TLNR Tree Line Right
- TLNL Tree Line Left
- CON Concrete or A/C Slab
- CUL Culvert
- FCL Chain Link and Security Fence
- GDL Guard Rail Steel
- BL Topo Breakline
- FWD Wood Fence
- D Centerline Draw or Stream (Down)
- DU Centerline Draw or Stream (Up)
- FW Wire Fence
- PIP Pipe Culvert
- RRR Railroad Rail
- CU Back of Curb
- ENU Edge Unpaved Entrance & Parking
- ENP Edge Paved Entrance & Park Lot
- EP Edge of Paved Roads (ML or SR)
- GU Gutter In Front of Curb
- SNP Unpaved Shoulder
- BNK Stream Bank
- EG Edge of Gravel Road
- EW Edge of Water
- ENT Centerline BL of Entrance
- SH Paved Shoulder
- RIP Rip-Rap
- TRL Trail
- SWK Sidewalk
- TV Satelite TV Dish
- TR Telephone Riser Pole
- TSB Telephone Switch Box
- UV Underground Utility Vault
- VS Channel Cross Section
- BLS Bridge Low Steel

- G(C) – GL1C Gas Line Co. 1 - Quality C
- G – GL1D Gas Line Co. 1 - Quality D
- Default_Chain Default Chain Feature
- W3 – WL3D Water Line Co. 3 - Quality D
- San. – SA1D Sanitary Sewer Co. 1- Quality D
- T(C) – TL1C Telephone Line Co. 1 - Quality C
- St.S.(C) – ST1C Storm Sewer Co. 1 - Quality C
- ST Spiral Point
- San.(C) – SA1C Sanitary Sewer Co. 1- Quality C
- San.2 – SA2D Sanitary Sewer Co. 2 - Quality D

UTILITY LEGEND

- PPA Alliant Energy
- TPD Telephone Pedestal
- WV Water Valve
- WHD Water Hydrant
- PR Electic Riser Pole
- GV Gas Valve
- EB Electrical Box
- UB Utility Box
- FHD Fire Hydrants
- TVP TV Pedestal
- G – GLA MidAmerican Energy
- E2 – ELB Linn County Rural Electric Cooperative
- FO – FOA South Slope Phone Internet Television
- FO2 – FOB Mediacom
- FO3(C) – FOC Sprint/Nextel
- San.(C) – SA1C City of Fairfax
- San. – SA1D City of Fairfax
- San.2 – SA2D City of Cedar Rapids
- T1 – TLA South Slope Phone Internet Television
- T2 – TLB Centurylink
- TV – TVA Underground TV Cable Co. 1
- W – Water Line City of Cedar
- W2 – Water Line City of Cedar Rapids
- W3 – Water Line City of Fairfax

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING	**Design Color No.**	
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

Reference Point
Station

- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

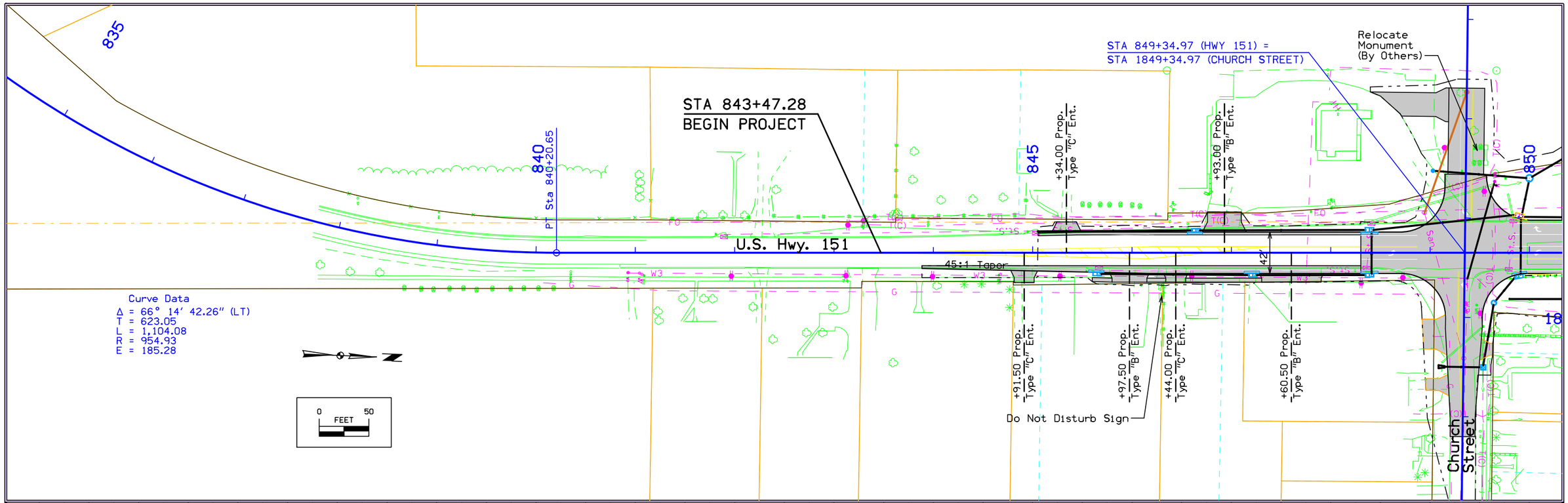
- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- C/A Access Control
- Property Line

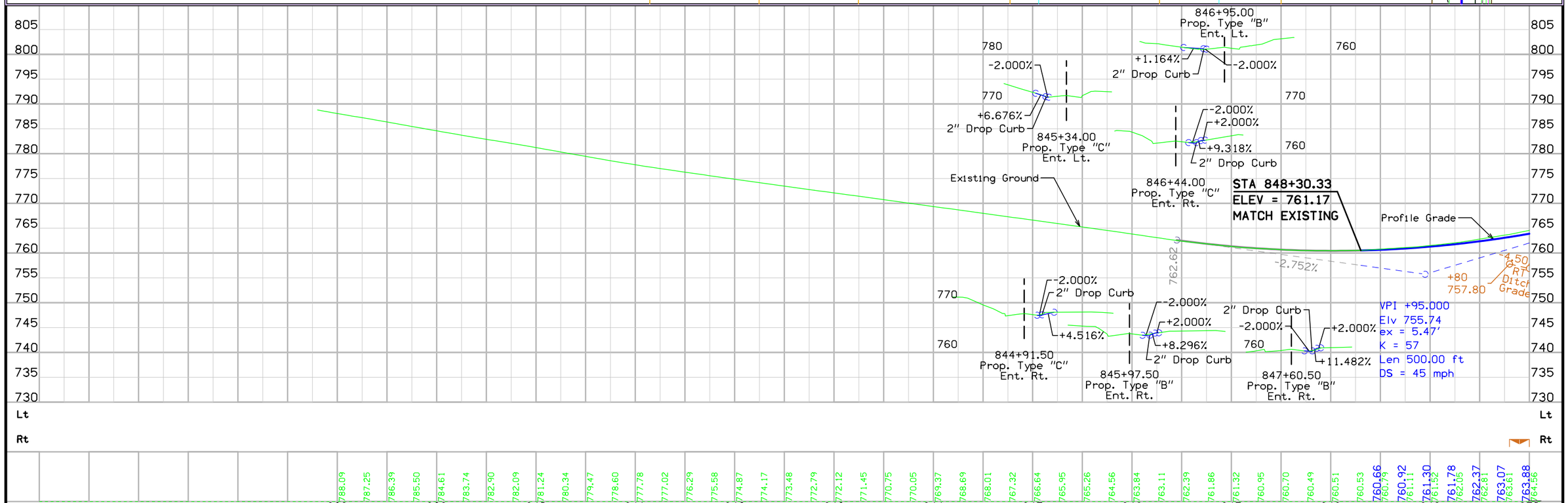
PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES D, E, F, & K)

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	D.1

4:27:32 PM 3/30/2018 amarsh pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158LGD.sht





FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	D.2

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Sta. 852+26.00 U.S. Hwy. 151
Install 42"x170' 3000D RCP
F.L. = Lt. 752.04
Rt. 754.30

Sta 857+23.00
144'-10"x30'-0" I-Beam
Span Bridge with 0° skew
(Remove)

FAIRFAX TWP.
T-82N R-8W
SEC. 16

FAIRFAX TWP.
T-82N R-8W
SEC. 9

Union Pacific Railroad

STA 864+19.80 (HWY 151) =
STA 2864+19.80 (PRARIE AVENUE)

+19.80 Prop. Type "C" Ent.

Proposed MSE Wall

15:1 Taper

U.S. Hwy. 151

45:1 Taper

Sta 857+32.60
Construct 204'-0" x 40'-0"
Pretensioned Prestressed Concrete
Beam Bridge with 4° Skew (R.A.)

Losey Avenue

Prairie Avenue

0 FEET 50

VPI +32.600
Elv 806.00
ex = -11.25'
K = 62
Len 750.00 ft
SSD = 288'
DS = 45 mph

+6.000% -6.000%

+5.390% +0.500% +1.955%
+1.700%
10' V.C. 10' V.C.

864+19.80
Prop. Type "C"
Paved Ent. Rt.

+2.000% +0.500% +1.955%
+15.000%
10' V.C.

864+19.80
Prop. Type C
Granular Ent. Lt.

Profile Grade

Existing Ground

VPI +50.000
Elv 762.96
ex = 3.09'
K = 82
Len 450.00 ft
DS = 45 mph

+00 756.90
+26 754.30
+50 752.50
-1.15% RT Ditch Grade
-0.26% LT Ditch Grade

+00 758.30
+50 759.50
+25 751.01
+2.40% Ditch Grade
+1.07% RT Ditch Grade

+00 756.25
+0.25% LT Ditch Grade

+00 756.75
+3.00% LT Ditch Grade

+00 759.75
+1.20% LT Ditch Grade

+00 762.15
+25 762.83
+2.72%

+50 748.30

Ditch Grade
Ditch Grade
Ditch Grade
U.A.C. Ex. Ditch
No Ditch

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER D.3

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Sta 867+44.52
160'-0"x30'-0" Continuous I-Beam
Bridge with 0° skew (Remove)

Sta 867+41.69
Construct 209'-0" x 40'-0"
Pretensioned Prestressed Concrete
Beam Bridge with 30° Skew (R.A.)

Proposed Wall

PC Sta 870+29.88

U.S. Hwy. 151

Stallman Drive

STA 876+00.00 (HWY 151) =
STA 4876+00.00 (STALLMAN DRIVE)

+31.00 Prop. Type "C" Ent.

+50.00 Prop. Type "B" Ent.

Curve Data
Δ = 61° 52' 59.64" (RT)
T = 1,144.91
L = 2,062.78
R = 1,909.86
E = 316.88

Prairie Creek

FAIRFAX TWP.
T-82N R-8W
SEC. 9

0 FEET 50

-3.800%
+4.200%
+0.566%
878+31.00
Prop. Type "C"
Ent. Lt.

Profile Grade
Existing Ground
-0.500%
+0.500%
VPI +50.000
Elv 757.46
ex = 0.28'
K = 100
Len 150.00 ft
DS = 50 mph

+25 750.66
-3.30%
Ditch Grade
+00 748.19
-1.87%
Ditch Grade
+90 746.50
+30 742.00
+25 745.92
+50 746.00
+1.50% RT Ditch Grade
+00 748.25
1.00% RT Ditch Grade
+50 748.75
+0.30% LT Ditch Grade
+50 747.50
+50 756.60
+1.000% LT Ditch Grade
+00 756.30
+50 759.00
1.50% LT Ditch Grade
+50 757.50
+1.000%
+00 754.00
1.00% Ditch Grade
-4.200%
-4.200%
-5.593%
877+50.00
Prop. Type "B"
Ent. Rt.

Lt: Ditch Grade | Ditch Grade | U.A.C. Existing Ditch | Ditch Grade | Ditch Grade | Lt
Rt: Ditch Grade | Ditch Grade | U.A.C. Existing Ditch | No Ditch | Rt

865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880
764.58 761.30	763.96 760.55	763.41 759.80	762.94 759.31	762.55 758.87	762.23 758.60	761.99 758.50	761.83 758.35	761.71 758.18	761.58 758.06	761.46 757.93	761.33 758.20	761.21 758.19	761.08 758.66	760.96 758.29	760.83 758.25	760.71 758.35	760.58 758.42	760.46 758.48	760.33 758.53	760.21 758.59	760.08 758.60	759.96 758.61	759.83 758.66	759.71 758.69	759.58 758.69	759.46 758.75	759.33 758.80	759.21 758.81	759.08 758.80	758.96 758.85	758.83 758.89	758.71 758.95	758.58 758.98	758.46 759.08	758.33 759.13	758.21 759.12	758.08 759.18	757.96 759.24	757.83 759.22	757.74 759.25	757.71 759.29	757.74 759.31	757.83 759.38	757.99 759.43	758.21 759.49	758.46 759.54	758.71 759.58	758.96 759.62	759.21 759.65	759.46 759.66	759.71 759.69	759.96 759.71	760.21 759.75	760.46 759.79	760.71 759.81	760.96 759.83	761.21 759.85	761.46 759.87	761.71 759.88	761.96 759.89

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	D.4

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Curve Data
Δ = 61° 52′ 59.64″ (RT)
T = 1,144.91
L = 2,062.78
R = 1,909.86
E = 316.88

Sta 880+89.90
24′-0″x44′-0″ I-Beam
and PPC Beam Bridge
with 0° skew (Remove)

STA 884+11.00 (HWY 151) =
STA 5884+11.00 (CEMETERY ROAD)

Construct PCC
Trail Under
Bridge

Sta 880+85.25
Construct 140′-0″ x 58′-0″
Continuous Concrete Slab
Bridge with 15° Skew (L.A.)

Cemetery Road

U.S. Hwy. 151

Do Not Disturb Sign

+96.75 Prop. Type "B" Ent.

+21.00 Prop. Type "B" Ent.

+10.00 Prop. Type "B" Ent.

+18.50 Prop. Type "B" Ent.

Pt. Sta 890+92.65

FAIRFAX TWP.
T-82N R-8W
SEC. 9

0 FEET 50

VPI +85.250
Elv 762.81
ex = -0.30′
K = 94
Len 150.00 ft
SSD = 490′
DS = 50 mph

-0.600%

+80 751.00 Grade

+80 751.00

+00 750.50

+1.00% RT Ditch Grade

+00 753.00

+75 753.25

+0.56% LT Ditch Grade

+50 754.40

+25 751.66

+1.60% RT Ditch Grade

-0.600%

+00 754.46

Profile Grade

Existing Ground

+0.30% LT Ditch Grade

+0.40% RT Ditch Grade

+0.200%

VPI +50.000
Elv 758.22
ex = 0.15′
K = 187
Len 150.00 ft
DS = 70 mph

+50 756.26

+90 755.72

+30 755.84

+35 756.10

+0.30% RT Ditch Grade

+0.30% LT Ditch Grade

+75 756.58

+80 756.84

RT D.G.

+50 758.24

890+96.75
Prop. Type "B"
Ent. Lt.

-2.797%
+4.000%
+3.000%
-0.853%

894+21.00
Prop. Type "B"
Ent. Lt.

+2.000%
+4.000%
+4.000%
-1.692%

891+10.00
Prop. Type "B"
Ent. Rt.

-2.333%
-4.000%
+5.097%
-1.500%

894+18.50
Prop. Type "B"
Ent. Rt.

-2.000%
-4.000%
-2.000%
+5.374%

Lt: Ditch Grade | U.A.C. Existing Ditch | Ditch Grade | Ditch Grade | D.G

Rt: No Ditch | Ditch Grade | Ditch Grade | Ditch Grade | D.G

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	D.5

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FAIRFAX TWP.
T-82N R-8W
SEC. 9

STA 898+00.00
END PCC PAVING
BEGIN HMA PAVING

STA 903+15.44
STOP PROJECT

U.S. Hwy. 151

80th Street

38'

+76.54 Prop. Type "B" Ent.

+64.90 Prop. Type "C" Ent.

Do Not Disturb Sign

Protect Gas Shut-off Valve

Sta. 900+59.26 U.S. Hwy. 151
Install 48"x2' 2000D RCP
Lt. U.A,C
F.L. = Other 753.30
Rt. 753.22

0 FEET 50

VPI +75.000
Elv 760.27
ex = -0.11'
K = 257
Len 150.00 ft
SSD = 1213'
DS = 70 mph

Profile Grade

+0.200%

-0.384%

759.79

STA 900+00.00
ELEV = 759.79
MATCH EXISTING

-1.85%

+45
756.48

-0.30% LT Ditch Grade

+00
755.70

+00
754.20

Existing Ground

895+76.54
Prop. Type "B"
Ent. Rt.

-2.000%
-4.000%
+6.983%
-2.000%

897+64.90
Prop. Type "C"
Ent. Rt.

-2.000%
-4.000%
-7.321%

Ditch Grade

Lt

Rt

D.G

U.A.C. Existing Ditch

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	D.6

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FAIRFAX TWP.
T-82N R-8W
SEC. 2

Sta ---+---
36'-0"x44'-0" I-Beam and
PPC Beam Bridge with
30° skew (L.A.) (Remove)

+85.00 Prop.
Type "C" Ent.

STA 984+83.16
END PROJECT

STA 974+70.00
RESUME PROJECT

975 980 985

San.2

U.S. Hwy. 151

F02

Sta 980+18.00
Construct 55'-0" x 13'-9 1/4" x 168'-0"
Conspan Precast Arch with 30°
Skew (L.A.)

+75.00 Prop.
Type "C" Ent.

Drainage Ditch

0 FEET 50

STA 979+35.00
ELEV = 779.37
MATCH EXISTING

VPI +50.000
Elv 778.57
ex = 0.29'
K = 140
Len 180.00 ft

STA 981+40.00
ELEV = 779.10
MATCH EXISTING

779.37

779.10

Profile Grade

Existing Ground

+50 781.10
-1.10% LT Ditch Grade
+50 780.00
-2.00% LT Ditch Grade
+50 778.00
-5.00% LT Ditch Grade
+00 775.50
-3.00% LT Ditch Grade
+50 774.00
-2.00% LT Ditch Grade
+50 772.00
+0.700%
-1.00% LT Ditch Grade
+00 770.50
+06 766.95
-1.63% LT Ditch Grade
-46.87% RT Ditch Grade
+50 770.00
+31 770.00
+2.36% RT Ditch Grade
+92 771.00
+0.590%
+0.67% LT Ditch Grade
+23 771.22
+00 772.40

Ditch Grade
Ditch Grade

Lt
Rt

U.A.C. Existing Ditch
U.A.C. Existing Ditch

788.03 787.73 787.42 787.08 786.73 786.38 786.02 785.65 785.28 784.91 784.55 784.17 783.77 783.39 783.02 782.65 782.28 781.91 781.57 781.22 780.90 780.58 780.33 780.08 779.89 779.72 779.57 779.43 779.27 779.33 779.10 779.30 778.97 775.32 778.89 764.19 778.86 778.90 778.86 779.07 778.92 779.33 779.02 779.17 779.17 779.34 779.53 780.10 780.34 780.58 780.91 781.24 781.70 782.20 782.75 783.29 783.83 784.34 784.84 785.34 785.84 786.33 786.83 787.33 787.84 788.35 788.85 789.35

973 974 975 976 977 978 979 980 981 982 983 984 985 986 987

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	D.7

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FAIRFAX TWP.
T-82N R-8W
SEC. 16

N

Existing Right Of Way

U.S. Hwy. 151

1850

+31.75 Prop. Type "C" Ent.

Casing Pipe for Future Watermain Entrance. Refer to M Sheets.

Sanitary Sewer Refer to M Sheets.

0850

STA 1851+20.00
END CONSTRUCTION

Church Street

37'

25'

90°43'3.62" 89°16'56.38"

STA 1847+69.25
BEGIN CONSTRUCTION

+85.30 Prop. Type "B" Ent.

+17.23 Prop. Type "B" Ent.

+68.00 Prop. Type "C" Ent.

+11.39 Exist. Ent. (U.A.C)

STA 1849+34.97 (CHURCH STREET)
= STA 849+34.97 (HWY 151)

0 FEET 50

795 790 785 780 775 770 765 760 755 750 745 740 735 730 725 720

Lt

Rt

+1.000%

+1.619%

760

2" Drop Curb

-2.000%

750

1847+86.25
Prop. Type "B"
Ent. Rt.

VPI +86.970
Elv 760.99
VPI +96.970
Elv 761.14
VPI +16.970
Elv 761.64
VPI +34.970
Elv 762.00
VPI +55.970
Elv 761.58

Profile Grade

STA 1847+64.25, ELEV = 757.88

757.88

+1.500%

+3.500%

+1.500%

+2.000%

+2.500%

-2.500%

-2.000%

+0.498%

760.08

STA 1851+00.00, ELEV = 760.08
MATCH EXISTING

Existing Ground

VPI +20.000
Elv 758.65
ex = 0.19'
K = 38
Len 75.00 ft
DS = 30 MPH

VPI +30.000
Elv 759.73
ex = 0.22'
K = 20
Len 60.00 ft
DS = 20 MPH

+2.000%
+1.025%
-1.000%

1850+31.75
Prop. Type "C"
Ent. Lt.

-1.000%
+1.043%
760
-2.000%
750

1850+68.00
Prop. Type "C"
Ent. Rt.

1846 1847 1848 1849 1850 1851 1852 1853

756.93 757.97 756.81 758.39 756.70 758.96 757.19 759.70 758.13 760.57 759.48 761.22 761.69 761.80 762.12 761.70 762.03 761.10 761.65 760.48 760.90 760.01 760.25 759.85 760.25 759.95 760.14 760.08 760.08 760.13 760.61 761.22 761.90

CHURCH STREET

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	E.1

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FAIRFAX TWP.
T-82N R-8W
SEC. 9

STA 2864+19.80 (PRAIRIE AVENUE)
= STA 864+19.80 (HWY 151)

Protect Existing Well

+51.90 Prop. Type "C" Ent.

+42.33 Prop. Type "C" Ent.

+00.00 Prop. Type "C" Ent.

Sta 2866+00.03

89°15'34.61"

89°15'34.61"

25'

Prairie Avenue

U.S. Hwy. 151

Losey Avenue

STA 2864+99.34 (PRAIRIE AVENUE)
= STA 3864+99.34 (LOSEY DRIVE)

0 FEET 50

795 790 785 780 775 770 765 760 755 750 745 740 735 730 725 720

VPI +19.800
Elv 767.09

VPI +41.800
Elv 766.63

VPI +52.800
Elv 766.36

Existing Ground

Profile Grade

+1.955%

-2.455%

-2.091%

-4.000%

-1.104%

STA 2863+97.80
ELEV = 766.66

STA 2866+50.00, ELEV = 759.34
MATCH EXISTING

VPI +20.000
Elv 759.67
ex = 0.21'
K = 21
Len 60.00 ft
DS = 20 MPH

-2.000%
+1.500%
2865+00.00
Prop. Type C
Ent. Rt.

-2.000%
-4.550%
-6.100%
2865+51.90
Prop. Type C
Ent. Lt.

-2.000%
+3.470%
2866+42.33
Prop. Type C
Ent. Lt.

2862 2863 2864 2865 2866 2867

756.41 759.66 762.54 764.40 766.70 764.47 766.98 764.61 766.43 764.42 765.47 763.86 764.47 762.58 763.47 761.45 762.47 760.79 761.47 760.42 760.50 760.10 759.77 759.72 759.34 759.34 759.11 758.87 758.54 758.13

Lt

Rt

PRAIRIE AVENUE

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	E.2

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FAIRFAX TWP.
T-82N R-8W
SEC. 9

855 860 865 870

U.S. Hwy. 151

Union Pacific Railroad

Losey Avenue

Prairie Avenue

PT Sta 3863+85.02

89°15'34.61"

90°44'25.39"

2865

PC Sta 3862+86.45

PRC Sta 3863+49.39

+77.60 Prop. Type "C" Ent.

PC Sta 870+29.88

STA 3864+94.81 (LOSEY AVENUE) =
STA 2864+94.81 (PRAIRIE AVENUE)

Curve Data
Δ = 5° 06' 11.25" (LT)
T = 17.83
L = 35.63
R = 400.00
E = 0.40

Curve Data
Δ = 9° 00' 55.63" (RT)
T = 31.53
L = 62.94
R = 400.00
E = 1.24

0 50
FEET

3863+77.60
Prop. Type C
Ent. Lt.

+2.230%
-2.000%
2" Drop Curb

STA 3862.86.45, ELEV = 763.66
MATCH EXISTING

763.66

STA 3864+80.81
ELEV = 764.41

VPI +94.810
Elv 764.69

Profile Grade

+2.500%
-0.466%
+2.000%
-2.000%

Existing Ground

VPI +25.000
Elv 763.01
ex = 0.26'
K = 24
Len 70.00 ft
DS = 20 MPH

VPI +08.810
Elv 764.41

795 790 785 780 775 770 765 760 755 750 745 740 735 730 725 720

Lt
Rt

764.21 764.00 763.82 763.68 763.60 763.65 763.48 763.58 763.36 763.53 763.25 763.46 763.15 763.45 763.27 763.48 763.66 763.58 764.26 763.49 764.59 762.55 761.45 757.30 754.73 752.31

3862 3863 3864 3865 3866

LOSEY AVENUE

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	E.3

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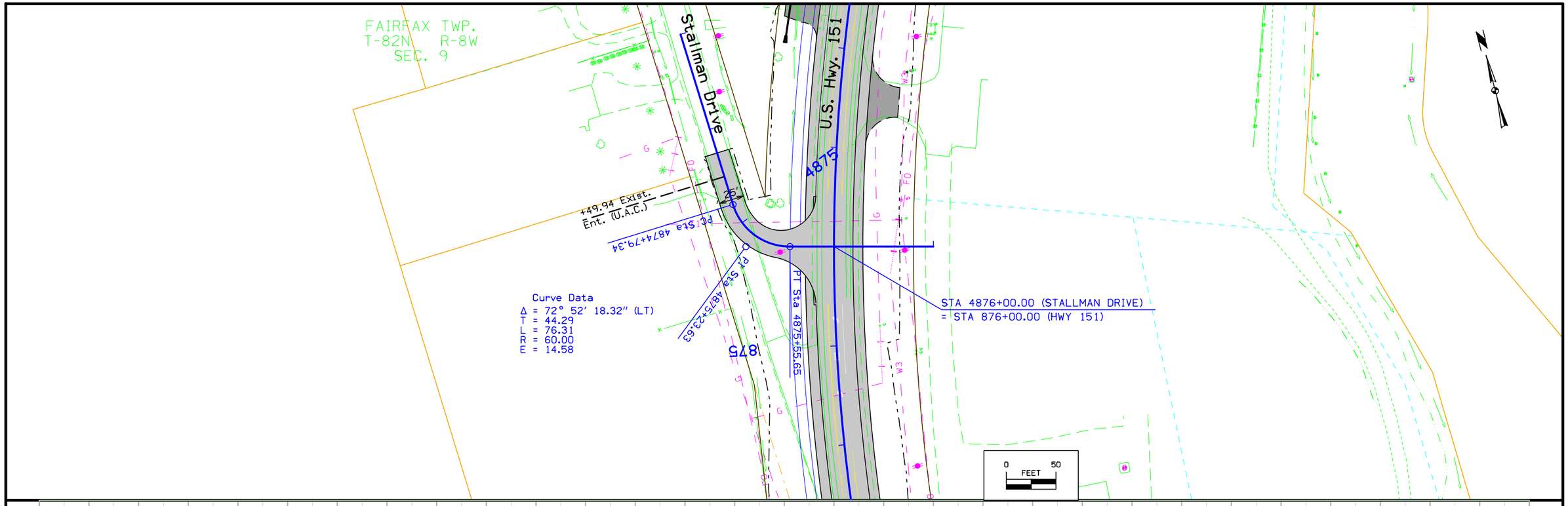

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	E.4

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FAIRFAX TWP.
T-82N R-8W
SEC. 9

Casing Pipe for Future Water Main Extension, Refer to M Sheets

Existing Right Of Way

+52.72 Exist. Ent. (U.A.C.)

25'

5880

5885

5890

U.S. Hwy. 151

Cemetery Road

PI Sta 5884+44.98

PC Sta 5884+76.23

PT Sta 5885+76.78

PI Sta 5886+38.24

PI Sta 5885+26.62

Curve Data
Δ = 9° 36' 05.14" (LT)
T = 50.39
L = 100.55
R = 600.00
E = 2.11

STA 5884+11.00 (CEMETERY ROAD)
= STA 884+11.00 (HWY 151)

Sta 880+89.90
24'-0" x 44'-0" I-Beam and PPC Beam Bridge with 0° skew

0 FEET 50

STA 5882+30.00, ELEV = 758.62
MATCH EXISTING

758.62

VPI +80.000
Elv 759.17
ex = 0.27'
K = 38
Len 90.00 ft
DS = 30 mph

+3.500%

VPI +70.400
Elv 761.75

+1.000%

VPI +40.000
Elv 761.27
ex = 0.09'
K = 12
Len 30.00 ft
DS = 25 mph

-3.609%

VPI +11.000
Elv 760.85

+1.149%

-4.261%

VPI +51.340
Elv 759.40

-2.862%

-2.761%

756.90

STA 5885+42.00, ELEV = 756.90
MATCH EXISTING

795 790 785 780 775 770 765 760 755 750 745 740 735 730 725 720

Lt

Rt

759.12 758.69 758.33 758.00 747.04 757.76 757.70 758.01 758.27 758.56 758.87 758.78 759.32 758.96 759.95 759.25 760.74 759.65 761.36 760.13 761.62 760.58 761.25 761.04 760.25 760.25 759.44 759.61 758.75 758.59 758.06 757.86 757.37 757.26 756.75 756.36 756.05 755.89 755.79 755.83 756.16 755.95 756.01 756.09

5880 5881 5882 5883 5884 5885 5886 5887 5888 5889

CEMETERY ROAD

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	E.5

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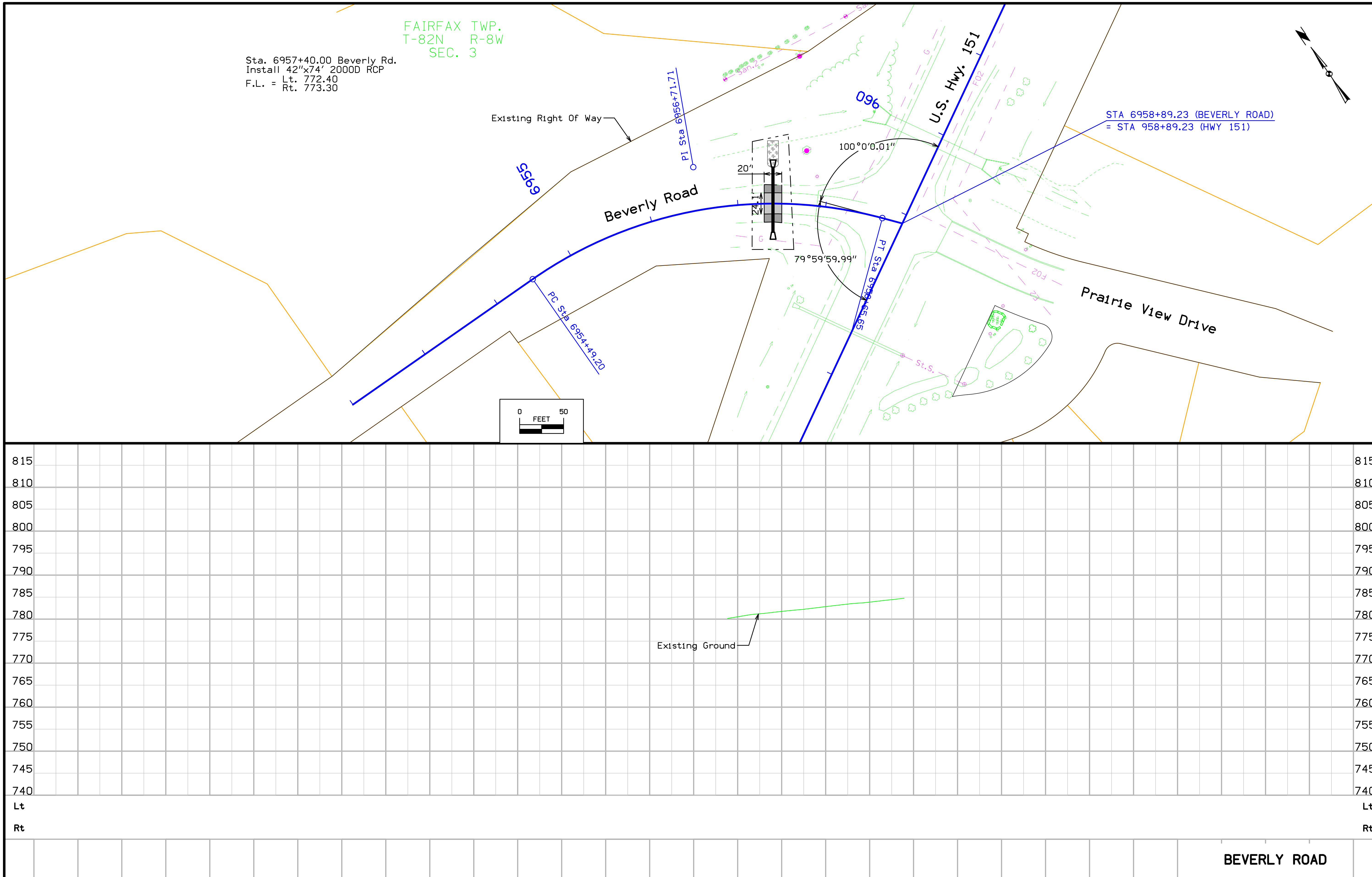

FAIRFAX TWP.
T-82N R-8W
SEC. 3
Sta. 6957+40.00 Beverly Rd.
Install 42"x74' 2000D RCP
F.L. = Lt. 772.40
Rt. 773.30
Existing Right Of Way
PI Sta 6956+71.71
6955
Beverly Road
U.S. Hwy. 151
STA 6958+89.23 (BEVERLY ROAD)
= STA 958+89.23 (HWY 151)
100°0'0.01"
79°59'59.99"
PC Sta 6954+49.20
Prairie View Drive
0 50 FEET
Existing Ground
815
810
805
800
795
790
785
780
775
770
765
760
755
750
745
740
Lt
Rt
6951
6952
6953
6954
6955
6956
6957
6958
6959

BEVERLY ROAD

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	LINN COUNTY	PROJECT NUMBER NHSX-151-3(158)--3H-57	SHEET NUMBER E.6

FAIRFAX TWP.
T-82N R-8W
SEC. 2

Existing Right Of Way

Curve Data
Δ = 101° 12′ 47.17″ (LT)
T = 79.15
L = 114.82
R = 65.00
E = 37.42

STA 8980+18.00 (DRAINAGE DITCH #2)
= STA 980+18.00 (HWY 151)

8980

STA 8981+66.50
END STREAM
REALIGNMENT

STA 8977+75.00
BEGIN STREAM
REALIGNMENT

8975

Drainage Ditch #2

120°0′0″

980

U.S. Hwy. 151

Curve Data
Δ = 67° 47′ 47.16″ (RT)
T = 43.68
L = 76.91
R = 65.00
E = 13.31

Sta 980+18.00
Construct 55′-0″ x 13′-9 1/4″ x 168′-0″
Conspan Precast Arch with 30°Skew (L.A.)

0 50
FEET

815 810 805 800 795 790 785 780 775 770 765 760 755 750 745 740

STA 8977+75.00, ELEV = 764.42
MATCH EXISTING

764.42

-0.758%

VPI +21.460
Elv 763.31

Existing Ground

-0.410%

VPI +87.460
Elv 762.63

-0.481%

762.25

STA 8981+66.50, ELEV = 762.25
MATCH EXISTING

Profile Grade

Lt

Rt

764.75
764.42 764.42
764.23 764.07
764.04 765.88
763.85 766.85
763.66 769.01
763.47 765.40
763.30 763.33
763.19 769.61
763.09 765.65
762.99 764.49
762.89 764.75
762.78 765.70
762.68 764.16
762.57 765.12
762.45 764.47
762.33 763.06

8977 8978 8979 8980 8981 8982 8983

DRAINAGE DITCH #2

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	E.7

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Survey Information

General Information

Measurement units for this survey are US survey feet. This survey was performed for multiple projects as listed above for improvements along the Iowa 151 corridor near Fairfax in Linn County. Project datum and control information matches the coordinate system and vertical datum used for BRFN-151-3(134)--39-57 (SAP 0623). This project is a complete field survey for the digital terrain model.

Vertical Control

Vertical datum for this survey is relative to NAVD88.

A Digital level loop was run from BM #589 (established from SAP 0623) through the project benchmarks and returned to BM # 589. The loop error was allowable and the error was distributed proportionately among the project marks.

Vertical equations are as follows:

Datum Benchmark
BM #589 (SAP 0623) Elevation = 791.713
= BM #589 (This Survey) Elevation = 791.713

Horizontal Control

The horizontal control matches the coordinate system used for SAP 0623.

Even though Linn County is in Iowa North Zone the major portion of this project control network is in the Iowa South Zone. As a result this bridge project is also in the Iowa South Zone modified to Ground using the parameters below.

STATE PLANE COORDINATE ZONE 1402 (IOWA SOUTH LAMBERT)

STATE PLANE COORDINATES HELD AT POINT g030

G030 N= 686745.854 E= 2084369.752 (U.S. Ft.)

AVERAGE PROJECT LATITUDE = 41 51 40.20597

RESULTING RADIUS = 6363875.949

MEAN PROJECT ELEVATION = 235.000 meters

SEA LEVEL FACTOR = 0.999963074

AVERAGE PROJECT SCALE FACTOR = 1.000015404

COMBINED FACTOR (GRID) = 0.999978478

1 / GRID = 1.000021523

HORIZONTAL DATUM = NAD 83(HARN)

Alignment Information

The horizontal alignment for this survey was created for SAP 0623 (originally from SAP 159), Project BRFN-151-3(134)--39-57.

ML1
(from SAP 159)
THE ALIGNMENT FOR THIS SURVEY IS A RETRACE OF THE EXISTING ALIGNMENT ON US # 151 FROM HOMESTEAD NORTH EAST TO NEW US # 30/218.

PI STA 101+08.45 THIS SURVEY=
PI STA 1267+96.48 PLANS PROJECT # FR-6-6(23)

PI STA 165+48.10 THIS SURVEY (DATUM STATIONING) =
PI STA 65+48.10 PLANS PROJECT # FN-149-2(13)

PI STA 242+02.93 THIS SURVEY=
PI STA 138+19.1 PLANS PROJECT # FN-194

POT STA 276+83.37 THIS SURVEY=
POT STA 120+78.52 PLANS PROJECT # FN-151-1(5)

PI STA 580+67.72 THIS SURVEY=
PI STA 426+85.76 PLANS PROJECT # NHS-151-2(3)

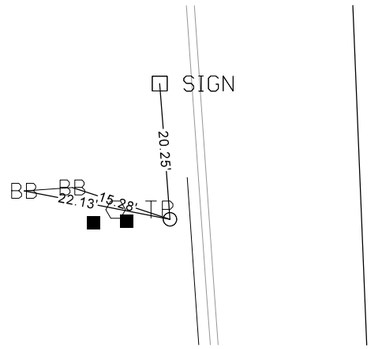
VERTICAL CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
BM100	702680.804	2107578.854	780.530	841+08.15	23.119	BM	ARROW ON HYDRANT, EAST SIDE OF HWY 151, SOUTH END
BM1	703233.002	2107556.082	763.600	846+60.81	23.069	BM	GIN SPIKE IN POWER POLE, EAST SIDE HWY 151, ACROSS FROM "PIT STOP"
BM2	705704.166	2107504.303	750.420	871+35.96	70.098	BM	RR SPIKE IN POWER POLE, EAST SIDE HWY 151, 200' +/- NORTH OF NORTH END OF RIVER BRIDGE AT BEGINNING OF CLEARING
BM3	706904.792	2107804.979	760.370	883+94.08	-58.416	BM	RR SPIKE IN POWER POLE, NW QUADRANT OF CEMETARY ROAD AND HWY 151
BM4	708415.446	2109892.014	767.940	909+53.51	-171.787	BM	RR SPIKE IN POWER POLE, SOUTH SIDE OF 80TH ST SW, 70' +/- WEST OF STOP SIGN ON HWY 151
BM5	710868.765	2114183.819	781.810	958+96.64	-109.701	BM	GIN SPIKE IN LIGHT POLE, NW QUADRANT OF BEVERLY DRIVE WEST AND HWY 151
BM587	711354.287	2115052.646	791.920	968+91.68	-87.544	BM	RR SPIKE IN POWER POLE, NW QUADRANT HWY 151 AND STUNEY POINT, 80' +/- NW OF TRAFFIC LIGHT
BM588	711811.381	2116047.826	781.700	979+81.20	23.191	BM	CUT TRIANGLE ON BASE WALL OF REINFORCED CONCRETE BOX CULVERT
BM589	712237.496	2116803.443	791.710	988+48.54	39.136	BM	IDOT DISK IN HIGHWAY, EAST SIDE HWY 151, 50' +/- SOUTH OF TURNOOUT FOR DEAN ROAD

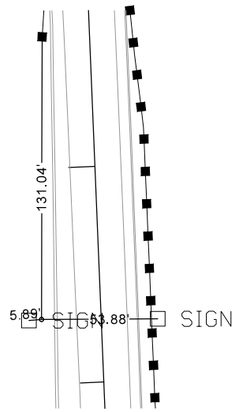
CP STA 837+45.84, 38.77 FT RT
CP 118, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=702310.552, E=2107568.859, ELEV. 790.030

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

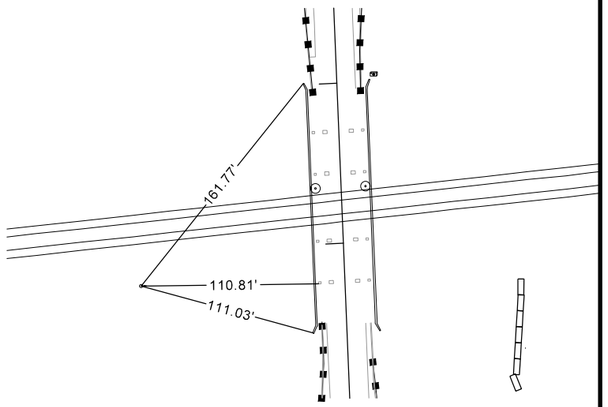
CP STA 846+36.12, 28.47 FT LT
CP 100, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=703206.207, E=2107505.596, ELEV. 763.43



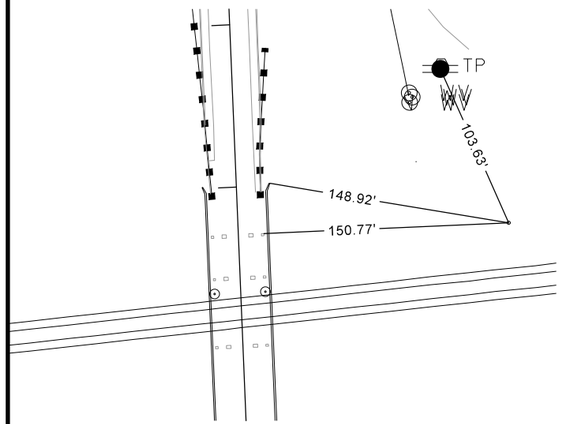
CP STA 854+30.14, 27.69 FT LT
CP 101, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=703999.594, E=2107473.736, ELEV. 786.630



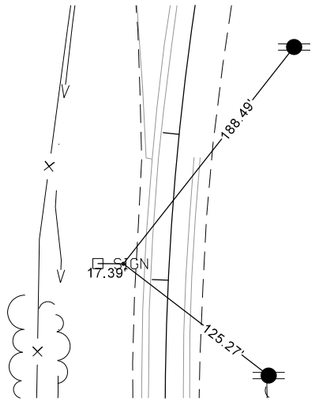
CP STA 856+78.46, 127.36 FT LT
CP 201, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=704243.606, E=2107363.943, ELEV. 758.070



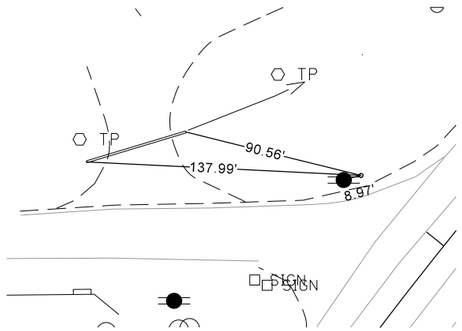
CP STA 857+71.20, 166.58 FT RT
CP 200, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=704348.351, E=2107653.822, ELEV. 763.240



CP STA 872+09.67, 31.26 FT LT
CP 102, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=705780.492, E=2107405.482, ELEV. 757.250



CP STA 884+01.50, 54.56 FT LT
CP 104, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=706908.345, E=2107812.761, ELEV. 759.410



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	G.2

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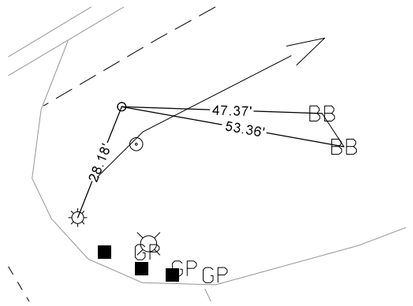
CP STA 894+61.29, 36.19 FT RT
CP 105, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=707479.442, E=2108711.388, ELEV. 757.700



CP STA 901+36.51, 40.43 FT RT
CP 106, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=707817.955, E=2109295.639, ELEV. 757.510

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

CP STA 908+95.75, 56.20 FT LT
CP 107, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=708286.528, E=2109900.851, ELEV. 767.350

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

CP STA 917+25.17, 29.59 FT RT
CP 108, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=708633.222, E=2110659.204, ELEV. 789.030

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

CP STA 926+88.32, 36.90 FT RT
CP 109, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=709115.364, E=2111493.021, ELEV. 808.330

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

CP STA 937+41.40, 38.08 FT RT
CP 110, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=709648.405, E=2112401.235, ELEV. 828.150

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

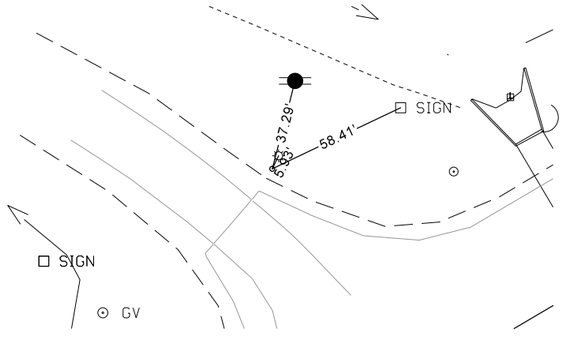
CP STA 948+82.87, 40.35 FT RT
CP 111, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=710225.327, E=2113386.176, ELEV. 800.680

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

CP STA 953+99.85, 42.76 FT RT
CP 112, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=710485.430, E=2113832.974, ELEV. 783.030

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

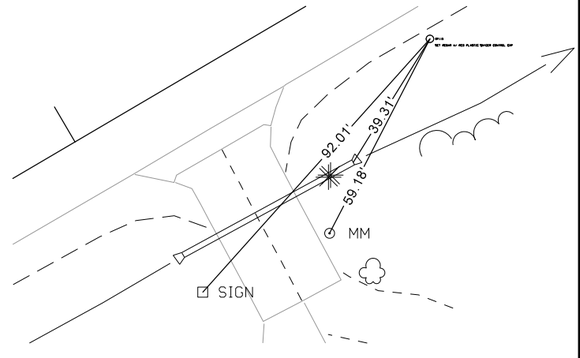
CP STA 958+91.52, 106.92 FT LT
CP 113, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=710863.774, E=2114180.813, ELEV. 781.940



CP STA 968+92.74, 78.50 FT LT
CP 114, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=711347.028, E=2115058.146, ELEV. 790.110

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

CP STA 973+96.87, 24.64 FT RT
CP 115, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=711513.799, E=2115544.949, ELEV. 785.140



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	G.3

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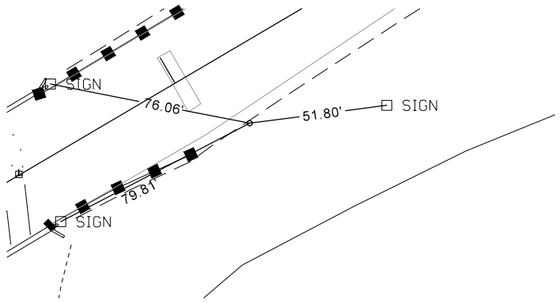
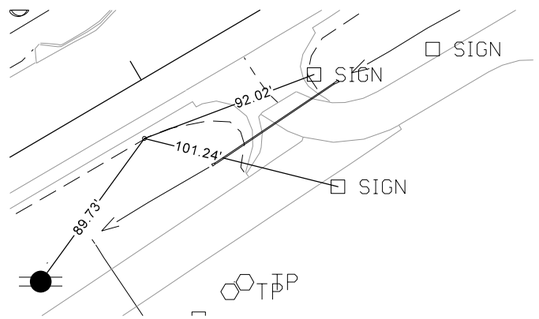
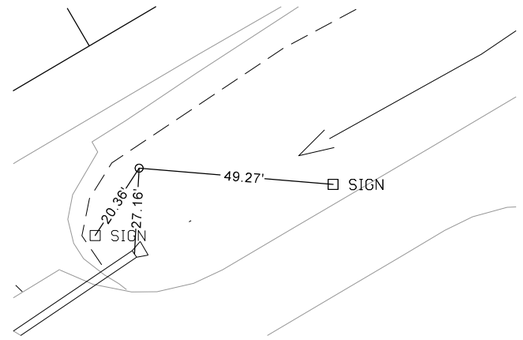
CP STA 981+16.48, 27.08 FT RT
CP 116, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=711876.636, E=2116166.395, ELEV. 778.680



CP STA 991+86.29, 26.37 FT RT
CP 373, SET HINGE NAIL IN ACC
N=712419.779, E=2117088.065, ELEV. 799.640



CP STA 992+95.16, 33.05 FT RT
CP 117, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=712469.239, E=2117185.291, ELEV. 801.310



US HIGHWAY 151

Point 1 N 687,471.81 E 2,084,954.51 Sta 550+54.72

Course from 1 to 2 N 83° 13′ 17.03″ E Dist 2,968.75

Point 2 N 687,822.22 E 2,087,902.50 Sta 580+23.47

Course from 2 to PC CUR1 N 89° 05′ 00.94″ E Dist 1,078.93

Curve Data

Curve CUR1
P.I. Station 596+55.40 N 687,848.32 E 2,089,534.22
Delta = 1° 06′ 21.45″ (LT)
Degree = 0° 06′ 00.00″
Tangent = 553.00
Length = 1,105.96
Radius = 57,295.78
External = 2.67
Long Chord = 1,105.94
Mid. Ord. = 2.67
P.C. Station 591+02.40 N 687,839.48 E 2,088,981.30
P.T. Station 602+08.36 N 687,867.84 E 2,090,086.87
C.C. N 745,127.93 E 2,088,064.89
Back = N 89° 05′ 00.80″ E
Ahead = N 87° 58′ 39.35″ E
Chord Bear = N 88° 31′ 50.08″ E

Course from PT CUR1 to PC CUR2 N 87° 58′ 39.41″ E Dist 2,643.13

Curve Data

Curve CUR2
P.I. Station 632+35.31 N 687,974.66 E 2,093,111.94
Delta = 30° 00′ 04.08″ (LT)
Degree = 3° 59′ 59.94″
Tangent = 383.83
Length = 750.03
Radius = 1,432.40
External = 50.53
Long Chord = 741.49
Mid. Ord. = 48.81
P.C. Station 628+51.49 N 687,961.11 E 2,092,728.36
P.T. Station 636+01.52 N 688,178.19 E 2,093,437.36
C.C. N 689,392.62 E 2,092,677.80
Back = N 87° 58′ 39.30″ E
Ahead = N 57° 58′ 35.22″ E
Chord Bear = N 72° 58′ 37.26″ E

Course from PT CUR2 to PC CUR3 N 57° 58′ 34.93″ E Dist 456.06

Curve Data

Curve CUR3
P.I. Station 645+17.23 N 688,663.76 E 2,094,213.73
Delta = 13° 43′ 25.46″ (LT)
Degree = 1° 30′ 00.00″
Tangent = 459.66
Length = 914.92
Radius = 3,819.72
External = 27.56
Long Chord = 912.73
Mid. Ord. = 27.36
P.C. Station 640+57.57 N 688,420.02 E 2,093,824.02
P.T. Station 649+72.49 N 688,993.00 E 2,094,534.49
C.C. N 691,658.50 E 2,091,798.55
Back = N 57° 58′ 35.60″ E
Ahead = N 44° 15′ 10.14″ E
Chord Bear = N 51° 06′ 52.87″ E

Course from PT CUR3 to PC CUR4 N 44° 15′ 09.36″ E Dist 440.29

Curve Data

Curve CUR4
P.I. Station 656+91.27 N 689,507.84 E 2,095,036.07
Delta = 1° 17′ 58.31″ (RT)
Degree = 0° 14′ 00.00″
Tangent = 278.48
Length = 556.94
Radius = 24,555.33
External = 1.58
Long Chord = 556.93
Mid. Ord. = 1.58
P.C. Station 654+12.78 N 689,308.37 E 2,094,841.74
P.T. Station 659+69.72 N 689,702.85 E 2,095,234.88
C.C. N 672,173.05 E 2,112,429.95
Back = N 44° 15′ 09.90″ E
Ahead = N 45° 33′ 08.21″ E
Chord Bear = N 44° 54′ 09.05″ E

Course from PT CUR4 to PC CUR5 N 45° 33′ 08.19″ E Dist 1,496.18

Curve Data

Curve CUR5
P.I. Station 677+66.26 N 690,960.89 E 2,096,517.41
Delta = 2° 48′ 09.95″ (LT)
Degree = 0° 28′ 00.00″
Tangent = 300.36
Length = 600.59
Radius = 12,277.67
External = 3.67
Long Chord = 600.53
Mid. Ord. = 3.67
P.C. Station 674+65.91 N 690,750.56 E 2,096,302.98
P.T. Station 680+66.50 N 691,181.45 E 2,096,721.29
C.C. N 699,515.46 E 2,087,705.44
Back = N 45° 33′ 08.10″ E
Ahead = N 42° 44′ 58.15″ E
Chord Bear = N 44° 09′ 03.12″ E

Course from PT CUR5 to PC CUR6 N 42° 44′ 58.22″ E Dist 4,614.96

US HIGHWAY 151 (Cont.)

Curve Data

Curve CUR6
P.I. Station 729+84.38 N 694,792.79 E 2,100,059.52
Delta = 3° 01′ 42.98″ (RT)
Degree = 0° 30′ 00.02″
Tangent = 302.93
Length = 605.71
Radius = 11,459.00
External = 4.00
Long Chord = 605.64
Mid. Ord. = 4.00
P.C. Station 726+81.46 N 694,570.34 E 2,099,853.89
P.T. Station 732+87.17 N 695,004.06 E 2,100,276.61
C.C. N 686,792.04 E 2,108,268.56
Back = N 42° 44′ 58.20″ E
Ahead = N 45° 46′ 41.18″ E
Chord Bear = N 44° 15′ 49.69″ E

Course from PT CUR6 to PC CUR7 N 45° 46′ 41.21″ E Dist 3,685.12

Curve Data

Curve CUR7
P.I. Station 775+07.55 N 697,947.52 E 2,103,301.12
Delta = 10° 40′ 27.65″ (LT)
Degree = 1° 00′ 00.00″
Tangent = 535.27
Length = 1,067.44
Radius = 5,729.58
External = 24.95
Long Chord = 1,065.89
Mid. Ord. = 24.64
P.C. Station 769+72.29 N 697,574.21 E 2,102,917.53
P.T. Station 780+39.72 N 698,385.43 E 2,103,608.93
C.C. N 701,680.28 E 2,098,921.49
Back = N 45° 46′ 41.10″ E
Ahead = N 35° 06′ 13.45″ E
Chord Bear = N 40° 26′ 27.27″ E

Course from PT CUR7 to PC CUR8 N 35° 06′ 13.54″ E Dist 2,462.06

Curve Data

Curve CUR8
P.I. Station 810+89.91 N 700,880.82 E 2,105,362.97
Delta = 28° 47′ 05.99″ (RT)
Degree = 2° 30′ 00.00″
Tangent = 588.12
Length = 1,151.40
Radius = 2,291.83
External = 74.26
Long Chord = 1,139.33
Mid. Ord. = 71.93
P.C. Station 805+01.79 N 700,399.68 E 2,105,024.76
P.T. Station 816+53.18 N 701,139.67 E 2,105,891.07
C.C. N 699,081.74 E 2,106,899.74
Back = N 35° 06′ 13.40″ E
Ahead = N 63° 53′ 19.39″ E
Chord Bear = N 49° 29′ 46.39″ E

Course from PT CUR8 to PC CUR9 N 63° 53′ 19.54″ E Dist 1,263.38

Curve Data

Curve CUR9
P.I. Station 835+39.61 N 701,969.91 E 2,107,584.97
Delta = 66° 14′ 42.26″ (LT)
Degree = 5° 59′ 59.99″
Tangent = 623.05
Length = 1,104.08
Radius = 954.93
External = 185.28
Long Chord = 1,043.61
Mid. Ord. = 155.17
P.C. Station 829+16.57 N 701,695.70 E 2,107,025.51
P.T. Station 840+20.65 N 702,592.43 E 2,107,559.35
C.C. N 702,553.17 E 2,106,605.23
Back = N 63° 53′ 19.50″ E
Ahead = N 2° 21′ 22.76″ W
Chord Bear = N 30° 45′ 58.37″ E

Course from PT CUR9 to PC CUR10 N 2° 21′ 22.88″ W Dist 3,009.23

Curve Data

Curve CUR10
P.I. Station 881+74.79 N 706,743.06 E 2,107,388.56
Delta = 61° 52′ 59.64″ (RT)
Degree = 3° 00′ 00.00″
Tangent = 1,144.91
Length = 2,062.78
Radius = 1,909.86
External = 316.88
Long Chord = 1,963.96
Mid. Ord. = 271.79
P.C. Station 870+29.88 N 705,599.11 E 2,107,435.63
P.T. Station 890+92.65 N 707,323.68 E 2,108,375.32
C.C. N 705,677.64 E 2,109,343.87
Back = N 2° 21′ 22.90″ W
Ahead = N 59° 31′ 36.74″ E
Chord Bear = N 28° 35′ 06.92″ E

Course from PT CUR10 to 33 N 59° 31′ 36.72″ E Dist 12,137.87

Point 33 N 713,479.21 E 2,118,836.55 Sta 1012+30.52

CHURCH STREET

Point 1846 N 703,266.14 E 2,107,395.29 Sta 1846+00.00

Course from 1846 to PC SRCHURCH-1 N 3° 22′ 00.31″ E Dist 198.55

Curve Data

Curve SRCHURCH-1
P.I. Station 1848+37.04 N 703,502.76 E 2,107,409.21
Delta = 84° 59′ 40.43″ (RT)
Degree = 136° 25′ 06.68″
Tangent = 38.48
Length = 62.30
Radius = 42.00
External = 14.96
Long Chord = 56.75
Mid. Ord. = 11.03
P.C. Station 1847+98.55 N 703,464.35 E 2,107,406.95
P.T. Station 1848+60.86 N 703,503.86 E 2,107,447.68
C.C. N 703,461.88 E 2,107,448.88
Back = N 3° 22′ 00.31″ E
Ahead = N 88° 21′ 40.74″ E
Chord Bear = N 45° 51′ 50.52″ E

Course from PT SRCHURCH-1 to 1847 N 88° 21′ 40.74″ E Dist 439.14

Point 1847 N 703,516.42 E 2,107,886.64 Sta 1853+00.00

PRAIRIE AVENUE

Point 2863 N 704,983.0753 E 2,107,341.0605 Sta 2863+00.00

Course from 2863 to 2864 N 86° 54′ 11.73″ E Dist 300.0267

Point 2864 N 704,999.2834 E 2,107,640.6490 Sta 2866+00.03

Course from 2864 to 2865 N 83° 28′ 37.57″ E Dist 200.0000

Point 2865 N 705,022.0034 E 2,107,839.3543 Sta 2868+00.03

LOSEY AVENUE

Point 3862 N 704,699.51 E 2,107,551.37 Sta 3862+00.00

Course from 3862 to PC SRLOSEY-1 N 6° 16′ 07.27″ W Dist 86.45

Curve Data

Curve SRLOSEY-1
P.I. Station 3863+17.99 N 704,816.79 E 2,107,538.49
Delta = 9° 00′ 55.63″ (RT)
Degree = 14° 19′ 26.20″
Tangent = 31.53
Length = 62.94
Radius = 400.00
External = 1.24
Long Chord = 62.87
Mid. Ord. = 1.24
P.C. Station 3862+86.45 N 704,785.44 E 2,107,541.93
P.T. Station 3863+49.39 N 704,848.29 E 2,107,540.00
C.C. N 704,829.12 E 2,107,939.54
Back = N 6° 16′ 07.27″ W
Ahead = N 2° 44′ 48.36″ E
Chord Bear = N 1° 45′ 39.45″ W

Curve Data

Curve SRLOSEY-2
P.I. Station 3863+67.22 N 704,866.09 E 2,107,540.86
Delta = 5° 06′ 11.25″ (LT)
Degree = 14° 19′ 26.20″
Tangent = 17.83
Length = 35.63
Radius = 400.00
External = 0.40
Long Chord = 35.61
Mid. Ord. = 0.40
P.C. Station 3863+49.39 N 704,848.29 E 2,107,540.00
P.T. Station 3863+85.02 N 704,883.90 E 2,107,540.12
C.C. N 704,867.46 E 2,107,140.46
Back = N 2° 44′ 48.36″ E
Ahead = N 2° 21′ 22.88″ W
Chord Bear = N 0° 11′ 42.74″ E

Course from PT SRLOSEY-2 to 3863 N 2° 21′ 22.88″ W Dist 214.98

Point 3863 N 705,098.70 E 2,107,531.28 Sta 3866+00.00

STALLMAN DRIVE

Point 4873 N 706,409.81 E 2,107,401.91 Sta 4873+00.00

Course from 4873 to PC SRSTALLMAN-1 S 2° 22′ 51.16″ E Dist 179.34

Curve Data

Curve SRSTALLMAN-1
P.I. Station 4875+23.63 N 706,186.37 E 2,107,411.20
Delta = 72° 52′ 18.32″ (LT)
Degree = 95° 29′ 34.68″
Tangent = 44.29
Length = 76.31
Radius = 60.00
External = 14.58
Long Chord = 71.27
Mid. Ord. = 11.73
P.C. Station 4874+79.34 N 706,230.63 E 2,107,409.36
P.T. Station 4875+55.65 N 706,175.10 E 2,107,454.04
C.C. N 706,233.12 E 2,107,469.31
Back = S 2° 22′ 51.16″ E
Ahead = S 75° 15′ 09.49″ E
Chord Bear = S 38° 49′ 00.32″ E

Course from PT SRSTALLMAN-1 to 4874 S 75° 15′ 09.49″ E Dist 144.35

Point 4874 N 706,138.35 E 2,107,593.64 Sta 4877+00.00

CEMETERY ROAD

Point 5880 N 706,873.54 E 2,107,448.95 Sta 5880+00.00

Course from 5880 to 5881 N 88° 28′ 15.30″ E Dist 1,000.00

Point 5881 N 706,900.23 E 2,108,448.59 Sta 5890+00.00

Point 6952 N 710,953.98 E 2,113,601.63 Sta 6952+00.00

Course from 6952 to PC SRBEVERLY-1 N 89° 33′ 06.71″ E Dist 249.20

Curve Data

Curve SRBEVERLY-1
P.I. Station 6956+71.71 N 710,957.67 E 2,114,073.33
Delta = 49° 58′ 30.00″ (RT)
Degree = 12° 00′ 00.44″
Tangent = 222.52
Length = 416.45
Radius = 477.46
External = 49.31
Long Chord = 403.38
Mid. Ord. = 44.69
P.C. Station 6954+49.20 N 710,955.93 E 2,113,850.82
P.T. Station 6958+65.65 N 710,788.40 E 2,114,217.76
C.C. N 710,478.48 E 2,113,854.55
Back = N 89° 33′ 06.71″ E
Ahead = S 40° 28′ 23.29″ E
Chord Bear = S 65° 27′ 38.29″ E

Course from PT SRBEVERLY-1 to 6953 S 40° 28′ 23.29″ E Dist 23.58

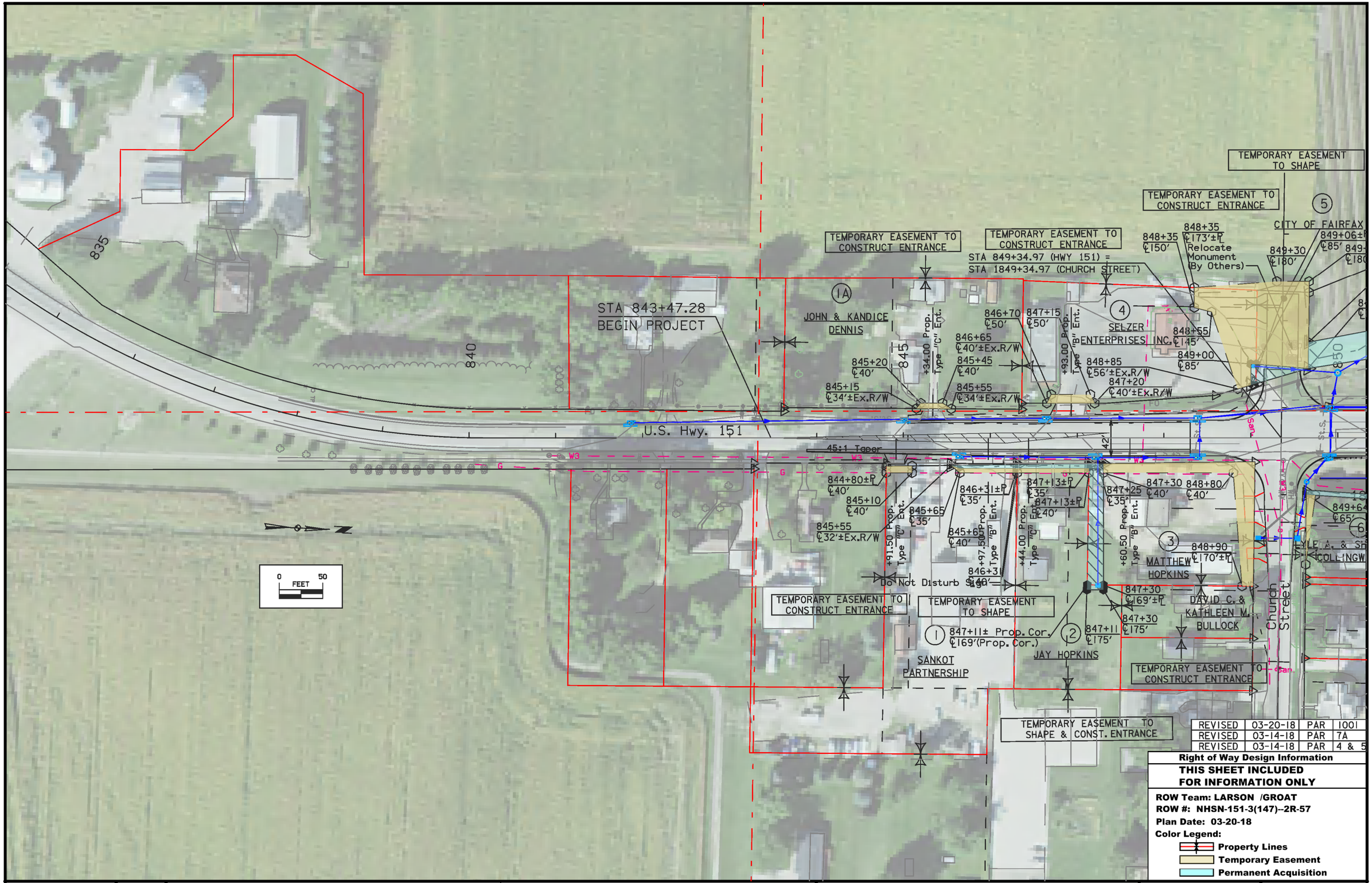
Point 6953 N 710,770.46 E 2,114,233.07 Sta 6958+89.23

SUPERELEVATION DATA

See PV-300 Series

Road Identification	Circular Curve or Spiral Curve Name	Radius	Superelevation Data			Standard Road Plan	Section A-A	Section B-B	Section C-C	Section D-D	Section E-E	Section F-F	Case A	Case B	Case C	Case S	Case T	Case U	Remarks
			e	L	x														
		FT	%	FT	FT														
U.S. Hwy. 151	CUR10	1910	4.2	120	57	PV-301	868+88.88	869+45.88	870+02.88	870+65.88			870+29.88			870+60.17	870+60.17		
							892+33.65	891+76.65	891+19.65	890+56.65			890+92.65			890+62.36	890+62.36		
U.S. Hwy. 151	CUR10	1910	4.2	120	57														
							885+98.30	886+55.30	887+12.30	887+75.30									SB Rt. Turn Lane Transition

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.



REVISED	03-20-18	PAR	1001
REVISED	03-14-18	PAR	7A
REVISED	03-14-18	PAR	4 & 5

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: LARSON /GROAT
ROW #: NHSN-151-3(147)--2R-57
Plan Date: 03-20-18
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	H.1

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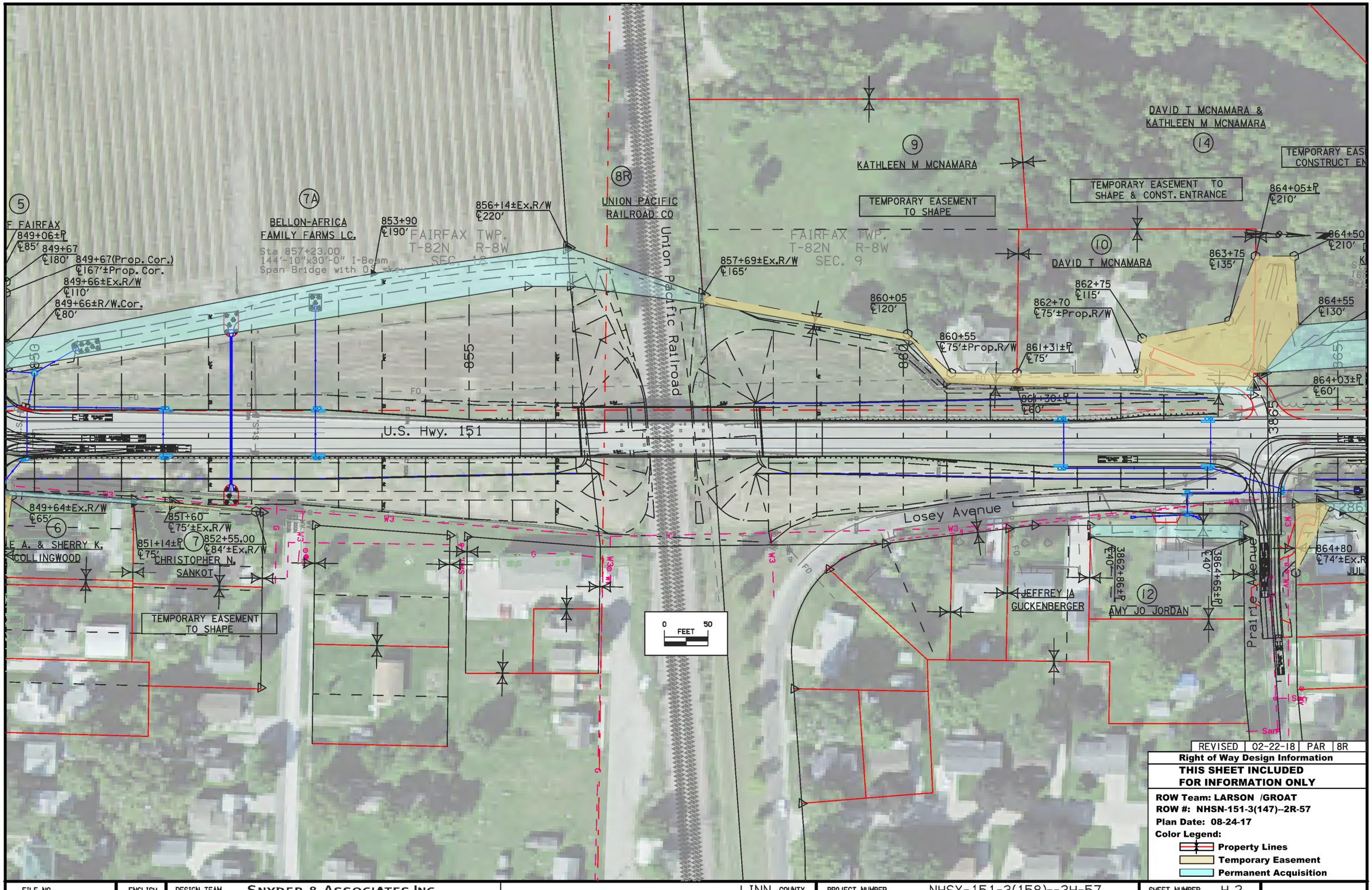

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	H.2

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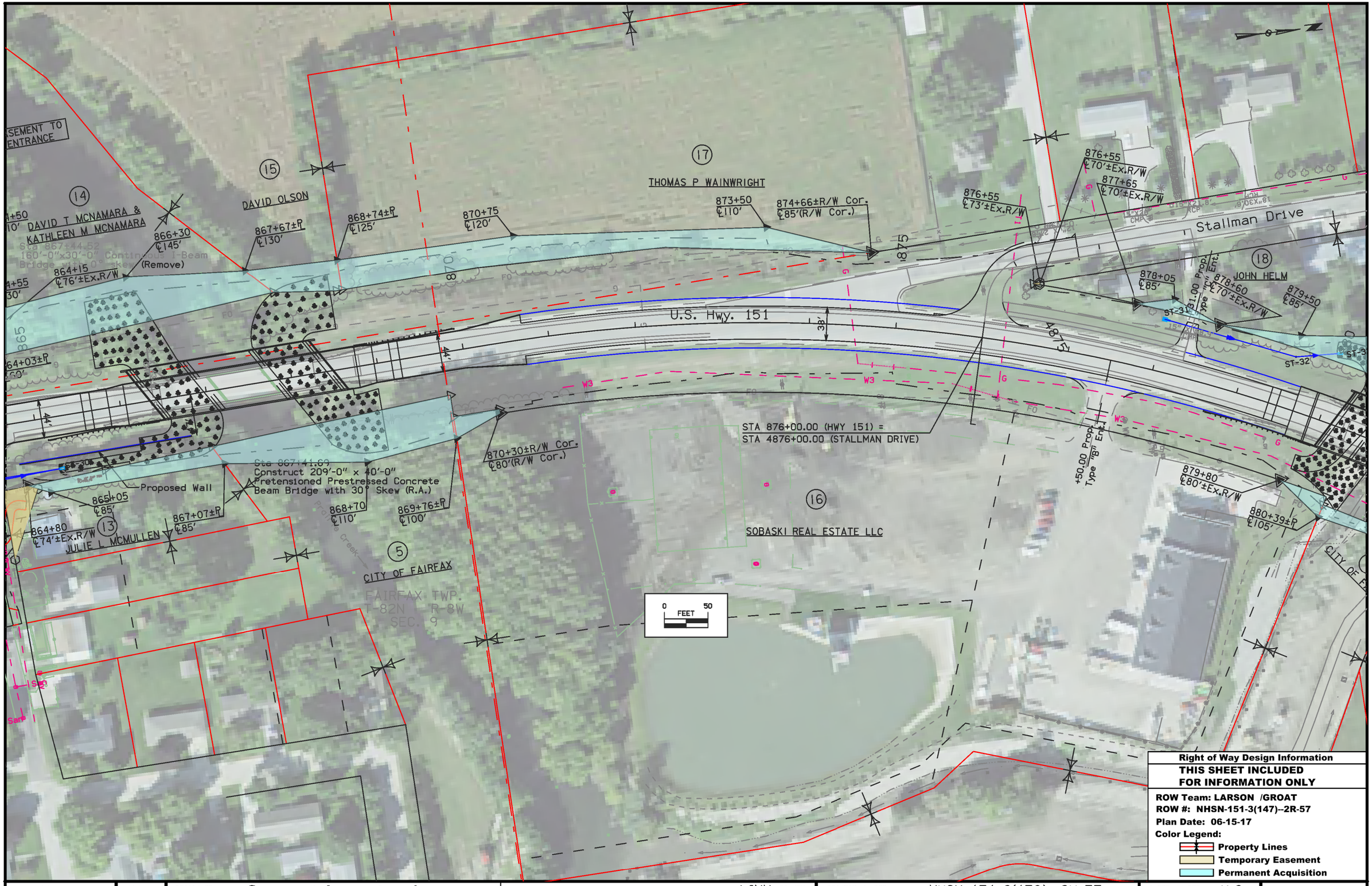

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: LARSON /GROAT
ROW #: NHSN-151-3(147)--2R-57
Plan Date: 06-15-17
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	H.3

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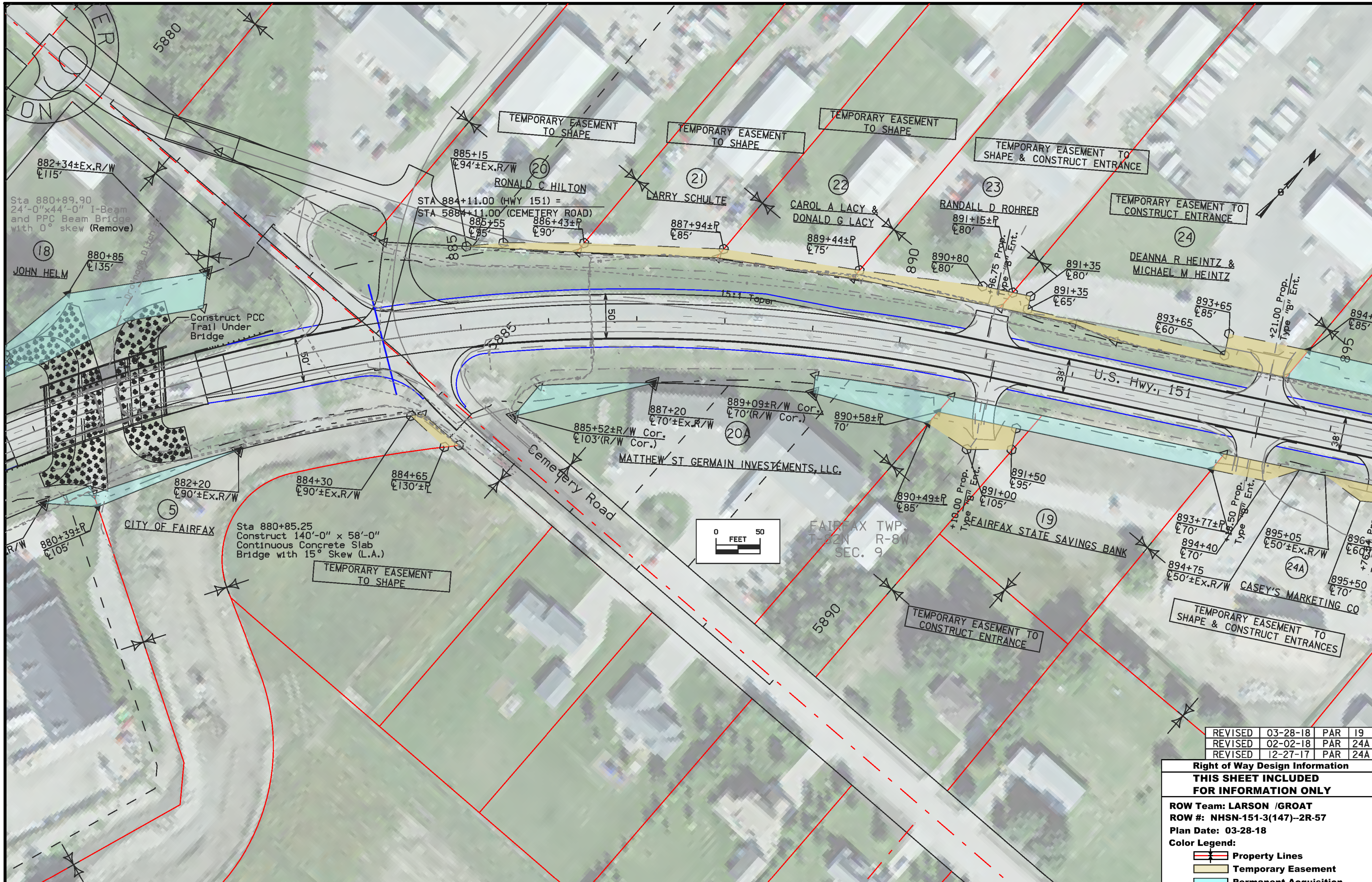

5880
TEMPORARY EASEMENT TO SHAPE
TEMPORARY EASEMENT TO SHAPE
TEMPORARY EASEMENT TO SHAPE
TEMPORARY EASEMENT TO SHAPE & CONSTRUCT ENTRANCE
TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE
882+34±Ex.R/W
℄115'
885+15
℄94'±Ex.R/W
20
RONALD C HILTON
21
LARRY SCHULTE
22
CAROL A LACY &
DONALD G LACY
23
RANDALL D ROHRER
24
DEANNA R HEINTZ &
MICHAEL M HEINTZ
Sta 880+89.90
24'-0"x44'-0" I-Beam
and PPC Beam Bridge
with 0° skew (Remove)
STA 884+11.00 (HWY 151) =
STA 5884+11.00 (CEMETERY ROAD)
885+55
℄95'
886+43±P
℄90'
887+94±P
℄85'
889+44±P
℄75'
891+15±P
℄80'
890+80
℄80'
891+35
℄80'
891+35
℄65'
893+65
℄85'
893+65
℄60'
894+5
℄85'
18
JOHN HELM
880+85
℄135'
Construct PCC
Trail Under
Bridge
15:1 Taper
50'
50'
38'
38'
885
890
895
U.S. Hwy. 151
887+20
℄70'±Ex.R/W
889+09±R/W Cor.
℄70'(R/W Cor.)
890+58±P
70'
885+52±R/W Cor.
℄103'(R/W Cor.)
20A
MATTHEW ST GERMAIN INVESTEMENTS, LLC.
882+20
℄90'±Ex.R/W
884+30
℄90'±Ex.R/W
884+65
℄130'±P
5
CITY OF FAIRFAX
880+39±P
℄105'
Sta 880+85.25
Construct 140'-0" x 58'-0"
Continuous Concrete Slab
Bridge with 15° Skew (L.A.)
TEMPORARY EASEMENT TO SHAPE
Cemetery Road
0 FEET 50
FAIRFAX TWP.
T-82N R-8W
SEC. 9
890+49±P
℄85'
891+00
℄105'
891+50
℄95'
19
FAIRFAX STATE SAVINGS BANK
893+77±P
℄70'
894+40
℄70'
894+75
℄50'±Ex.R/W
895+05
℄50'±Ex.R/W
896+
℄60'
895+50
℄70'
24A
CASEY'S MARKETING CO
TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE
TEMPORARY EASEMENT TO SHAPE & CONSTRUCT ENTRANCES
5890
+36.75 Prop. Type "B" Ent.
+21.00 Prop. Type "B" Ent.
+10.00 Prop. Type "B" Ent.
+6.50 Prop. Type "B" Ent.
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

REVISED	03-28-18	PAR	19
REVISED	02-02-18	PAR	24A
REVISED	12-27-17	PAR	24A

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: LARSON /GROAT
ROW #: NHSN-151-3(147)--2R-57
Plan Date: 03-28-18

FILE NO. | ENGLISH | DESIGN TEAM SNYDER & ASSOCIATES, INC. | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER H.4

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FAIRFAX TWP.
T-82N R-8W
SEC. 9

25

VERNA BOLAND &
WILLIAM E BOLAND JR

894+57±R
℄85'

STA 898+00.00
END PCC PAVING
BEGIN HMA PAVING

900+36±R/W Cor.
℄80'(R/W Cor.)

STA 903+15.44
STOP PROJECT

U.S. Hwy. 151

80th Street

MELODY R VANCE

896+39±R/W Cor.
℄60'(R/W Cor.)

+76.39 Prop. Type "C" Ent.

+64.90 Prop. Type "C" Ent.

895+50
℄70'

24A

6+05
0'±Ex.R/W

Y'S MARKETING CO

ASEMENT TO
RUCT ENTRANCES

0 50
FEET

REVISED	02-02-18	PAR	26
REVISED	02-02-18	PAR	24A
REVISED	12-27-17	PAR	24A

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: LARSON /GROAT
ROW #: NHSN-151-3(147)--2R-57
Plan Date: 06-15-17
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	H.5

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STA 974+70.00
RESUME PROJECT

975

980

979+45
℄90'±Ex.R/W

980+30
℄165'

980+40
℄215'

980+60
℄150'±Prop. R/W

980+70
℄165'

980+95
℄245'

FAIRFAX TWP.
T-82N R-8W
SEC. 2

28
HAWKS RIDGE
HOMEOWNERS ASSOC.

981+15±P
℄135'

981+14±P
℄125'

981+27±P
℄200'

981+50
℄155'

981+30
℄120'

981+45
℄90'±Ex.R/W

982+50
℄130'
(Remove)

981+70
℄90'±Ex.R/W

981+80
℄90'±Ex.R/W

+85.00 Prop. Type "C" Ent.

30
SHARON A WACHA &
STANLEY R WACHA

984+07±Ex.R/W
℄90'

984+90
℄90'

985

STA 984+83.16
END PROJECT

TEMPORARY EASEMENT
TO SHAPE

U.S. Hwy. 151

977+75
℄80'

978+85
℄80'

978+95
℄100'

979+50
℄140'

979+50
℄160'

29
IRVIN I MARTINSON RESIDUARY TRUST &
MARCELLA MARTINSON REVOCABLE TRUST

Sta. 980+18.00
Construct 55'-0" x 13'-9 1/4" x 168'-0"
Conspan Precast Arch with 30°
Skew (L.A.)

980+45
℄135'

980+30
℄165'

981+05
℄70'±Ex.R/W

980+80
℄70'±Ex.R/W

TEMPORARY EASEMENT TO
SHAPE & CONSTRUCT
SANITARY SEWER

979+70
℄190'

979+70
℄230'

980+20
℄150'

980+15
℄230'

980+00
℄142'±Prop.R/W

+75.00 Prop. Type "C" Ent.

RICHARD & ROBERTA
REID

0 50
FEET

REVISED	02-08-18	PAR	28&30

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: LARSON /GROAT
ROW #: NHSN-151-3(135)--2R-57
Plan Date: 06-15-17
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	H.1

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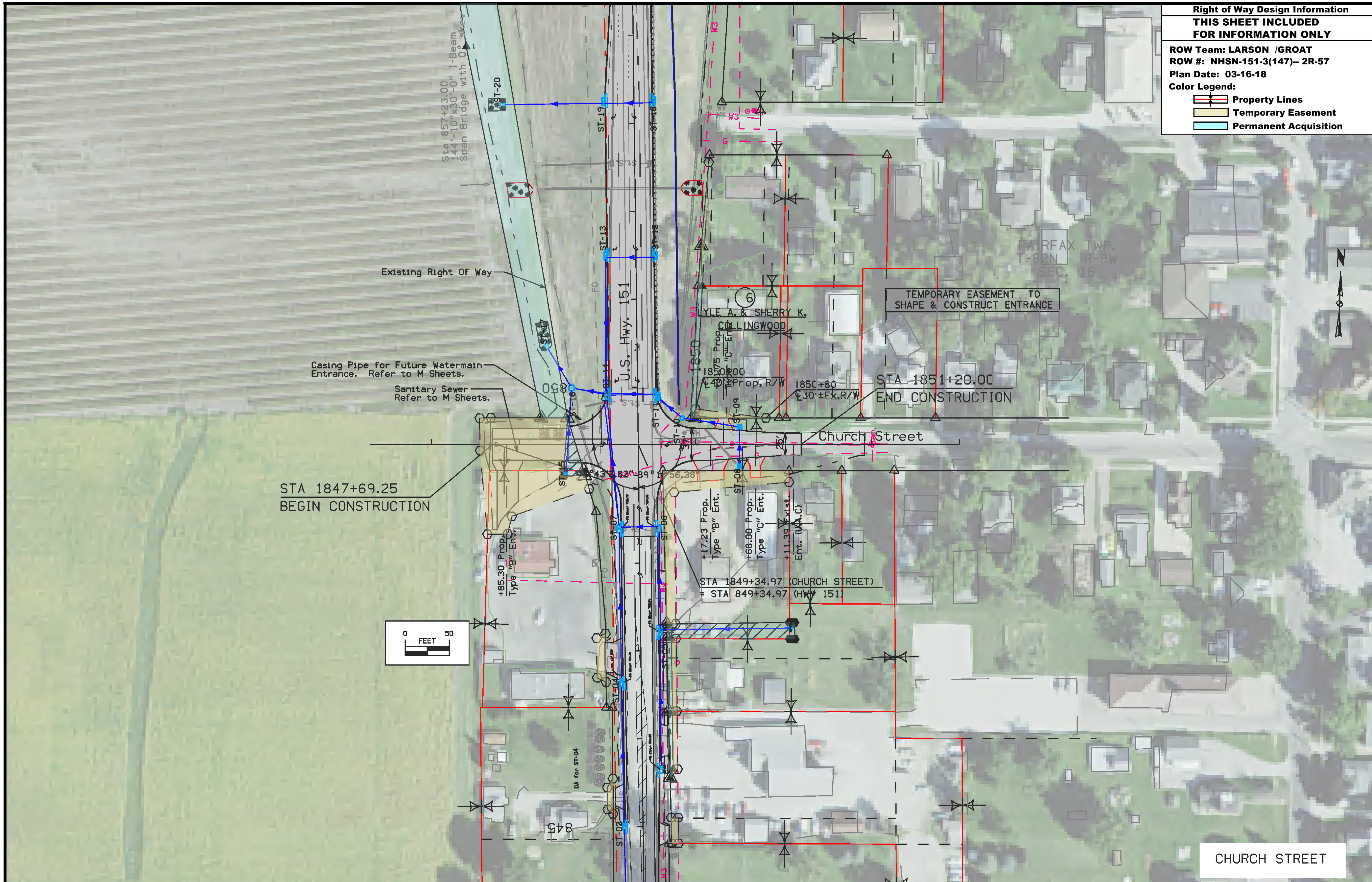
Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY
ROW Team: LARSON /GROAT
ROW #: NHSN-151-3(147)-- 2R-57
Plan Date: 03-16-18
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition
Sta 857+23.00
144'-10"x30'-0" I-Beam
Span Bridge with 0° skew
Existing Right Of Way
Casing Pipe for Future Watermain Entrance. Refer to M Sheets.
Sanitary Sewer Refer to M Sheets.
U.S. Hwy. 151
STA 1847+69.25
BEGIN CONSTRUCTION
LYLE A. & SHERRY K. COLLINGWOOD
1850+00
C40' Prop. R/W
1850+80
C30' Ex. R/W
STA 1851+20.00
END CONSTRUCTION
TEMPORARY EASEMENT TO SHAPE & CONSTRUCT ENTRANCE
FAIRFAX TWP.
T-82N R-8W
SEC. 16
Church Street
+85.30 Prop. Type "B" Ent.
+17.23 Prop. Type "B" Ent.
+68.00 Prop. Type "C" Ent.
+11.39 Exist Ent. (Unk.C)
STA 1849+34.97 (CHURCH STREET)
= STA 849+34.97 (HWY 151)
0 FEET 50
850
845
CHURCH STREET

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	LINN COUNTY	PROJECT NUMBER NHSX-151-3(158)--3H-57	SHEET NUMBER HE.1

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Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: LARSON /GROAT
ROW #: NHSN-151-3(147)--2R-57
Plan Date: 12-23-16
Color Legend:

- Property Lines
- Temporary Easement
- Permanent Acquisition

STA 2864+19.80 (PRAIRIE AVENUE)
= STA 864+19.80 (HWY 151)

Curve Data
Δ = 73° 09' 45.74" (RT)
T = 37.11
L = 63.85
R = 50.00
E = 12.27

+43.00 Prop. Type "C" Ent.

JULIE L. MCMULLEN

Protect Existing Well

TEMPORARY EASEMENT TO SHAPE & CONSTRUCT ENTRANCE

+51.90 Prop. Type "C" Ent.

2865+00±Prop.R/W
℄70'

+42.33 Prop. Type "C" Ent.

2865+39±Prop.R/W
℄30'

89°15'34.61"

FAIRFAX TWP.
T-82N R-8W
SEC. 9

Prairie Avenue

3864+65±Prop.R/W
℄40'

+00.00 Prop. Type "C" Ent.

TEMPORARY EASEMENT TO SHAPE & CONSTRUCT ENTRANCE

STA 2864+99.34 (PRAIRIE AVENUE)
= STA 3864+99.34 (LOSEY DRIVE)

AMY JO JORDAN

3862+86±P
℄40'

U.S. Hwy. 151

Losey Avenue

0 50 FEET

PRAIRIE AVENUE

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	HE.2

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108-23A
08-01-08

TRAFFIC CONTROL PLAN

1. U.S. 151 will be closed to through traffic throughout the project area. Through traffic will use the detour route indicated on Sheet J.3. The road will remain open to local traffic throughout construction, with the exception of the UPRR Bridge, which will be closed. Refer to Staging Notes for additional information.
2. Access to Church Street From U.S. 151 must be maintained between May 1st and August 15th. Church Street may be closed at U.S. 151 during intersection reconstruction utilizing the local detour route shown on sheet J.4. Access to properties shall be maintained at all times.
3. Acccess to Prairie Avenenue from U.S. 151 shall be maintained at all times.
4. Stallman Drive will be closed at U.S. 151 during intersection reconstruction.
5. Cemetery Road will be closed at U.S. 151 during intersection reconstruction. West Cemetery Road and East Cemetery Road cannot be closed at the same time.
6. Beverly Road will be closed at U.S. 151 during culvert installation.
7. Access to properties within the project area shall be maintained at all times.
8. Provide access to emergency vehicles at all times during construciton.

CROSS SECTION VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Med	(237)	Future Proposed Pavement Shading

CROSS SECTION VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

	Pavement Removal		Proposed Granular Shoulder
	Proposed Granular Subbase		Temporary Shoulder
	Proposed Special Backfill		Existing Shoulder Strengthening
	Temporary Barrier Rail		Permanent Barrier Rail
			Channelizing Device

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Magenta	(5)	Pavement Marking Call Outs
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Yellow	(4)	Pavement Markings, Yellow
Off White	(254)	Pavement Markings, White
Violet	(15)	Temporary barrier rail, Unpinned
Flush Orange	(228)	Temporary barrier rail, Pinned

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Pink, Dark	(13)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

●	Channelizing Device		Crash Cushion (Temp or Perm)
✕	Drum		Traffic Signal
◘	Temporary Lane Separator		Flagger
◆	Tubular Marker		Temporary Floodlighting
♦	Channelizer Marker		Traffic Sign
△	Concrete Barrier Marker		Type III Barricade
ς	Delineator		Type A Warning Light
	Temporary Barrier Rail		Direction of Traffic
	Pavement Removal		Safety Closure
	Sand Barrel Layout	1	Lane Identification

NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES J)

1

ROAD CLOSED

R11-2
48" x 30"
With Type III Barricade

2

ROAD CLOSED
1 MILE AHEAD
LOCAL TRAFFIC ONLY

R11-3a
60" x 30"

3

ROAD CLOSED
TO
THRU TRAFFIC

R11-4
60" x 30"
With Type III Barricade

4

DETOUR
AHEAD

W20-2
48" x 48"

5

DETOUR

M4-8
30" x 15"

6

END
DETOUR

M4-8a
24" x 18"

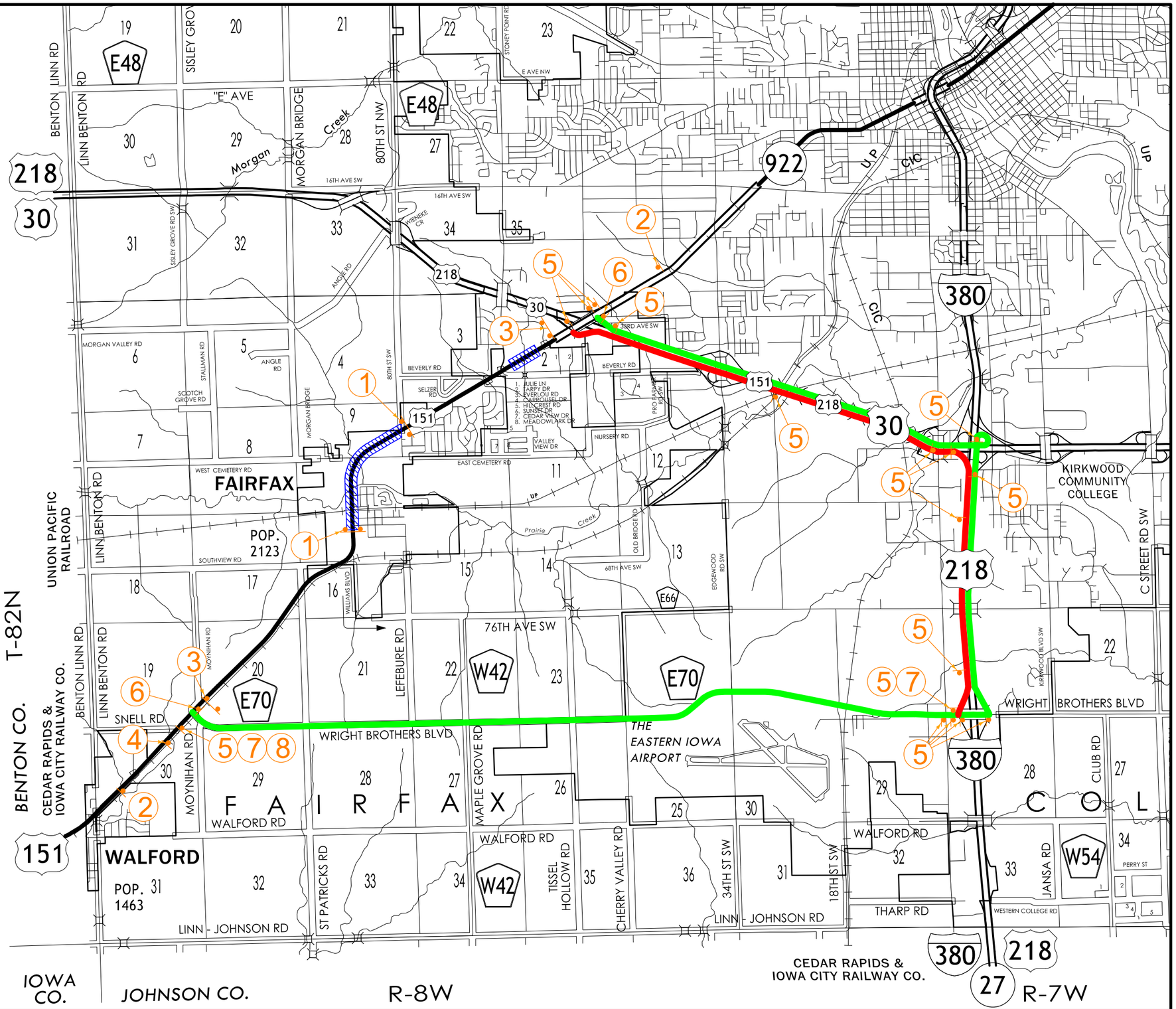
7

M6-1
21" x 15"

8

US HWY 151

54" x 30"



See Sheet J.4 for Local Traffic Detour

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	J.3

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1

ROAD CLOSED

R11-2
48" x 30"
With Type III Barricade

2

ROAD CLOSED
0.5 MILES AHEAD
LOCAL TRAFFIC ONLY

R11-3a
60" x 30"

3

DETOUR AHEAD

W20-2
48" x 48"

4

DETOUR

M4-8
30" x 15"

5

END DETOUR

M4-8a
24" x 18"

6

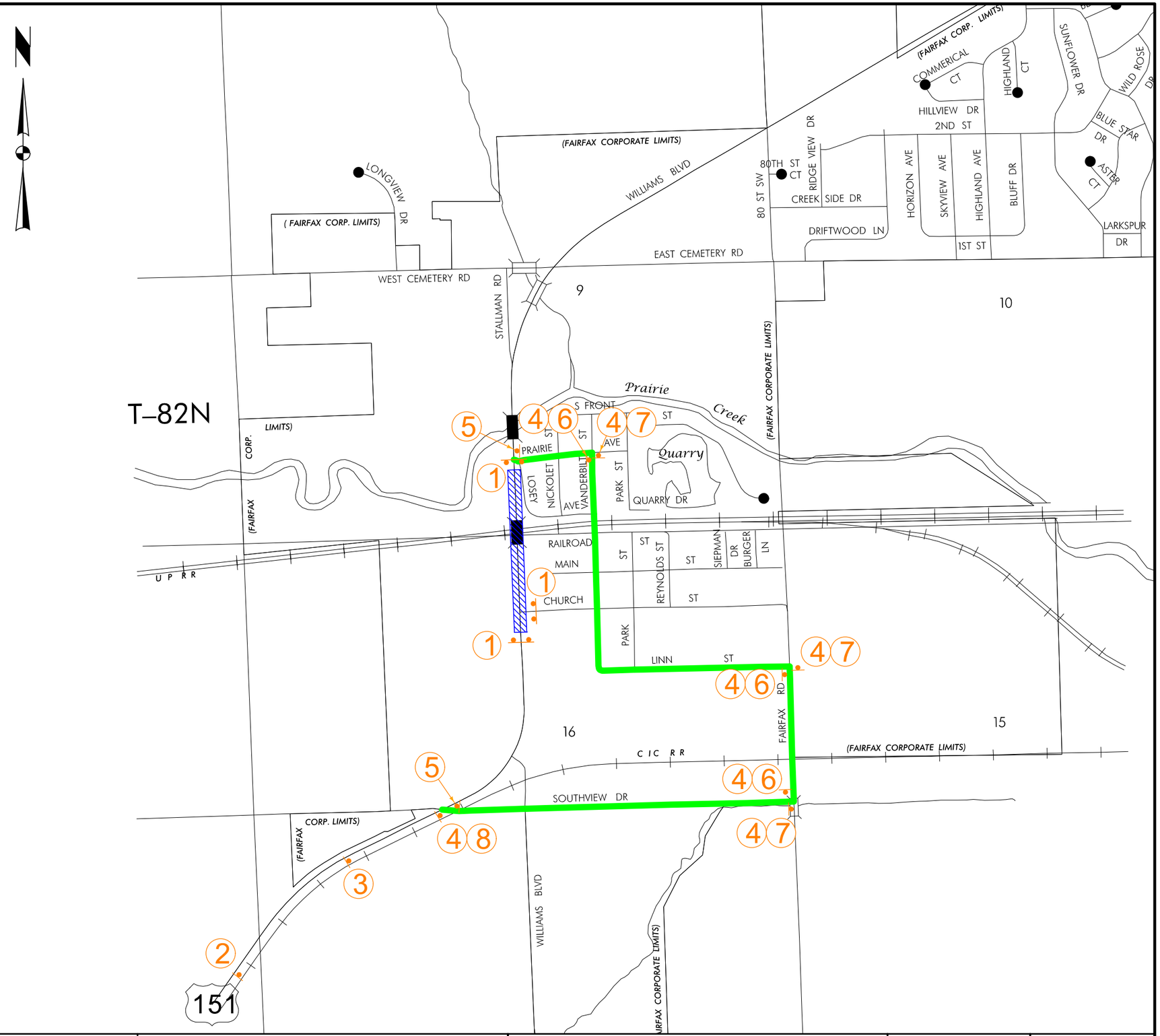
M6-1
21" x 15"

7

M6-1
21" x 15"

8

M6-2
21" x 15"



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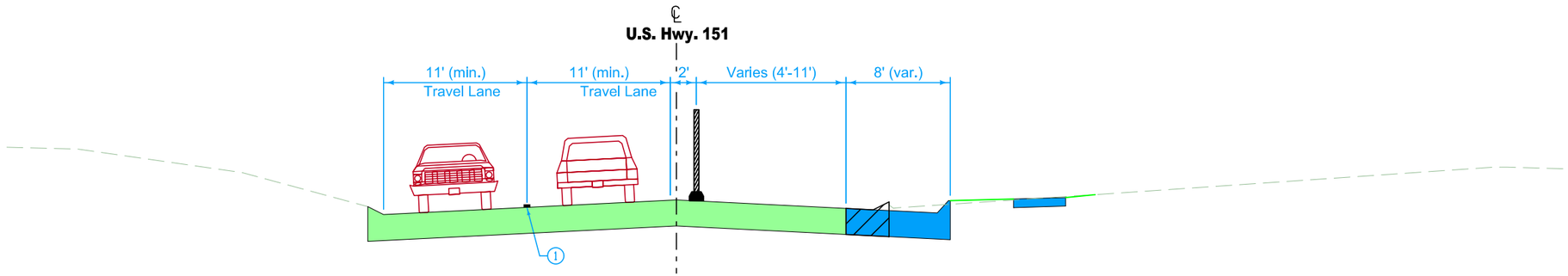
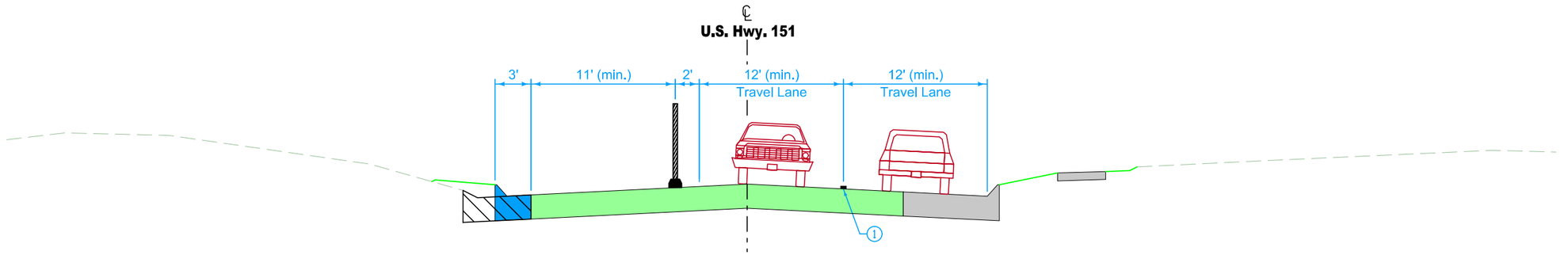


TRAFFIC CONTROL TYPICAL SECTION
HIGHWAY 151 - STAGE 1A
STA 843+88 to 847+06
SHOWN IN DIRECTION OF STATIONING

NOTES:
(1) Temporary pavement markings



TRAFFIC CONTROL TYPICAL SECTION
HIGHWAY 151 - STAGE 1B
STA 845+05 to 848+86
SHOWN IN DIRECTION OF STATIONING

NOTES:
(1) Temporary pavement markings

STAGING
South of UPRR

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	J.5

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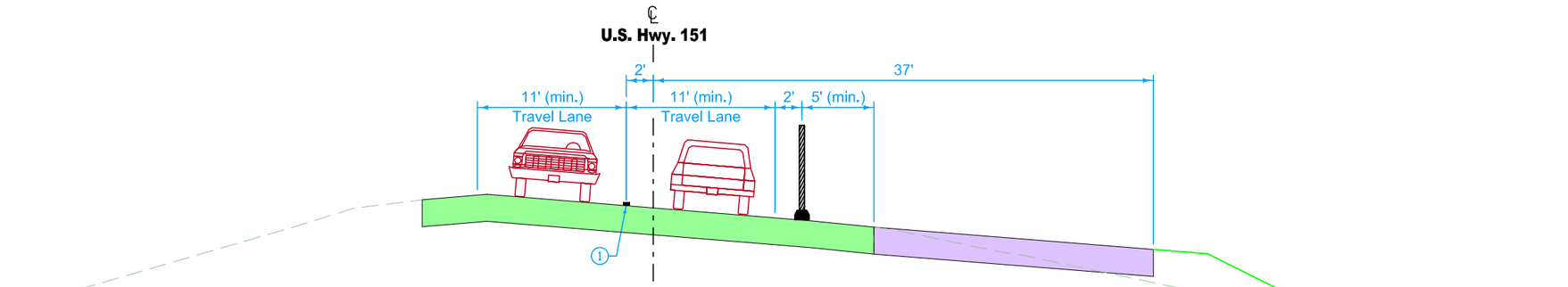
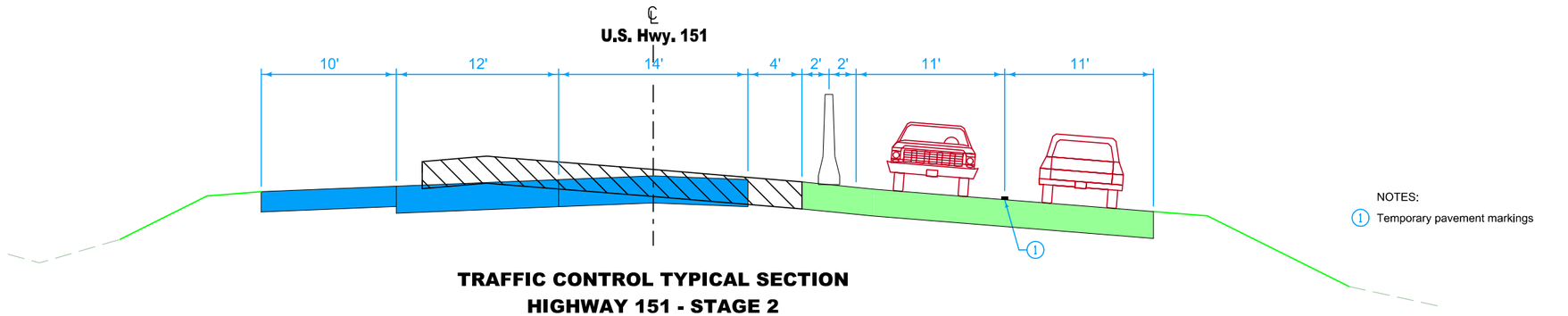


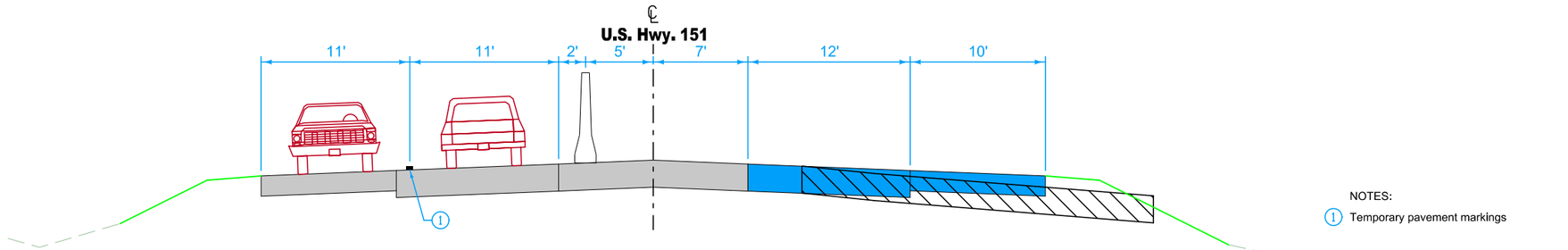
TRAFFIC CONTROL TYPICAL SECTION
HIGHWAY 151 - STAGE 1
STA 869+50 to 900+50
SHOWN IN DIRECTION OF STATIONING

NOTES:
1. Temporary pavement markings



TRAFFIC CONTROL TYPICAL SECTION
HIGHWAY 151 - STAGE 2
STA 869+50 to 898+00
SHOWN IN DIRECTION OF STATIONING

NOTES:
1. Temporary pavement markings



TRAFFIC CONTROL TYPICAL SECTION
HIGHWAY 151 - STAGE 3
STA 863+92 to 898+00
SHOWN IN DIRECTION OF STATIONING

NOTES:
1. Temporary pavement markings

STAGING
UPRR to Sta. 903+00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	J.6

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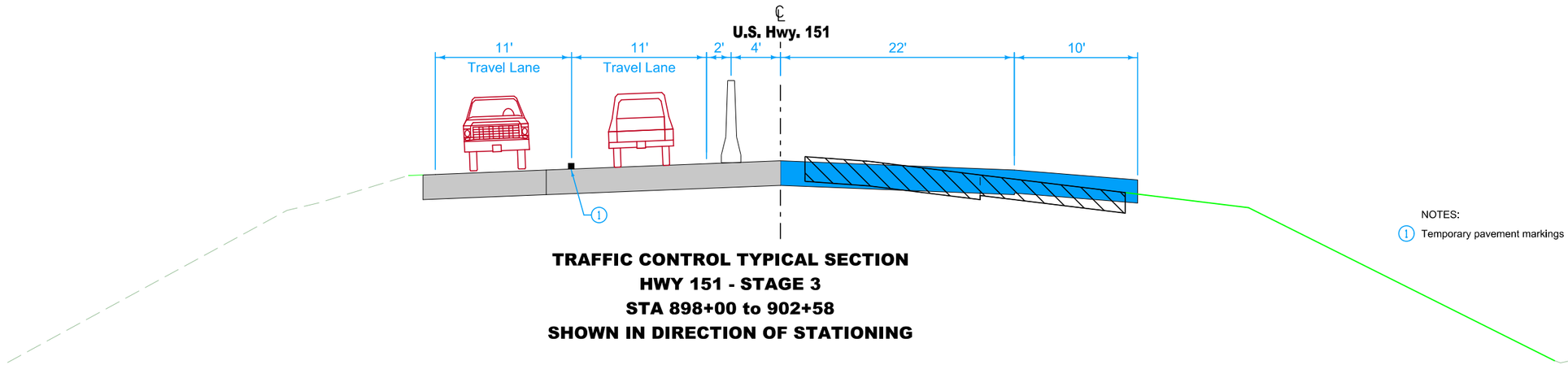
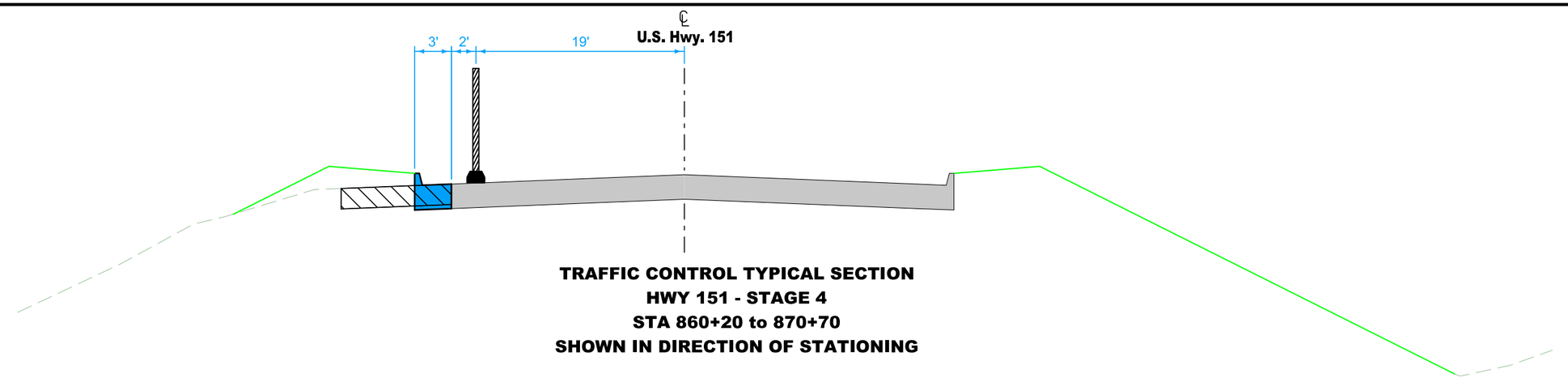
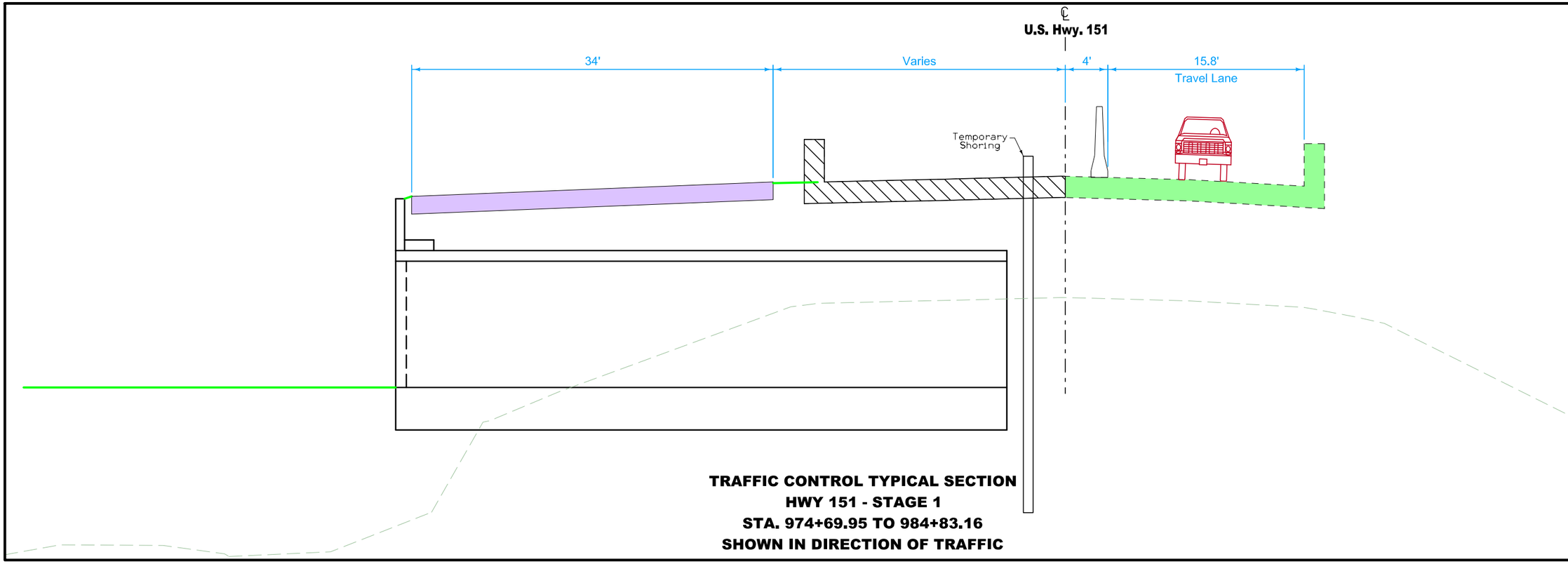


TRAFFIC CONTROL TYPICAL SECTION
HWY 151 - STAGE 3
STA 898+00 to 902+58
SHOWN IN DIRECTION OF STATIONING

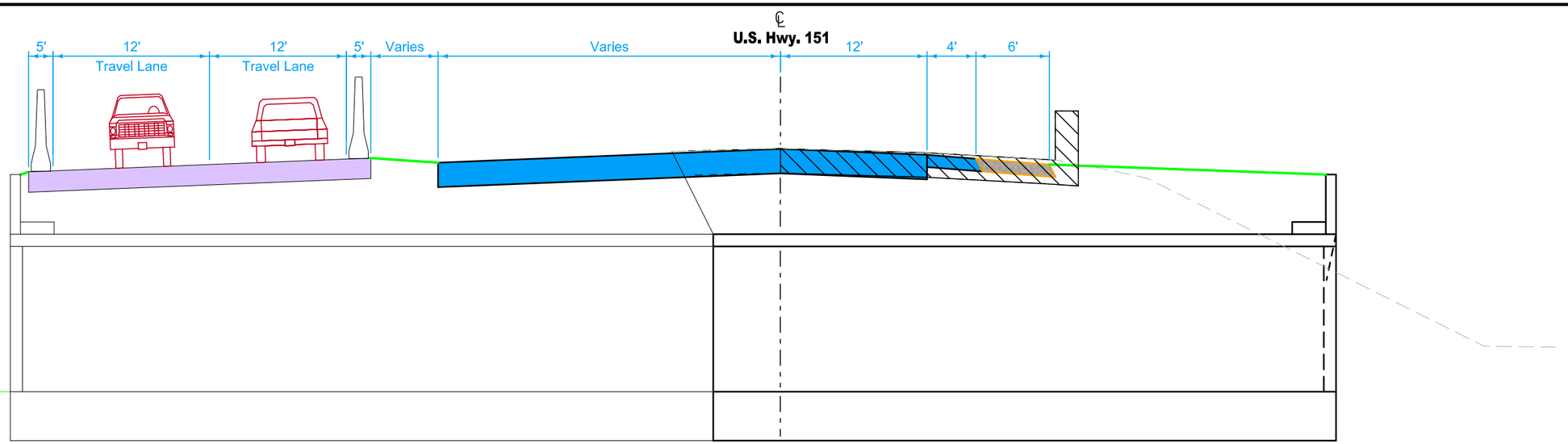
NOTES:
1. Temporary pavement markings



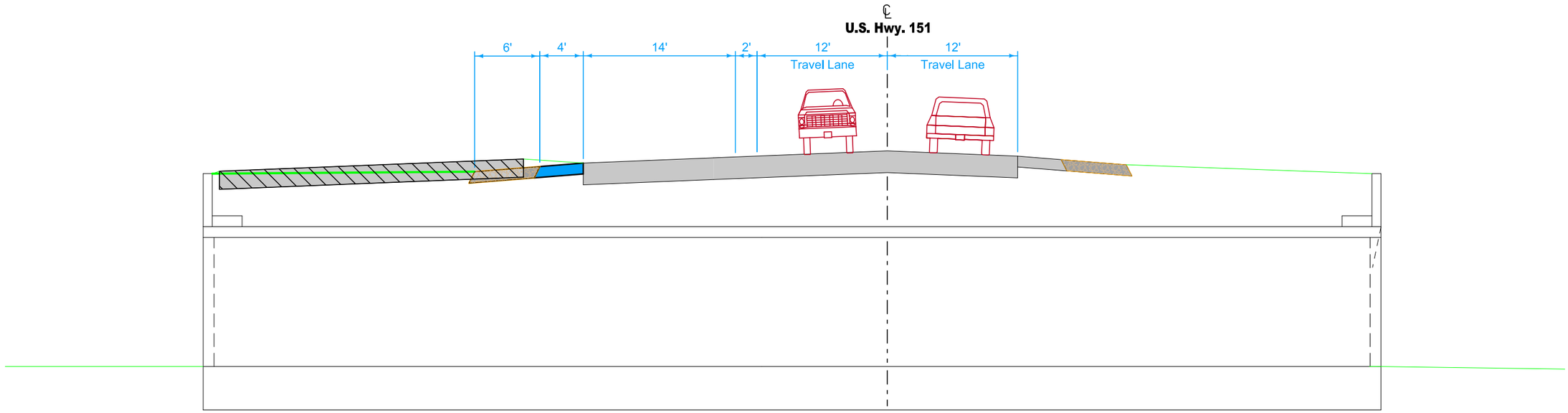
TRAFFIC CONTROL TYPICAL SECTION
HWY 151 - STAGE 4
STA 860+20 to 870+70
SHOWN IN DIRECTION OF STATIONING



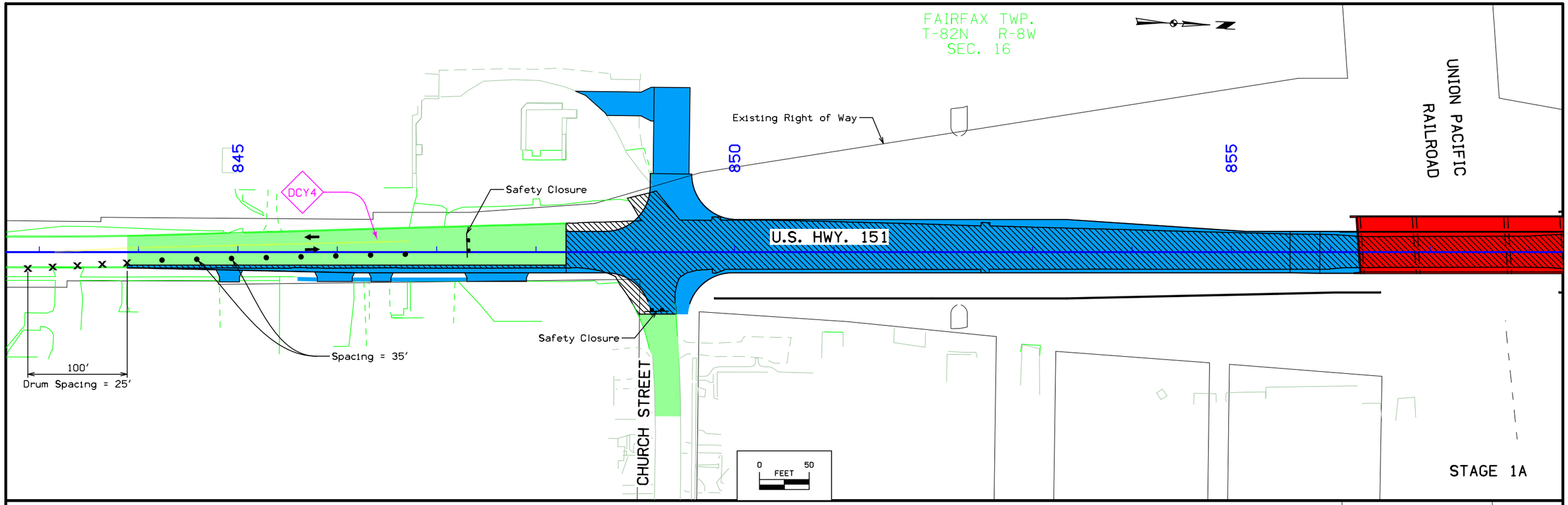
TRAFFIC CONTROL TYPICAL SECTION
HWY 151 - STAGE 1
STA. 974+69.95 TO 984+83.16
SHOWN IN DIRECTION OF TRAFFIC

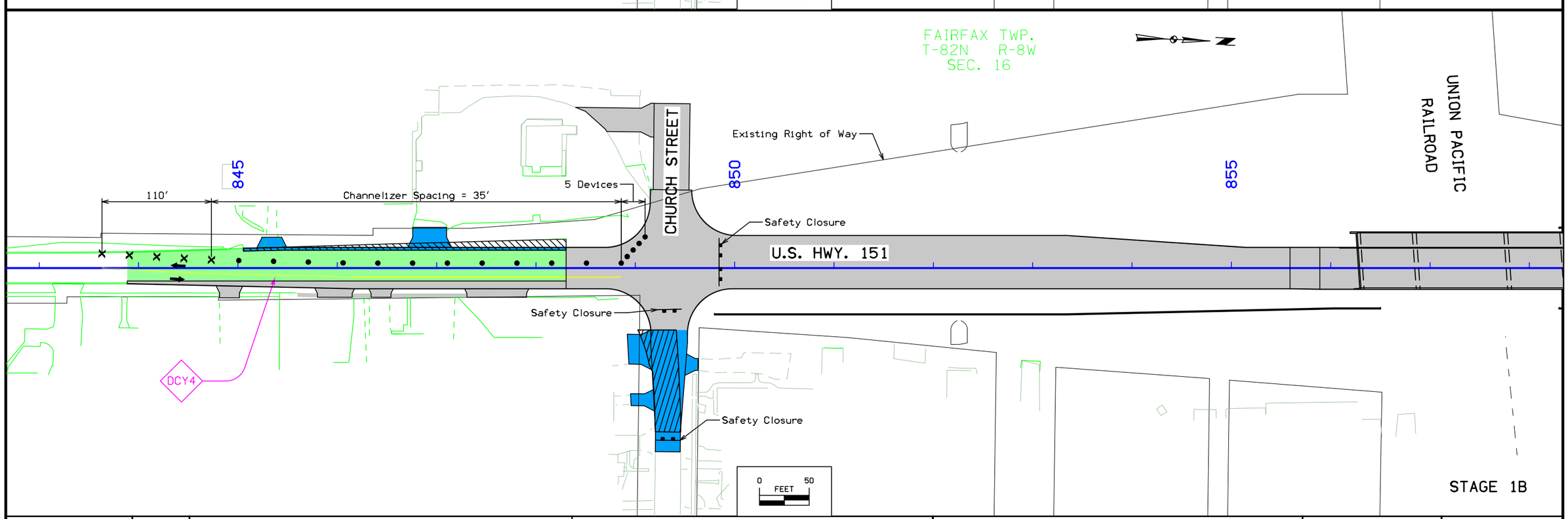


TRAFFIC CONTROL TYPICAL SECTION
HWY 151 - STAGE 2
STA. 974+69.95 TO 984+83.16
SHOWN IN DIRECTION OF TRAFFIC



TRAFFIC CONTROL TYPICAL SECTION
HWY 151 - STAGE 3
STA. 974+69.95 TO 984+83.16
SHOWN IN DIRECTION OF TRAFFIC





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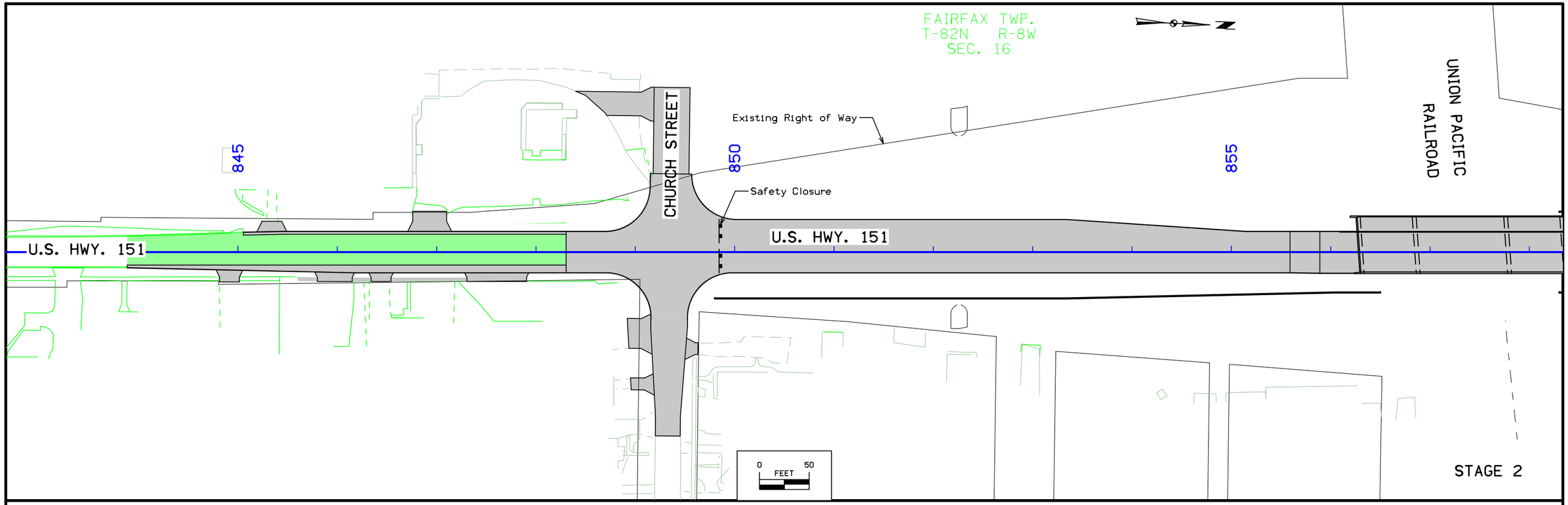

FILE NO.	ENGLISH	DESIGN TEAM SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-151-3(158)--3H-57	SHEET NUMBER J.11

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FAIRFAX TWP.
T-82N R-8W
SEC. 16

Existing Right of Way

860

865

870

DCY4

Safety Closure

U.S. HWY. 151

35' Device Spacing

LOSEY AVENUE

PRAIRIE AVENUE

STA 869+50.50
BEGIN TEMPORARY PAVEMENT

Prairie Creek

0 FEET 50

STAGE 1

STALLMAN DRIVE

875

880

FAIRFAX TWP.
T-82N R-8W
SEC. 16

Drainage Ditch

885

U.S. HWY. 151

5 Devices

DCY4

Sta 879+14.71
Stop Temporary Pavement

Sta 881+75.07
Resume Temporary Pavement

35' Device Spacing

Existing Right of Way

CEMETERY ROAD

5 Devices

0 FEET 50

STAGE 1

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	J.12

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FAIRFAX TWP.
T-82N R-8W
SEC. 16

890

DCY4

895

Existing Right of Way

900

CHY8

U.S. HWY. 151

35' Device Spacing

STA 902+84.55
END TEMPORARY PAVEMENT

0 FEET 50

STAGE 1

FAIRFAX TWP.
T-82N R-8W
SEC. 16

860

Maintain Driveway Access

Temporary
Traffic Signal

865

Existing Right of Way

870

Safety Closure

Temporary
Crash Cushion

Traffic Signal

70'

Safety Closure

U.S. HWY. 151

LOSEY AVENUE

370'

80'

170'

Drum Spacing = 20'

SLW2

DCY4

PRAIRIE AVENUE

STOP
HERE ON
RED

R10-6
24" x 36"

W3-3
48" x 48"

Prairie Creek

0 FEET 50

STAGE 2A

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	J.13

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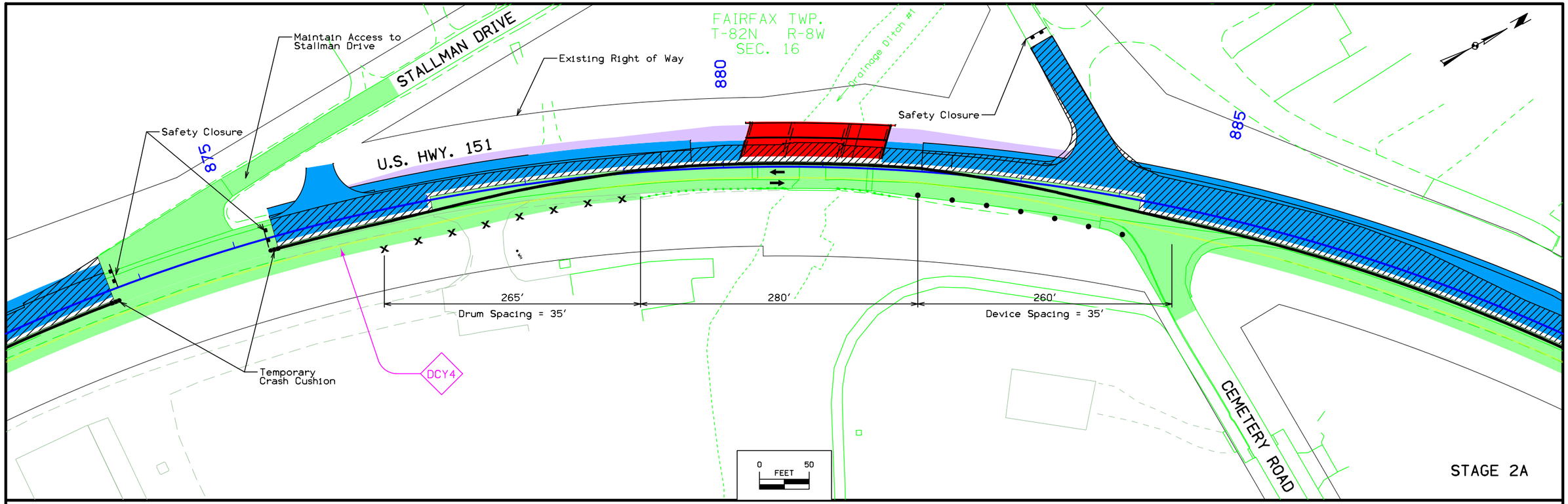

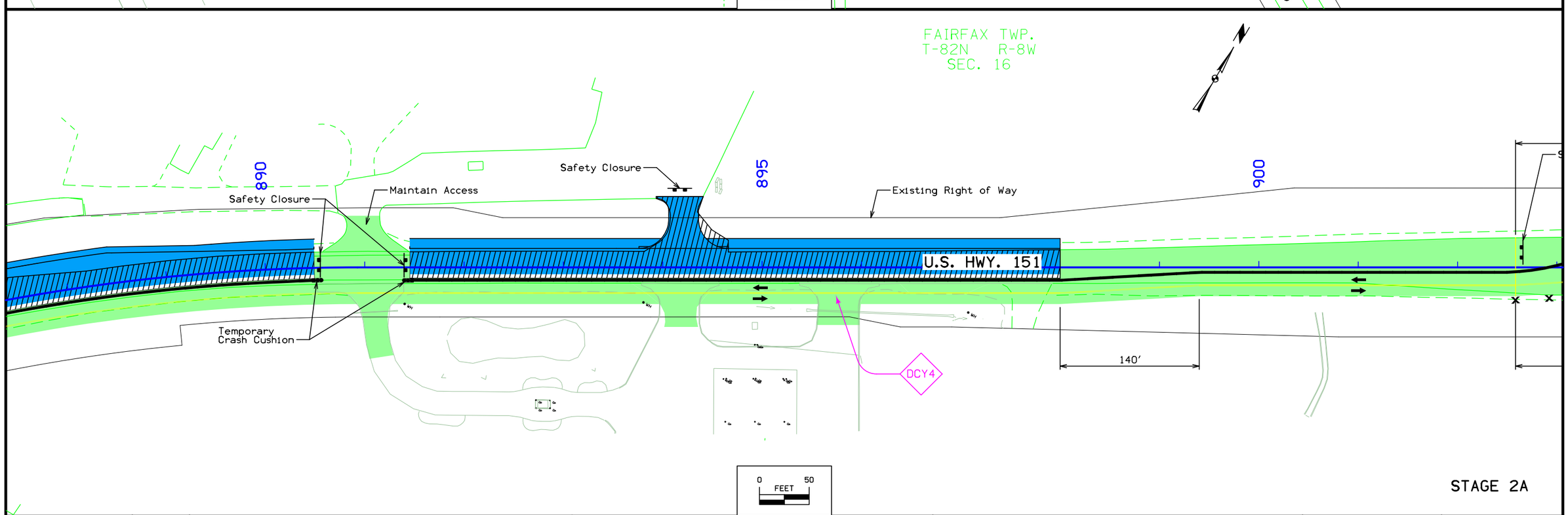

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	J.14

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FAIRFAX TWP.
T-82N R-8W
SEC. 16

530′
Drum Spacing = 35′

Safety Closure

Sand Barrels

DCY4

905

910

915

CHY8

35′ Channelizer Spacing

50′
5 Devices

305′
Drum Spacing = 35′

20′ Lane Separator Spacing

0 50
FEET

STAGE 2A

FAIRFAX TWP.
T-82N R-8W
SEC. 16

Maintain Driveway Access

Temporary Traffic Signal

Existing Right of Way

860

865

870

Traffic Signal

70′

U.S. HWY. 151

Sand Barrel

Safety Closure

LOSEY AVENUE

370′

80′

170′
Drum Spacing = 20′

SLW2

DCY4

PRAIRIE AVENUE

STOP HERE ON RED

R10-6
24" x 36"

W3-3
48" x 48"

Prairie Creek

0 50
FEET

STAGE 2B

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	J.15

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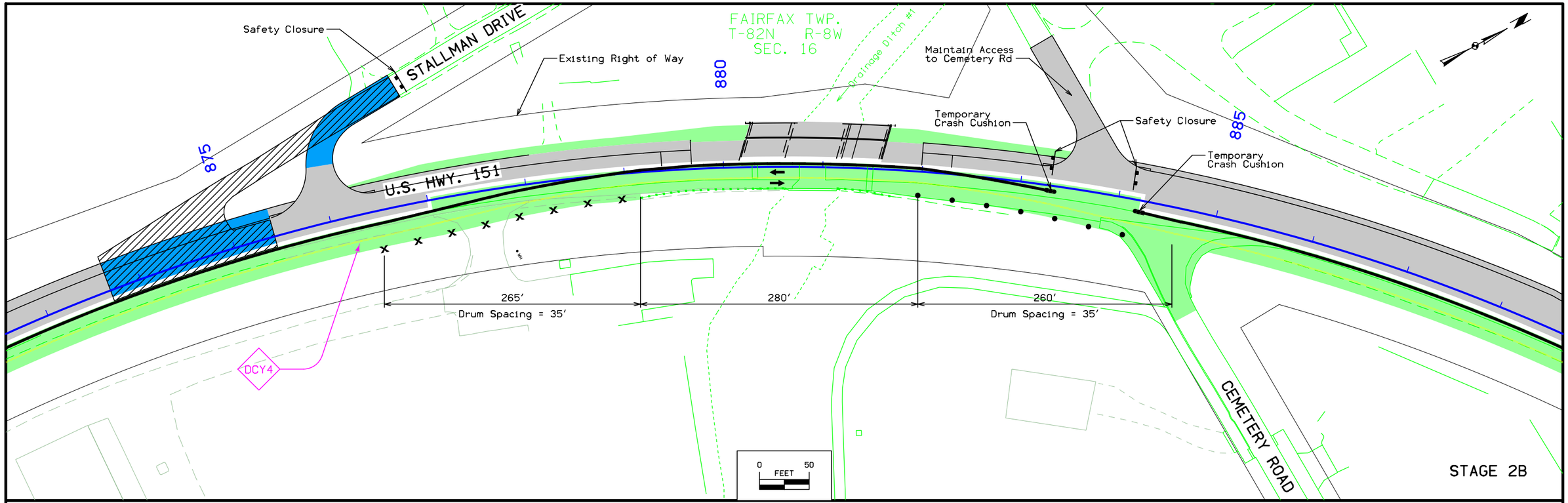

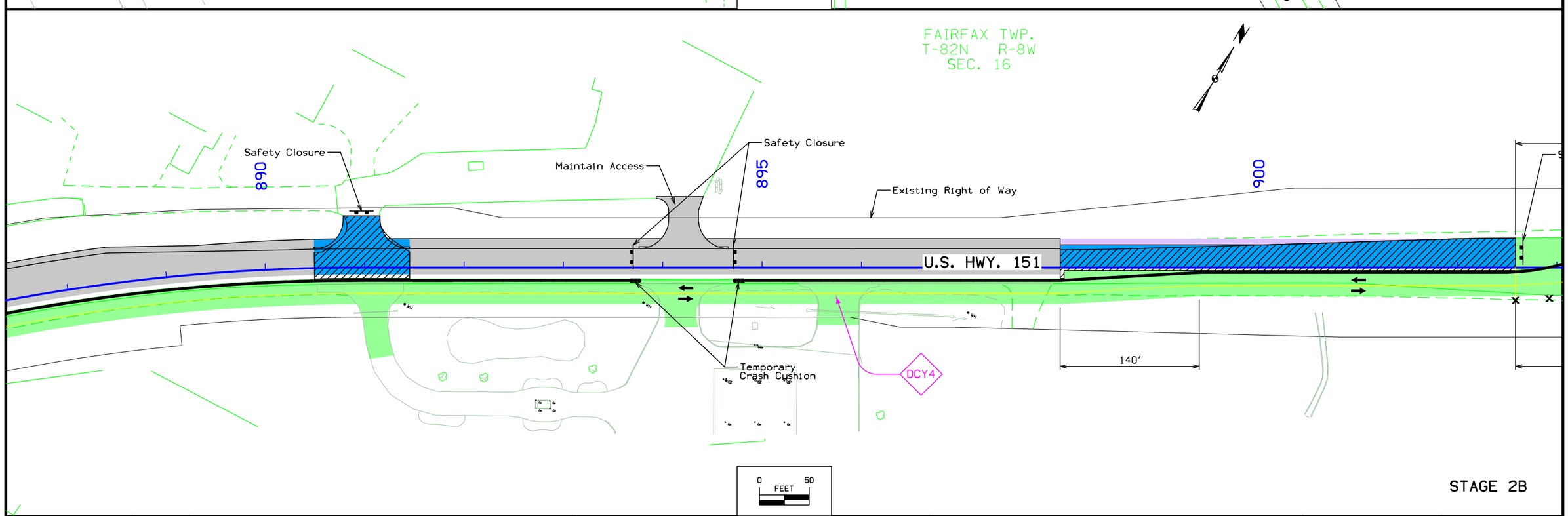

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	J.16

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FAIRFAX TWP.
T-82N R-8W
SEC. 16

530′
Drum Spacing = 35′

Safety Closure

Sand Barrels

DCY4

905

910

915

CHY8

35′ Channelizer Spacing

50′
5 Devices

305′
Drum Spacing = 35′

20′ Lane Separator Spacing

0 50
FEET

STAGE 2B

FAIRFAX TWP.
T-82N R-8W
SEC. 16

315′
Drum Spacing = 35′

680′

Drum Spacing = 35′
105′

860

865

870

Maintain Driveway Access

Existing Right of Way

Temporary Crash Cushion

Temporary Crash Cushion

DCY4

U.S. HWY. 151

Sand Barrel

Safety Closure

35′ Device Spacing

Safety Closure

LOSEY AVENUE

PRAIRIE AVENUE

Prairie Creek

Safety Closure

0 50
FEET

STAGE 3A

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	J.17

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FAIRFAX TWP.
T-82N R-8W
SEC. 16

140′ | 200′ | 100′ | 200′ | 100′

Drum Spacing = 35′

STALLMAN DRIVE

DCY4

Drainage Ditch #1

Temporary Crash Cushion

Temporary Crash Cushion

U.S. HWY. 151

Existing Right of Way

Safety Closure

CEMETERY ROAD

875 880 885

0 50 FEET

STAGE 3A

FAIRFAX TWP.
T-82N R-8W
SEC. 16

140′
Drum Spacing = 35′

890 895 900

Temporary Crash Cushion

DCY4

Existing Right of Way

U.S. HWY. 151

Safety Closure

Maintain Access

Safety Closure

Safety Closure

0 50 FEET

STAGE 3A

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	J.18

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FAIRFAX TWP.
T-82N R-8W
SEC. 16

905 910 915

90'
4 Devices

U.S. HWY. 151

Safety Closure

Sand Barrels

350'
Drum Spacing = 35'

0 50
FEET

STAGE 3A

FAIRFAX TWP.
T-82N R-8W
SEC. 16

140'
Drum Spacing = 35'

890 895 900

Temporary
Crash Cushion

DCY4

Existing Right of Way

Temporary
Crash Cushion

U.S. HWY. 151

Safety Closure

Safety Closure

Safety Closure

Maintain Access

0 50
FEET

STAGE 3B

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	J.19

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FAIRFAX TWP.
T-82N R-8W
SEC. 16

905 910 915

90'
4 Devices

U.S. HWY. 151

Safety Closure

Sand Barrels

350'
Drum Spacing = 35'

0 FEET 50

STAGE 3B

FAIRFAX TWP.
T-82N R-8W
SEC. 16

270'
Device Spacing = 35'

Existing Right of Way

860 865 870

Device Spacing = 35'

U.S. HWY. 151

LOSEY AVENUE

PRAIRIE AVENUE

Prairie Creek

0 FEET 50

STAGE 4

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	J.20

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FAIRFAX TWP.
T-82N R-8W
SEC. 16

STALLMAN DRIVE

Existing Right of Way

880

U.S. HWY. 151

5 Devices

875

5 Devices

Device Spacing = 35′

5 Devices

885

100′
5 Devices

Device Spacing = 35′

CEMETERY ROAD

0 FEET 50

STAGE 4

FAIRFAX TWP.
T-82N R-8W
SEC. 16

890

245′
Drum Spacing = 35′

100′
5 Devices

Device Spacing = 35′

Device Spacing = 35′

Lane Separator
Spacing = 20′

895

Existing Right of Way

458′
Device Spacing = 35′

900

U.S. HWY. 151

0 FEET 50

STAGE 4

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	J.21

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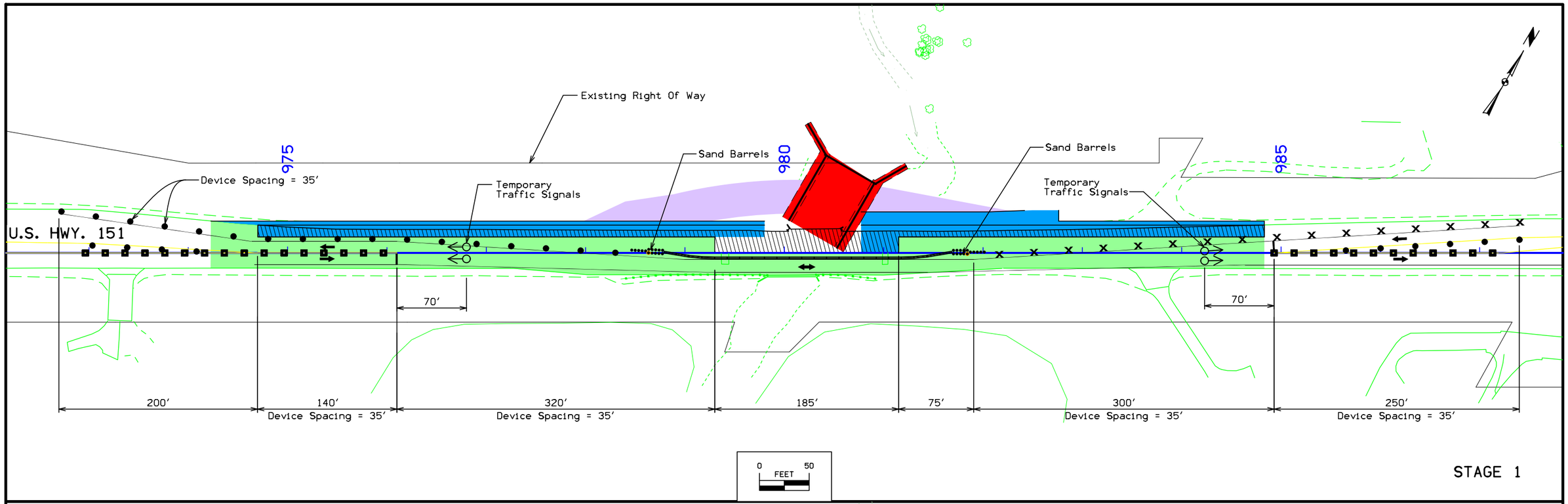
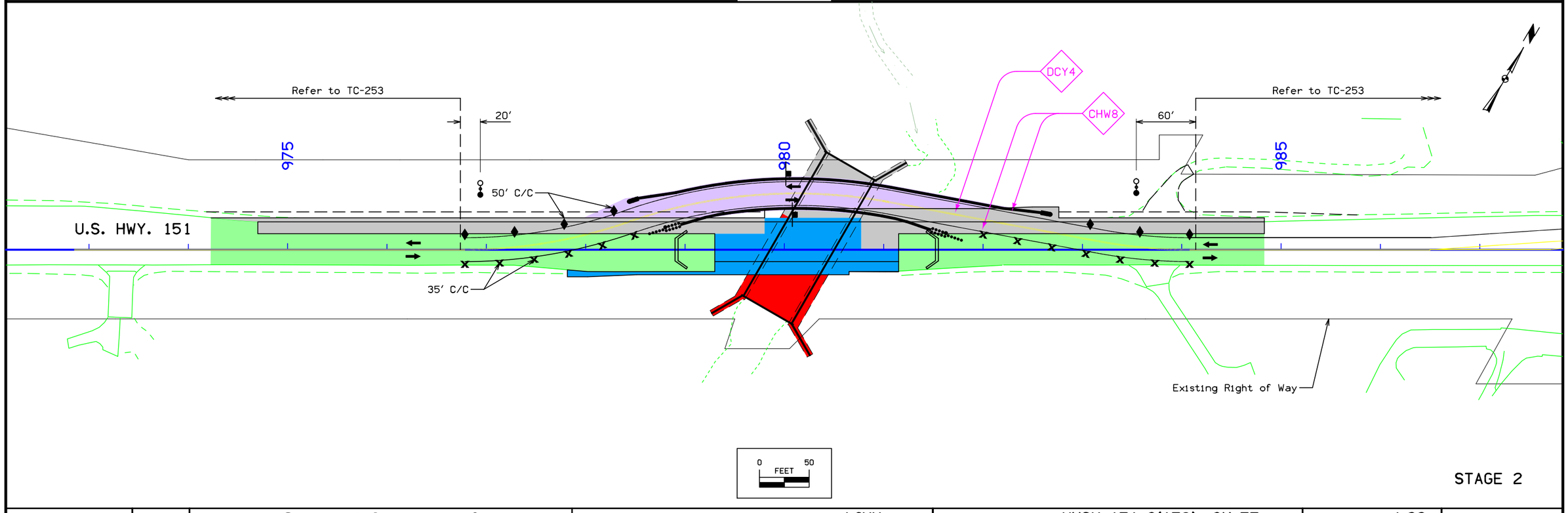


STAGE 1



STAGE 2

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	J.22

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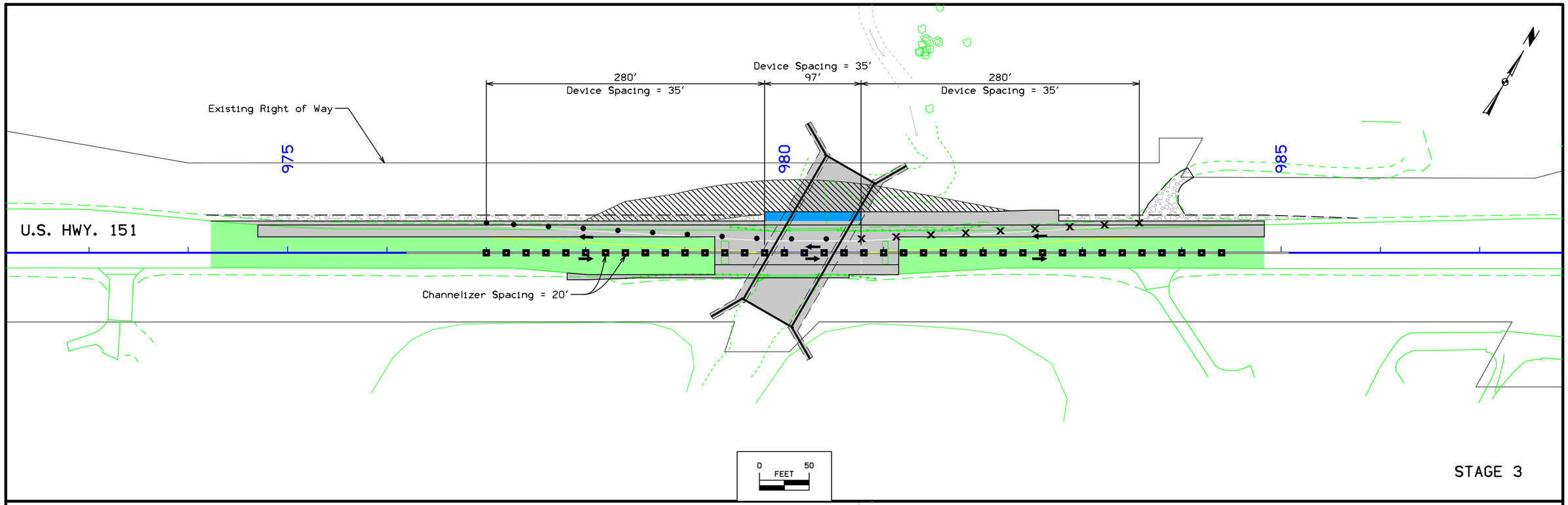
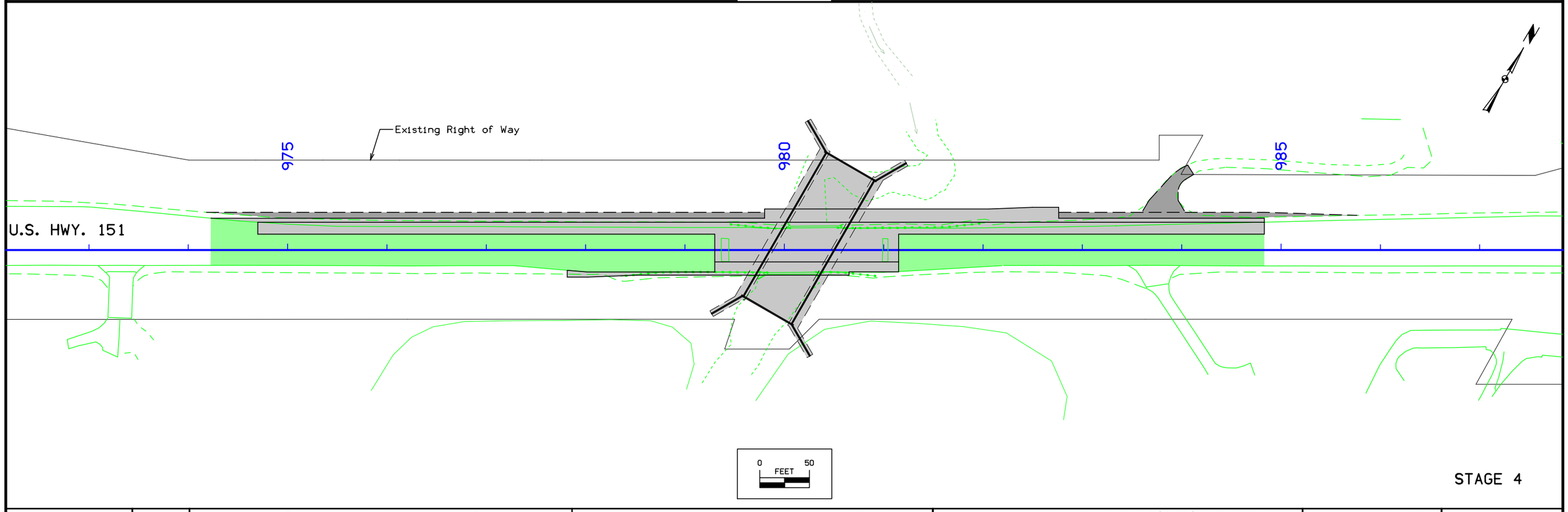


STAGE 3



STAGE 4

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	J.23

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CIRCULAR CURVE DATA						
Name	Δ	D	T	L	E	R
CURVE SRCHURC_RET_1-2	90° 43′ 03.62″	190° 59′ 09.35″	30.38′	47.50′	12.69′	30′
CURVE SRCHURC_RET_2-1	89° 16′ 56.38″	190° 59′ 09.35″	29.63′	46.75′	12.16′	30′
CURVE SRCHURC_RET_3-1	90° 43′ 03.62″	190° 59′ 09.35″	30.38′	47.50′	12.69′	30′
CURVE SRCHURC_RET_4-1	89° 16′ 56.38″	190° 59′ 09.35″	29.63′	46.75′	12.16′	30′

End Church Street Construction
Sta 849+18.55 165.94′ LT US 151

End Church Street Construction
Sta 849+55.55 165.48′ LT US 151

Church Street

1848

SRCHURC_RET_1

SRCHURC_RET_2

Sta 849+17.11 50.62′ LT US 151
Sta 1+66.75 SRCHURC_RET_2

30′ Radius Point
Curve SRCHURC_RET_2-1
Sta 848+87.11 51.00′ LT US 151

CURVE SRCHURC_RET_2-1

Sta 848+87.11 21.00′ LT US 151
Sta 1+20.00 SRCHURC_RET_2

18.00′ 18.00′

Sta 849+54.27 63.38′ LT US 151
Sta 1+20.00 SRCHURC_RET_1

30′ Radius Point
Curve SRCHURC_RET_1-2
Sta 849+84.27 63.00′ LT US 151

CURVE SRCHURC_RET_1-2

Sta 849+84.27 33.00′ LT US 151
Sta 1+67.50 SRCHURC_RET_1

847 848 849 850 851 852

1849

Sta 849+34.97 US 151 =
Sta 1849+34.97 Church Avenue

US Highway 151

21.00′ 3.00′ 21.00′ 8.00′ 33.00′ 21.00′

89°16′56.38″ 90°43′3.62″

Sta 849+82.84 21.00′ RT US 151
Sta 1+66.75 SRCHURC_RET_4

CURVE SRCHURC_RET_4-1

18.50′ 18.50′

1850

30′ Radius Point
Curve SRCHURC_RET_4
Sta 849+82.84 51.00′ RT US 151

Sta 848+85.83 21.00′ RT US 151
Sta 1+20.00 SRCHURC_RET_3

CURVE SRCHURC_RET_3-1

SRCHURC_RET_3

30′ Radius Point
Curve SRCHURC_RET_3
Sta 848+85.83 51.00′ RT US 151

Sta 849+15.83 51.38′ RT US 151
Sta 1+67.50 SRCHURC_RET_3

90.2 ft 15:1 Taper

90.2 ft 15:1 Taper

Sta 849+52.84 50.62′ RT US 151
Sta 1+20.00 SRCHURC_RET_4

End Taper
Sta 849+52.70 61.84′ RT US 151

FAIRFAX TWP.
T-82N R-8W
SEC. 16

SRCHURC_RET_4

End Taper
Sta 849+15.70 61.37′ RT US 151

Begin Taper
Sta 849+45.57 151.76′ RT US 151

Begin Taper
Sta 849+20.58 151.44′ RT US 151

12.50 12.50′

1851

Begin Church Street Construction
Sta 849+45.41 165.17′ RT US 151

Begin Church Street Construction
Sta 849+20.41 164.86′ RT US 151

0 20
FEET

NOTES:

Dimensions shown are to the back of curb.

Refer to G sheets for horizontal alignment information.

Refer to appropriate Standard Road Plans for additional information.

Geometric Details
Intersection of
US Highway 151 and Church Street

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.1

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SRCHRCH_RET_2

SRCHRCH_RET_1

Church Street

1848

Sta 1+43.89 SRCHRCH_RET_2
= Sta 1849+02.24 34.82' RT Church Street
Elev =

Sta 1+45.91 SRCHRCH_RET_1
= Sta 1848+88.36 34.58' LT Church Street
Elev =

Constant 2.0% Slope

Uniform Transition

2.0% 18.5'

2.8% 15.0'

U.T.

Special Shaping

Elev =

847

848

849

850

851

852

US Highway 151

1849

Constant 2.0% Slope

Uniform Transition

3.5% 15.0' 6.0'

2.0% 15.0' 6.0'

2.8% 15.0' 6.0'

2.0% 15.0' 12.0'

Sta 1+45.34 SRCHRCH_RET_3
= Sta 1849+69.55 32.08' RT Church Street
Elev =

Sta 1+44.78 SRCHRCH_RET_4
= Sta 1849+68.76 31.29' LT Church Street
Elev =

1850

1851

2.0% 13.9'

2.0% 12.5'

0.2% 12.5'

SRCHRCH_RET_3

SRCHRCH_RET_4

FAIRFAX TWP.
T-82N R-8W
SEC. 16

0 20
FEET

Staking Details
Intersection of
US Highway 151 and Church Street

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.2

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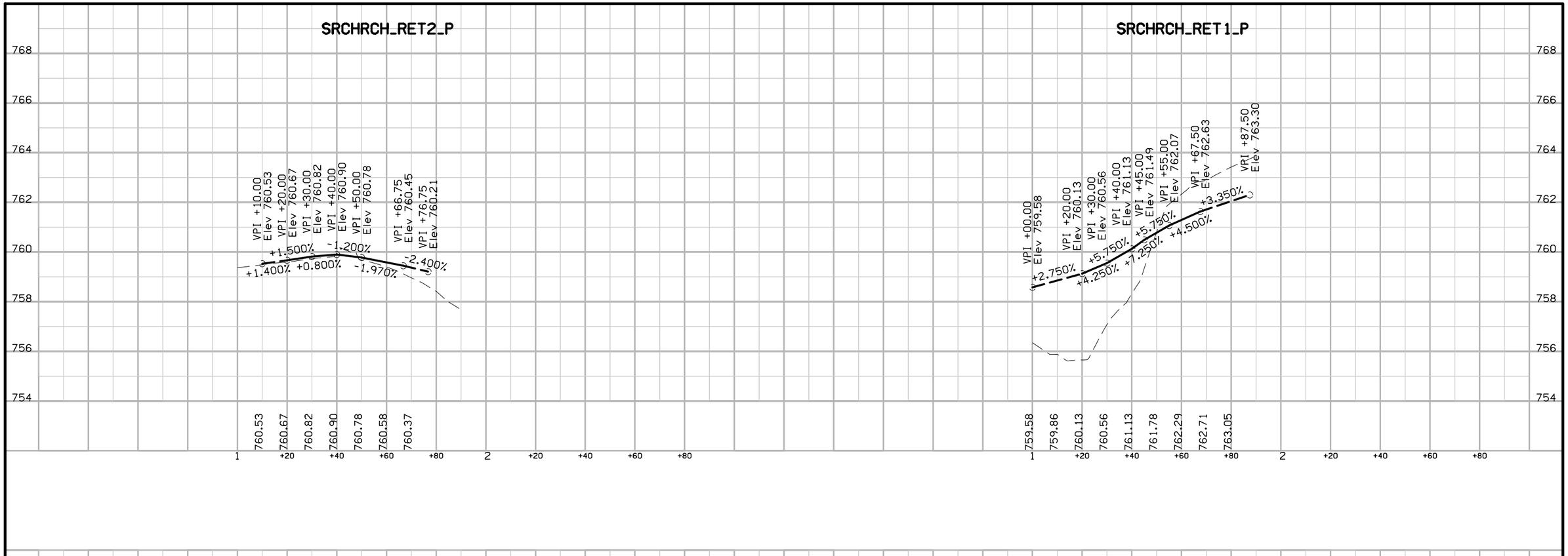

Edge Return Profiles
Intersection of
US Highway 151 and Church Street

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.3

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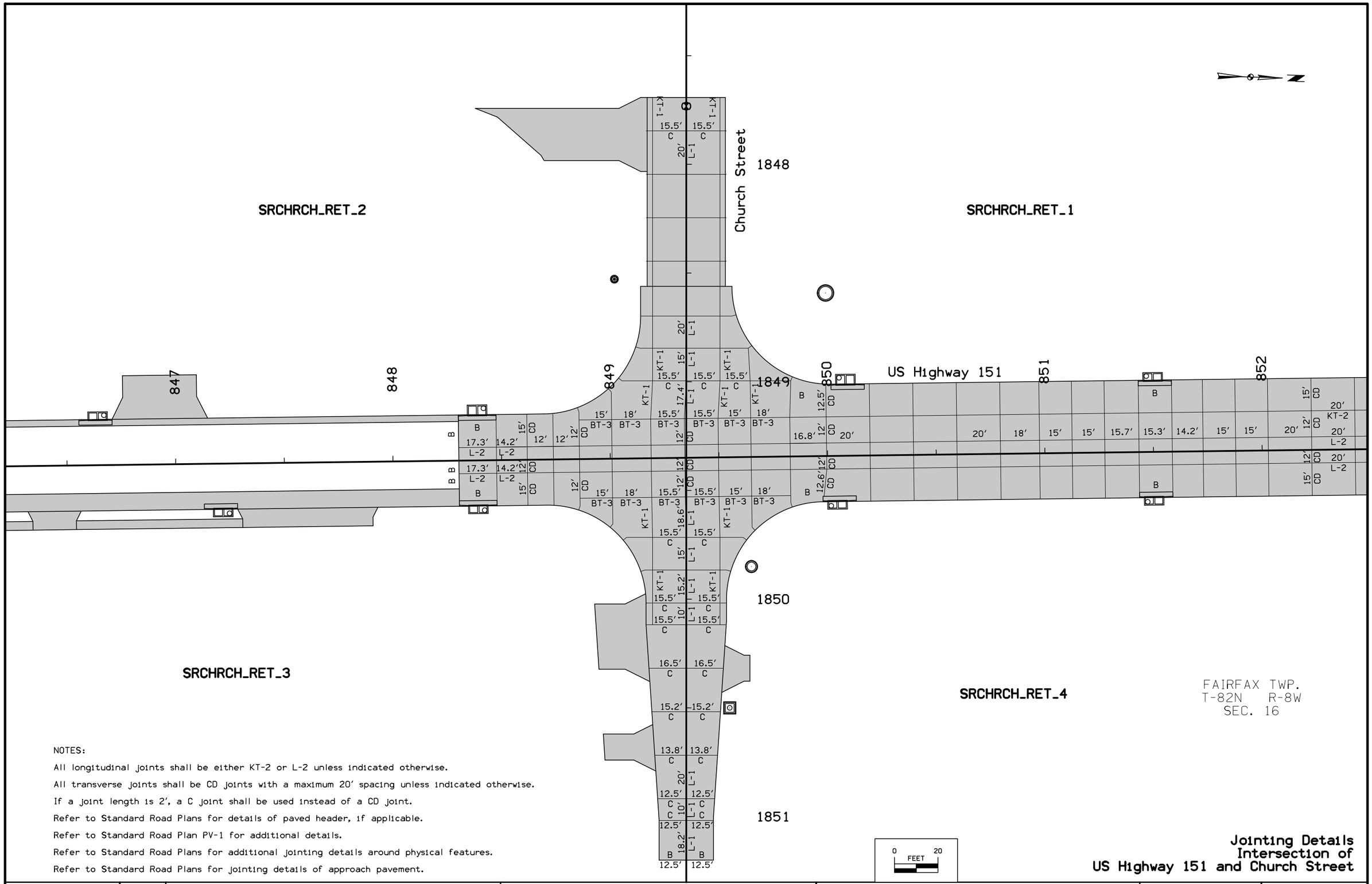

NOTES:

All longitudinal joints shall be either KT-2 or L-2 unless indicated otherwise.

All transverse joints shall be CD joints with a maximum 20′ spacing unless indicated otherwise.

If a joint length is 2′, a C joint shall be used instead of a CD joint.

Refer to Standard Road Plans for details of paved header, if applicable.

Refer to Standard Road Plan PV-1 for additional details.

Refer to Standard Road Plans for additional jointing details around physical features.

Refer to Standard Road Plans for jointing details of approach pavement.

FAIRFAX TWP.
T-82N R-8W
SEC. 16

0 20
FEET

Jointing Details
Intersection of
US Highway 151 and Church Street

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.4

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CIRCULAR CURVE DATA						
Name	Δ	D	T	L	E	R
CURVE SRPRAIR_RET_1-1	67° 24′ 00.13″	91° 40′ 23.69″	41.68′	73.68′	12.62′	62.5′
CURVE SRPRAIR_RET_1-2	67° 24′ 00.13″	143° 14′ 22.02″	26.68′	47.05′	8.08′	40′
CURVE SRPRAIR_RET_2-1	105° 28′ 54.30″	381° 58′ 18.71″	19.72′	27.62′	9.78′	15′
CURVE SRPRAIR_RET_2-2	53° 28′ 43.61″	152° 47′ 19.48″	18.89′	35.00′	4.49′	37.5′
CURVE SRPRAIR_RET_4-1	90° 44′ 25.39″	143° 14′ 22.02″	40.52′	63.35′	16.94′	40′
CURVE SRLOSEY_RET_3-1	137° 31′ 07.99″	572° 57′ 29.06″	25.73′	46.75′	17.60′	10′
CURVE SRLOSEY_RET_3-2	42° 28′ 52.01″	114° 35′ 29.61″	19.43′	37.07′	3.64′	50′
CURVE SRLOSEY_RET_4-1	89° 15′ 34.61″	229° 10′ 59.22″	24.68′	38.95′	10.13′	25′

SRPRAIR_RET_1

SRPRAIR_RET_2

SRPRAIR_RET_4

SRLOSEY_RET_3

SRLOSEY_RET_4

862 863 864 865 866 867

2863 2864 2865 2866

3862 3863 3864 3865 3866

US Highway 151

Losey Avenue

Prairie Avenue

21.00′ 33.00′ 22.00′ 22.00′

14.00′ 14.00′ 11.50′ 11.50′

90°44′25.39″ 89°15′34.61″

90°44′25.39″ 89°15′34.61″

STA 2864+94.83 (PRAIRIE AVENUE) =
STA 3864+94.81 (LOSEY AVENUE)

STA 864+19.80 (HWY 151) =
STA 2864+19.83 (PRAIRIE AVENUE)

Sta 863+92.13 46.13′ RT US 151
Sta 1+44.00 SRLOSEY_RET_3

CURVE SRLOSEY_RET_3-1
CURVE SRLOSEY_RET_3-2
Sta 863+58.36 33.00′ RT US 151
Sta 1+81.07 SRLOSEY_RET_3

10′ Radius Point
Curve SRLOSEY_RET_3-1
Sta 863+85.38 53.50′ RT US 151

Sta 863+85.38 63.50′ RT US 151
Sta 1+20.00 SRLOSEY_RET_3

End Pavement
Sta 862+11.74 61.29′ RT US 151

End Pavement
Sta 862+13.31 84.23′ RT US 151

Sta 862+76.42 61.96′ RT US 151
Sta 862+74.37 84.87′ RT US 151
Sta 863+10.97 63.50′ RT US 151
Sta 863+10.97 86.50′ RT US 151

50′ Radius Point
Curve SRLOSEY_RET_3-2
Sta 863+58.36 83.00′ RT US 151

Sta 863+82.23 86.50′ RT US 151
Sta 1+20.00 SRLOSEY_RET_4

CURVE SRLOSEY_RET_4-1

25′ Radius Point
Curve SRLOSEY_RET_4-1
Sta 863+82.23 111.50′ RT US 151

Sta 864+07.23 111.18′ RT US 151
Sta 1+58.95 SRLOSEY_RET_4

Begin 23′ Wide Pavement
Sta 864+09.73 111.14′ RT US 151

Sta 864+10.63 180.68′ RT US 151

End Prairie Avenue Construction
Sta 864+14.29 230.89′ RT US 151

Sta 864+74.60 22.00′ RT US 151
Sta 1+73.35 SRPRAIR_RET_4

CURVE SRPRAIR_RET_4-1

40′ Radius Point
Curve SRPRAIR_RET_4-1
Sta 864+74.60 62.00′ RT US 151

Sta 864+34.60 62.52′ RT US 151
Sta 1+10.00 SRPRAIR_RET_4

End 28′ Wide Pavement
Sta 864+35.23 110.82′ RT US 151

Begin 23′ Wide Pavement
Sta 864+32.73 110.85′ RT US 151

Sta 864+33.62 179.69′ RT US 151

End Prairie Avenue Construction
Sta 864+37.23 229.22′ RT US 151

FAIRFAX TWP.
T-82N R-8W
SEC. 9

NOTES:

Dimensions shown are to the back of curb.

Refer to G sheets for horizontal alignment information.

Refer to appropriate Standard Road Plans for additional information.

0 20
FEET

Geometric Details
Intersection of
US Highway 151 and Prairie Avenue and Losey Avenue

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.5

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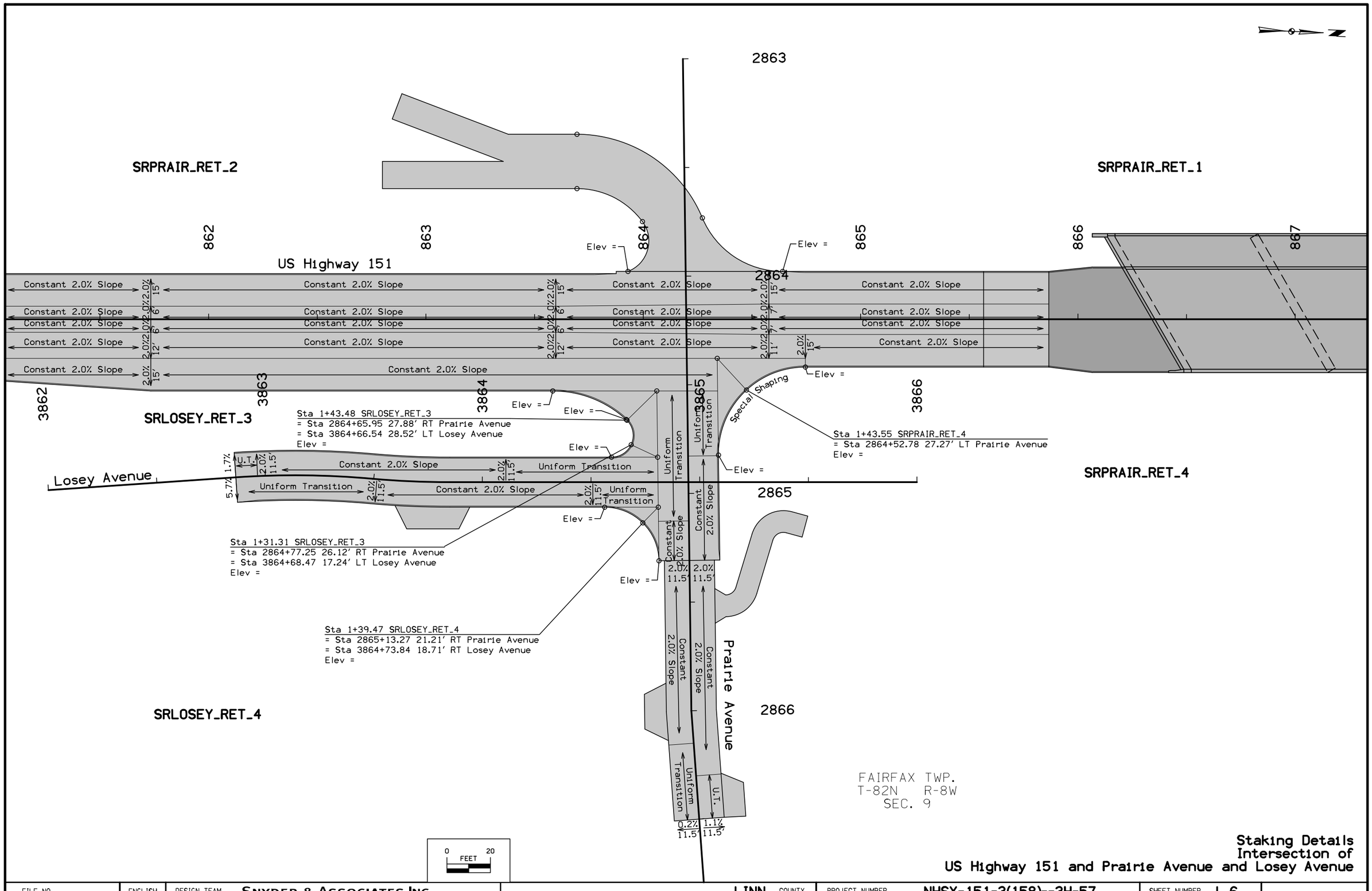

Staking Details
Intersection of
US Highway 151 and Prairie Avenue and Losey Avenue

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.6

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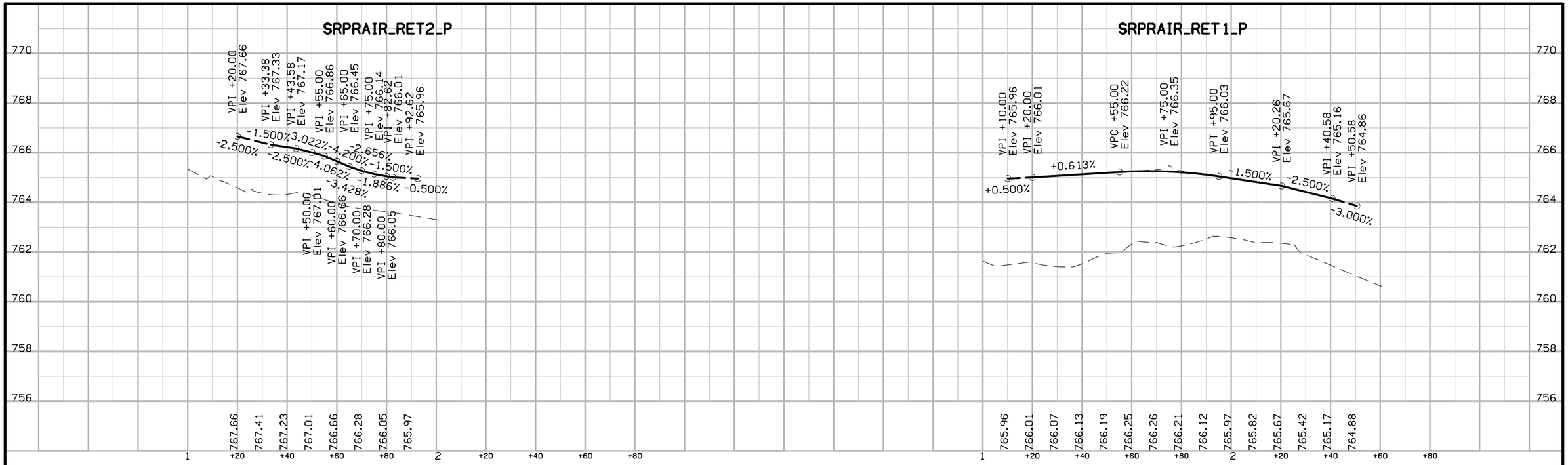

Edge Return Profiles
Intersection of
US Highway 151 and Prairie Avenue

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.7

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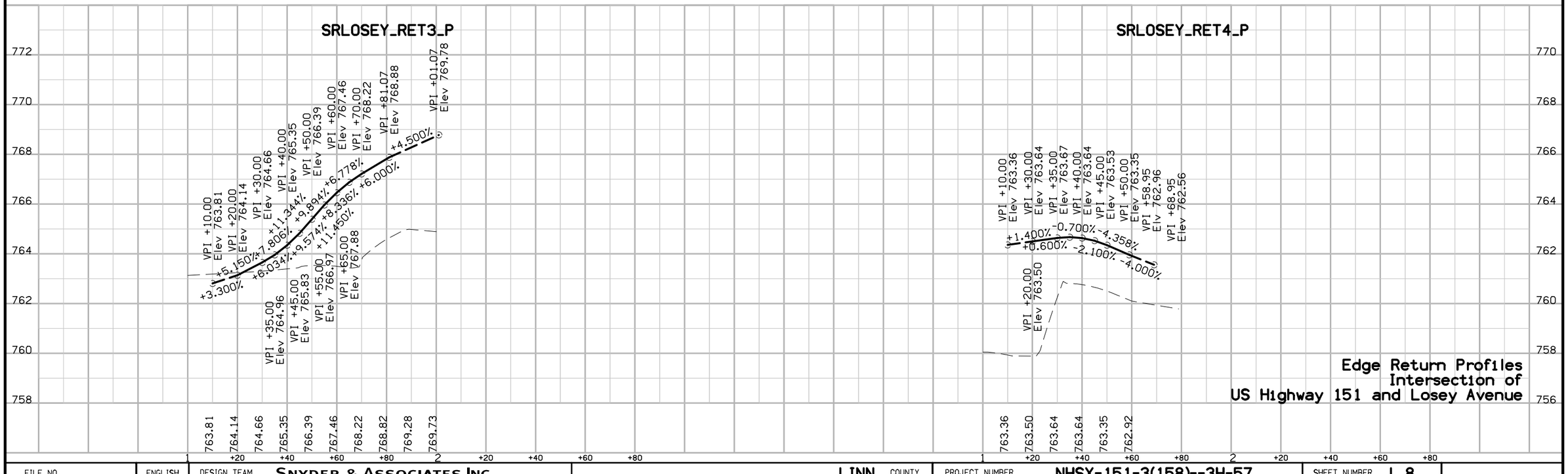

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.8

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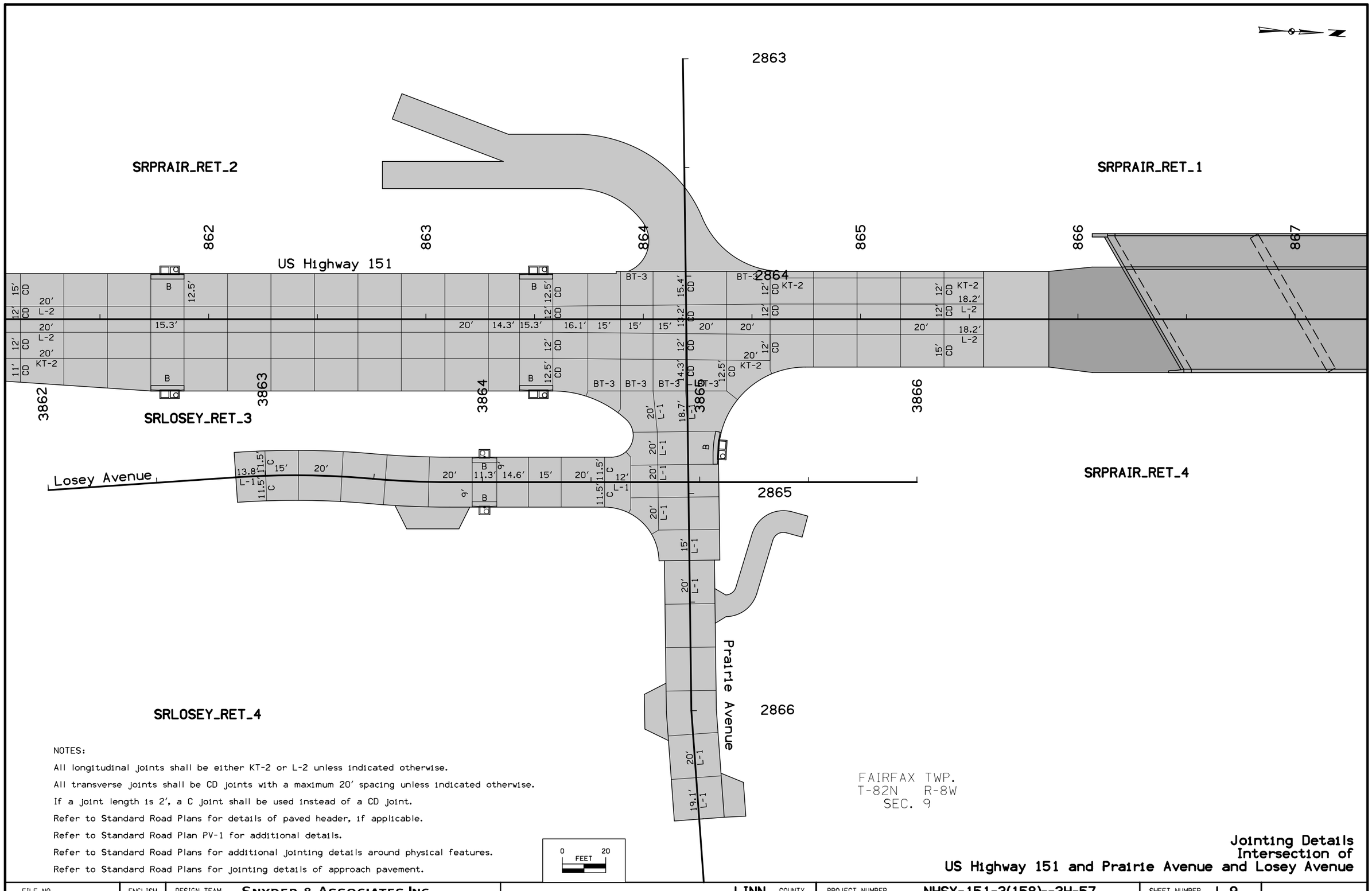


NOTES:

All longitudinal joints shall be either KT-2 or L-2 unless indicated otherwise.

All transverse joints shall be CD joints with a maximum 20′ spacing unless indicated otherwise.

If a joint length is 2′, a C joint shall be used instead of a CD joint.

Refer to Standard Road Plans for details of paved header, if applicable.

Refer to Standard Road Plan PV-1 for additional details.

Refer to Standard Road Plans for additional jointing details around physical features.

Refer to Standard Road Plans for jointing details of approach pavement.

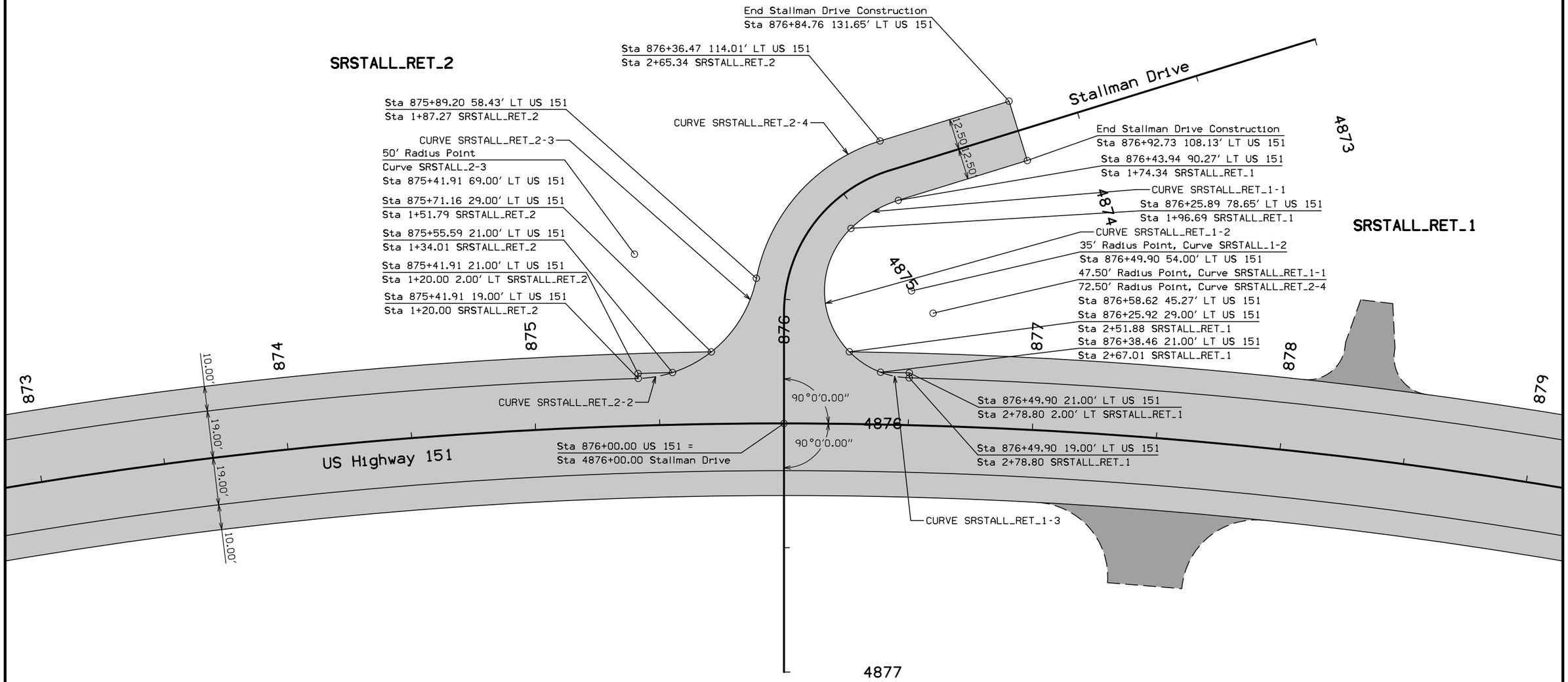
FAIRFAX TWP.
T-82N R-8W
SEC. 9

Jointing Details
Intersection of
US Highway 151 and Prairie Avenue and Losey Avenue

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.9

7:21:31 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

CIRCULAR CURVE DATA						
Name	Δ	D	T	L	E	R
CURVE SRSTALL_RET_1-1	26° 57′ 38.81″	120° 37′ 21.70″	11.39′	22.35′	1.35′	47.50′
CURVE SRSTALL_RET_1-2	115° 07′ 18.95″	163° 42′ 08.02″	55.07′	70.32′	30.25′	35.00′
CURVE SRSTALL_RET_1-3	19° 17′ 31.60″	163° 42′ 08.02″	5.95′	11.75′	0.50′	35.00′
CURVE SRSTALL_RET_2-2	114° 03′ 22.62″	114° 35′ 29.61″	7.05′	14.01′	0.49′	50.00′
CURVE SRSTALL_RET_2-3	61° 01′ 47.56″	114° 35′ 29.61″	29.47′	53.26′	8.04′	50.00′
CURVE SRSTALL_RET_2-4	61° 42′ 02.18″	79° 01′ 43.18″	43.31′	78.07′	11.95′	72.50′



NOTES:

Dimensions shown are to the back of curb.

Refer to G sheets for horizontal alignment information.

Refer to appropriate Standard Road Plans for additional information.

FAIRFAX TWP.
T-82N R-8W
SEC. 9

0 20
FEET

Geometric Details
Intersection of
US Highway 151 and Stallman Drive

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.10

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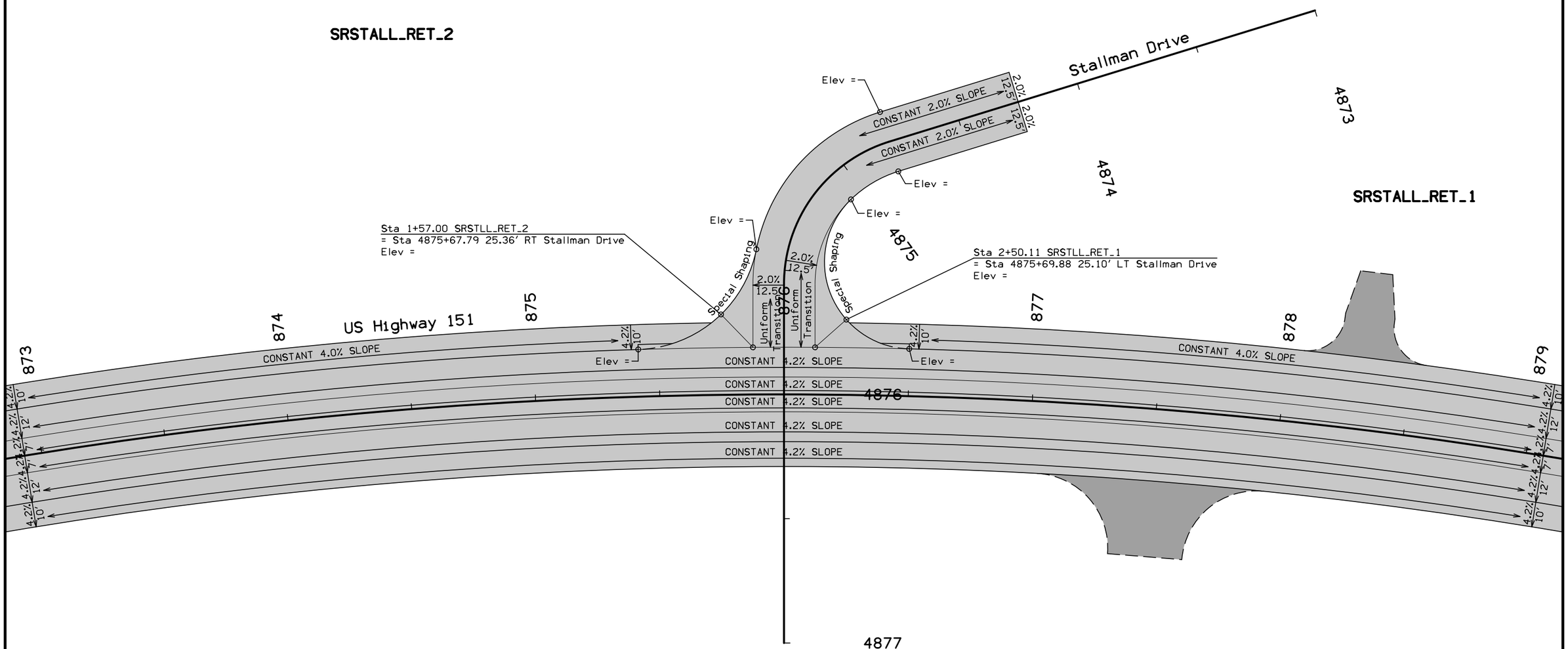
SRSTALL_RET_2

SRSTALL_RET_1



FAIRFAX TWP.
T-82N R-8W
SEC. 9

0 20
FEET

Staking Details
Intersection of
US Highway 151 and Stallman Drive

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER L.11

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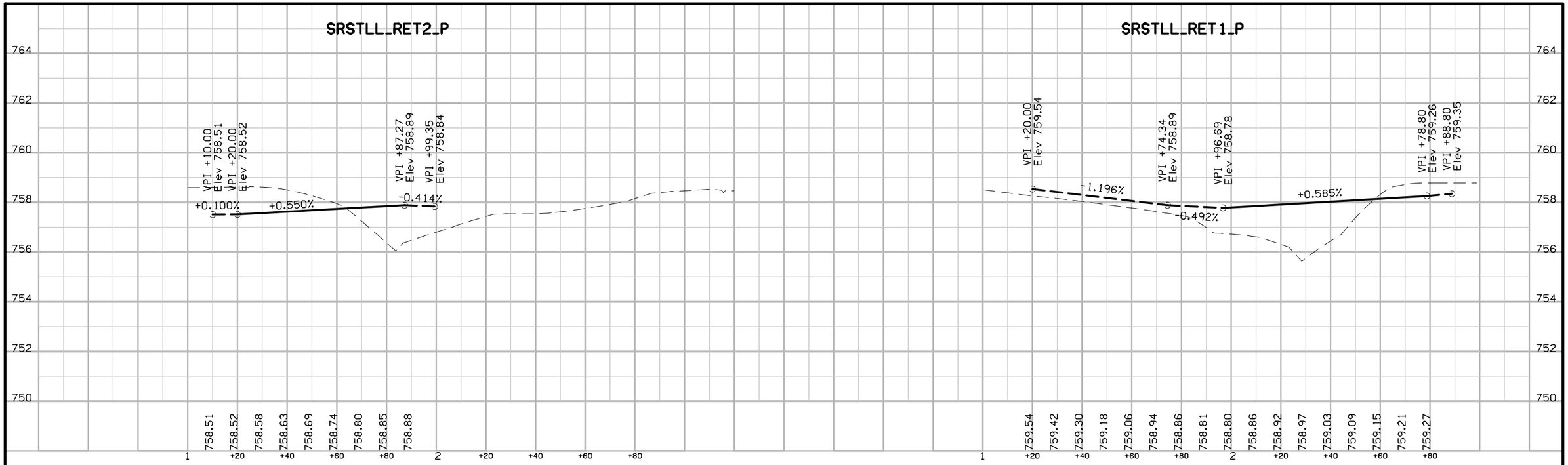

Edge Return Profiles
Intersection of
US Highway 151 and Stallman Drive

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.12

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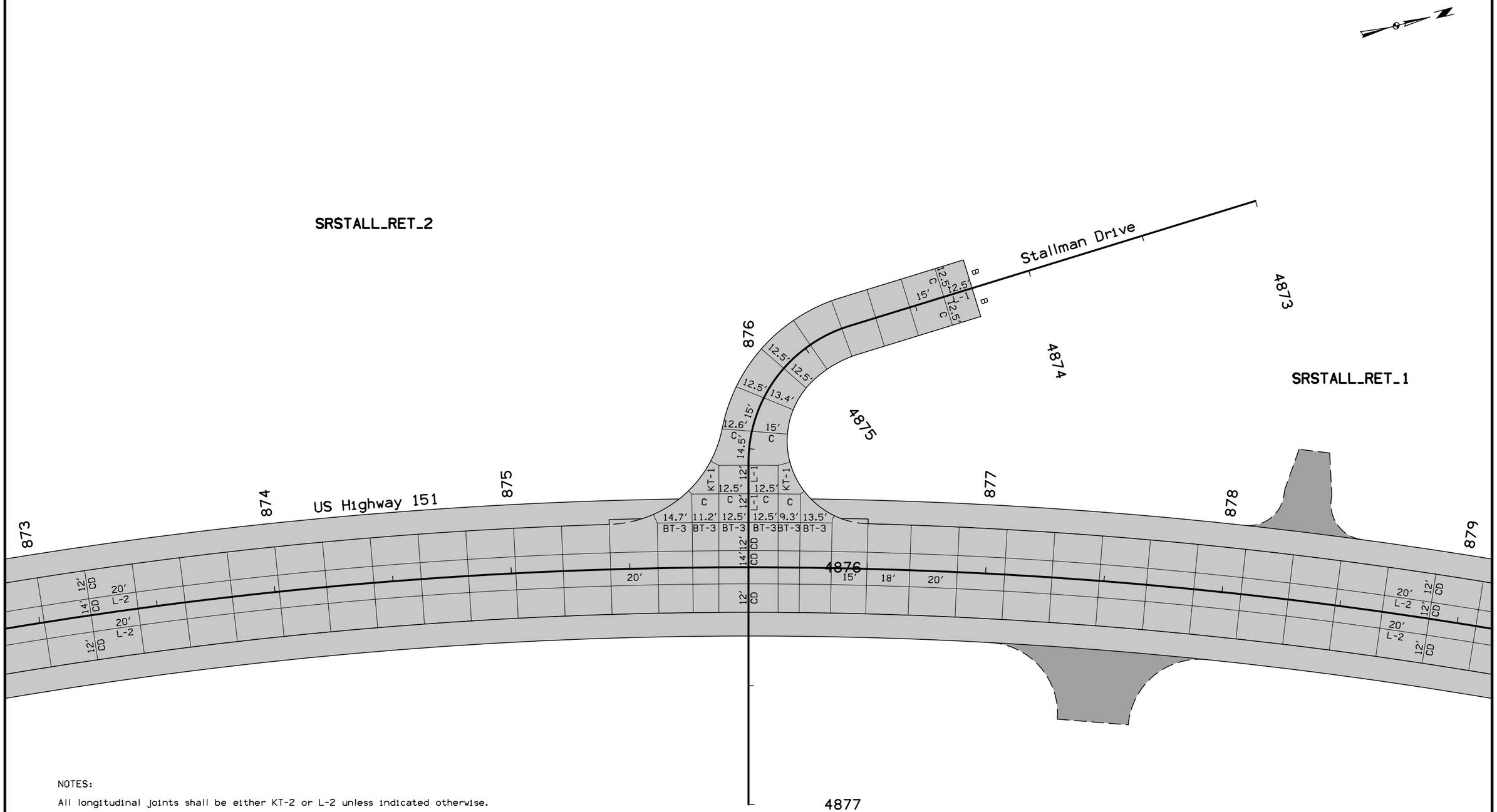

NOTES:

All longitudinal joints shall be either KT-2 or L-2 unless indicated otherwise.

All transverse joints shall be CD joints with a maximum 20' spacing unless indicated otherwise.

If a joint length is 2', a C joint shall be used instead of a CD joint.

Refer to Standard Road Plans for details of paved header, if applicable.

Refer to Standard Road Plan PV-1 for additional details.

Refer to Standard Road Plans for additional jointing details around physical features.

Refer to Standard Road Plans for jointing details of approach pavement.

Jointing Details
Intersection of
US Highway 151 and Stallman Drive

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER L.13

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CIRCULAR CURVE DATA						
Name	Δ	D	T	L	E	R
SRCEMET_RET_1-1	48° 56′ 43.89″	114° 35′ 26.61″	22.76′	42.76′	4.94′	50′
SRCEMET_RET_2-2	127° 52′ 20.06″	190° 59′ 09.35″	61.34′	66.95′	38.28′	30′
SRCEMET_RET_3-2	18° 23′ 18.46″	143° 14′ 22.02″	6.48′	12.84′	0.52′	40′
SRCEMET_RET_3-3	34° 06′ 09.04″	143° 14′ 22.01″	12.27′	23.81′	1.84′	40′
SRCEMET_RET_4-2	112° 02′ 16.01″	143° 14′ 22.02″	59.34′	78.22′	31.57′	40′
SRCEMET_RET_4-3	18° 23′ 13.97″	143° 14′ 22.02″	6.48′	12.84′	0.52′	40′

5882

Begin Cemetery Road Construction
Sta 883+11.92 149.62′ LT US 151

Begin Cemetery Road Construction
Sta 882+93.42 134.45′ LT US 151

SRCEMET_RET_2

14.50′

10.50′

5883

Sta 883+89.16 48.52′ LT US 151
Sta 1+20.00 SRCEMET_RET_1

SRCEMET_RET_1

50′ Radius Point
Curve SRCEMET_RET_1-1
Sta 884+25.93 81.00′ LT US 151

Sta 883+42.73 67.56′ LT US 151
Sta 1+86.95 SRCEMET_RET_2

CURVE SRCEMET_RET_2-2

30′ Radius Point
Curve SRCEMET_RET_2-2
Sta 883+19.86 49.00′ LT US 151

CURVE SRCEMET_RET_1-1

Sta 884+12.34 33.00′ LT US 151
Sta 1+48.70 SRCEMET_RET_1

Sta 883+30.44 21.00′ LT US 151
Sta 1+30.93 SRCEMET_RET_2

Sta 884+25.93 31.00′ LT US 151
Sta 1+62.71 SRCEMET_RET_1

Sta 883+19.86 19.00′ LT US 151
Sta 1+20.00 SRCEMET_RET_2

10.00′

882 883 884 5884 885 886 887

6.00′

US Highway 151

19.00′

31.00′

49°23′39.25″

Sta 884+11.00 US 151
= Sta 5884+11.00 Cemetery Road

130°36′20.75″

CURVE SRCEMET_RET_4-3

Sta 885+23.39 19.00′ RT US 151
Sta 2+26.28 SRCEMET_RET_4

5885

Sta 885+10.63 21.00′ RT US 151
Sta 2+13.44 SRCEMET_RET_4

Sta 882+78.25 31.00′ RT US 151
Sta 1+00.00 SRCEMET_RET_3

Sta 883+95.73 31.00′ RT US 151
Sta 1+20.00 SRCEMET_RET_3

CURVE SRCEMET_RET_3-2

Sta 884+08.57 33.00′ RT US 151
Sta 1+32.84 SRCEMET_RET_3

CURVE SRCEMET_RET_3-3

40′ Radius Point
Curve SRCEMET_RET_3-2 & 3
Sta 883+95.73 71.00′ RT US 151

40′ Radius Point
Curve SRCEMET_RET_4-2 & 3
Sta 885+23.39 59.00′ RT US 151

CURVE SRCEMET_RET_4-2

13.00′ 12.00′

Sta 884+91.52 84.68′ RT US 151
Sta 1+20.00 SRCEMET_RET_4

Sta 884+28.25 46.37′ RT US 151
Sta 1+56.65 SRCEMET_RET_3

5886

SRCEMET_RET_3

SRCEMET_RET_4

Sta 884+44.80 66.40′ RT US 151
Sta 1+82.32 SRCEMET_RET_3

End Cemetery Road Construction
Sta 884+81.90 112.67′ RT US 151

End Cemetery Road Construction
Sta 885+01.87 96.28′ RT US 151

Sta 884+48.42 71.48′ RT US 151
Sta 1+88.48 SRCEMET_RET_3

Cemetery Road

FAIRFAX TWP.
T-82N R-8W
SEC. 9

0 20
FEET

NOTES:

Dimensions shown are to the back of curb.

Refer to G sheets for horizontal alignment information.

Refer to appropriate Standard Road Plans for additional information.

Geometric Details Intersection of US Highway 151 and Cemetery Road

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER L.14

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SRCEMET_RET_2

SRCEMET_RET_1

Sta SRCEMET_RET_2
= Sta 5883+42.55 29.42' RT Cemetery Road
Elev =

Sta SRCEMET_RET_1
= Sta 5883+69.41 15.46' LT Cemetery Road
Elev =

Elev =

Elev =

Elev =

Elev =

Elev =

Elev =

Elev =

Elev =

Sta 1+47.92 SRCEMET_RET_3
= Sta 5884+51.11 17.29' RT Cemetery Road
Elev =

Sta 1+76.80 SRCEMET_RET_4
= Sta 5884+90.10 30.69' LT Cemetery Road
Elev =

US Highway 151

882 883 884 885 886 887

UNIFORM TRANSITION

CONSTANT 2.0% SLOPE

CONSTANT 4.2% SLOPE

CONSTANT 4.0% SLOPE

SPECIAL SHAPING

Special Shaping

U.T.

2.7%

3.1%

2.5%

1.7%

4% 10'

2% 12'

4% 6'

SRCEMET_RET_3

SRCEMET_RET_4

Cemetery Road

FAIRFAX TWP.
T-82N R-8W
SEC. 9

0 FEET 20

Staking Details
Intersection of
US Highway 151 and Cemetery Road

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER L.15

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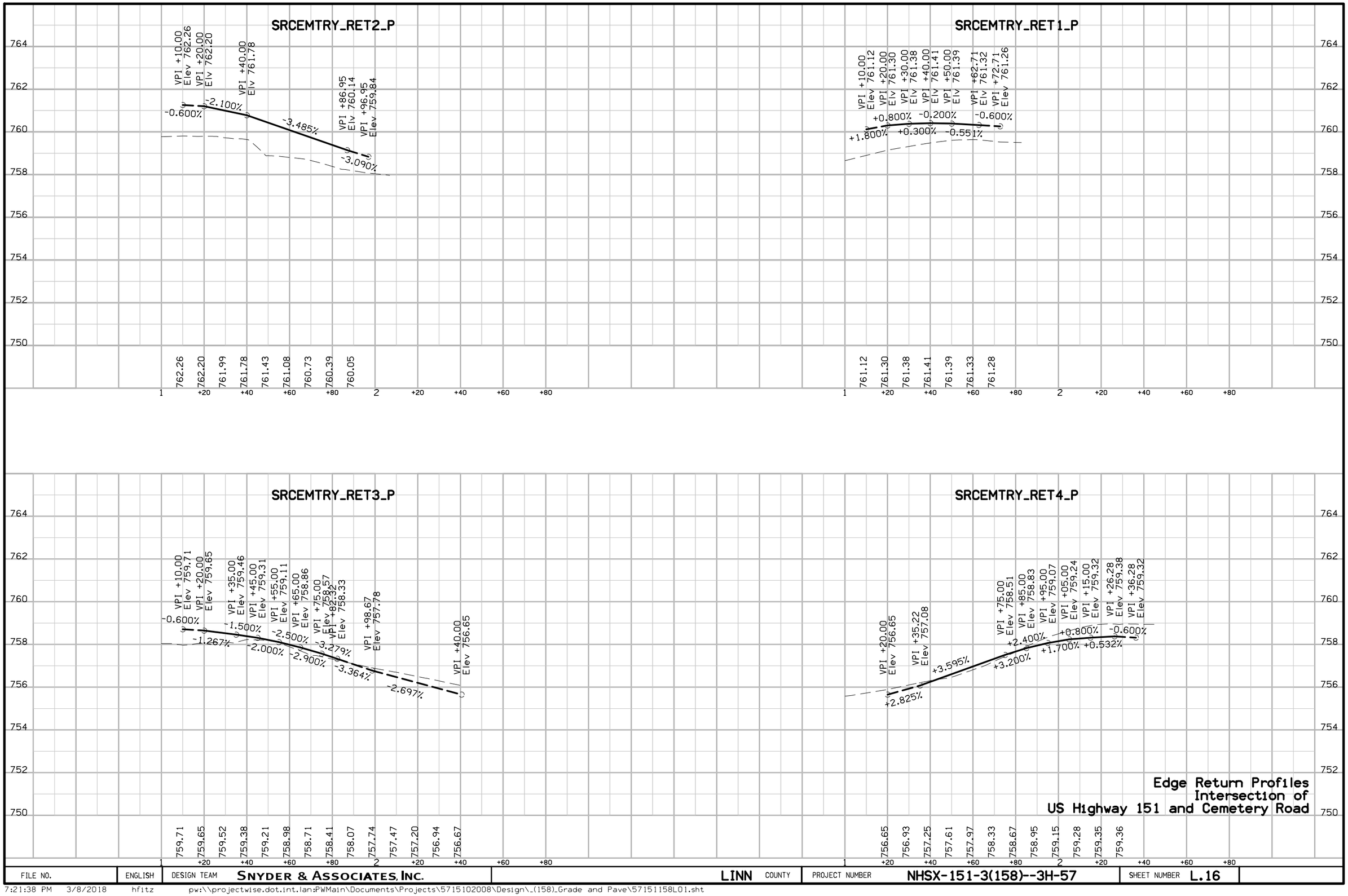

Edge Return Profiles
Intersection of
US Highway 151 and Cemetery Road

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.16

7:21:38 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

SRCEMET_RET_2

SRCEMET_RET_1

SRCEMET_RET_3

SRCEMET_RET_4

US Highway 151

Cemetery Road

882 883 884 885 886 887

B B

20.1′ 12.5′ C 12.5′ C 20′

20′ 12.5′ C 12.5′ C

BT-3 BT-3 BT-3 BT-3 BT-3

10′ CD 15.1′ KT-2 10′ CD 12′ CD

15.6′ L-2 12′ CD 14′ CD 9.4′ CD

15′ 20′ 20′ 15′ 15′ 16.7′ 15′ 13.8′ 16.1′ 15′ 14′ 13.3′ 15′ 15′ 15′ 12′ 12′ 20′

12′ CD

KT-2 KT-2

BT-3 BT-3 BT-3 BT-3 BT-3 BT-3

11.3′ 10.1′ 10.1′ 11.9′ 12.3′ 10.3′

KT-1 KT-1 KT-1 KT-1

14′ C 12′ C 12.5′

L-1 20′ 12.5′ BT-3

12.5′ 15′ 16′ 12.7′

20′ KT-2 20′ L-2 20′ L-2

14′ CD 12′ CD

NOTES:

All longitudinal joints shall be either KT-2 or L-2 unless indicated otherwise.

All transverse joints shall be CD joints with a maximum 20′ spacing unless indicated otherwise.

If a joint length is 2′, a C joint shall be used instead of a CD joint.

Refer to Standard Road Plans for details of paved header, if applicable.

Refer to Standard Road Plan PV-1 for additional details.

Refer to Standard Road Plans for additional jointing details around physical features.

Refer to Standard Road Plans for jointing details of approach pavement.

0 20 FEET

FAIRFAX TWP.
T-82N R-8W
SEC. 9

Jointing Details Intersection of US Highway 151 and Cemetery Road

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.17

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(1) Diameter or equivalent diameter
* Bid Item
** For SW-545

STORM SEWER

INTAKES AND UTILITY ACCESSES

No.	Location Station and Offset	*Type or Standard Road Plan	Form Grade Elev.	Bottom Well Elev.	Extension Length** FT	Notes
ST-01	841+87.00, 16.00 LT					Existing Intake
ST-02	845+01.00, 20.00 LT					Existing Intake
ST-03	845+65.00, 19.84 RT	SW-509	764.25	760.00		
ST-04	846+64.33, 21.00 LT	SW-509	761.61	758.40		
ST-05	847+21.58, 21.00 RT	SW-509	760.54	755.14		
ST-06	848+39.00, 21.00 RT	SW-509	759.85	754.60		
ST-07	848+39.00, 21.00 LT	SW-510	760.12	754.30		
ST-08	1850+50.00, 25.00 RT	DR-201 (18" Apron)	758.51	755.82		
ST-09	1850+50.00, 20.00 LT	SW-513	758.17	754.80		
ST-10	1849+85.00, 30.00 LT	SW-401 (48")	757.82	745.24		
ST-11	849+89.51, 21.00 LT	SW-509	763.11	753.92		
ST-12	851+50.00, 21.00 RT	SW-509	770.62	766.10		
ST-13	851+50.00, 33.00 LT	SW-509	770.31	764.69		
ST-14	849+90.94, 33.00 LT	SW-510	762.84	753.50		
ST-15	1848+30.00, 30.00 RT	SW-512 (30"	758.25	754.26		
ST-16	850+00.00, 75.00 LT	SW-401 (72")	758.25	752.49		
ST-17	850+50.00, 104.06 RT	DR-201 (30")	752.50			
ST-18	853+25.60, 21.00 RT	SW-509	781.16	776.95		
ST-19	853+25.60, 33.00 LT	SW-509	780.85	762.84		
ST-20	853+23.50, 152 LT	DR-201 (15")	751.79	751.85		
ST-21	861+82.03, 21.00 LT	SW-509	778.61	773.61		
ST-22	861+82.03, 33.00 RT	SW-509	778.30	772.70		
ST-23	863+56.02, 21.00 LT	SW-509	769.22	764.35		
ST-24	863+51.70, 33.00 RT	SW-509	769.10	758.60		
ST-25	3863+35.00, 18.50 RT	DR-201 (15")	759.65	759.65		
ST-26	3864+18.00, 17.50 RT	DR-201 (15")	759.84	759.84		
ST-27	3864+01.00, 11.50 RT	SW-509	762.92	758.00		
ST-28	3864+01.00, 11.50 LT	SW-509	762.92	757.67		
ST-29	2864+80.00, 14.00 LT	SW-509	750.66			
ST-30	865+25.00, 60.00 LT	DR-201 (18")	751.20	750.66		
ST-31	878+00.00, 60.00 LT	DR-201 (15")	756.3	756.3		
ST-32	879+52.00, 60.00 LT	DR-141	754.58	754.58		
ST-33	879+99.50, 81.36 LT	DR-201 (15")	754.04	754.04		

PIPES

Design Length, Slope, and Flowlines are calculated from inside wall to inside wall along CL of pipe. An additional 2 ft length is added to each side of the Design Length to account for estimated length to center of structures.

Line Number	Intake/ Utility Access No. From	To	Class 'D'	Pipe Size (1) IN	Bid* Length FT	Design Length FT	Slope %	Connected Pipe Joint (DR-121) Type	Flow Lines: Inlet Elevation	Outlet Elevation	Other Elevation	Pipe Profile Sheet No.	Notes
P-01	ST-01	ST-02	2000	15					771.69	762.18			Existing Pipe
P-02	ST-02	ST-04	2000	15	159	155.4	1.9		761.98	759.03		M.3	
P-03	ST-03	ST-05	2000	15	158	148.6	2.25		760.50	757.16		M.3	
P-04	ST-04	ST-07	2000	15	175	166.7	2.40		758.90	754.90		M.3	
P-05	ST-05	ST-06	2000	30	118	109.4	0.40		755.64	755.20		M.3	
P-06	ST-06	ST-07	2000	30	46	42.0	0.50		755.10	754.89		M.3	
P-07	ST-07	ST-14	2000	30	152	144.4	0.48		754.80	754.10		M.3	
P-08	ST-08	ST-09	2000	18	46	42.0	1.00		755.72	755.30	755.78	M.5	Apron Inlet
P-09	ST-09	ST-10	2000	24	67	62.8	0.48		755.20	754.90		M.5	
P-10	ST-10	ST-11	2000	24	37	33.0	0.91		754.80	754.50		M.5	
P-11	ST-11	ST-14	2000	24	58	54.0	0.74		754.40	754.00		M.5	
P-12	ST-12	ST-13	2000	15	57	54.0	1.50		766.10	765.29		M.4	
P-13	ST-13	ST-14	2000	15	159	151.1	6.51		765.19	755.35		M.4	
P-14	ST-14	ST-16	3000	30	41	35.6	0.98		753.50	753.15		M.5	
P-15	ST-15	ST-16	2000	15	98	93.1	1.20		754.76	753.64		M.4	
P-16	ST-16	ST-17	3000	30	52	48.7	1.00		753.05	752.56	752.50	M.5	Apron Outlet
P-18	ST-18	ST-19	2000	15	57	54.0	1.50		776.95	776.14		M.4	
P-19	ST-19	ST-20	2000	15	114	109.9	Var.		762.84	751.85	751.79	M.4	Let Down Pipe
P-21	ST-21	ST-22	2000	15	57	54.0	1.50		774.11	773.30		M.6	
P-22	ST-22	ST-24	2000	15	170	161.7	5.66		773.20	764.05		M.6	
P-23	ST-23	ST-24	2000	15	57	54.0	1.50		764.85	764.04		M.6	
P-24	ST-24	ST-29	2000	15	88	82.2	4.38		759.60	756.00		M.6	
P-25	ST-25	ST-27	2000	15	66	61.5	1.71		759.65	758.60	759.75	M.6	Apron Inlet
P-26	ST-26	ST-27	2000	15	17	12.4	10.00		759.83	758.60	760.44	M.6	Apron Inlet
P-27	ST-27	ST-28	2000	15	26	23.0	1.00		758.50	758.27		M.6	
P-28	ST-28	ST-29	2000	15	109	103.6	2.09		758.17	756.00		M.6	
P-29	ST-29	ST-30	2000	18	86	81.4	2.00		752.29	750.66		M.6	
P-30	ST-31	ST-32	2000	15	150.7	150.7	0.68		756.3	754.58		M.7	
P-31	ST-32	ST-33	2000	15	47.6	47.6	6.98		754.58	754.07		M.7	

SURVEY SYMBOLS

- CP Control Point
- BM Bench Mark
- PPA Power Pole Co. 1
- PLG Location of General Photo
- IN Storm Sewer Intake
- SI Sign
- LC Lot Corner
- BB Billboard
- WV Water Valve
- WH WHD Water Hydrant
- TP TPD Telephone Pedestal
- TDC Tree Deciduous
- TEV Evergeen Tree
- SHR Shrub
- PR Electric Riser Pole
- SL Speed Limit Sign
- MH Utility Access (Manhole)
- MIS Miscellaneous
- MM Mile Marker Post
- WEL Well
- LUM Luminaire
- GP Guard Post (Less Than 4 Posts)
- GV Gas Valve
- EB Electrical Box
- UB Utility Box
- FLG Flag Poles
- FHD Fire Hydrants
- STP Stump
- OUT Tile Outlet
- INB Storm Sewer Beehive Intake
- S Soil Sampling Site (Wetlands)
- TVP TV Pedestal
- SP Stream Profile
- TW Top of Water
- BLD Building or Foundation
- LIN Miscellaneous Line
- ST Spiral Point
- RET Retaining Walls
- BRG Bridge
- TLNR Tree Line Right
- TLNL Tree Line Left
- CON Concrete or A/C Slab
- CUL Culvert
- FCL Chain Link and Security Fence
- GDL Guard Rail Steel
- BL Topo Breakline
- FWD Wood Fence
- D Centerline Draw or Stream (Down)
- DU Centerline Draw or Stream (Up)
- FW Wire Fence
- PIP Pipe Culvert
- RRR Railroad Rail
- CU Back of Curb
- ENU Edge Unpaved Entrance & Parking
- ENP Edge Paved Entrance & Park Lot
- EP Edge of Paved Roads (ML or SR)
- GU Gutter In Front of Curb
- SNP Unpaved Shoulder
- BNK Stream Bank
- EG Edge of Gravel Road
- EW Edge of Water
- ENT Centerline BL of Entrance
- SH Paved Shoulder
- RIP Rip-Rap
- TRL Trail
- SWK Sidewalk
- TV Satelite TV Dish
- TR Telephone Riser Pole
- TSB Telephone Switch Box
- UV Underground Utility Vault
- VS Channel Cross Section
- BLS Bridge Low Steel

- G(C) - GL1C Gas Line Co. 1 - Quality C
- G - GL1D Gas Line Co. 1 - Quality D
- Default_Chain Default Chain Feature
- W3 - WL3D Water Line Co. 3 - Quality D
- San. - SA1D Sanitary Sewer Co. 1- Quality D
- T(C) - TL1C Telephone Line Co. 1 - Quality C
- St.S.(C) - ST1C Storm Sewer Co. 1 - Quality C
- ST Spiral Point
- San.(C) - SA1C Sanitary Sewer Co. 1- Quality C
- San.2 - SA2D Sanitary Sewer Co. 2 - Quality D

UTILITY LEGEND

- PPA Alliant Energy
- TP TPD Telephone Pedestal
- WV WV Water Valve
- WH WHD Water Hydrant
- PR Electric Riser Pole
- GV GV Gas Valve
- EB EB Electrical Box
- UB UB Utility Box
- FHD Fire Hydrants
- TVP TVP TV Pedestal
- G - GLA MidAmerican Energy
- E2 - ELB Linn County Rural Electric Cooperative
- FO - FOA South Slope Phone Internet Television
- FO2 - FOB Mediacom
- FO3(C) - FOC Sprint/Nextel
- San.(C) - SA1C City of Fairfax
- San. - SA1D City of Fairfax
- San.2 - SA2D City of Cedar Rapids
- T1 - TLA South Slope Phone Internet Television
- T2 - TLB Centurylink
- TV - TVA Underground TV Cable Co. 1
- W - Water Line City of Cedar
- W2 - Water Line City of Cedar Rapids
- W3 - Water Line City of Fairfax

PLAN VIEW COLOR LEGEND OF STORM SEWER SHEETS

LINEWORK	Design Color No.	
Gray, Dark	(112)	Existing Topographic Features, Utilities, and Labels
Black	(17)	Proposed Storm Sewer Details, Alignment, Stationing, Tic Marks, and Alignment Annotation
SHADING	Design Color No.	
Gray, Light	(48)	Proposed Pavement Shading

PROFILE VIEW COLOR LEGEND OF STORM SEWER SHEETS

LINEWORK	Design Color No.	
Gray, Dark	(112)	Existing Ground Line Profile and Existing Utilities Information
Black	(17)	Proposed Pipes and Intakes

PLAN VIEW LINE STYLE LEGEND OF STORM SEWER SHEETS

- Plug and Abandon Existing Pipe or Structure
- Removal of Existing Pipe or Structure
- Previously Constructed Pipe or Structure
- Direction of Pipe Flow

PROFILE VIEW LINE STYLE LEGEND OF STORM SEWER SHEETS

- Existing Ground
- Proposed Ground
- Previously Constructed Pipe or Structure
- Proposed Pipe or Structure

Reference Point
Station

- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Clearing & Grubbing Area
- Pavement Removal

RIGHT-OF-WAY LEGEND

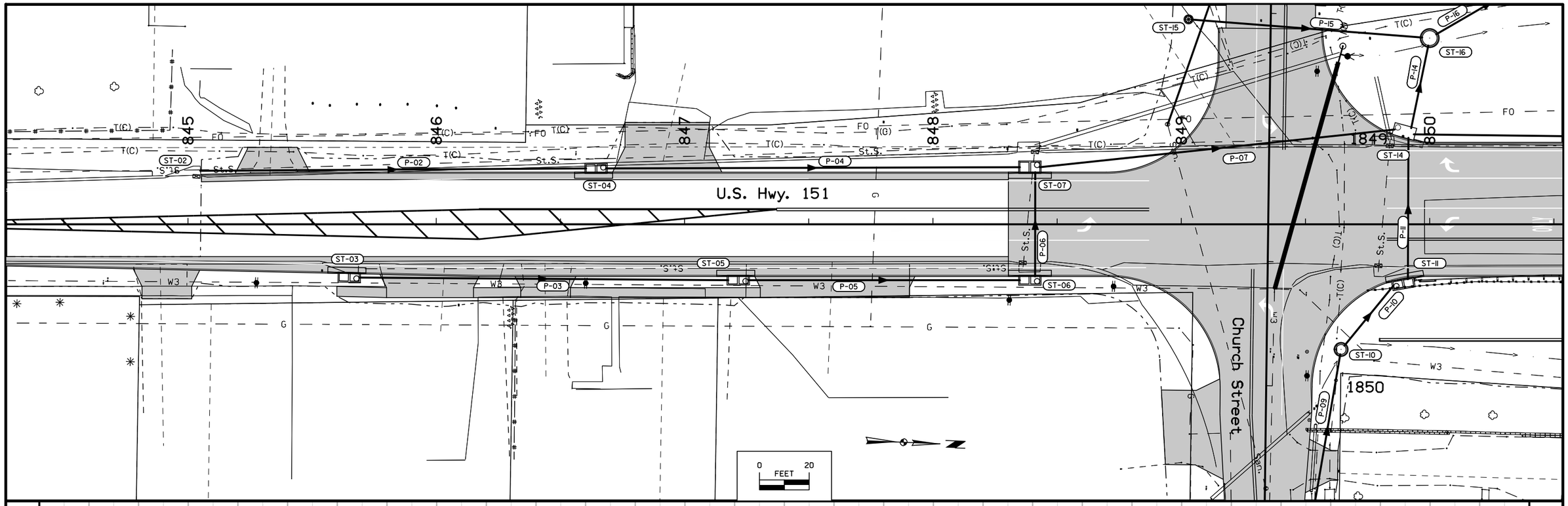
- Proposed Right-of-Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Borrow
- Easement (Temporary)
- Easement
- Excess
- A/C Access Control

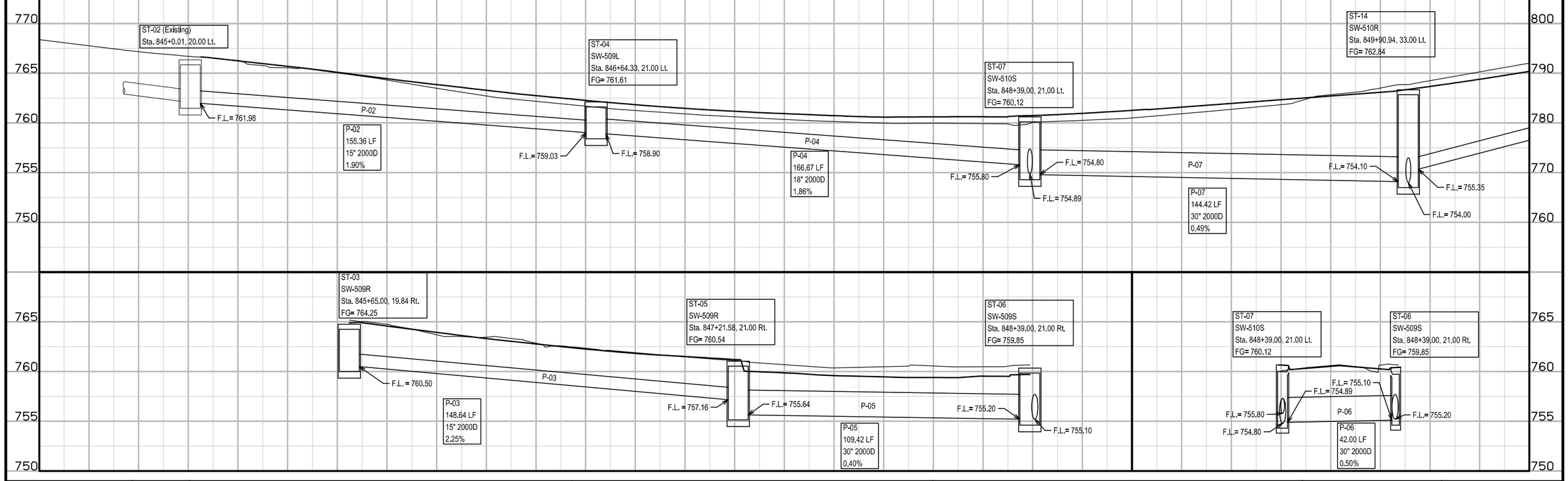
STORM SEWER LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES M)

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.2

7:21:46 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158LGD.sht





FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.3

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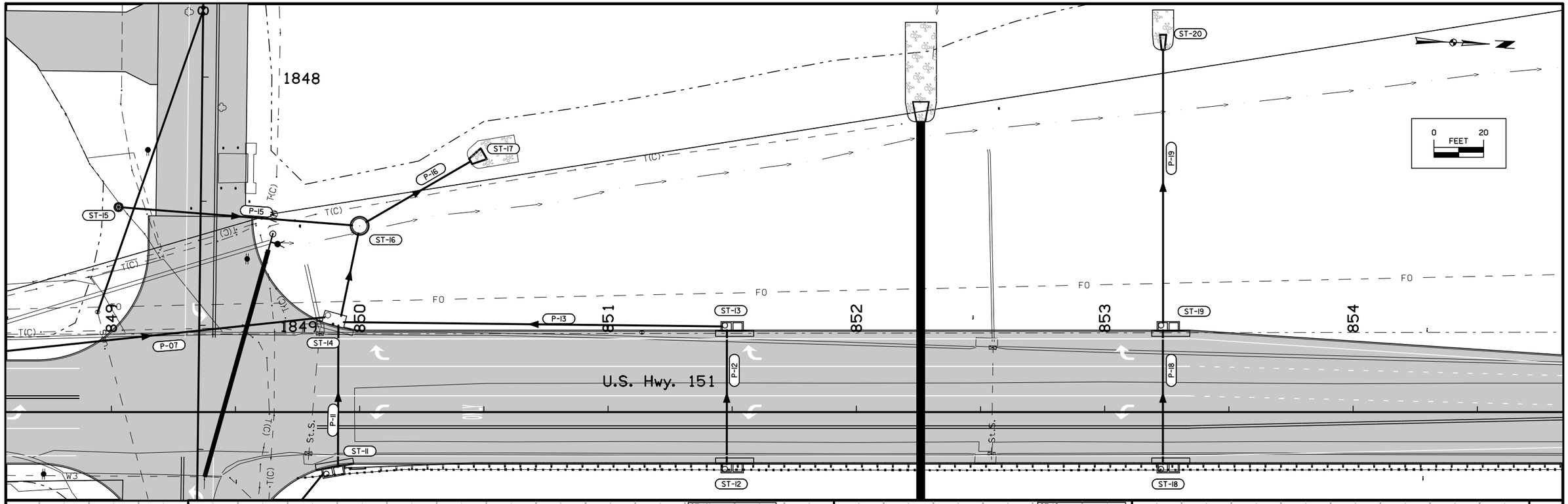

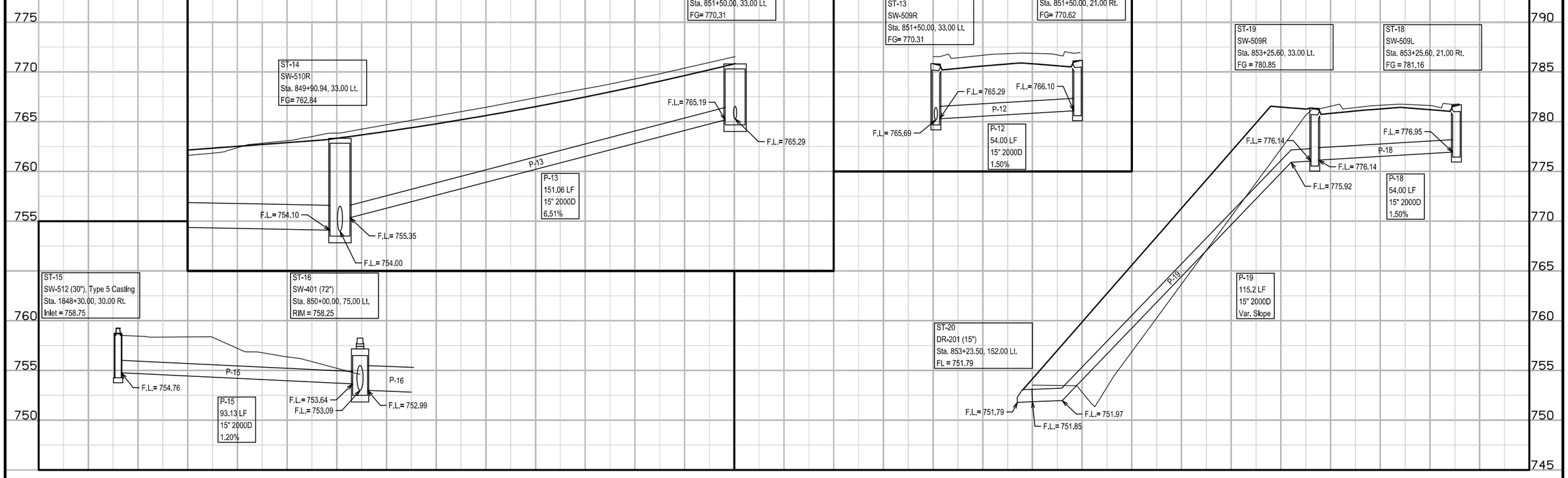

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.4

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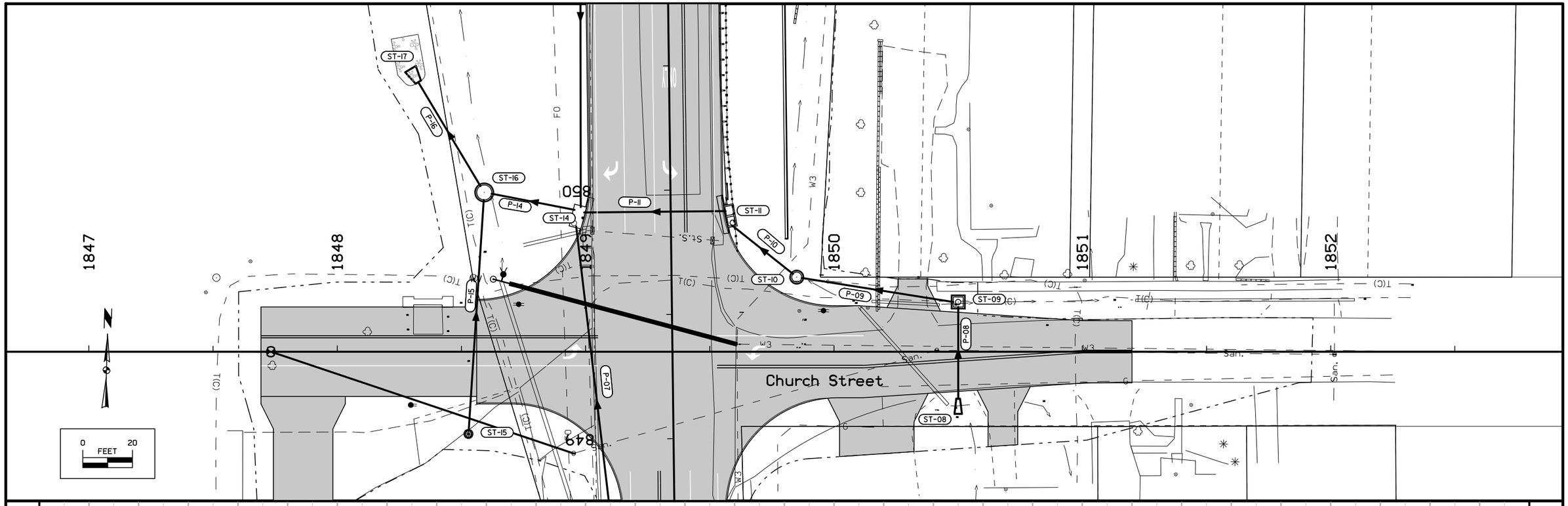

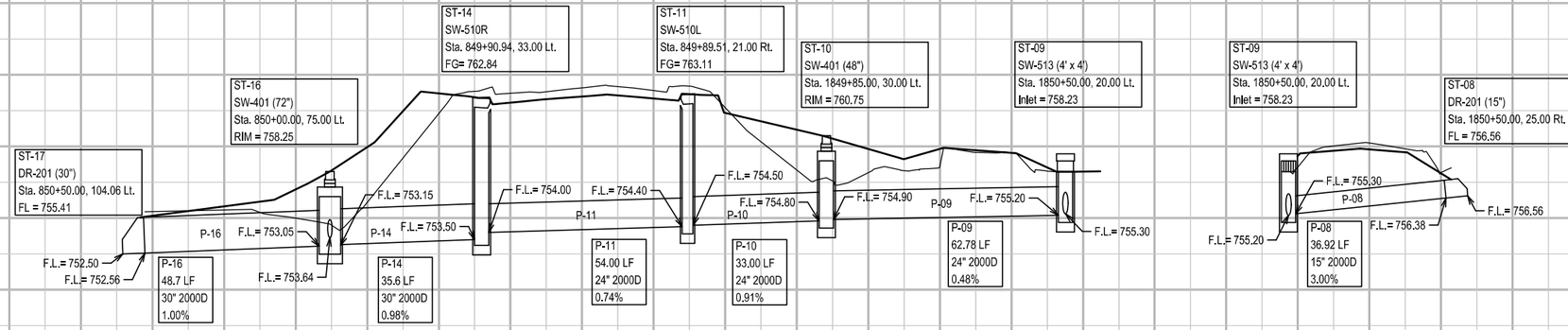

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.5

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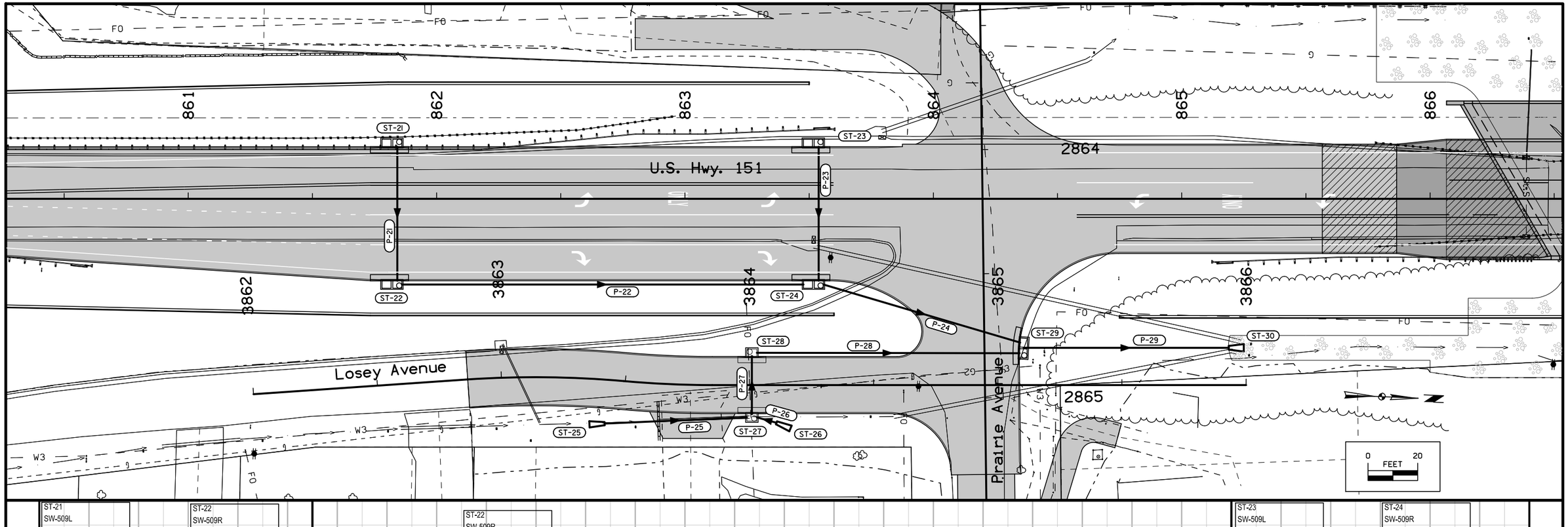

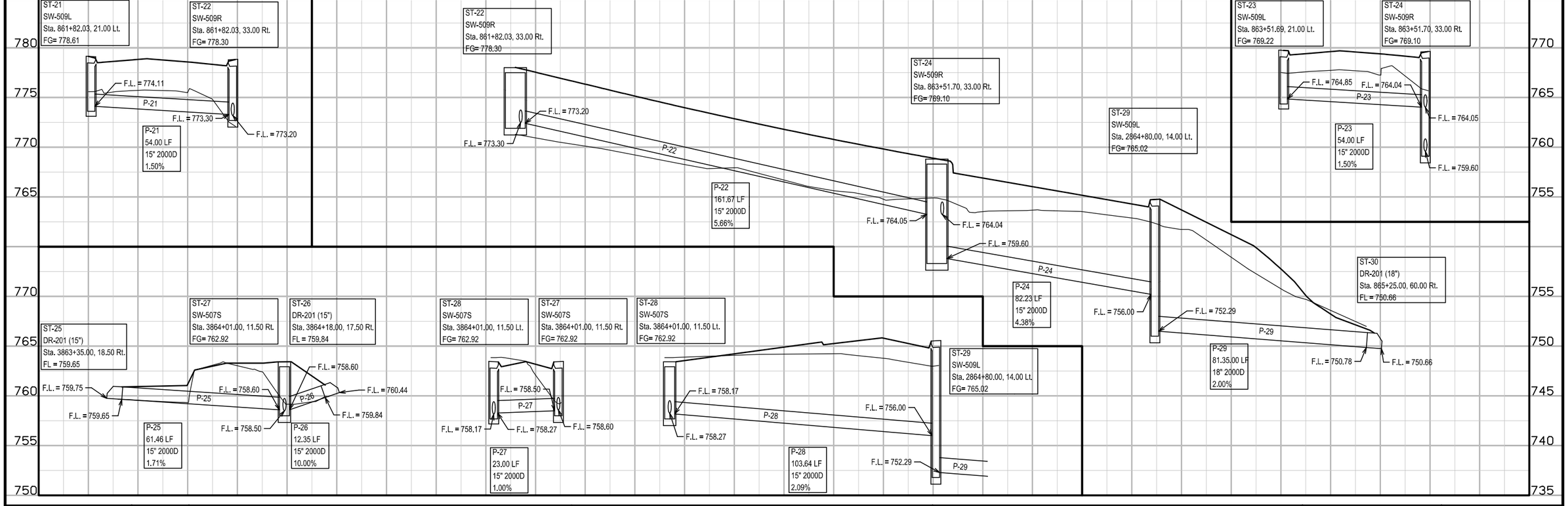

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.6

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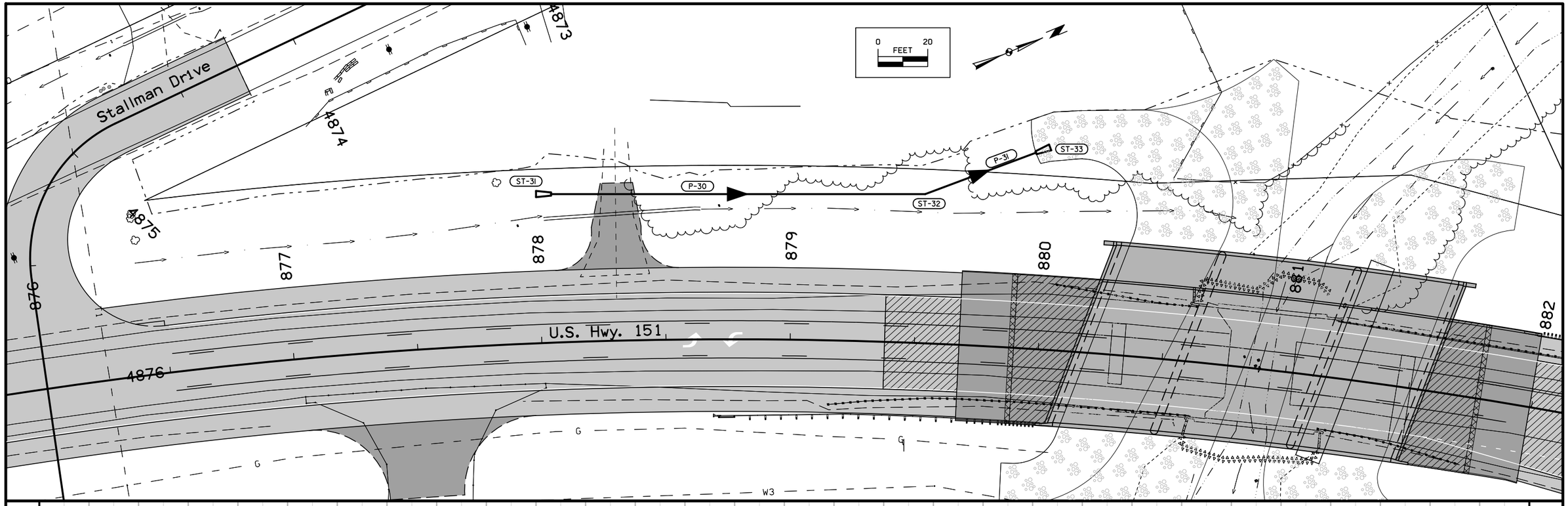

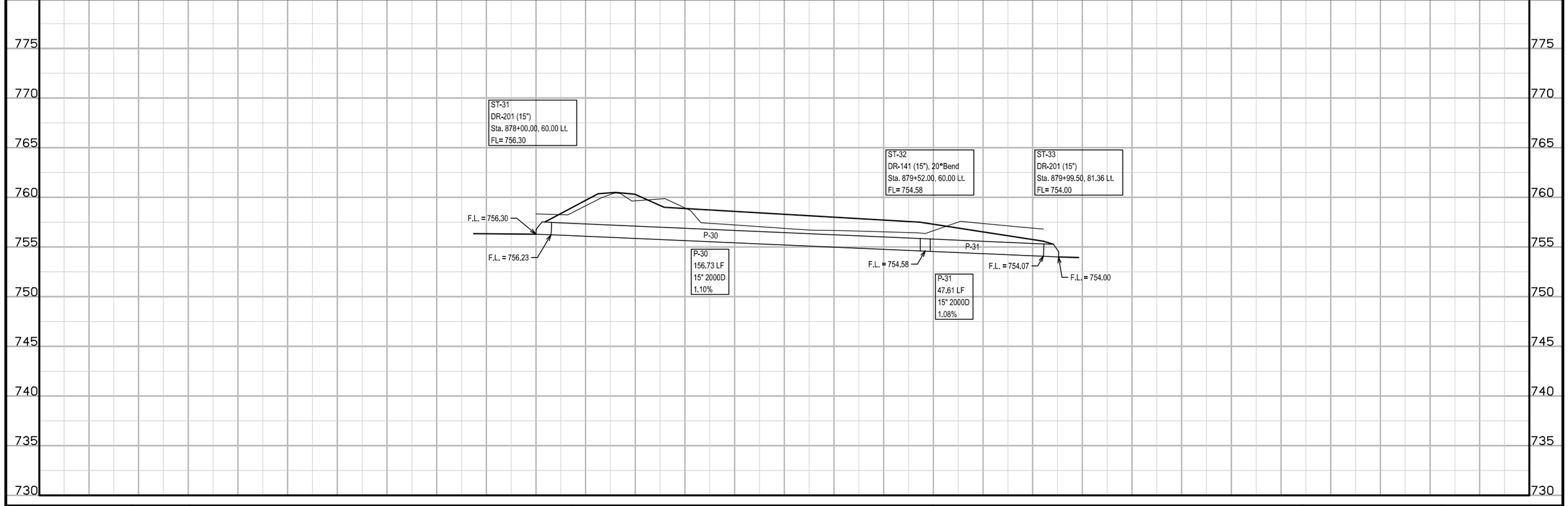

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.7

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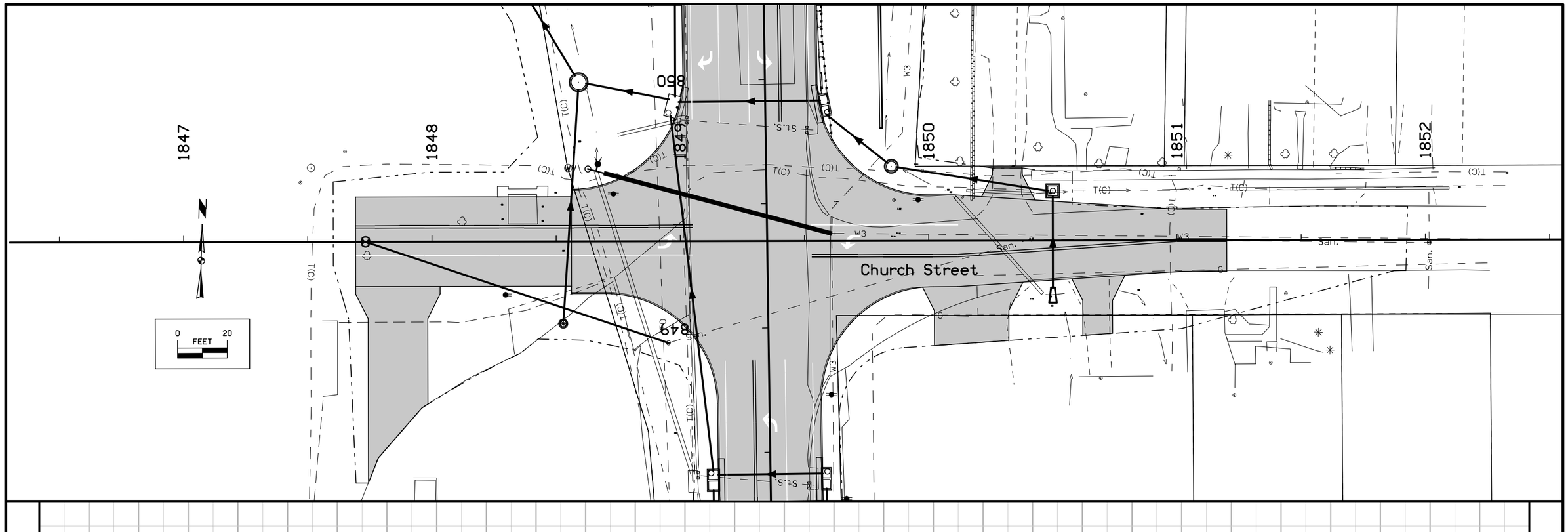
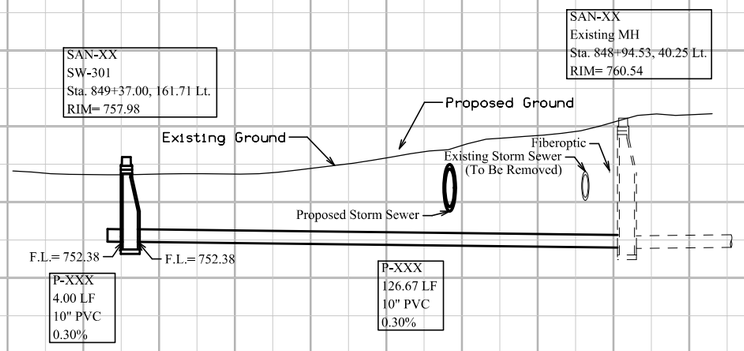
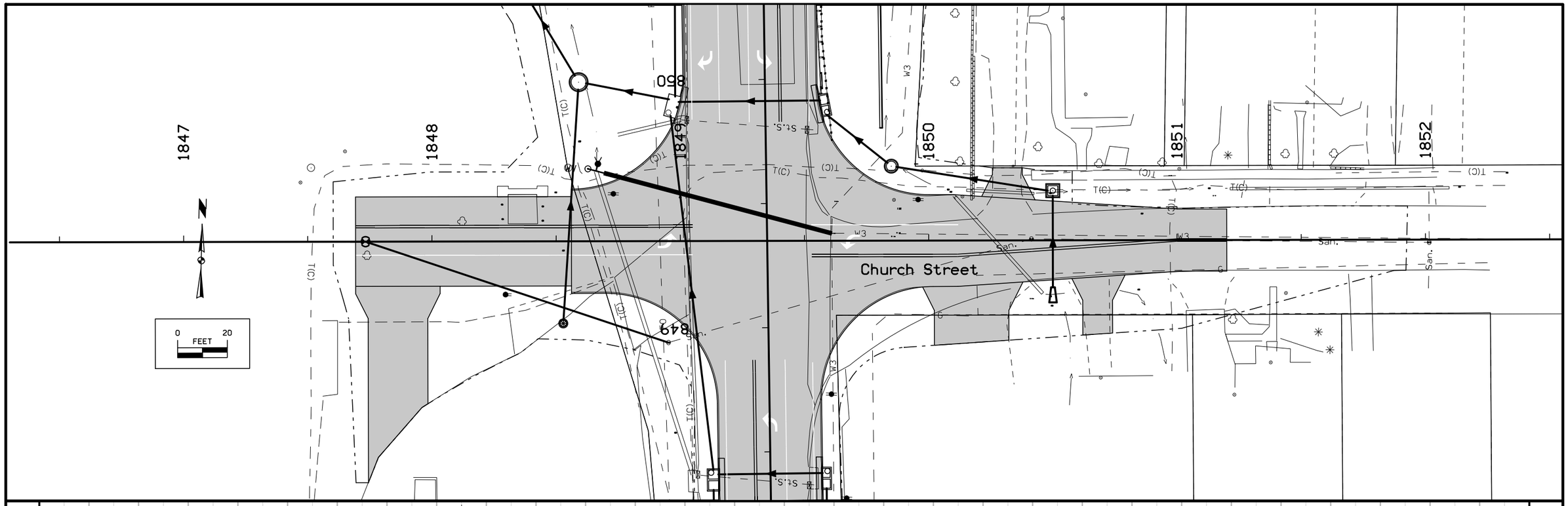
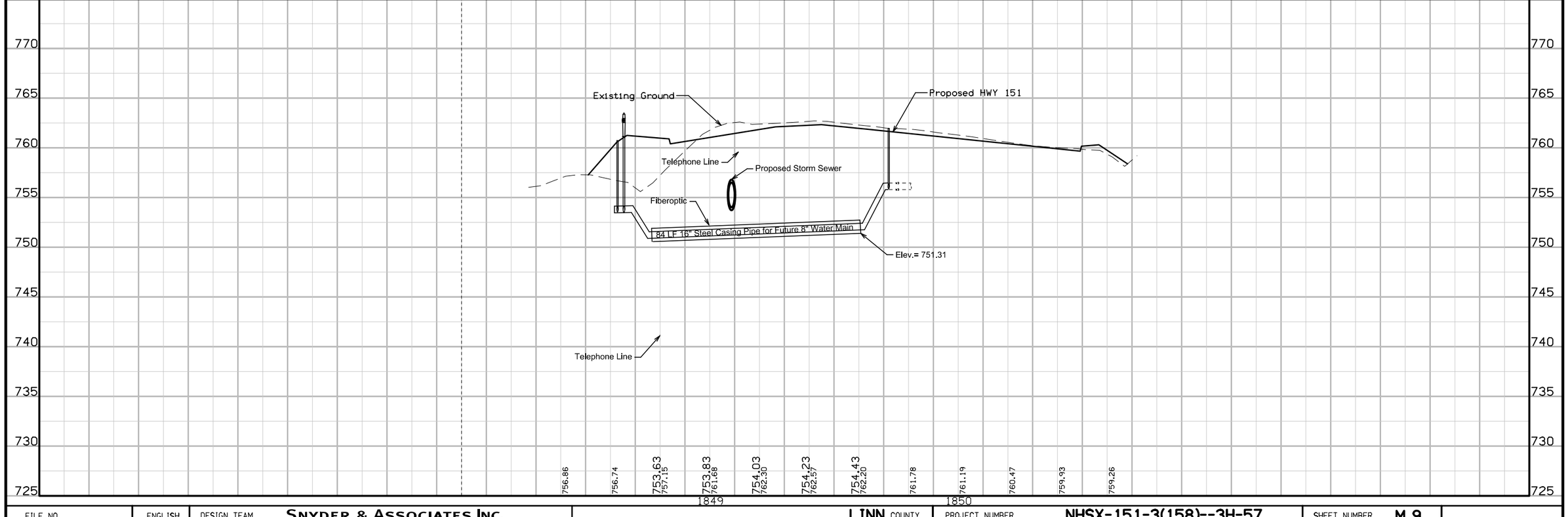

1847
1848
1849
1850
1851
1852
850
849
Church Street
San.
W3
T(C)
St.S.
0 FEET 20


SAN-XX
SW-301
Sta. 849+37.00, 161.71 Lt.
RIM= 757.98
SAN-XX
Existing MH
Sta. 848+94.53, 40.25 Lt.
RIM= 760.54
Proposed Ground
Existing Ground
Fiberoptic
Existing Storm Sewer
(To Be Removed)
Proposed Storm Sewer
F.L.= 752.38
F.L.= 752.38
P-XXX
4.00 LF
10" PVC
0.30%
P-XXX
126.67 LF
10" PVC
0.30%





FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.9

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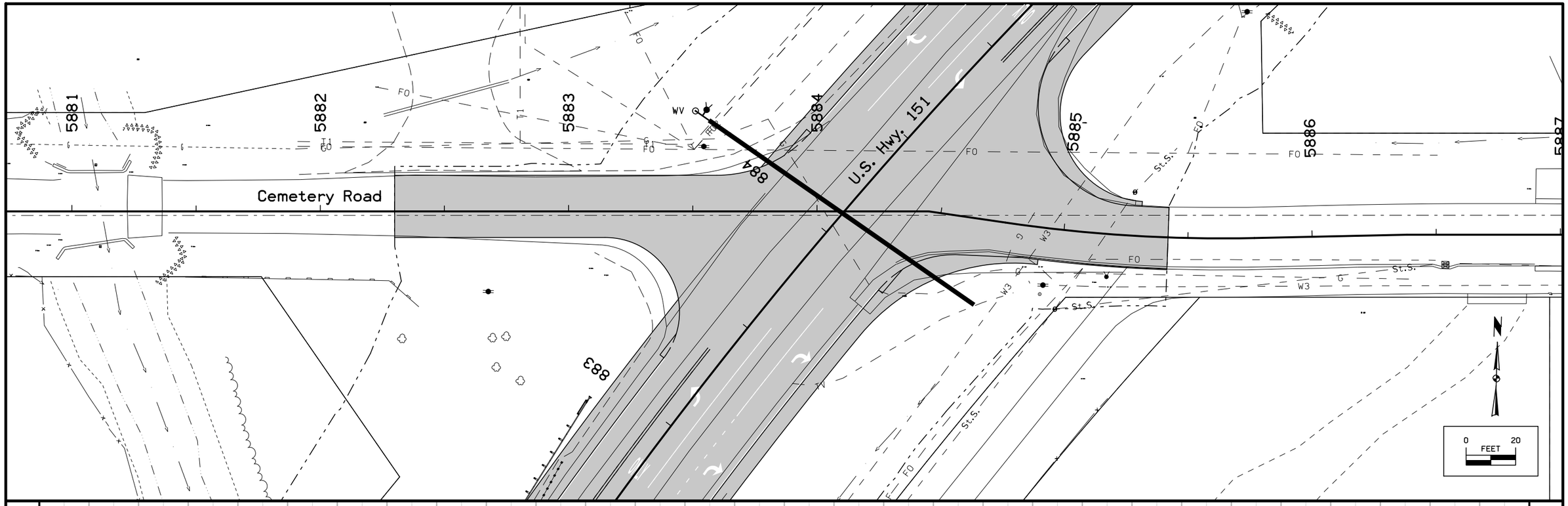

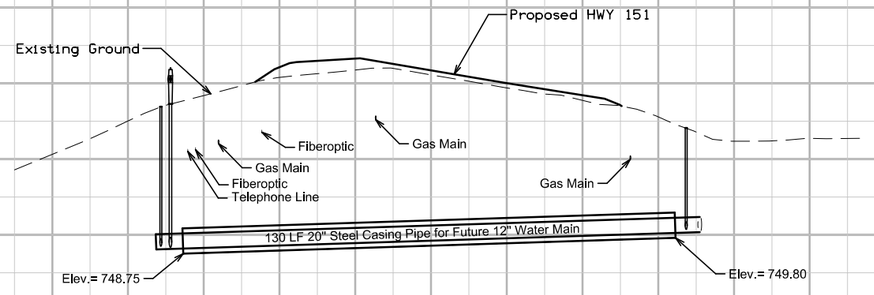

750.66 / 753.66
750.82 / 760.64
750.98 / 760.99
751.14 / 760.13
751.30 / 759.29
751.46 / 758.51

1884

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.10

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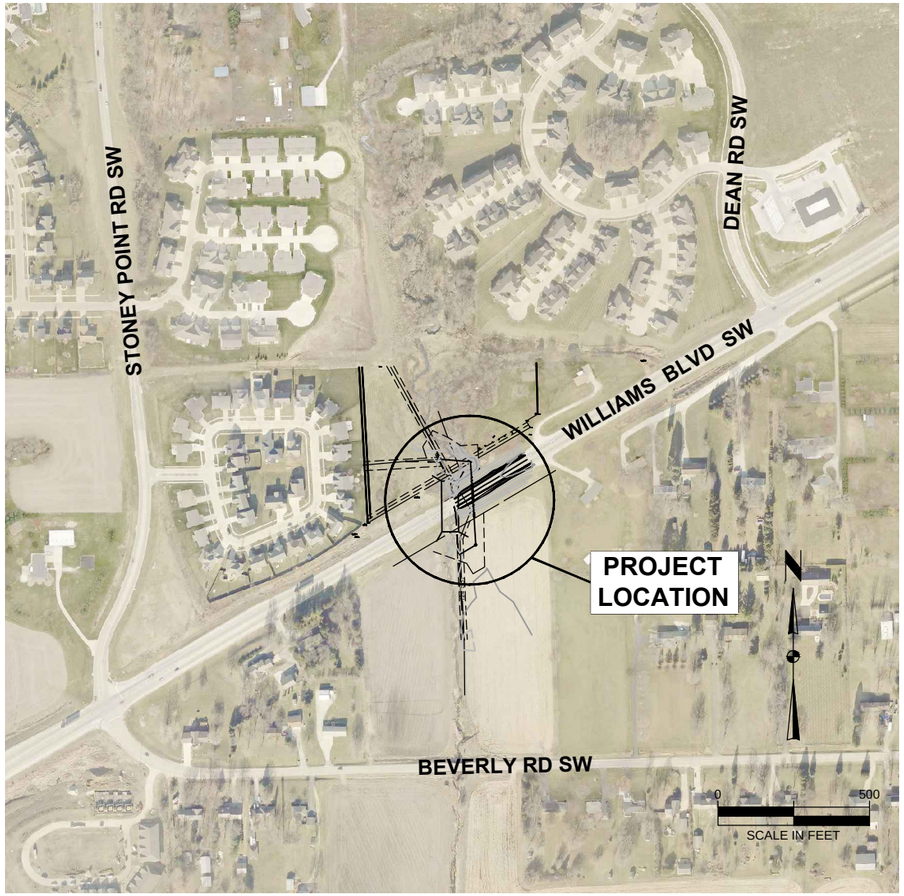
LEGEND

EXISTING		PROPOSED (AS-BUILT)
(SS) (SS)	SANITARY SEWER	SS SS
(ST) (ST)	STORM SEWER	ST ST
	SUBDRAIN	
(FM) (FM)	FORCE MAIN	FM FM
(W) (W)	WATER	W W
(G) (G)	GAS	G G
(S) (S)	STEAM	S S
OHE OHE	ELECTRICAL - OVERHEAD	OHE OHE
(E) (E)	ELECTRICAL - UNDERGROUND	E E
OHT OHT	TELEPHONE - OVERHEAD	OHT OHT
(T) (T)	TELEPHONE - UNDERGROUND	T T
OHC OHC	CATV - OVERHEAD	OHC OHC
(C) (C)	CATV - UNDERGROUND	C C
OHF OHF	FIBER OPTIC - OVERHEAD	OHF OHF
(FO) (FO)	FIBER OPTIC - UNDERGROUND	FO FO
X X X X	FENCE LINE	
	REMOVALS	
	LIGHT POLE W/O MAST	
	LIGHT POLE W/MAST	
	FIRE HYDRANT	
	UTILITY POLE	
	GUY ANCHOR	
	TELEPHONE PEDESTAL	
	HANDHOLE	
	MANHOLE	
	VALVE, WATER OR GAS	
	CLEANOUT, STORM OR SANITARY	
	CURB AND APRON INTAKE	
OR	GRATE INTAKE	OR
	METRO RA-3 OR RA-5 INTAKE	
	METRO RA-8 INTAKE	
	FLARED END SECTION	
	UTILITY/CONTROL CABINET	
	TRAFFIC SIGNAL	
BM #	BENCHMARK	BM #
B #	SOIL BORING	B #
	VALVE MANHOLE	
	WATER BLOWOFF	

TABLE OF QUALITY LEVEL OF UTILITY INVESTIGATION IN ACCORDANCE WITH CI/ASCE 38-02

UTILITY	OWNER	QUALITY LEVEL
EXISTING SANITARY SEWER	CITY OF CEDAR RAPIDS	C



Design drawings M.09-M.13 incorporate underground utility information based upon subsurface utility engineering practices and standard guidelines for the collection and depiction of existing subsurface utility data (CI/ASCE 38-02).

Utility quality level A: Precise horizontal and vertical location of utilities obtained by the actual exposure (or verification of previously exposed and surveyed utilities) and subsequent measurement of subsurface utilities, usually at a specific point. Minimally intrusive excavation equipment is typically used to minimize the potential for utility damage. A precise horizontal and vertical location, as well as other utility attributes, is shown on plan documents. Accuracy is typically set to 15-mm vertical and to applicable horizontal survey and mapping accuracy as defined or expected by the project owner.

Utility quality level B: Information obtained through the application of appropriate surface geophysical methods to determine the existence and approximate horizontal position of subsurface utilities. Quality level B data should be reproducible by surface geophysics at any point of their depiction. This information is surveyed to applicable tolerances defined by the project and reduced onto plan documents.

Utility quality level C: Information obtained by surveying and plotting visible above-ground utility features and by using professional judgement in correlating this information to quality level D information.

Utility quality level D: Information derived from existing records or oral recollections.

GENERAL NOTES:

1. SANITARY SEWER SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CEDAR RAPIDS METROPOLITAN AREA STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC IMPROVEMENTS, LATEST EDITIONS AND THE IOWA DOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, LATEST EDITION. WHERE CONFLICTS EXIST, THE CITY OF CEDAR RAPIDS SPECIFICATIONS SHALL PREVAIL.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING UTILITIES AND PAVED AREAS, INCLUDING ANY NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IF ANY CONFLICTS WITH THE DRAWINGS OCCUR. ANY DAMAGE TO EXISTING UTILITIES, SOD, LANDSCAPE AND/OR PAVED AREAS CAUSED BY TRENCHING, GRADING, AND PAVING OPERATIONS NOT IDENTIFIED FOR REPLACEMENT SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITY LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE.
3. ALL DEBRIS RESULTING FROM CONSTRUCTION OPERATIONS SHALL BE PROPERLY DISPOSED OF OFF-SITE.
4. ALL WORK TO BE COMPLETED WITHIN EASEMENTS AND PUBLIC R.O.W.
5. WORK ITEMS NOT SPECIFICALLY CALLED OUT FOR PAYMENT SHALL BE INCIDENTAL TO CONTRACT ITEMS.
6. REFER TO G-SHEETS FOR CONTROL POINT INFORMATION.
7. INSPECTION FOR SANITARY SEWER CONSTRUCTION WILL BE PROVIDED BY THE CEDAR RAPIDS PUBLIC WORKS DEPARTMENT CONSTRUCTION ENGINEERING DIVISION. PROVIDE A MINIMUM OF 72 HOURS NOTICE PRIOR TO STARTING CONSTRUCTION.
8. DIMENSIONS, STREET LOCATIONS, UTILITIES AND GRADING ARE BASED ON AVAILABLE INFORMATION AT THE TIME OF DESIGN. DEVIATIONS MAY BE NECESSARY IN THE FIELD. ANY SUCH CHANGES OR CONFLICTS BETWEEN THE PLAN AND FIELD CONDITIONS SHALL BE REPORTED TO THE CITY INSPECTOR.
9. IF THE CONTRACTOR OBTAINS ADDITIONAL EASEMENTS FOR STORAGE OF EQUIPMENT AND MATERIALS, COPIES OF AGREEMENTS WITH PROPERTY OWNERS SHALL BE PROVIDED TO THE CITY.
10. THE CONTRACTOR IS RESPONSIBLE FOR ALL SITE SAFETY INCLUDING FENCING AND SIGNAGE ON SITE AND SHALL COMPLY WITH ALL STATE, LOCAL AND FEDERAL REGULATIONS.
11. THE CONTRACTOR SHALL COMPLY WITH ALL STATE REGULATIONS REGARDING AIR, WATER, AND NOISE POLLUTION.
12. WHERE SECTION OF SUBSECTION MONUMENTS, BENCHMARKS, RIGHT-OF-WAY PINS, OR IRON PIPE MONUMENTS ARE ENCOUNTERED, THE CITY SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED OR DISTURBED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL MONUMENTS UNTIL THE CITY AND AUTHORIZED SURVEYOR, OR AGENT, HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION. THE CONTRACTOR WILL BE RESPONSIBLE FOR HAVING AN AUTHORIZED SURVEYOR RE-ESTABLISH ANY MONUMENTS UNNECESSARILY DESTROYED BY CONTRACT OPERATIONS.
13. PROTECT EXISTING FACILITIES, TREES, AND OTHER APPURTENANCES NOT TO BE REMOVED FROM THE SITE DURING CONSTRUCTION.
14. THE CONTRACTOR SHALL ASSIST THE CITY'S INSPECTOR WITH DAILY RECORD KEEPING INCLUDING DOCUMENTING ALL NECESSARY FIELD LOCATIONS AND MEASUREMENTS. THE CONTRACTOR IS REQUIRED TO ATTEND FINAL AND INTERMEDIATE INSPECTIONS OF THE PROJECT AND IS RESPONSIBLE FOR OPENING ALL MANHOLES FOR INSPECTION.
15. TRAFFIC CONTROL SHALL CONFORM TO OTHER PROJECT STAGING PLANS AND SHALL NOT CONFLICT WITH SAID PLAN.
16. ANY TEMPORARY GRADING AND SUBSEQUENT RESTORATION REQUIRED FOR SITE ACCESS SHALL BE INCIDENTAL TO SANITARY SEWER CONSTRUCTION.

NOTE:
THE PROPOSED SANITARY SEWER IMPROVEMENTS INCLUDED IN THESE DRAWINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE CEDAR RAPIDS METROPOLITAN AREA DESIGN STANDARDS MANUAL (LATEST EDITION) WITH NO DESIGN EXCEPTIONS.

PRELIMINARY FOR REVIEW ONLY

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811

LICENSED PROFESSIONAL ENGINEER
MATTHEW J. FEUERHELM
21301
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

MATTHEW J. FEUERHELM, P.E. DATE
LICENSE NUMBER: 21301
MY LICENSE RENEWAL DATE IS: DECEMBER 31, 2017

PAGES OR SHEETS COVERED BY THIS SEAL: M.9-M.13

FILE NO.	ENGLISH	DESIGN TEAM CITY OF CEDAR RAPIDS	LINN COUNTY	PROJECT NUMBER NHSX-151-3(158)--3H-57	SHEET NUMBER U.1

11/6/2017 9:54 AM w:\projects\cip\611 (655)\6550045 williams blvd san sewer relocation\design\6550045 design.dwg

SANITARY SEWER

UTILITY ACCESSES

* Bid Item

No.	Location Station and Offset	Type or Standard Road Plan*	Rim Elev.	Bottom Well Elev.	Notes
SMH-01	979+67.8, 152.7' Rt.	SW-301 (60")	772.03	758.34	Bolt-down lid, connected manhole joints
SMH-02	980+26.8, 152.7' Rt.	SW-301 (60")	770.33	758.52	Bolt-down lid, connected manhole joints
SMH-03	981+51.2, 93.4' Lt.	SW-301 (60")	769.45	759.47	Bolt-down lid, connected manhole joints
SMH-04	980+71.2, 148.9' Lt.	SW-301 (60")	769.77	759.86	Replace Ex. Structure, bolt-down lid, connected manhole joints

PIPES

1 LENGTH COMPUTED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.

No.	UTILITY ACCESS NO. FROM	UTILITY ACCESS NO. TO	TYPE	PIPE SIZE IN.	LENGTH[1] FT	SLOPE %	FLOW LINES INLET ELEVATION	FLOW LINES OUTLET ELEVATION	Pipe Profile Sheet No.	Notes
P-1	SMH-01	SMH-02	DIP	24"	59.0	0.35	758.52	758.34	M.11	Restrained Joint DIP w/ Ceramic Epoxy interior lining
P-2	SMH-02	SMH-03	DIP	24"	275.7	0.35	759.47	758.52	M.11	Restrained Joint DIP w/ Ceramic Epoxy interior lining, 48" Dia. Casing Pipe
P-3	SMH-03	SMH-04	DIP	24"	97.3	0.35	759.86	759.47	M.11	Restrained Joint DIP w/ Ceramic Epoxy interior lining, PC Concrete Arch

ESTIMATED PROJECT QUANTITIES

ITEM CODE	DESCRIPTION	UNITS	QUANTITY
2435-0130160	MANHOLE, SANITARY SEWER, SW-301, 60 IN.	EA	4
2504-0146024	SANITARY SEWER GRAVITY MAIN WITH CASING PIPE, TRENCHLESS, DUCTILE IRON PIPE (DIP), 24 IN.	LF	155
2504-0116024	SANITARY SEWER GRAVITY MAIN, TRENCHED, DUCTILE IRON PIPE (DIP), 24 IN.	LF	277
2504-0240036	REMOVE SANITARY SEWER PIPE LESS THAN OR EQUAL TO 36 IN.	LF	100
2504-0240236	SANITARY SEWER ABANDONMENT, FILL AND PLUG, LESS THAN OR EQUAL TO 36 IN. DIA.	LF	246
2552-0000230	SPECIAL PIPE EMBEDMENT OR ENCASEMENT	LF	95
2552-0000300	TRENCH COMPACTION TESTING	LS	1

SANITARY SEWER ABANDONMENT, FILL AND PLUG, LESS THAN OR EQUAL TO 36 IN. DIA.

Location	Length (LF)	Remarks
Sta. 980+71.2, 148.9' Rt. to Sta. 979+67.8, 152.7' Rt.	246	Plug upstream and downsteam ends, remove and dispose of existing cone sections. Fill pipe with flowable mortar.

REMOVE SANITARY SEWER PIPE LESS THAN OR EQUAL TO 36 IN.

Location	Length (LF)	Remarks
Sta. 979+67.8, 152.7' Rt. to Sta. 979+91.9, 107.5' Rt	50	Remove ex. 24" RCP from SMH-01 upstream to Ex. MH
Sta. 980+70.6, 98.9' Lt. to Sta. 980+71.2, 148.9' Lt.	50	Remove ex. 24" RCP to 50' downstream of SMH-04.

APPLICABLE CEDAR RAPIDS METROPOLITAN AREA STANDARD DETAILS FOR PUBLIC IMPROVEMENTS, STATEWIDE URBAN DESIGN AND SPECIFICATION STANDARDS AND IOWA DOT STANDARD ROAD PLANS

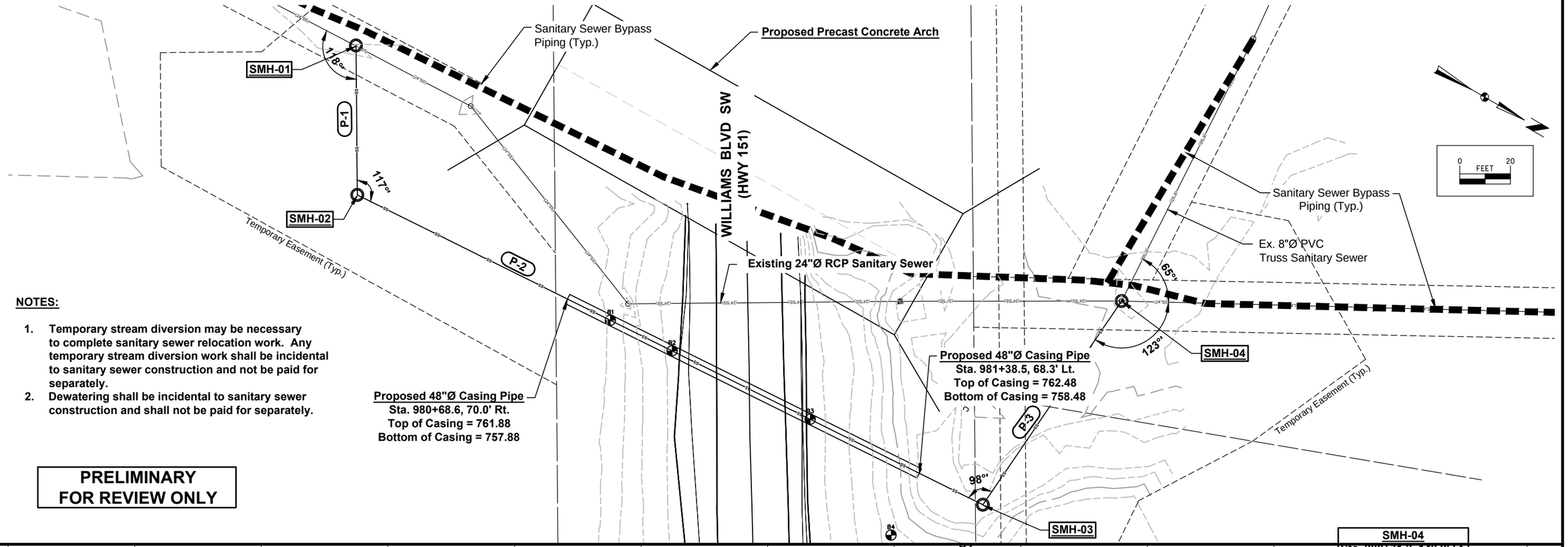
ALL STANDARD DETAILS SHALL BE CONSIDERED APPLICABLE TO CONSTRUCTION WORK ON THIS PROJECT. THE FOLLOWING DETAILS ARE BROUGHT TO THE CONTRACTOR'S ATTENTION:

SW-101	Trench Bedding and Backfill Zones
SW-103	Flexible Gravity Pipe Trench Bedding
SW-301	Circular Sanitary Sewer Manhole
SW-306	Chimney Seals for Sanitary Sewer Manholes
TC-1	Work Not Affecting Traffic (Two-Lane)
TC-202	Work Within 15 ft of Traveled Way
2300-043	Installation of Connected Manhole Joints - Detail on M.13
2300-049	Sanitary Sewer Bolt Down Lids - Detail on M.13
2200-041	PC Concrete Arch - Modified Detail on M.13

ESTIMATE REFERENCE INFORMATION

ITEM CODE	DESCRIPTION
2435-0130160	MANHOLE, SANITARY SEWER, SW-301, 60 IN. A. Manhole joints shall be tied per detail on M.13. B. Manhole lids shall be bolt down lids per detail on M.13. C. Item includes external chimney seal, bolt-down frame and lid, adjusting rings (pro-ring), and PVC liner. D. Sanitary sewer bypass pumping and dewatering are incidental to sanitary sewer construction. E. Construction survey shall be incidental to sanitary sewer construction.
2504-0146024	SANITARY SEWER GRAVITY MAIN WITH CASING PIPE, TRENCHLESS, DUCTILE IRON PIPE (DIP), 24 IN. A. Refer to tabulation on Sheet M.10 and plan on Sheet M.11. B. Access for lauching and receiving pits is limited to the temporary easements. C. Casing pipe shall be coal tar epoxied and incidental to this bid item. D. Comply with Section 2553 of the Standard Specifications. E. Steel casing pipe shall be 48" diameter and minimum wall thickness shall be 0.344". F. Carrier pipe shall be 24" DIP with ceramic epoxy lining and restrained joints. G. Construction survey shall be incidental to sanitary sewer construction. H. Any necessary dewatering or temporary stream diversion is incidental to this item. I. Sanitary sewer bypass pumping is incidental to sanitary sewer construction.
2504-0116024	SANITARY SEWER GRAVITY MAIN, TRENCHED, DUCTILE IRON PIPE (DIP), 24 IN. A. Refer to tabulation on Sheet M.10 and plan on Sheet M.11. B. Pipe shall be 24" DIP with ceramic expoxy lining, restrained joints and encased in polyethylene. C. Dewatering is incidental to this item. D. Temporary stream diversion is incidental to this item. E. Pipe bedding to be Class F-3 per SW-103 and shall be incidental to this item. Modify where Special Pipe Embedment or Encasement is used. F. Pipe bedding material shall be granular backfill. G. Construction survey shall be incidental to sanitary sewer construction. H. Disposal of excess material from trench shall be incidental to this item. I. Sanitary sewer bypass pumping is incidental to sanitary sewer construction.
2504-0240036	REMOVE SANITARY SEWER PIPE LESS THAN OR EQUAL TO 36 IN. A. Refer to tabulation on Sheet M.10. B. Contractor shall dispose of removed pipe.
2504-0240236	SANITARY SEWER ABANDONMENT, FILL AND PLUG, LESS THAN OR EQUAL TO 36 IN. DIA. A. Refer to tabulation on Sheet M.10. B. Removal and disposal of existing manhole cone sections is incidental to this bid item. C. Pipe and remaining manhole sections to be filled with flowable mortar. D. Plug upstream and downstream pipe ends.
2552-0000230	SPECIAL PIPE EMBEDMENT OR ENCASEMENT A. Refer to tabulation on Sheet M.10. Applies to P-3. B. Refer to detail on Sheet M.13
2552-0000300	TRENCH COMPACTION TESTING A. Contractor shall be responsible for trench compaction testing performed by an independent testing laboratory hired by Contractor. B. Provide a minimum of 6 tests randomly spaced over sewer trench. No compensation shall be made for re-testing failed tests.

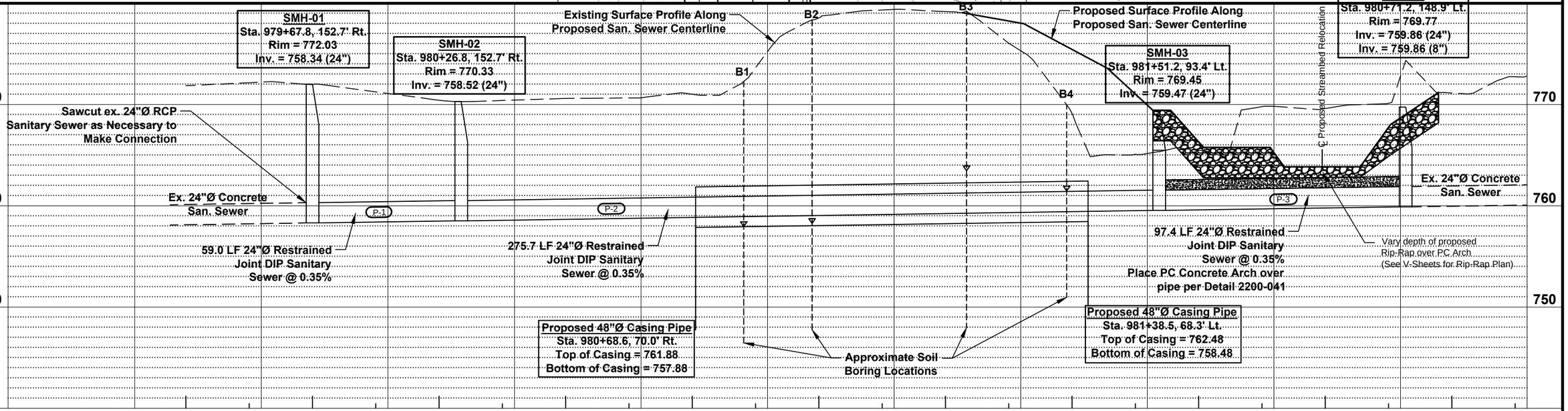
PRELIMINARY FOR REVIEW ONLY



NOTES:

1. **Temporary stream diversion may be necessary to complete sanitary sewer relocation work. Any temporary stream diversion work shall be incidental to sanitary sewer construction and not be paid for separately.**
2. **Dewatering shall be incidental to sanitary sewer construction and shall not be paid for separately.**

PRELIMINARY FOR REVIEW ONLY

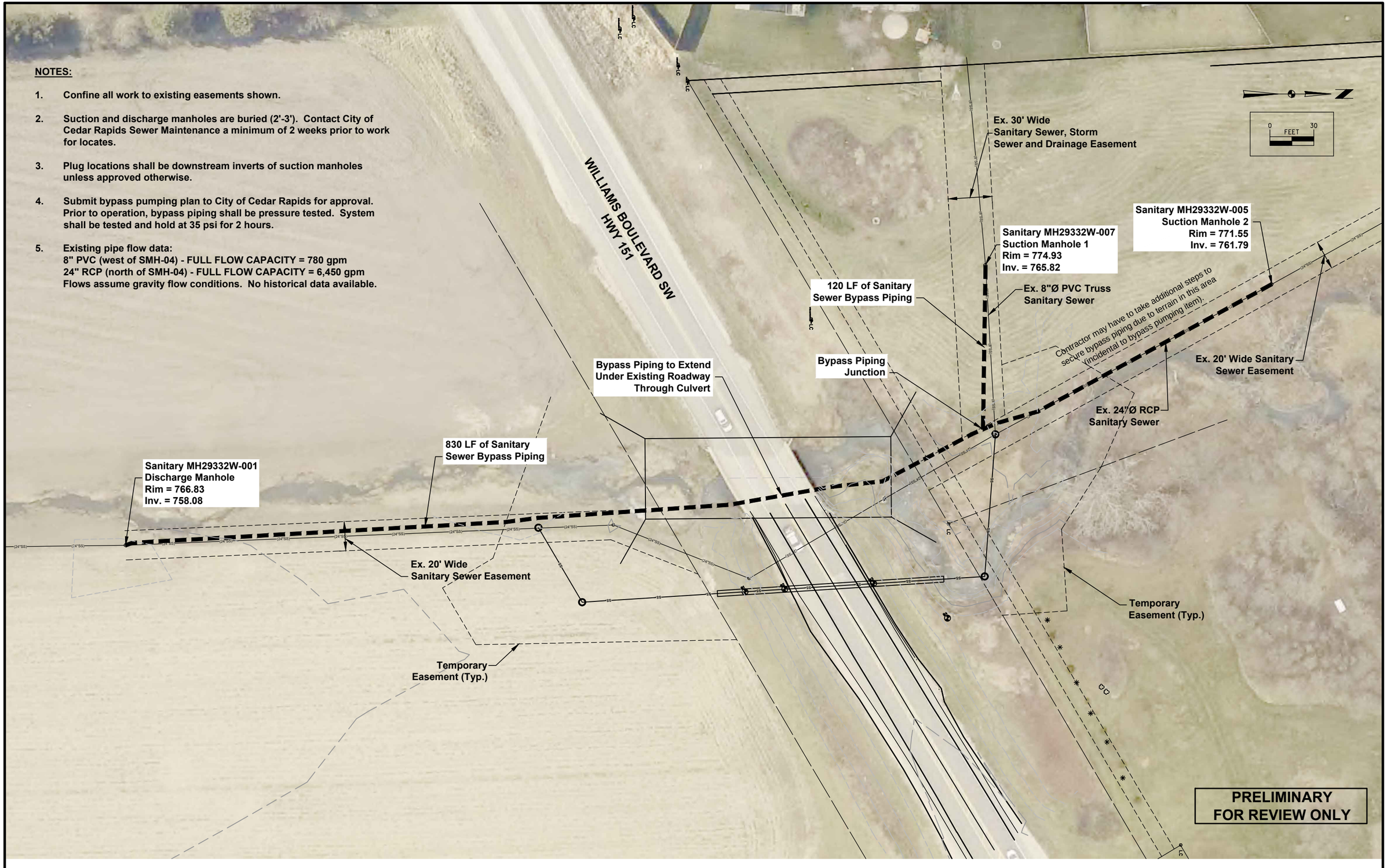


FILE NO.	ENGLISH	DESIGN TEAM CITY OF CEDAR RAPIDS	LINN COUNTY	PROJECT NUMBER NHSX-151-3(158)--3H-57	SHEET NUMBER U.3

11/6/2017 9:54 AM w:\projects\cip\611 (655)\6550045 williams blvd san sewer relocation\design\6550045 design.dwg

NOTES:

1. Confine all work to existing easements shown.
2. Suction and discharge manholes are buried (2'-3'). Contact City of Cedar Rapids Sewer Maintenance a minimum of 2 weeks prior to work for locates.
3. Plug locations shall be downstream inverts of suction manholes unless approved otherwise.
4. Submit bypass pumping plan to City of Cedar Rapids for approval. Prior to operation, bypass piping shall be pressure tested. System shall be tested and hold at 35 psi for 2 hours.
5. Existing pipe flow data:
   8" PVC (west of SMH-04) - FULL FLOW CAPACITY = 780 gpm
   24" RCP (north of SMH-04) - FULL FLOW CAPACITY = 6,450 gpm
   Flows assume gravity flow conditions. No historical data available.



FILE NO.	ENGLISH	DESIGN TEAM CITY OF CEDAR RAPIDS	LINN COUNTY	PROJECT NUMBER NHSX-151-3(158)--3H-57	SHEET NUMBER U.4

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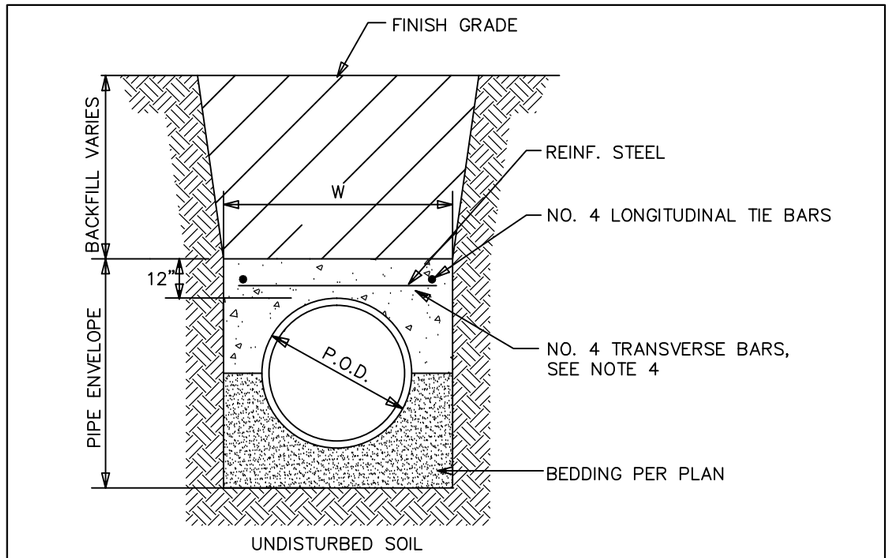
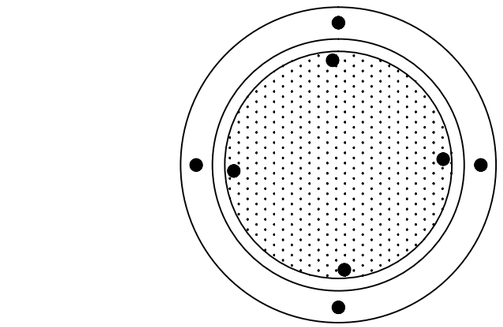
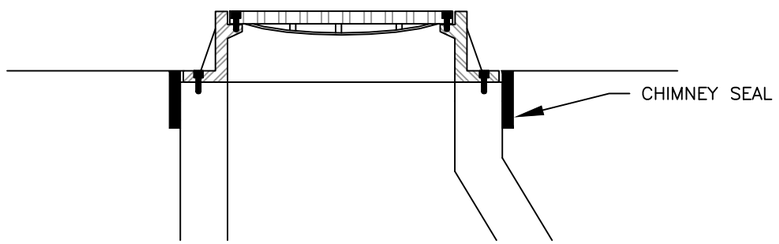


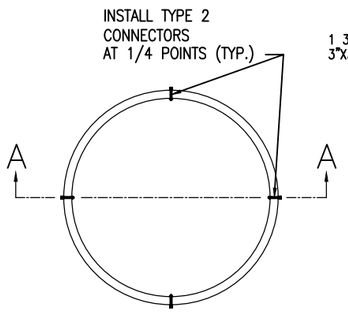
NOTES:
1. CONCRETE SHALL BE CLASS "C" UNLESS OTHERWISE NOTED.
2. BACKFILL ABOVE PIPE ENVELOPE SHALL BE ACCORDING TO SW–101 AND SW–103.
3. PIPE ENVELOPE (W) SHALL BE ACCORDING TO SW–103.
4. SPACING OF TRANSVERSE BARS SHALL BE 12–INCHES.



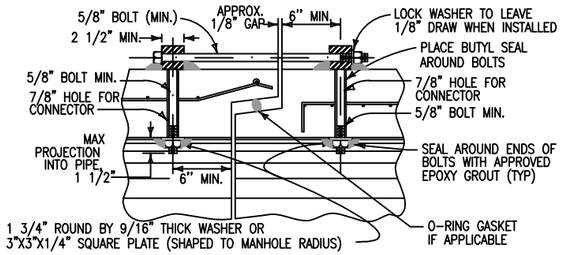
SEE CASTING CHART IN APPENDIX A, SECTION 2300 FOR CASTING DESIGNATION



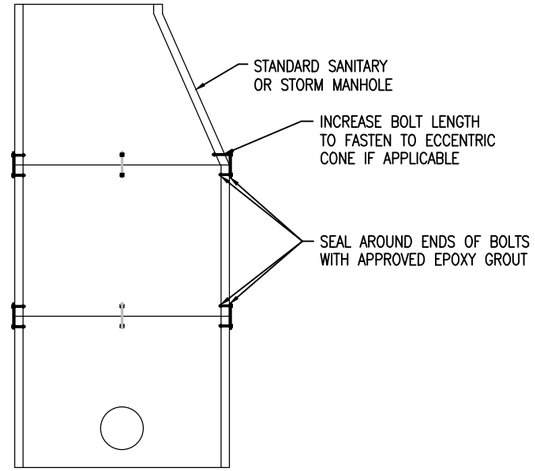
NOTE: 4– ANCHOR BOLTS FROM LID TO FRAME AS FURNISHED BY MANUFACTURER
4 –1" ANCHOR BOLTS FROM FRAME TO STRUCTURE. (BRASS OR STAINLESS STEEL)



TYPICAL PLAN



SECTION OF TYPICAL MANHOLE CONNECTOR

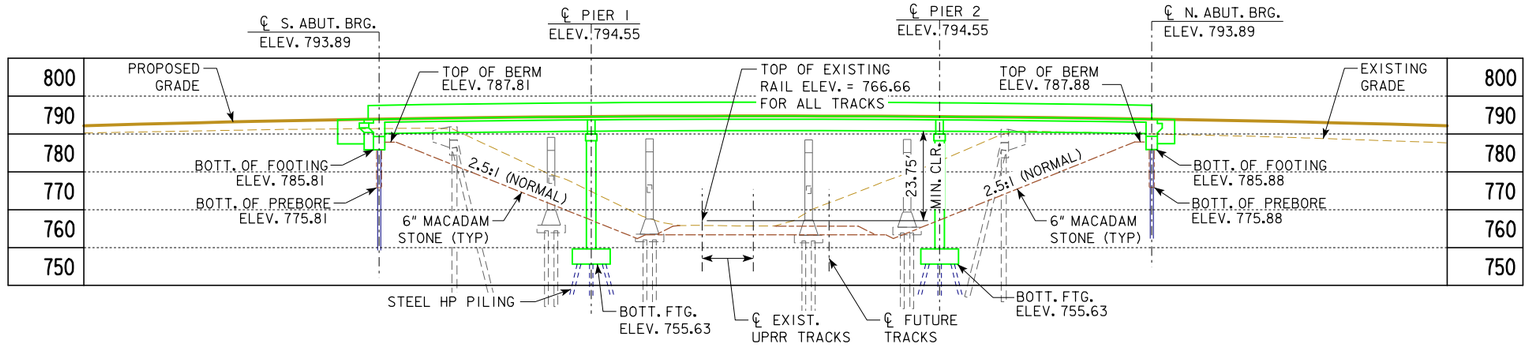


SECTION A–A

FILE NO.: 2300–043	CEDAR RAPIDS METROPOLITAN AREA STANDARD DETAILS FOR PUBLIC IMPROVEMENTS
APPROVAL DATE: APRIL 2003	
REVISION NO.:	INSTALLATION OF CONNECTED MANHOLE JOINTS — NO. 2300–043
REVISION DATE:	

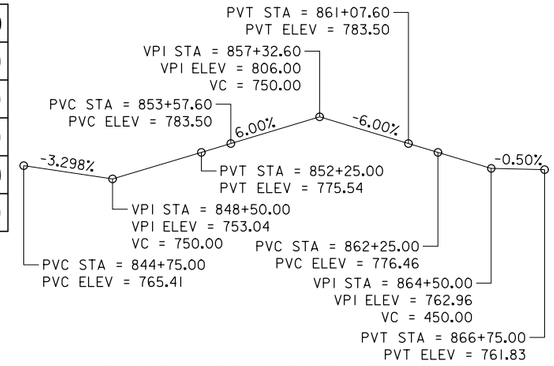
PRELIMINARY FOR REVIEW ONLY

BENCH MARK NO. BM1 STA. 846+60.81, 23.069 RT, GIN SPIKE IN POWER POLE,
EAST SIDE HWY 151, ACROSS FROM "PIT STOP"
ELEV. 763.600, N = 703233.002 E = 2107556.082



LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY

TOP OF BRIDGE DECK CROWN 0.03' BELOW PROFILE GRADE



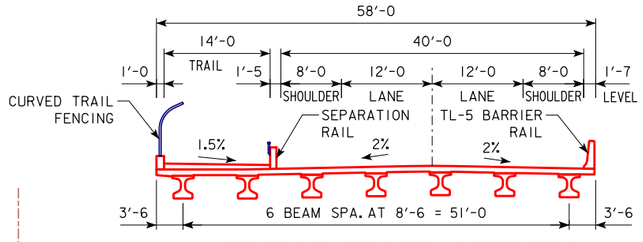
PROPOSED PROFILE GRADE

MINIMUM VERTICAL CLEARANCE

OVERHEAD STATION = 857+75.65, OFFSET 18.08' RT
OVERHEAD ELEVATION = 794.24
DEPTH OF SUPERSTRUCTURE = 3.83'
UNDERPASS STATION = 7857+44.09, OFFSET 51.86' LT
UNDERPASS ELEVATION = 766.66
MINIMUM VERTICAL CLEARANCE = 23.75'

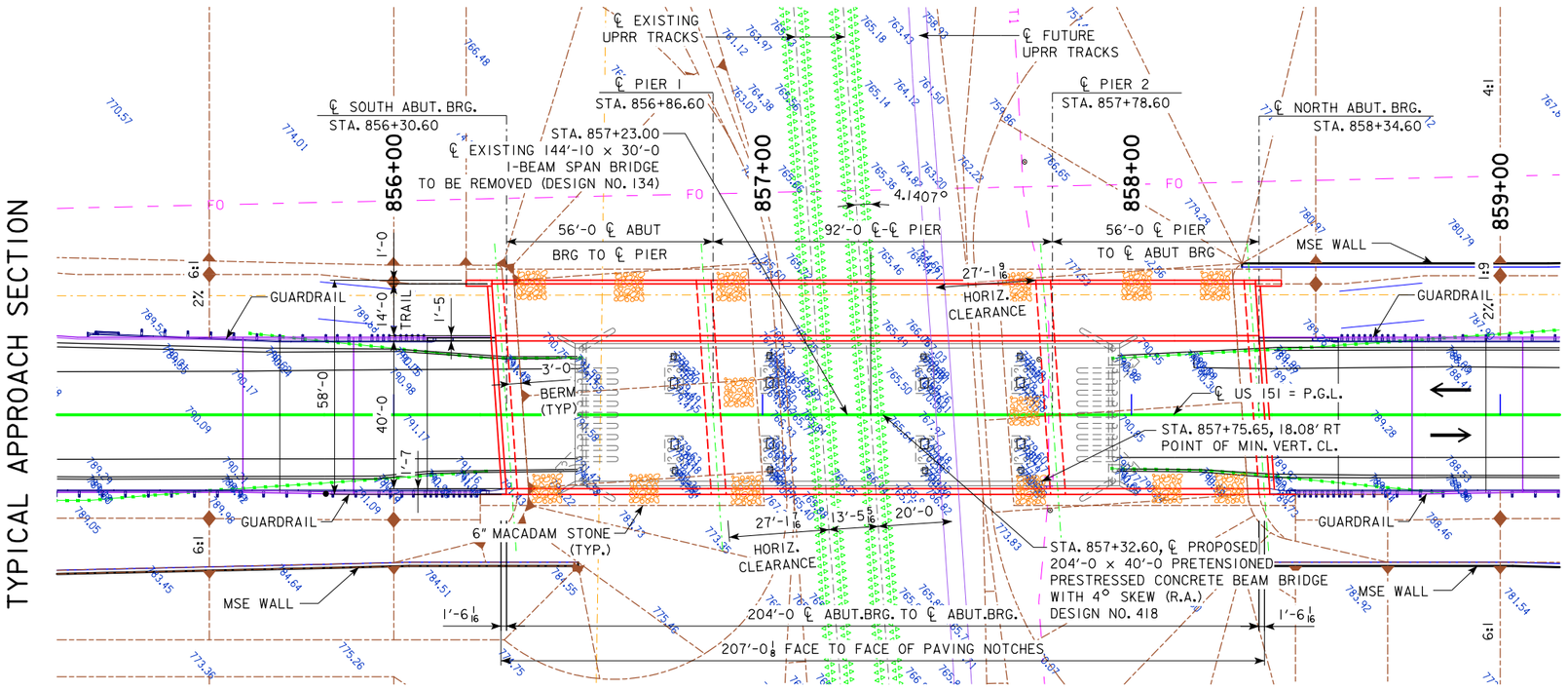
RAILROAD MILEPOST DATA

DOT CROSSING INVENTORY NUMBER: 190539X
UNION PACIFIC RAILROAD COMPANY MILEPOST: 0090.130
MILEPOST INCREASING TOWARD WEST

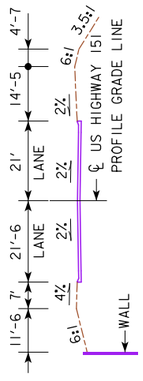


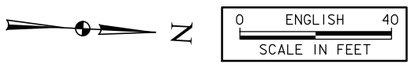
BRIDGE CROSS SECTION

BTB BEAMS



TYPICAL APPROACH SECTION





SITUATION PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

UTILITIES LEGEND:

FO - FIBER OPTIC - SOUTH SLOPE
G - GAS - MIDAMERICAN ENERGY
TI - TELEPHONE - SOUTH SLOPE
W3 - WATER - FAIRFAX

NOTES:
PIERS ARE FRAME PIERS ON PILE CAP FOOTINGS.
BEAM TYPE BTB, DEPTH = 3'-0.
TL-4 SEPARATION RAILING IS PROPOSED ON THE LEFT SIDE OF BRIDGE.
TL-5 BARRIER RAILING IS PROPOSED ON RIGHT SIDE OF BRIDGE.
CURVED TRAIL FENCING IS PROPOSED.
BRIDGE AESTHETICS TO BE INCORPORATED DURING FINAL DESIGN.

LOCATION

US HIGHWAY 151 OVER
UNION PACIFIC RAILROAD
FRA 190539X
T-82N R-8W
SECTIONS 9 & 16
FAIRFAX TOWNSHIP
LINN COUNTY
FHWA NO. 33771
BRIDGE MAINT. NO. 5721.8S151
LATITUDE 41.920383°
LONGITUDE -91.783747°

TRAFFIC ESTIMATE

2013 AADT	8100	V.P.D.
2040 AADT	12,010	V.P.D.
2040 DHV	-	V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALs	-	

PRELIMINARY

DESIGN FOR 4° SKEW (R.A.)

204'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE WITH 14'-0 TRAIL (BTB BEAMS)

SPANS (56'-0, 92'-0, 56'-0)

SITUATION PLAN

STATION 857+32.60 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 418

DESIGN TEAM SHUCK-BRITSON 400 EAST COURT AVE. SUITE 140 DES MOINES, IOWA 50309 515-243-4477 | S.B.I. NO. 112.0807.01 | LINN COUNTY | PROJECT NUMBER BRF-151-3(141)--38-57 | SHEET NUMBER V.1

BENCH MARK NO. BM1 STA. 846+60.81, 23.069 RT, GIN SPIKE IN POWER POLE,
EAST SIDE HWY 151, ACROSS FROM "PIT STOP"
ELEV. 763.600, N = 703233.002 E = 2107556.082

BERM SLOPE LOCATION TABLE

	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
A1	856+96.03	39.42	762.36	857+63.65	39.42	762.88
A2	857+00.50	24.58	762.36	857+68.13	24.58	762.88
B1	856+32.36	39.42	787.81	858+27.33	39.42	787.88
B2	856+36.83	24.58	787.81	858+31.81	24.58	787.88
W1	856+19.66	39.42	793.09	858+40.67	39.42	793.18
W2	856+23.50	24.58	793.28	858+44.50	24.58	793.24

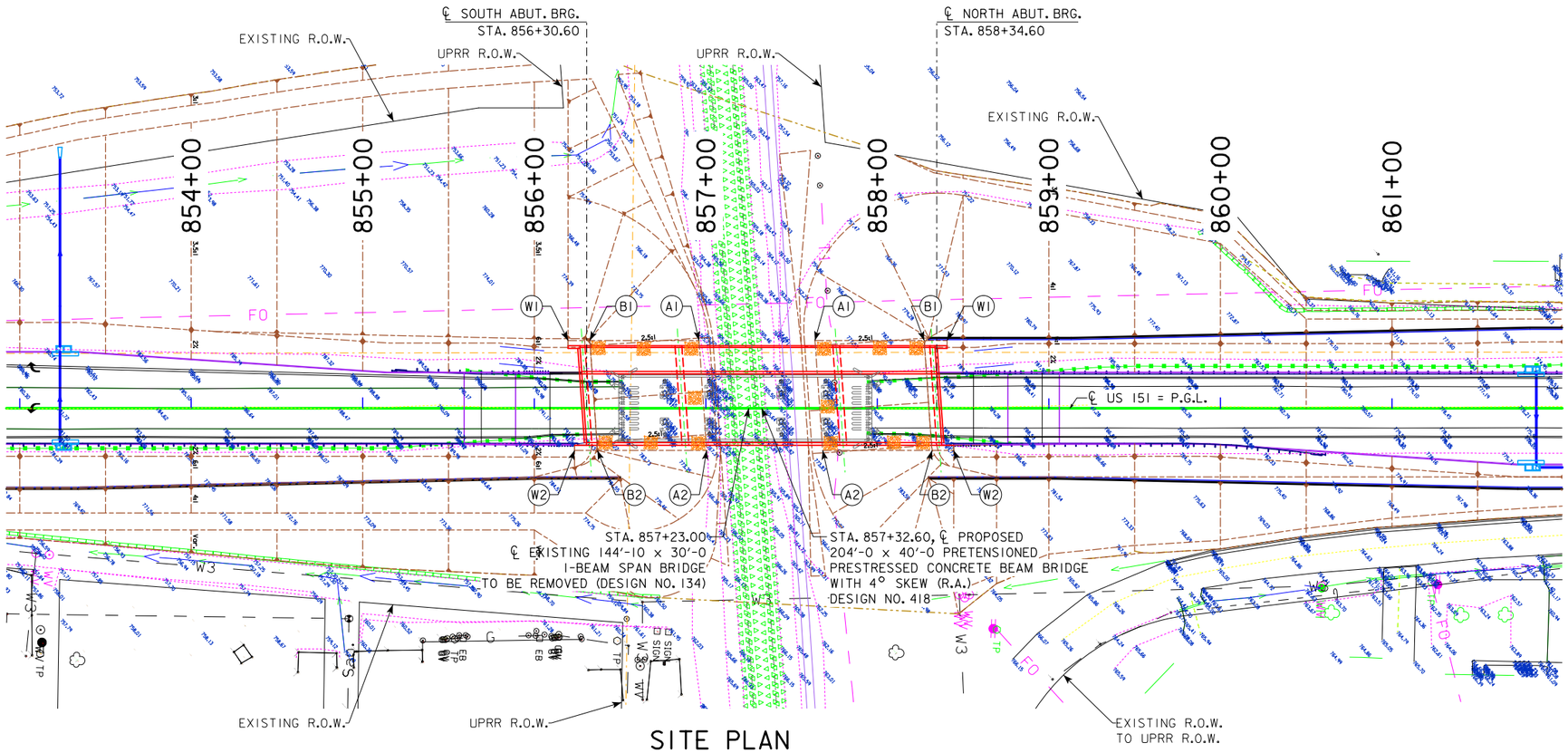
BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

ESTIMATED QUANTITIES

DESCRIPTION	LOCATION	QUANTITY
MACADAM STONE SLOPE PROTECTION	SOUTH ABUT.	488 SQ. YDS.
MACADAM STONE SLOPE PROTECTION	NORTH ABUT.	488 SQ. YDS.
	TOTAL	976 SQ. YDS.

FOR DETAILS, SEE STANDARD SHEET 1006E.

ITEMS TO BE INCLUDED IN "MACADAM STONE SLOPE PROTECTION":
- EXCAVATING, SHAPING AND COMPACTING
- ENGINEERING FABRIC
- MACADAM STONE
- 4" x 6" TREATED TIMBER EDGING
- ½"Φ STEEL PINS (OR REBARS)
- POROUS BACKFILL OR GRANULAR SUBBASE BACKFILL AT FRONT FACE ABUTMENT FOOTING



SITE PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

N

0 ENGLISH 80
SCALE IN FEET

UTILITIES LEGEND:

FO - FIBER OPTIC - SOUTH SLOPE
G - GAS - MIDAMERICAN ENERGY
TI-TELEPHONE - SOUTH SLOPE
W3 - WATER - FAIRFAX

PRELIMINARY

DESIGN FOR 4° SKEW (R.A.)

204'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE WITH 14'-0 TRAIL (BTB BEAMS)

SPANS (56'-0, 92'-0, 56'-0)

SITE PLAN

STATION 857+32.60 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 418

DESIGN TEAM SHUCK-BRITSON 400 EAST COURT AVE. SUITE 140 DES MOINES, IOWA 50309 515-243-4477 | S.B.I. NO. 112.0807.01 | LINN COUNTY | PROJECT NUMBER BRF-151-3(141)--38-57 | SHEET NUMBER V.2

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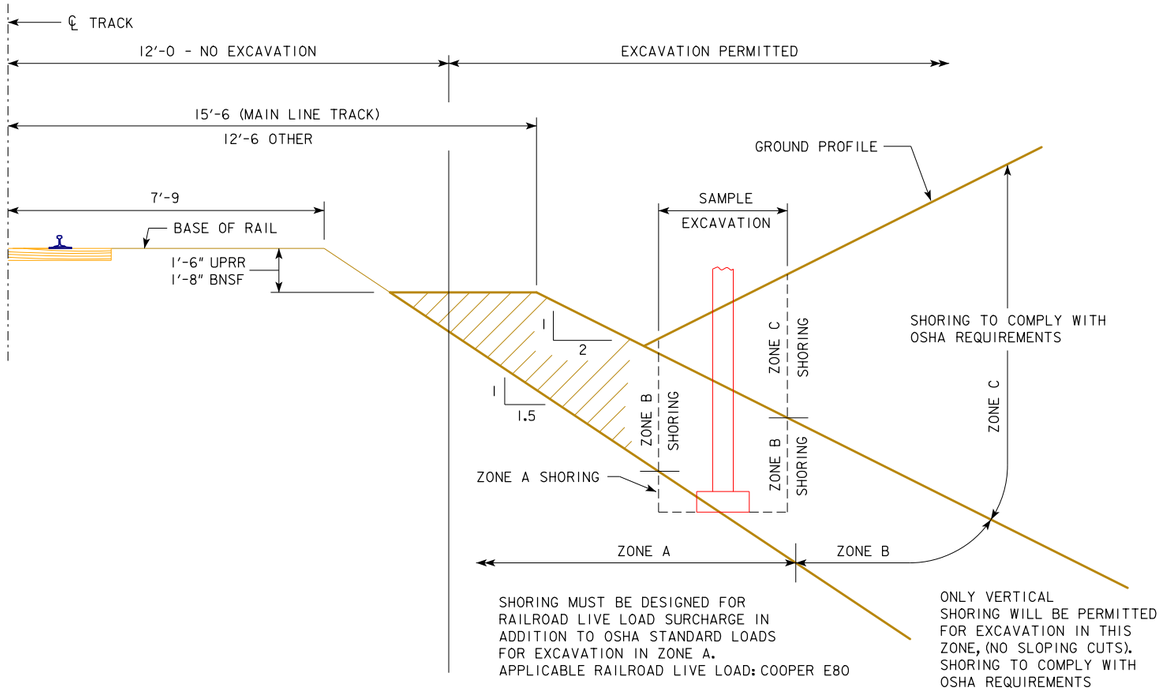


GENERAL EXCAVATION ZONES

RAILROAD GENERAL NOTES:

1. RAILROAD REVIEW AND APPROVAL OF SHORING, ERECTION, DEMOLITION, AND FALSEWORK IS REQUIRED. ALLOW A MINIMUM OF FOUR WEEKS FOR THE REVIEW AND APPROVAL OF EACH SUBMITTAL.
2. THE PROPOSED GRADE SEPARATION PROJECT SHALL NOT INCREASE THE QUANTITY AND/OR CHARACTERISTICS OF THE FLOW IN THE RAILROAD'S DITCHES AND/OR DRAINAGE STRUCTURES.
3. THE ELEVATION OF THE EXISTING TOP-OF-RAIL PROFILE SHALL BE VERIFIED BEFORE BEGINNING CONSTRUCTION. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE RAILROAD PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR MUST SUBMIT A PROPOSED METHOD OF EROSION AND SEDIMENT CONTROL AND HAVE THE METHOD APPROVED BY THE RAILROAD.
5. ALL SHORING SYSTEMS THAT IMPACT THE RAILROAD'S OPERATIONS AND/OR SUPPORTS THE RAILROAD'S EMBANKMENT SHALL BE DESIGNED AND CONSTRUCTED PER CURRENT RAILROAD GUIDELINES FOR TEMPORARY SHORING.
6. ALL DEMOLITIONS WITHIN THE RAILROAD'S RIGHT-OF-WAY AND/OR DEMOLITION THAT MAY IMPACT THE RAILROAD'S TRACKS OR OPERATIONS SHALL BE IN COMPLIANCE WITH THE RAILROAD'S DEMOLITION GUIDELINES.
7. ERECTION OVER THE RAILROAD'S RIGHT-OF-WAY SHALL BE DESIGNED TO CAUSE NO INTERRUPTION TO THE RAILROAD'S OPERATION, ENABLING THE TRACK(S) TO REMAIN OPEN TO TRAFFIC PER THE RAILROAD'S REQUIREMENTS.
8. ALL CONSTRUCTION PHASING THAT MAY IMPACT THE RAILROAD OPERATIONS SHALL BE DESIGNED TO CAUSE NO INTERRUPTION TO THE RAILROAD'S OPERATION, ENABLING THE TRACK(S) TO REMAIN OPEN TO TRAFFIC PER THE RAILROAD'S REQUIREMENTS.
9. FALSE-WORK CLEARANCES SHALL COMPLY WITH MINIMUM CONSTRUCTION CLEARANCES.
10. ALL PERMANENT CLEARANCES SHALL BE VERIFIED BEFORE PROJECT CLOSING.
11. FOR RAILROAD COORDINATION PLEASE REFER TO THE RAILROAD COORDINATION REQUIREMENTS AS PART OF SPECIAL PROVISIONS.

GENERAL SHORING NOTES:

1. ALL DIMENSIONS ARE MEASURED PERPENDICULAR TO TRACK.
2. PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE RAILROAD DETAILED PLANS INDICATING THE NATURE AND EXTENT OF THE TRACK PROTECTION SHORING PROPOSED. THE CONTRACTOR SHALL INSTALL THE TEMPORARY SHORING SYSTEM PER THE APPROVED PLANS. DESIGN OF THE TEMPORARY SHORING SYSTEM TO COMPLY WITH GUIDELINES FOR TEMPORARY SHORING.
3. FOR EXCAVATIONS WHICH ENCROACH INTO ZONE A OR B, SHORING PLANS SHALL BE ACCOMPANIED BY DESIGN CALCULATIONS. PLANS AND CALCULATIONS MUST BE SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF IOWA.

NOTE:
BNSF = BURLINGTON NORTHERN SANTA FE RAILROAD
UPRR = UNION PACIFIC RAILROAD

TOP OF RAIL ELEVATIONS

(STATIONS INCREASE FROM WEST TO EAST)

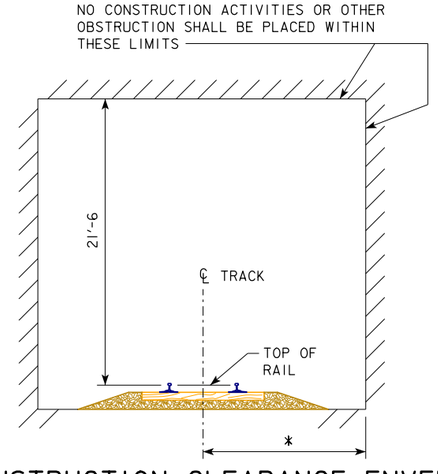
NORTH TRACK			
ALIGNMENT: NORTH RAIL		ALIGNMENT: SOUTH RAIL	
STATION	ELEVATION	STATION	ELEVATION
(2) 7847+00	764.16	(2) 7847+00	764.15
7848+00	764.29	7848+00	764.28
7849+00	764.49	7849+00	764.46
7850+00	764.71	7850+00	764.67
7851+00	764.92	7851+00	764.88
7852+00	765.08	7852+00	765.03
7853+00	765.16	7853+00	765.14
7854+00	765.33	7854+00	765.33
7855+00	765.64	7855+00	765.62
7856+00	766.00	7856+00	765.97
(1) 7857+22.42	766.40	(1) 7857+22.42	766.36
7858+00	766.68	7858+00	766.65
7859+00	767.00	7859+00	767.00
7860+00	767.45	7860+00	767.43
7861+00	767.84	7861+00	767.80
7862+00	768.17	7862+00	768.06
7863+00	768.42	7863+00	768.21
7864+00	768.59	7864+00	768.32
7865+00	768.63	7865+00	768.37
7866+00	768.54	7866+00	768.29
(3) 7867+00	768.28	7867+00	768.05

SOUTH TRACK			
ALIGNMENT: NORTH RAIL		ALIGNMENT: SOUTH RAIL	
STATION	ELEVATION	STATION	ELEVATION
(2) 7847+00	764.48	(2) 7847+00	764.49
7848+00	764.62	7848+00	764.65
7849+00	764.77	7849+00	764.77
7850+00	764.93	7850+00	764.95
7851+00	765.10	7851+00	765.11
7852+00	765.33	7852+00	765.34
7853+00	765.56	7853+00	765.57
7854+00	765.70	7854+00	765.72
7855+00	765.88	7855+00	765.91
7856+00	766.19	7856+00	766.23
(1) 7857+22.42	766.59	(1) 7857+22.42	766.59
7858+00	766.87	7858+00	766.88
7859+00	767.10	7859+00	767.11
7860+00	767.39	7860+00	767.41
7861+00	767.72	7861+00	767.72
7862+00	768.05	7862+00	767.96
7863+00	768.30	7863+00	768.13
7864+00	768.38	7864+00	768.21
7865+00	768.34	7865+00	768.18
7866+00	768.04	7866+00	767.89
(3) 7867+00	767.75	(3) 7867+00	767.58

(1) ℄ OF ROADWAY ALONG TRACK STATIONING IS 857+22.42
℄ OF TRACKS ALONG ROADWAY STATIONING IS 7857+22.42

(2) 1,022.42 FEET WEST OF ROADWAY ℄ ALONG TRACKS

(3) 977.58 FEET EAST OF ROADWAY ℄ ALONG TRACKS



MINIMUM CONSTRUCTION CLEARANCE ENVELOPE

(NORMAL TO RAILROAD)
* 15'-0" FOR BNSF AND 12'-0" FOR UPRR

PRELIMINARY

DESIGN FOR 4° SKEW (R.A.)

204'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE WITH 14'-0 TRAIL (BTB BEAMS)

SPANS (56'-0, 92'-0, 56'-0)

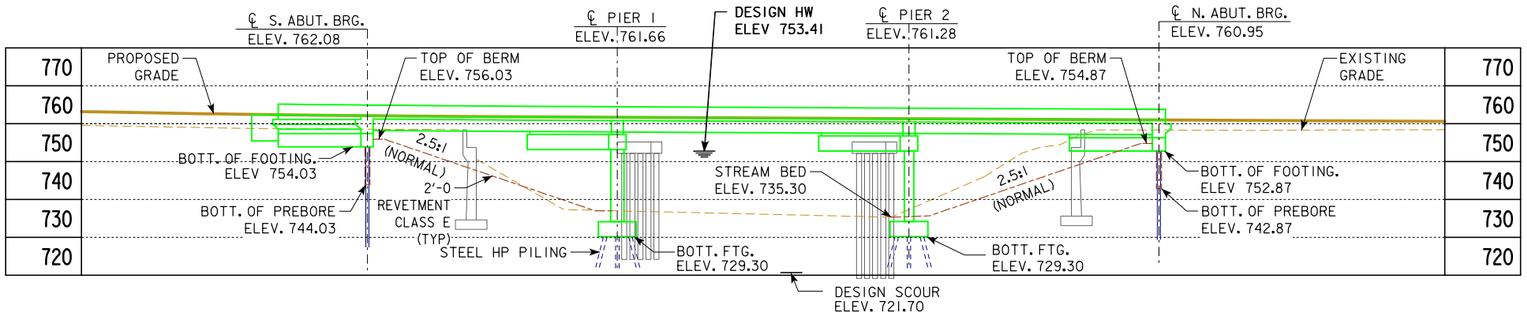
STANDARD RAILROAD INFORMATION

STATION 857+32.60 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

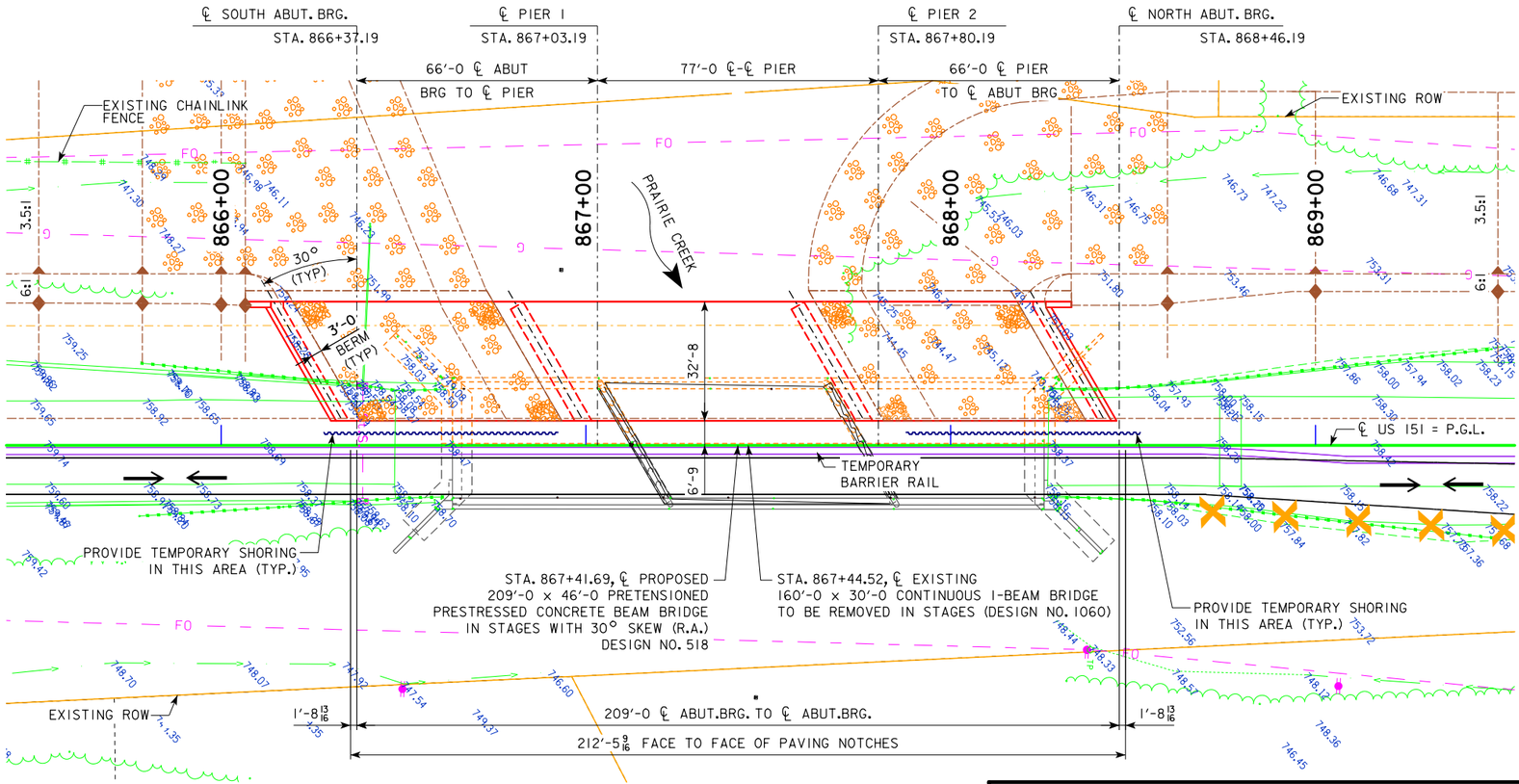
DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 418

BENCH MARK NO. BM2 STA. 871+35.96, 70.098 RT, RR SPIKE IN POWER POLE, EAST SIDE HWY 151, 200' ± NORTH OF NORTH END OF RIVER BRIDGE AT BEGGINNING OF CLEARING. ELEV. 750.420, N = 705704.166 E = 2107504.303

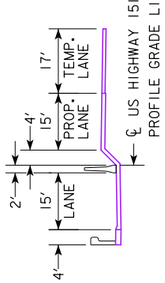


LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY

TOP OF BRIDGE DECK CROWN 0.03' BELOW PROFILE GRADE



TYPICAL APPROACH SECTION



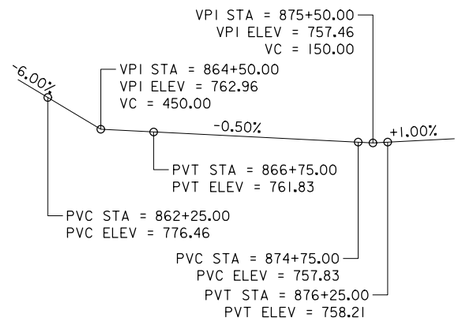
NOTE:
PIERS ARE WALL PIERS (SOLID STEM) ON PILE CAP FOOTINGS.
BEAM TYPE BTB, DEPTH = 3'-0.
TL-4 SEPARATION RAILING AND BARRIER RAIL IS PROPOSED.
BRIDGE AESTHETICS TO BE INCORPORATED DURING FINAL DESIGN.

SITUATION PLAN STAGE I

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

N

0 ENGLISH 40
SCALE IN FEET



PROPOSED PROFILE GRADE

HYDRAULIC DATA

DRAINAGE AREA = 178.0 SQ. MI.
STREAM SLOPE = 6.11 FT./MI.
AVG. LOW WATER STAGE = 736.6

Q_{50} = 13,480 CFS
STAGE = 752.66
BACKWATER = 0.41 FT.

Q_{100} = 16,060 CFS
STAGE = 753.41
BACKWATER = 0.48 FT.
AVG. BRIDGE VELOCITY = 6.19 FPS

Q_{200} = 18,991 CFS
STAGE = 753.99
CALCULATED DESIGN SCOUR = 721.7

Q_{500} = 22,750 CFS
STAGE = 754.91
CALCULATED CHECK SCOUR = 717.56

ALL ELEVATIONS NAVD88
50, 100 & 500 YR. STAGES AND DISCHARGES FROM LINN COUNTY F.I.S., APRIL 5, 2010

UTILITIES LEGEND:

FO - FIBER OPTIC - SOUTH SLOPE
G - GAS - MIDAMERICAN ENERGY

LOCATION

US HIGHWAY 151
OVER PRAIRIE CREEK
T-82N R-8W
SECTION 9
FAIRFAX TOWNSHIP
LINN COUNTY
FHWA NO. 33781
BRIDGE MAINT. NO. 5722.0S151
LATITUDE 41.923186°
LONGITUDE -91.783847°

TRAFFIC ESTIMATE

2013 AADT	8100	V.P.D.
2040 AADT	12,010	V.P.D.
2040 DHV	-	V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALs	-	

PRELIMINARY

HYDRAULIC DESIGN

LICENSED PROFESSIONAL ENGINEER
Adam R. Bullerman
17362
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

__-___-2016
Signature Date
Adam R. Bullerman
Printed or Typed Name

My license renewal date is December 31, 2016

Pages or sheets covered by this seal: SHEETS V.4,V.6&V.8 - HYDRAULIC DATA

DESIGN FOR 30° SKEW (R.A.)

209'-0 x 32'-8 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE (BTB BEAMS)

SPANS (66'-0, 77'-0, 66'-0)

SITUATION PLAN - STAGE I

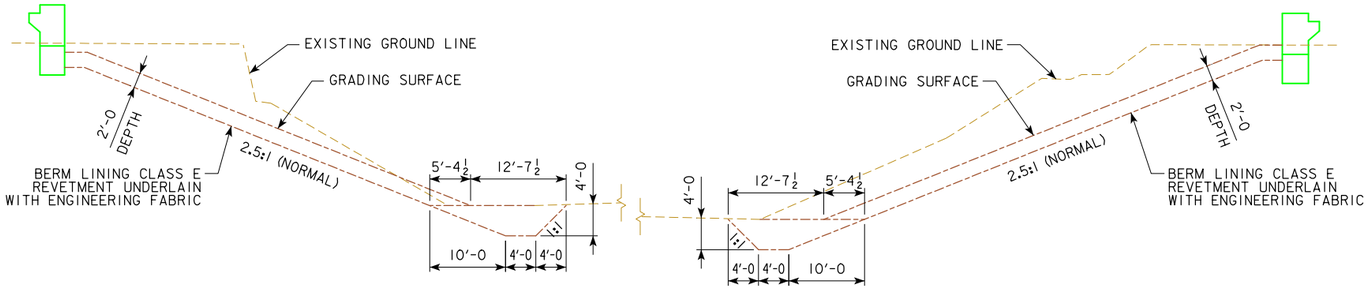
STATION 867+41.69 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

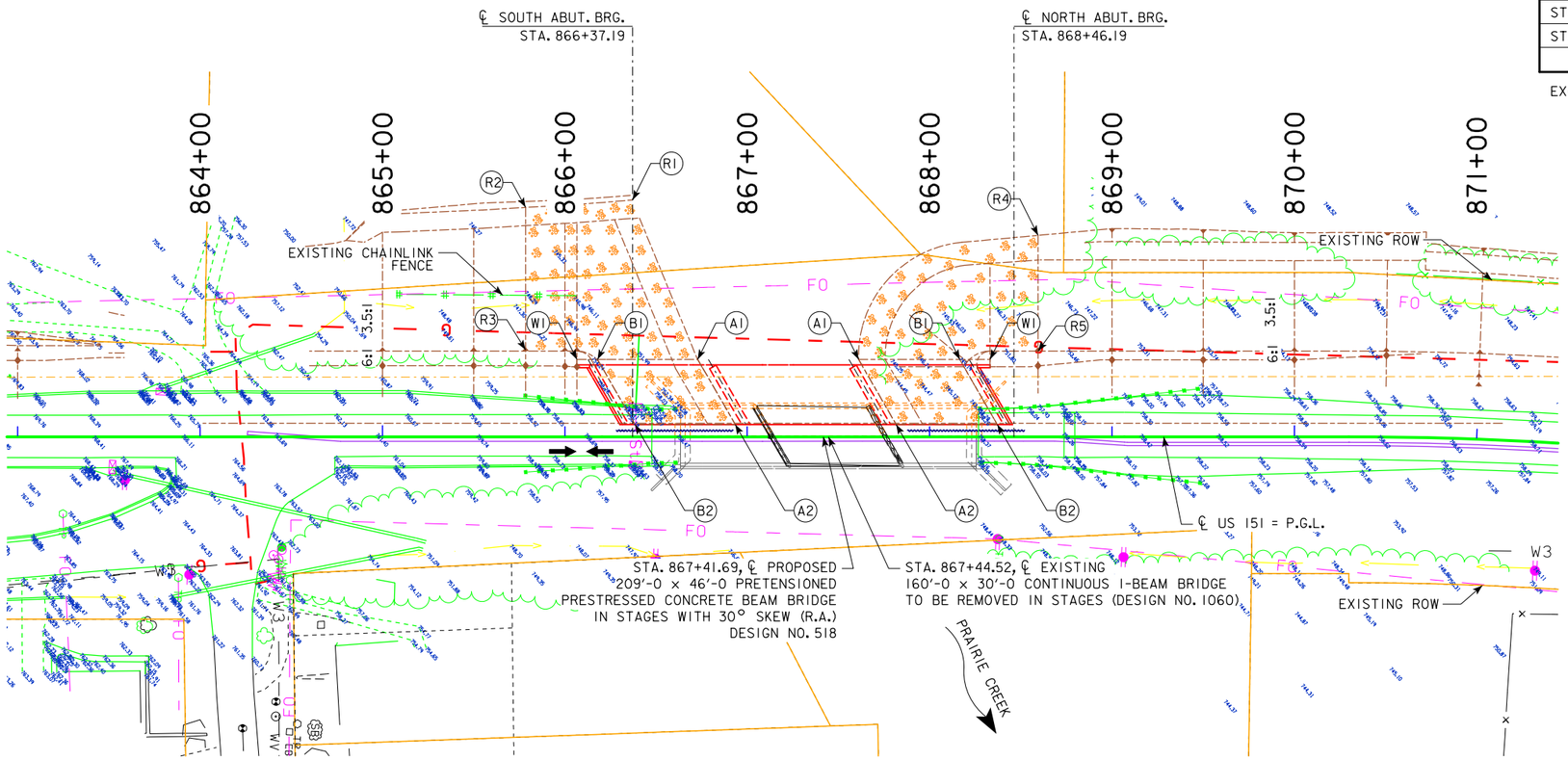
DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 518

DESIGN TEAM SHUCK-BRITSON 400 EAST COURT AVE. SUITE 140 DES MOINES, IOWA 50309 515-243-4477 S.B.I. NO. 112.0807.01 | LINN COUNTY | PROJECT NUMBER BRF-151-3(142)--38-57 | SHEET NUMBER V.4

8/5/2016 3:40:11 PM DCH pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\BRPrelim\CADD\US151 @ Prairie Creek\57151142_Shuck-Britson.str TSL_57_0518_S04 11x17_pdf.pltcfg



SECTION THRU EMBEDDED REVETMENT BERM



SITE PLAN
STAGE I

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

N

0 ENGLISH 80
SCALE IN FEET

BENCH MARK NO. BM2 STA. 871+35.96, 70.098 RT, RR SPIKE IN POWER POLE, EAST SIDE HWY 151, 200' ± NORTH OF NORTH END OF RIVER BRIDGE AT BEGGINNING OF CLEARING.
ELEV. 750.420, N = 705704.166 E = 2107504.303

BERM SLOPE LOCATION TABLE

	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
A1	866+72.83	42.42 LT	737.00	867+61.05	42.42 LT	735.66
A2	866+93.42	6.75 LT	737.00	867+81.64	6.75 LT	735.66
B1	866+17.90	42.42 LT	756.03	868+16.50	42.42 LT	754.87
B2	866+38.49	6.75 LT	756.03	868+37.10	6.75 LT	754.87
W1	866+06.61	42.42 LT	761.64	868+33.08	42.42 LT	760.23

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

ESTIMATED BERM ARMORING QUANTITIES

LOCATION	REVETMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	CLASS 10 CHANNEL EXCAVATION (CY)
BERM LINING - SOUTH ABUTMENT	1120	-	1050	700
BERM LINING - NORTH ABUTMENT	930	-	880	580
STONE TOE - SOUTH ABUTMENT	360	-	350	220
STONE TOE - NORTH ABUTMENT	460	-	450	280
TOTALS	2870	-	2730	1780

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.

REVETMENT LAYOUT:
- (R1) 866+36.85, 129.82 LT, END STONE TOE
- (R2) 865+78.43, 125.73 LT, END BERM LINING
- (R3) 865+78.43, 47.00 LT, END BERM LINING
- (R4) 868+59.43, 110.43 LT, END STONE TOE
- (R5) 868+59.43, 47.00 LT, END BERM LINING

UTILITIES LEGEND:

FO - FIBER OPTIC - SOUTH SLOPE
G - GAS - MIDAMERICAN ENERGY

PRELIMINARY

DESIGN FOR 30° SKEW (R.A.)

209'-0 x 32'-8 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE (BTB BEAMS)

SPANS (66'-0, 77'-0, 66'-0)

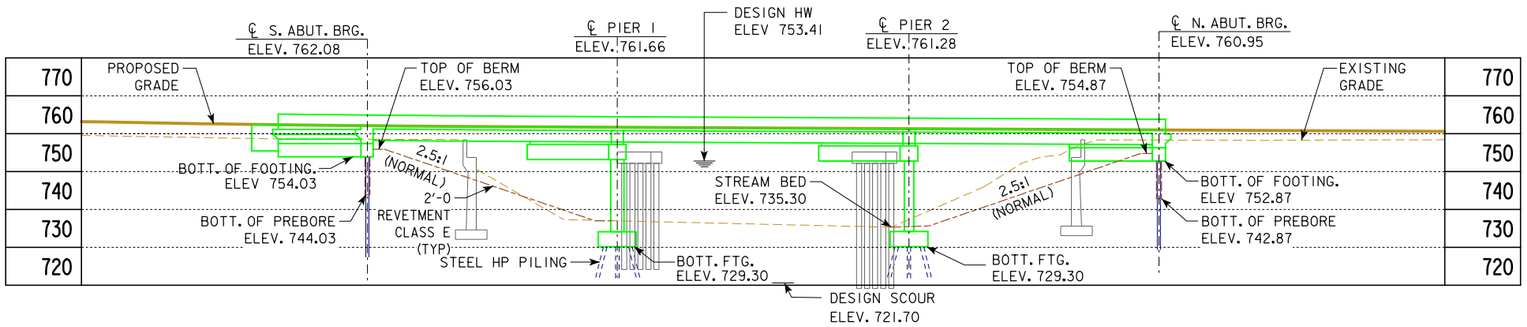
SITE PLAN - STAGE I

STATION 867+41.69 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

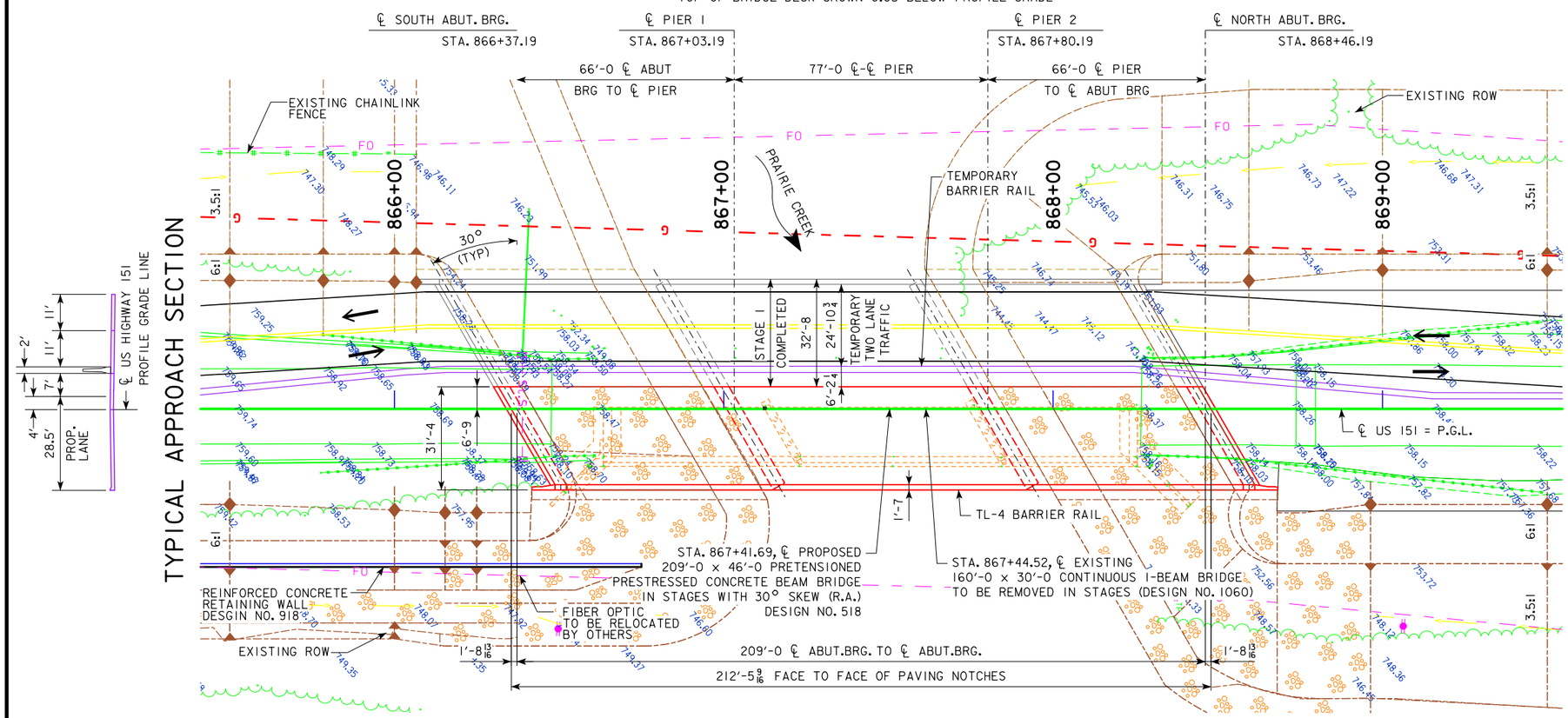
DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 518

BENCH MARK NO. BM2 STA. 871+35.96, 70.098 RT, RR SPIKE IN POWER POLE, EAST SIDE HWY 151, 200' ± NORTH OF NORTH END OF RIVER BRIDGE AT BEGGINNING OF CLEARING. ELEV. 750.420, N = 705704.166 E = 2107504.303



LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY

TOP OF BRIDGE DECK CROWN 0.03' BELOW PROFILE GRADE



TYPICAL APPROACH SECTION

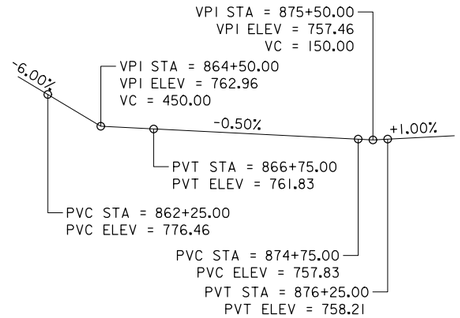
NOTE:
PIERS ARE WALL PIERS (SOLID STEM) ON PILE CAP FOOTINGS.
BEAM TYPE BTB, DEPTH = 3'-0.
TL-4 SEPARATION RAILING AND BARRIER RAIL IS PROPOSED.
BRIDGE AESTHETICS TO BE INCORPORATED DURING FINAL DESIGN.

SITUATION PLAN
STAGE 2

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

N

0 ENGLISH 40
SCALE IN FEET



PROPOSED PROFILE GRADE

HYDRAULIC DATA

DRAINAGE AREA = 178.0 SQ. MI.
STREAM SLOPE = 6.11 FT./MI.
AVG. LOW WATER STAGE = 736.6

Q_{50} = 13,480 CFS
STAGE = 752.66
BACKWATER = 0.41 FT.

Q_{100} = 16,060 CFS
STAGE = 753.41
BACKWATER = 0.48 FT.
AVG. BRIDGE VELOCITY = 6.19 FPS

Q_{200} = 18,991 CFS
STAGE = 753.99
CALCULATED DESIGN SCOUR = 721.7

Q_{500} = 22,750 CFS
STAGE = 754.91
CALCULATED CHECK SCOUR = 717.56

ALL ELEVATIONS NAVD88
50, 100 & 500 YR. STAGES AND DISCHARGES FROM LINN COUNTY F.I.S., APRIL 5, 2010

UTILITIES LEGEND:

FO - FIBER OPTIC - SOUTH SLOPE
G - GAS - MIDAMERICAN ENERGY

LOCATION

US HIGHWAY 151
OVER PRAIRIE CREEK
T-82N R-8W
SECTION 9
FAIRFAX TOWNSHIP
LINN COUNTY
FHWA NO. 33781
BRIDGE MAINT. NO. 5722.0S151
LATITUDE 41.923186°
LONGITUDE -91.783847°

TRAFFIC ESTIMATE

2013 AADT	8100	V.P.D.
2040 AADT	12,010	V.P.D.
2040 DHV	-	V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALs	-	

PRELIMINARY

DESIGN FOR 30° SKEW (R.A.)

209'-0 x 32'-8 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE WIDEN TO 64'-0 (BTB BEAMS)

SPANS (66'-0, 77'-0, 66'-0)

SITUATION PLAN - STAGE 2

STATION 867+41.69 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 518

DESIGN TEAM SHUCK-BRITSON 400 EAST COURT AVE. SUITE 140 DES MOINES, IOWA 50309 515-243-4477 S.B.I. NO. 112.0807.01 | LINN COUNTY | PROJECT NUMBER BRF-151-3(142)--38-57 | SHEET NUMBER V.6

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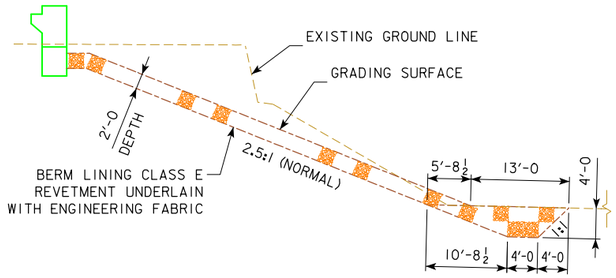
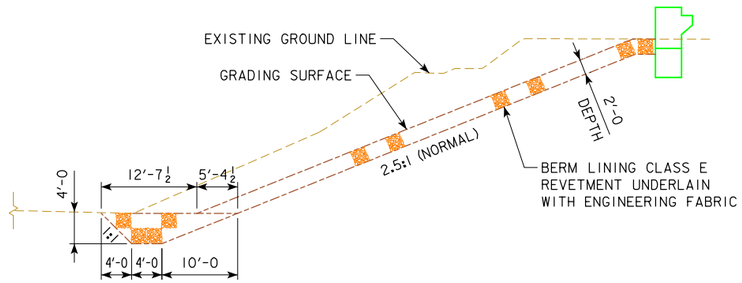




SECTION THRU EMBEDDED REVETMENT BERM

BENCH MARK NO. BM2 STA. 871+35.96, 70.098 RT, RR SPIKE IN POWER POLE, EAST SIDE HWY 151, 200' ± NORTH OF NORTH END OF RIVER BRIDGE AT BEGGINNING OF CLEARING. ELEV. 750.420, N = 705704.166 E = 2107504.303

BERM SLOPE LOCATION TABLE

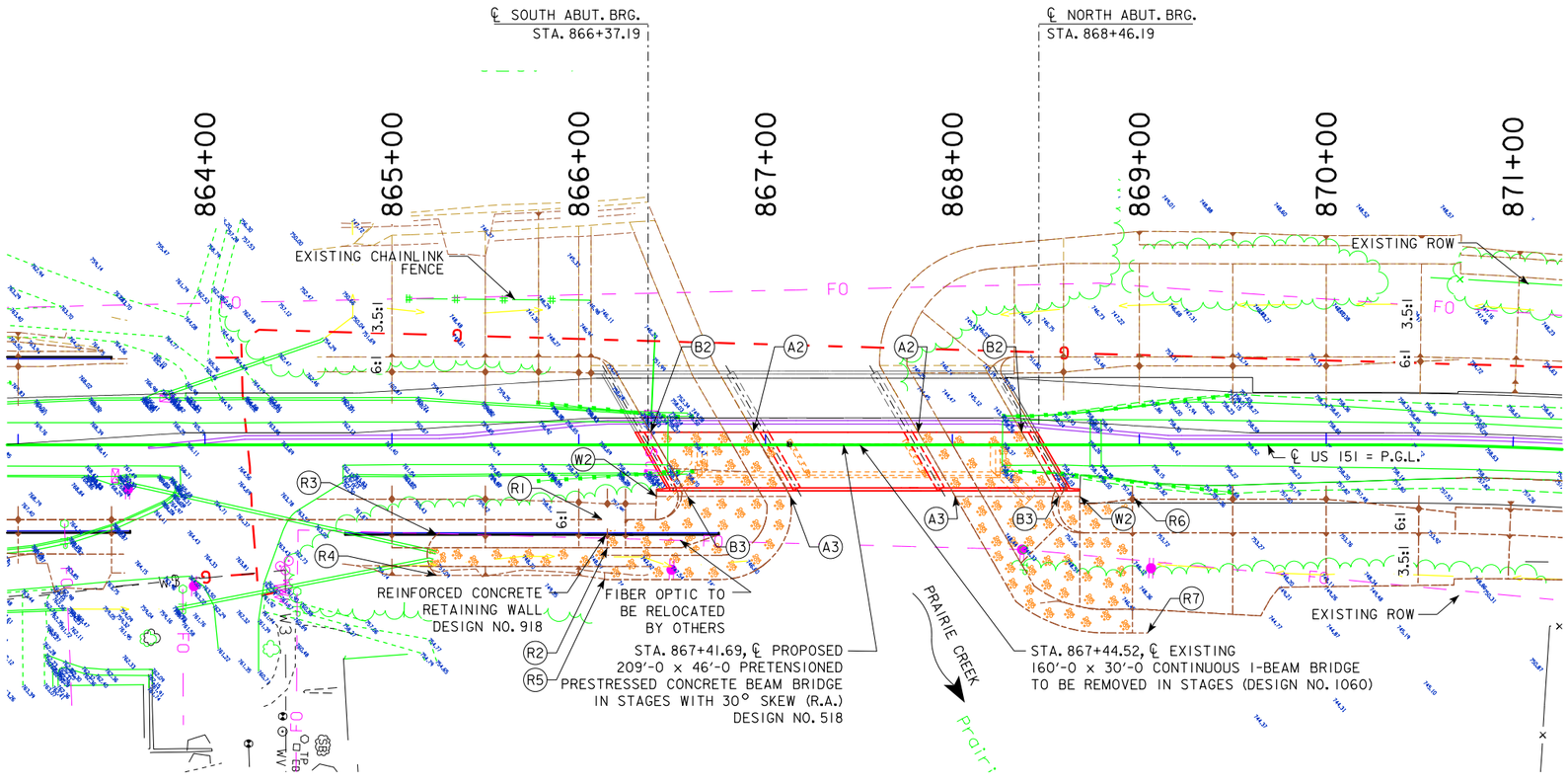
	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
A2	866+93.42	6.75 LT	737.00	867+81.64	6.75 LT	735.66
A3	867+13.25	27.58 RT	737.00	868+01.46	27.58 RT	735.66
B2	866+38.49	6.75 LT	756.03	868+37.10	6.75 LT	754.87
B3	866+58.31	27.58 RT	756.03	868+56.92	27.58 RT	754.87
W2	866+41.74	27.58 RT	761.49	868+68.20	27.58 RT	760.29

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

ESTIMATED BERM ARMORING QUANTITIES

LOCATION	REVETMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	CLASS 10 CHANNEL EXCAVATION (CY)
BERM LINING - SOUTH ABUTMENT	1100	-	1030	690
BERM LINING - NORTH ABUTMENT	940	-	880	590
STONE TOE - SOUTH ABUTMENT	330	-	320	200
STONE TOE - NORTH ABUTMENT	460	-	450	290
TOTALS	2820	-	2680	1770

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.



SITE PLAN
STAGE 2

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

REVETMENT LAYOUT:

- (R1) 866+15.38, 40.00 RT, END BERM LINING
- (R2) 866+15.38, 55.00 RT, END BERM LINING
- (R3) 865+19.46, 55.00 RT, END BERM LINING
- (R4) 865+20.22, 65.00 RT, END BERM LINING
- (R5) 866+15.38, 72.01 RT, END STONE TOE
- (R6) 868+96.20, 29.00 RT, END BERM LINING
- (R7) 868+96.38, 100.57 RT, END STONE TOE

UTILITIES LEGEND:

FO - FIBER OPTIC - SOUTH SLOPE
G - GAS - MIDAMERICAN ENERGY

PRELIMINARY

DESIGN FOR 30° SKEW (R.A.)

209'-0 x 32'-8 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
WIDEN TO 64'-0 (BTB BEAMS)

SPANS (66'-0, 77'-0, 66'-0)

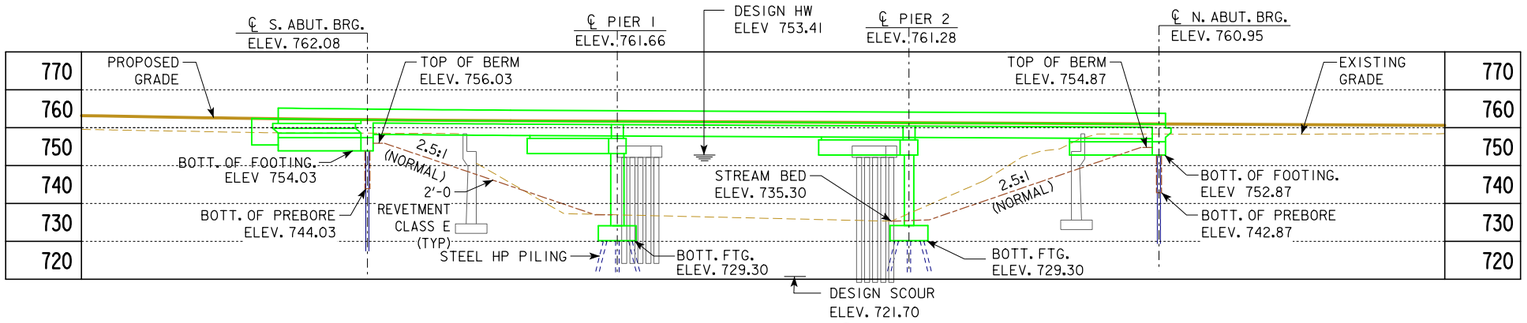
SITE PLAN - STAGE 2

STATION 867+41.69 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

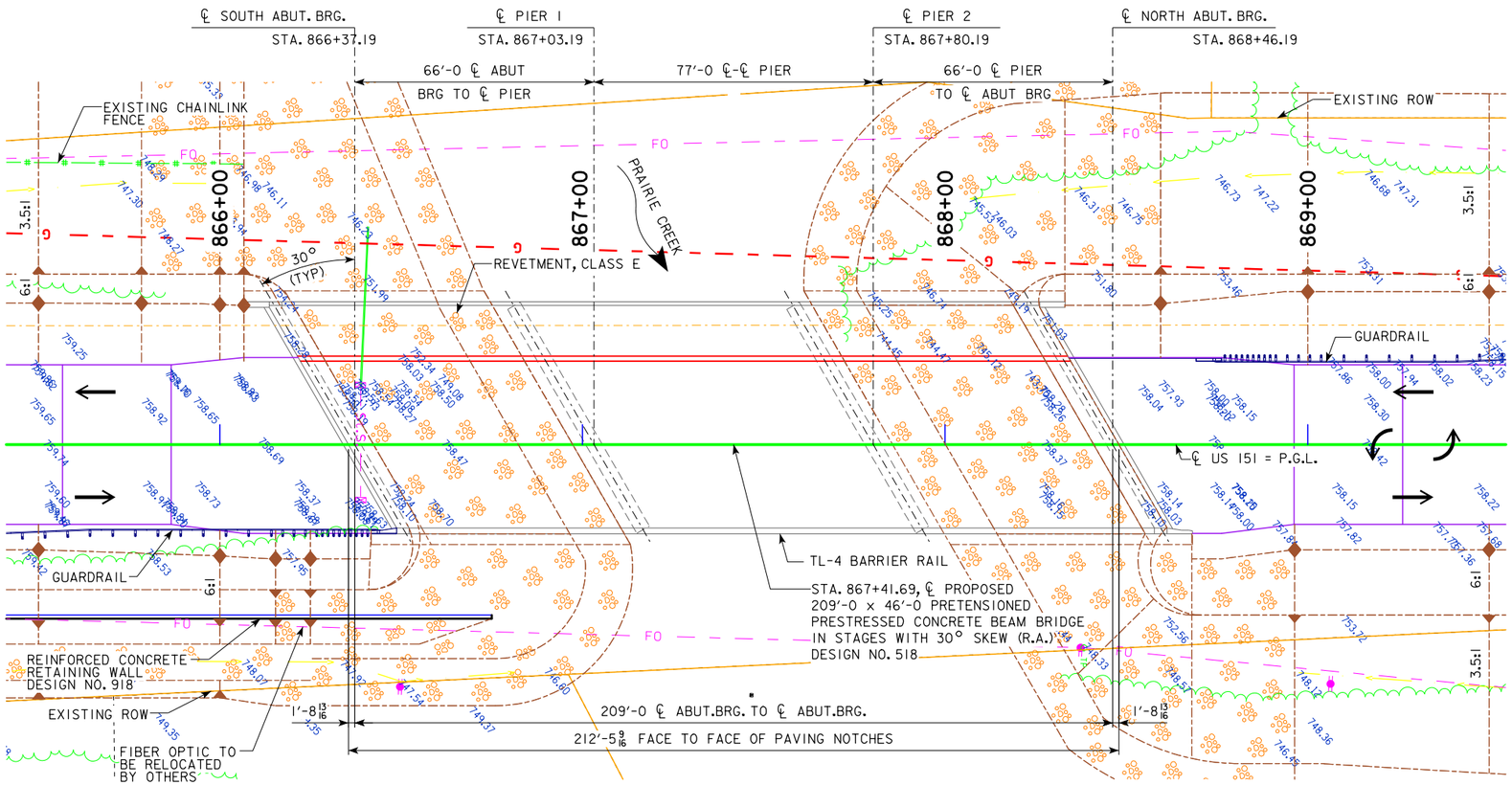
DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 518

BENCH MARK NO. BM2 STA. 871+35.96, 70.098 RT, RR SPIKE IN POWER POLE, EAST SIDE HWY 151, 200' ± NORTH OF NORTH END OF RIVER BRIDGE AT BEGGINNING OF CLEARING. ELEV. 750.420, N = 705704.166 E = 2107504.303

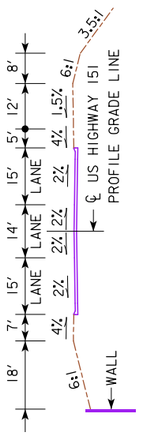


LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY

TOP OF BRIDGE DECK CROWN 0.03' BELOW PROFILE GRADE



TYPICAL APPROACH SECTION



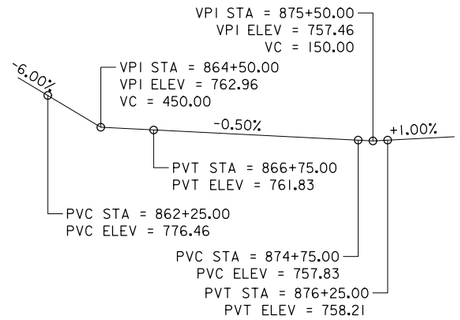
NOTE:
PIERS ARE WALL PIERS (SOLID STEM) ON PILE CAP FOOTINGS.
BEAM TYPE BTB, DEPTH = 3'-0.
TL-4 SEPARATION RAILING AND BARRIER RAIL IS PROPOSED.
BRIDGE AESTHETICS TO BE INCORPORATED DURING FINAL DESIGN.

SITUATION PLAN FINAL

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

N

0 ENGLISH 40
SCALE IN FEET



PROPOSED PROFILE GRADE

HYDRAULIC DATA

DRAINAGE AREA = 178.0 SQ. MI.
STREAM SLOPE = 6.11 FT./MI.
AVG. LOW WATER STAGE = 736.6

Q_{50} = 13,480 CFS
STAGE = 752.66
BACKWATER = 0.41 FT.

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ALL ELEVATIONS NAVD88
50, 100 & 500 YR. STAGES AND DISCHARGES FROM LINN COUNTY F.I.S., APRIL 5, 2010

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LOCATION

US HIGHWAY 151
OVER PRAIRIE CREEK
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SECTION 9
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2040 AADT	12,010	V.P.D.
2040 DHV	-	V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALs	-	

PRELIMINARY

DESIGN FOR 30° SKEW (R.A.)

209'-0 x 46'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE WITH 14'-0 TRAIL (BTB BEAMS)

SPANS (66'-0, 77'-0, 66'-0)

SITUATION PLAN - FINAL

STATION 867+41.69 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 518

DESIGN TEAM SHUCK-BRITSON 400 EAST COURT AVE. SUITE 140 DES MOINES, IOWA 50309 515-243-4477 | S.B.I. NO. 112.0807.01 | LINN COUNTY | PROJECT NUMBER BRF-151-3(142)--38-57 | SHEET NUMBER V.8

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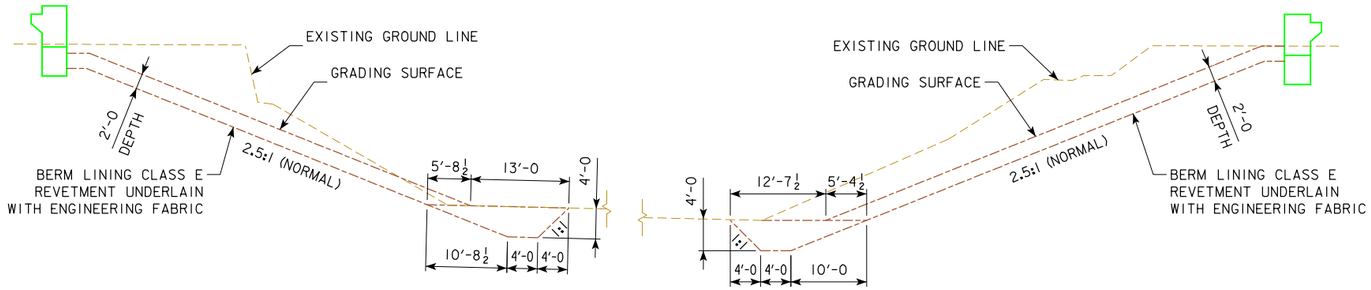

SECTION THRU EMBEDDED REVETMENT BERM

BENCH MARK NO. BM2 STA. 871+35.96, 70.098 RT, RR SPIKE IN POWER POLE, EAST SIDE HWY 151, 200' ± NORTH OF NORTH END OF RIVER BRIDGE AT BEGGINNING OF CLEARING.
ELEV. 750.420, N = 705704.166 E = 2107504.303

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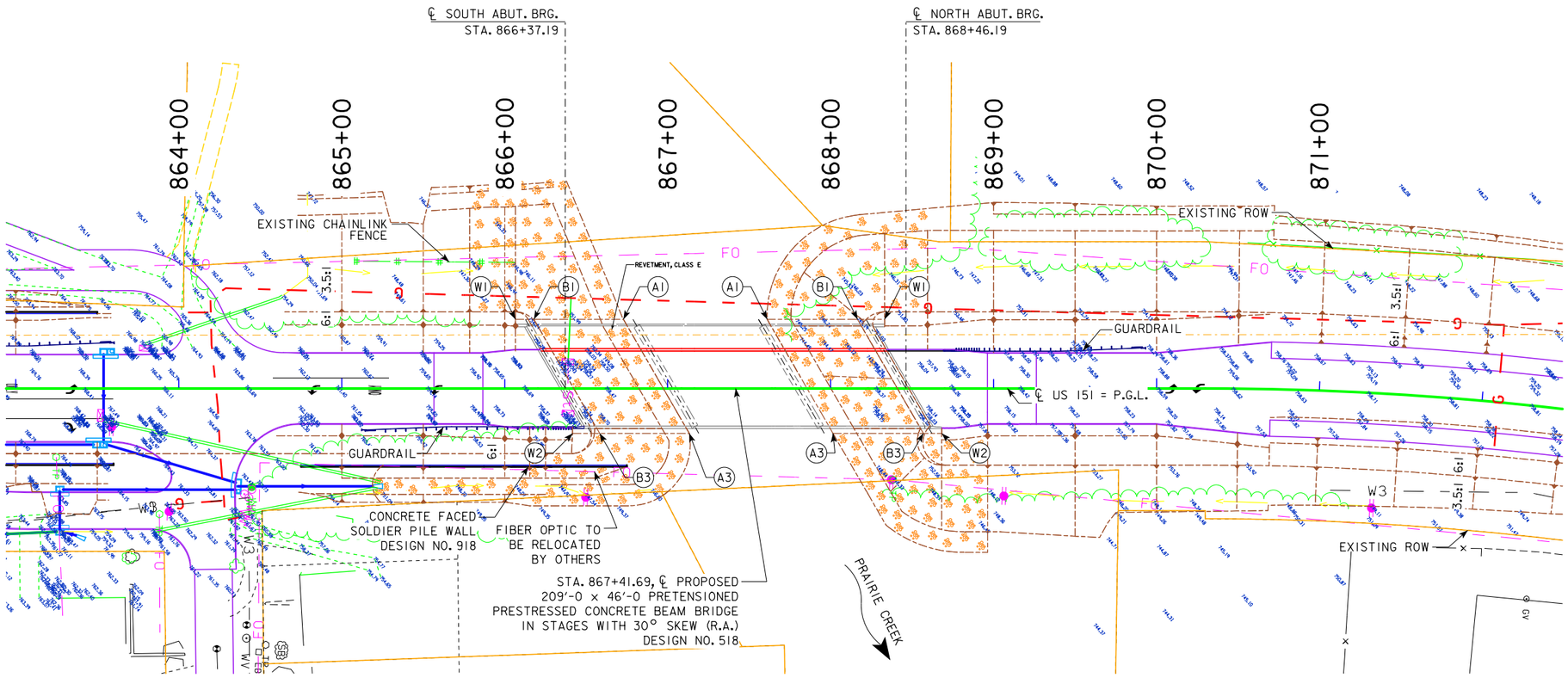
B3	866+58.31	27.58 RT	756.03	868+56.92	27.58 RT	754.87
W1	866+06.61	42.42 LT	761.64	868+33.08	42.42 LT	760.23
W2	866+41.74	27.58 RT	761.49	868+68.20	27.58 RT	760.29

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

NOTE:
SEE SHEETS V.5 AND V.7 FOR BERM ARMORING QUNATITIES.



SITE PLAN
FINAL

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

N

0 ENGLISH 80
SCALE IN FEET

UTILITIES LEGEND:

FO - FIBER OPTIC - SOUTH SLOPE
G - GAS - MIDAMERICAN ENERGY

PRELIMINARY

DESIGN FOR 30° SKEW (R.A.)

209'-0 x 46'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE WITH 14'-0 TRAIL (BTB BEAMS)

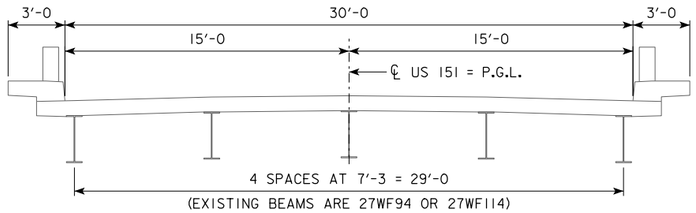
SPANS (66'-0, 77'-0, 66'-0)

SITE PLAN - FINAL

STATION 867+41.69 LINN COUNTY AUGUST 2016

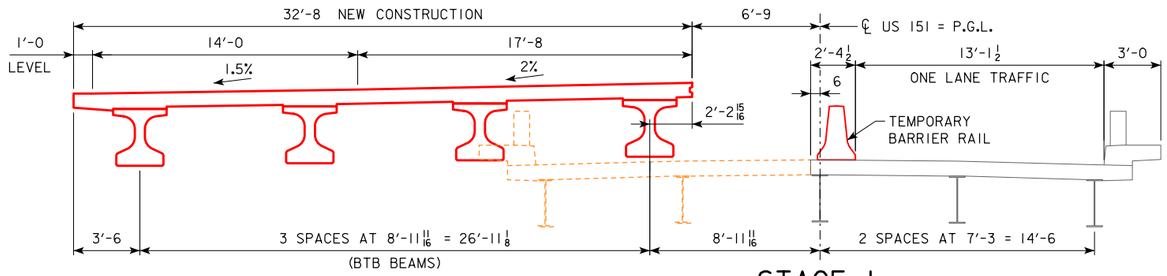
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 518



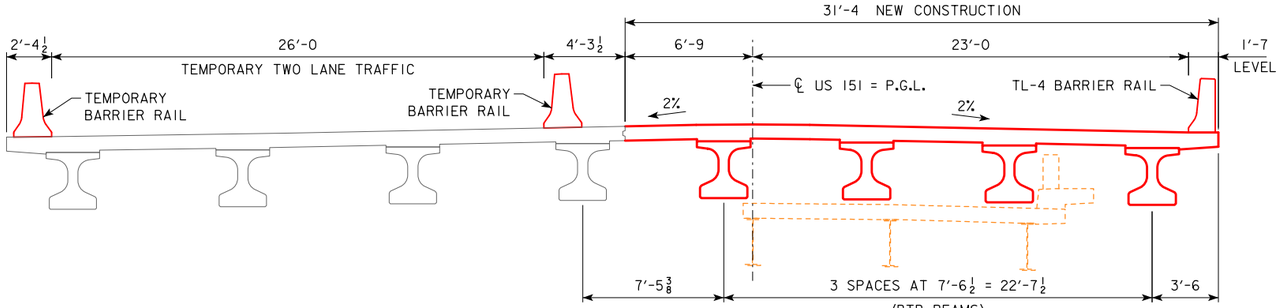
EXISTING

(LOOKING UP STATION - NORTH)



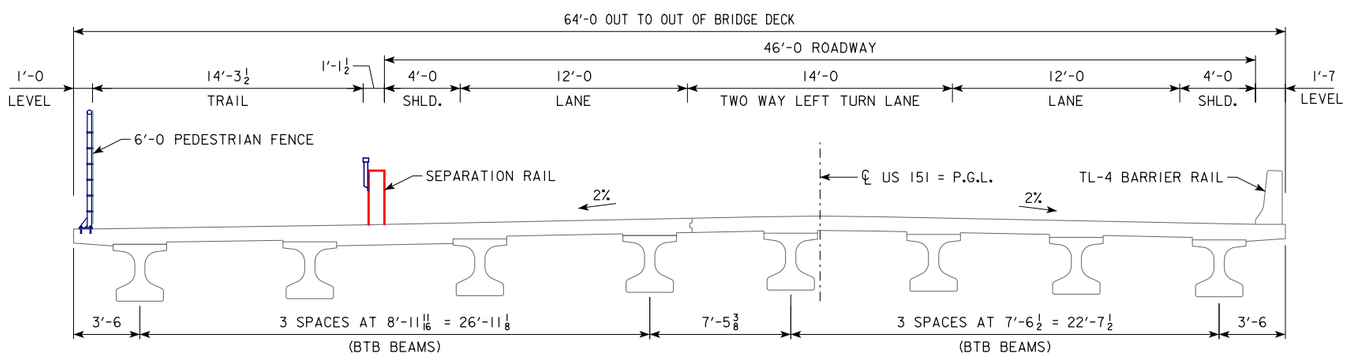
STAGE 1

STAGE 1
SHIFT TRAFFIC TO ONE LANE TRAFFIC ON THE EAST SIDE OF EXISTING BRIDGE.
REMOVE WEST HALF OF EXISTING BRIDGE AND CONSTRUCT WEST PORTION OF BRIDGE.



STAGE 2

STAGE 2
SHIFT TRAFFIC TO TWO LANE TRAFFIC ON THE NEWLY CONSTRUCTED WEST PORTION OF BRIDGE.
REMOVE REMAINING HALF OF EXISTING BRIDGE AND CONSTRUCT EAST PORTION OF BRIDGE.



FINAL

FINAL STAGE
SHIFT TRAFFIC TO EAST PORTION OF BRIDGE.
PLACE PERMANENT BARRIER RAIL AND PEDESTRIAN FENCE.
REMOVE TEMPORARY BARRIER RAIL.

NOTE:
CLOSURE POUR NOT REQUIRED PER BDM 5.2.4.1.2.

PRELIMINARY

DESIGN FOR 30° SKEW (R.A.)

209'-0 x 46'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE WITH 14'-0 TRAIL (BTB BEAMS)

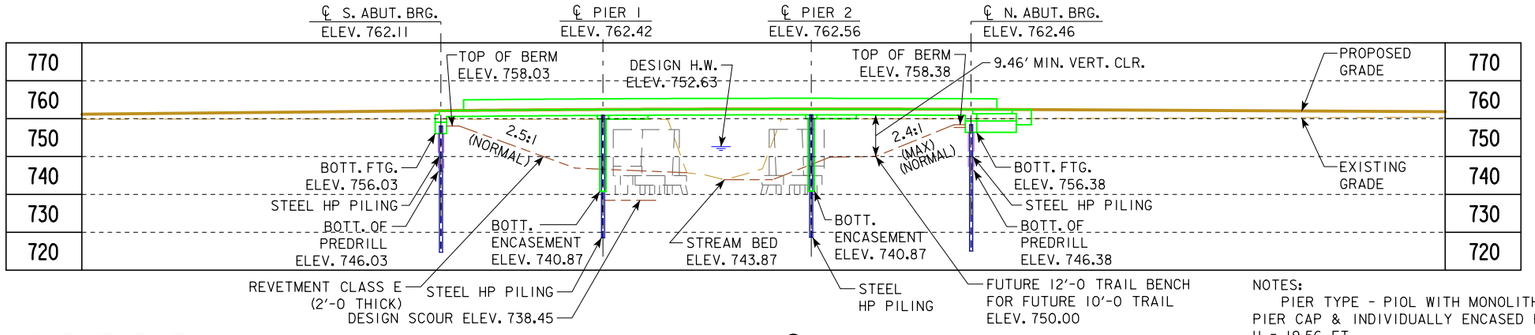
SPANS (66'-0, 77'-0, 66'-0)

STAGING

STATION 867+41.69 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

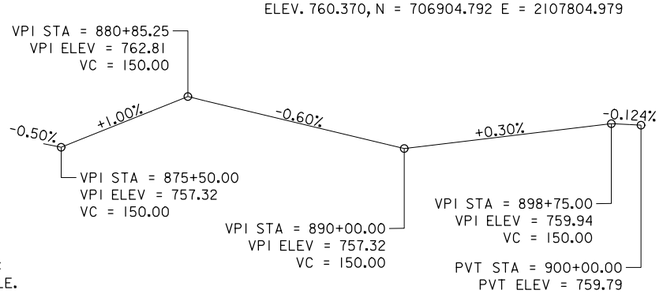
DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 518



LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY

NOTE: BERM IS NOT LEVEL IT SLOPES WITH THE ROADWAY SUPERELEVATION.

BENCH MARK NO. BM3 STA. 883+94.08, 58.416 LT, RR SPIKE IN POWER POLE, NW QUADRANT OF CEMETARY ROAD AND HWY 151
ELEV. 760.370, N = 706904.792 E = 2107804.979



PROPOSED PROFILE GRADE

CURVE DATA

PI STA. 881+74.79
Δ = 61°52'59.64" (RT)
T = 1,144.91'
L = 2,062.78'
E = 316.88'
R = 1,909.86'
PC STA. 870+29.88
PT STA. 890+92.65

NOTES:
PIER TYPE - PIOL WITH MONOLITHIC PIER CAP & INDIVIDUALLY ENCASED PILE.
H = 19.56 FT.
TL-4 BARRIER RAILING PROPOSED.
BRIDGE AESTHETICS TO BE INCORPORATED DURING FINAL DESIGN.

MINIMUM VERTICAL CLEARANCE

OVERHEAD STATION = 881+24.90, OFFSET 30.58'
OVERHEAD ELEVATION = 761.33
DEPTH OF SUPERSTRUCTURE = 1.875'
UNDERPASS STATION = N/A, OFFSET N/A
UNDERPASS ELEVATION = 750.00
MINIMUM VERTICAL CLEARANCE = 9.46'

HYDRAULIC DATA

DRAINAGE AREA = 3.0 SQ. MI.
STREAM SLOPE = 32.65 FT./MI.
AVG. LOW WATER STAGE = 752.63

Q_{50} = 2120 CFS
STAGE = 752.63
BACKWATER = 0.19 FT.
AVE. BRIDGE VELOCITY = 4.5 FPS

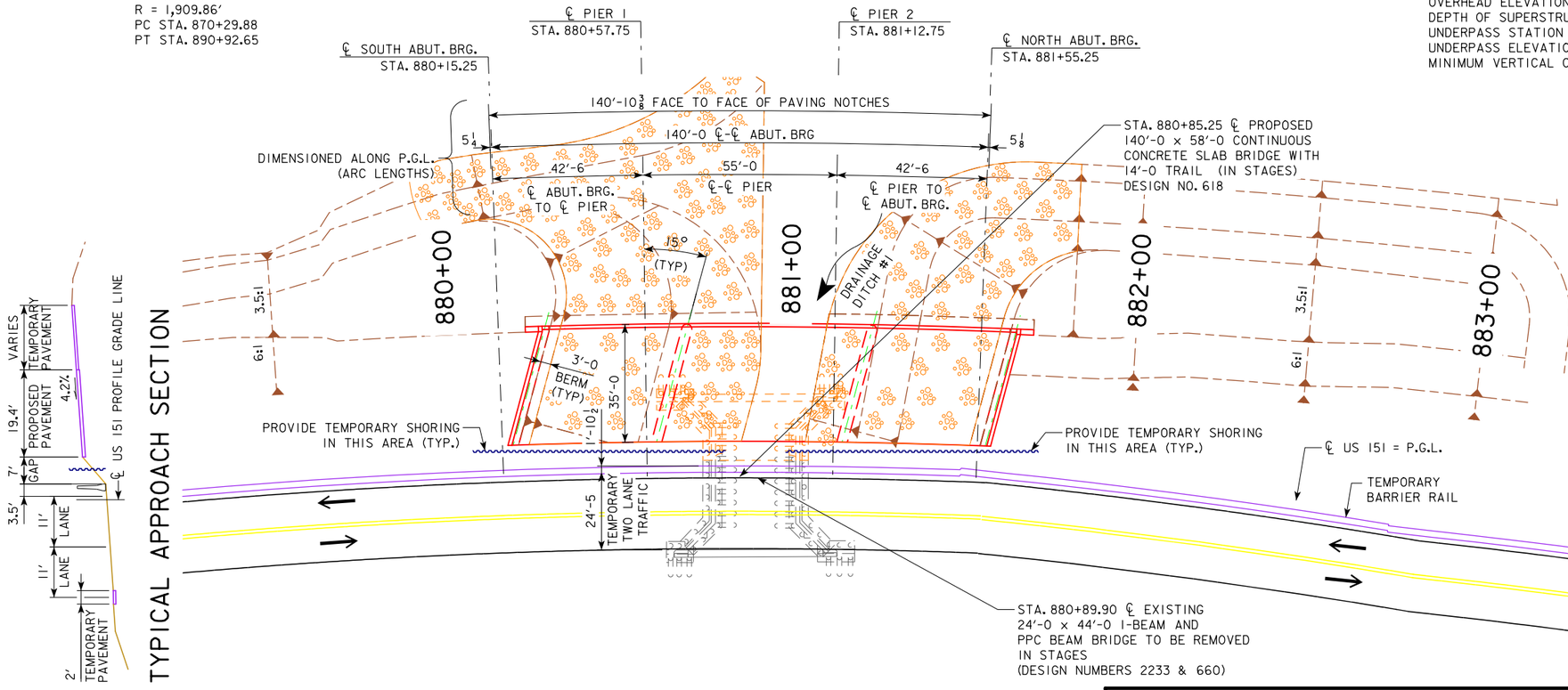
Q_{100} = 2530 CFS
STAGE = 753.07
BACKWATER = 0.22 FT.

Q_{200} = 3310 CFS
STAGE = 753.84
CALCULATED DESIGN SCOUR = 738.45

Q_{500} = 3680 CFS
STAGE = 754.22
CALCULATED CHECK SCOUR = 738.33

ROADWAY OVERTOP 757.60
STA. 875+25

ALL ELEVATIONS NAVD88



TYPICAL APPROACH SECTION

SITUATION PLAN
STAGE 1

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

0 ENGLISH 40
SCALE IN FEET

UTILITIES LEGEND:

TV - CABLE TELEVISION - UNDERGROUND TV CABLE CO. 1
FO - FIBER OPTIC - SOUTH SLOPE
T2 - TELEPHONE - CENTURYLINK

LOCATION

US HIGHWAY 151
OVER DRAINAGE DITCH #1
T-82N R-8W
SECTION 9
FAIRFAX TOWNSHIP
LINN COUNTY
FHWA NO. 33791
BRIDGE MAINT. NO. 5722.3S151
LATITUDE 41.926747°
LONGITUDE -91.782900°

TRAFFIC ESTIMATE

2013 AADT	8100	V.P.D.
2040 AADT	12,010	V.P.D.
2040 DHV	-	V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALs	-	

PRELIMINARY

HYDRAULIC DESIGN

LICENSED PROFESSIONAL ENGINEER
Adam R. Bullerman
17362
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

__-__-2016
Signature Date
Adam R. Bullerman
Printed or Typed Name

My license renewal date is December 31, 2016

Pages or sheets covered by this seal: SHEET V.11,V.13,V.15 - HYDRAULIC DATA

DESIGN FOR 15° SKEW (L.A.)

140'-0 x 35'-0 CONTINUOUS CONCRETE SLAB BRIDGE

SPANS (42'-6, 55'-0, 42'-6) ℄ RADIUS = 1,909.86 FT.

SITUATION PLAN - STAGE 1

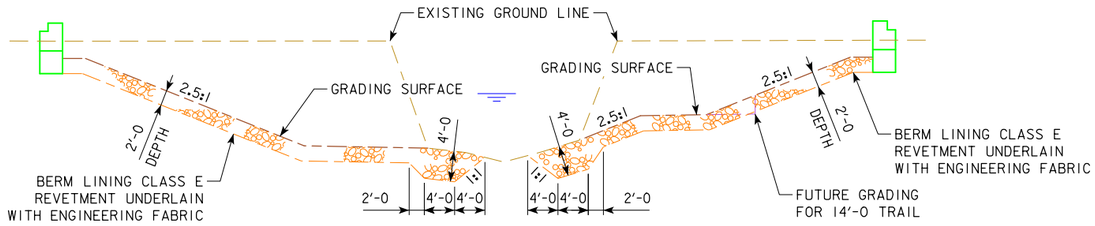
STATION 880+85.25 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 618

DESIGN TEAM | SHUCK-BRITSON | 400 EAST COURT AVE. SUITE 140 DES MOINES, IOWA 50309 515-243-4477 | S.B.I. NO. 112.0807.01 | LINN COUNTY | PROJECT NUMBER BRF-151-3(152)--38-57 | SHEET NUMBER V.11

BENCH MARK NO. BM3 STA. 883+94.08, 58.416 LT, RR SPIKE IN POWER POLE, NW QUADRANT OF CEMETARY ROAD AND HWY 151
ELEV. 760.370, N = 706904.792 E = 2107804.979



SECTION THRU EMBEDDED REVETMENT BERM

BERM SLOPE LOCATION TABLE

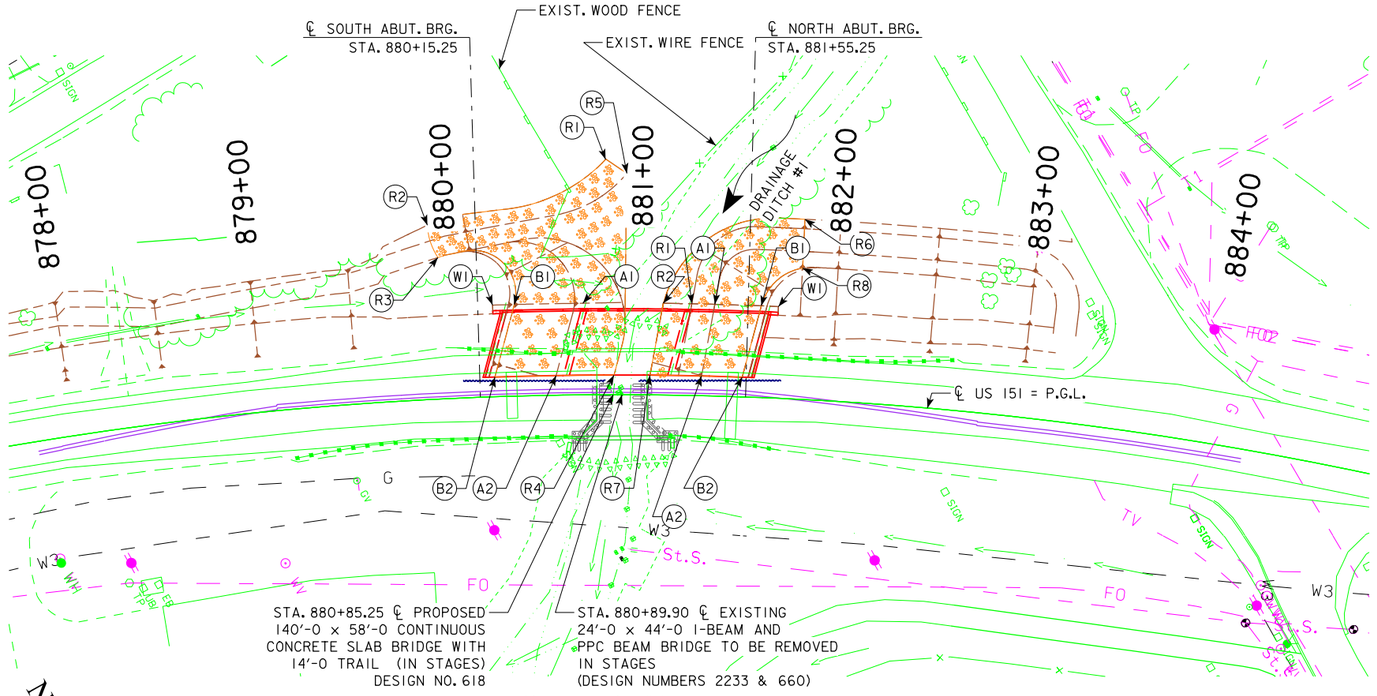
	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
A1	880+69.64	48.42 LT	746.75	881+37.62	48.42 LT	750.00
A2	880+54.80	10.42 LT	746.75	881+31.64	10.42 LT	750.00
B1	880+34.34	48.42 LT	760.22	881+61.56	48.42 LT	760.38
B2	880+23.11	10.42 LT	758.53	881+53.03	10.42 LT	758.82
R1	-----	----	----	881+25.77	48.42 LT	749.82
R3	-----	----	----	881+19.55	10.42 LT	749.82
W1	880+22.98	48.42 LT	763.52	881+70.46	48.42 LT	763.72

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

ESTIMATED BERM ARMORING QUANTITIES

LOCATION	REVETMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	CLASS 10 CHANNEL EXCAVATION (CY)
BERM LINING - SOUTH ABUTMENT	900	-	840	560
BERM LINING - NORTH ABUTMENT	540	-	510	340
STONE TOE - SOUTH ABUTMENT	320	-	310	200
STONE TOE - NORTH ABUTMENT	350	-	340	220
TOTALS	2110	-	2000	1320

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.



SITE PLAN
STAGE 1
ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

REVETMENT LAYOUT:
- (R1) 880+81.71, 124.45 LT, END STONE TOE
- (R2) 879+91.64, 92.01 LT, END BERM LINING
- (R3) 879+96.19, 74.70 LT, END BERM LINING
- (R4) 880+85.70, 10.42 LT, END STONE TOE
- (R5) 880+92.09, 116.84 LT, END STONE TOE
- (R6) 881+81.83, 95.12 LT, END STONE TOE
- (R7) 881+04.54, 10.42 LT, END STONE TOE
- (R8) 881+81.82, 69.32 LT, END BERM LINING

UTILITIES LEGEND:

TV - CABLE TELEVISION - UNDERGROUND TV CABLE CO. 1
FO - FIBER OPTIC - SOUTH SLOPE
T2 - TELEPHONE - CENTURYLINK

PRELIMINARY

DESIGN FOR 15° SKEW (L.A.)

140'-0 x 35'-0 CONTINUOUS CONCRETE SLAB BRIDGE

SPANS (42'-6, 55'-0, 42'-6) ℄ RADIUS = 1,909.86 FT.

SITE PLAN - STAGE 1

STATION 880+85.25 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 618

DESIGN TEAM | SHUCK-BRITSON | 400 EAST COURT AVE. SUITE 140 DES MOINES, IOWA 50309 515-243-4447 | S.B.I. NO. 112.0807.01 | LINN COUNTY | PROJECT NUMBER BRF-151-3(152)--38-57 | SHEET NUMBER V.12

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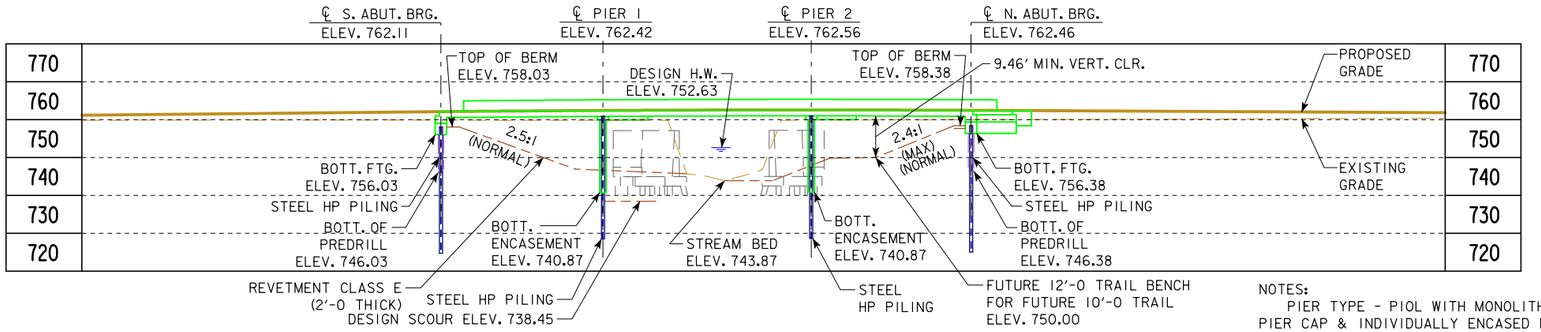
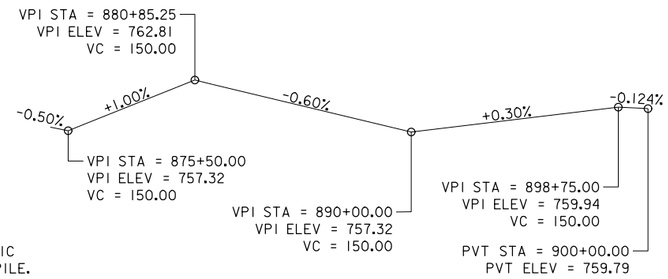


LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY

BENCH MARK NO. BM3 STA. 883+94.08, 58.416 LT, RR SPIKE IN POWER POLE, NW QUADRANT OF CEMETARY ROAD AND HWY 151
ELEV. 760.370, N = 706904.792 E = 2107804.979



PROPOSED PROFILE GRADE

CURVE DATA

PI STA. 881+74.79
Δ = 61°52'59.64" (RT)
T = 1,144.91'
L = 2,062.78'
E = 316.88'
R = 1,909.86'
PC STA. 870+29.88
PT STA. 890+92.65

NOTES:
PIER TYPE - PIOL WITH MONOLITHIC PIER CAP & INDIVIDUALLY ENCASED PILE.
H = 19.56 FT.
TL-4 BARRIER RAILING PROPOSED.
BRIDGE AESTHETICS TO BE INCORPORATED DURING FINAL DESIGN.

MINIMUM VERTICAL CLEARANCE

OVERHEAD STATION = 881+24.90, OFFSET 30.58'
OVERHEAD ELEVATION = 761.33
DEPTH OF SUPERSTRUCTURE = 1.875'
UNDERPASS STATION = N/A, OFFSET N/A
UNDERPASS ELEVATION = 750.00
MINIMUM VERTICAL CLEARANCE = 9.46'

HYDRAULIC DATA

DRAINAGE AREA = 3.0 SQ. MI.
STREAM SLOPE = 32.65 FT./MI.
AVG. LOW WATER STAGE = 752.63

Q_{50} = 2120 CFS
STAGE = 752.63
BACKWATER = 0.19 FT.
AVE. BRIDGE VELOCITY = 4.5 FPS

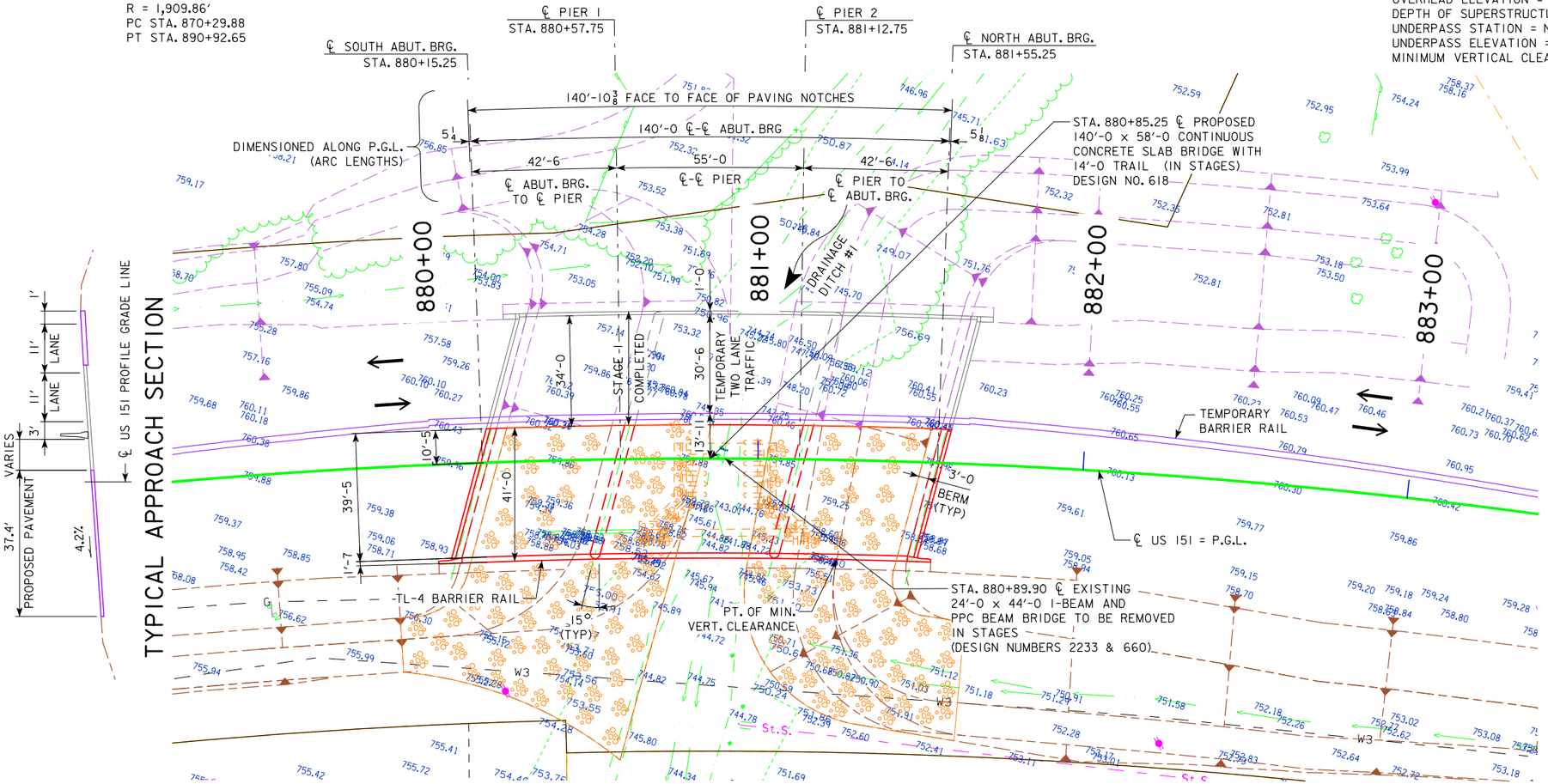
Q_{100} = 2530 CFS
STAGE = 753.07
BACKWATER = 0.22 FT.

Q_{200} = 3310 CFS
STAGE = 753.84
CALCULATED DESIGN SCOUR = 738.45

Q_{500} = 3680 CFS
STAGE = 754.22
CALCULATED CHECK SCOUR = 738.33

ROADWAY OVERTOP 757.60
STA. 875+25

ALL ELEVATIONS NAVD88



SITUATION PLAN
STAGE 2

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

UTILITIES LEGEND:

TV - CABLE TELEVISION - UNDERGROUND TV CABLE CO. I
FO - FIBER OPTIC - SOUTH SLOPE
T2 - TELEPHONE - CENTURYLINK

LOCATION

US HIGHWAY 151
OVER DRAINAGE DITCH #1
T-82N R-8W
SECTION 9
FAIRFAX TOWNSHIP
LINN COUNTY
FHWA NO. 33790
BRIDGE MAINT. NO. 5722.3S151
LATITUDE 41.926747°
LONGITUDE -91.782900°

TRAFFIC ESTIMATE

2013 AADT	8100	V.P.D.
2040 AADT	12,010	V.P.D.
2040 DHV	-	V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALs	-	

PRELIMINARY

DESIGN FOR 15° SKEW (L.A.)

140'-0 x 35'-0 CONTINUOUS CONCRETE SLAB BRIDGE WIDENED TO 140'-0 x 76'-0

SPANS (42'-6, 55'-0, 42'-6) ℄ RADIUS = 1,909.86 FT.

SITUATION PLAN - STAGE 2

STATION 880+85.25 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 618

DESIGN TEAM	SHUCK-BRITSON	400 EAST COURT AVE. SUITE 140 DES MOINES, IOWA 50309 515-243-4477	S.B.I. NO. 112.0807.01	LINN COUNTY	PROJECT NUMBER BRF-151-3(152)--38-57	SHEET NUMBER V.13

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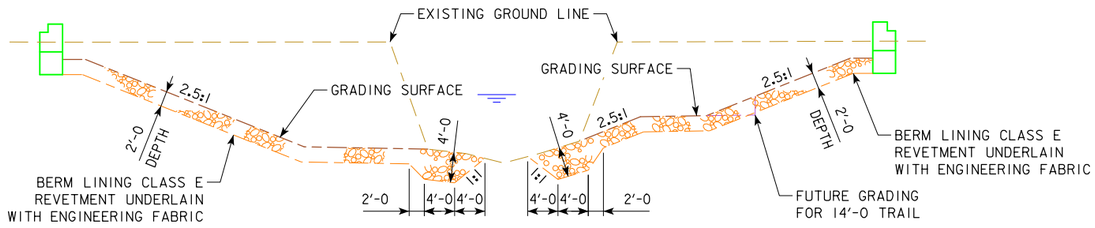
BENCH MARK NO. BM3 STA. 883+94.08, 58.416 LT, RR SPIKE IN POWER POLE, NW QUADRANT OF CEMETARY ROAD AND HWY 151
ELEV. 760.370, N = 706904.792 E = 2107804.979



SECTION THRU EMBEDDED REVETMENT BERM

BERM SLOPE LOCATION TABLE

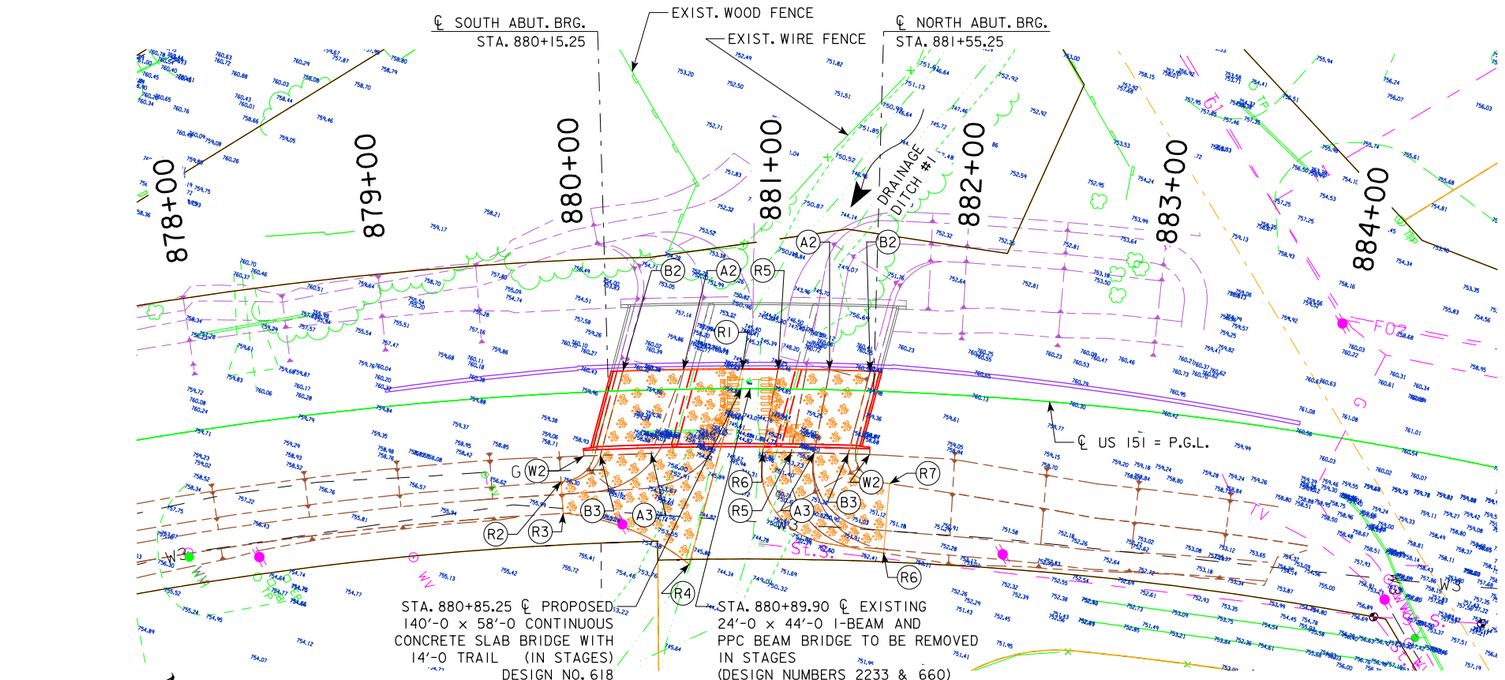
	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
A2	880+54.80	10.42 LT	746.75	881+31.64	10.42 LT	750.00
A3	880+36.80	33.58 RT	746.75	881+24.40	33.58 RT	750.00
B2	880+23.11	10.42 LT	758.53	881+53.03	10.42 LT	758.82
B3	880+09.52	33.58 RT	756.56	881+42.71	33.58 RT	757.01
R3	-----	----	----	881+19.55	10.42 LT	749.82
R5	-----	----	----	881+12.02	33.58 RT	749.82
W2	880+00.52	33.58 RT	760.59	881+54.13	33.58 RT	761.10

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

ESTIMATED BERM ARMORING QUANTITIES

LOCATION	REVETMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	CLASS 10 CHANNEL EXCAVATION (CY)
BERM LINING - SOUTH ABUTMENT	740	-	690	460
BERM LINING - NORTH ABUTMENT	590	-	560	370
STONE TOE - SOUTH ABUTMENT	270	-	270	170
STONE TOE - NORTH ABUTMENT	370	-	360	230
TOTALS	1970	-	1880	1230

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.



SITE PLAN
STAGE 2

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

REVETMENT LAYOUT:

- (R1) 880+85.70, 10.42 LT, END STONE TOE
- (R2) 879+87.60, 46.55 RT, END BERM LINING
- (R3) 879+87.60, 46.55 RT, END BERM LINING
- (R4) 880+56.25, 65.00 RT, END STONE TOE
- (R5) 881+04.54, 10.42 LT, END STONE TOE
- (R6) 881+63.78, 85.20 RT, END STONE TOE
- (R7) 881+65.57, 100.57 RT, END BERM LINING

UTILITIES LEGEND:

TV - CABLE TELEVISION - UNDERGROUND TV CABLE CO. I
FO - FIBER OPTIC - SOUTH SLOPE
T2 - TELEPHONE - CENTURYLINK

PRELIMINARY

DESIGN FOR 15° SKEW (L.A.)

140'-0 x 35'-0 CONTINUOUS CONCRETE SLAB BRIDGE WIDENED TO 140'-0 x 76'-0

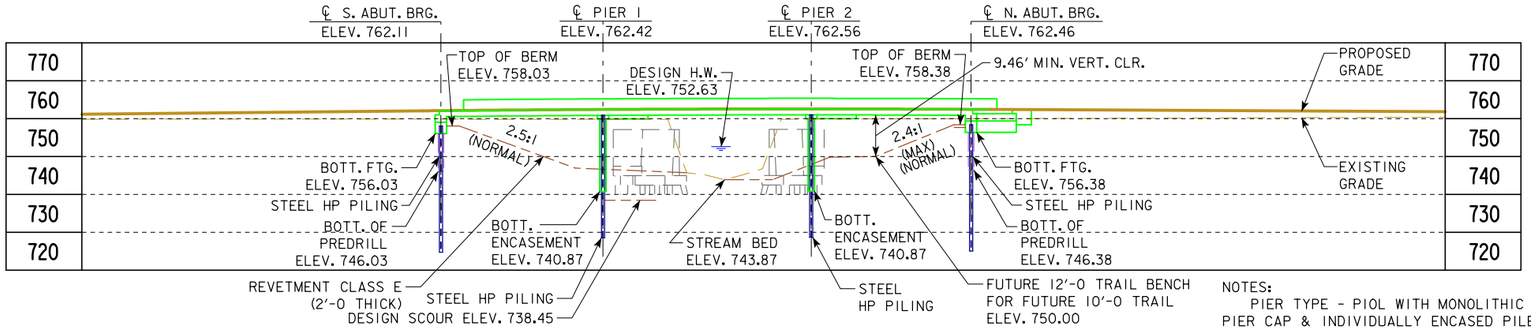
SPANS (42'-6, 55'-0, 42'-6) ℄ RADIUS = 1,909.86 FT.

SITE PLAN - STAGE 2

STATION 880+85.25 LINN COUNTY AUGUST 2016

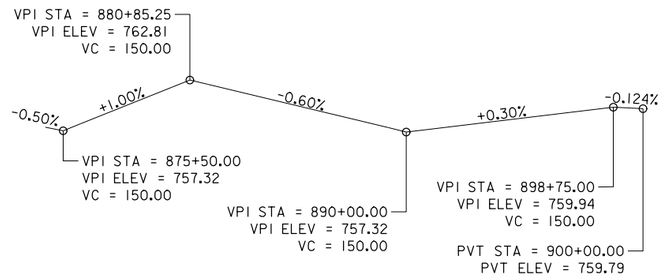
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 618



LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY

BENCH MARK NO. BM3 STA. 883+94.08, 58.416 LT, RR SPIKE IN POWER POLE, NW QUADRANT OF CEMETARY ROAD AND HWY 151
ELEV. 760.370, N = 706904.792 E = 2107804.979



PROPOSED PROFILE GRADE

CURVE DATA

PI STA. 881+74.79
Δ = 61°52'59.64" (RT)
T = 1,144.91'
L = 2,062.78'
E = 316.88'
R = 1,909.86'
PC STA. 870+29.88
PT STA. 890+92.65

NOTES:
PIER TYPE - PIOL WITH MONOLITHIC PIER CAP & INDIVIDUALLY ENCASED PILE.
H = 19.56 FT.
TL-4 BARRIER RAILING PROPOSED.
BRIDGE AESTHETICS TO BE INCORPORATED DURING FINAL DESIGN.

MINIMUM VERTICAL CLEARANCE

OVERHEAD STATION = 881+24.90, OFFSET 30.58'
OVERHEAD ELEVATION = 761.33
DEPTH OF SUPERSTRUCTURE = 1.875'
UNDERPASS STATION = N/A, OFFSET N/A
UNDERPASS ELEVATION = 750.00
MINIMUM VERTICAL CLEARANCE = 9.46'

HYDRAULIC DATA

DRAINAGE AREA = 3.0 SQ. MI.
STREAM SLOPE = 32.65 FT./MI.
AVG. LOW WATER STAGE = 752.63

Q_{50} = 2120 CFS
STAGE = 752.63
BACKWATER = 0.19 FT.
AVE. BRIDGE VELOCITY = 4.5 FPS

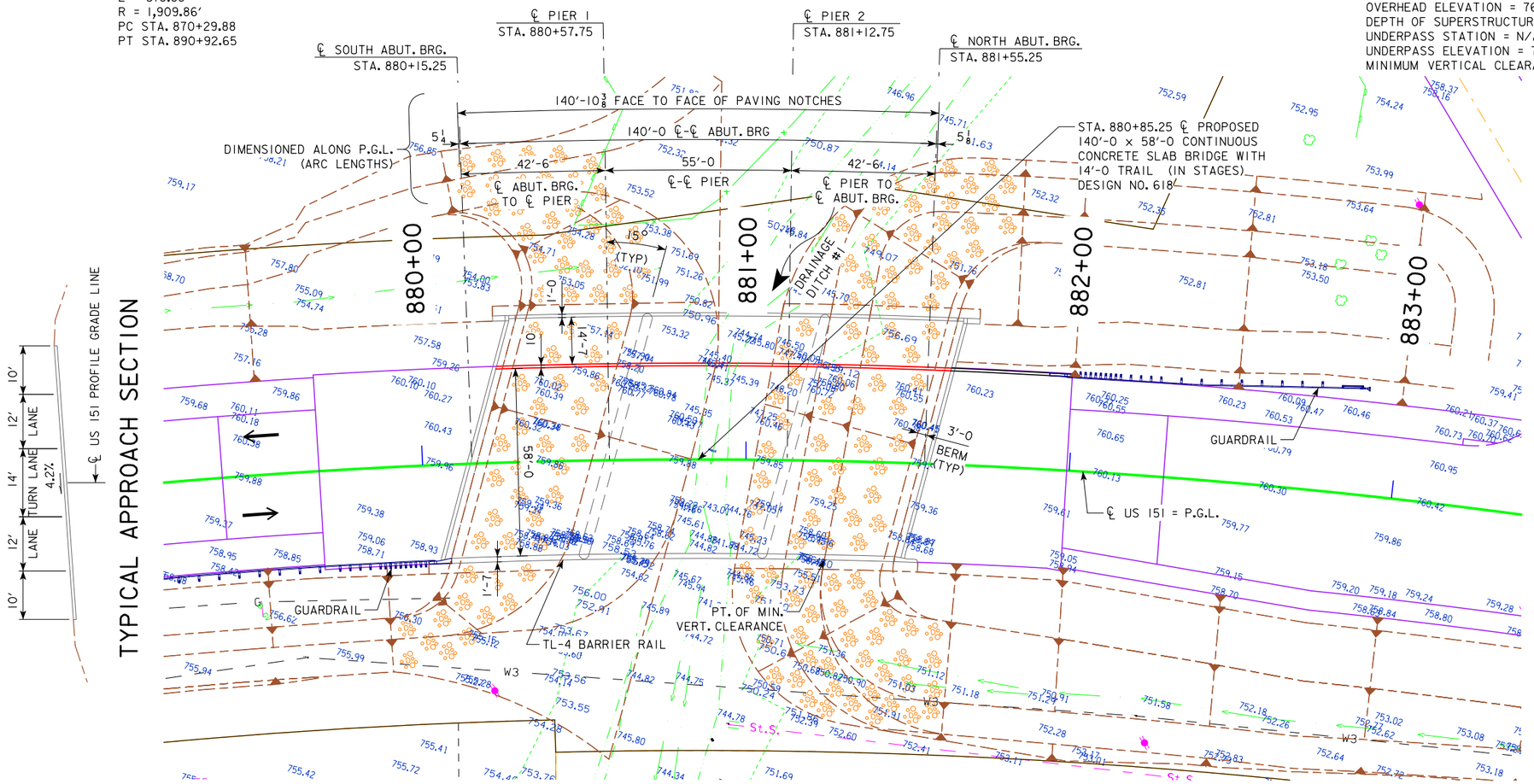
Q_{100} = 2530 CFS
STAGE = 753.07
BACKWATER = 0.22 FT.

Q_{200} = 3310 CFS
STAGE = 753.84
CALCULATED DESIGN SCOUR = 738.45

Q_{500} = 3680 CFS
STAGE = 754.22
CALCULATED CHECK SCOUR = 738.33

ROADWAY OVERTOP 757.60
STA. 875+25

ALL ELEVATIONS NAVD88



SITUATION PLAN
FINAL STAGE

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

UTILITIES LEGEND:

TV - CABLE TELEVISION - UNDERGROUND TV CABLE CO. I
FO - FIBER OPTIC - SOUTH SLOPE
T2 - TELEPHONE - CENTURYLINK

LOCATION

US HIGHWAY 151
OVER DRAINAGE DITCH #1
T-82N R-8W
SECTION 9
FAIRFAX TOWNSHIP
LINN COUNTY
FHWA NO. 33790
BRIDGE MAINT. NO. 5722.3S151
LATITUDE 41.926747°
LONGITUDE -91.782900°

TRAFFIC ESTIMATE

2013 AADT	8100	V.P.D.
2040 AADT	12,010	V.P.D.
2040 DHV	-	V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALs	-	

PRELIMINARY

DESIGN FOR 15° SKEW (L.A.)

140'-0 x 58'-0 CONTINUOUS CONCRETE SLAB BRIDGE WITH 14'-0 TRAIL

SPANS (42'-6, 55'-0, 42'-6) ℄ RADIUS = 1,909.86 FT.

SITUATION PLAN - FINAL STAGE

STATION 880+85.25 LINN COUNTY AUGUST 2016

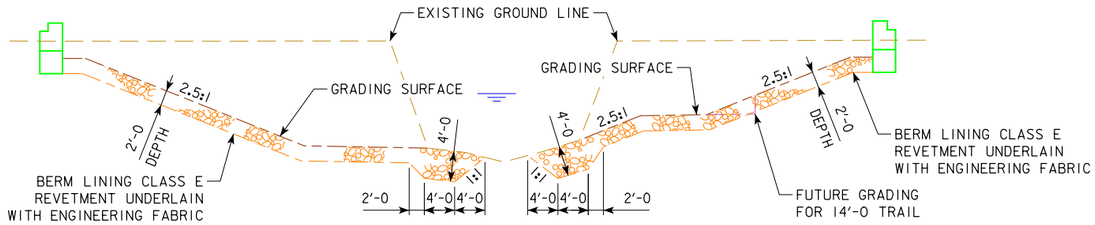
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 618

DESIGN TEAM	SHUCK-BRITSON	400 EAST COURT AVE. SUITE 140 DES MOINES, IOWA 50309 515-243-4477	S.B.I. NO. 112.0807.01	LINN COUNTY	PROJECT NUMBER BRF-151-3(152)--38-57	SHEET NUMBER V.15

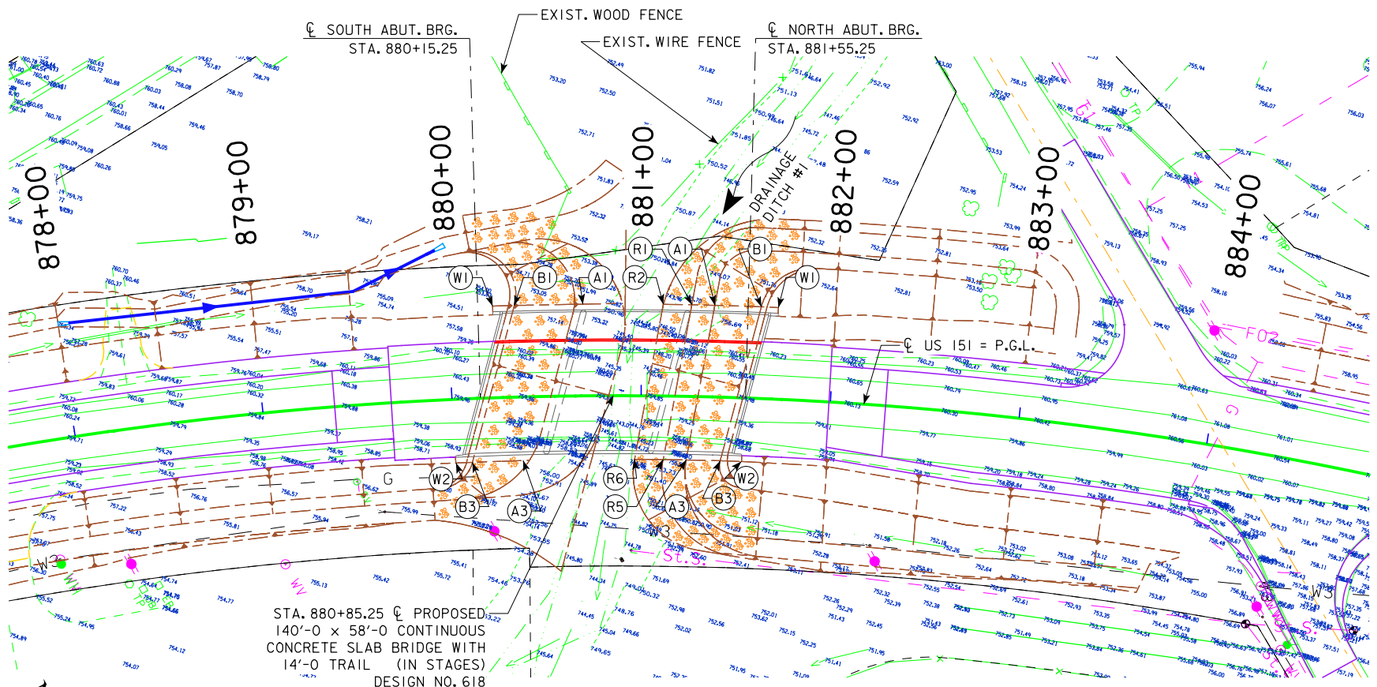
8/5/2016 4:29:50 PM DCH pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\BRPrelim\CADD\US151 @ DD1\57151152_Shuck-Britson.str TSL_57_0618_15 - 140ft CCS 11x17_pdf.pltcfg

BENCH MARK NO. BM3 STA. 883+94.08, 58.416 LT, RR SPIKE IN POWER POLE, NW QUADRANT OF CEMETARY ROAD AND HWY 151
ELEV. 760.370, N = 706904.792 E = 2107804.979



SECTION THRU EMBEDDED REVETMENT BERM

NOTES:
1. SEE SHEETS V.12 AND V.14 FOR BERM SLOPE LOCATION TABLES.
2. SEE SHEETS V.12 AND V.14 FOR ESTIMATED BERM ARMORING QUANTITIES.



SITE PLAN
FINAL STAGE
ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

UTILITIES LEGEND:
TV - CABLE TELEVISION - UNDERGROUND TV CABLE CO. I
FO - FIBER OPTIC - SOUTH SLOPE
T2 - TELEPHONE - CENTURYLINK

PRELIMINARY

DESIGN FOR 15° SKEW (L.A.)

140'-0 x 58'-0 CONTINUOUS CONCRETE SLAB BRIDGE WITH 14'-0 TRAIL

SPANS (42'-6, 55'-0, 42'-6) ℄ RADIUS = 1,909.86 FT.

SITE PLAN - FINAL STAGE

STATION 880+85.25 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 618

DESIGN TEAM	SHUCK-BRITSON INC. 400 EAST COURT AVE. SUITE 140 DES MOINES, IOWA 50309 515-243-4477	S.B.I. NO. 112.0807.01	LINN COUNTY	PROJECT NUMBER BRF-151-3(152)--38-57	SHEET NUMBER V.16

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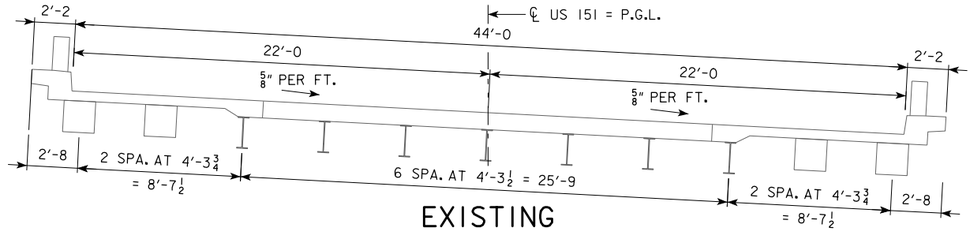
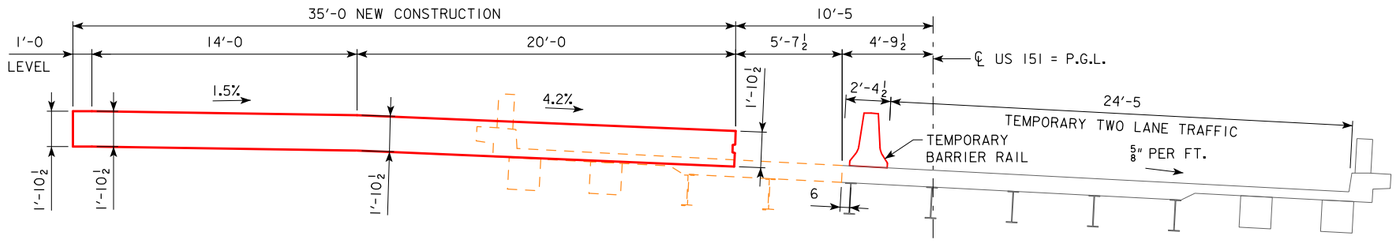


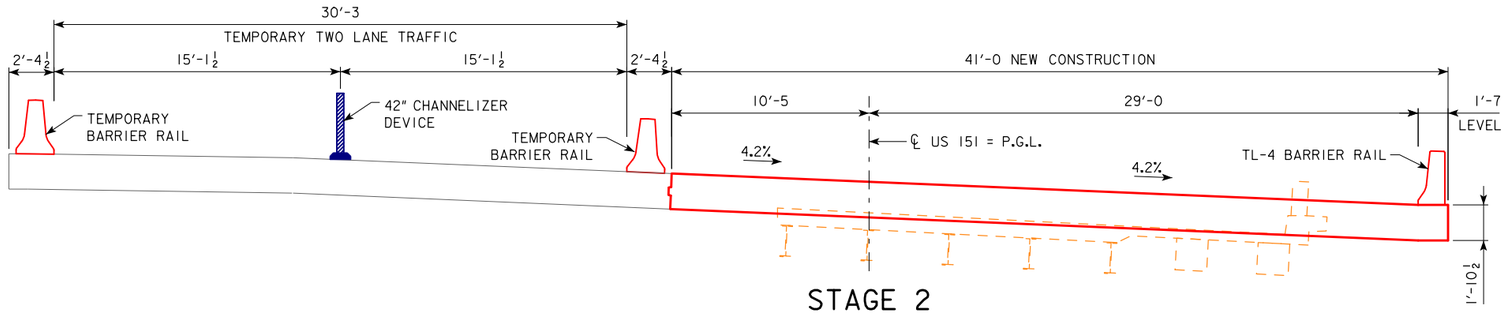
EXISTING

(LOOKING UP STATION - NORTH)

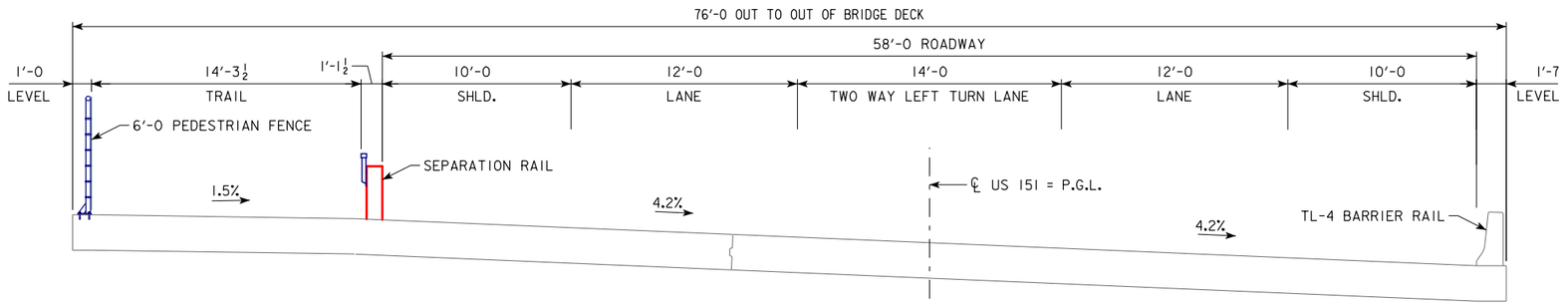


STAGE 1

STAGE 1
SHIFT TRAFFIC TO TWO LANE TRAFFIC ON THE EAST SIDE OF EXISTING BRIDGE.
REMOVE WEST HALF OF EXISTING BRIDGE AND CONSTRUCT WEST PORTION OF BRIDGE.



STAGE 2



FINAL STAGE

FINAL STAGE
SHIFT TRAFFIC TO EAST PORTION OF BRIDGE.
PLACE PERMANENT SEPARATION RAIL AND PEDESTRIAN FENCE.
REMOVE TEMPORARY BARRIER RAIL.

NOTE: BRIDGE IS BUILT ON A HORIZONTAL CURVE.
THE P.G.L. (℄ ROADWAY) IS IN A HORIZONTAL CURVE.

NOTE:
CLOSURE POUR NOT REQUIRED PER BDM 5.2.4.1.2.

PRELIMINARY

DESIGN FOR 15° SKEW (L.A.)

140'-0 x 58'-0 CONTINUOUS CONCRETE SLAB BRIDGE WITH 14'-0 TRAIL

SPANS (42'-6, 55'-0, 42'-6) ℄ RADIUS = 1,909.86 FT.

STAGING

STATION 880+85.25 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 618

DESIGN TEAM	SHUCK-BRITSON INC. 400 EAST COURT AVE. SUITE 140 DES MOINES, IOWA 50309 515-243-4477	S.B.I. NO. 112.0807.01	LINN COUNTY	PROJECT NUMBER BRF-151-3(152)--38-57	SHEET NUMBER V.17

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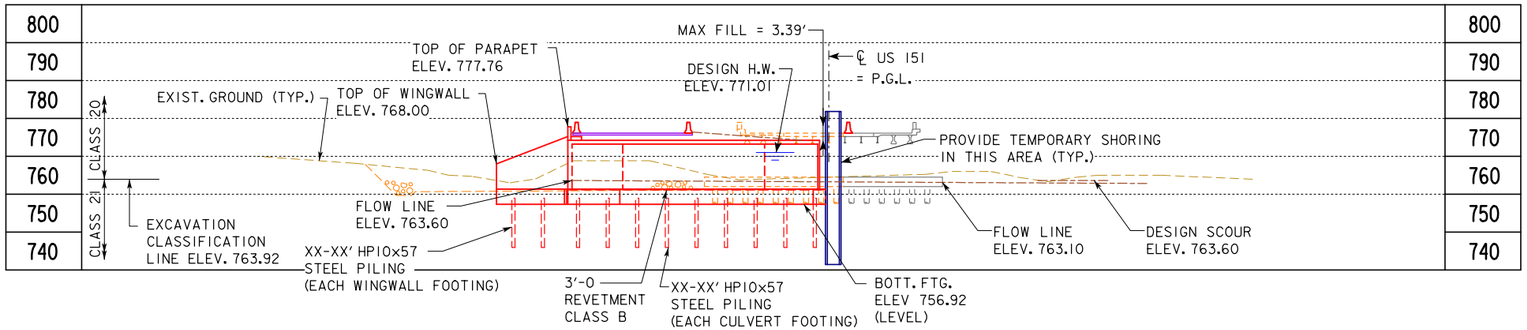
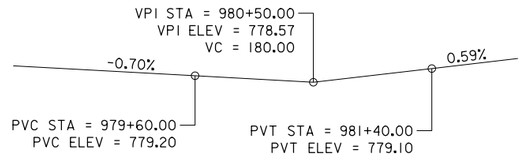
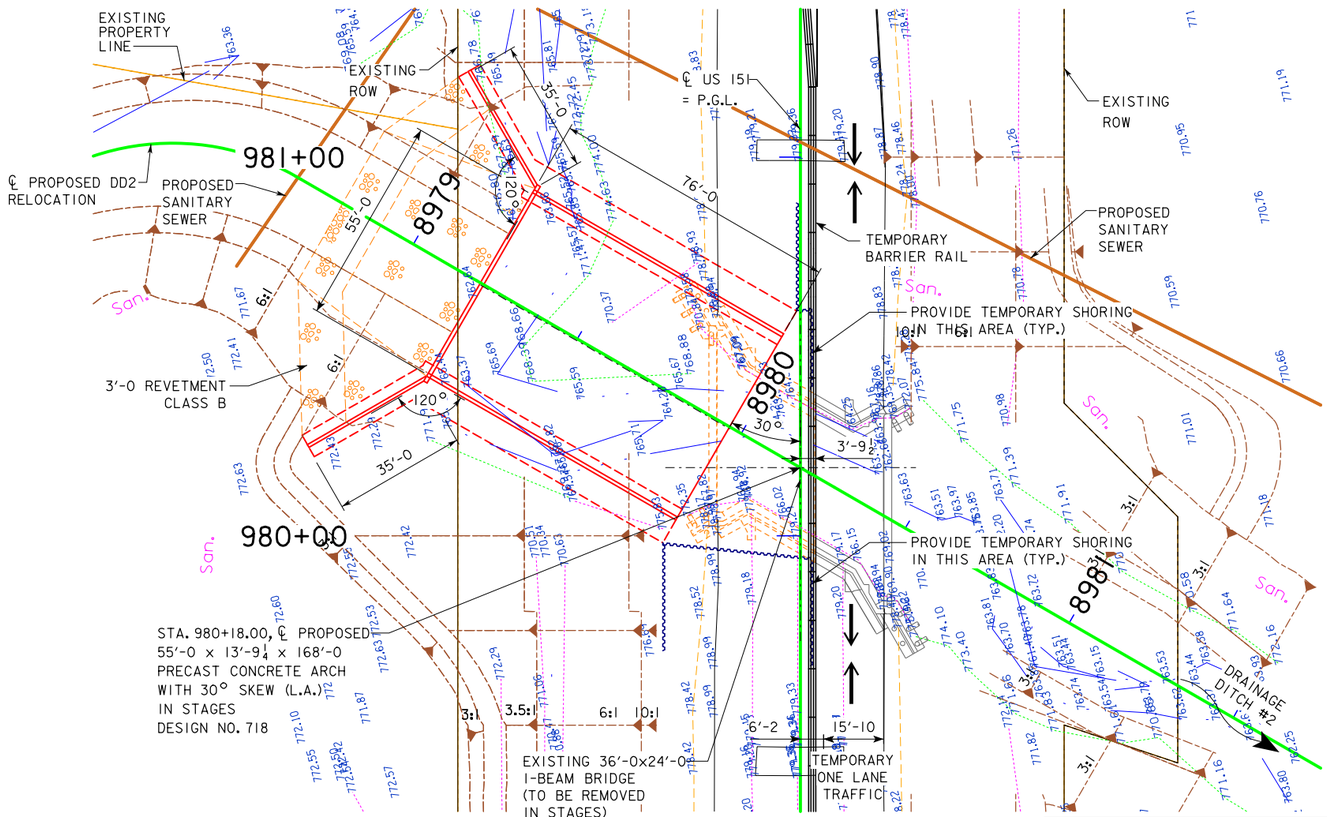
BENCH MARK: #588, CUT TRIANGLE ON BASE WALL OF REINFORCED CONCRETE BOX CULVERT
STA. 979+81.20, 23.19I OFFSET, ELEV. = 781.700



LONGITUDINAL SECTION ALONG ℄ CULVERT

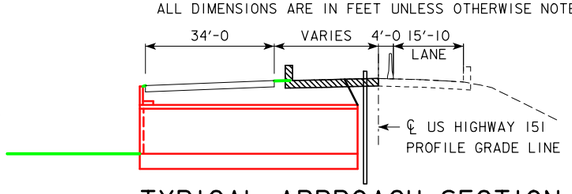


PROPOSED PROFILE GRADE



SITUATION PLAN STAGE I

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED



TYPICAL APPROACH SECTION

0 ENGLISH 40
SCALE IN FEET

HYDRAULIC DATA

DRAINAGE AREA = 1.98 SQ. MI.
STREAM SLOPE = 21.4 FT./MI.
AVG. LOW WATER STAGE = 764.20

Q_{50} = 1,171 CFS
STAGE = 771.01
BACKWATER = 0.12 FT.
AVG. BRIDGE VELOCITY = 3.4 FPS

Q_{100} = 1,449 CFS
STAGE = 771.37
BACKWATER = 0.15 FT.

Q_{200} = 1,449 CFS
STAGE = 771.68
CALCULATED DESIGN SCOUR = 763.6

Q_{500} = 2,190 CFS
STAGE = 772.16
CALCULATED CHECK SCOUR = 763.6

ROADWAY OVERTOP 778.86
STA. 980+57.67

UTILITIES LEGEND:

San. - SANITARY SEWER - LINN COUNTY

LOCATION

US HIGHWAY 15I
OVER DRAINAGE DITCH #2
T-82N R-8W
SECTION 2
FAIRFAX TOWNSHIP
LINN COUNTY
FHWA NO. 33801
BRIDGE MAINT. NO. 5724.3S15I
LATITUDE 41.940647°
LONGITUDE -91.751689°

TRAFFIC ESTIMATE

2013 AADT	10,800	V.P.D.
2040 AADT	19,800	V.P.D.
2040 DHV	-	V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALs	-	

PRELIMINARY

HYDRAULIC DESIGN

LICENSED PROFESSIONAL ENGINEER
Adam R. Bullerman
17362
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

__-__-2016
Signature Date
Adam R. Bullerman
Printed or Typed Name

My license renewal date is December 31, 2016

Pages or sheets covered by this seal: SHEET V.18,V.20,V.22 - HYDRAULIC DATA

DESIGN FOR 30° SKEW (L.A.)

55'-0 x 13'-9¼ x 76'-0 PRECAST CONCRETE ARCH

SITUATION PLAN - STAGE I

STATION 980+18.00 AUGUST 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 718

DESIGN TEAM SHUCK-BRITSON INC. 2409 GRAND AVENUE DES MOINES, IOWA 50312 515-243-4477 S.B.I. NO. 112.0807.01 | LINN COUNTY | PROJECT NUMBER NHSX-151-3(134)--3H-57 | SHEET NUMBER V.18

8/5/2016 8:53:16 AM DCH pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\BRPrelim\CADD\US151 @ DD2\57151134_Shuck-Britson.str TSL_57_0718_18 - 1 lane traffic 11x17_pdf.pltcfg

ESTIMATED CHANNEL ARMORING QUANTITIES

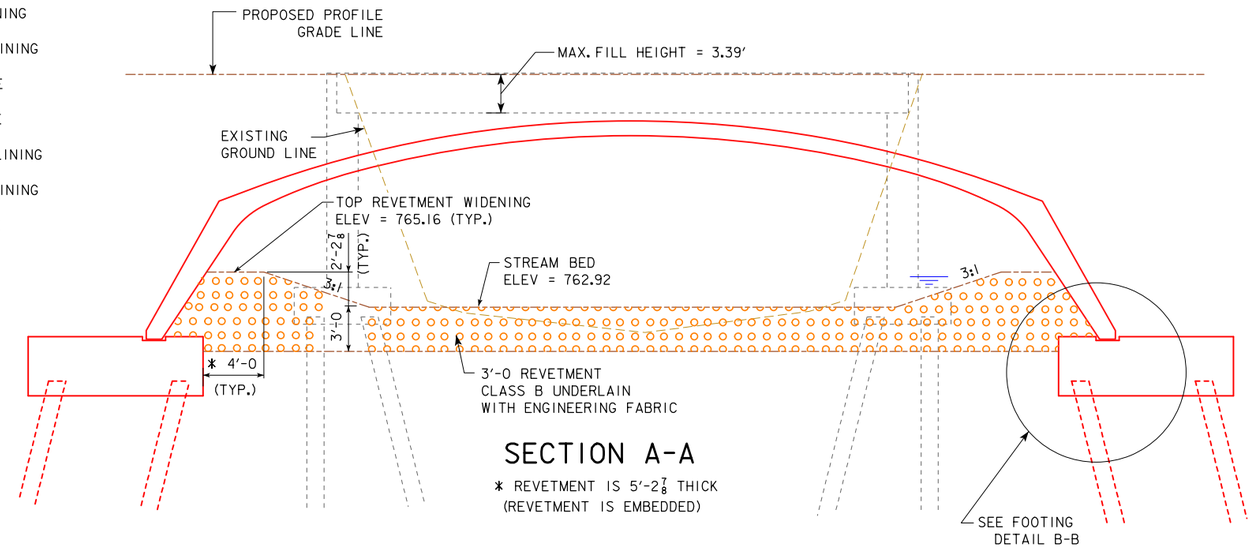
LOCATION	REVETMENT CL. B (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION CLASS 10 CHANNEL (CY)
CHANNEL LINING - SOUTH APRON	--	--	--	--
CHANNEL LINING - NORTH APRON	378	--	236	236
CHANNEL LINING - ARCH	892	--	464	464
STONE TOE - SOUTH APRON	--	--	--	--
STONE TOE - NORTH APRON	286	--	176	179
TOTALS	1556	--	876	879

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.

REVETMENT LAYOUT:

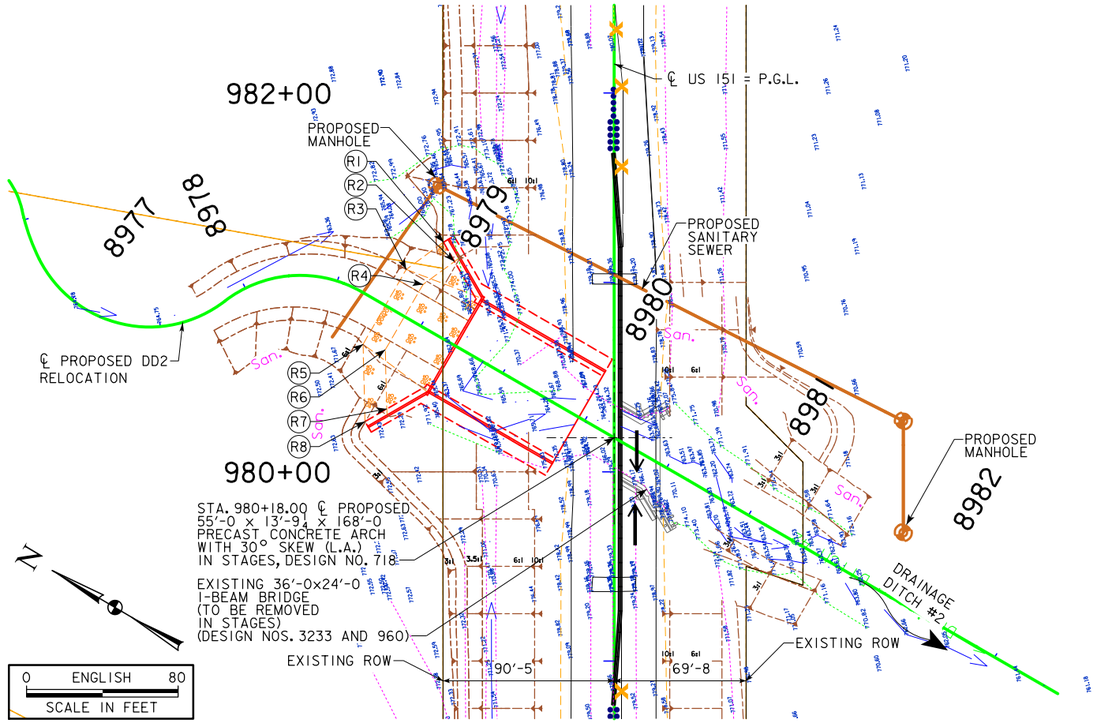
- (R1) 981+21.18, 90.20' LT., END STONE TOE
- (R2) 981+11.02, 84.33 LT., END CHANNEL LINING
- (R3) 981+06.83, 109.85 LT., END CHANNEL LINING
- (R4) 980+98.86, 100.98 LT., END STONE TOE
- (R5) 980+67.35, 132.64 LT., END STONE TOE
- (R6) 980+64.36, 120.90 LT., END CHANNEL LINING
- (R7) 980+33.18, 120.08 LT., END CHANNEL LINING
- (R8) 980+26.54, 131.58 LT., END STONE TOE

BENCH MARK NO. #588, CUT TRIANGLE ON BASE WALL OF REINFORCED CONCRETE BOX CULVERT
STA. 979+81.20, 23.19l OFFSET, ELEV. = 781.700



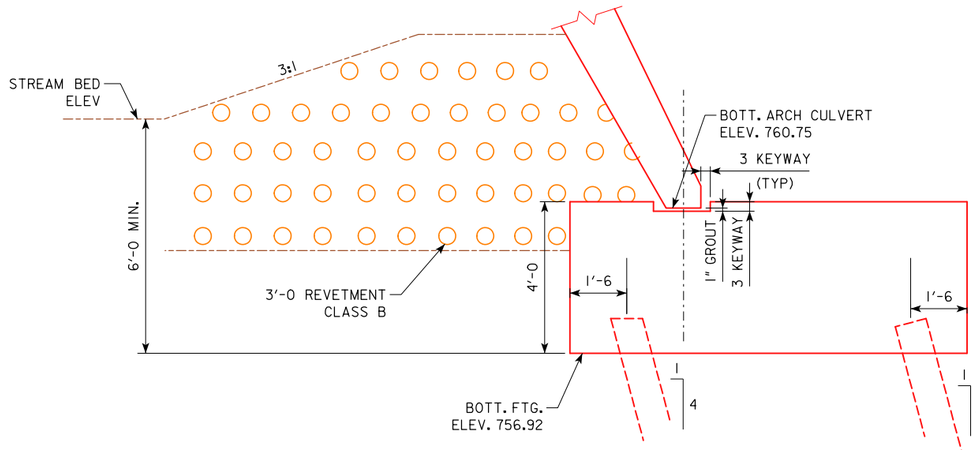
SECTION A-A

* REVETMENT IS 5'-2 7/8" THICK (REVETMENT IS EMBEDDED)

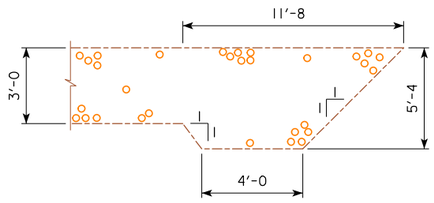


SITE PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED



FOOTING DETAIL B-B



SITE PLAN

PRELIMINARY

DESIGN FOR 30° SKEW (L.A.)

55'-0 x 13'-9 1/4 x 76'-0 PRECAST CONCRETE ARCH

SITE PLAN - STAGE I

STATION 980+18.00

AUGUST 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 718

DESIGN TEAM SHUCK-BRITSON 2409 GRAND AVENUE DES MOINES, IOWA 50312 515-243-4477 | S.B.I. NO. 112.0807.01 | LINN COUNTY | PROJECT NUMBER NHSX-151-3(134)--3H-57 | SHEET NUMBER V.19

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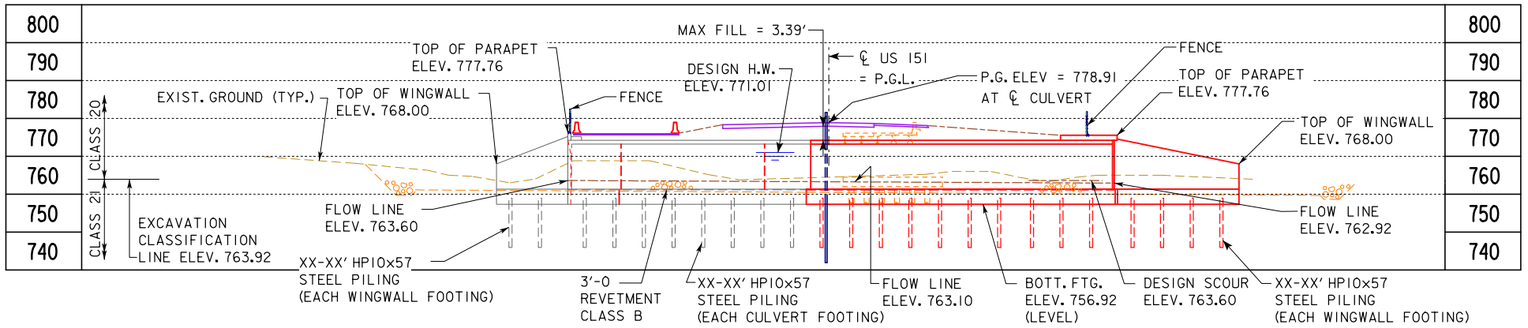
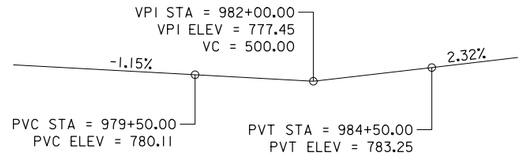
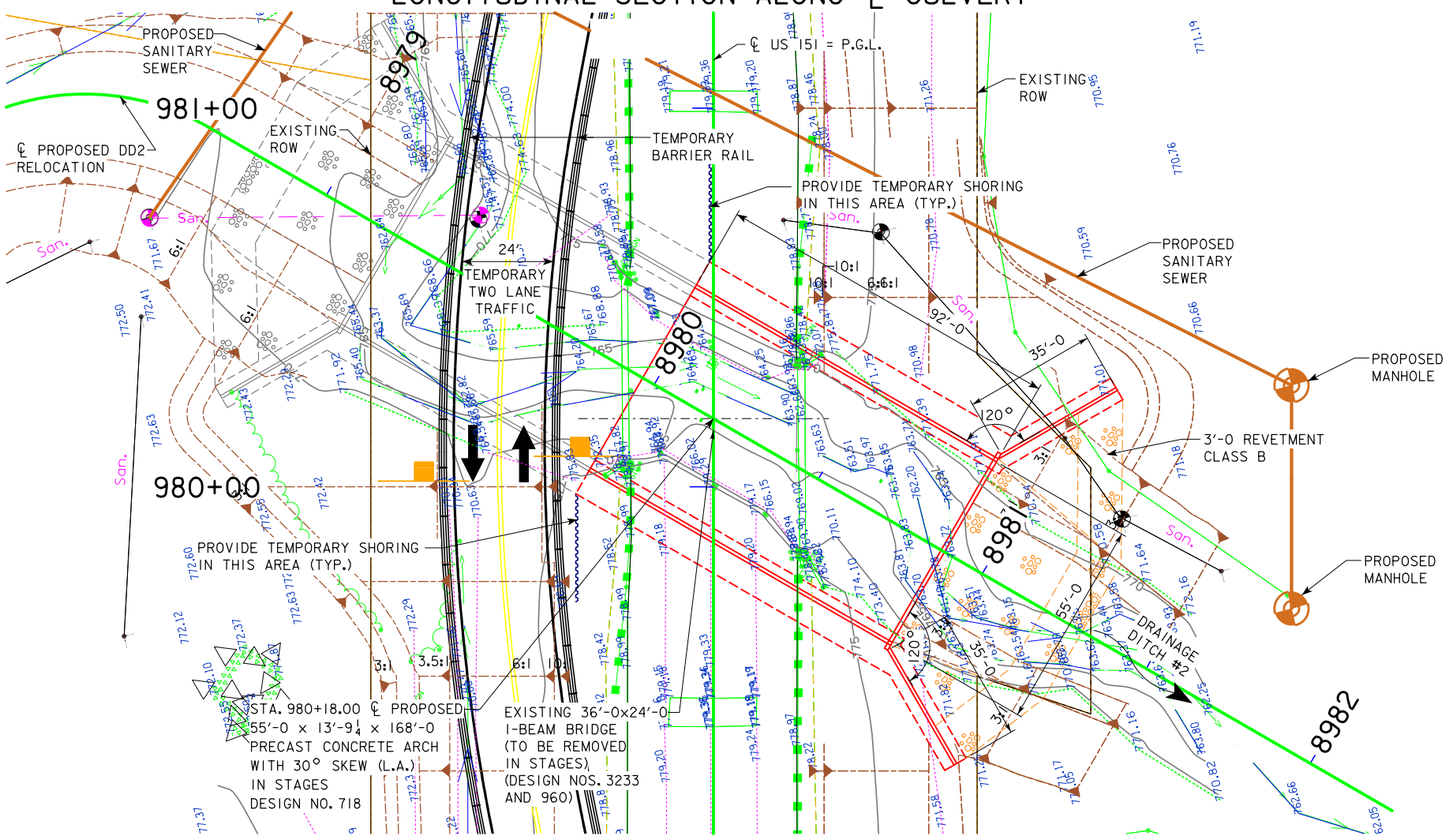
BENCH MARK: #588, CUT TRIANGLE ON BASE WALL OF REINFORCED CONCRETE BOX CULVERT STA. 979+81.20, 23.19I OFFSET, ELEV. = 781.700





PROPOSED PROFILE GRADE

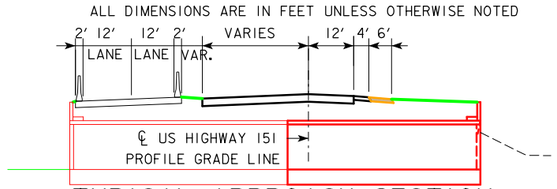
LONGITUDINAL SECTION ALONG ℄ CULVERT



SITUATION PLAN

STAGE 2

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED



TYPICAL APPROACH SECTION

0 ENGLISH 40
SCALE IN FEET

HYDRAULIC DATA

DRAINAGE AREA = 1.98 SQ. MI.
STREAM SLOPE = 21.4 FT./MI.
AVG. LOW WATER STAGE = 764.20

Q_{50} = 1,171 CFS
STAGE = 771.01
BACKWATER = 0.12 FT.
AVG. BRIDGE VELOCITY = 3.4 FPS

Q_{100} = 1,449 CFS
STAGE = 771.37
BACKWATER = 0.15 FT.

Q_{200} = 1,449 CFS
STAGE = 771.68
CALCULATED DESIGN SCOUR = 763.6

Q_{500} = 2,190 CFS
STAGE = 772.16
CALCULATED CHECK SCOUR = 763.6

ROADWAY OVERTOP 778.86
STA. 980+57.67

UTILITIES LEGEND:

San. - SANITARY SEWER - LINN COUNTY

LOCATION

US HIGHWAY 151
OVER DRAINAGE DITCH #2
T-82N R-8W
SECTION 2
FAIRFAX TOWNSHIP
LINN COUNTY
FHWA NO. 33801
BRIDGE MAINT. NO. 5724.3S151
LATITUDE 41.940647°
LONGITUDE -91.751689°

TRAFFIC ESTIMATE

2013 AADT	10,800	V.P.D.
2040 AADT	19,800	V.P.D.
2040 DHV	_	V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALs	_	

PRELIMINARY

DESIGN FOR 30° SKEW (L.A.)

55'-0 x 13'-9¼ x 76'-0 PRECAST CONCRETE ARCH EXTENDED TO 55'-0 X 168'-0 SITUATION PLAN - STAGE 2

STATION 980+18.00

AUGUST 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 718

DESIGN TEAM SHUCK-BRITSON 2409 GRAND AVENUE DES MOINES, IOWA 50312 515-245-4477 | S.B.I. NO. 112.0807.01 | LINN COUNTY | PROJECT NUMBER NHSX-151-3(134)--3H-57 | SHEET NUMBER V.20

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ESTIMATED CHANNEL ARMORING QUANTITIES

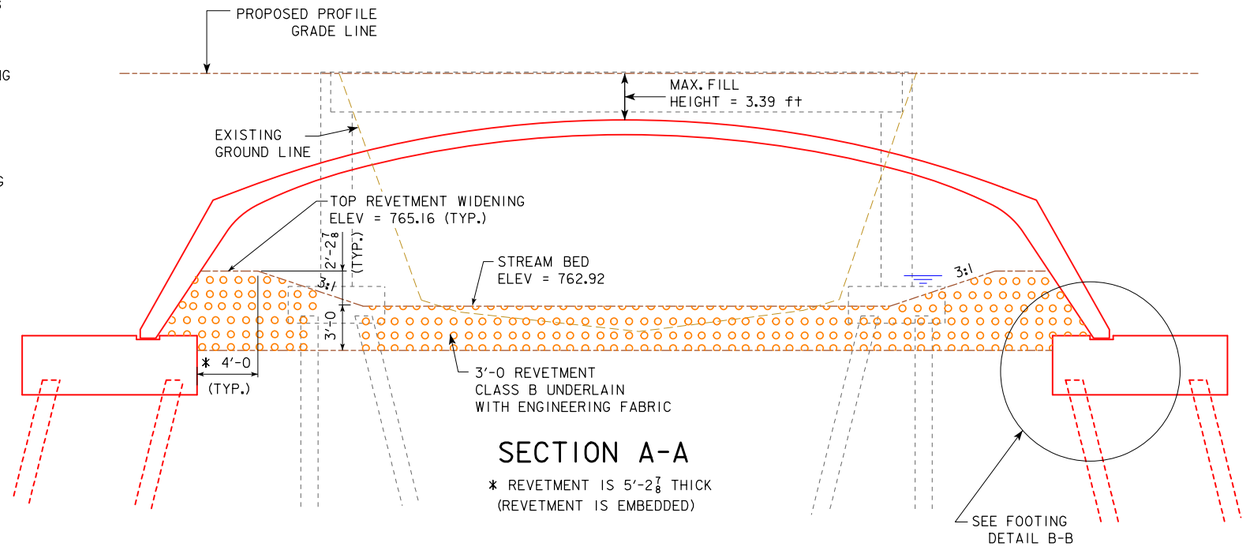
LOCATION	REVETMENT CL. B (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION CLASS 10 CHANNEL (CY)
CHANNEL LINING - SOUTH APRON	373	--	233	233
CHANNEL LINING - NORTH APRON	--	--	--	--
CHANNEL LINING - ARCH	1078	--	562	562
STONE TOE - SOUTH APRON	286	--	176	179
STONE TOE - NORTH APRON	--	--	--	--
TOTALS	1737	--	971	974

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.

REVETMENT LAYOUT:

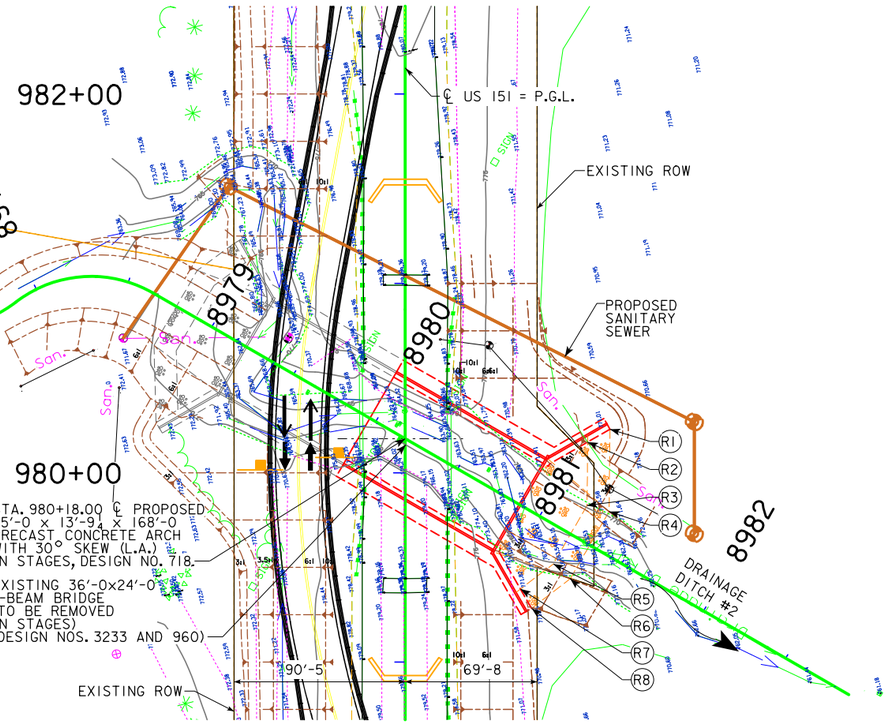
- R1 980+23.00, 108.13 RT., END STONE TOE
- R2 980+16.22, 96.39 RT., END CHANNEL LINING
- R3 979+82.71, 96.02 RT., END STONE TOE
- R4 979+79.53, 107.66 RT., END CHANNEL LINING
- R5 979+51.85, 78.21 RT., END CHANNEL LINING
- R6 979+44.00, 87.15 RT., END STONE TOE
- R7 979+38.58, 60.86 RT., END CHANNEL LINING
- R8 979+28.39, 66.74 RT., END STONE TOE

BENCH MARK NO. #588, CUT TRIANGLE ON BASE WALL OF REINFORCED CONCRETE BOX CULVERT
STA. 979+81.20, 23.19l OFFSET, ELEV. = 781.700



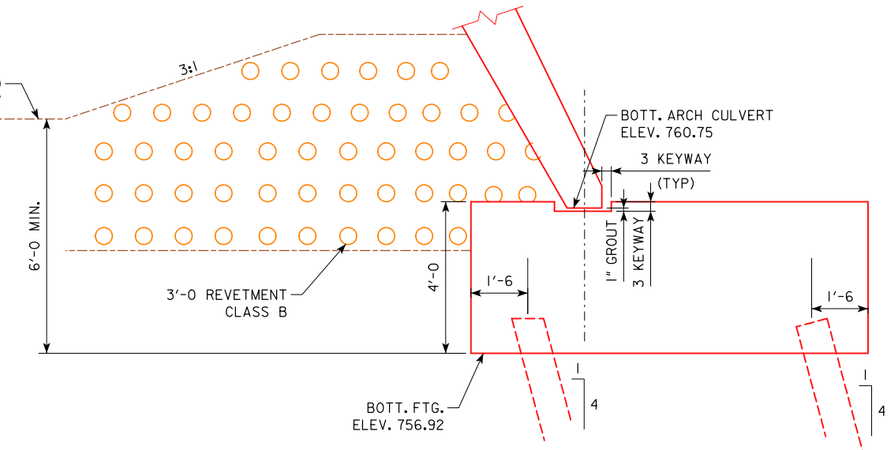
SECTION A-A

* REVETMENT IS 5'-2 7/8" THICK (REVETMENT IS EMBEDDED)

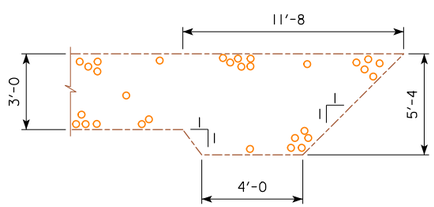


SITE PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED



FOOTING DETAIL B-B



SITE PLAN

PRELIMINARY

DESIGN FOR 30° SKEW (L.A.)

55'-0 x 13'-9 1/4 x 76'-0 PRECAST CONCRETE ARCH EXTENDED TO 55'-0 X 168'-0 SITE PLAN - STAGE 2

STATION 980+18.00

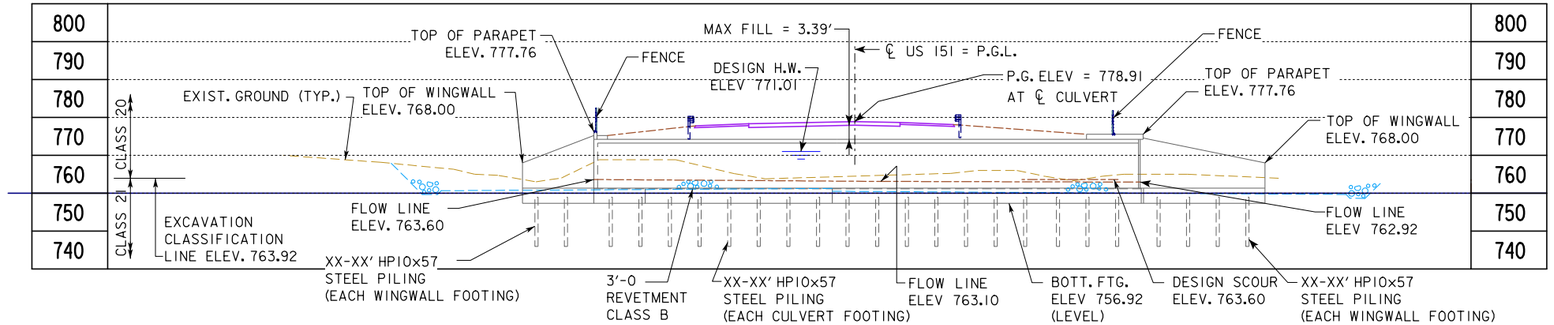
AUGUST 2016

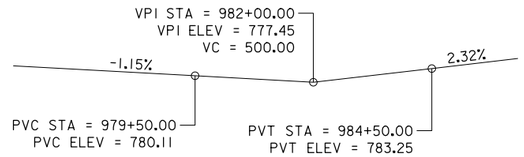
LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 718

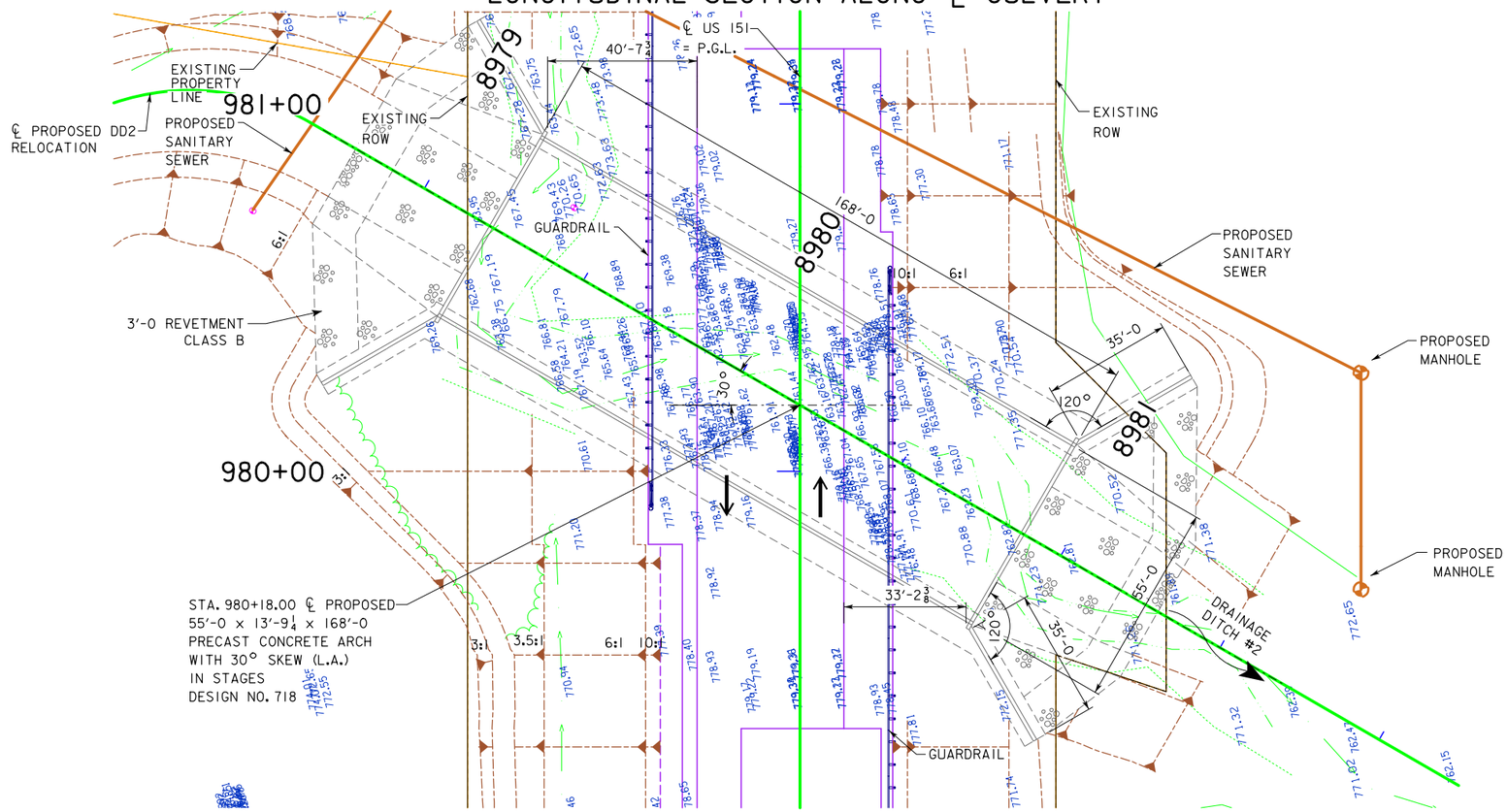
BENCH MARK: #588, CUT TRIANGLE ON BASE WALL OF REINFORCED CONCRETE BOX CULVERT STA. 979+81.20, 23.19I OFFSET, ELEV. = 781.700



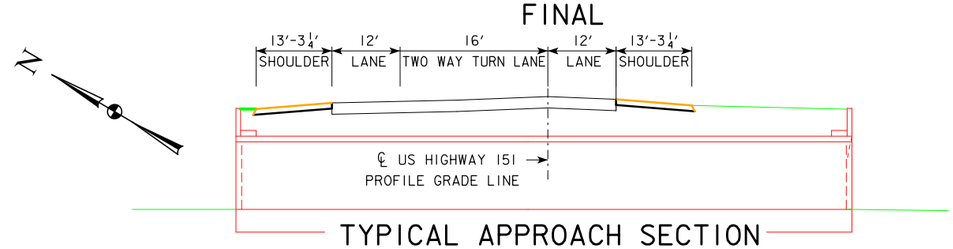


PROPOSED PROFILE GRADE

LONGITUDINAL SECTION ALONG ℄ CULVERT



SITUATION PLAN FINAL



TYPICAL APPROACH SECTION

0 ENGLISH 40
SCALE IN FEET

HYDRAULIC DATA

DRAINAGE AREA = 1.98 SQ. MI.
STREAM SLOPE = 21.4 FT./MI.
AVG. LOW WATER STAGE = 764.20

Q_{50} = 1,171 CFS
STAGE = 771.01
BACKWATER = 0.12 FT.
AVG. BRIDGE VELOCITY = 3.4 FPS

Q_{100} = 1,449 CFS
STAGE = 771.37
BACKWATER = 0.15 FT.

Q_{200} = 1,449 CFS
STAGE = 771.68
CALCULATED DESIGN SCOUR = 763.6

Q_{500} = 2,190 CFS
STAGE = 772.16
CALCULATED CHECK SCOUR = 763.6

ROADWAY OVERTOP 778.86
STA. 980+57.67

UTILITIES LEGEND:

San. - SANITARY SEWER - LINN COUNTY

LOCATION

US HIGHWAY 151
OVER DRAINAGE DITCH #2
T-82N R-8W
SECTION 2
FAIRFAX TOWNSHIP
LINN COUNTY
FHWA NO. 33801
BRIDGE MAINT. NO. 5724.3S151
LATITUDE 41.940647°
LONGITUDE -91.751689°

TRAFFIC ESTIMATE

2013 AADT	10,800	V.P.D.
2040 AADT	19,800	V.P.D.
2040 DHV	-	V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALs	-	

PRELIMINARY

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

DESIGN FOR 30° SKEW (L.A.)

55'-0 x 13'-9 1/4 x 168'-0 PRECAST CONCRETE ARCH

SITUATION PLAN - FINAL

STATION 980+18.00

AUGUST 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 718

DESIGN TEAM SHUCK-BRITSON 2409 GRAND AVENUE DES MOINES, IOWA 50312 515-243-4477 | S.B.I. NO. 112.0807.01 | LINN COUNTY | PROJECT NUMBER NHSX-151-3(134)--3H-57 | SHEET NUMBER V.22

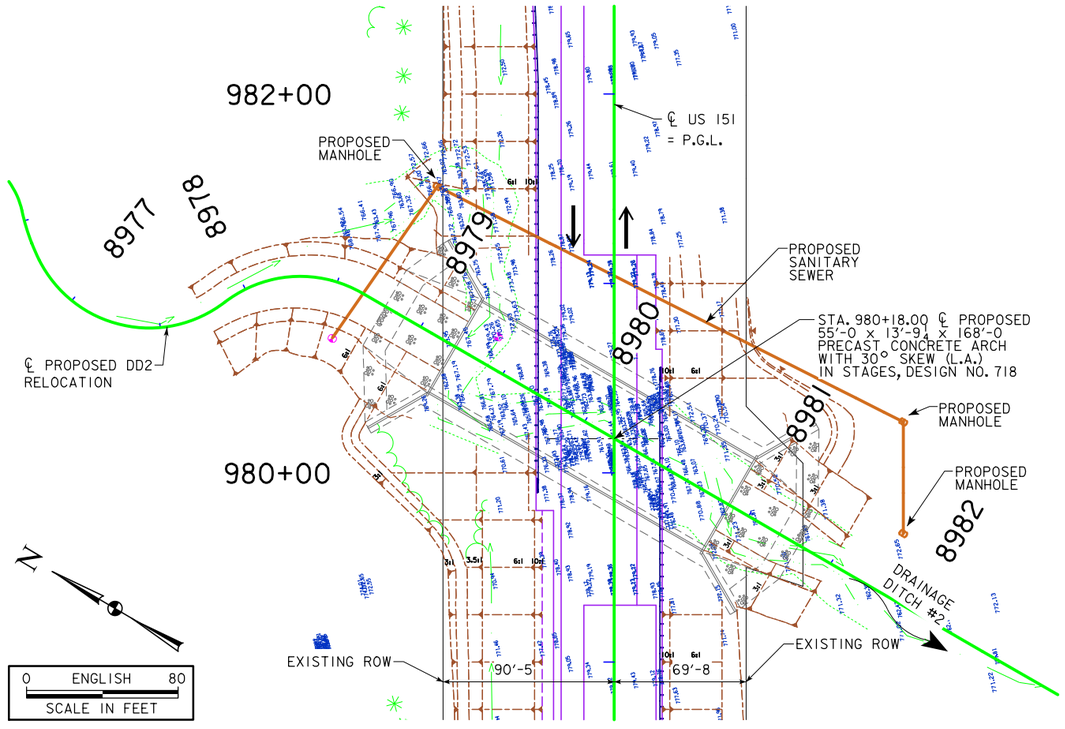
8/5/2016 8:53:32 AM DCH pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\BRPrelim\CADD\US151 @ DD2\57151134_Shuck-Britson.str TSL_57_0718_22 - 1 lane traffic 11x17_pdf.pltcfg

NOTES:

1. SEE SHEETS V.19 AND V.21 FOR REVETMENT LAYOUT INFORMATION.

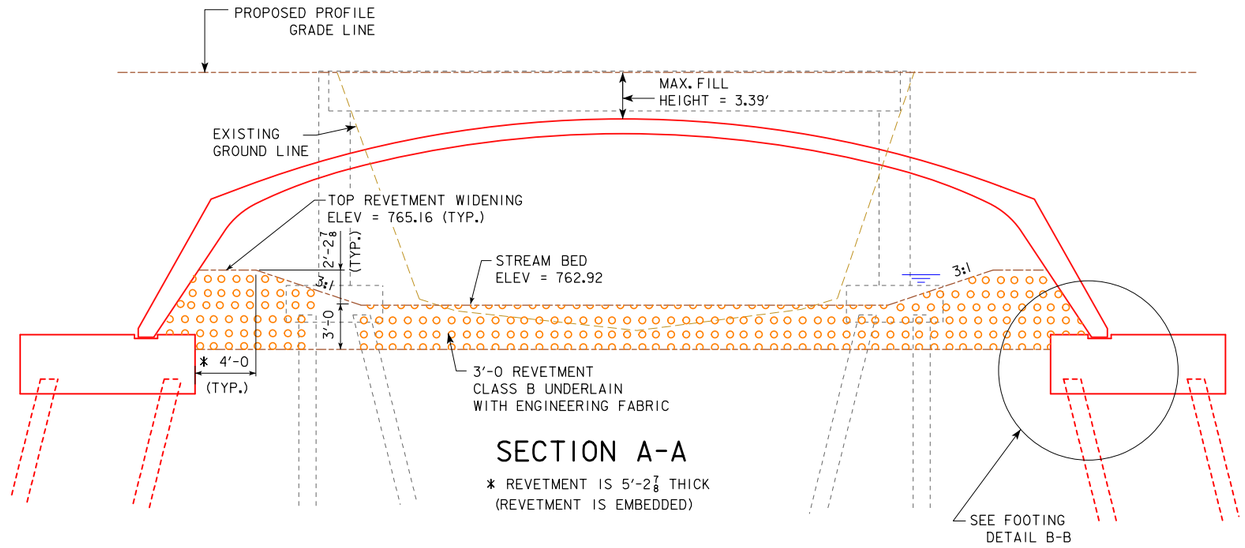
2. SEE SHEETS V.19 AND V.21 FOR CHANNEL ARMORING QUANTITIES.

BENCH MARK NO. #588, CUT TRIANGLE ON BASE WALL OF REINFORCED CONCRETE BOX CULVERT
STA. 979+81.20, 23.191 OFFSET, ELEV. = 781.700



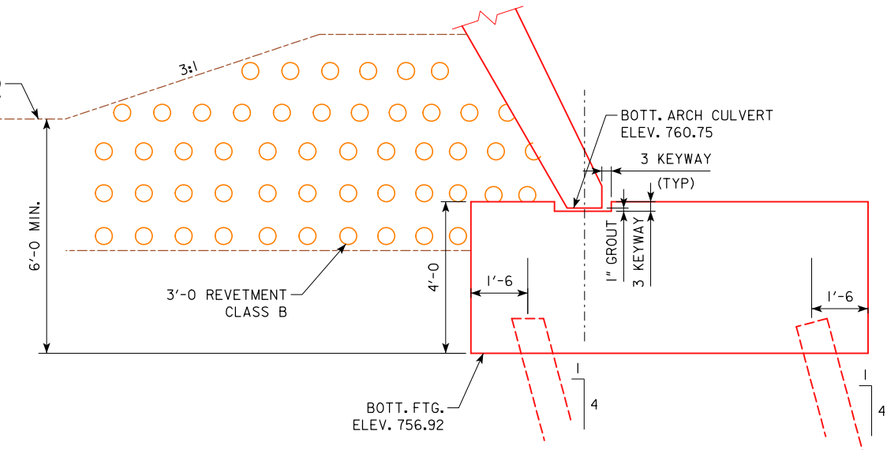
SITE PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

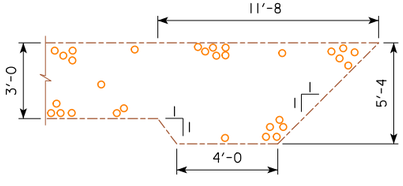


SECTION A-A

* REVETMENT IS 5'-2⅞ THICK (REVETMENT IS EMBEDDED)



FOOTING DETAIL B-B



SITE PLAN

PRELIMINARY

DESIGN FOR 30° SKEW (L.A.)

55'-0 x 13'-9¼ x 168'-0 PRECAST CONCRETE ARCH

SITE PLAN - FINAL

STATION 980+18.00

AUGUST 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 718

DESIGN TEAM SHUCK-BRITSON 2409 GRAND AVENUE DES MOINES, IOWA 50312 515-243-4477 | S.B.I. NO. 112.0807.01 | LINN COUNTY | PROJECT NUMBER NHSX-151-3(134)--3H-57 | SHEET NUMBER V.23

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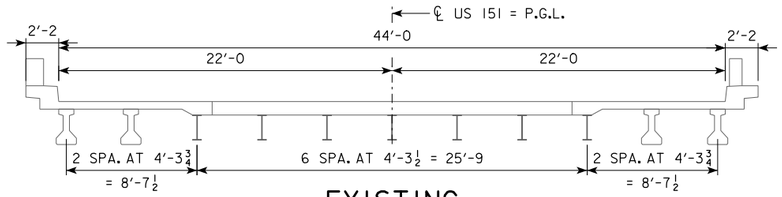
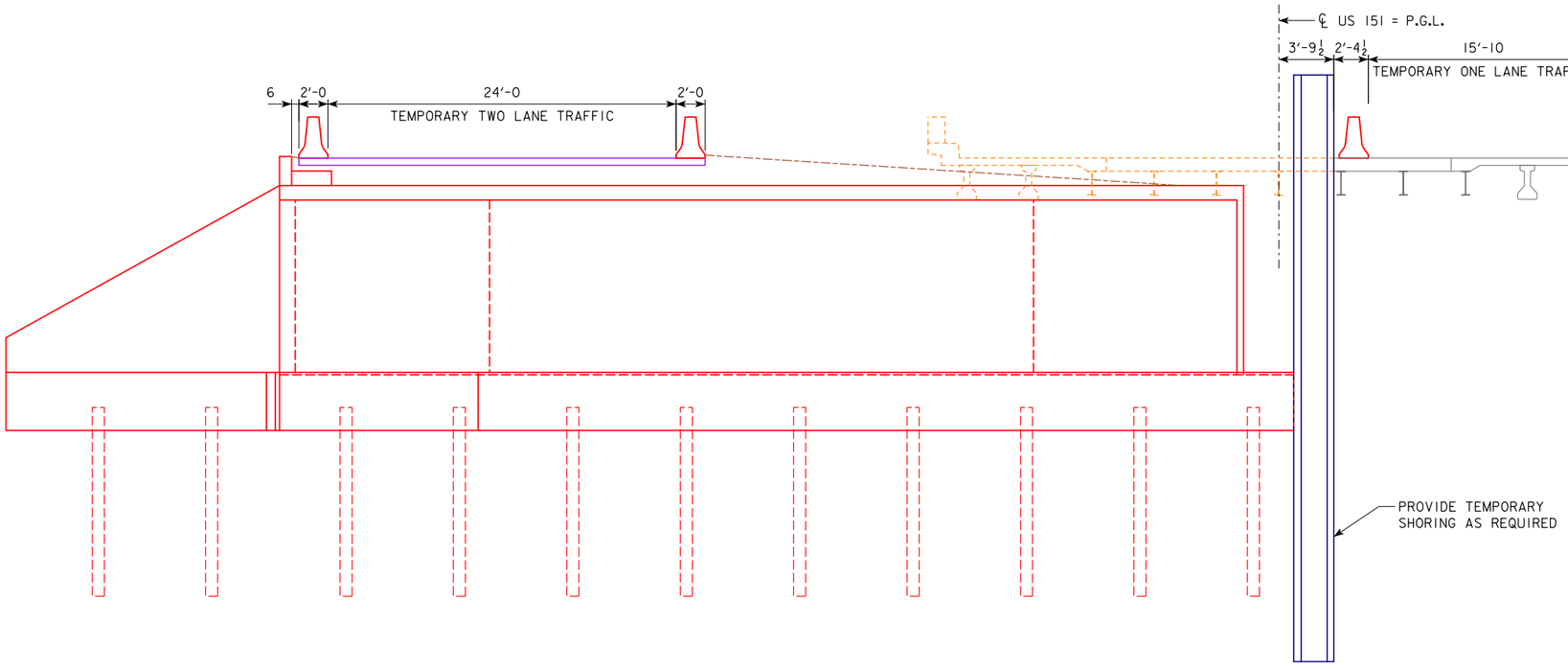


EXISTING

(LOOKING UP STATION - NORTH)



STAGE I

PRELIMINARY

DESIGN FOR 30° SKEW (L.A.)

55'-0 x 13'-9 1/4 x 168'-0 PRECAST CONCRETE ARCH

STAGING

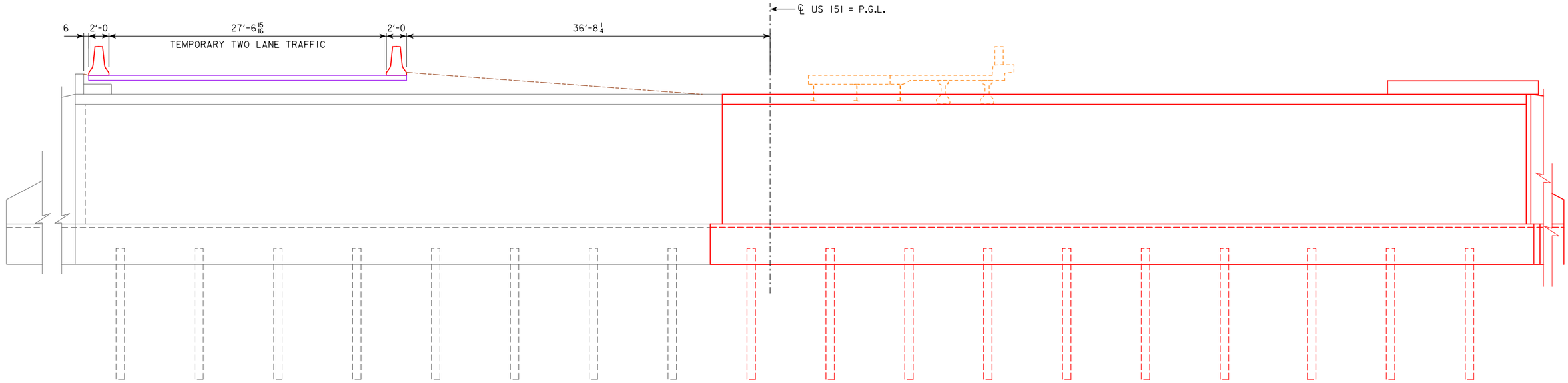
STATION 980+18.00

LINN COUNTY

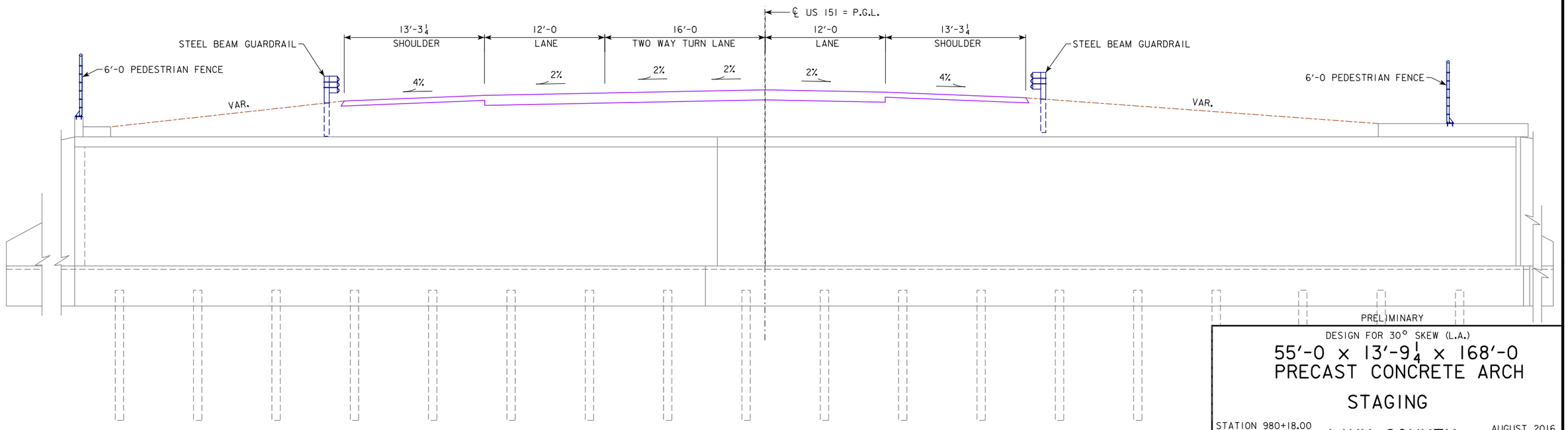
AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 718



STAGE 2



FINAL

PRELIMINARY

DESIGN FOR 30° SKEW (L.A.)

55'-0 x 13'-9 1/4 x 168'-0 PRECAST CONCRETE ARCH

STAGING

STATION 980+18.00

LINN COUNTY

AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 718

DESIGN TEAM SHUCK-BRITSON	2409 GRAND AVENUE DES MOINES, IOWA 50312 515-243-4477	S.B.I. NO. 112.0807.01	LINN COUNTY	PROJECT NUMBER NHSX-151-3(134)--3H-57	SHEET NUMBER V.25

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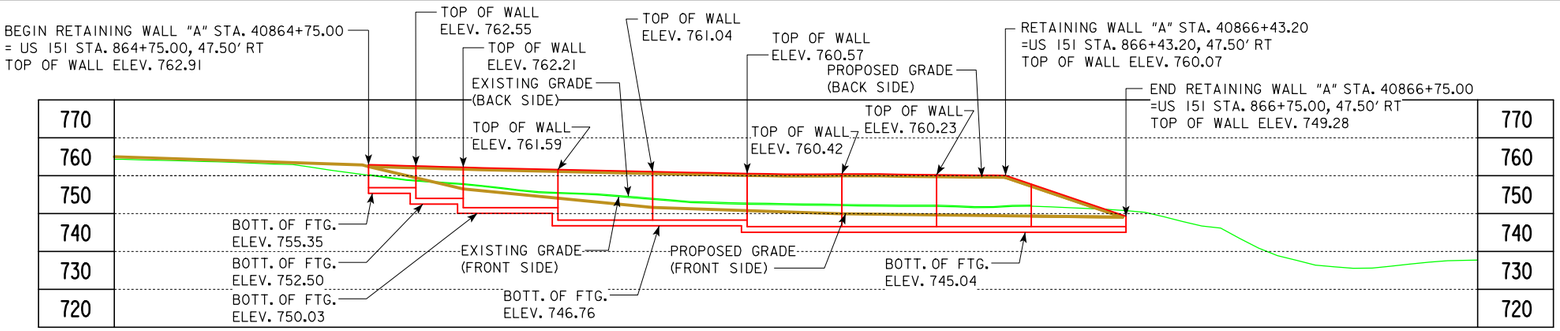
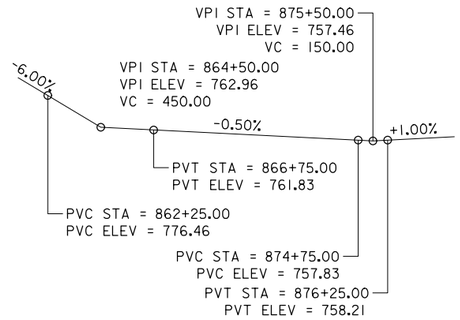
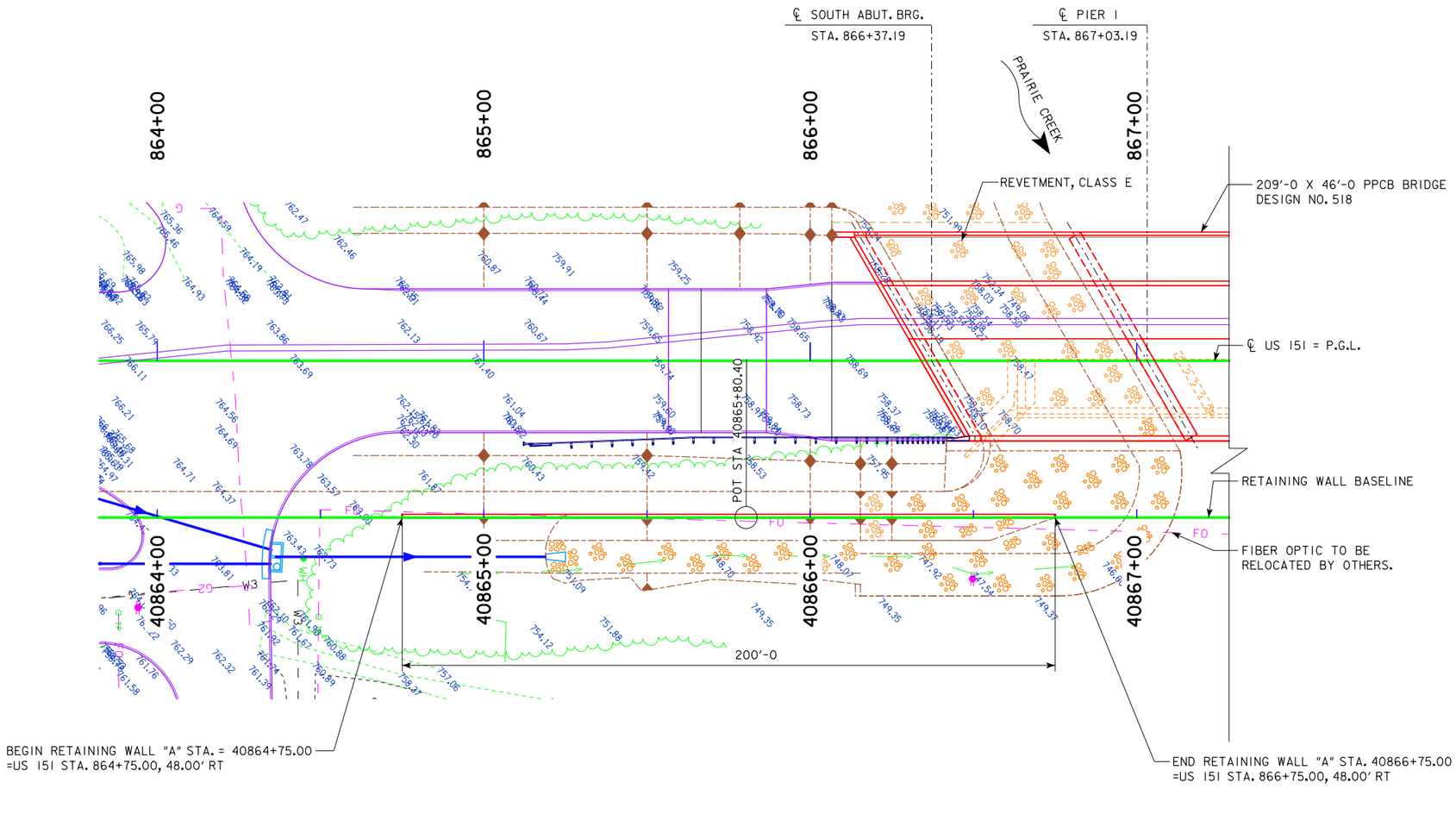


RETAINING WALL "A" ELEVATION

BENCH MARK NO. BM2 STA. 871+35.96, 70.098 RT, RR SPIKE IN POWER POLE, EAST SIDE HWY 151, 200' ± NORTH OF NORTH END OF RIVER BRIDGE AT BEGGINNING OF CLEARING.
ELEV. 750.420, N = 705704.166 E = 2107504.303



PROPOSED PROFILE GRADE (US 151)



NOTES: AESTHETICS TO BE INCORPORATED DURING FINAL DESIGN.
SEE DESIGN NO. 518 FOR LIMITS OF REVETMENT, CLASS E.

UTILITIES LEGEND:

FO - FIBER OPTIC - SOUTH SLOPE
G - GAS - MIDAMERICAN ENERGY
TI - TELEPHONE - SOUTH SLOPE
W3 - WATER - FAIRFAX

RETAINING WALL
AT US HIGHWAY 151
OVER PRAIRIE CREEK
T-82N R-8W
SECTION 9
FAIRFAX TOWNSHIP
LINN COUNTY
LATITUDE 41.922715°
LONGITUDE -91.783648°

TRAFFIC ESTIMATE

2013 AADT	8100	V.P.D.
2040 AADT	12,010	V.P.D.
2040 DHV	-	V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALs	-	

PRELIMINARY

N

0 ENGLISH 40
SCALE IN FEET

SITUATION PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.

DESIGN FOR
200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

BEGIN STATION 40864+75.00
END STATION 40866+75.00

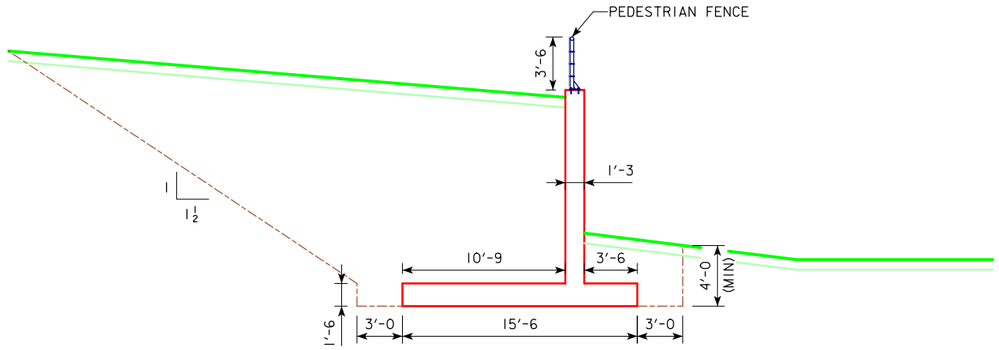
AUGUST 2016

SITUATION PLAN
LINN COUNTY

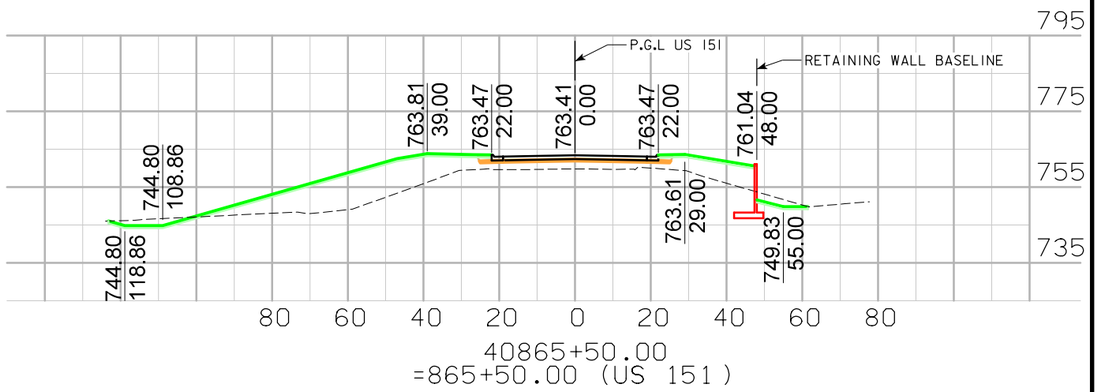
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF 2 FILE NO. 30839 DESIGN NO. 918

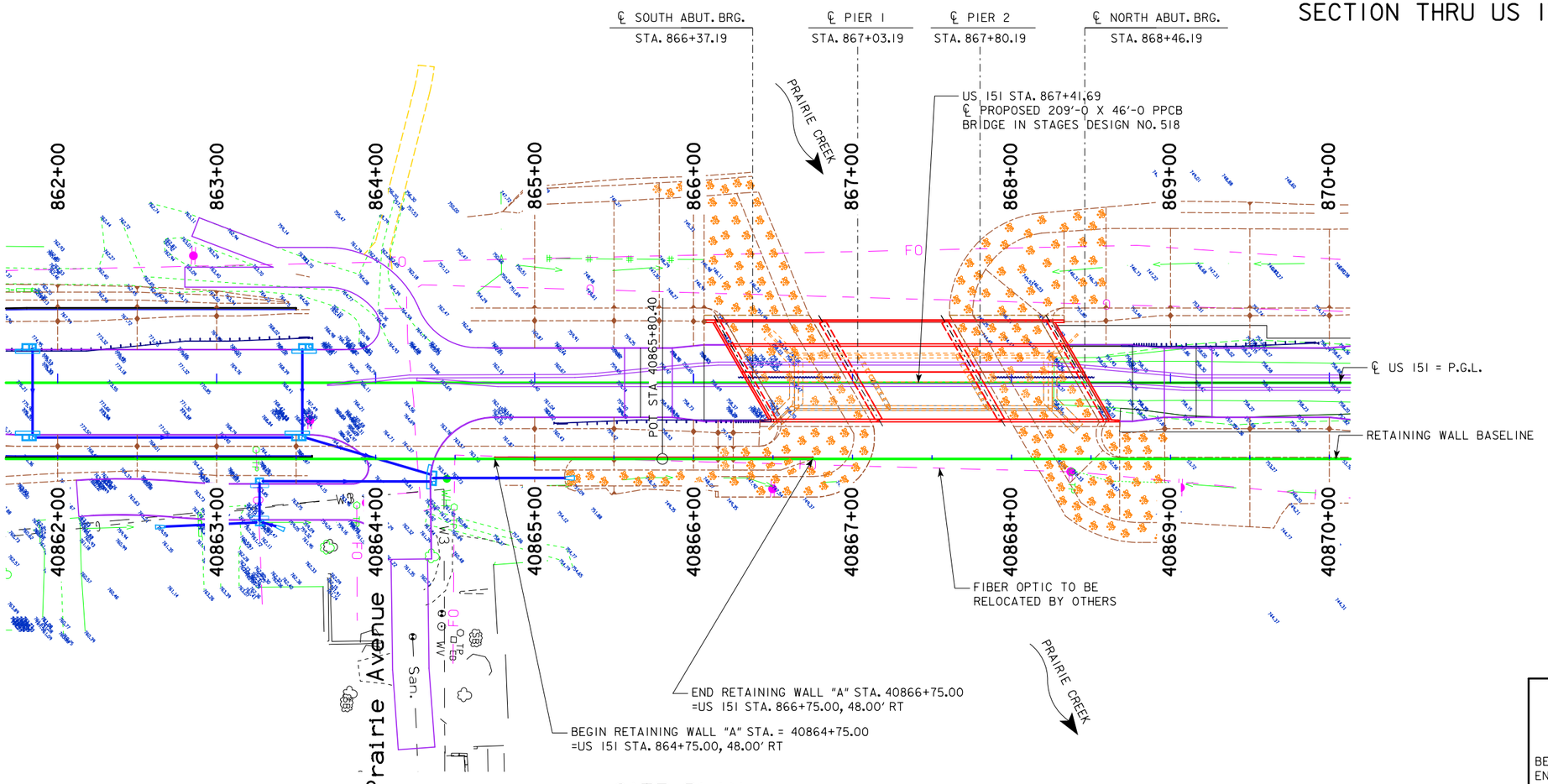
BENCH MARK NO. BM2 STA. 871+35.96, 70.098 RT, RR SPIKE IN POWER POLE, EAST SIDE HWY 151, 200' ± NORTH OF NORTH END OF RIVER BRIDGE AT BEGGINNING OF CLEARING.
ELEV. 750.420, N = 705704.166 E = 2107504.303



TYPICAL SECTION



SECTION THRU US 151 WITH WALL SECTION



SITE PLAN
ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.

UTILITIES LEGEND:
FO - FIBER OPTIC - SOUTH SLOPE
G - GAS - MIDAMERICAN ENERGY

PRELIMINARY

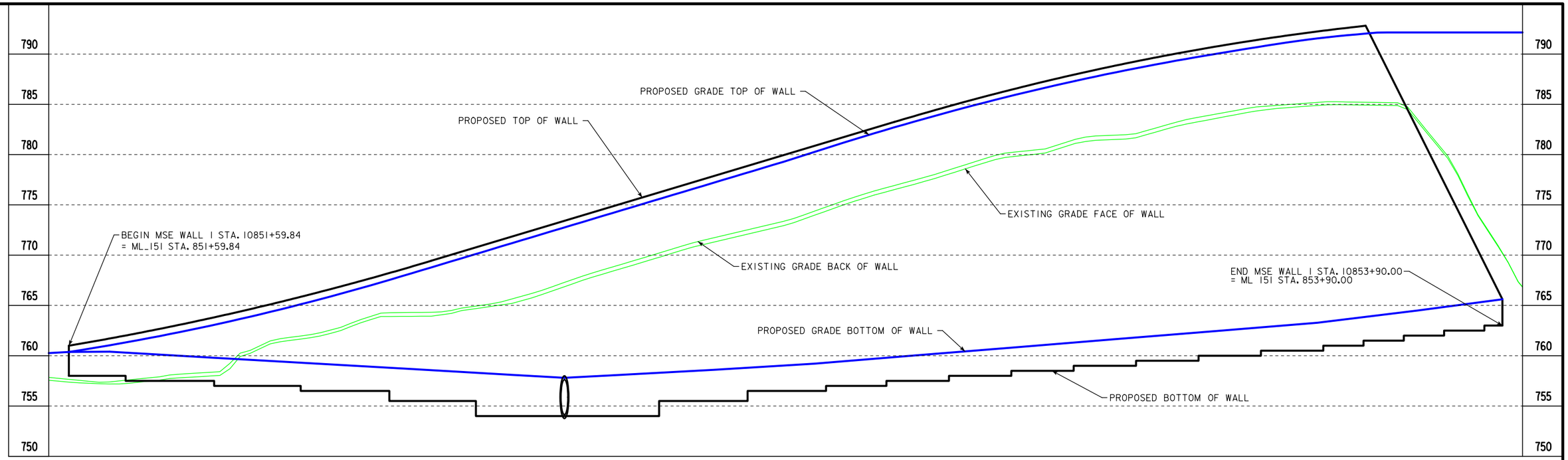
DESIGN FOR
200'-0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL

BEGIN STATION 40864+75.00
END STATION 40866+75.00
AUGUST 2016

SITE PLAN
LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF 2 FILE NO. 30839 DESIGN NO. 918

DESIGN TEAM SHUCK-BRITSON INC. 400 EAST COURT AVE. SUITE 140 DES MOINES, IOWA 50309 515-243-4477 | S.B.I. NO. 112.0807.01 | LINN COUNTY | PROJECT NUMBER NHSX-151-3(158)--3H-57 | SHEET NUMBER V.27

8/4/2016 9:02:02 AM V8i_IDOTBridge pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\BRPrelim\CADD\Retaining Wall @ Prairie Creek\57151158_Shuck-Britson.str TSL_57_0918_27 11x17_pdf.pltcfg



BENCH MARK: BM1
DESCRIPTION: GIN SPIKE IN POWER POLE, EAST SIDE HWY 151, ACROSS FROM "PIT STOP"
STA. 846+60.91, 23.069' RT.
ELEV. = 763.60'

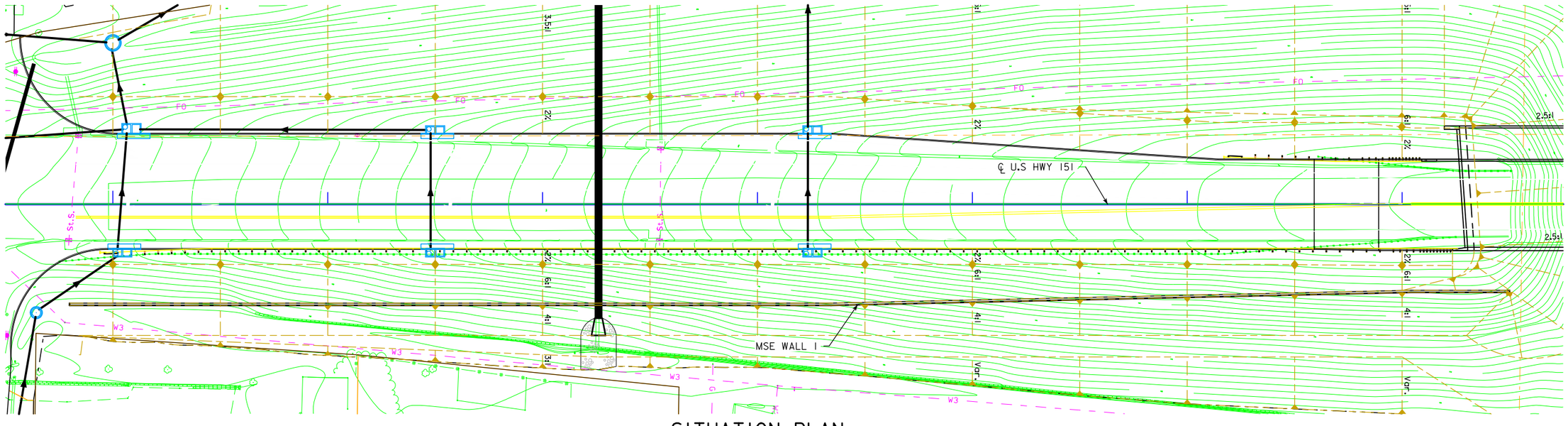
UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 151
T-82N R-8W
SECTION 16
FAIRFAX TOWNSHIP
LINN COUNTY

0 ENGLISH 50
SCALE IN FEET



SITUATION PLAN

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER V.28	REVISED

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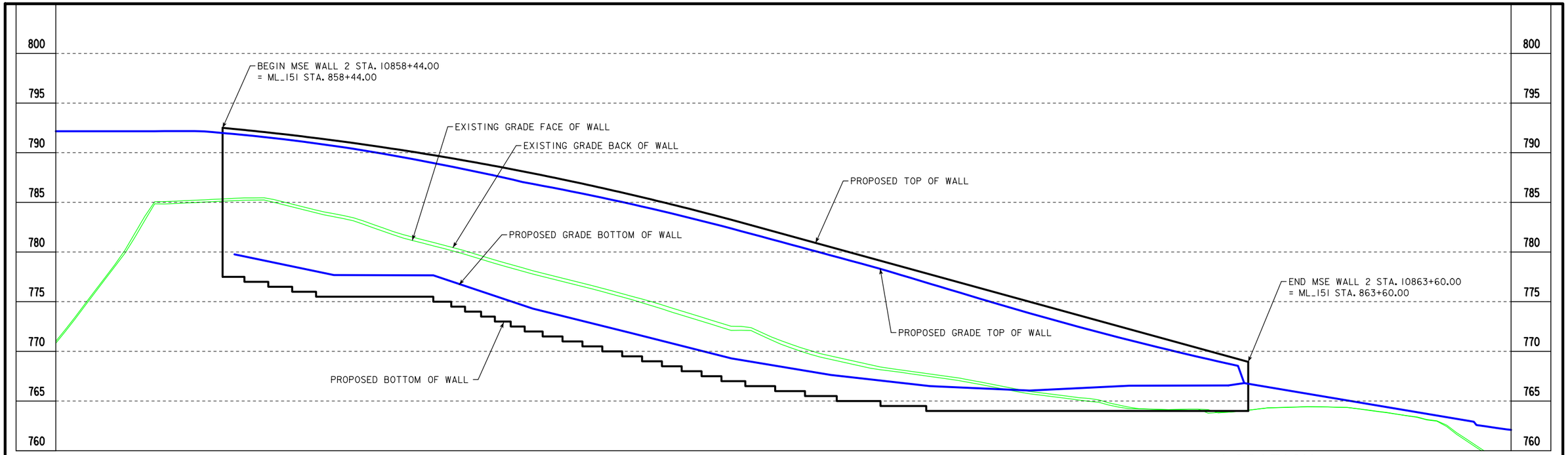


BENCH MARK: BM1
DESCRIPTION: GIN SPIKE IN POWER POLE, EAST SIDE HWY 151, ACROSS FROM "PIT STOP"
STA. 846+60.91, 23.069' RT.
ELEV. = 763.60

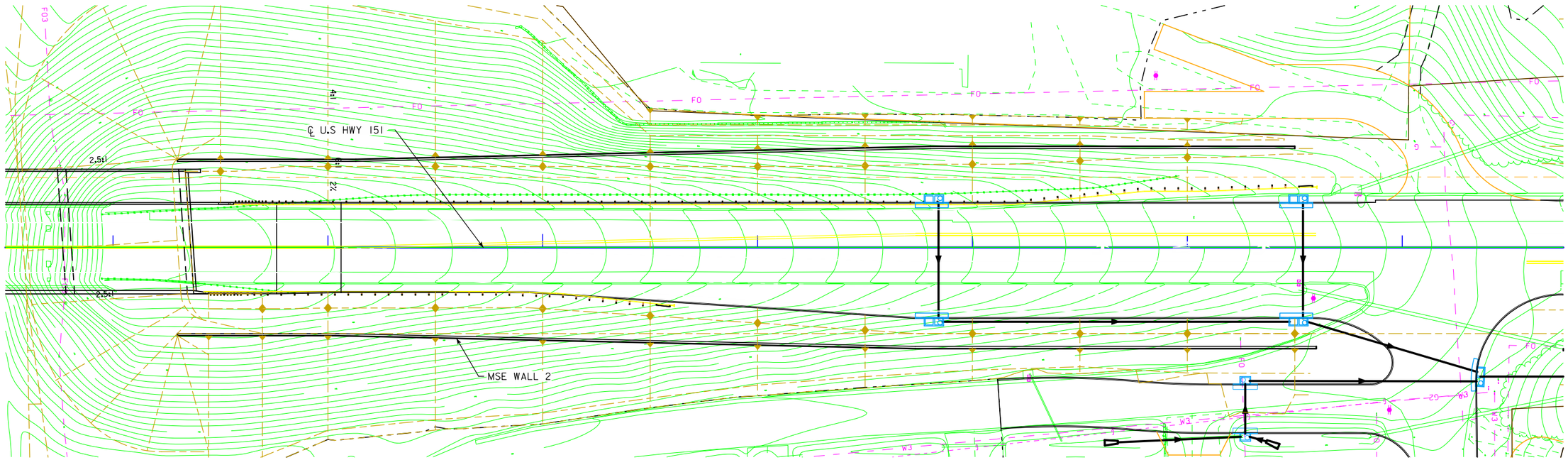
UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 151
T-82N R-8W
SECTION 16
FAIRFAX TOWNSHIP
LINN COUNTY

0 ENGLISH 50
SCALE IN FEET



SITUATION PLAN

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER V.29	REVISED

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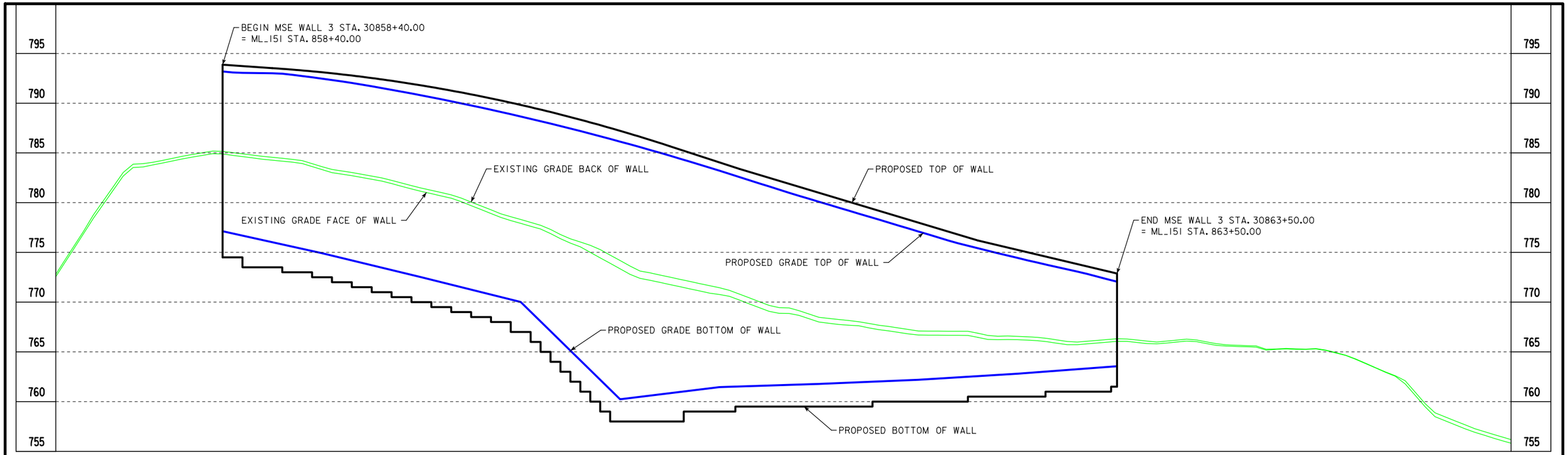


BENCH MARK: BM1
DESCRIPTION: GIN SPIKE IN POWER POLE, EAST SIDE HWY 151, ACROSS FROM "PIT STOP"
STA. 846+60.91, 23.069' RT.
ELEV. = 763.60

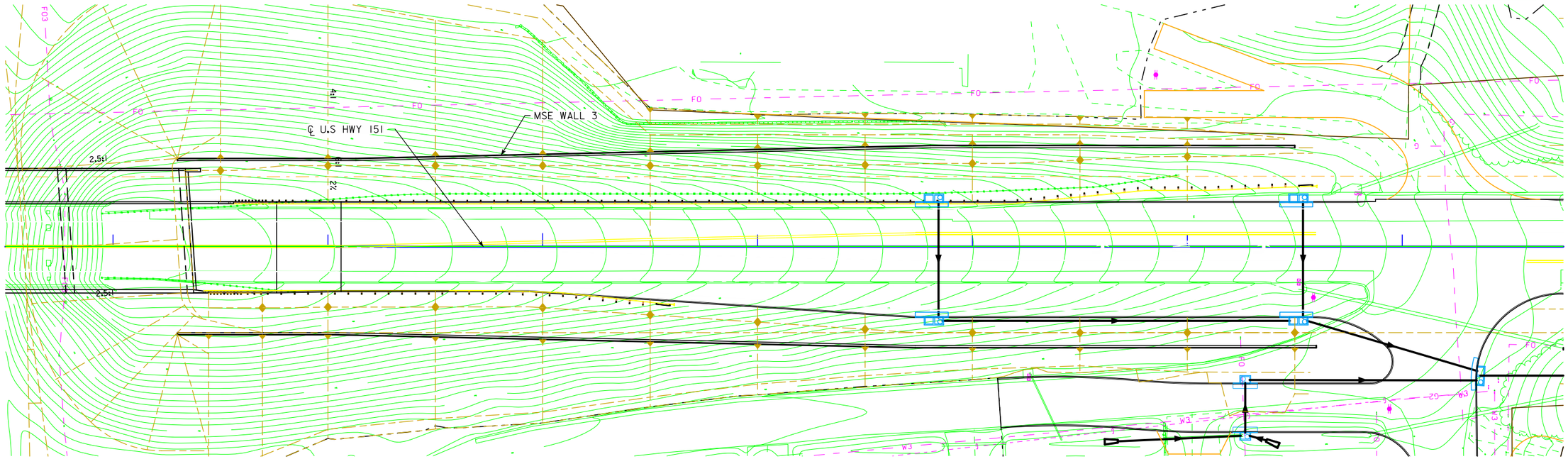
UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 151
T-82N R-8W
SECTION 16
FAIRFAX TOWNSHIP
LINN COUNTY

0 ENGLISH 50
SCALE IN FEET



SITUATION PLAN

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER V.30	REVISED

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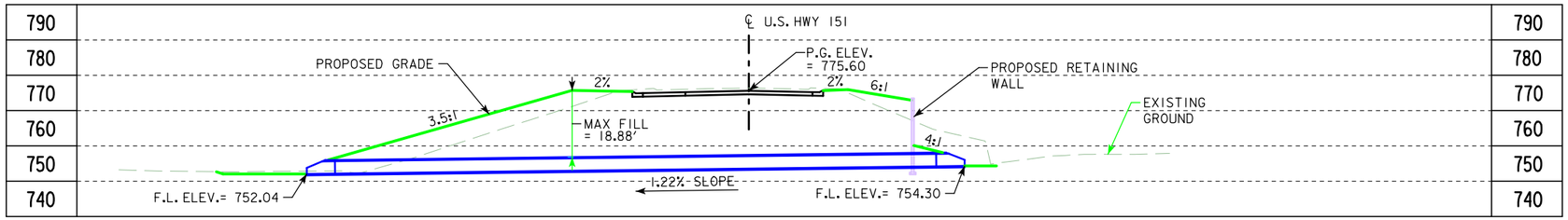
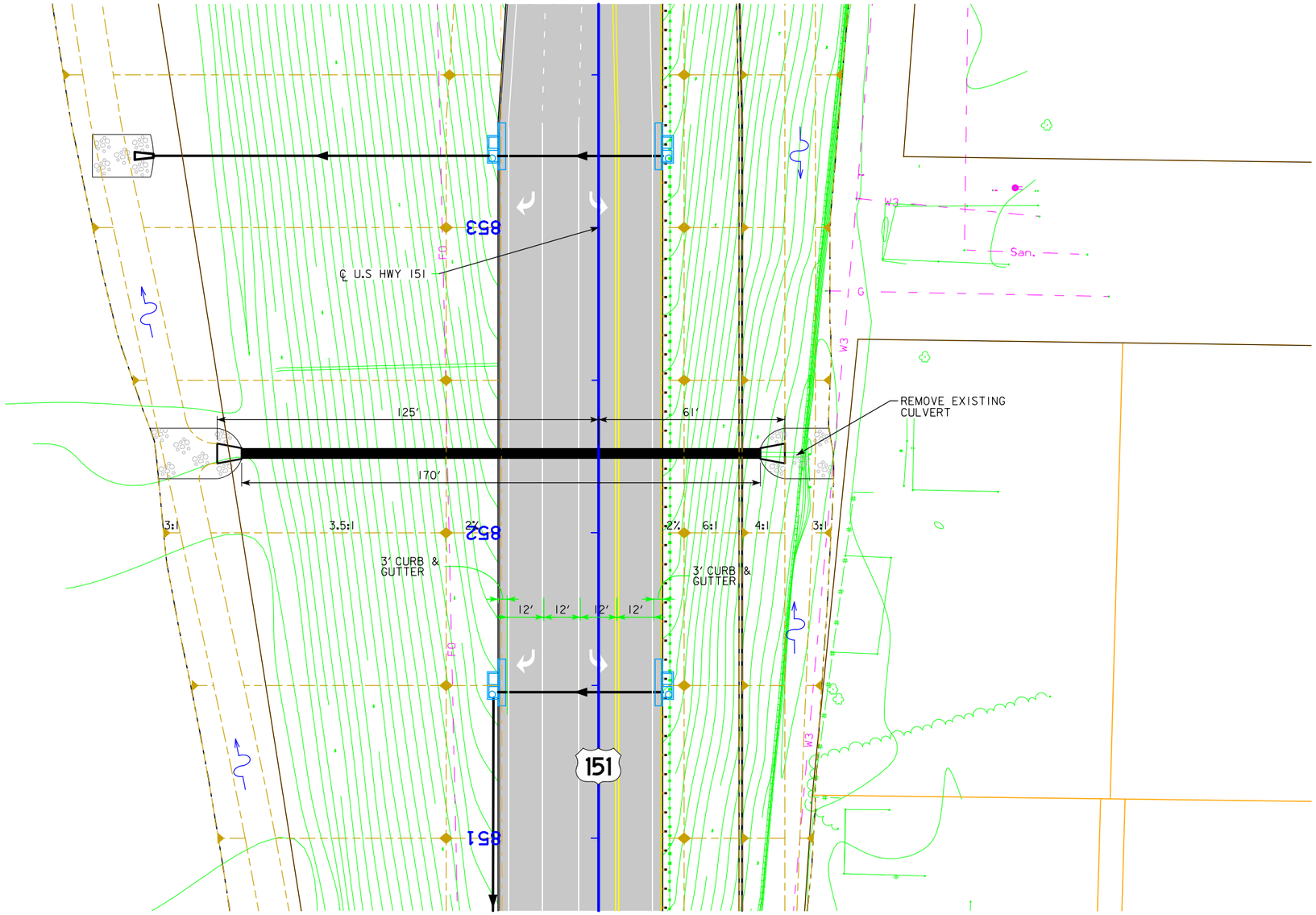
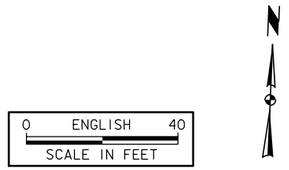


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN



BENCH MARK: BMI
DESCRIPTION: GIN SPIKE IN POWER POLE, EAST SIDE HWY 151, ACROSS FROM "PIT STOP"
STA. 846+60.91, 23.069' RT.
ELEV. = 763.60

HYDRAULIC DATA

DRAINAGE AREA = 11.97 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 35.79 CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 151
T-82N R-8W
SECTION 16
FAIRFAX TOWNSHIP
LINN COUNTY

STAGING NOTES

REMOVE EXISTING 3' x 2' BOX CULVERT EXTENDED WITH 36" RCP AND INSTALL NEW 42" PIPE AND APRONS.

DESIGN FOR 0° SKEW R.A.

42" X 170' REINFORCED CONCRETE PIPE

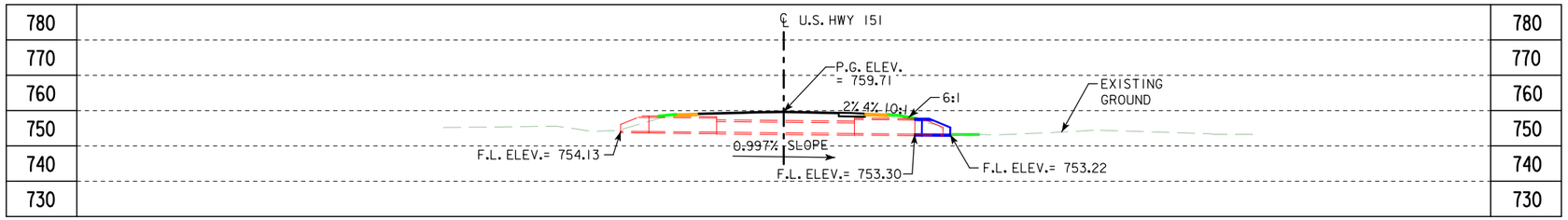
PLAT PLAN

STA. 852+26.00 ℄ U.S. HWY. 151 NOVEMBER 2018

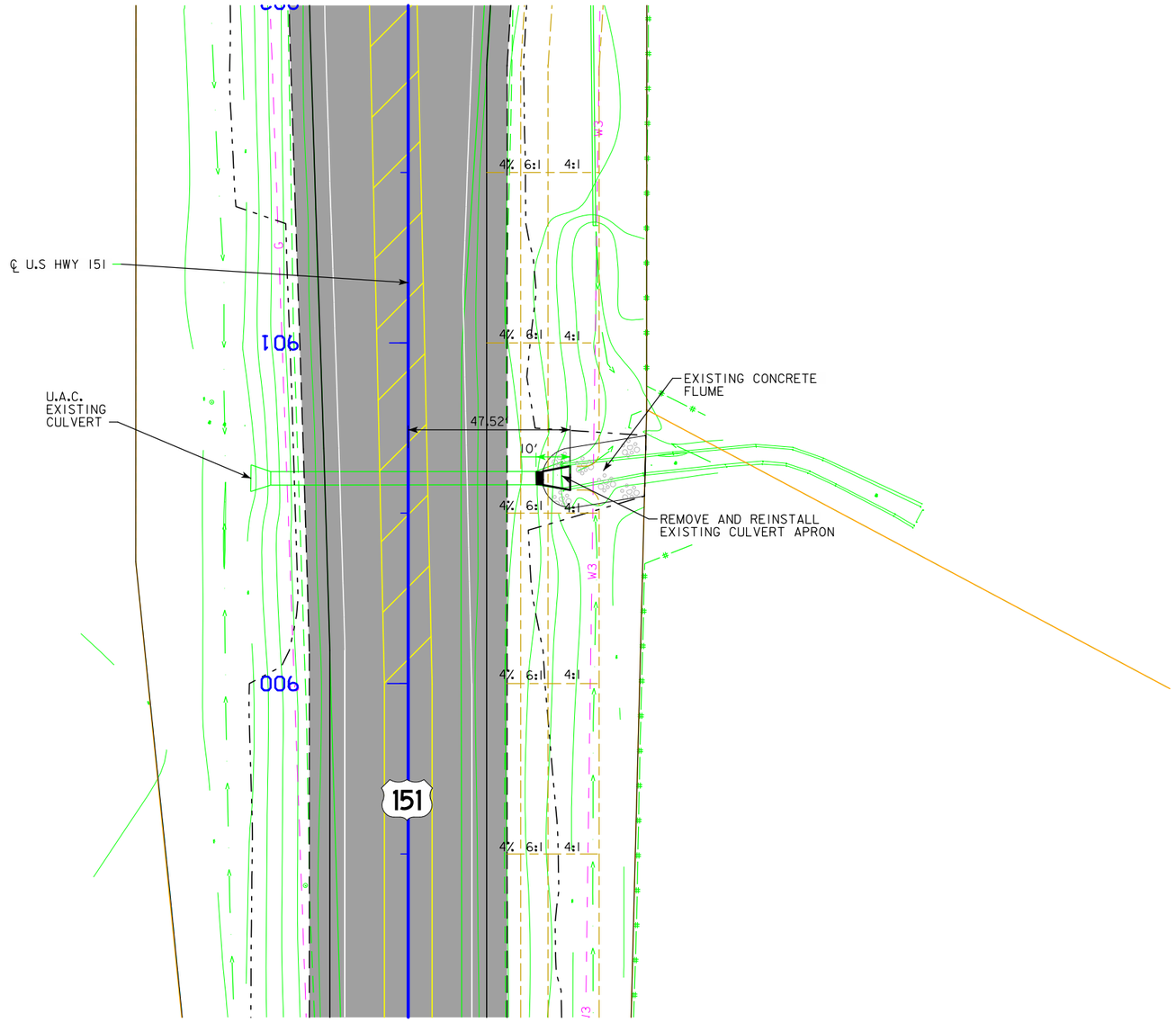
LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

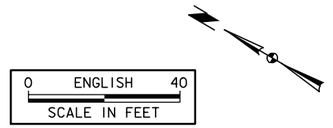
DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____



LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN



BENCH MARK: #4
DESCRIPTION: RR SPIKE IN POWER POLE, SOUTH SIDE OF 80TH ST SW, 70' +/- WEST OF STOP SIGN ON HWY 151.
STA. 909+53.51, 171.787' LT.
ELEV. = 767.94

HYDRAULIC DATA

DRAINAGE AREA = 67 ACRES ROLLING
DESIGN DISCHARGE, Q = 35.07 CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 151
T-82N R-8W
SECTION 9
FAIRFAX TOWNSHIP
LINN COUNTY

STAGING NOTES

REMOVE EXISTING 48" RCP APRON. INSTALL 2' SECTION OF 48" RCP WITH APRON.

DESIGN FOR 0° SKEW R.A.

48" X 2' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 900+59.26 ℄ U.S. HWY. 151 NOVEMBER 2018

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN	COUNTY	PROJECT NUMBER NHSX-151-3(158)--3H-57	SHEET NUMBER V.32

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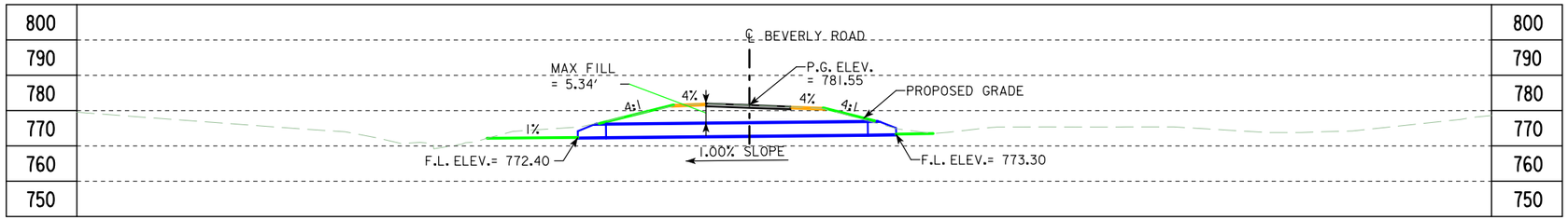
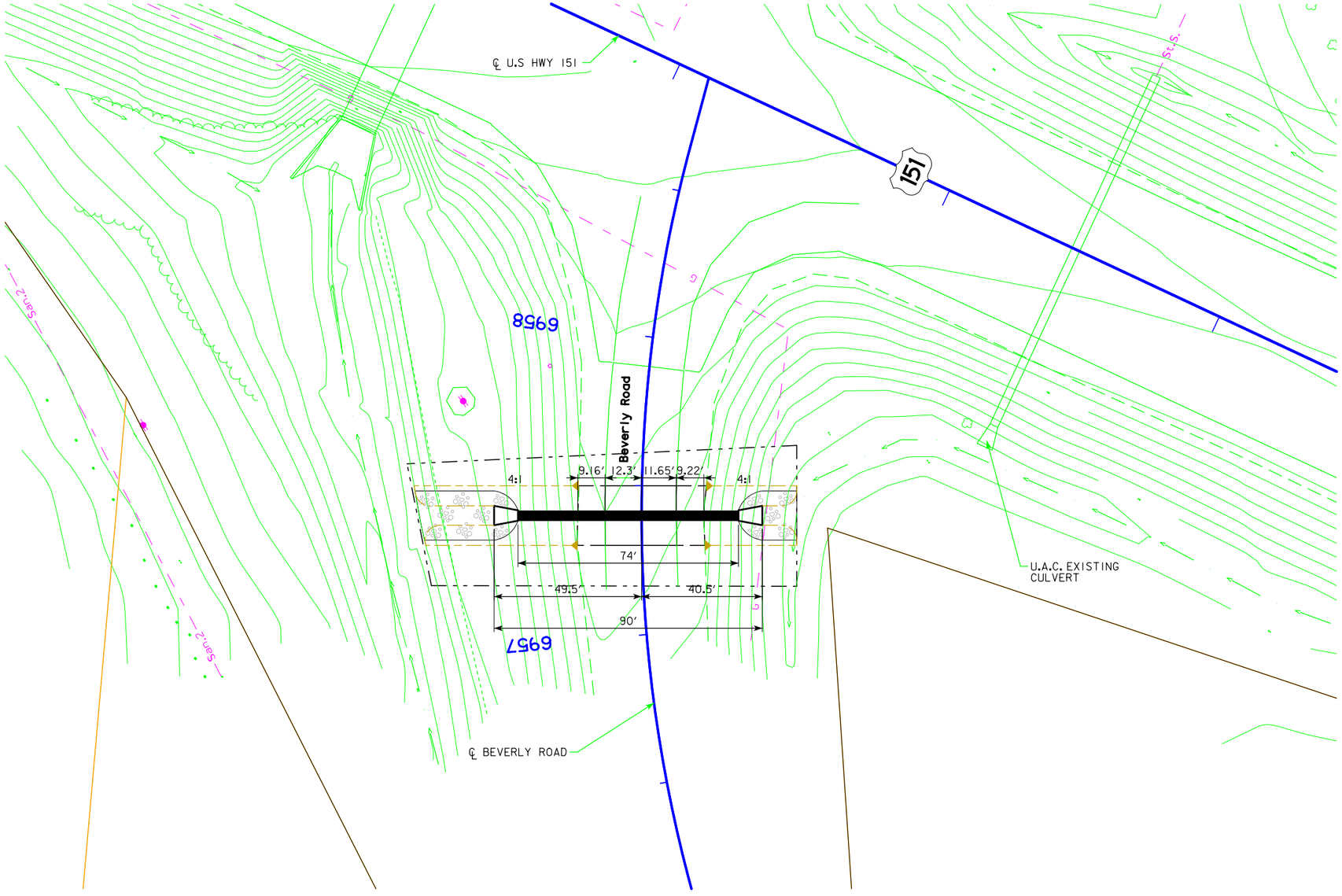


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN

0 ENGLISH 40
SCALE IN FEET

BENCH MARK: #5
DESCRIPTION: GIN SPIKE IN LIGHT POLE, NW QUAD OF BEVERLY DRIVE WEST AND HWY 151
STA. 958+96.64, 109.70 LT.
ELEV. = 781.81

HYDRAULIC DATA

DRAINAGE AREA = 40.3 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 67.56 CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 151
T-82N R-8W
SECTION 3
FAIRFAX TOWNSHIP
LINN COUNTY

STAGING NOTES

INSTALL 74' LF 42" RCP WITH APRONS.

DESIGN FOR 0° SKEW R.A.

42" X 74'
REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 6957+40.00 ℄ BEVERLY ROAD NOVEMBER 2018

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-151-3(158)--3H-57	SHEET NUMBER V.33

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LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)

- Existing Ground Line
- Proposed Template
- Proposed Topsoil Placement
- Additional Topsoil Removal
- Subrade Treatment
- Granular Shoulder
- Pavement
- Existing Pipe\RCB
- Proposed Pipe\RCB
- Proposed Dike
- All Elements Associated with Proposed Entrances

LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)

- TS — Topsoil (Class 10)
- SLOPE DRESSING — Slope Dressing Only
- CL 10 — Class 10 Materials
- SEL LO — Select Loams And Clay-Loams
- SEL SA — Select Sand
- UNS A — Unsuitable Type A Disposal
- UNS B — Unsuitable Type B Disposal
- UNS C — Unsuitable Type C Disposal
- SHALE — Shale
- WASTE — Waste
- B&W LS — Broken and Weathered Rock
- ROCK — Solid Rock
- BLDRS — Boulders

Note: All layer lines and descriptions identify layers above the line.

Note: Vertical or near vertical lines connecting soil layers at edges of cross sections are only for the purpose of calculating template quantities and do not depict soil stratification.

SYMBOL LEGEND OF CROSS SECTION SHEETS

Existing ROW — Existing Right-of-Way Limit

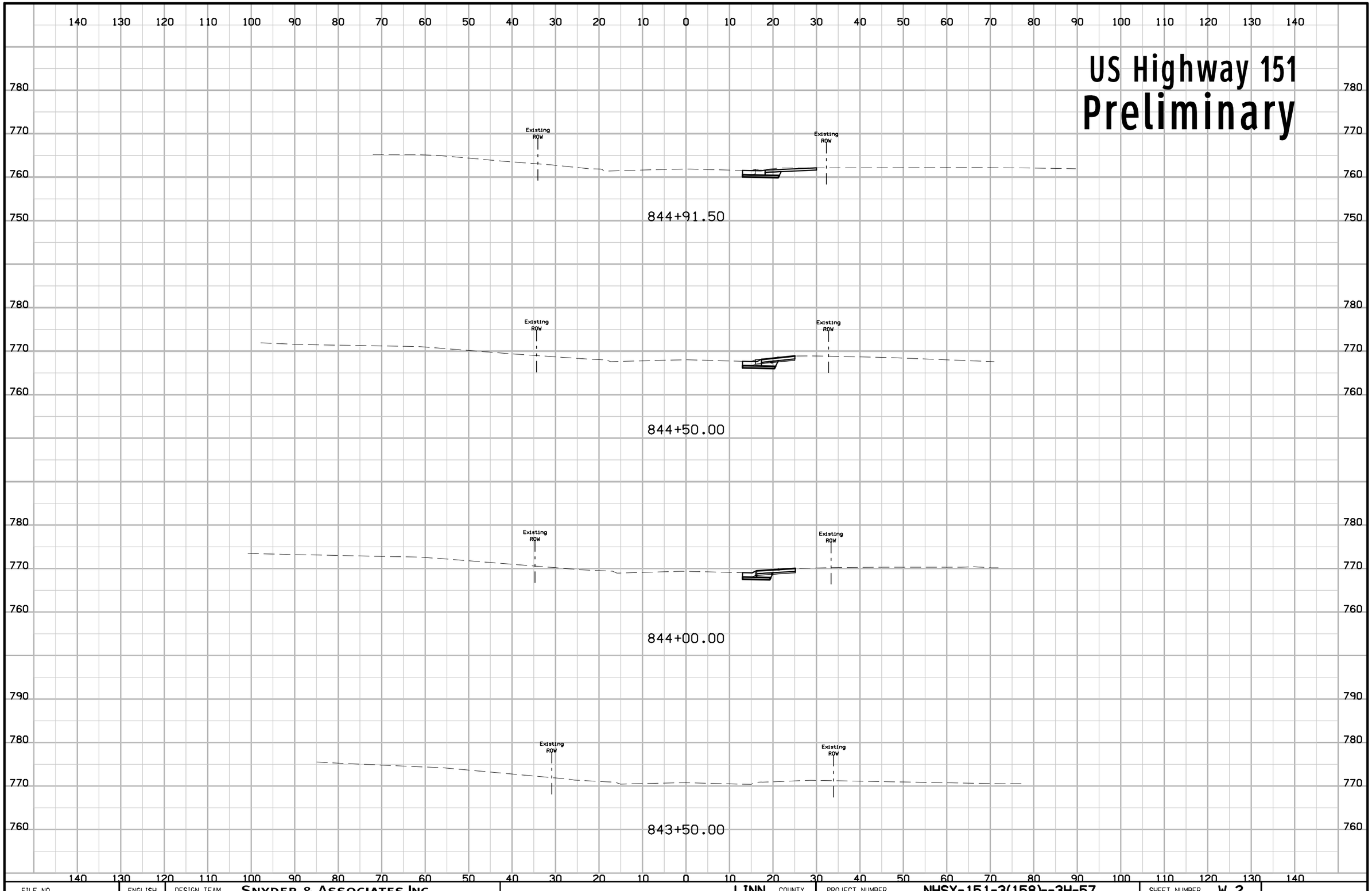
Proposed ROW — Proposed Right-of-Way Limit

Temporary ROW — Temporary Right-of-Way Limit

CROSS SECTION LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES W, X, Y, & Z)

US Highway 151
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN	COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.2

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US Highway 151
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

780
770
760
750

Existing ROW

Existing ROW

845+50.00

845+34.00

845+00.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.3

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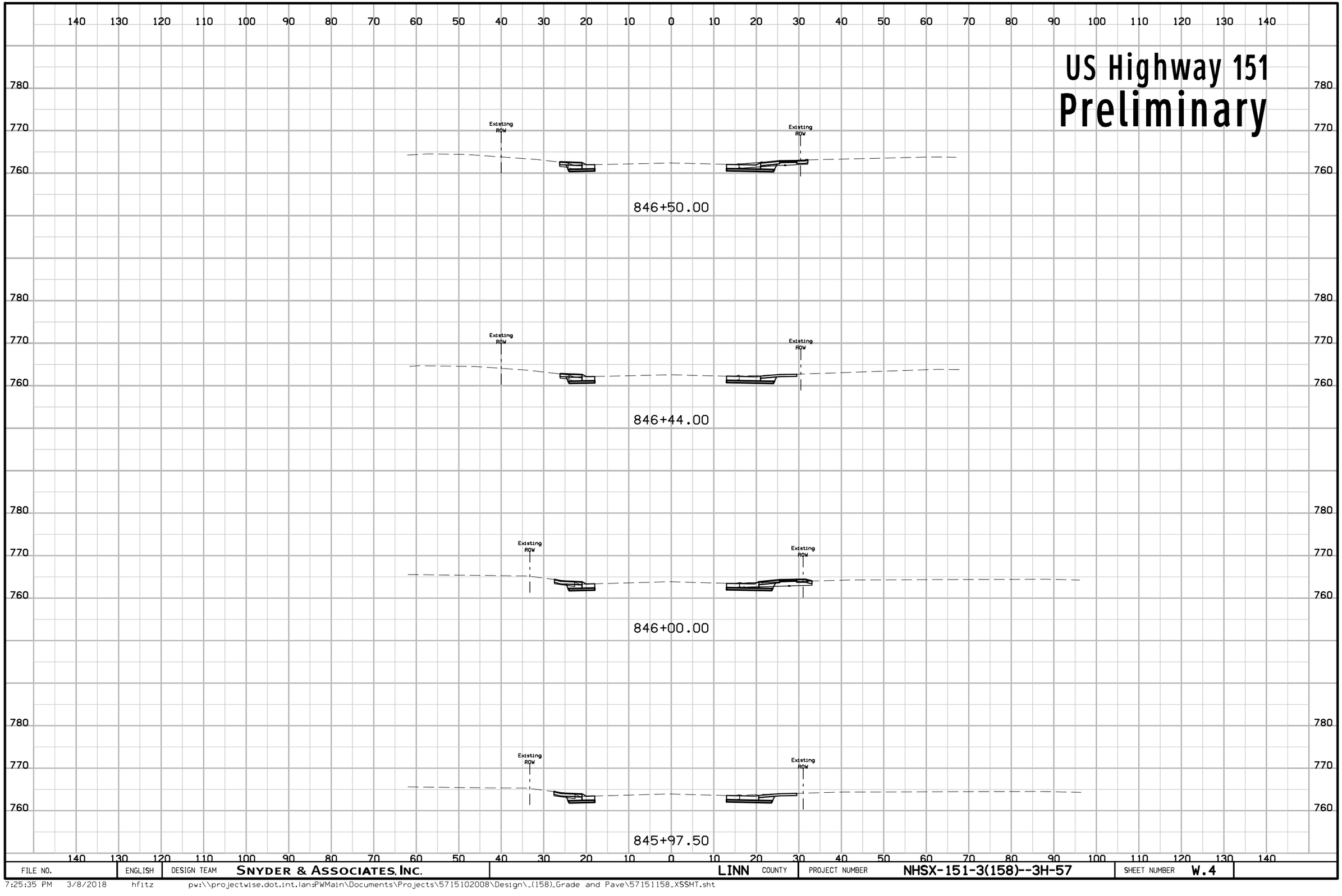
US Highway 151
Preliminary



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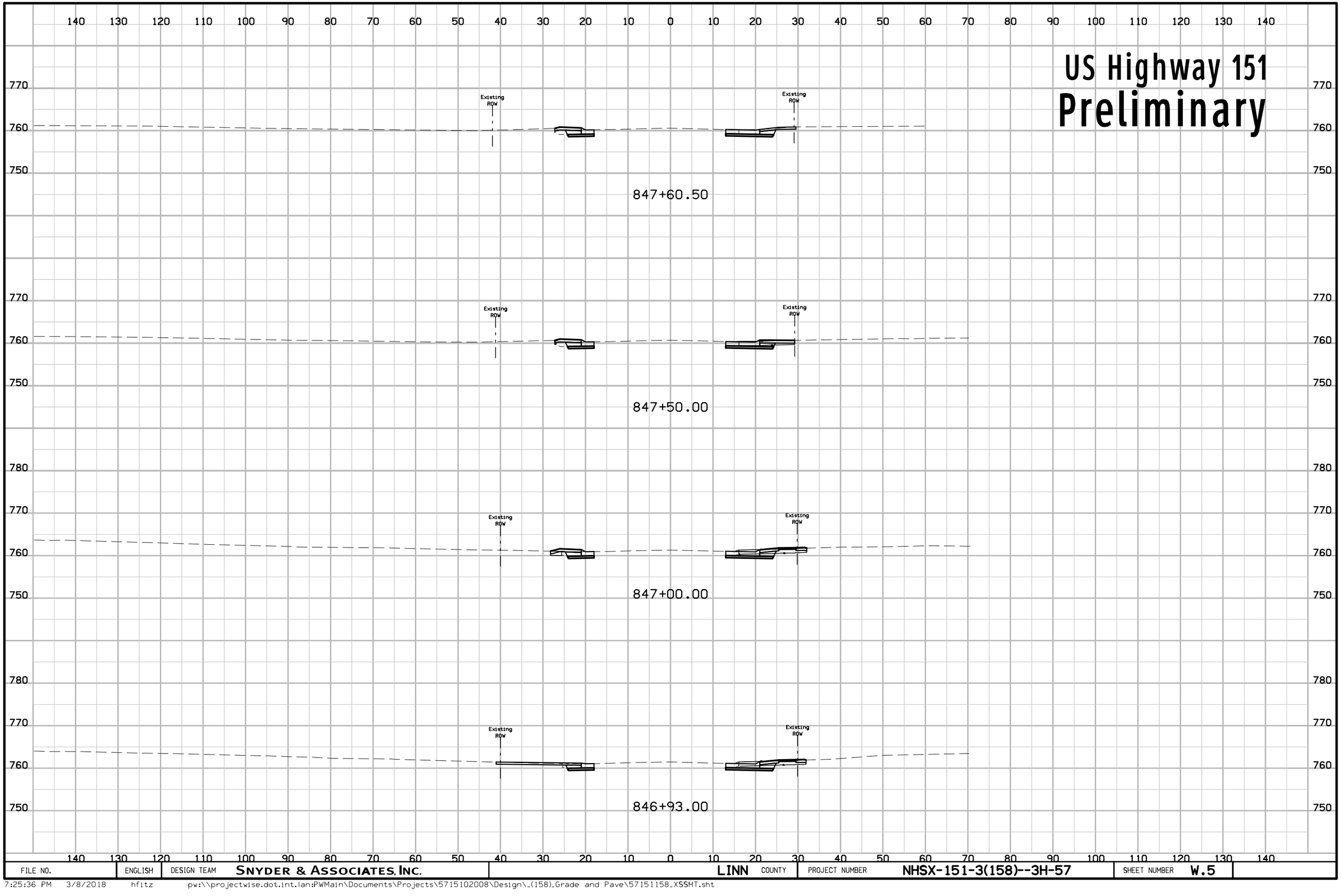
US Highway 151
Preliminary



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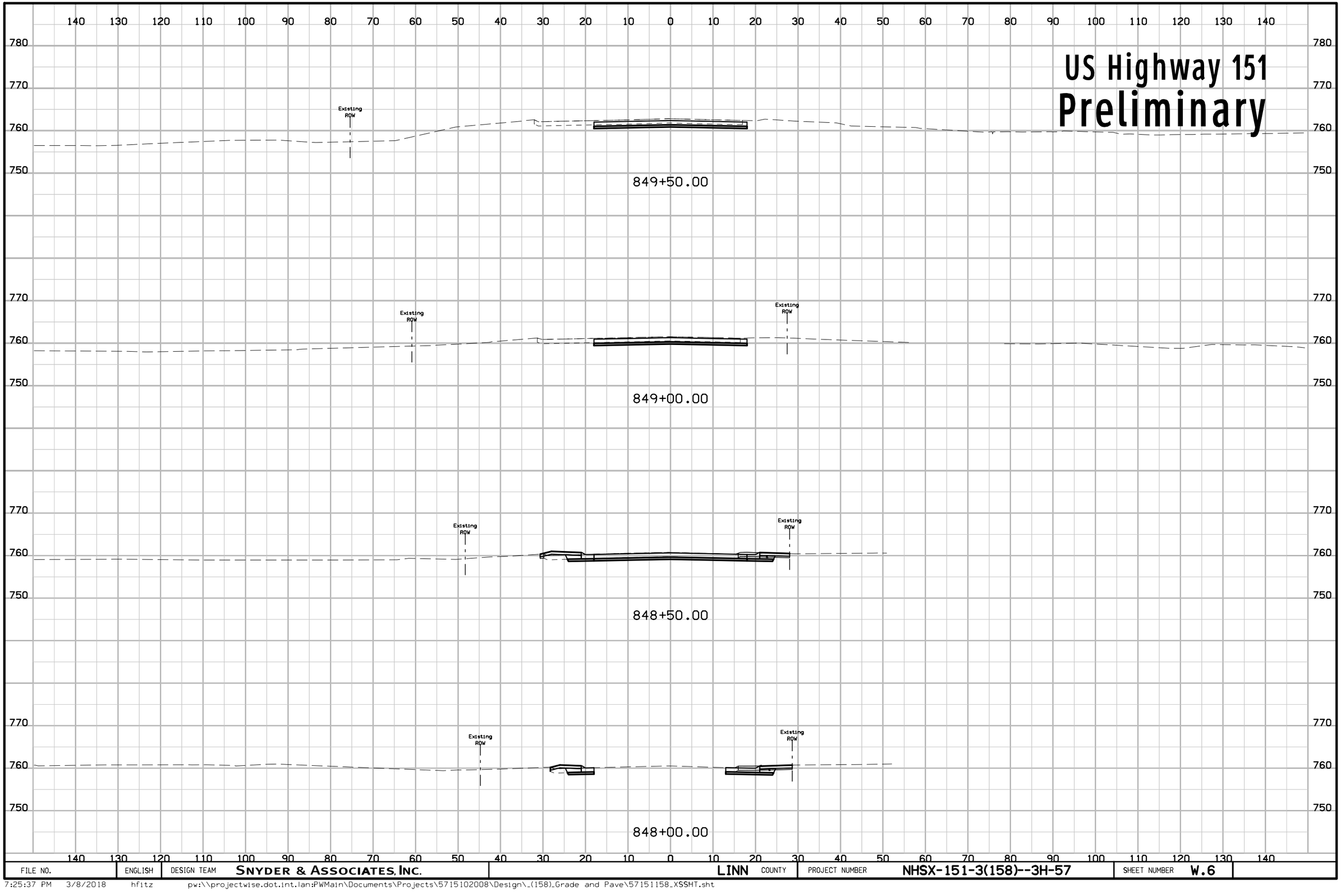
US Highway 151
Preliminary



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US Highway 151
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770
760
750

Existing ROW

851+50.00

851+00.00

850+50.00

850+00.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.7

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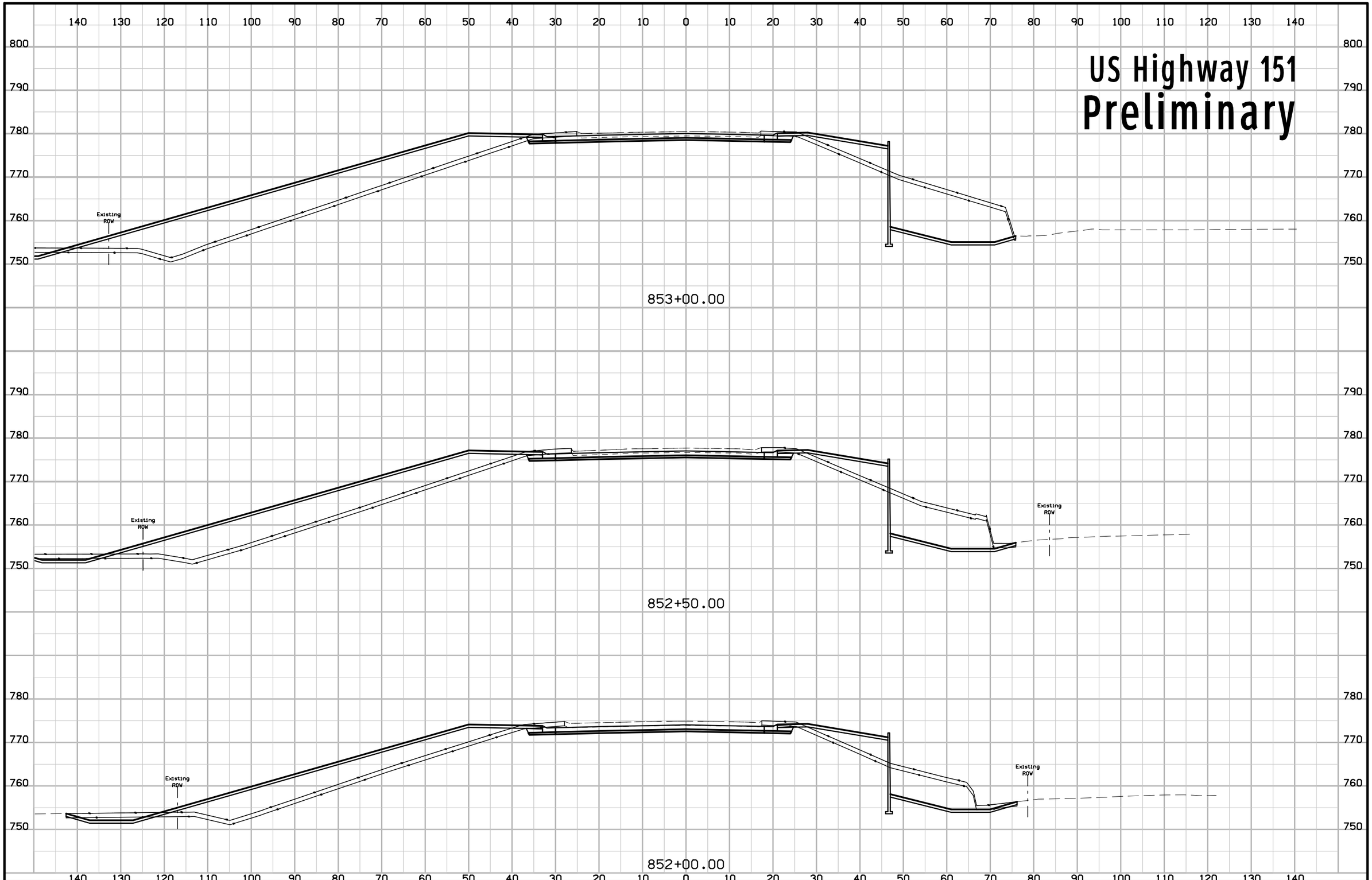
US Highway 151
Preliminary



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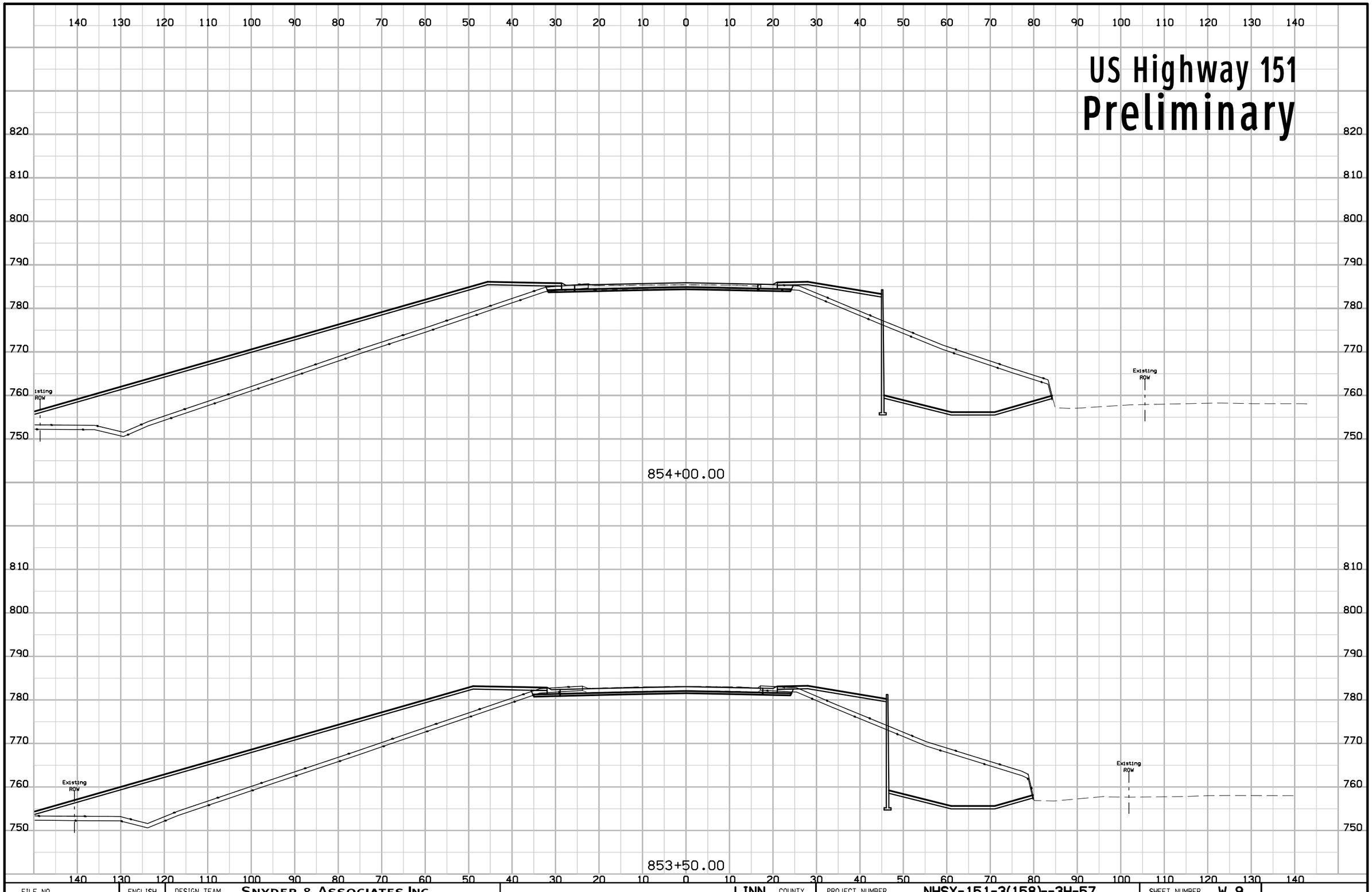
US Highway 151
Preliminary



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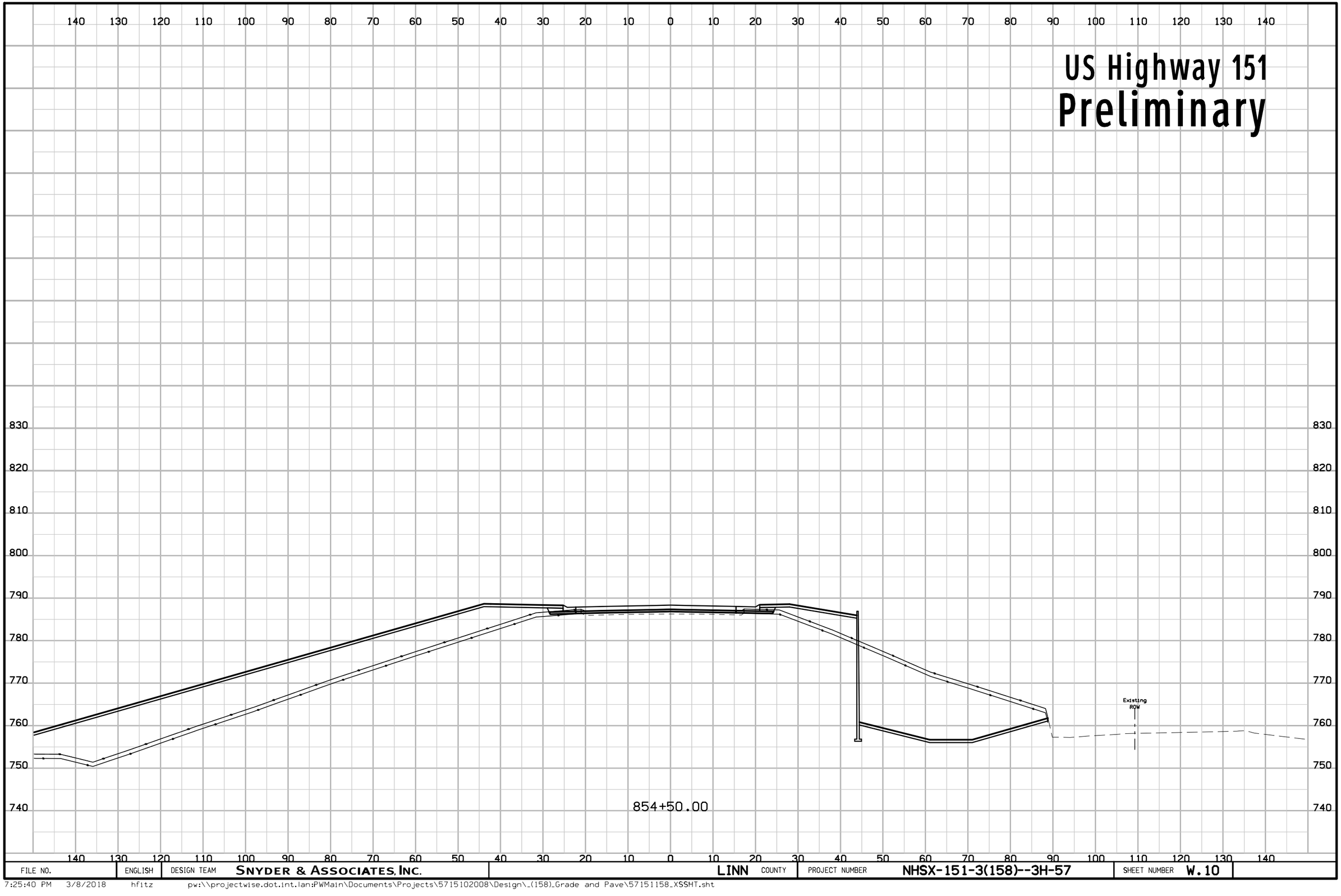
US Highway 151
Preliminary



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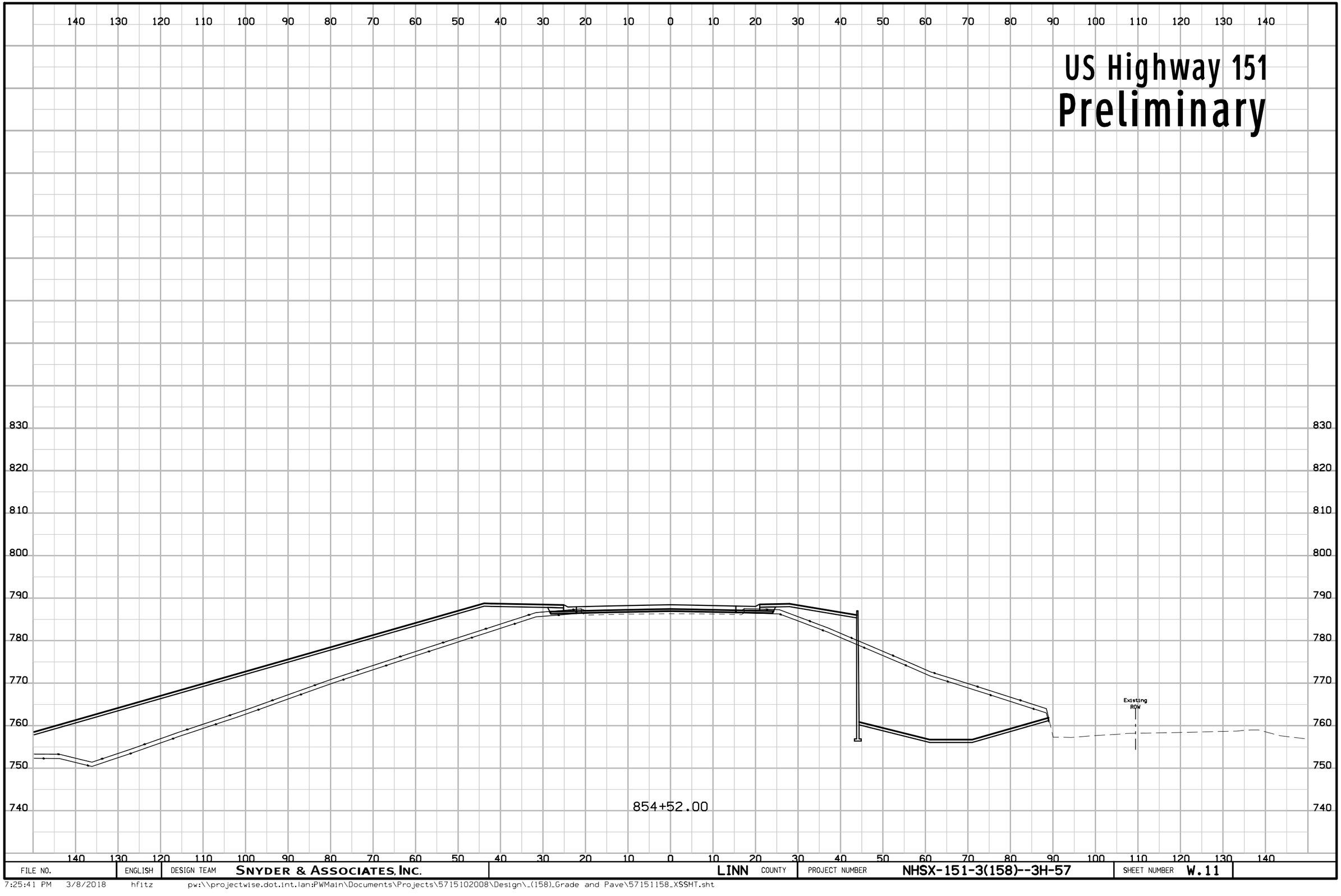
US Highway 151
Preliminary



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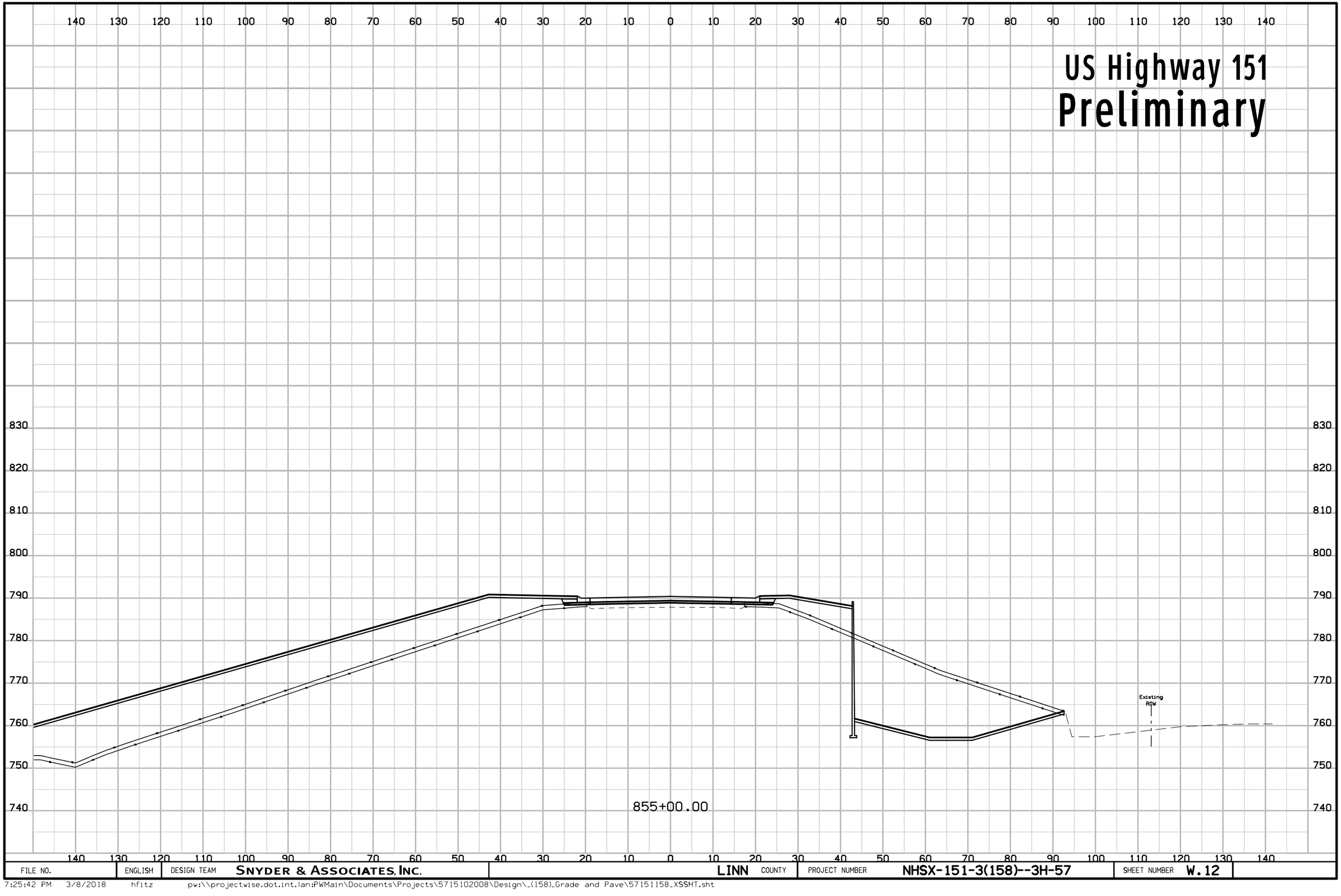
US Highway 151
Preliminary



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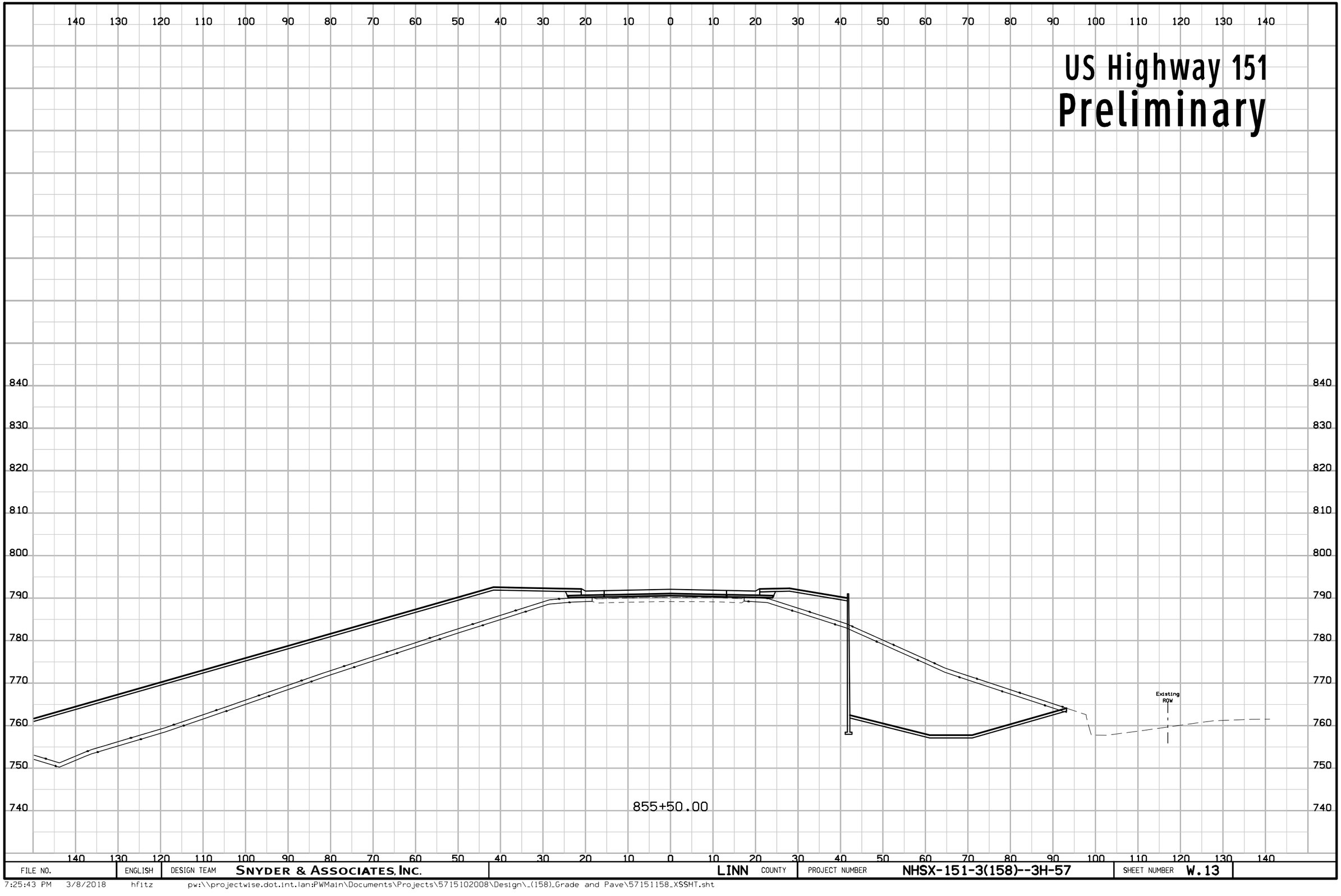
US Highway 151
Preliminary



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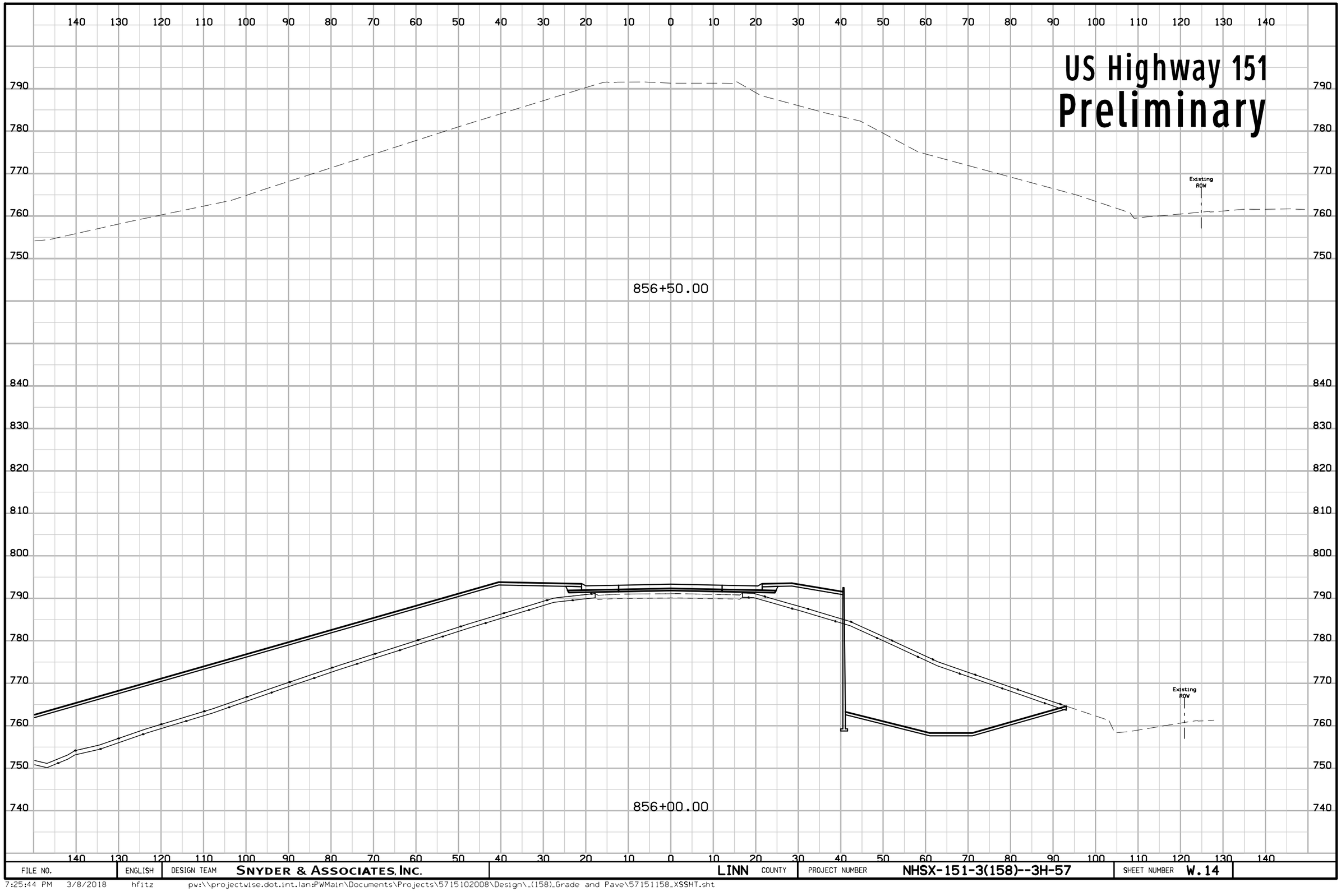
US Highway 151
Preliminary



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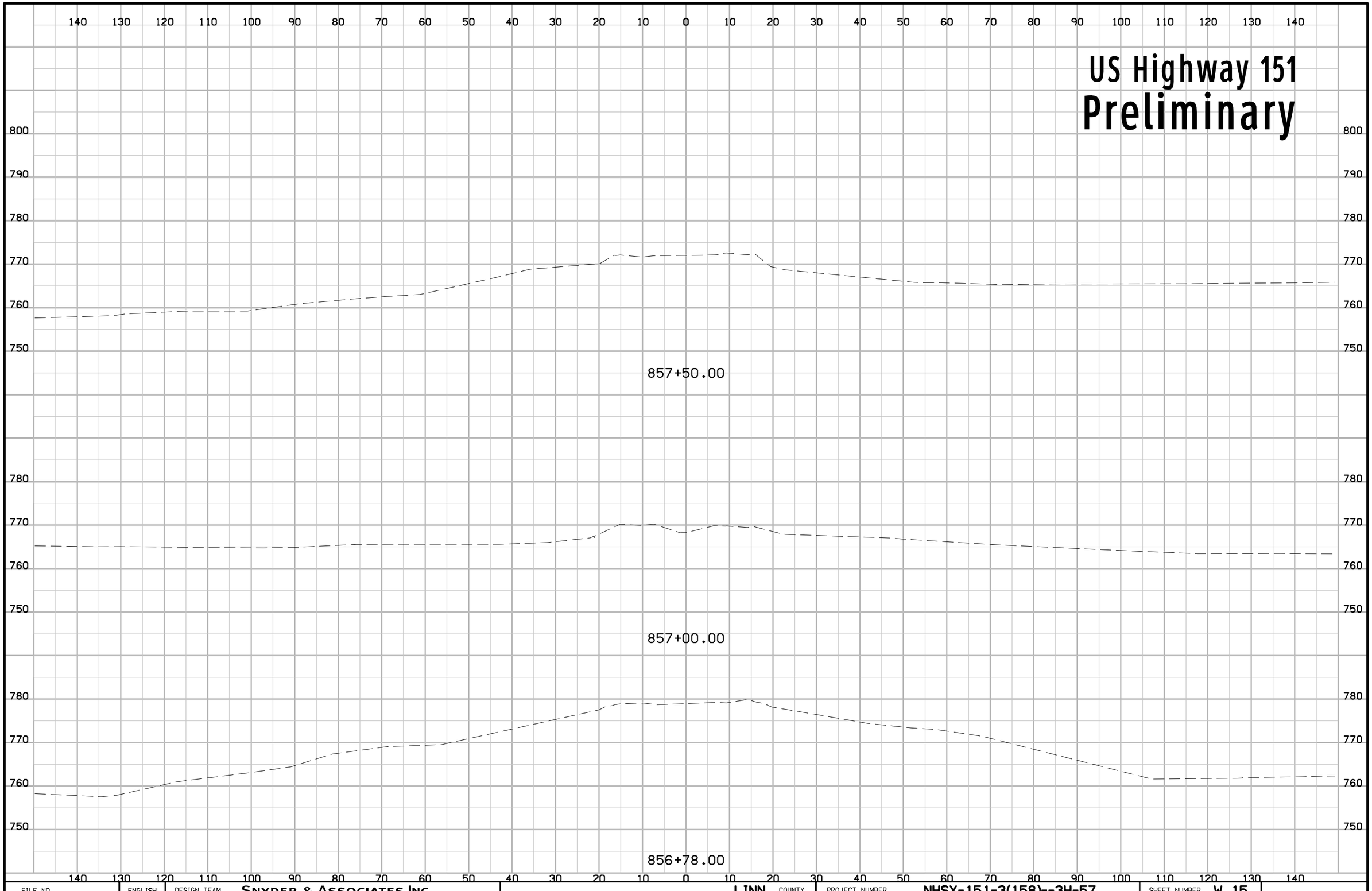
US Highway 151
Preliminary



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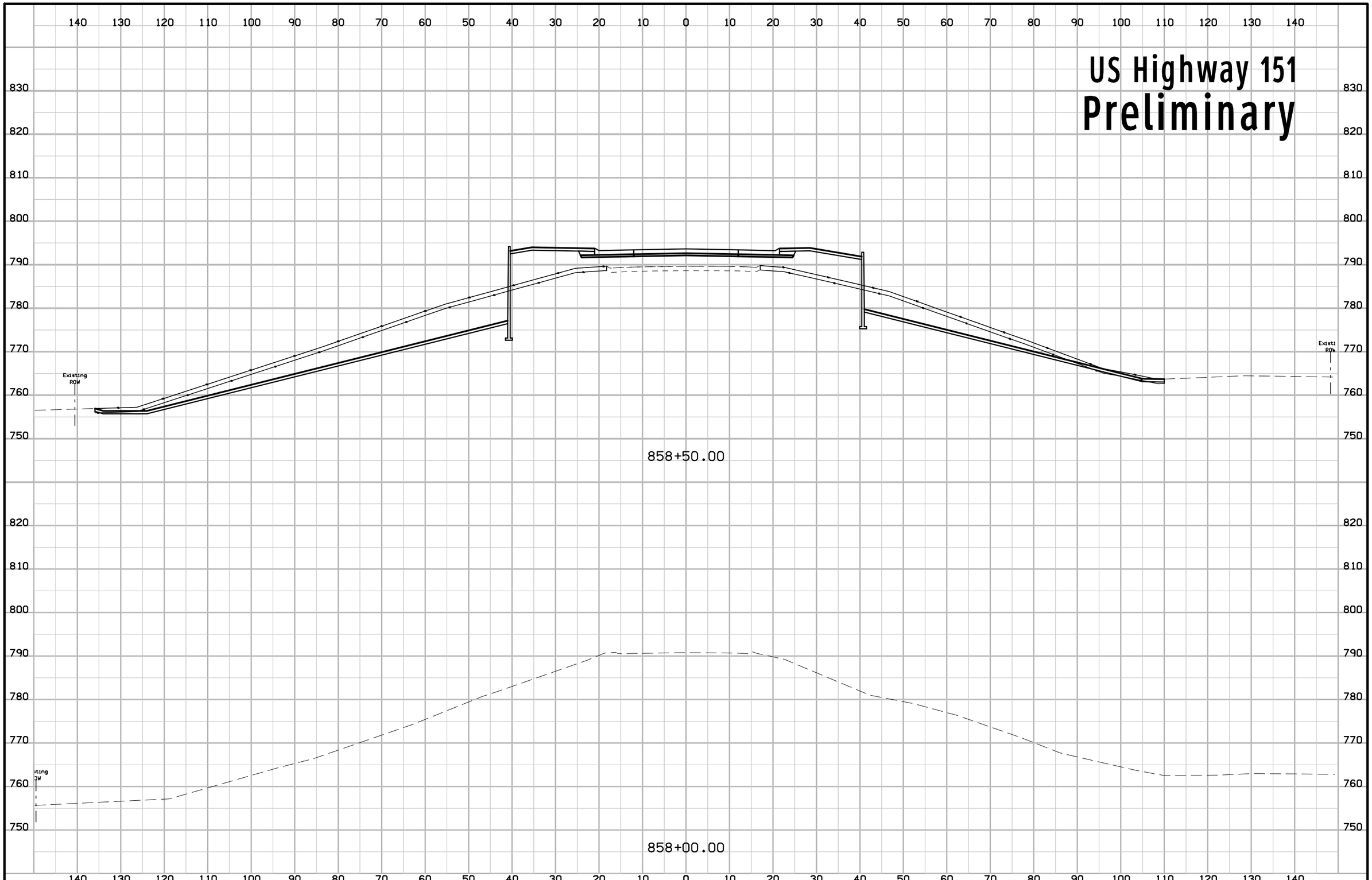
US Highway 151
Preliminary



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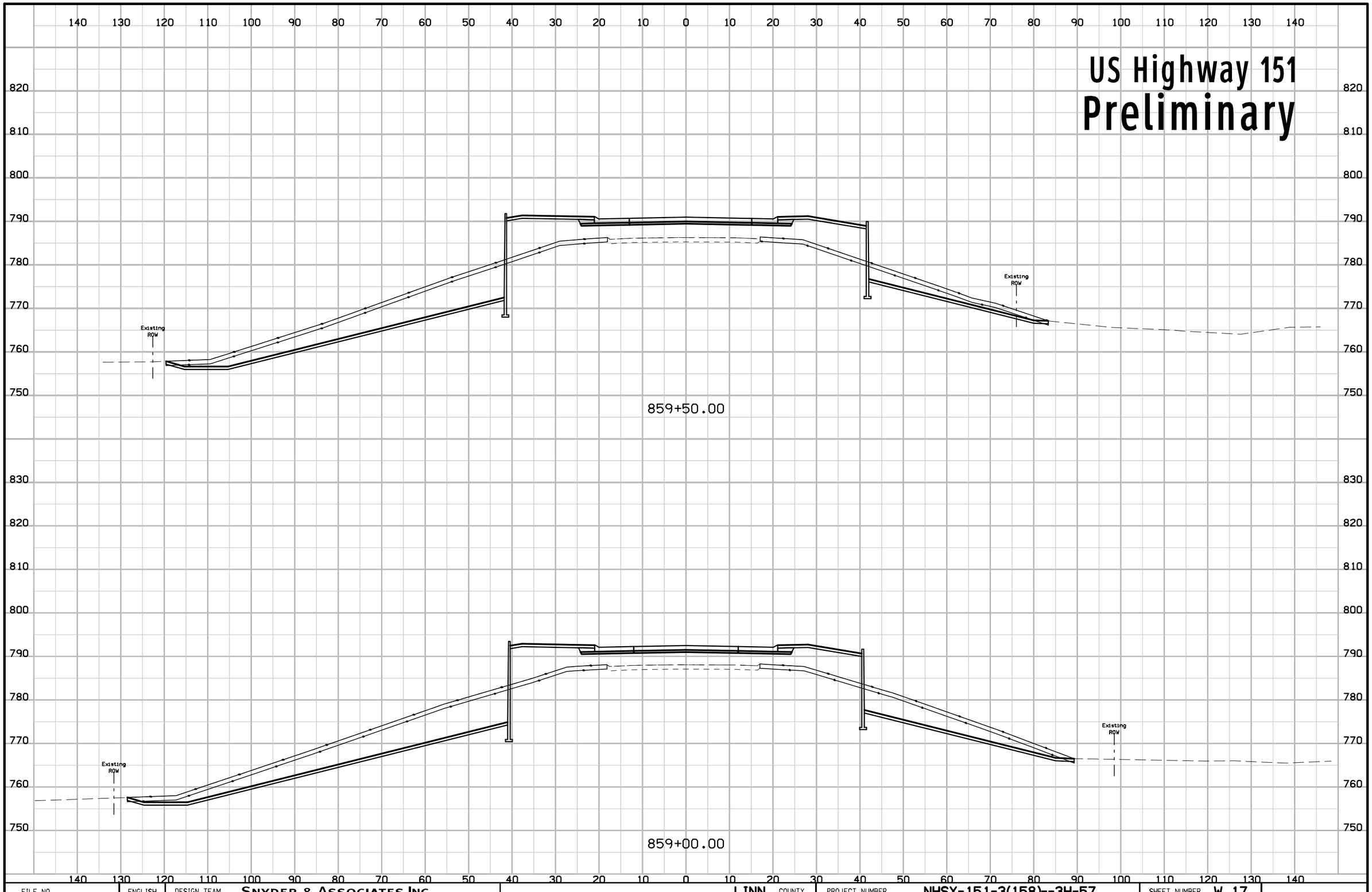
US Highway 151
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.17

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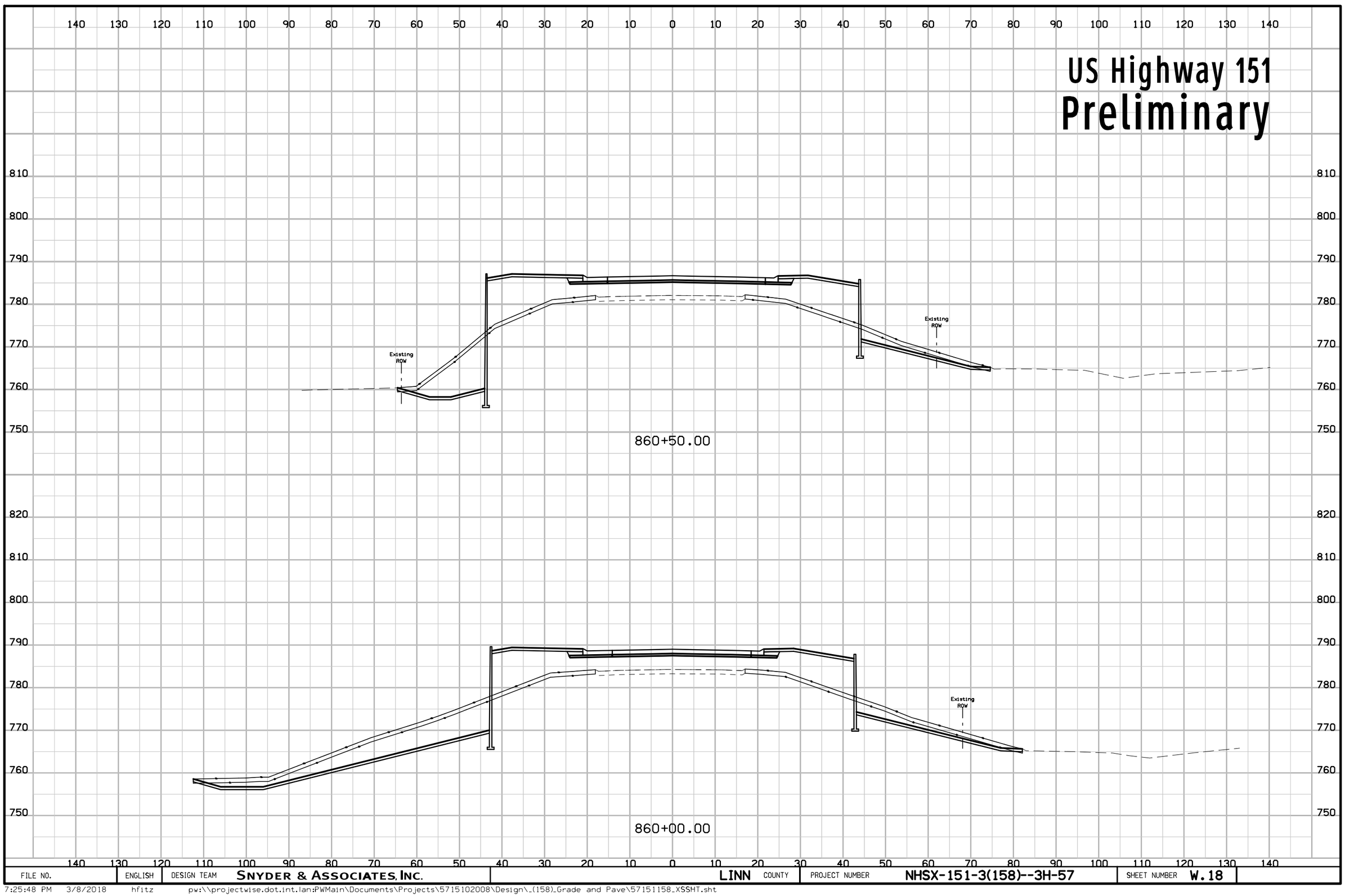
US Highway 151
Preliminary



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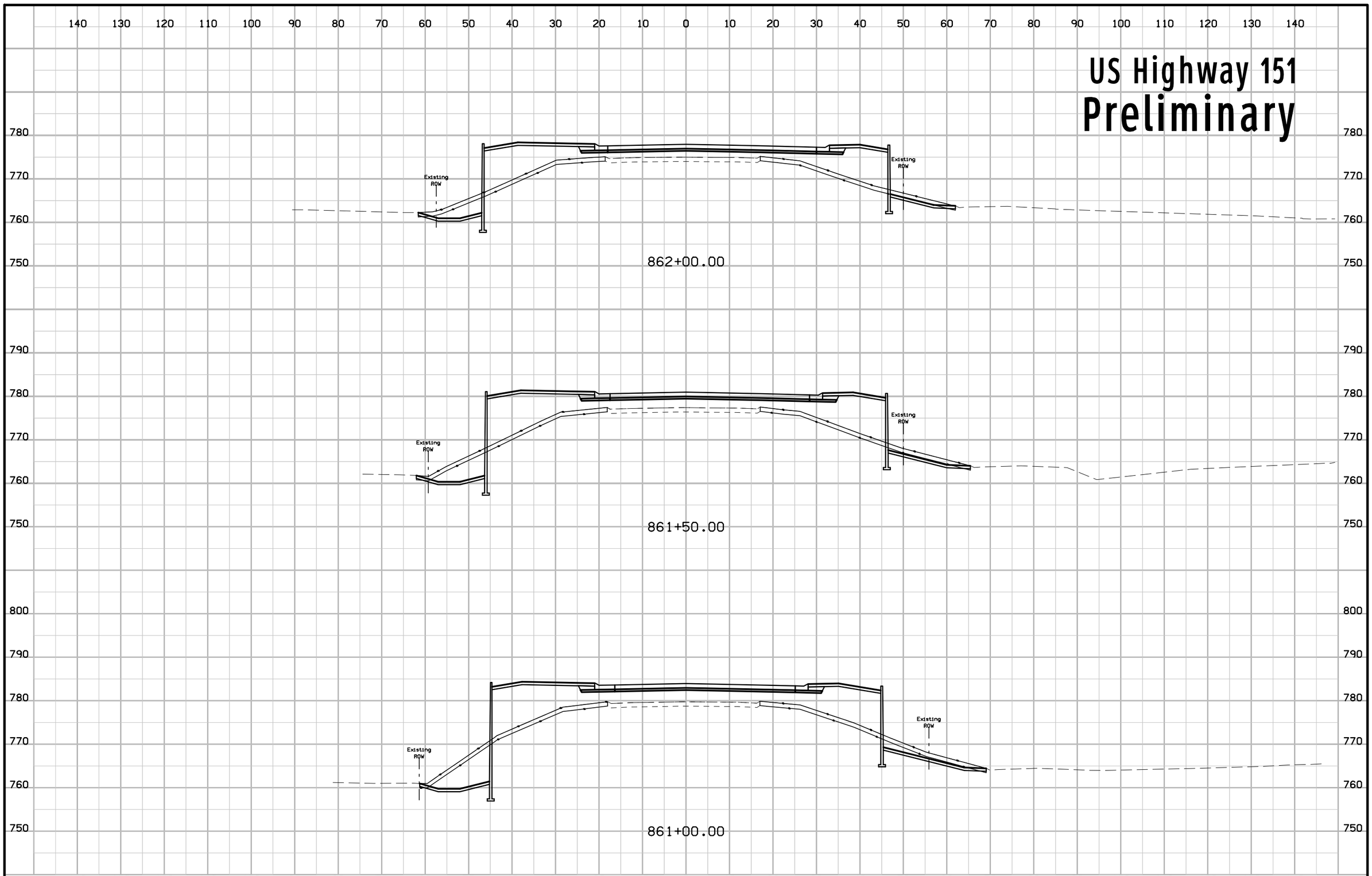
US Highway 151
Preliminary



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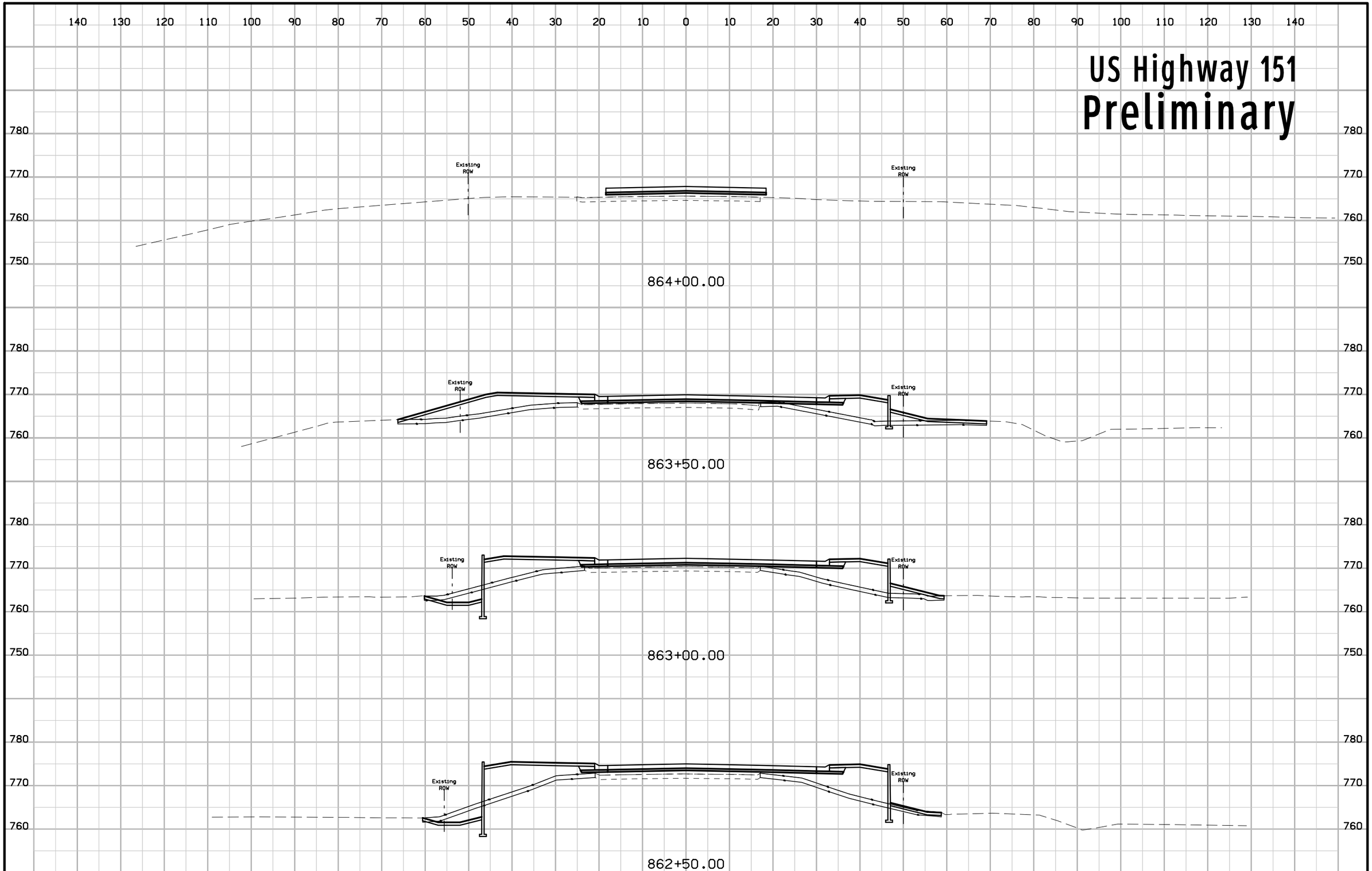
US Highway 151
Preliminary



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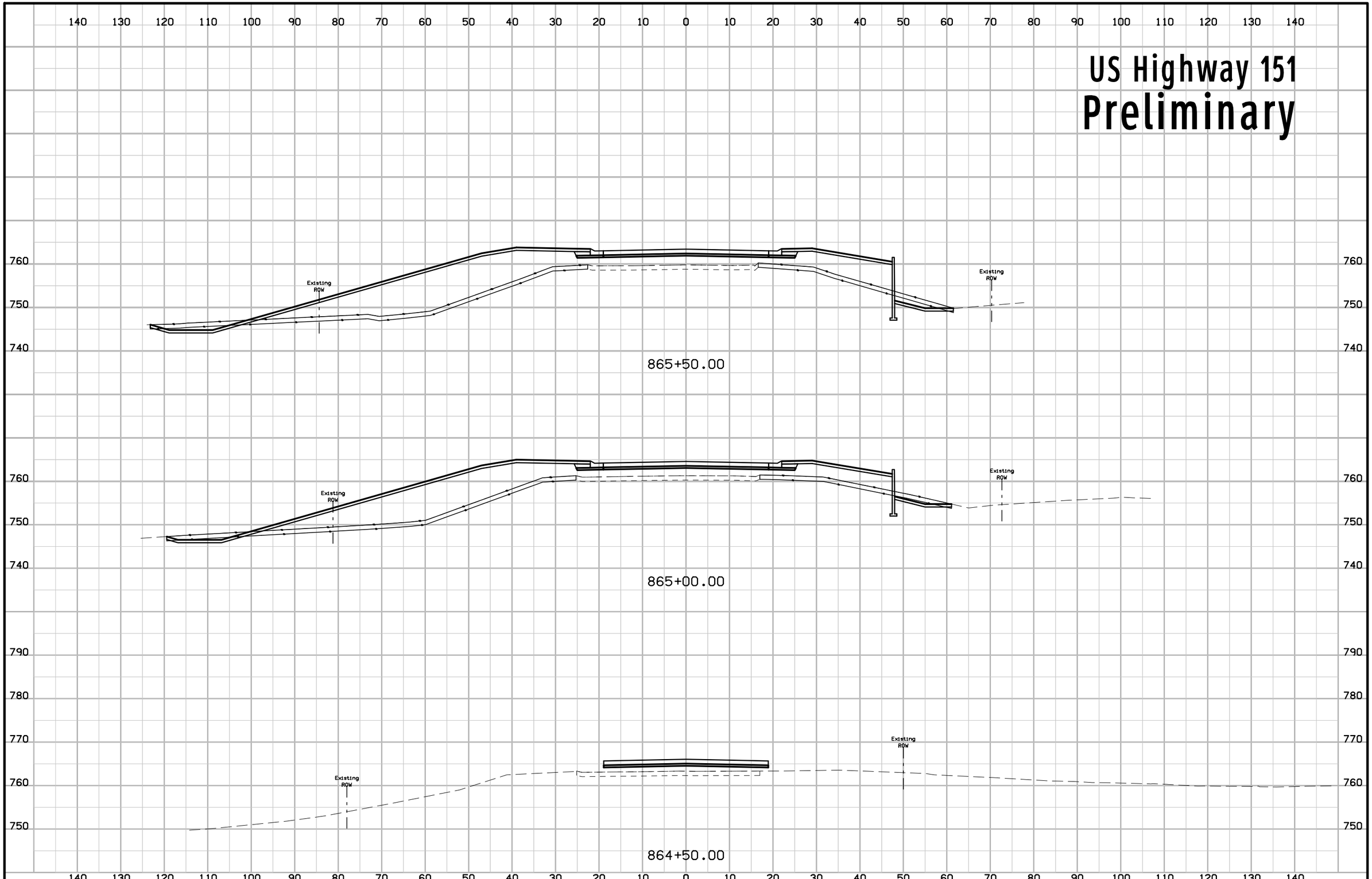
US Highway 151
Preliminary



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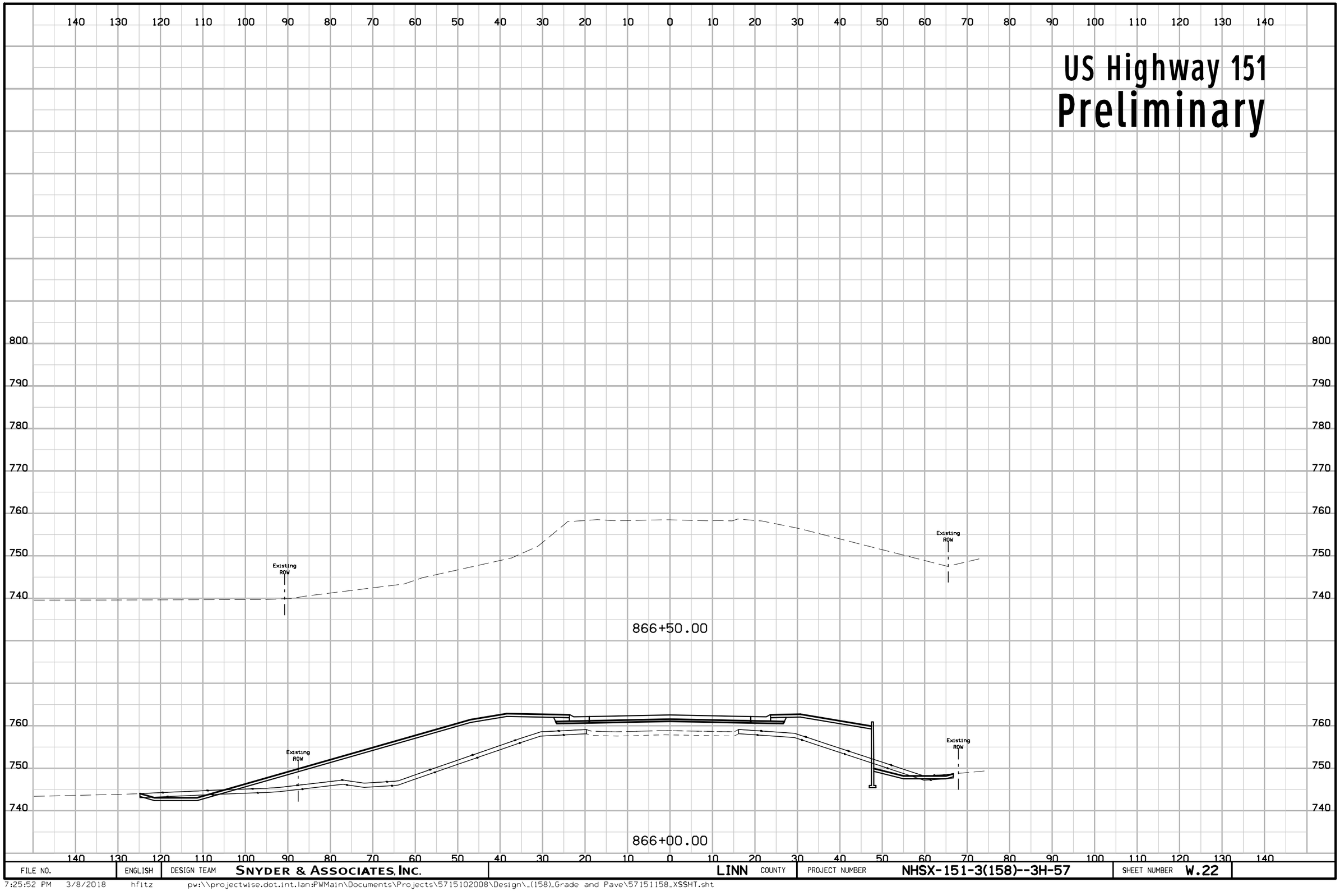
US Highway 151
Preliminary



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US Highway 151
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

780
770
760
750
740

Existing ROW

867+50.00

Existing ROW

790
780
770
760
750
740

Existing ROW

867+00.00

Existing ROW

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.23

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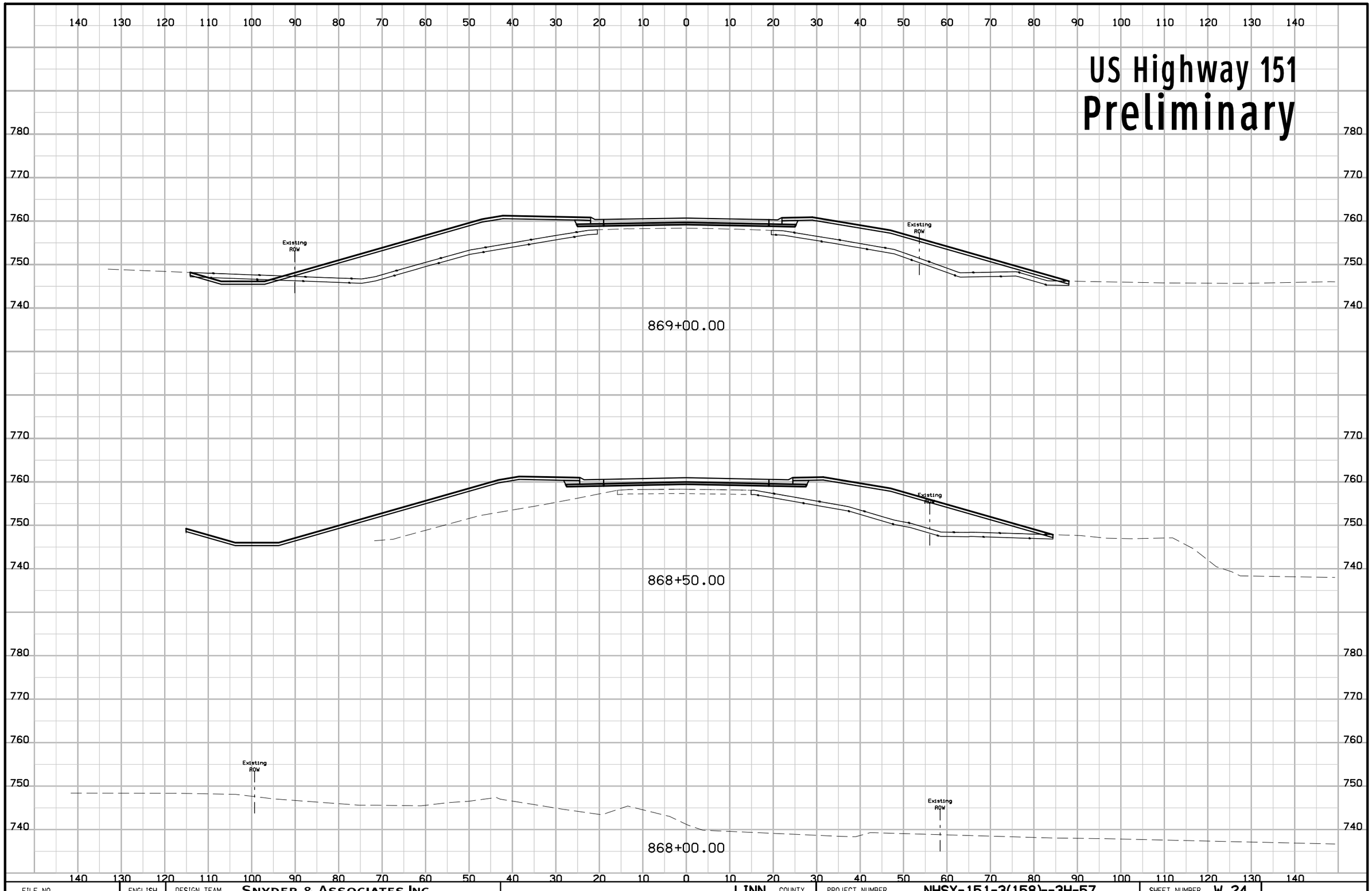
US Highway 151
Preliminary



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US Highway 151
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770
760
750
740

Existing ROW

Existing ROW

870+50.00

770
760
750
740

Existing ROW

Existing ROW

870+00.00

780
770
760
750
740

Existing ROW

Existing ROW

869+50.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.25

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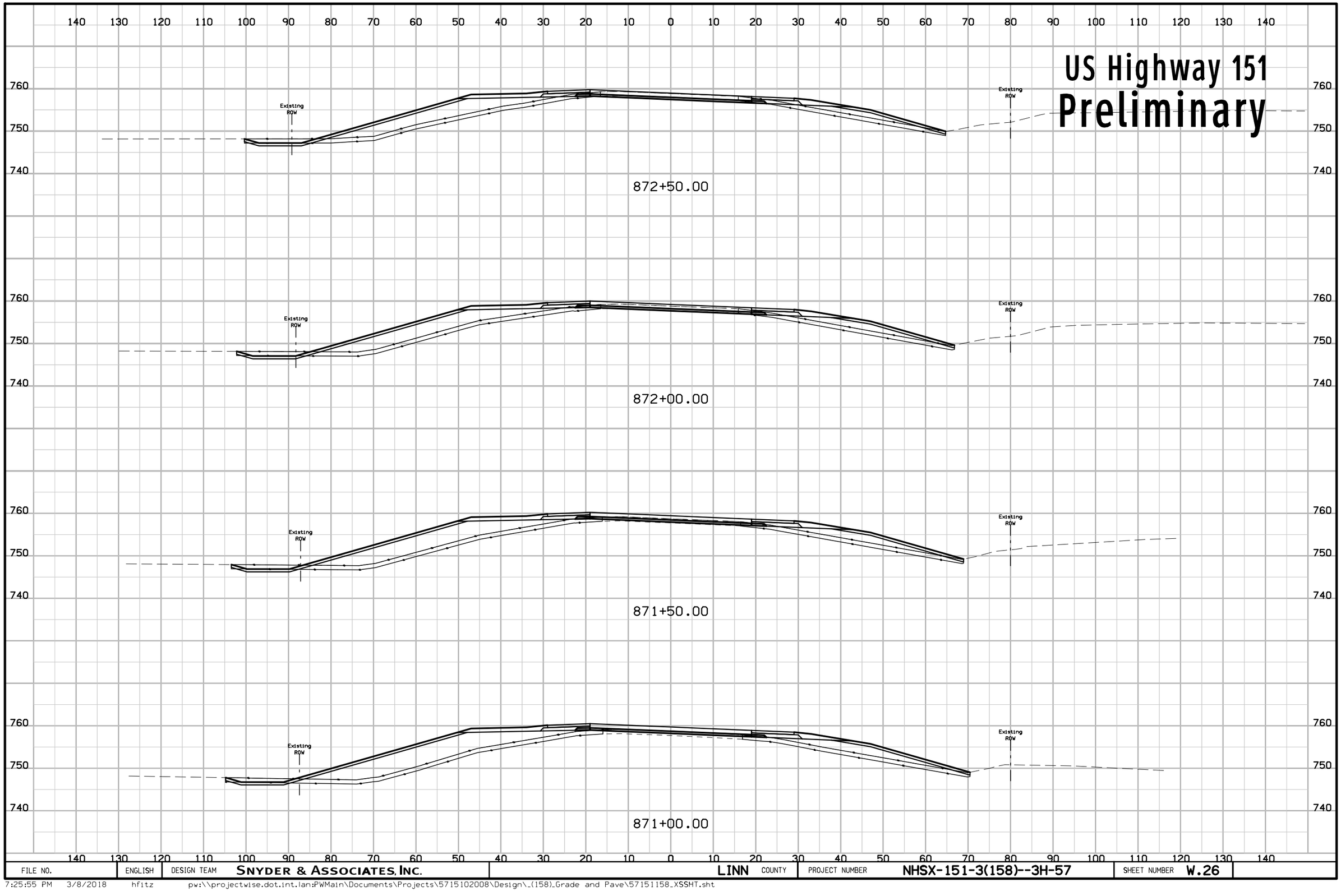
US Highway 151
Preliminary



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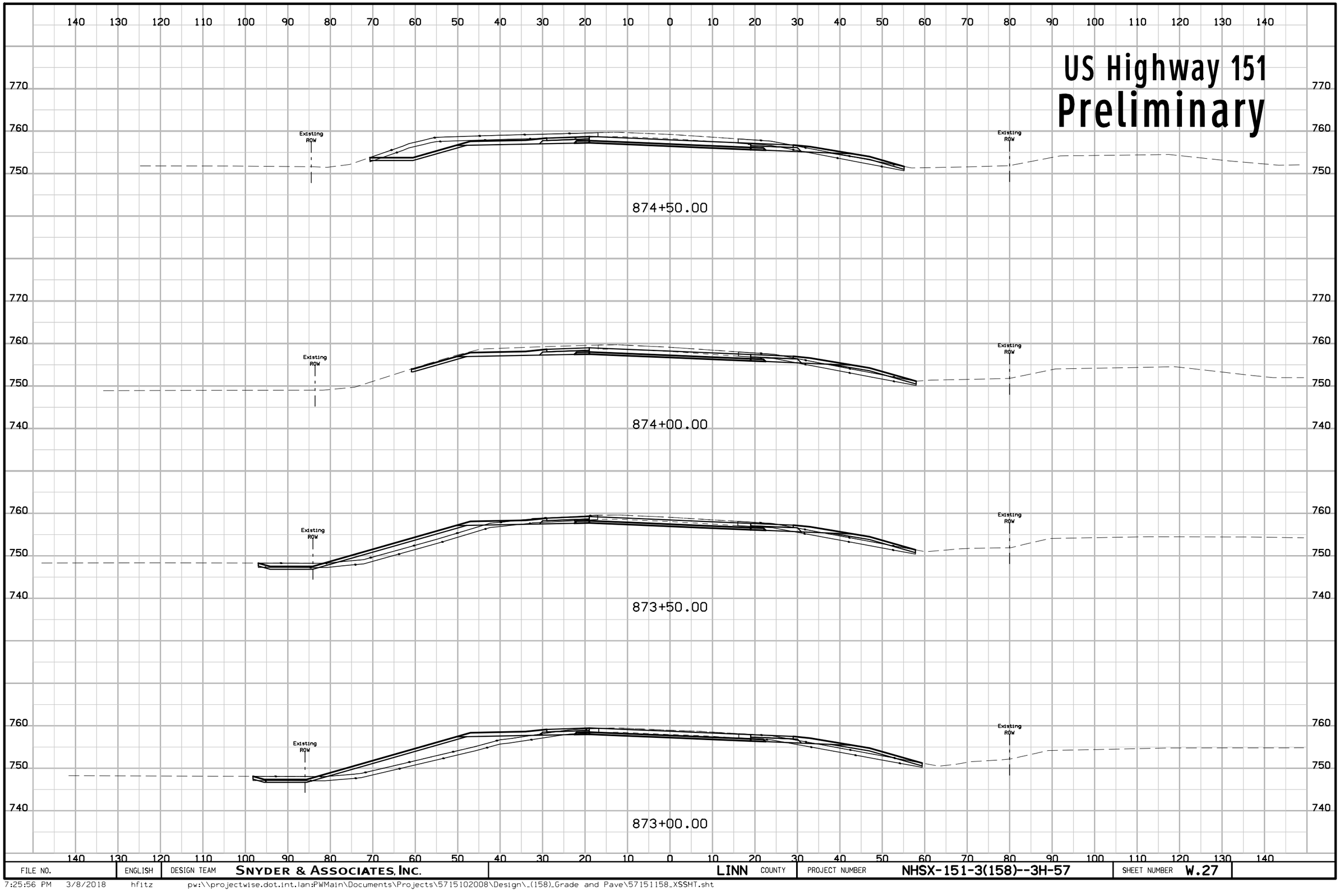
US Highway 151
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN	COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.27

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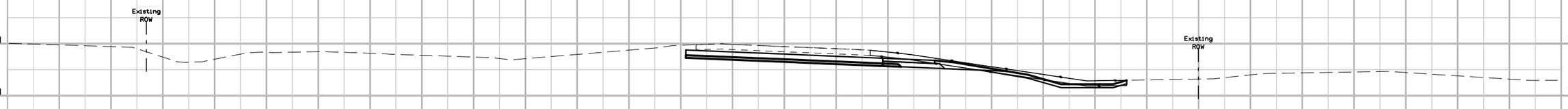
US Highway 151
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

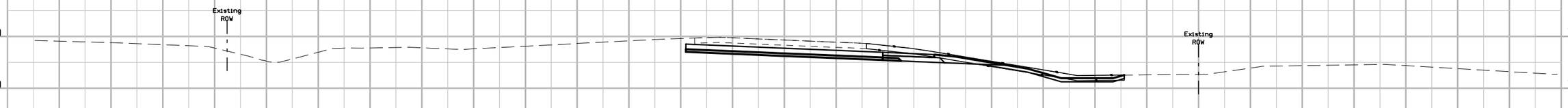
770
760
750

Existing ROW

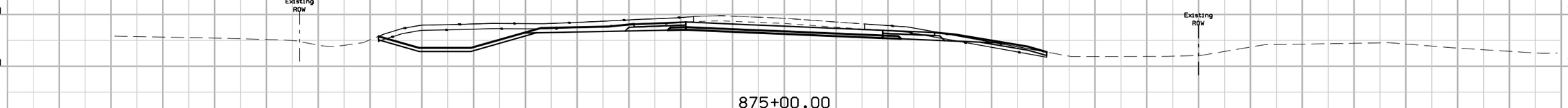
876+50.00



876+00.00



875+50.00



875+00.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.28

7:25:57 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

US Highway 151
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770
760
750

Existing ROW

878+31.00

878+00.00

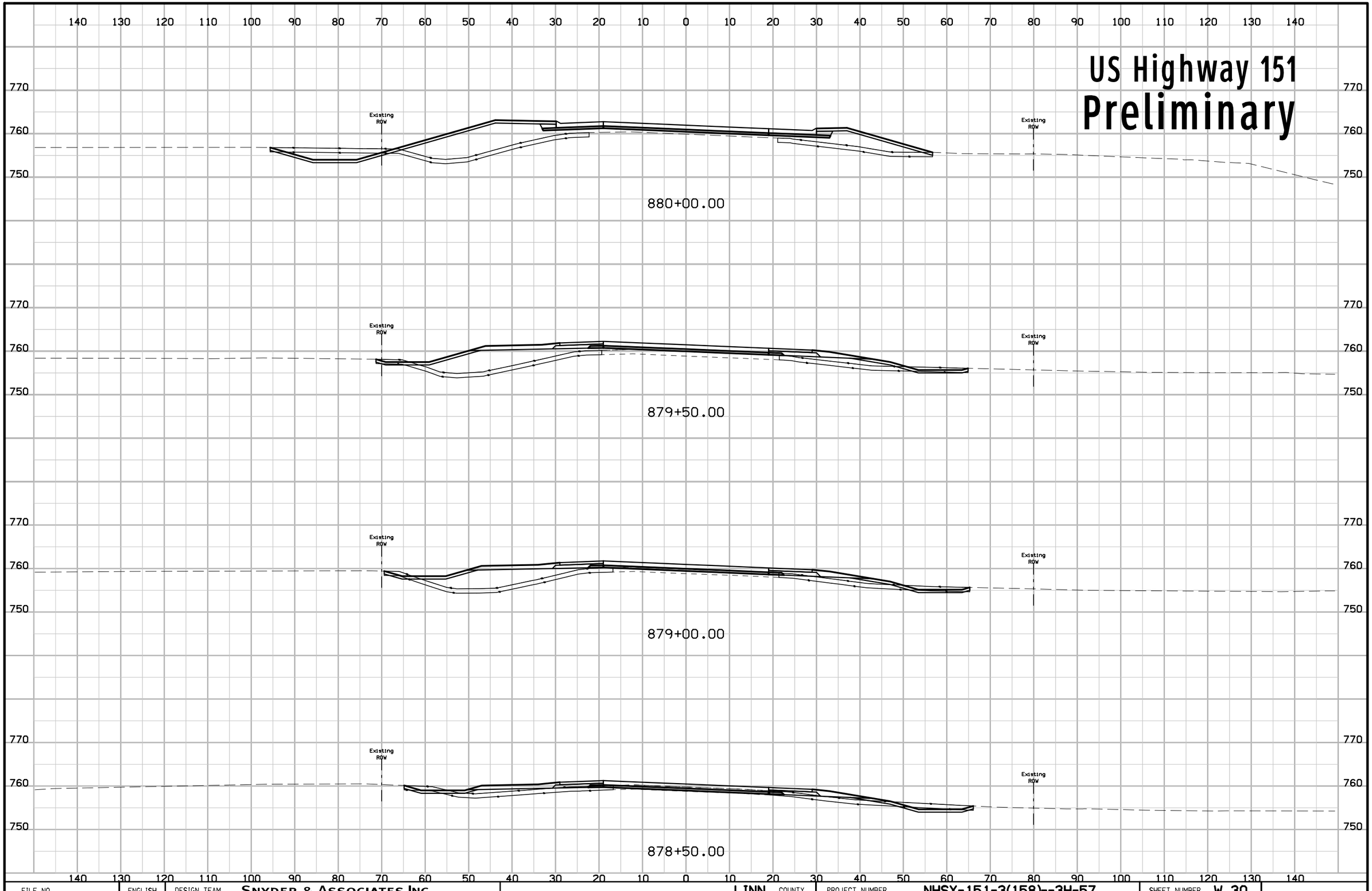
877+50.00

877+00.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.29

7:25:58 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

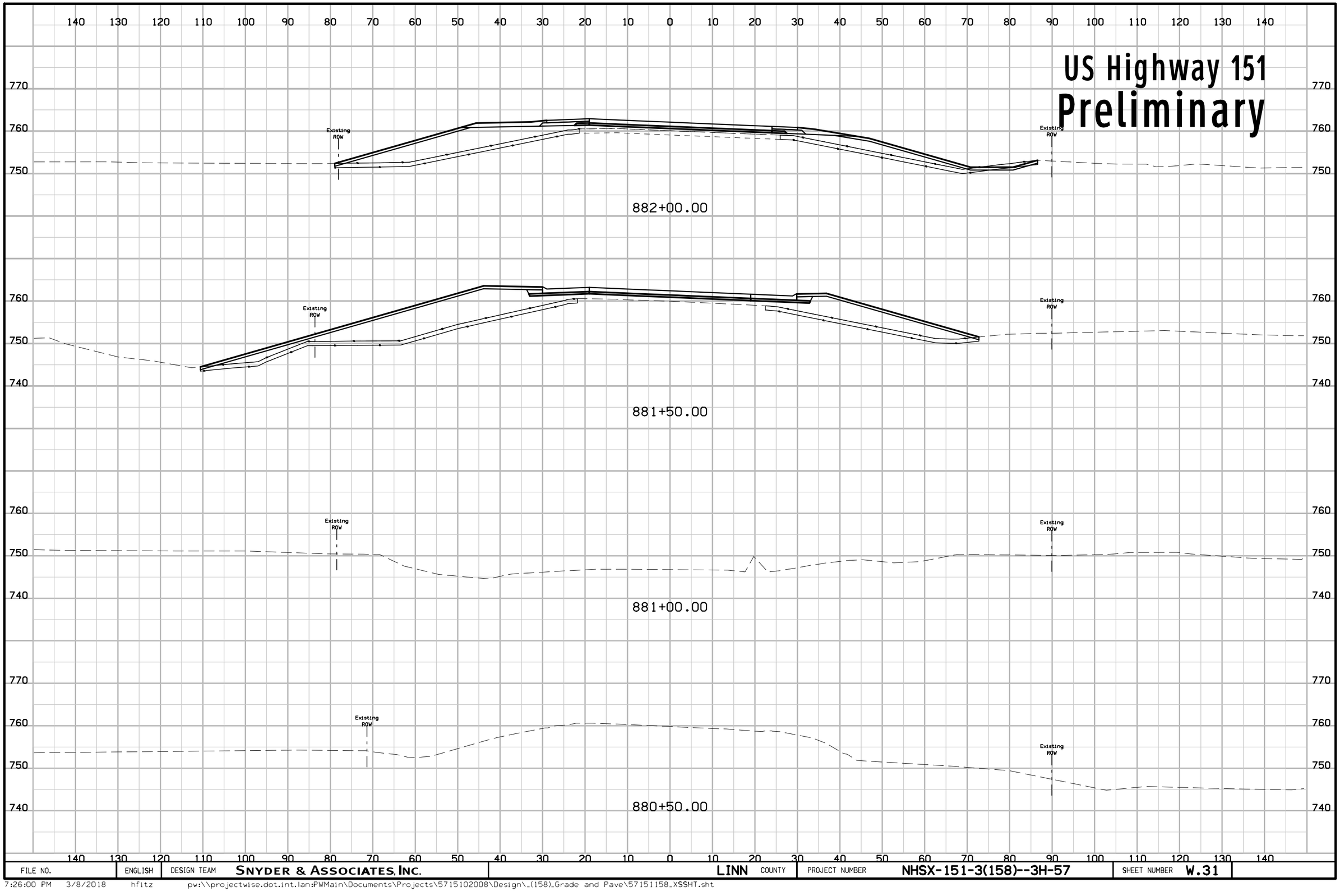
US Highway 151
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.30

7:25:59 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

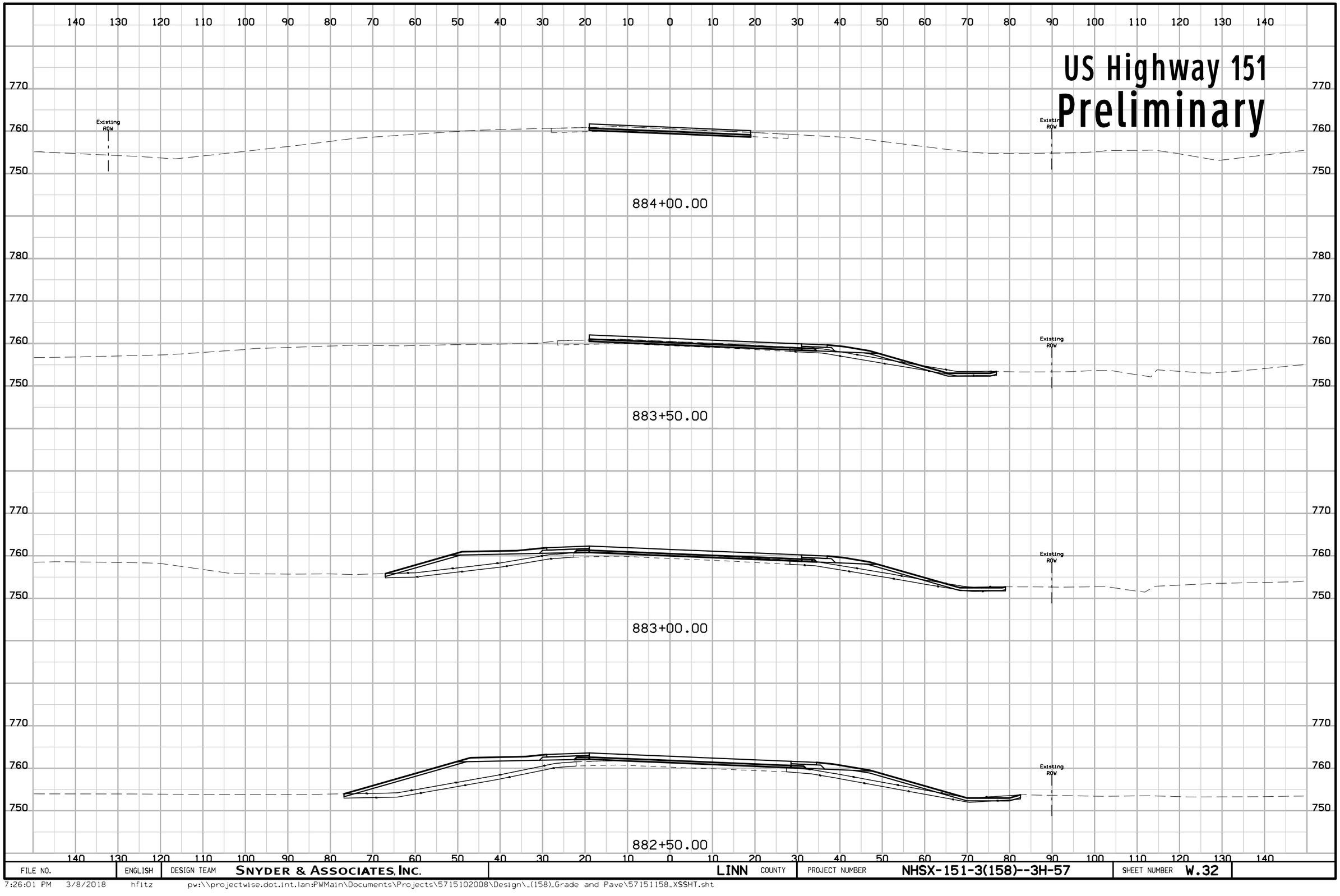
US Highway 151
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN	COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.31

7:26:00 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

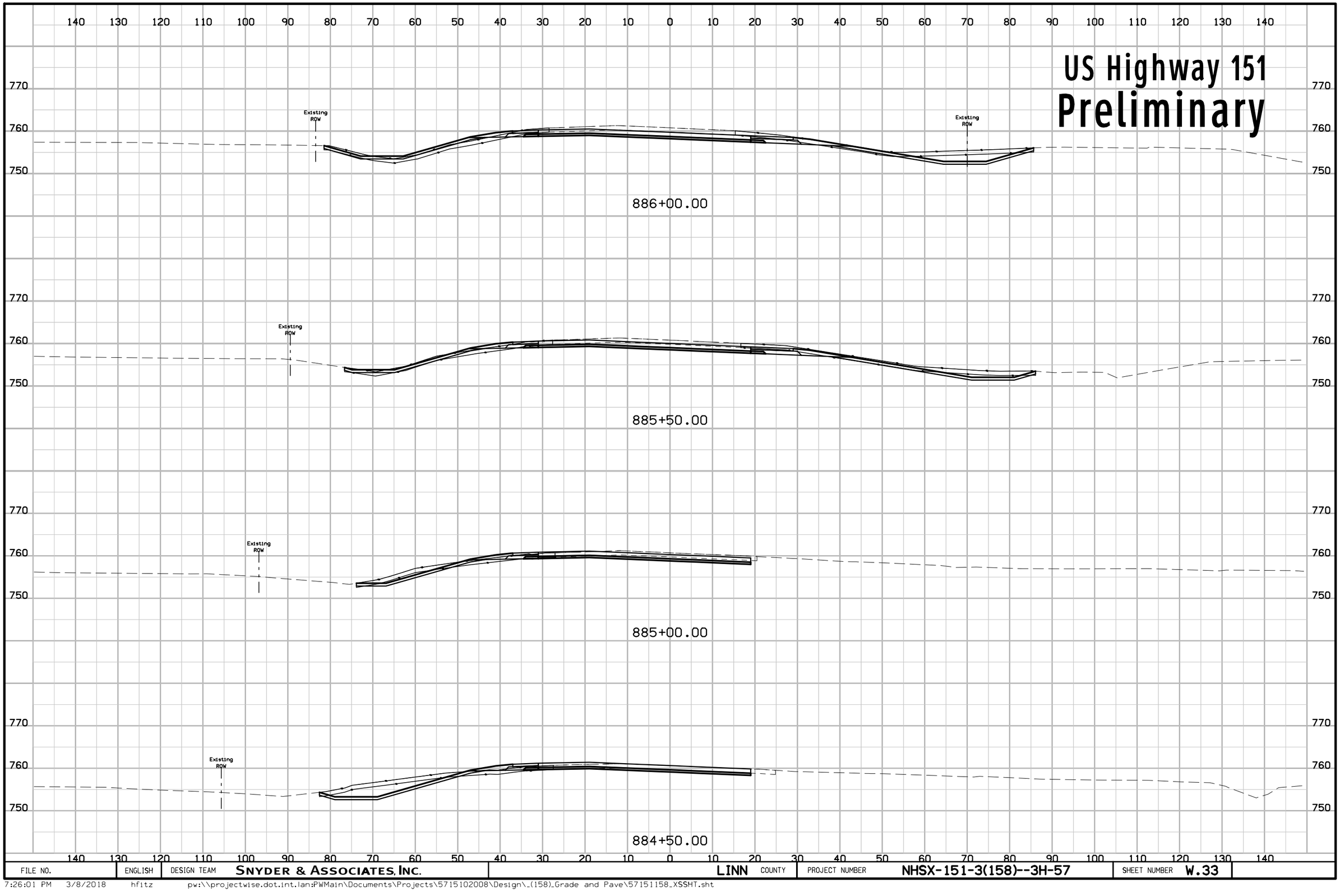
US Highway 151
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.32

7:26:01 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

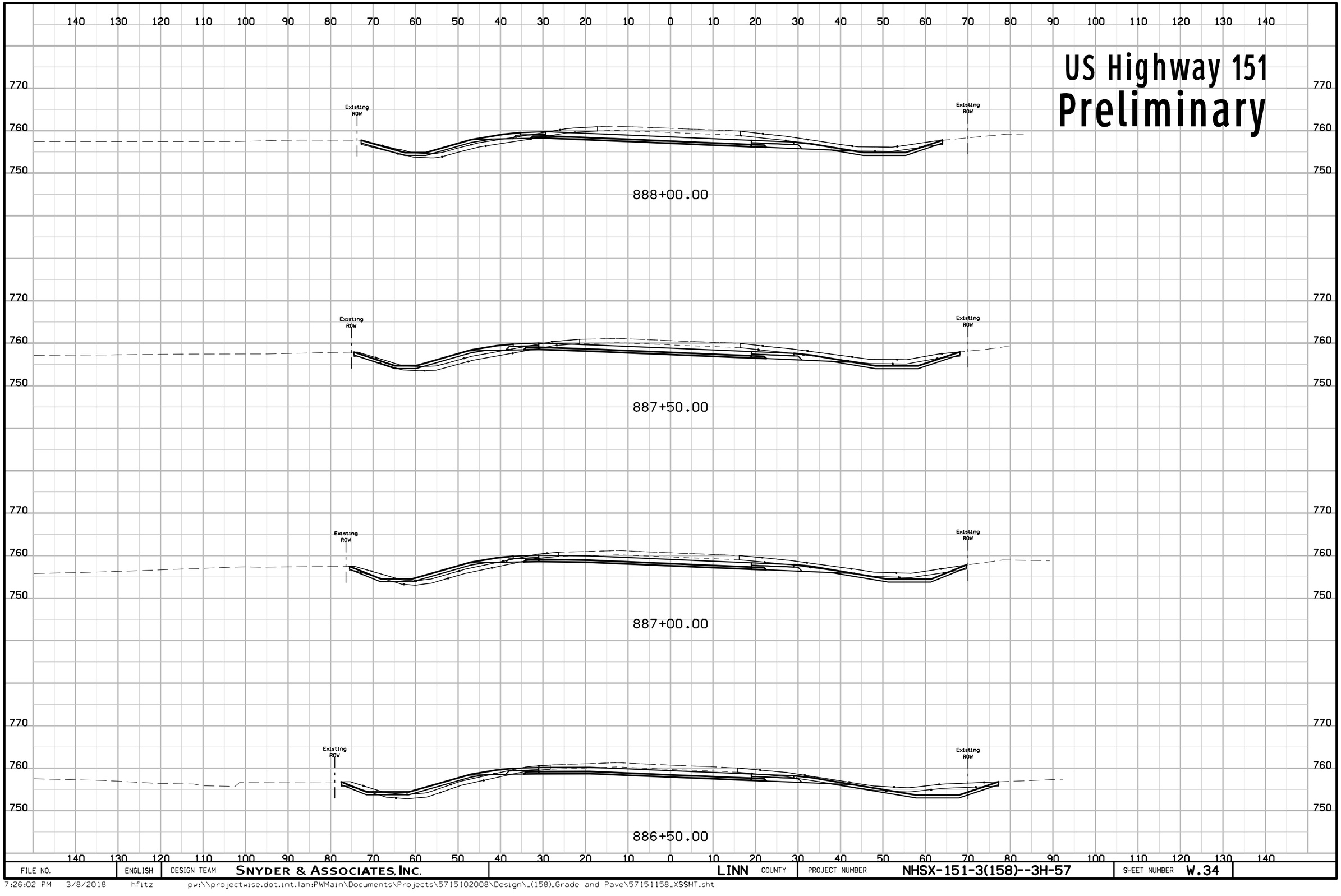
US Highway 151
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.33

7:26:01 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

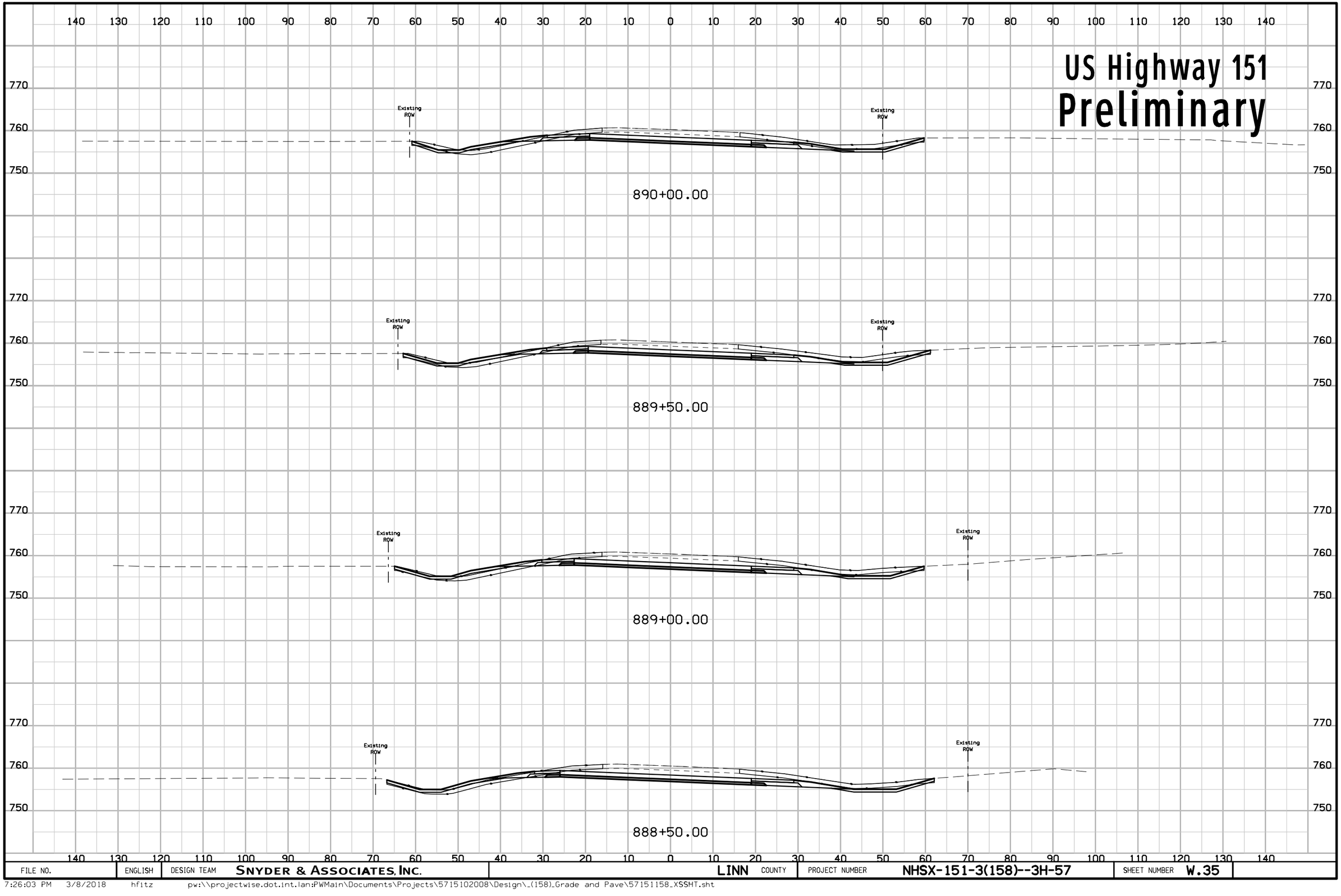
US Highway 151
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.34

7:26:02 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

US Highway 151
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN	COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.35

7:26:03 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

US Highway 151
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770
760
750

Existing ROW

Existing ROW

891+10.00

770
760
750

Existing ROW

Existing ROW

891+00.00

770
760
750

Existing ROW

Existing ROW

890+96.75

770
760
750

Existing ROW

Existing ROW

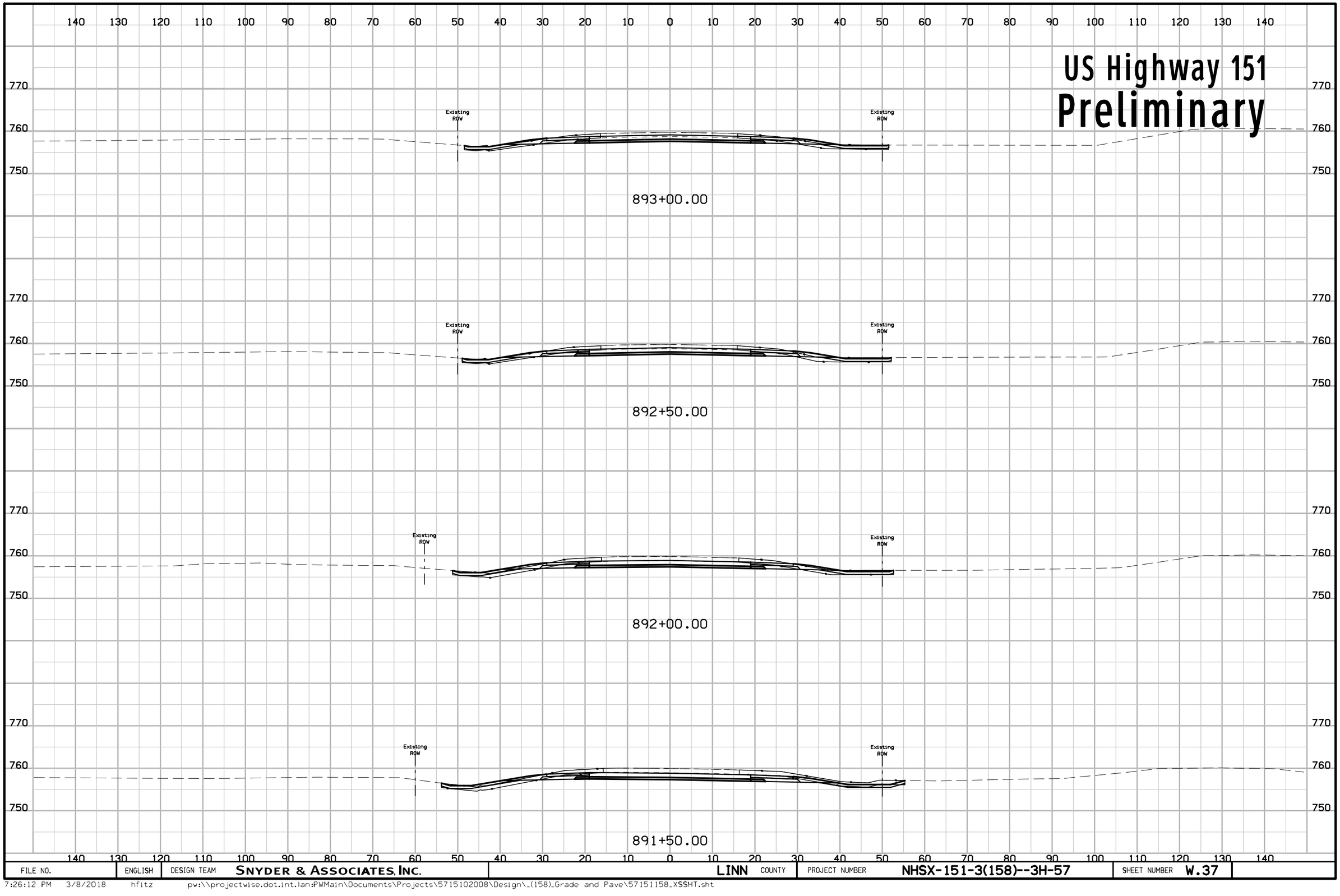
890+50.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.36

7:26:04 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

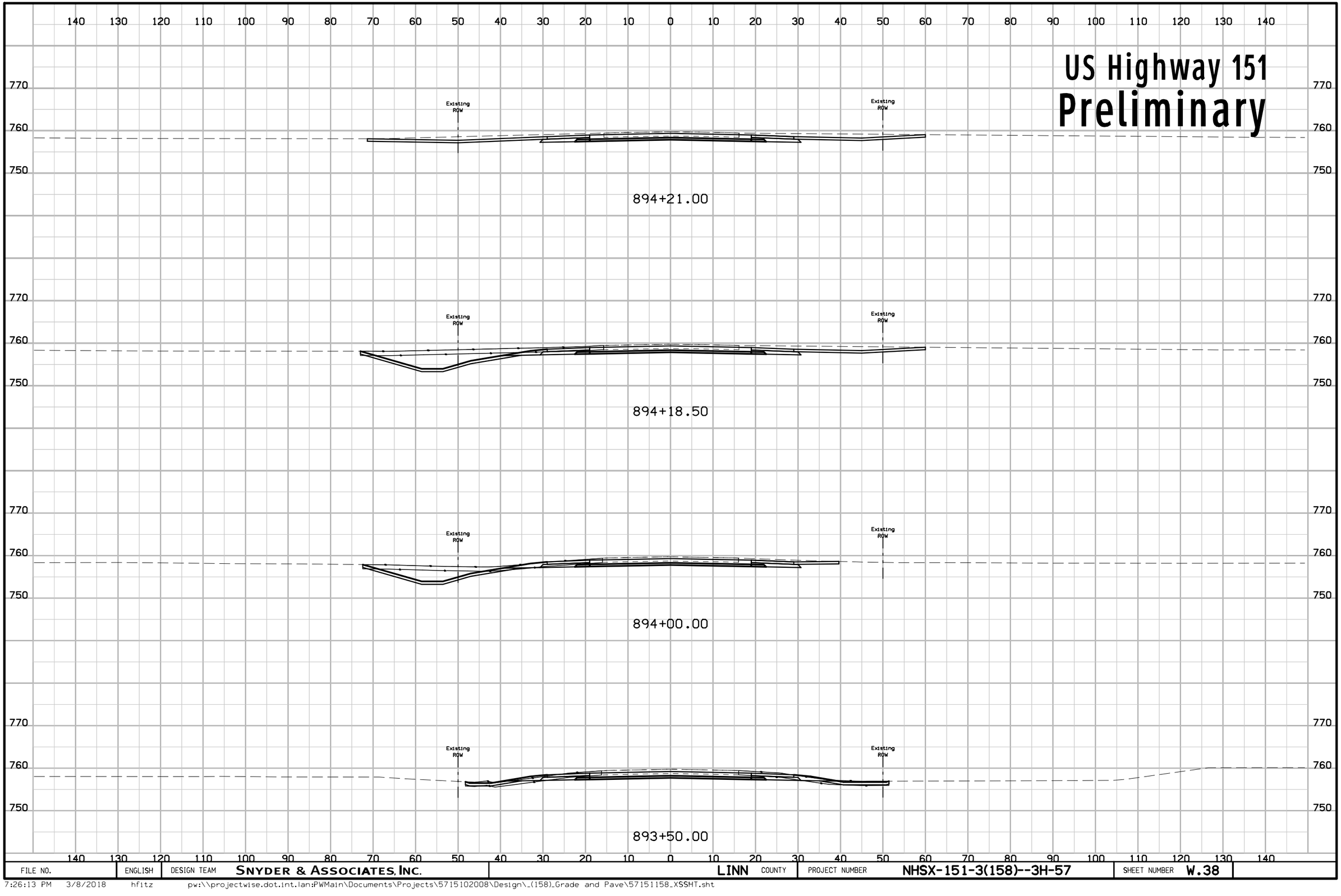
US Highway 151
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.37

7:26:12 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

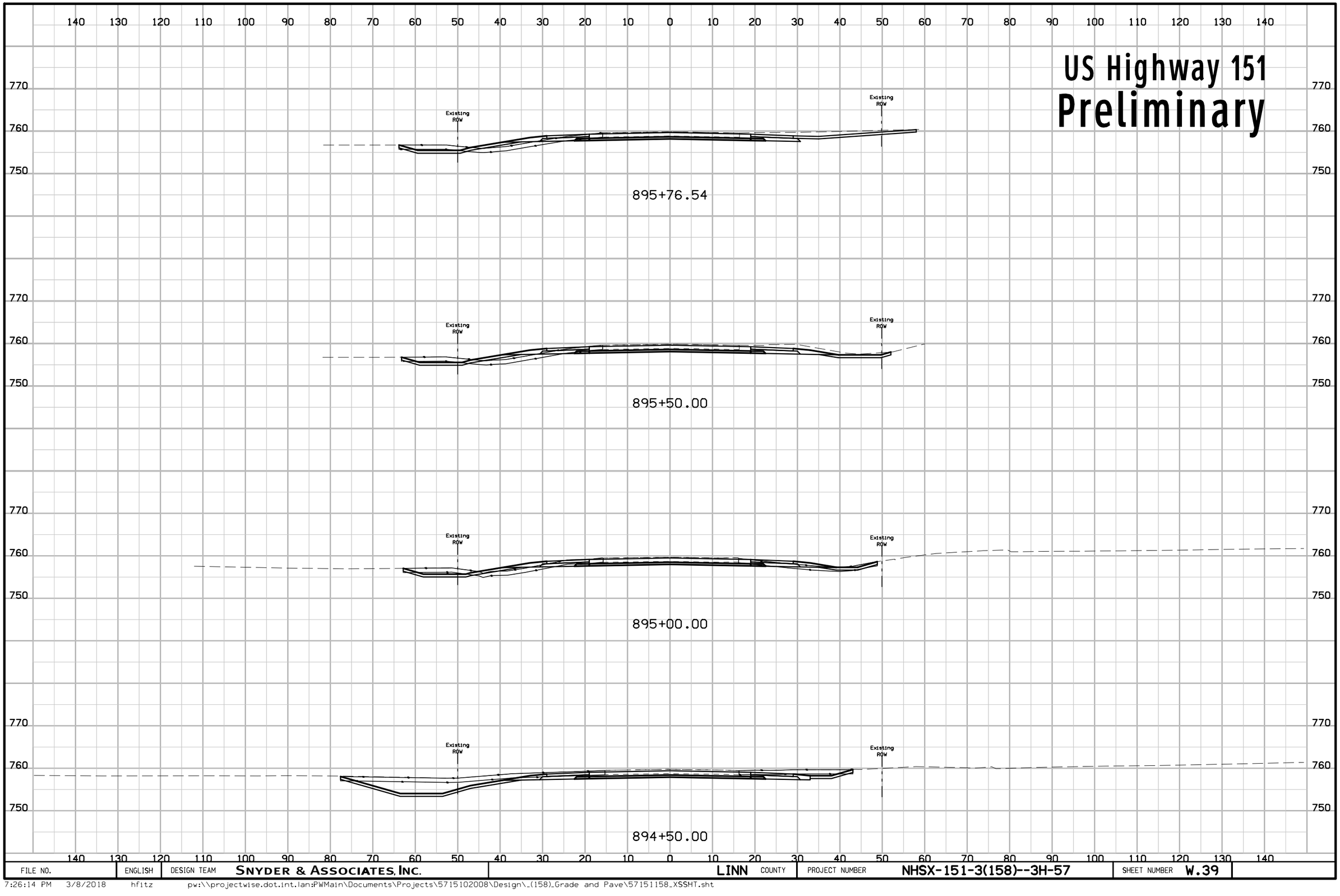
US Highway 151
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.38

7:26:13 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

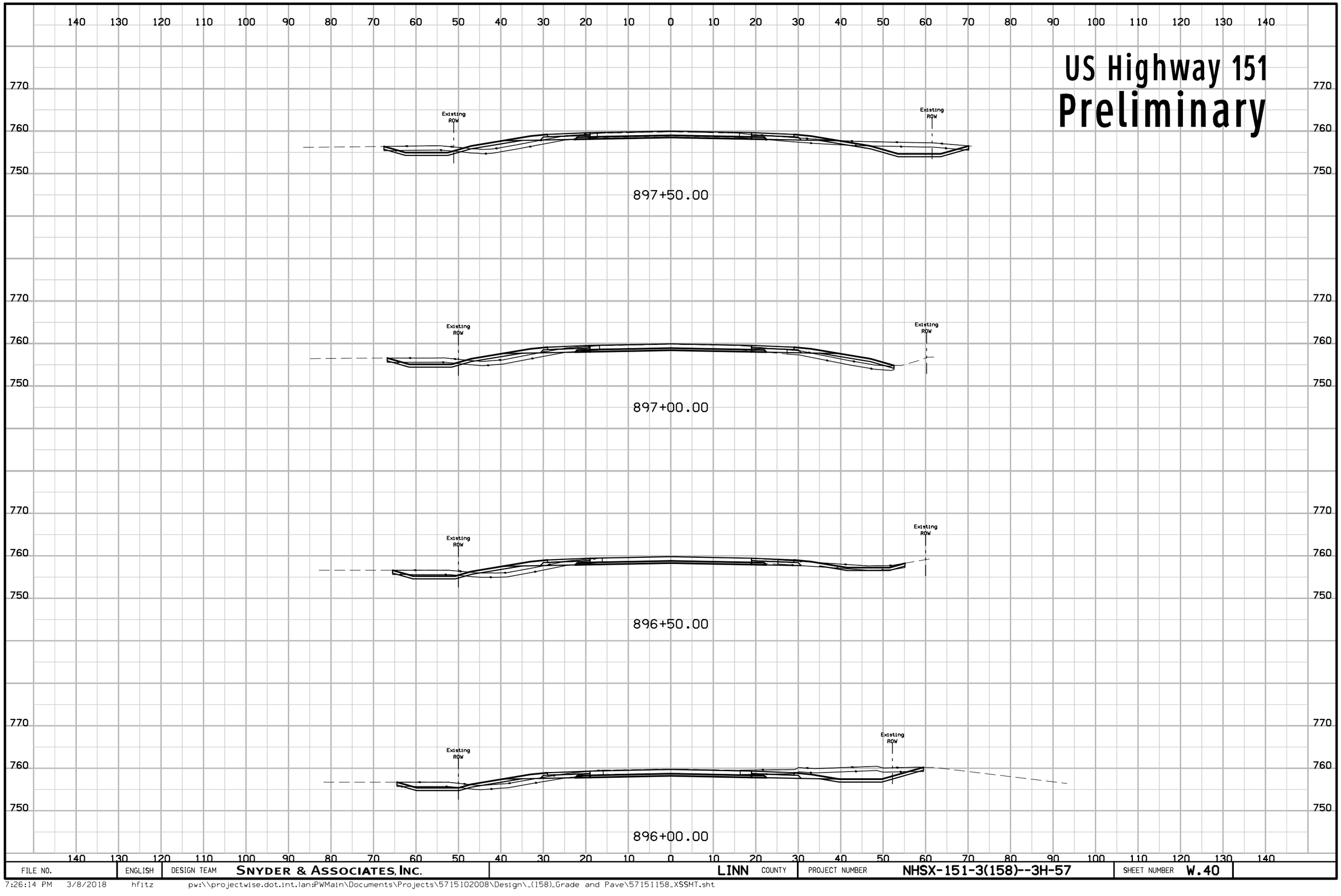
US Highway 151
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.39

7:26:14 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

US Highway 151
Preliminary



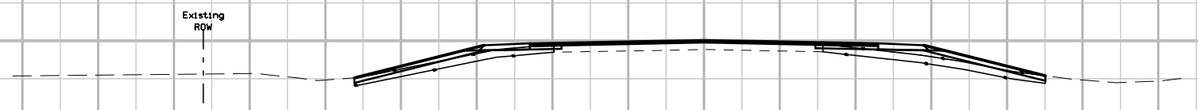
FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.40

7:26:14 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

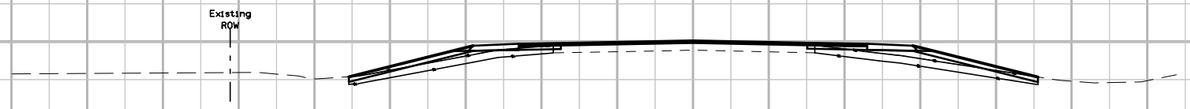
US Highway 151
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

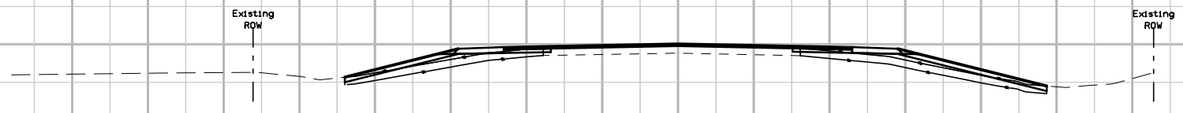
770
760
750



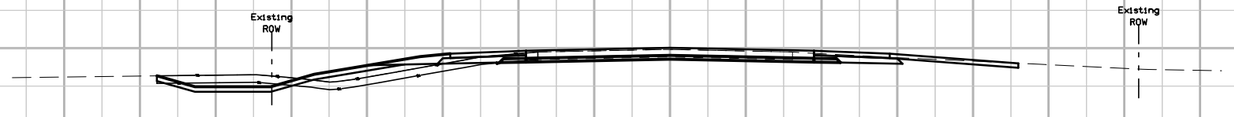
899+00.00



898+50.00



898+00.00



897+64.90

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.41

7:26:15 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

US Highway 151
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770
760
750

Existing ROW

901+00.00

770
760
750

Existing ROW

900+50.00

770
760
750

Existing ROW

900+00.00

770
760
750

Existing ROW

899+50.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.42

7:26:16 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

US Highway 151
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

760
750

Existing ROW

903+00.00

770
760
750

Existing ROW

902+50.00

770
760
750

Existing ROW

902+00.00

770
760
750

Existing ROW

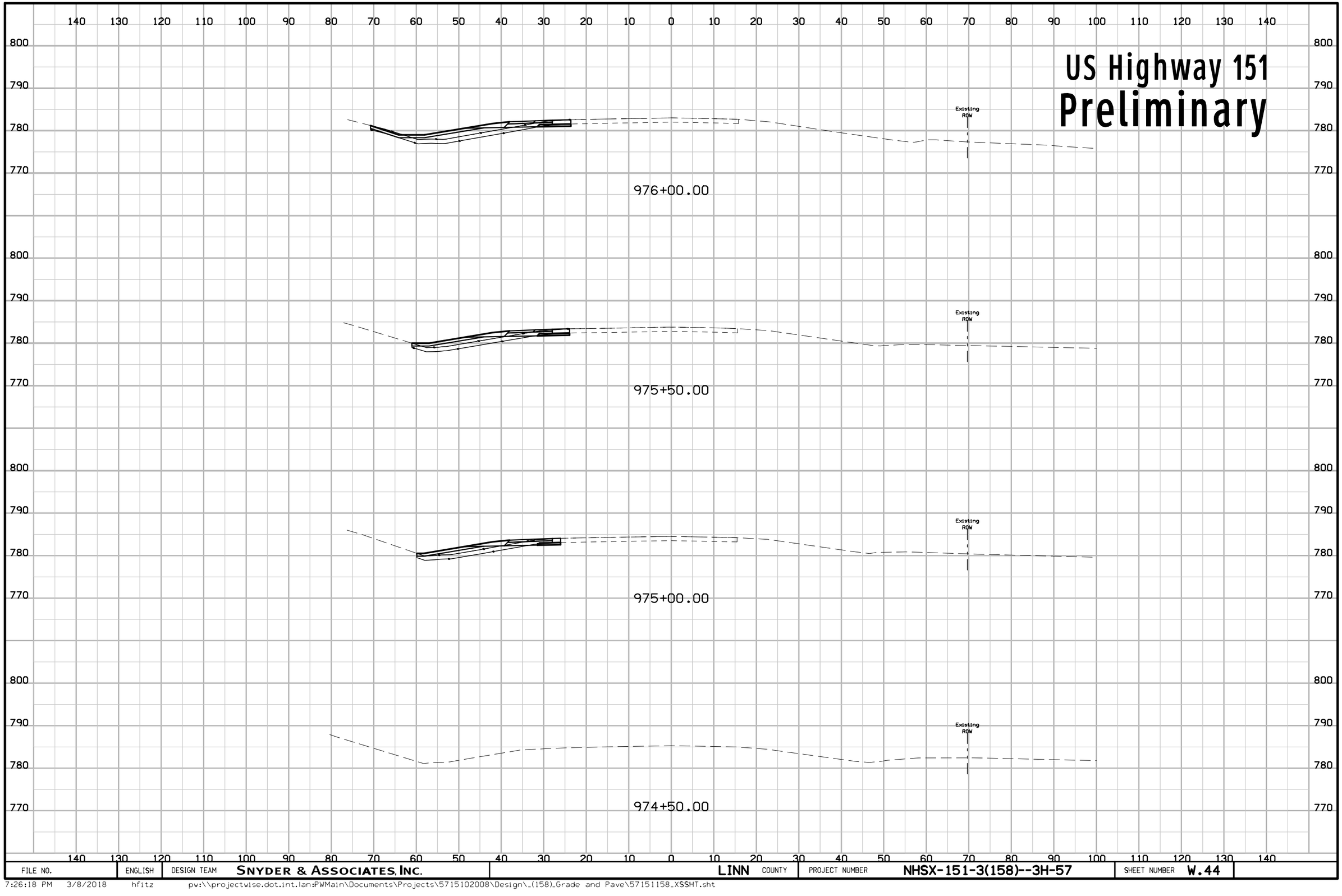
901+50.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.43

7:26:17 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

US Highway 151
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.44

7:26:18 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

US Highway 151
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

790
780
770
760

Existing ROW

Existing ROW

977+50.00

790
780
770
760

Existing ROW

977+00.00

800
790
780
770

Existing ROW

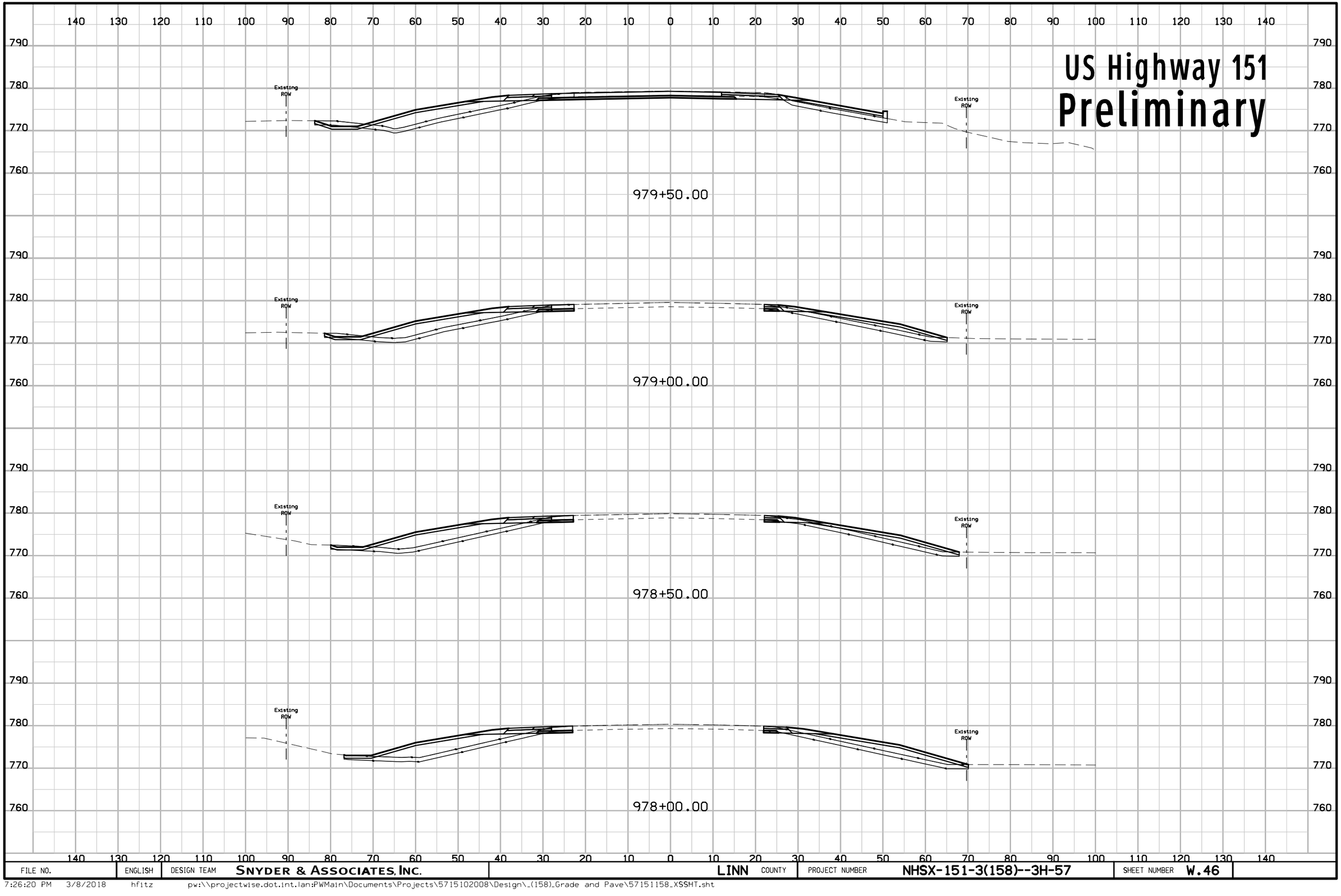
976+50.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.45

7:26:19 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

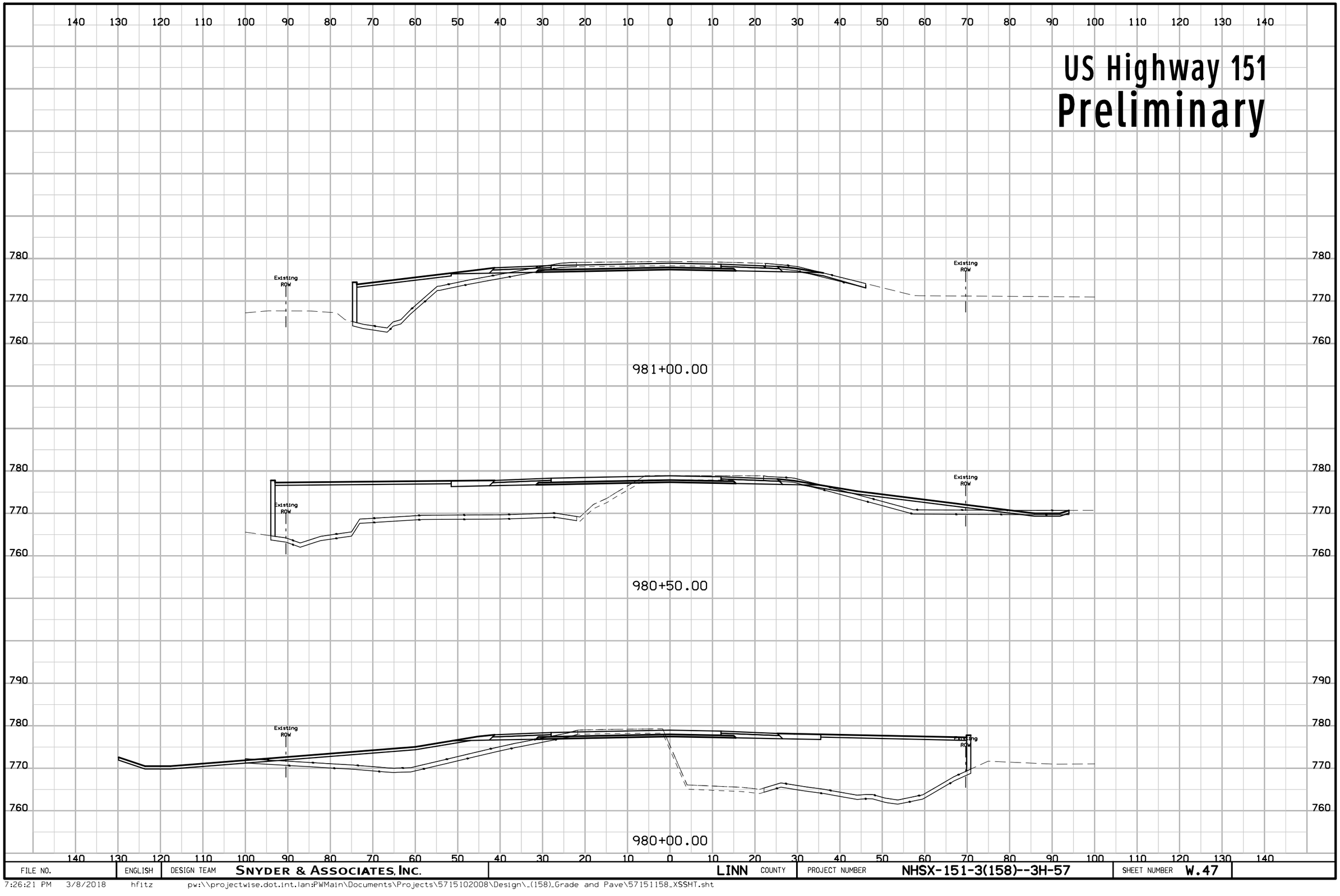
US Highway 151
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN	COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.46

7:26:20 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

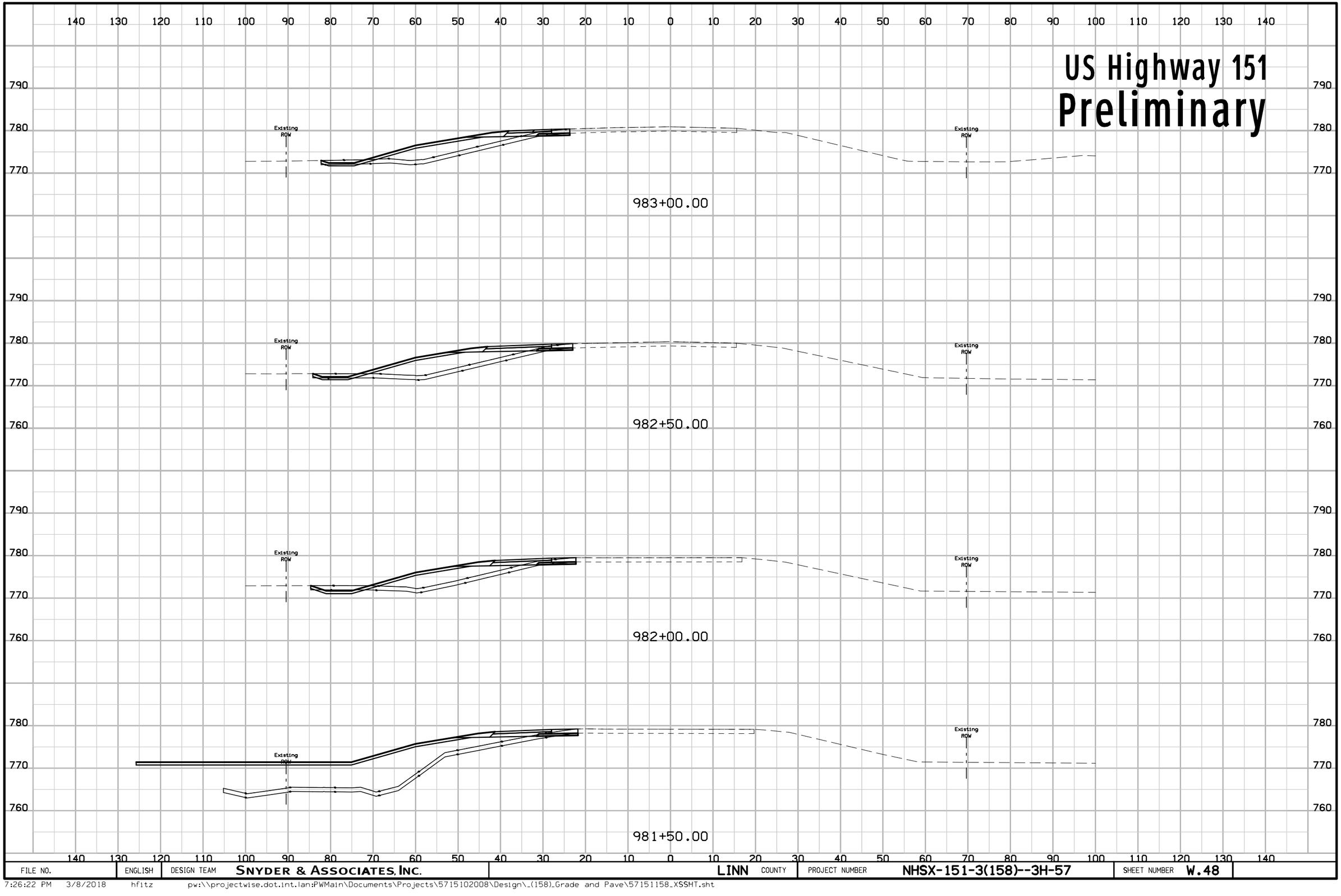
US Highway 151
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.47

7:26:21 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

US Highway 151
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.48

7:26:22 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

US Highway 151
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

790
780
770

Existing ROW

985+00.00

984+50.00

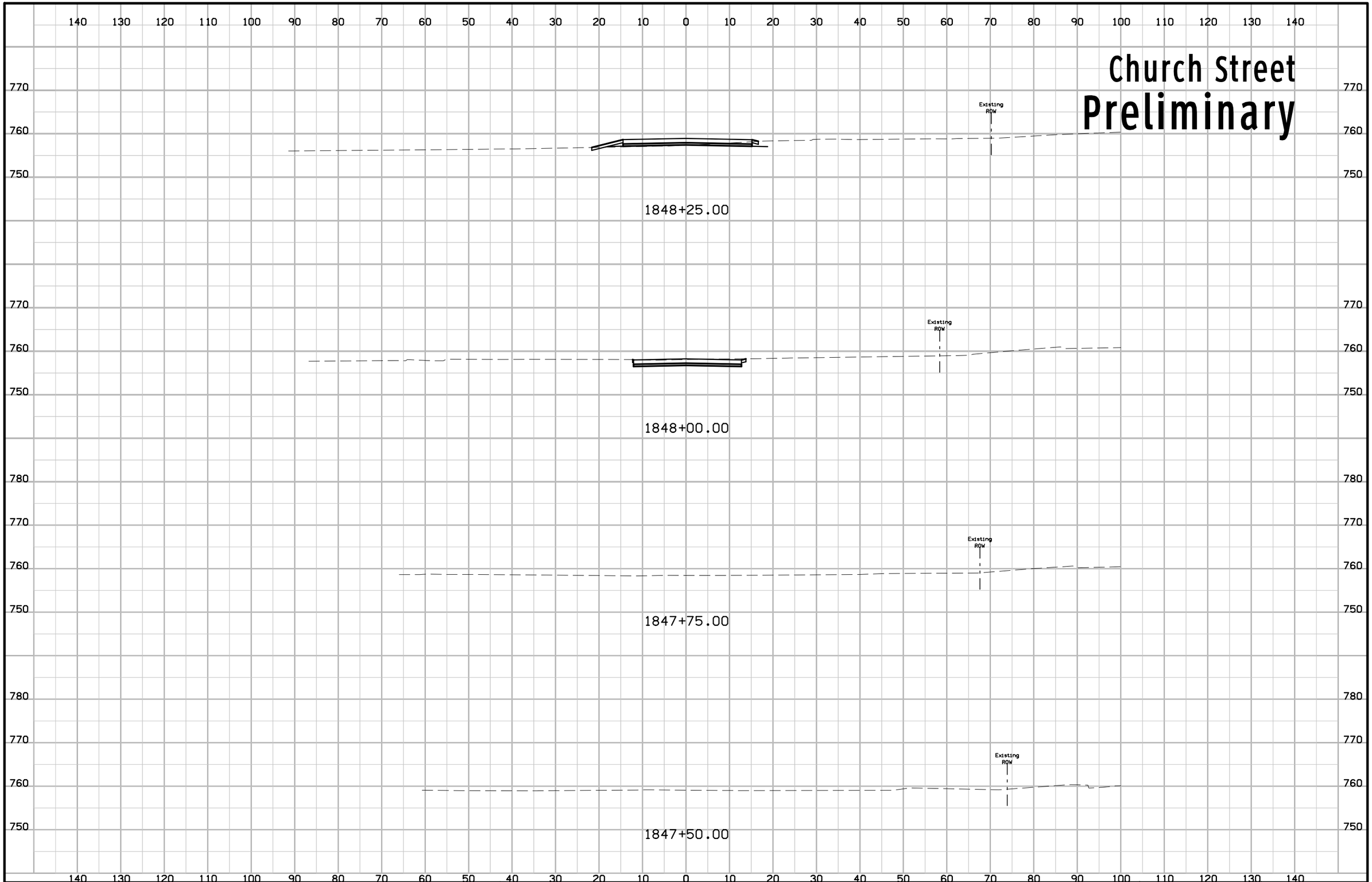
984+00.00

983+50.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.49

7:26:22 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_XSSHT.sht

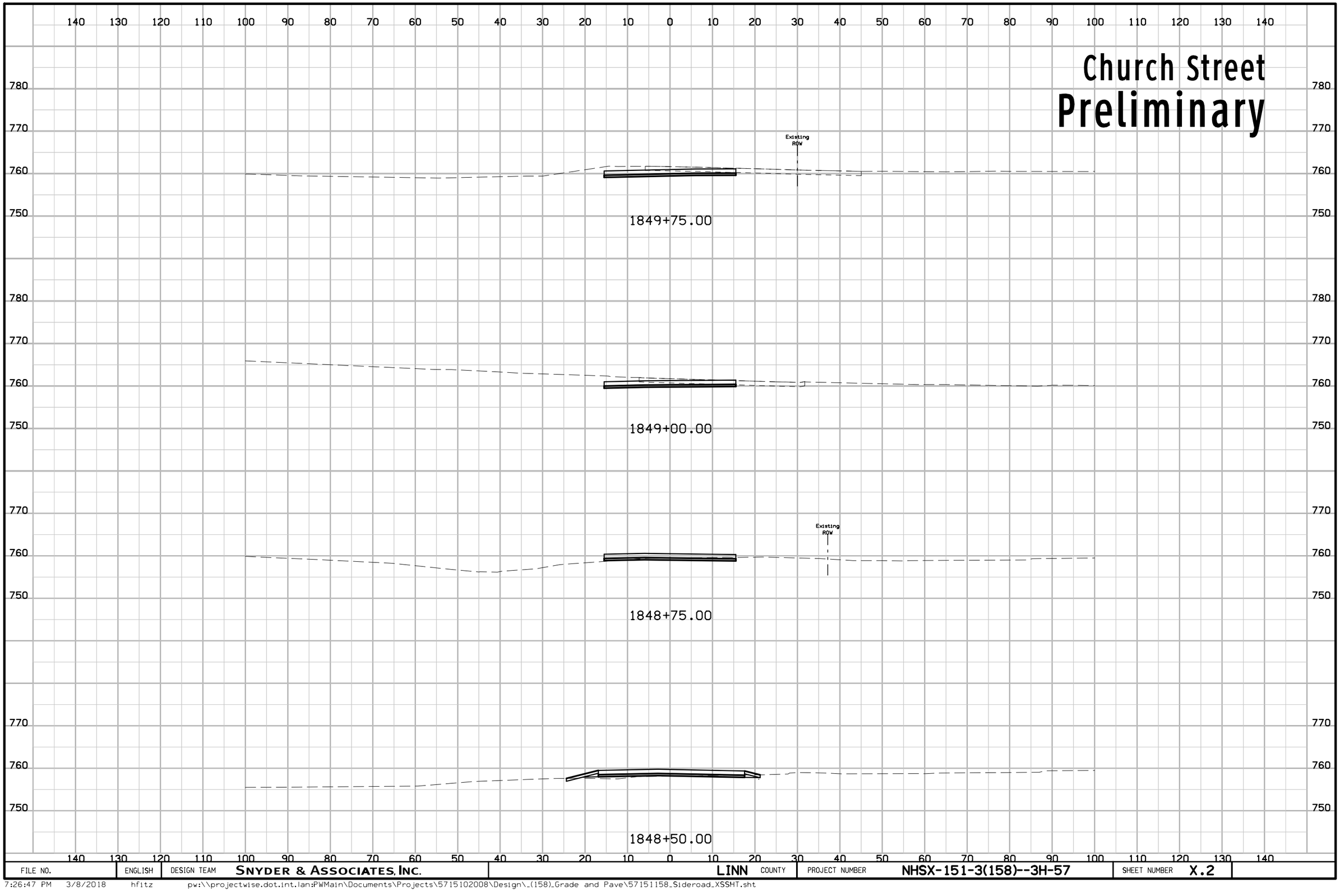
Church Street
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN	COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.1

7:26:46 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_Sideroad_XSSHT.sht

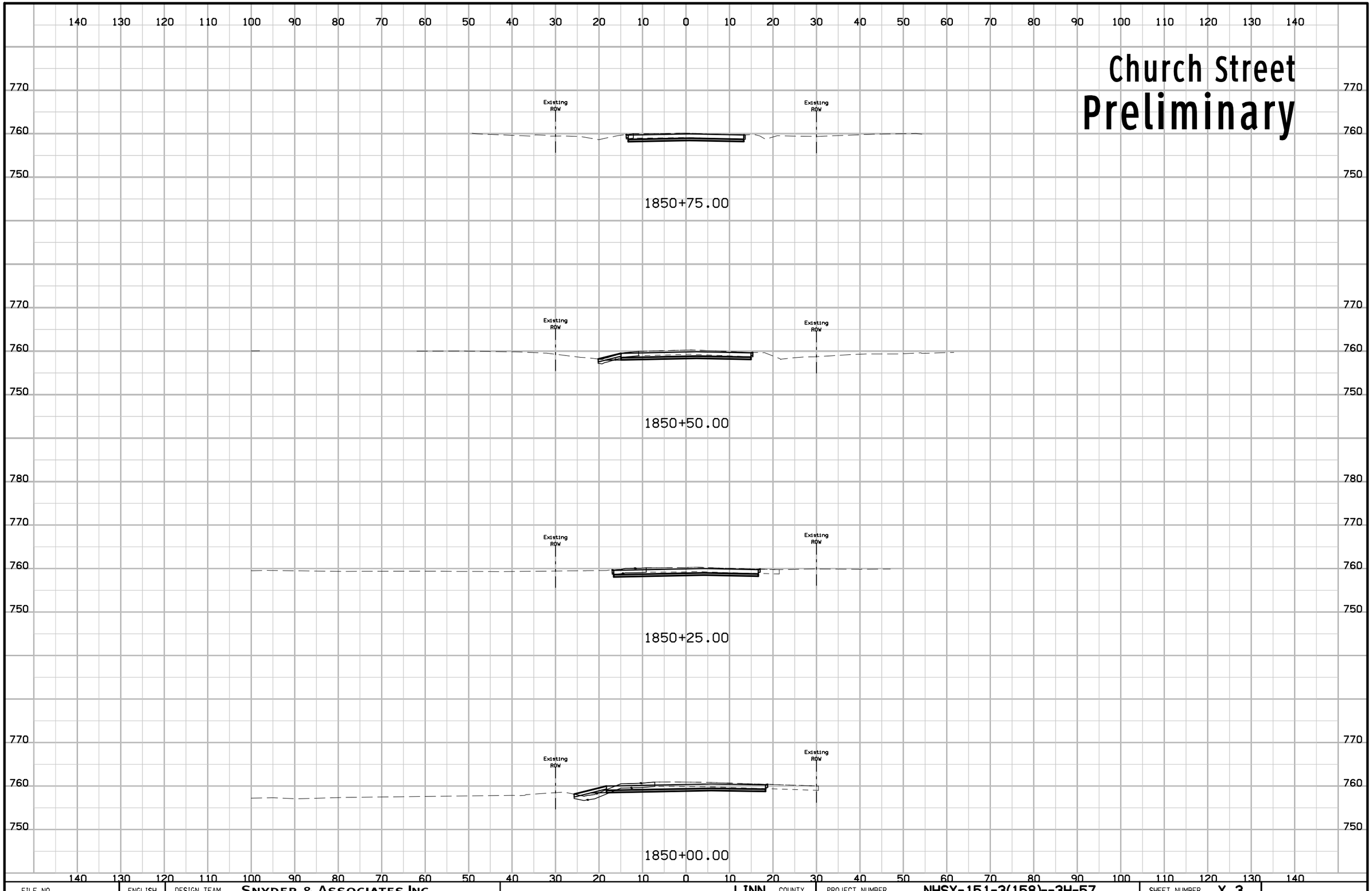
Church Street
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.2

7:26:47 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_Sideroad_XSSHT.sht

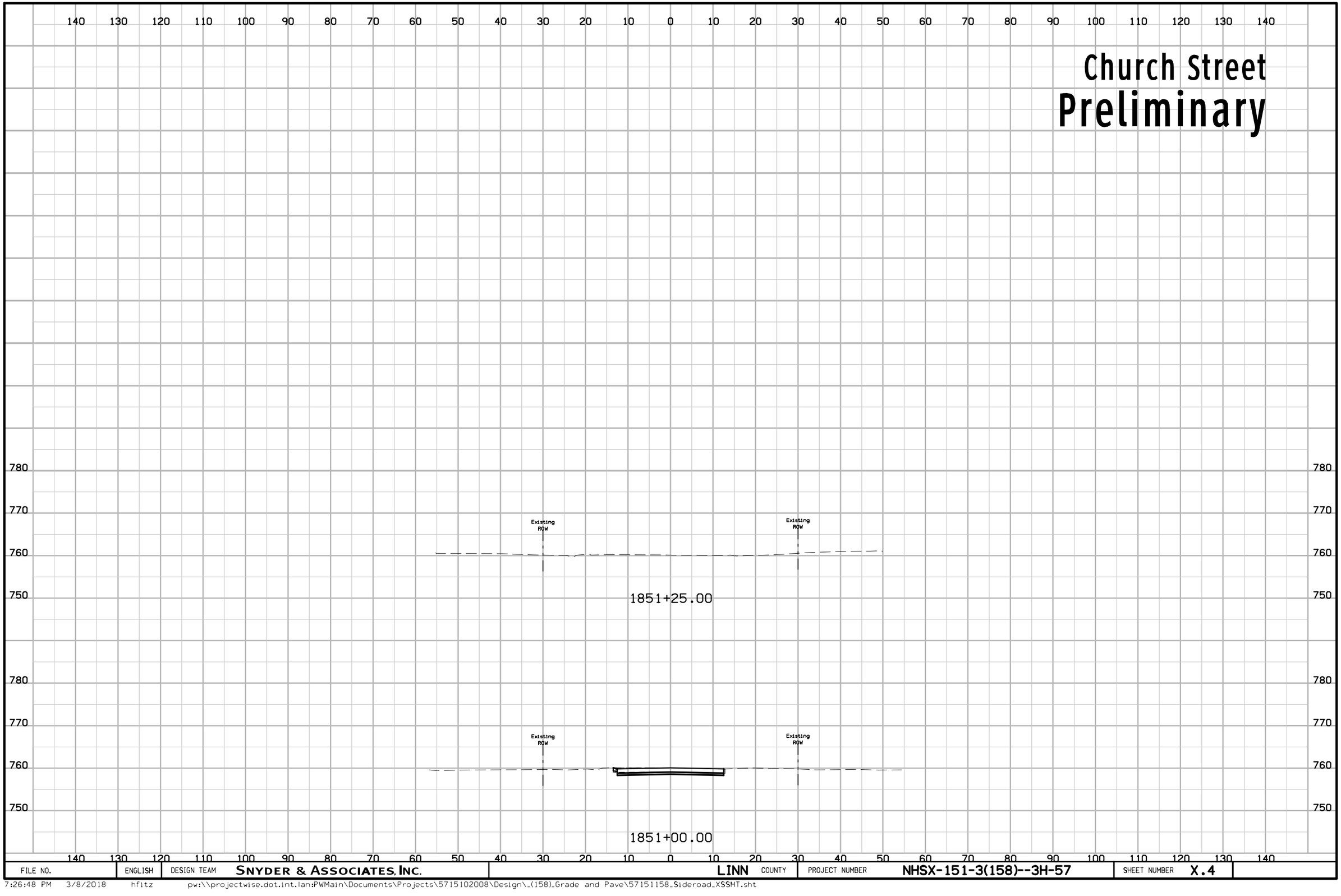
Church Street
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN	COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.3

7:26:47 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_Sideroad_XSSHT.sht

Church Street
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.4

7:26:48 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_Sideroad_XSSHT.sht

Prairie Avenue
Preliminary

VOID

Existing ROW

2862+50.00

VOID

Existing ROW

2862+25.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.5

7:26:49 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_Sideroad_XSSHT.sht

Prairie Avenue
Preliminary

VOID

Existing ROW

2863+00.00

VOID

Existing ROW

2862+75.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.6

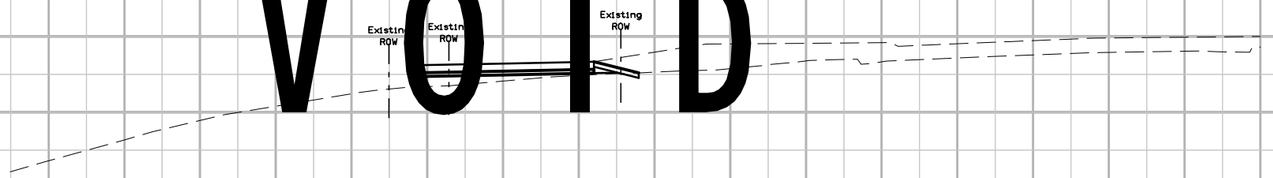
7:26:50 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_Sideroad_XSSHT.sht

Prairie Avenue
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

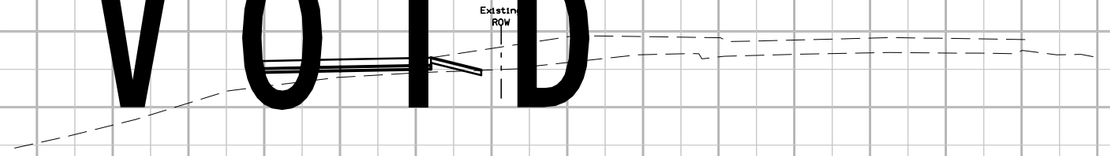
810 800 790 780 770 760 750

VOID



2863+50.00

VOID



2863+25.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.7

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Prairie Avenue
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

790
780
770
760
750
820
810
800
790
780
770
760
750
740

2864+00.00

VOID

Existing ROW

2863+75.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.8

7:26:51 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_Sideroad_XSSHT.sht

Prairie Avenue
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770
760
750

Existing ROW

2865+00.00

790
780
770
760
750

2864+75.00

2864+50.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.9

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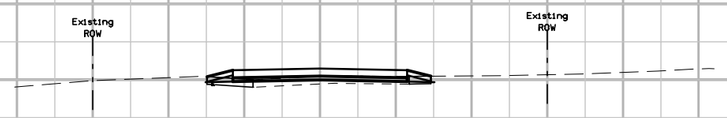
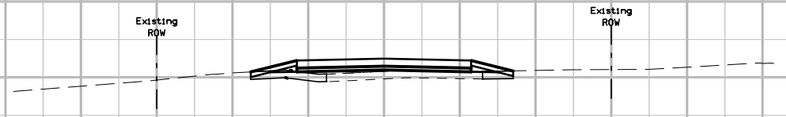
Prairie Avenue
Preliminary

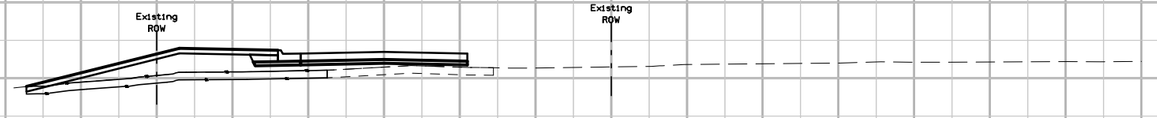
2866+00.00



2865+75.00



2865+50.00



2865+25.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.10

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Prairie Avenue
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770
760
750

Existing ROW

Existing ROW

2866+75.00

780
770
760
750

Existing ROW

Existing ROW

2866+50.00

770
760
750

Existing ROW

Existing ROW

2866+25.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.11

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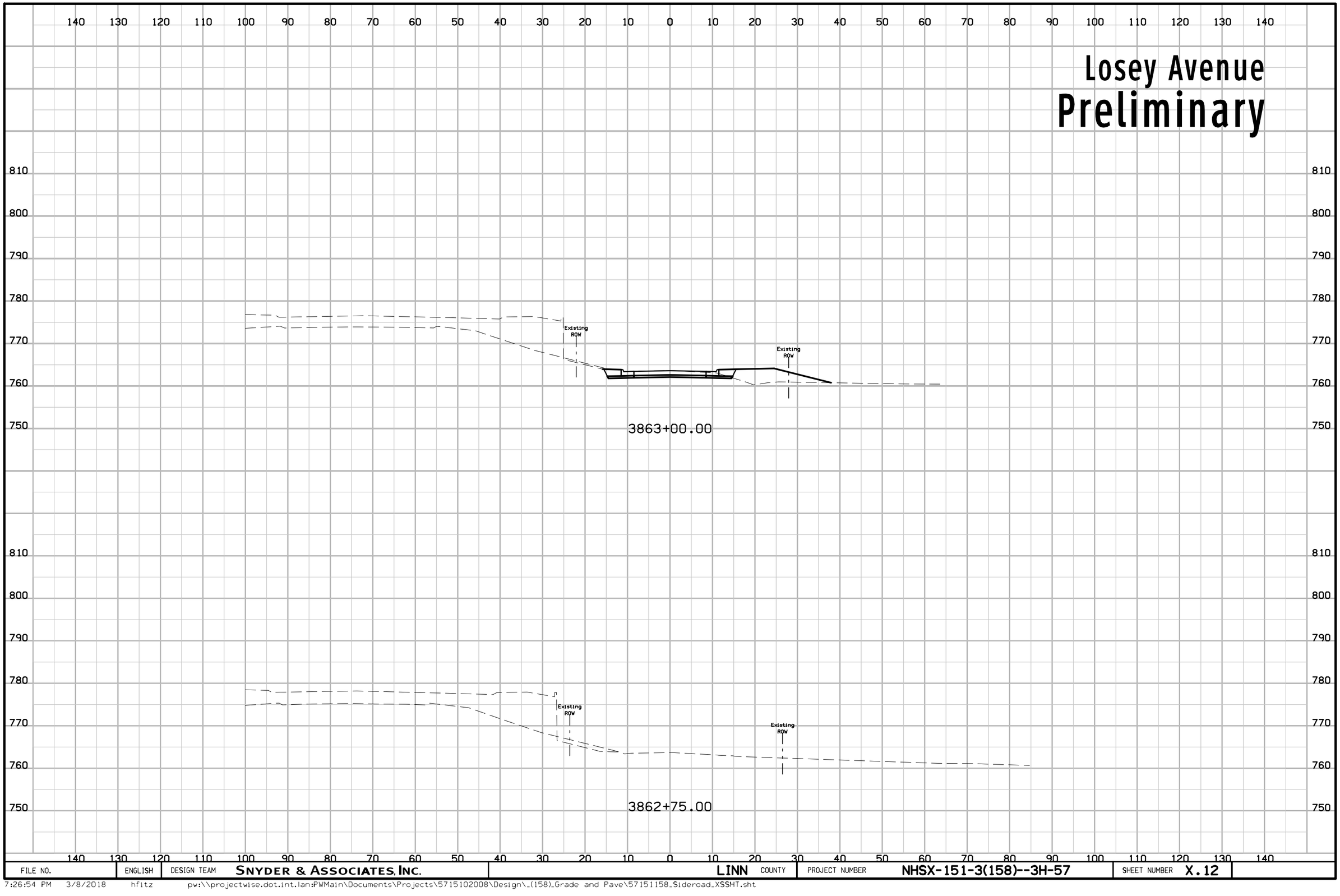
Losey Avenue
Preliminary



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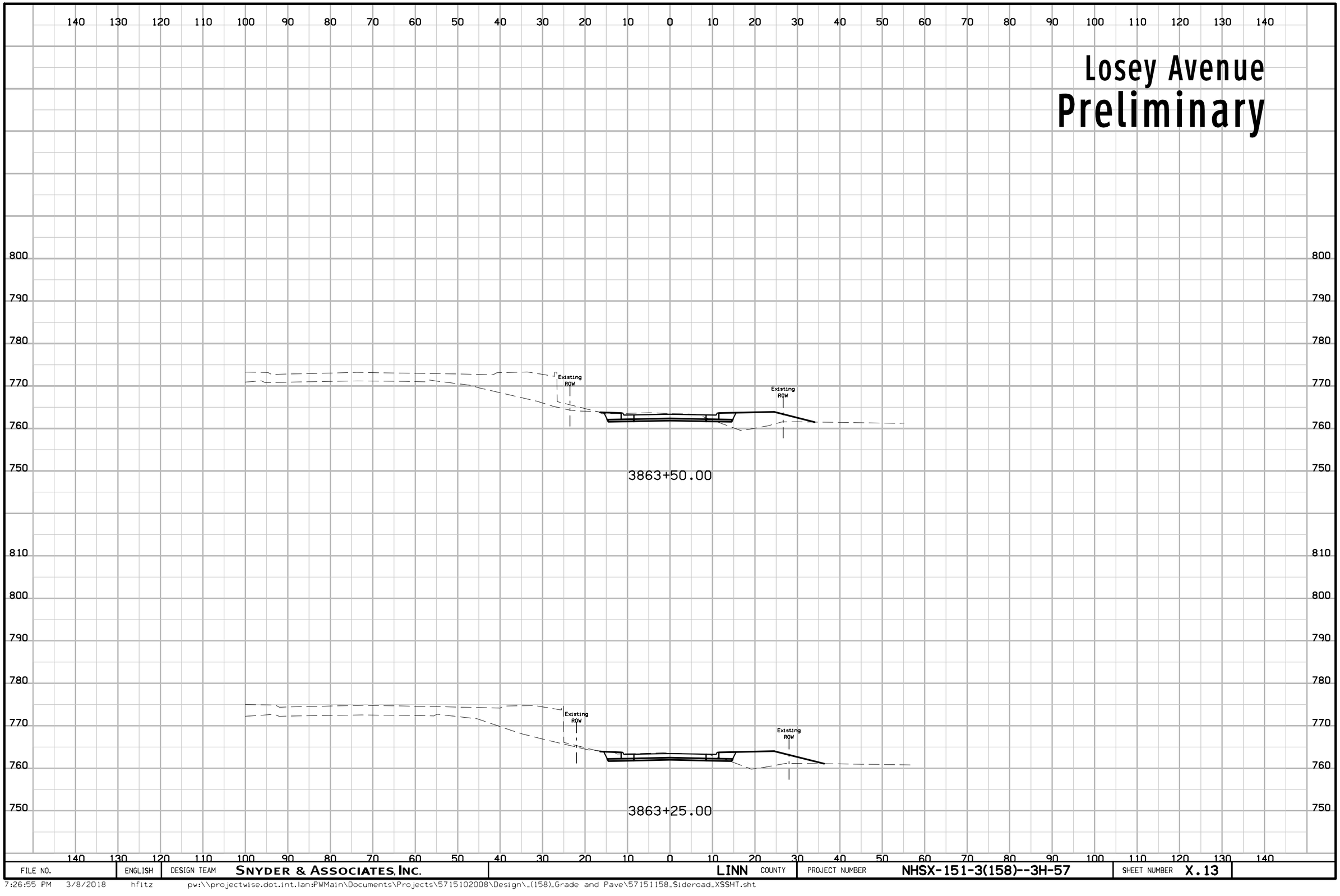
Losey Avenue
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER X.13

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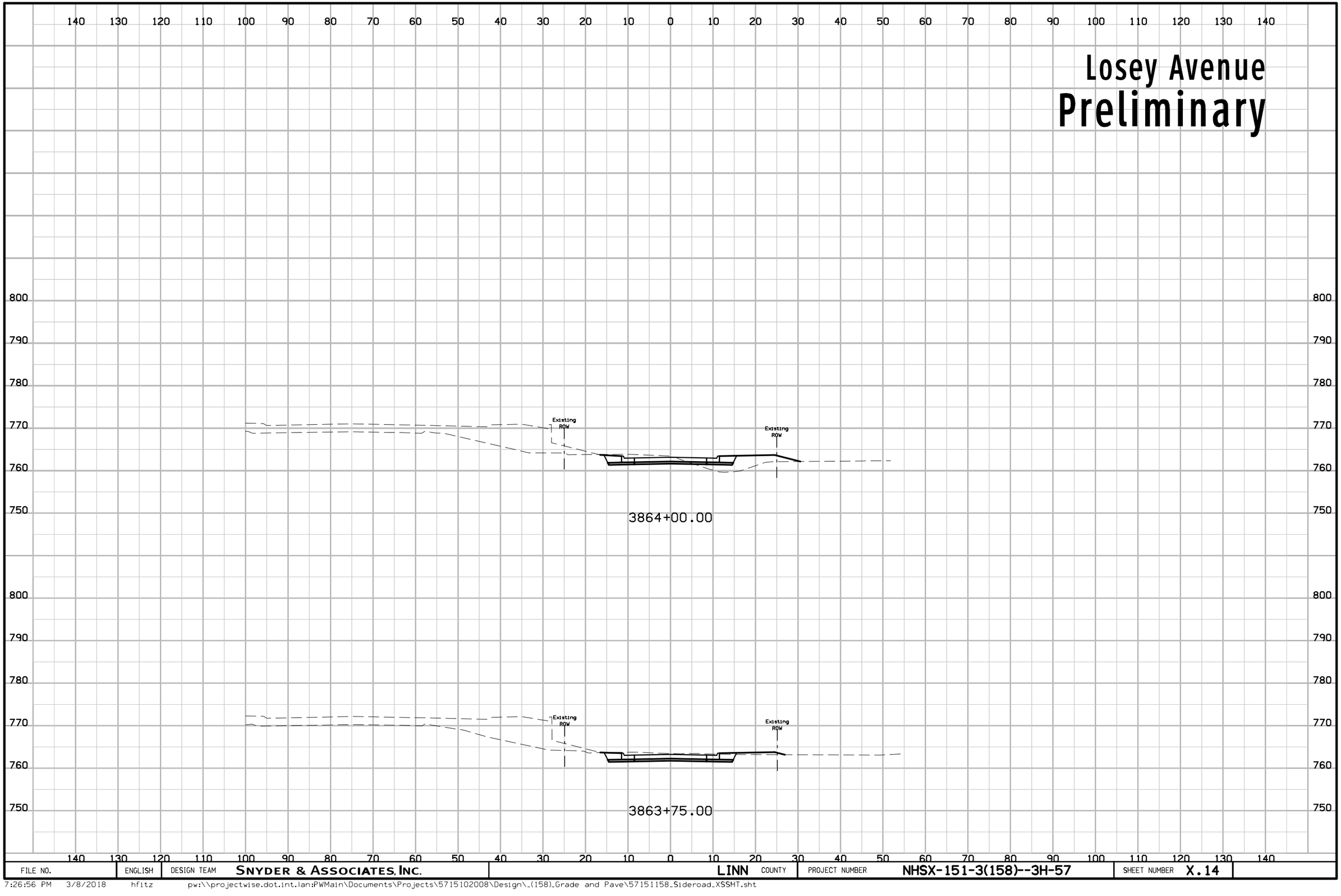
Losey Avenue
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER X.14

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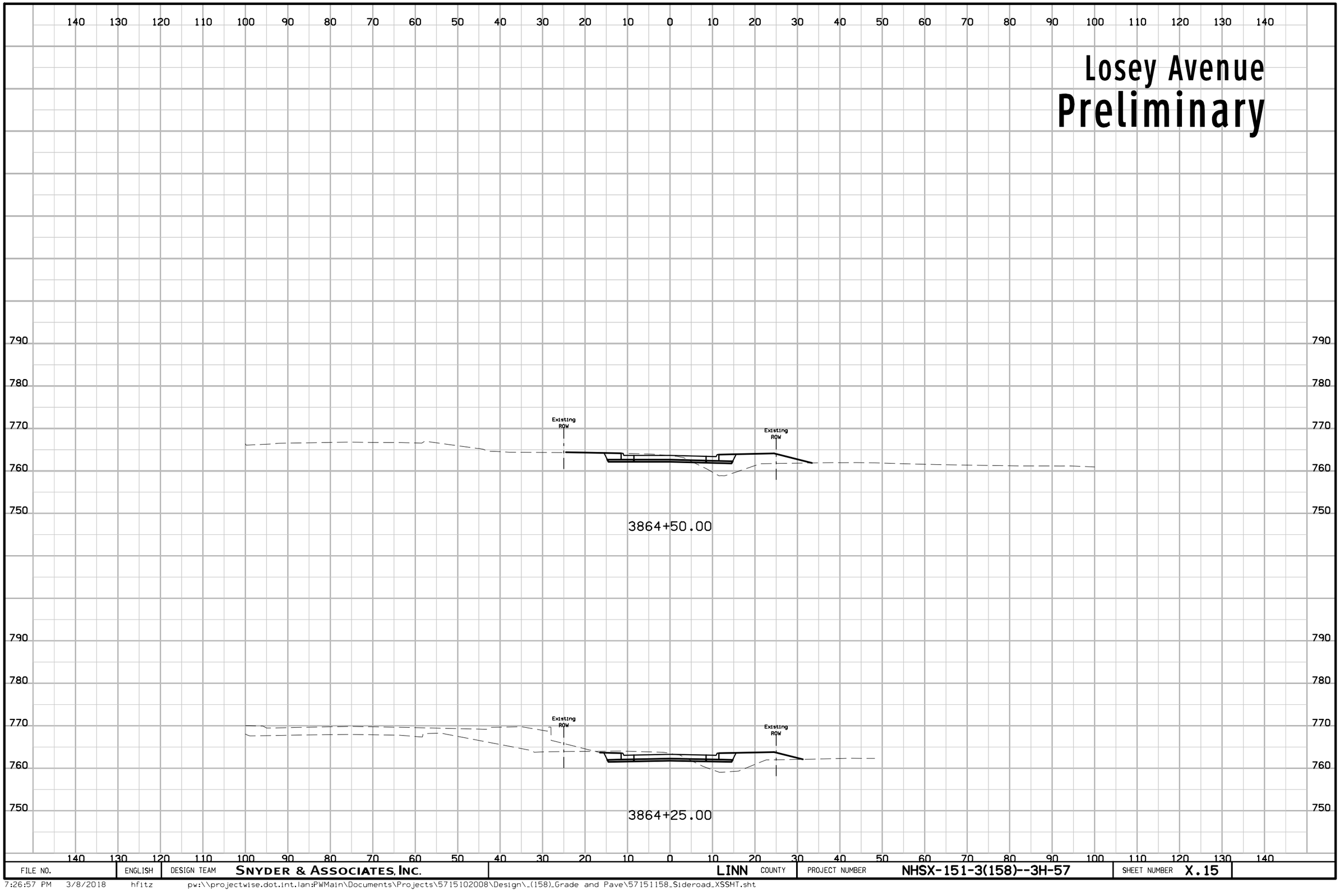
Losey Avenue
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.15

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Losey Avenue

Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

790
780
770
760
750

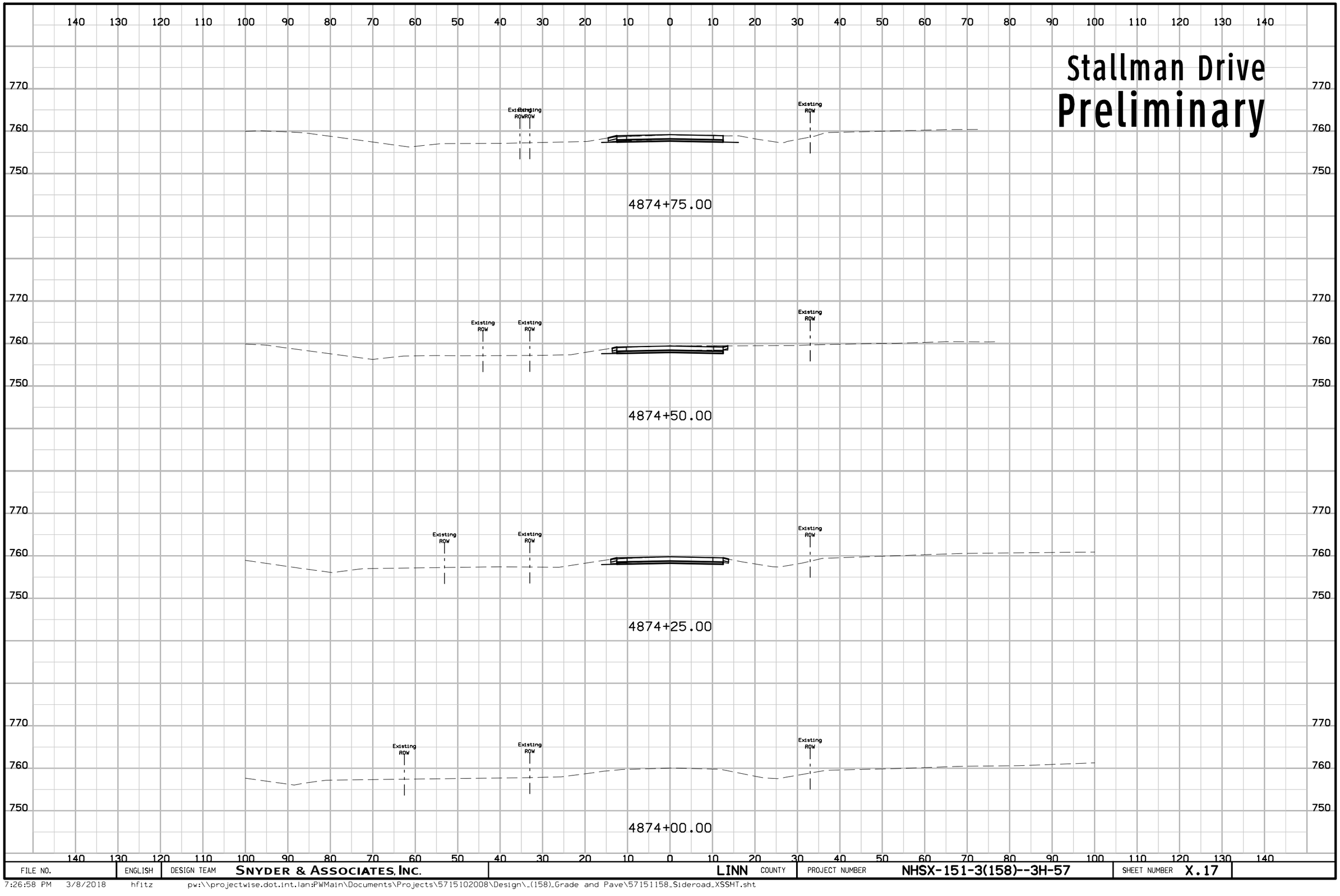
Existing ROW

3864+75.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.16

7:26:57 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_Sideroad_XSSHT.sht

Stallman Drive
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.17

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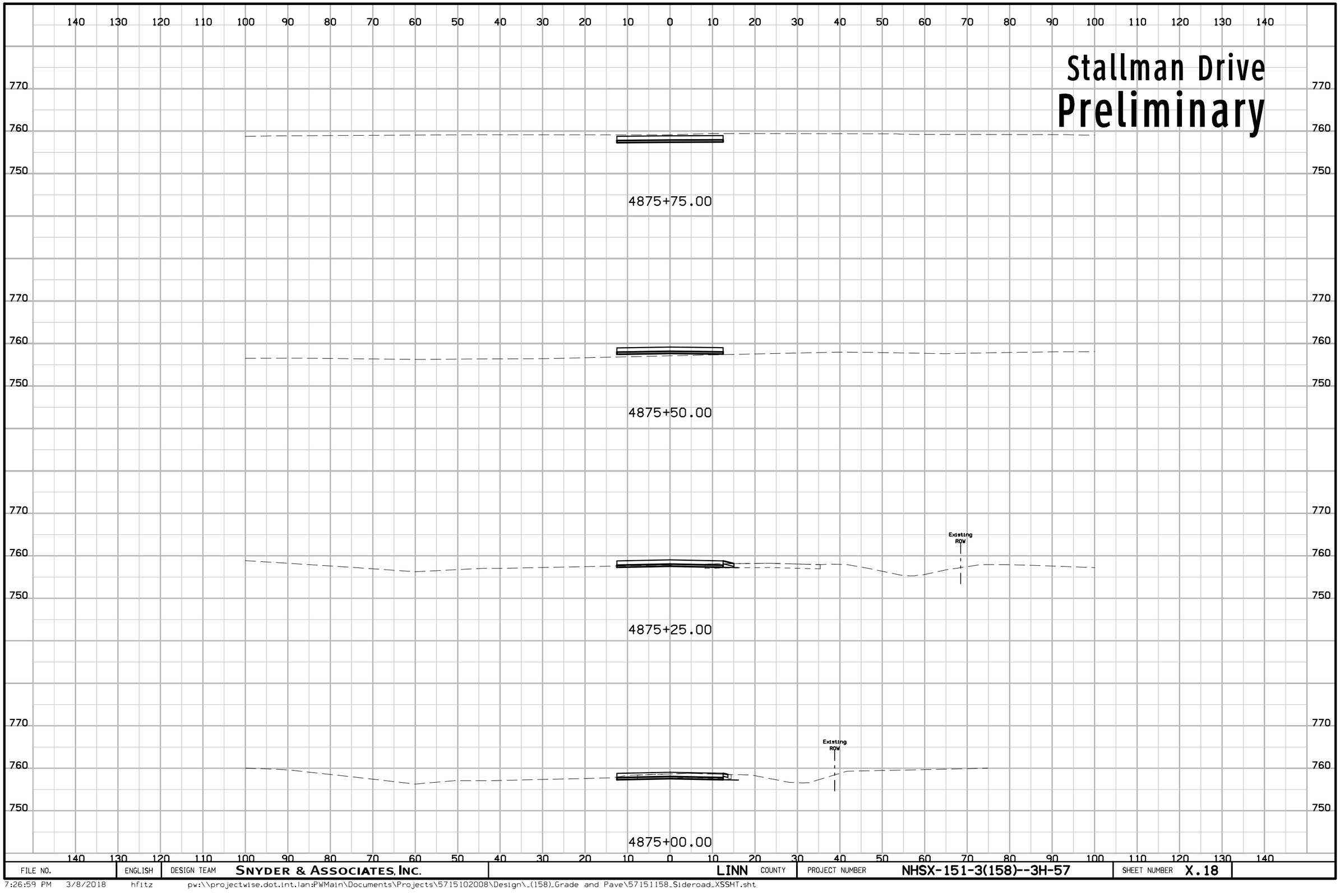
Stallman Drive
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.18

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Cemetary Road
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770
760
750

Existing ROW

5883+00.00

5882+75.00

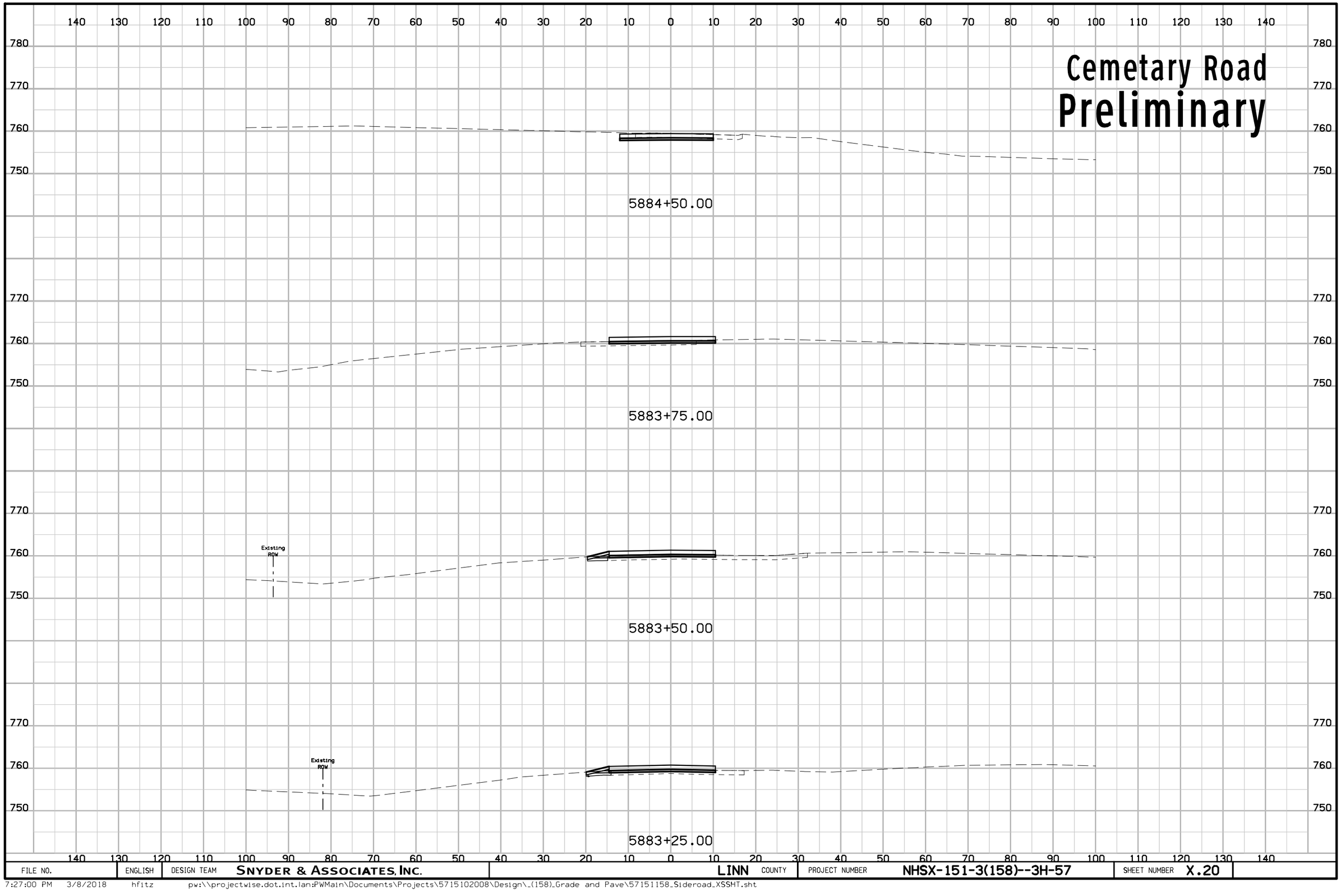
5882+50.00

5882+25.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN	COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.19

7:27:00 PM 3/8/2018 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158_Sideroad_XSSHT.sht

Cemetary Road
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.20

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Cemetary Road
Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770
760
750
740

Existing ROW

5885+50.00

770
760
750

Existing ROW

5885+25.00

780
770
760
750

Existing ROW

5885+00.00

780
770
760
750

Existing ROW

5884+75.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.21

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